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Nuclear ground-state masses and deformations: FRDM(2012)

P. Möller [a,*], A.J. Sierk [a], T. Ichikawa [b], H. Sagawa [c,d]

[a] Theoretical Division, Los Alamos National Laboratory, Los Alamos, NM 87545, United States
[b] Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto 606-8502, Japan
[c] RIKEN Nishina Center, Wako 351-0198, Japan
[d] Center for Mathematics and Physics University of Aizu, Aizu Wakamatsu, Fukushima 965-0001, Japan

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ABSTRACT

We tabulate the atomic mass excesses and binding energies, ground-state shell-plus-pairing corrections, ground-state microscopic corrections, and nuclear ground-state deformations of 9318 nuclei ranging from ^{16}O to $A = 339$. The calculations are based on the finite-range droplet macroscopic and the folded-Yukawa single-particle microscopic nuclear-structure models, which are completely specified. Relative to our FRDM(1992) mass table in Möller et al. (1995), the results are obtained in the same model, but with considerably improved treatment of deformation and fewer of the approximations that were necessary earlier, due to limitations in computer power. The more accurate execution of the model and the more extensive and more accurate experimental mass data base now available allow us to determine one additional macroscopic-model parameter, the density-symmetry coefficient L, which was not varied in the previous calculation, but set to zero. Because we now realize that the FRDM is inaccurate for some highly deformed shapes occurring in fission, because some effects are derived in terms of perturbations around a sphere, we only adjust its macroscopic parameters to ground-state masses.

The values of ten constants are determined directly from an optimization to fit ground-state masses of 2149 nuclei ranging from ^{16}O to $^{265}_{106}$Sg and $^{264}_{108}$Hs. The error of the mass model is 0.5595 MeV for the entire region of nuclei included in the adjustment, but is only 0.3549 MeV for the region $N \geq 65$.

We also provide masses in the FRLDM, which in the more accurate treatments now has an error of 0.6618 MeV, with 0.5181 MeV for nuclei with $N \geq 65$, both somewhat larger than in the FRDM. But in contrast to the FRDM, it is suitable for studies of fission and has been extensively so applied elsewhere, with FRLDM(2002) constants. The FRLDM(2012) fits 31 fission-barrier heights from ^{70}Se to ^{252}Cf with a root-mean-square deviation of 1.052 MeV.

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* Corresponding author.
E-mail address: moller@lanl.gov (P. Möller).

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1. Introduction

We presented our first macroscopic–microscopic global nuclear mass calculation about 35 years ago [1,2]. That calculation, which was based on a finite-range liquid-drop model for the macroscopic energy and a folded-Yukawa single-particle potential for the microscopic corrections, was somewhat limited in scope. With only 4023 nuclei included, it did not extend to the proton or neutron drip lines or to the region of superheavy nuclei. Also, the quantities tabulated were limited to ground-state masses, Q_2 and Q_4 moments, and microscopic corrections.

Our next publication of calculated nuclear masses occurred in 1988 [3,4]. In these calculations new pairing models had been incorporated and two different macroscopic models were investigated, namely the finite-range liquid-drop model (FRLDM) [3] and the finite-range droplet model (FRDM) [4]. These abbreviations are also used to designate the full macroscopic–microscopic nuclear structure models based on the respective macroscopic models. The former is the macroscopic model used in the 1981 [1,2] calculations and the latter is an improved version [5] of the droplet model [6–8]. Because there were several unresolved issues in the 1988 calculations [3,4] these tables should be regarded as interim progress reports.

Over the next few years those issues were resolved. Their resolution led to the mass tables FRDM(1992) and FRLDM(1992) [9], presenting results on nuclear ground-state masses and deformations for 8979 nuclei ranging from ^{16}O to ^{339}136 and extending from the proton drip line to the neutron drip line [9]. The calculation was based on the macroscopic–microscopic approach. The shell corrections were obtained from single-particle levels calculated in a folded-Yukawa single-particle potential [10] by use of the Strutinsky method [11,12]. Residual pairing corrections were calculated in the Lipkin–Nogami approximation [13–16]. Two 1992 mass tables were provided, both based on these shell-plus-pairing corrections, but with the macroscopic contribution to the total potential energy obtained in two different liquid-drop-type models, namely the finite-range droplet model, and the finite-range liquid-drop model. We refer to this previous macroscopic–microscopic mass model in which the total potential energy is calculated as a sum of shell-plus-pairing corrections from folded-Yukawa single-particle levels and a macroscopic energy term from the finite-range droplet model as FRDM(1992). The year in parentheses refers to the year the constants of the macroscopic model were determined and frozen. The potential-energy model in which the macroscopic term is given by the finite-range liquid-drop model is referred to as FRLDM(1992). Although these mass models were published in

Successive FRDM enhancements

Optimization (2006)
Better search for optimum FRDM parameters.
Accuracy improvement: 0.01 MeV

New mass data base (AME2003) (2006)
Better agreement than with AME1989.
Accuracy improvement: 0.04 MeV

Full 4D energy minimization (2006–2008)
Full 4D minimization($\epsilon_2, \epsilon_3, \epsilon_4, \epsilon_6$) step=0.01.
Accuracy improvement: 0.02 MeV

Axial asymmetry (2002–2006)
Also yields correct SHE gs assignments.
Accuracy improvement: 0.01 MeV

L **variation** (2009–2011)
Accuracy improvement: 0.02 MeV

Improved gs correlation energies (2012)
Accuracy improvement: 0.01 MeV

Fig. 1. Successive enhancements to FRDM(1992) with $\sigma_{\rm th} = 0.669$ MeV and their impact, leading to FRDM(2012) with $\sigma_{\rm th} = 0.5595$ MeV. The years when the different effects were investigated are given in parentheses. These steps will be discussed in Section 4.

1995, we refer to them as FRDM(1992) and FRLDM(1992), because the mass models were finalized in September 1992 and widely distributed at that time. Also, we could not predict at manuscript submission when the manuscript would appear in print.

Subsequent comparisons of predictions of FRDM(1992) [9] with nuclear masses measured after the calculations were published showed that the model would reliably predict masses of nuclei that were not included in the determination of model constants. In fact, with a properly defined model error, that is, a definition different from the root-mean-square error, which includes contributions from experimental errors, see Refs. [3,9], we find that for 529 new masses in AME2003 [17] that were not known when the FRDM(1992) constants were determined, the error is only 0.462 MeV, compared to 0.669 MeV with respect to the AME1989 data base [18] used in the determination of the FRDM(1992) constants. Furthermore, there was no systematic increase in the model error with distance from β stability. It has also been established that these mass-model results agree very well with Q_α values observed in the decay of subsequently discovered superheavy elements [19–26].

Many other nuclear-structure properties were successfully modeled, for example a special result of the 1981 mass calculation was the interpretation of certain spectroscopic results in terms of an intrinsic octupole deformation of nuclei in their ground state [1,27–29].

We present results of our new calculations of nuclear ground-state masses and deformations, namely FRDM(2012) and FRLDM(2012). A summary description of the steps leading to the improved model are given in Fig. 1. These steps will be discussed in detail in Section 4.

Because in the macroscopic–microscopic approach we calculate single-particle energies and wave functions, it is possible to calculate a large number of nuclear-structure properties in addition to nuclear ground-state masses. These include the following:

Ground-state deformation multipoles:	
Quadrupole ε deformation	ε_2
Octupole ε deformation	ε_3
Hexadecapole ε deformation	ε_4
Hexacontatetrapole ε deformation	ε_6
Related quadrupole β deformation	β_2
Related octupole β deformation	β_3
Related hexadecapole β deformation	β_4
Related hexacontatetrapole β deformation	β_6
Beta-decay properties:	
Q value of the β decay	Q_β
β-decay half-life	$T^\beta_{1/2}$
β-delayed one-neutron emission probability	P_{1n}
β-delayed two-neutron emission probability	P_{2n}
β-delayed three-neutron emission probability	P_{3n}
Lipkin–Nogami pairing quantities:	
Neutron pairing gap	Δ_n
Proton pairing gap	Δ_p
Neutron number-fluctuation constant	λ_{2n}
Proton number-fluctuation constant	λ_{2p}
Odd-particle spins:	
Projection of the odd-neutron angular momentum along the symmetry axis	Ω_n
Projection of the odd-proton angular momentum along the symmetry axis	Ω_p
Alpha-decay properties:	
Q value of the α decay	Q_α
α-decay half-life	$T^\alpha_{1/2}$
FRDM mass-related quantities:	
Spherical macroscopic energy	$E^{\rm sph}_{\rm mac}$
Microscopic correction	$E_{\rm mic}$
Calculated mass excess	$M_{\rm th}$
Discrepancy	ΔM
Calculated binding energy	$B_{\rm th}$
FRLDM mass-related quantities:	
Finite-range liquid-drop model microscopic correction	$E^{\rm FL}_{\rm mic}$
Finite-range liquid-drop model mass excess	$M^{\rm FL}_{\rm th}$
Folded-Yukawa finite-range single-particle related quantities:	
Shell correction	$E_{\rm shell}$
Pairing correction	$E_{\rm pair}$
Neutron and proton separation energies:	
One-neutron separation energy	S_{1n}
Two-neutron separation energy	S_{2n}
Three-neutron separation energy	S_{3n}
One-proton separation energy	S_{1p}
Two-proton separation energy	S_{2p}.

As mentioned above, we present in the Table the calculated ground-state masses and deformations and some related quantities. Some of the other quantities will be published later.

In the next section we specify the macroscopic–microscopic finite-range droplet model in some detail. We repeat some of the model details found in Ref. [9] for several reasons. First, we wish to correct the very few misprints that we and our colleagues found. Second, to provide in what is probably our final nuclear mass-table publication a complete specification of the model in one location. Third, the retrievable manuscript file on the ADNDT web site of the FRDM(1992) manuscript is as of this writing of poor quality and not searchable.

We discuss in particular the constants of the model, paying special attention to how to count the number of constants of a model. We present a summary of *all* constants in the model, including both those constants that have been determined from a maximum-likelihood adjustment to ground-state masses and

fission-barrier heights and those that have been determined from other considerations. In addition we count what are considered "natural constants", such as $\hbar$. After our model has been specified, we discuss how it has been applied in the current calculation.

2. Models

In the macroscopic–microscopic method the total potential energy, which is calculated as a function of shape, proton number Z, and neutron number N, is the sum of a macroscopic term and a microscopic term representing the shell-plus-pairing correction. Thus, the total nuclear potential energy can be written as

$$E_{\rm pot}(Z,N,\text{shape}) = E_{\rm mac}(Z,N,\text{shape}) + E_{\rm s+p}(Z,N,\text{shape}). \quad (1)$$

We study two alternative models for $E_{\rm mac}$, given by Eqs. (40) and (62). The shell-plus-pairing correction is given by Eqs. (76) and (77).

It is practical to define an additional energy, the microscopic correction $E_{\rm mic}$, which is different from the shell-plus-pairing correction $E_{\rm s+p}$. For a specific deformation $\varepsilon_{\rm a}$, the latter is determined solely from the single-particle level spectrum at this deformation by use of Strutinsky's shell-correction method [11,12] and a pairing model. In contrast, the microscopic correction is given by

$$E_{\rm mic}(\varepsilon_{\rm a}) = E_{\rm s+p}(\varepsilon_{\rm a}) + E_{\rm mac}(\varepsilon_{\rm a}) - E_{\rm mac}(\varepsilon_{\rm sphere}). \quad (2)$$

This definition has the desirable consequence that the potential energy $E_{\rm pot}$ of a nucleus at a certain deformation, for example the ground-state deformation $\varepsilon_{\rm gs}$, is simply

$$E_{\rm pot}(\varepsilon_{\rm gs}) = E_{\rm mic}(\varepsilon_{\rm gs}) + E_{\rm mac}(\varepsilon_{\rm sphere}). \quad (3)$$

However, the reader should note that in the literature the term microscopic correction is sometimes used instead for shell-plus-pairing correction. When results are presented it is usually $E_{\rm mic}$ that is tabulated, because it represents all additional effects over and above the *spherical* macroscopic energy. In practical calculations it is $E_{\rm s+p}$ that is calculated. To obtain the total energy a *deformed* macroscopic energy term is then added to $E_{\rm s+p}$. These concepts are illustrated in Fig. 2. There exist several different models for both the macroscopic and microscopic terms. Most of the initial studies following the advent of Strutinsky's shell-correction method used the *liquid-drop model* [30,31] as the macroscopic model.

The preferred model in the current calculations has its origin in a 1981 nuclear mass model [1,2], which utilized the folded-Yukawa single-particle potential developed in 1972 [10,32]. The macroscopic model used in the 1981 calculation was a finite-range liquid-drop model, which contained a modified surface-energy term to account for the finite range of the nuclear force and the diffuseness of the nuclear surface. The modified surface-energy term was given by the Yukawa-plus-exponential finite-range model [33]. The macroscopic part in this formulation does not describe such features as nuclear compressibility and corresponding variations in the proton and neutron radii.

The droplet model [6–8], an extension of the liquid-drop model [30,31] that includes higher-order terms in $A^{-1/3}$ and $(N-Z)/A$, does describe such features. However, in its original formulation the droplet model was very inaccurate for nuclei far from stability. These deficiencies led Myers to suggest that the surface-energy terms of the droplet model also be generalized to account for the finite range of the nuclear force, and to more accurately account for to the diffuseness of the nuclear surface. Thus, the Yukawa-plus-exponential model for the surface tension was incorporated into the droplet model. During this work it also became apparent that the description of nuclear compressibility in the original droplet model was unsatisfactory, since the squeezing of the central density of light nuclei was overpredicted. The deficiency was serious because it starts to become important

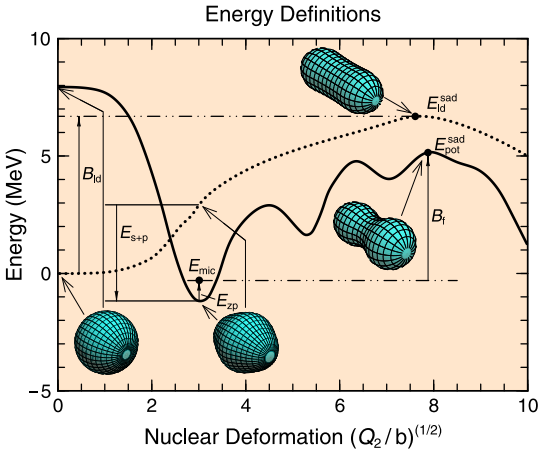

Fig. 2. Various energy concepts used in macroscopic–microscopic potential-energy calculations. The dotted line is the macroscopic "liquid-drop" (FRLDM) energy along a specified path; the solid line is the total macroscopic–microscopic energy along a partially different shape sequence. So that the various energy concepts can be illustrated, the shapes for which the energies have been calculated are: At $Q_2 = 0$ the energies are calculated for a spherical shape. For the shapes from the sphere to the ground-state shape, the shapes are the same for both curves and chosen so that they evolve continuously from the sphere to the calculated macroscopic–microscopic ground-state shape. From the ground state towards larger deformations, the total-energy curve is along the optimal fission path that includes all minima and saddle points identified along this path in the five-dimensional deformation space; the liquid-drop-energy curve joins smoothly the macroscopic energy for the shape at the macroscopic–microscopic ground-state (which is not the lowest macroscopic energy at this value of Q_2) to the FRLDM saddle point. The energies are calculated for ^{232}Th. $B_{\rm f}$ is the fission-barrier height, $B_{\rm ld}$ is the calculated *macroscopic* barrier height, $E_{\rm mic}$ is defined in Eq. (2), $E_{\rm s+p}$ is the shell-plus-pairing correction, and $E_{\rm zp}$ is the zero-point energy discussed in Section 2.11. (For a color version of this figure the reader is referred to the web version of this article.)

by about $A = 120$ and becomes even more pronounced for lighter nuclei. To account for compressibility effects for light nuclei and for other higher-order effects an empirical exponential term was added. The final modifications leading to the FRDM was the addition of a charge-asymmetry term and a constant [5,4]. The charge-asymmetry term and the constant were originally proposed and included in the 1981 mass model [1].

The additions of these effects and terms to the droplet model [5] resulted in dramatic improvements in its predictive properties, as summarized in the discussion of Table A in Ref. [4]. Mass calculations based on both the FRLDM [3] and the FRDM [4] were presented in the 1988 review of mass models in Atomic Data and Nuclear Data Tables. These calculations also used an improved pairing model relative to that used in the 1981 work. In the 1988 results the error in the FRDM was 8% lower than that in the FRLDM.

However, there were two major unresolved issues in the 1988 calculations. First, there existed some deficiencies in the pairing model and the values of the constants that were used. Second, ε_3 and ε_6 shape degrees of freedom were still not included, so deviations between calculated and measured masses due to the omission of these shape degrees of freedom were still present. Extensive investigations of pairing models and their constants have now been completed and resulted in an improved formulation of the pairing model [16]. In the FRDM(1992) we also minimized the potential energy with respect to ε_3 and ε_6 shape degrees of freedom in an approximate fashion. In the FRDM(2012) calculation we have improved the determination of ground-state shapes very significantly and also made other improvements which will be discussed after the model specification.

Although the FRDM is now our preferred model of ground-state masses, we also present results for the FRLDM because we are now aware that the FRDM cannot be applied to the very deformed shapes occurring in fission. The FRLDM can also be used

in studies that assume constant nuclear density. We therefore specify below both models. Because several of the model constants are determined by minimization of the model error, we start by defining a proper way to determine model error, which unlike a root-mean-square "rms" definition, does not contain contributions from the experimental statistical uncertainties.

2.1. Model error and adjustment procedure

In many studies the model error has been defined as simply the rms deviation, which as usual is given by

$$\mathrm{rms} = \left[\frac{1}{n}\sum_{i=1}^{n}(M^i_{\mathrm{exp}} - M^i_{\mathrm{th}})^2\right]^{\frac{1}{2}}. \tag{4}$$

Here M^i_{th} is the calculated mass for a particular value of the proton number Z and neutron number N, and M^i_{exp} is the corresponding measured quantity. There are n such measurements for different N and Z. The choice (4) is a reasonable definition when all the errors σ^i_{exp} associated with the measurements are small compared to the model error. However, for large σ^i_{exp} the above definition is unsatisfactory, since both the theoretical and experimental errors contribute to the rms deviation. The definition (4) will therefore always overestimate the intrinsic model error.

When the experimental errors are large, it is necessary to use an approach that "decouples" the theoretical and experimental errors from one another. This can be accomplished by observing that the calculated masses are distributed around the *true* masses with a standard deviation σ_{th}. There exist powerful statistical methods for determining the intrinsic model error σ_{th}. The model error obtained in this way contains no contributions from the experimental uncertainties σ^i_{exp}. To introduce such an error concept, a new set of equations for determining model parameters and error was derived [3] by use of statistical arguments and the maximum-likelihood (ML) method. Here we generalize from the original assumption [3] $e^i_{\mathrm{th}} \in \mathrm{N}(0, \sigma_{\mathrm{th}})$ that the theoretical error term e^i_{th} is normally distributed with zero mean deviation from the true mass to $e^i_{\mathrm{th}} \in \mathrm{N}(\mu_{\mathrm{th}}, \sigma_{\mathrm{th}})$ to allow for an error with a mean μ_{th} that is different from zero and a standard deviation σ_{th} around this mean [34]. Normally, if the model is adjusted only to a specific type of data, such as masses, the mean is very close to zero for the data to which the model constants were adjusted but may be significantly different for new masses that were not included when the model constants were determined [9,24]. We are led to the generalized equations

$$\sum_{i=1}^{n}\frac{[M^i_{\mathrm{exp}} - (M^i_{\mathrm{th}} + {\mu_{\mathrm{th}}}^*)]}{{\sigma^i_{\mathrm{exp}}}^2 + {\sigma_{\mathrm{th}}}^{2*}}\frac{\partial M^i_{\mathrm{th}}}{\partial p_\nu} = 0, \quad \nu = 1, 2, \ldots, m \tag{5}$$

$$\sum_{i=1}^{n}\frac{[M^i_{\mathrm{exp}} - (M^i_{\mathrm{th}} + {\mu_{\mathrm{th}}}^*)]^2 - ({\sigma^i_{\mathrm{exp}}}^2 + {\sigma_{\mathrm{th}}}^{2*})}{({\sigma^i_{\mathrm{exp}}}^2 + {\sigma_{\mathrm{th}}}^{2*})^2} = 0 \tag{6}$$

$$\sum_{i=1}^{n}\frac{[M^i_{\mathrm{exp}} - (M^i_{\mathrm{th}} + {\mu_{\mathrm{th}}}^*)]}{({\sigma^i_{\mathrm{exp}}}^2 + {\sigma_{\mathrm{th}}}^{2*})} = 0 \tag{7}$$

where p_ν are the unknown parameters of the model. The notation ${\sigma_{\mathrm{th}}}^{2*}$ means that by solving Eqs. (6) and (7) we obtain the estimate ${\sigma_{\mathrm{th}}}^{2*}$ of the true ${\sigma_{\mathrm{th}}}^2$. Eq. (5) is equivalent to minimizing S with respect to p_ν, where

$$S = \sum_{i=1}^{n}\frac{[M^i_{\mathrm{exp}} - (M^i_{\mathrm{th}} + {\mu_{\mathrm{th}}}^*)]^2}{{\sigma^i_{\mathrm{exp}}}^2 + {\sigma_{\mathrm{th}}}^{2*}}. \tag{8}$$

Thus, we are led to two additional equations relative to the usual least-squares equations that arise when model parameters are estimated by adjustments to experimental data under the assumption of a perfect theory with $\sigma_{\mathrm{th}} = 0$ and $\mu_{\mathrm{th}} = 0$. For the FRLDM the least-squares Eq. (5) are linear, whereas for the FRDM they are non-linear.

When the model contains a term a_0A^0 that is strictly constant, Eq. (7) is identical to the member in Eq. (5) that corresponds to the derivative with respect to this constant. Thus, one should in this case put ${\mu_{\mathrm{th}}}^* = 0$ and solve only the remaining $m + 1$ equations. One may therefore in this case characterize the error of the model in the region where the parameters were adjusted solely by the quantity σ_{th}. In other cases one should solve the full set of equations. If ${\mu_{\mathrm{th}}}^*$ is significantly different from zero the theory needs modification. Even if $\mu_{\mathrm{th}} = 0$ in the original data region, it is entirely possible (although undesirable) that one obtains a mean error ${\mu_{\mathrm{th}}}^*$ that is substantially different from zero when one analyzes model results for new data points to which the parameters were not adjusted. In this case the most complete characterization of the theoretical error requires both its mean μ_{th} and its standard deviation σ_{th} around this mean.

To allow for a single error measure that is similar to an rms deviation between the data and model we later also calculate the square root of the second central moment of the error term, $\sigma_{\mathrm{th};\mu=0}$, in our studies of model behavior in new regions of nuclei. This quantity is obtained by setting ${\mu_{\mathrm{th}}}^* = 0$ when solving Eq. (6). In contrast to the rms measure, it has the advantage that it has no contributions from the experimental errors.

Eqs. (5)–(7) constitute a system of $m + 2$ equations that are to be solved together. It is instructive to rewrite Eqs. (6) and (7) as

$${\sigma_{\mathrm{th}}}^{2*} = \frac{1}{\sum_{i=1}^{n} {w_i}^{k_\sigma}}\sum_{i=1}^{n}{w_i}^{k_\sigma}\left[(M^i_{\mathrm{exp}} - M^i_{\mathrm{th}} - {\mu_{\mathrm{th}}}^*)^2 - {\sigma^i_{\mathrm{exp}}}^2\right] \tag{9}$$

$${\mu_{\mathrm{th}}}^* = \frac{1}{\sum_{i=1}^{n} {w_i}^{k_\mu}}\sum_{i=1}^{n}{w_i}^{k_\mu}\left[(M^i_{\mathrm{exp}} - M^i_{\mathrm{th}})\right] \tag{10}$$

where

$${w_i}^k = \frac{1}{({\sigma^i_{\mathrm{exp}}}^2 + {\sigma_{\mathrm{th}}}^{2*})^k} \tag{11}$$

$$k_\sigma = 2 \tag{12}$$

$$k_\mu = 1. \tag{13}$$

The unknowns ${\mu_{\mathrm{th}}}^*$ and ${\sigma_{\mathrm{th}}}^{2*}$ can easily be determined from Eqs. (9) and (10) by an iterative procedure whose convergence is extremely rapid, requiring only about four iterations. An *interpretation*, not a proof, of Eq. (9) is that the experimental error is "subtracted out" from the difference between the experimental and calculated masses.

A common misconception is that one has to "throw away" data points that have errors that are equal to or larger than the error of the model whose parameters are determined. When a proper statistical approach, such as the one above, is used, this is no longer necessary, as is further illustrated by simulations in Ref. [3].

We will see below that the discrepancy between our mass calculations and measured masses systematically increases as the size of the nuclear system decreases. It is therefore of interest to consider that the mass-model error is a function of mass number A. A simple function to investigate is

$$\sigma_{\mathrm{th}} = \frac{c}{A^\alpha} \tag{14}$$

where c and α are two parameters to be determined. Whereas under the assumption of a constant model error one determines this single error constant from Eq. (9), we find that the ML method for the error assumption in Eq. (14), with two unknowns, and assuming $\mu_{\rm th} = 0$, yields the equations

$$\sum_{i=1}^{n} \frac{(M^i_{\rm exp} - M^i_{\rm th})^2 - \left[{\sigma^i_{\rm exp}}^2 + \left(\frac{c^*}{{A_i}^{\alpha^*}}\right)^2\right]}{\left[{\sigma^i_{\rm exp}}^2 + \left(\frac{c^*}{{A_i}^{\alpha^*}}\right)^2\right]^2 {A_i}^{\alpha^*}} = 0 \tag{15}$$

$$\sum_{i=1}^{n} \frac{(M^i_{\rm exp} - M^i_{\rm th})^2 - \left[{\sigma^i_{\rm exp}}^2 + \left(\frac{c^*}{{A_i}^{\alpha^*}}\right)^2\right]}{\left[{\sigma^i_{\rm exp}}^2 + \left(\frac{c^*}{{A_i}^{\alpha^*}}\right)^2\right]^2 {A_i}^{\alpha^*+1}} = 0. \tag{16}$$

These equations are considerably more complicated to solve than Eq. (9). Solutions were obtained for the FRDM(1992) in Ref. [9]. We have also studied the error versus A in the FRDM(2012), see Section 5.3.2.

2.2. Shape parameterizations

The original parameterization of the folded-Yukawa single-particle model was the three-quadratic-surface parameterization [35,10]. It was designed to allow great flexibility in describing shapes late in the fission process. However, it is less suitable for describing ground-state shapes.

To allow a better description of ground-state shapes and to allow close comparison with results of Nilsson modified-oscillator calculations, we incorporated the Nilsson perturbed-spheroid parameterization, or ε parameterization, into the folded-Yukawa single-particle computer code in 1973 [36,32,37].

In our work we use the ε parameterization for all calculations related to ground-state properties. In our adjustment of macroscopic constants of the FRLDM we also include 31 outer saddle-point heights of fission barriers. The shapes of these saddle points were obtained in a modern barrier calculation based on several million different shapes in the three-quadratic-surface parameterization [38,39].

2.2.1. Perturbed-spheroid parameterization

The ε parameterization was originally used by Nilsson [40] in the modified-oscillator single-particle potential. It was introduced to limit the dimensions of the matrices from which the single-particle energies and wave functions are obtained by diagonalization. This requirement leads to somewhat complex expressions for the nuclear shape. Here we employ its extension to higher-multipole distortions. In contrast to the FRDM(1992) mass table we now also consider axially asymmetric shapes [41–43]. Note that a factor $\frac{1}{2}\sqrt{\frac{4\pi}{9}}$ is missing in front of the $V_4(\gamma)$ function in Eq. (3) of Ref. [43]. Some misprints in the equations presented in Ref. [9] are corrected below. Some studies of the effect of axial asymmetry and octupole degrees of freedom on nuclear masses were presented in Refs. [44,45]. Consideration of axial asymmetry is needed to study shape coexistence. We presented earlier studies of shape coexistence throughout the nuclear chart in Refs. [25,46].

As the first step in defining the ε parameterization a "stretched" representation is introduced. The stretched coordinates ξ, η, and ζ are defined by

$$\xi = \left\{\frac{m\omega_0}{\hbar}\left[1 - \frac{2}{3}\varepsilon_2 \cos\left(\gamma + \frac{2}{3}\pi\right)\right]\right\}^{1/2} x$$

$$\eta = \left\{\frac{m\omega_0}{\hbar}\left[1 - \frac{2}{3}\varepsilon_2 \cos\left(\gamma - \frac{2}{3}\pi\right)\right]\right\}^{1/2} y$$

$$\zeta = \left\{\frac{m\omega_0}{\hbar}\left[1 - \frac{2}{3}\varepsilon_2 \cos\gamma\right]\right\}^{1/2} z \tag{17}$$

where $\hbar\omega_0$ is the oscillator energy, ε_2 the ellipsoidal deformation parameter, and γ the non-axiality angle. It is then convenient to define a "stretched" radius vector $\rho_{\rm t}$ by

$$\rho_{\rm t} = (\xi^2 + \eta^2 + \zeta^2)^{1/2} \tag{18}$$

a stretched polar angle θ_t by

$$u = \cos\theta_t = \frac{\zeta}{\rho_{\rm t}}$$
$$= \left[\frac{1 - \frac{2}{3}\varepsilon_2\cos\gamma}{1 - \frac{1}{3}\varepsilon_2\cos\gamma\,(3\cos^2\theta - 1) + \left(\frac{1}{3}\right)^{1/2}\varepsilon_2 \sin\gamma \sin^2\theta\cos 2\phi}\right]^{1/2}$$
$$\times \cos\theta \tag{19}$$

and a stretched azimuthal angle $\phi_{\rm t}$ by

$$v = \cos 2\phi_{\rm t} = \frac{\xi^2 - \eta^2}{\xi^2 + \eta^2}$$
$$= \frac{\left[1 + \frac{1}{3}\varepsilon_2\cos\gamma\right]\cos 2\phi + \left(\frac{1}{3}\right)^{1/2}\varepsilon_2\sin\gamma}{1 + \frac{1}{3}\varepsilon_2\cos\gamma + \left(\frac{1}{3}\right)^{1/2}\varepsilon_2\sin\gamma\cos 2\phi}. \tag{20}$$

In the folded-Yukawa model the single-particle potential is very different from that in the Nilsson modified-oscillator model. However, the definition of the ε parameterization will be most clear if we follow the steps in the Nilsson model. The implementation in the folded-Yukawa model will then be simple. The Nilsson modified-oscillator potential is defined by

$$\begin{aligned} V = \frac{1}{2}\hbar\omega_0{\rho_{\rm t}}^2\Bigg\{1 &+ 2\varepsilon_1 P_1(\cos\theta_{\rm t}) - \frac{2}{3}\varepsilon_2\cos\gamma P_2(\cos\theta_{\rm t}) \\ &+ \frac{1}{3}\varepsilon_2\sin\gamma\left(\frac{8}{5}\pi\right)^{1/2}\left[Y_2^2(\theta_{\rm t},\phi_{\rm t}) + Y_2^{-2}(\theta_{\rm t},\phi_{\rm t})\right] \\ &+ 2\varepsilon_3 P_3(\cos\theta_{\rm t}) + 2\varepsilon_4 V_4(\cos\theta_{\rm t},\cos 2\phi_{\rm t}) + 2\varepsilon_5 P_5(\cos\theta_{\rm t}) \\ &+ 2\varepsilon_6 P_6(\cos\theta_{\rm t})\Bigg\} - \kappa\hbar\mathring{\omega}_0\left[2\vec{l}_{\rm t}\cdot\vec{s} + \mu({\vec{l}_{\rm t}}^2 - \langle{\vec{l}_{\rm t}}^2\rangle)\right] \end{aligned} \tag{21}$$

where $\vec{l}_{\rm t}$ is the angular-momentum operator in the stretched coordinate system, $\vec{s}$ is the spin operator [40], and

$$V_4(u,v) = a_{40}P_4 + \sqrt{\frac{4\pi}{9}}\left[a_{42}(Y_4^2 + Y_4^{-2}) + a_{44}(Y_4^4 + Y_4^{-4})\right]. \tag{22}$$

Here the hexadecapole potential $V_4(u,v)$ is made dependent on γ in such a way that axial symmetry is maintained when $\gamma = 0, 60°$, $-120°$, and $-60°$, for mass-symmetric shapes and for $\varepsilon_6 = 0$. This is accomplished by choosing the coefficients a_{4i} so that they have the transformation properties of a hexadecapole tensor. However, this is achieved only for mass-symmetric shapes and for $\varepsilon_6 = 0$. The ε parameterization has not been generalized to a more general case. Thus [43]

$$\begin{aligned} a_{40} &= \frac{1}{6}(5\cos^2\gamma + 1) \\ a_{42} &= -\frac{1}{12}\sqrt{30}\sin 2\gamma \\ a_{44} &= \frac{1}{12}\sqrt{70}\sin^2\gamma. \end{aligned} \tag{23}$$

It is customary to now assume that the shape of the nuclear surface is equal to the shape of an equipotential surface given by

Eq. (21). By neglecting the $\vec{l}_t \cdot \vec{s}$ and $\vec{l}_t{}^2$ terms and solving for ρ_t and then using Eqs. (17)–(20) to derive an expression for r in the non-stretched laboratory system we obtain

$$\begin{aligned} r(\theta,\phi) = {} & \frac{R_0}{\omega_0/\mathring{\omega}_0}\left\{\left[1-\frac{2}{3}\varepsilon_2\cos\left(\gamma+\frac{2}{3}\pi\right)\right]\right. \\ & \times\left[1-\frac{2}{3}\varepsilon_2\cos\left(\gamma-\frac{2}{3}\pi\right)\right]\left[1-\frac{2}{3}\varepsilon_2\cos\gamma\right]\Big\}^{-1/2} \\ & \times\left[1-\frac{1}{3}\varepsilon_2\cos\gamma-\frac{2}{9}{\varepsilon_2}^2\cos^2\gamma+\varepsilon_2\left(\cos\gamma+\frac{1}{3}\varepsilon_2\cos 2\gamma\right)u^2\right. \\ & \left.-\left(\frac{1}{3}\right)^{1/2}\varepsilon_2\sin\gamma\left(1-\frac{2}{3}\varepsilon_2\cos\gamma\right)(1-u^2)v\right]^{1/2} \\ & \times\left[1-\frac{2}{3}\varepsilon_2\cos\gamma\frac{1}{2}(3u^2-1)+\left(\frac{1}{3}\right)^{1/2}\varepsilon_2\sin\gamma(1-u^2)v\right. \\ & +2\varepsilon_1P_1(u)+2\varepsilon_3P_3(u)+2\varepsilon_4V_4(u,v) \\ & \left.+2\varepsilon_5P_5(u)+2\varepsilon_6P_6(u)\right]^{-1/2}. \end{aligned} \tag{24}$$

In the Nilsson model the starting point is to define the potential. After the potential has been generated the shape of the nuclear surface is deduced by the above argument. In the folded-Yukawa model the starting point is different. There, the equation for the nuclear surface, given by Eq. (24) in the case of the ε parameterization, is specified in the initial step. Once the shape of the surface is known, the single-particle potential may be generated as described in later sections.

The quantity $\omega_0/\mathring{\omega}_0$ is determined by requiring that the volume remain constant with deformation, which gives

$$\begin{aligned} \left(\frac{\omega_0}{\mathring{\omega}_0}\right)^3 = {} & \frac{1}{4\pi}\left\{\left[1-\frac{2}{3}\varepsilon_2\cos\left(\gamma+\frac{2}{3}\pi\right)\right]\right. \\ & \times\left[1-\frac{2}{3}\varepsilon_2\cos\left(\gamma-\frac{2}{3}\pi\right)\right]\left[1-\frac{2}{3}\varepsilon_2\cos\gamma\right]\Big\}^{-1/2} \\ & \times\int_0^{\pi}d\theta_t\int_0^{2\pi}d\phi_t\sin\theta_t\left[1-\frac{2}{3}\varepsilon_2\cos\gamma P_2(u)\right. \\ & +\varepsilon_2\sin\gamma\left(\frac{8\pi}{45}\right)^{1/2}(Y_2^2+Y_2^{-2})+2\varepsilon_1P_1(u) \\ & \left.+2\varepsilon_3P_3(u)+2\varepsilon_4V_4(u,v)+2\varepsilon_5P_5(u)+2\varepsilon_6P_6(u)\right]^{-3/2}. \end{aligned} \tag{25}$$

The above equation is derived by determining the volume inside the nuclear surface given by Eq. (24), with the integral $\int d^3r$ inside the surface evaluated in terms of the "non-stretched" coordinates θ and ϕ. After a variable substitution one arrives at the expression in Eq. (25).

The Legendre polynomials P_l occurring in the definitions of the ε parameterization are defined by

$$P_l(u) = \frac{1}{2^l l!}\frac{d^l}{du^l}(u^2-1)^l, \quad l = 0,\ 1,\ 2, \ldots, \infty. \tag{26}$$

The first seven Legendre polynomials are

$$\begin{aligned} P_0(u) &= 1 \\ P_1(u) &= u \\ P_2(u) &= \frac{1}{2}(3u^2-1) \\ P_3(u) &= \frac{1}{2}(5u^3-3u) \\ P_4(u) &= \frac{1}{8}(35u^4-30u^2+3) \\ P_5(u) &= \frac{1}{8}(63u^5-70u^3+15u) \\ P_6(u) &= \frac{1}{16}(231u^6-315u^4+105u^2-5). \end{aligned} \tag{27}$$

The associated Legendre functions P_l^m are defined by

$$\begin{aligned} & P_l^m(u) = \frac{(1-u^2)^{m/2}}{2^l l!}\frac{d^{l+m}}{du^{l+m}}(u^2-1)^l, \\ & l = 0, 1, 2, \ldots, \infty;\ m = 0, 1, 2, \ldots, l. \end{aligned} \tag{28}$$

The spherical harmonics are then determined from the relations

$$\begin{aligned} & Y_l^m(\theta,\phi) = (-)^m\left[\frac{(2l+1)}{4\pi}\frac{(l-m)!}{(l+m)!}\right]^{1/2}P_l^m(\cos\theta)e^{im\phi}, \\ & m \geq 0 \end{aligned} \tag{29}$$

$$Y_l^{m*}(\theta,\phi) = (-)^m Y_l^{-m}(\theta,\phi) \tag{30}$$

which yield for the functions used here

$$\begin{aligned} Y_2^2(\theta,\phi) &= \sqrt{\frac{15}{32\pi}}\sin^2\theta e^{2i\phi} \\ Y_2^{-2}(\theta,\phi) &= \sqrt{\frac{15}{32\pi}}\sin^2\theta e^{-2i\phi} \\ Y_4^4(\theta,\phi) &= \sqrt{\frac{315}{512\pi}}\sin^4\theta e^{4i\phi} \\ Y_4^{-4}(\theta,\phi) &= \sqrt{\frac{315}{512\pi}}\sin^4\theta e^{-4i\phi} \\ Y_4^2(\theta,\phi) &= \sqrt{\frac{45}{128\pi}}\sin^2\theta(7\cos^2\theta-1)e^{2i\phi} \\ Y_4^{-2}(\theta,\phi) &= \sqrt{\frac{45}{128\pi}}\sin^2\theta(7\cos^2\theta-1)e^{-2i\phi}. \end{aligned} \tag{31}$$

The sums

$$\begin{aligned} SY_{22} &= Y_2^2(\theta,\phi)+Y_2^{-2}(\theta,\phi) \\ SY_{44} &= Y_4^4(\theta,\phi)+Y_4^{-4}(\theta,\phi) \\ SY_{42} &= Y_4^2(\theta,\phi)+Y_4^{-2}(\theta,\phi) \end{aligned} \tag{32}$$

are required in the expression for the single-particle potential and in the corresponding equation for the nuclear surface. When the arguments of the spherical harmonics are the stretched angles θ_t and ϕ_t we obtain

$$\begin{aligned} SY_{22} &= \sqrt{\frac{15}{8\pi}}\sin^2\theta_t\cos 2\phi_t = \sqrt{\frac{15}{8\pi}}(1-u^2)v \\ SY_{44} &= \sqrt{\frac{315}{128\pi}}\sin^4\theta_t\cos 4\phi_t = \sqrt{\frac{315}{128\pi}}(1-u^2)^2(2v^2-1) \\ SY_{42} &= \sqrt{\frac{45}{32\pi}}\sin^2\theta_t(7\cos^2\theta_t-1)\cos 2\phi_t \\ &= \sqrt{\frac{45}{32\pi}}(1-u^2)(7u^2-1)v. \end{aligned} \tag{33}$$

2.2.2. Three-quadratic-surface parameterization

In the three-quadratic-surface parameterization the shape of the nuclear surface is defined in terms of three smoothly joined portions of quadratic surfaces of revolution. They are completely

specified by [35,36,32],

$$\rho^2 = \begin{cases} {a_1}^2 - \dfrac{{a_1}^2}{{c_1}^2}(z-l_1)^2, & l_1 - c_1 \le z \le z_1 \\ {a_2}^2 - \dfrac{{a_2}^2}{{c_2}^2}(z-l_2)^2, & z_2 \le z \le l_2 + c_2 \\ {a_3}^2 - \dfrac{{a_3}^2}{{c_3}^2}(z-l_3)^2, & z_1 \le z \le z_2. \end{cases} \tag{34}$$

The left-hand surface is denoted by the subscript 1, the right-hand one by 2, and the middle one by 3. Each surface is specified by the position l_i of its center, its transverse semiaxis a_i, and its semi-symmetry axis c_i. At the left and right intersections of the middle surface with the end surfaces the value of z is z_1 and z_2, respectively.

There are nine numbers required to specify the expressions in Eq. (34) but three numbers are eliminated by the conditions of constancy of the volume and continuous first derivatives at z_1 and z_2. The introduction of an auxiliary unit of distance u through

$$u = \left[\frac{1}{2}\left({a_1}^2 + {a_2}^2\right)\right]^{\frac{1}{2}} \tag{35}$$

permits the definition of three mass-symmetric coordinates σ_i and three mass-asymmetric coordinates α_i by

$$\begin{aligned} \sigma_1 &= \frac{(l_2 - l_1)}{u} \\ \sigma_2 &= \frac{{a_3}^2}{{c_3}^2} \\ \sigma_3 &= \frac{1}{2}\left(\frac{{a_1}^2}{{c_1}^2} + \frac{{a_2}^2}{{c_2}^2}\right) \\ \alpha_1 &= \frac{1}{2}\frac{(l_1 + l_2)}{u} \\ \alpha_2 &= \frac{({a_1}^2 - {a_2}^2)}{u^2} \\ \alpha_3 &= \frac{{a_1}^2}{{c_1}^2} - \frac{{a_2}^2}{{c_2}^2}. \end{aligned} \tag{36}$$

The coordinate α_1 is not varied freely but is instead determined by the requirement that the center of mass be at the origin. These shape coordinates were historically used for about 30 years [35, 10,47–50,1,2,51,52]. However when we started to explore the full five-dimensional shape space we realized that an intuitive interpretation of calculations based on these coordinates is difficult and have introduced instead five alternative shape coordinates: (1) elongation, expressed in terms of the charge quadrupole moment Q_2, (2) neck diameter d, (3) left nascent-fragment deformation ε_{f1}, (4) right nascent-fragment deformation ε_{f2}, and (5) mass asymmetry α_g. The transformations from these coordinates to the precise shape given by Eq. (34) are lengthy and as regards the neck diameter highly nonlinear so we refer to Ref. [39] for details. These deformation variables have been used exclusively in our fission studies since 1999, the more important ones being [53–55, 38,56–58,39,59–61]. However, the actual shapes generated by the expressions in Eq. (34) are the same, regardless of what primary "deformation" coordinates we use, it is just the interpretation of the calculated fission potential-energy surfaces that is facilitated by our more recent choices. One should also note that in our recent studies where we calculate potential-energy surfaces for more than 5 million shapes, we actually study (on a discrete, densely spaced grid) *all* shapes accessible to the parameterization, which would have been an impossible task some decades ago.

2.2.3. Conversions to β parameters

A common parameterization, which we do *not* use here, is the β parameterization. However, since we want to present some of our results in terms of β shape parameters, we introduce the parameterization and a scheme to express shapes generated in other parameterizations in terms of β deformation parameters. In the β parameterization the radius vector r is defined by

$$r(\theta,\phi) = R_0\left(1 + \sum_{l=1}^{\infty}\sum_{m=-l}^{l}\beta_{lm}Y_l^m\right) \tag{37}$$

where R_0 is deformation dependent so as to conserve the volume inside the nuclear surface. When only axially symmetric shapes are considered the notation β_l is normally used for β_{l0}. Since the spherical harmonics Y_l^m are orthogonal, one may determine the β parameters corresponding to a specific shape in the ε parameterization by use of

$$\beta_{lm} = \sqrt{4\pi}\frac{\int r(\theta,\phi)Y_l^m(\theta,\phi)d\Omega}{\int r(\theta,\phi)Y_0^0(\theta,\phi)d\Omega} \tag{38}$$

where r is now the radius vector in the ε parameterization, given by Eq. (24). This conversion equation is in fact valid for a radius vector $r(\theta,\phi)$ defined by any parameterization.

When the β parameters corresponding to a specific shape in the ε parameterization are determined, one should observe that higher-order β parameters may be non-zero even if higher-order ε parameters are identically zero. For this reason, the nuclear ground-state shape is not completely specified by the β parameters in the Table, whereas the shape is completely defined by the ε parameters.

2.3. Finite-range droplet model

The *finite-range droplet model*, developed in 1984 [5], combines the finite-range effects of the FRLDM [62,63,33] with the higher-order terms in the droplet model. In addition, the finite-range droplet model contains an exponential term

$$-CAe^{-\gamma A^{1/3}}\bar{\varepsilon} \tag{39}$$

where C and γ specify the strength and range, respectively, of this contribution to the energy and the quantity $\bar{\varepsilon}$ is a dilatation variable given by Eq. (49). The exponential term leads to an improved description of compressibility effects. As in the original mass model [1] we have also added a constant A^0 term (whose coefficient accidentally came out to be zero in the FRDM(1992) mass table) and a charge asymmetry term, see Eqs. (40) and (62). All these terms turn out to be crucial to the substantially improved results obtained in the finite-range droplet model relative to the original droplet model. These empirical terms will be further discussed below.

Most of our results are based on the finite-range droplet model for the macroscopic term. Relative to the formulation given in Ref. [5], which unfortunately has numerous misprints, we use a new model for the average neutron and proton pairing gaps. The complete expression for the contribution to the atomic mass excess from the FRDM macroscopic energy is obtained after minimization with respect to variations in $\bar{\varepsilon}$ and $\bar{\delta}$, where $\bar{\delta}$ is the average bulk relative neutron excess given by Eq. (47). One then obtains

$$\begin{aligned} &E_{\rm mac}(Z,N,\text{shape}) = \\ &\quad M_{\rm H}Z + M_{\rm n}N \\ &\quad \text{mass excesses of } Z \text{ hydrogen atoms and } N \text{ neutrons} \\ &\quad + \left(-a_1 + J\bar{\delta}^2 - \frac{1}{2}K\bar{\varepsilon}^2\right)A \quad \text{volume energy} \end{aligned}$$

$$
\begin{aligned}
&+\left(a_2B_1+\frac{9}{4}\frac{J^2}{Q}\bar{\delta}^2\frac{{B_s}^2}{B_1}\right)A^{2/3} \quad \text{surface energy}\\
&+a_3A^{1/3}B_k \quad \text{curvature energy}\\
&+a_0A^0 \quad A^0 \text{ energy}\\
&+c_1\frac{Z^2}{A^{1/3}}B_3 \quad \text{Coulomb energy}\\
&-c_2Z^2A^{1/3}B_r \quad \text{volume redistribution energy}\\
&-c_4\frac{Z^{4/3}}{A^{1/3}} \quad \text{Coulomb exchange correction}\\
&-c_5Z^2\frac{B_wB_s}{B_1} \quad \text{surface redistribution energy}\\
&+f_0\frac{Z^2}{A} \quad \text{proton form-factor correction to the Coulomb energy}\\
&-c_a(N-Z) \quad \text{charge-asymmetry energy}\\
&+W\left(|I|+\begin{cases}1/A, & Z \text{ and } N \text{ odd and equal}\\ 0, & \text{otherwise}\end{cases}\right)\\
&\text{Wigner energy}\\
&+\begin{cases}+\overline{\Delta}_p+\overline{\Delta}_n-\delta_{np}, & Z \text{ and } N \text{ odd}\\ +\overline{\Delta}_p, & Z \text{ odd and } N \text{ even}\\ +\overline{\Delta}_n, & Z \text{ even and } N \text{ odd}\\ +0, & Z \text{ and } N \text{ even}\end{cases}\\
&\text{average pairing energy}\\
&-a_{el}Z^{2.39} \quad \text{energy of bound electrons}
\end{aligned}
\tag{40}
$$

where $A = Z + N$ is the mass number and $I = (N - Z)/A$ is the relative neutron excess. This expression differs from the corresponding one used in our earlier calculations [5] only in the form of the average pairing energy appearing in the next-to-last term. One should note that after minimization the exponential term [Eq. (39)] is present only implicitly in Eq. (40) through its presence in Eq. (49). For the average neutron pairing gap $\overline{\Delta}_n$, average proton pairing gap $\overline{\Delta}_p$, and average neutron–proton interaction energy δ_{np} we now use [16,64,65]

$$\overline{\Delta}_n = \frac{r_{mac}B_s}{N^{1/3}} \tag{41}$$

$$\overline{\Delta}_p = \frac{r_{mac}B_s}{Z^{1/3}} \tag{42}$$

$$\delta_{np} = \frac{h}{B_sA^{2/3}}. \tag{43}$$

These expressions contain only two adjustable constants r_{mac} and h, which are further discussed in Section 2.4. The zero reference point for the pairing energy now corresponds to even–even nuclei rather than to halfway between even–even and odd–odd nuclei as was sometimes done earlier [1,2].

The quantities c_1, c_2, c_4, and c_5 are defined by

$$
\begin{aligned}
c_1 &= \frac{3}{5}\frac{e^2}{r_0}\\
c_2 &= \frac{1}{336}\left(\frac{1}{J}+\frac{18}{K}\right){c_1}^2\\
c_4 &= \frac{5}{4}\left(\frac{3}{2\pi}\right)^{2/3}c_1\\
c_5 &= \frac{1}{64Q}{c_1}^2.
\end{aligned}
\tag{44}
$$

In Eq. (40) we have kept only the first term in the expression for the proton form-factor correction to the Coulomb energy, so that f_0 is given by

$$f_0 = -\frac{1}{8}\left(\frac{145}{48}\right)\frac{{r_p}^2e^2}{{r_0}^3}. \tag{45}$$

The bulk nuclear asymmetry δ is defined in terms of the neutron density ρ_n and proton density ρ_p by

$$\delta = \frac{\rho_n - \rho_p}{\rho_{bulk}} \tag{46}$$

and the *average* bulk nuclear asymmetry is given by

$$\bar{\delta} = \left(I+\frac{3}{16}\frac{c_1}{Q}\frac{Z}{A^{2/3}}\frac{B_vB_s}{B_1}\right)\Big/\left(1+\frac{9}{4}\frac{J}{Q}\frac{1}{A^{1/3}}\frac{{B_s}^2}{B_1}\right). \tag{47}$$

The relative deviation in the bulk of the density ρ from its nuclear matter value ρ_0 is defined by

$$\varepsilon = -\frac{1}{3}\frac{\rho-\rho_0}{\rho_0} \tag{48}$$

and the *average* relative deviation in the bulk of the density is given by

$$\bar{\varepsilon} = \left(Ce^{-\gamma A^{1/3}} - 2a_2\frac{B_2}{A^{1/3}} + L\bar{\delta}^2 + c_1\frac{Z^2}{A^{4/3}}B_4\right)/K. \tag{49}$$

The quantity B_1 is the relative generalized surface or nuclear energy in a model that accounts for the effect of the finite range of the nuclear force. It is given by

$$B_1 = \frac{A^{-2/3}}{8\pi^2{r_0}^2a^4}\int\int_V\left(2-\frac{|\mathbf{r}-\mathbf{r}'|}{a}\right)\frac{e^{-|\mathbf{r}-\mathbf{r}'|/a}}{|\mathbf{r}-\mathbf{r}'|/a}d^3r\,d^3r' \tag{50}$$

where the integration is over the specified sharp-surface deformed *generating* shape of volume V. Since the volume of the generating shape is conserved during deformation we have

$$V = \frac{4\pi}{3}{R_0}^3 \tag{51}$$

where R_0 is the radius of the spherical shape. The relative Coulomb energy B_3 is given by

$$
\begin{aligned}
B_3 = {}& \frac{15}{32\pi^2}\frac{A^{-5/3}}{{r_0}^5}\int\int_V\frac{d^3r\,d^3r'}{|\mathbf{r}-\mathbf{r}'|}\\
&\times\left[1-\left(1+\frac{1}{2}\frac{|\mathbf{r}-\mathbf{r}'|}{a_{den}}\right)e^{-|\mathbf{r}-\mathbf{r}'|/a_{den}}\right].
\end{aligned}
\tag{52}
$$

The quantities B_1 and B_3 are evaluated for $R_0 = r_0A^{1/3}$. However, in the FRDM the equilibrium value R_{den} of the equivalent-sharp-surface radius corresponding to the nuclear density is given by the expression

$$R_{den} = r_0A^{1/3}(1+\bar{\varepsilon}). \tag{53}$$

Thus, the actual value of the nuclear radius is determined by the balance between Coulomb, compressibility, and surface-tension effects as expressed by Eq. (49). To calculate this balance it is necessary to know the response of the surface-energy and Coulomb-energy terms B_1 and B_3 to size changes. To account for this response we introduce the quantities B_2 and B_4, which are related to the derivatives of B_1 and B_3. These derivatives are evaluated numerically and during this evaluation the radius R of the *generating* shape is varied around the value $r_0A^{1/3}$.

The quantity B_2, which as mentioned above is related to the derivative of the relative generalized surface energy B_1, is defined by

$$B_2 = \frac{1}{2x_0}\left[\frac{d}{dx}\left(x^2 B_1\right)\right]_{x=x_0} \tag{54}$$

with

$$x = \frac{R}{a} \quad \text{and} \quad x_0 = \frac{r_0 A^{1/3}}{a}. \tag{55}$$

The quantity B_4 is related to the derivative of the relative Coulomb energy B_3 and is defined by

$$B_4 = -{y_0}^2\left[\frac{d}{dy}\left(\frac{B_3}{y}\right)\right]_{y=y_0} \tag{56}$$

with

$$y = \frac{R}{a_{\rm den}} \quad \text{and} \quad y_0 = \frac{r_0 A^{1/3}}{a_{\rm den}}. \tag{57}$$

For spherical shapes the quantities B_1–B_4 can be evaluated analytically. One obtains

$$\begin{aligned}
B_1^{(0)} &= 1 - \frac{3}{{x_0}^2} + (1+x_0)\left(2 + \frac{3}{x_0} + \frac{3}{{x_0}^2}\right)e^{-2x_0}\\
B_2^{(0)} &= 1 - \left(1 + 2x_0 + 2{x_0}^2\right)e^{-2x_0}\\
B_3^{(0)} &= 1 - \frac{5}{{y_0}^2}\left[1 - \frac{15}{8y_0} + \frac{21}{8{y_0}^3} - \frac{3}{4}\right.\\
&\quad \left.\times\left(1 + \frac{9}{2y_0} + \frac{7}{{y_0}^2} + \frac{7}{2{y_0}^3}\right)e^{-2y_0}\right]\\
B_4^{(0)} &= 1 + 5\left[-\frac{3}{{y_0}^2} + \frac{15}{2{y_0}^3} - \frac{63}{4{y_0}^5} + \frac{3}{4}\right.\\
&\quad \left.\times\left(\frac{2}{y_0} + \frac{12}{{y_0}^2} + \frac{32}{{y_0}^3} + \frac{42}{{y_0}^4} + \frac{21}{{y_0}^5}\right)e^{-2y_0}\right].
\end{aligned} \tag{58}$$

The expression B_3 for the relative Coulomb energy yields the energy for an arbitrarily shaped, homogeneously charged, diffuse-surface nucleus to all orders in the diffuseness constant $a_{\rm den}$. The constants in front of the integrals for B_1 and B_3 are chosen so that B_1 and B_3 are 1 for a sphere in the limit in which the range constant a and the diffuseness constant $a_{\rm den}$ are zero, in analogy with the definition of the quantities $B_{\rm s}$ and $B_{\rm C}$ in the standard liquid-drop and droplet models. The quantities B_2 and B_4, which are related to the derivatives of B_1 and B_3, respectively, were introduced above to treat the response of the nucleus to a change in size, resulting from a finite compressibility. The shape-dependent quantities $B_{\rm s}$, $B_{\rm v}$, $B_{\rm w}$, $B_{\rm k}$, and $B_{\rm r}$, which are defined [7] in the standard droplet model, are given by

$$\begin{aligned}
B_{\rm s} &= \frac{A^{-2/3}}{4\pi {r_0}^2}\int_S dS \quad \text{surface energy}\\
B_{\rm v} &= -\frac{15A^{-4/3}}{16\pi^2 {r_0}^4}\int_S \widetilde{W}(\mathbf{r})\, dS \quad \text{neutron skin energy}\\
B_{\rm w} &= \frac{225A^{-2}}{64\pi^3 {r_0}^6}\int_S \left[\widetilde{W}(\mathbf{r})\right]^2 dS \quad \text{surface redistribution energy}\\
B_{\rm k} &= \frac{A^{-1/3}}{8\pi r_0}\int_S \left(\frac{1}{R_1} + \frac{1}{R_2}\right) dS \quad \text{curvature energy}\\
B_{\rm r} &= \frac{1575A^{-7/3}}{64\pi^3 {r_0}^7}\int_V \left[\widetilde{W}(\mathbf{r})\right]^2 d^3r \quad \text{volume redistribution energy}
\end{aligned} \tag{59}$$

where

$$\begin{aligned}
W(\mathbf{r}) &= \int_V \frac{1}{|\mathbf{r}-\mathbf{r}'|}\, d^3r'\\
\overline{W} &= \frac{3A^{-1}}{4\pi {r_0}^3}\int_V W(\mathbf{r})\, d^3r\\
\widetilde{W}(\mathbf{r}) &= W(\mathbf{r}) - \overline{W}
\end{aligned} \tag{60}$$

and R_1 and R_2 are the principal radii of curvature.

2.4. Values of FRDM macroscopic-model constants

The constants appearing in the expression for the finite-range droplet macroscopic model fall into four categories. The first category, which represents fundamental constants, includes [1,2]

$M_{\rm H} = 7.289034$ MeV	hydrogen-atom mass excess
$M_{\rm n} = 8.071431$ MeV	neutron mass excess
$e^2 = 1.4399764$ MeV fm	electronic charge squared.

One should note that for consistency we continue to use the same values for the fundamental constants as in our 1981 mass calculation [1,2]. Results of a more recent evaluation of the fundamental constants appear in Ref. [66].

The second category, which represents constants that have been determined from considerations other than nuclear masses, includes [1–4]

$a_{\rm el} = 1.433 \times 10^{-5}$ MeV	electronic-binding constant
$K = 240$ MeV	nuclear compressibility constant
$r_{\rm p} = 0.80$ fm	proton root-mean-square radius
$r_0 = 1.16$ fm	nuclear-radius constant
$a = 0.68$ fm	range of Yukawa-plus-exponential potential
$a_{\rm den} = 0.70$ fm	range of Yukawa function used to generate nuclear charge distribution.

The third category, representing those constants whose values were obtained from consideration of odd–even mass differences [64,65,16] and other mass-like quantities, are

$r_{\rm mac} = 4.80$ MeV	average pairing-gap constant
$h = 6.6$ MeV	neutron–proton interaction constant
$W = 30$ MeV	Wigner constant
$a_3 = 0$ MeV	curvature-energy constant.

It should be noted that the final calculated mass excess is strictly independent of the value used for $r_{\rm mac}$. This constant affects only the division of the mass excess between a macroscopic part and the remaining microscopic correction. We will therefore not include $r_{\rm mac}$ when we later count the number of constants in our mass model. It is the pairing constant $r_{\rm mic}$ which enters the microscopic model that affects the mass excess. It will be discussed below.

Since $\mu_{\rm th} = 0$ in our case, Eqs. (9) and (11) can be solved with the experimental data set of 2149 masses with $Z \geq 8$ and $N \geq 8$ [17] to determine the remaining macroscopic constants and the error of our model. We do not adjust the FRDM to fission-barrier heights, because it is only accurate for small deformations around a sphere, not for the highly deformed shapes occurring in fission. Therefore there is no need to introduce a shape dependence for the A^0 and Wigner terms, which we, as discussed below, do introduce in the FRLDM expressions. To present all the macroscopic model constants together, we list them here but discuss their adjustment later. These constants are

$a_1 = 16.194882$ MeV	volume–energy constant
$a_2 = 22.763235$ MeV	surface-energy constant
$J = 32.3$ MeV	symmetry-energy constant
$Q = 28.72$ MeV	effective surface-stiffness constant
$L = 53.5$ MeV	density-symmetry constant
$a_0 = -4.0$ MeV	A^0 constant
$c_a = 0.4894$ MeV	charge-asymmetry constant
$C = 205$ MeV	pre-exponential compressibility-term constant
$\gamma = 0.988$	exponential compressibility-term range constant.

The resulting error in the FRDM(2012) is $\sigma_{th} = 0.5595$ MeV. We refer to K as compressibility constant and L as density-symmetry constant, following the designations in the original droplet model [6]. In other contexts, for example in Refs. [67,68] K is referred to as the incompressibility constant and L as the slope of the symmetry energy at saturation density. In the droplet and finite-range droplet models finiteness is held to be of higher order and not treated, leading to a single compressibility constant.

For completeness we also specify the mass–energy conversion factor used in the interim 1989 mass evaluation. In this evaluation the relation between atomic mass units and energy is given by [18]

$$1\ \mathrm{u} = 931.5014\ \mathrm{MeV}. \tag{61}$$

Although a more recent value has been adopted [66,69] it is the above value, consistent with the 1989 interim mass evaluation [18], that should be used if our calculated mass excesses in MeV are converted to atomic mass units.

2.5. Finite-range liquid-drop model

In the present version of our model the contribution to the atomic mass excess from the FRLDM macroscopic energy is given by

$$\begin{aligned}
&E_{\mathrm{mac}}^{\mathrm{FL}}(Z,N,\mathrm{shape}) = \\
&\quad M_{\mathrm{H}}Z + M_{\mathrm{n}}N \\
&\quad \text{mass excesses of } Z \text{ hydrogen atoms and } N \text{ neutrons} \\
&\quad -a_{\mathrm{v}}\left(1-\kappa_{\mathrm{v}}I^2\right)A \quad \text{volume energy} \\
&\quad +a_{\mathrm{s}}\left(1-\kappa_{\mathrm{s}}I^2\right)B_1A^{2/3} \quad \text{surface energy} \\
&\quad +a_0A^0B_{\mathrm{W}} \quad A^0 \text{ energy} \\
&\quad +c_1\frac{Z^2}{A^{1/3}}B_3 \quad \text{Coulomb energy} \\
&\quad -c_4\frac{Z^{4/3}}{A^{1/3}} \quad \text{Coulomb exchange correction} \\
&\quad +f(k_{\mathrm{f}}r_{\mathrm{p}})\frac{Z^2}{A} \quad \text{proton form-factor correction to the Coulomb energy} \\
&\quad -c_{\mathrm{a}}(N-Z) \quad \text{charge-asymmetry energy} \\
&\quad +W\left(|I|B_{\mathrm{W}} + \begin{cases} 1/A, & Z \text{ and } N \text{ odd and equal} \\ 0, & \text{otherwise} \end{cases}\right) \\
&\quad \text{Wigner energy} \\
&\quad +\begin{cases} +\overline{\Delta}_{\mathrm{p}} + \overline{\Delta}_{\mathrm{n}} - \delta_{\mathrm{np}}, & Z \text{ and } N \text{ odd} \\ +\overline{\Delta}_{\mathrm{p}}, & Z \text{ odd and } N \text{ even} \\ +\overline{\Delta}_{\mathrm{n}}, & Z \text{ even and } N \text{ odd} \\ +0, & Z \text{ and } N \text{ even} \end{cases} \\
&\quad \text{average pairing energy} \\
&\quad -a_{\mathrm{el}}Z^{2.39} \quad \text{energy of bound electrons.}
\end{aligned} \tag{62}$$

This expression differs from the corresponding one used in our earlier FRLDM(1992) [9] only through the introduction of the shape-dependent factor B_{W} in the A^0 and Wigner terms.

For the average neutron pairing gap $\overline{\Delta}_{\mathrm{n}}$, average proton pairing gap $\overline{\Delta}_{\mathrm{p}}$, and average neutron–proton interaction energy δ_{np} we use [64,65,16]

$$\overline{\Delta}_{\mathrm{n}} = \frac{r_{\mathrm{mac}}B_{\mathrm{s}}}{N^{1/3}} \tag{63}$$

$$\overline{\Delta}_{\mathrm{p}} = \frac{r_{\mathrm{mac}}B_{\mathrm{s}}}{Z^{1/3}} \tag{64}$$

$$\delta_{\mathrm{np}} = \frac{h}{B_{\mathrm{s}}A^{2/3}}. \tag{65}$$

The zero reference point for the pairing energy corresponds to even–even nuclei rather than to halfway between even–even and odd–odd nuclei as has sometimes been the case previously [1,2].

In the above expressions the quantities c_1 and c_4 are defined in terms of the electronic charge e and the nuclear-radius constant r_0 by

$$\begin{aligned}
c_1 &= \frac{3}{5}\frac{e^2}{r_0} \\
c_4 &= \frac{5}{4}\left(\frac{3}{2\pi}\right)^{2/3}c_1.
\end{aligned} \tag{66}$$

The quantity f appearing in the proton form-factor correction to the Coulomb energy is given by

$$f(k_{\mathrm{F}}r_{\mathrm{p}}) = -\frac{1}{8}\frac{{r_{\mathrm{p}}}^2e^2}{{r_0}^3}\left[\frac{145}{48} - \frac{327}{2880}(k_{\mathrm{F}}r_{\mathrm{p}})^2 + \frac{1527}{1209600}(k_{\mathrm{F}}r_{\mathrm{p}})^4\right] \tag{67}$$

where the Fermi wave number is

$$k_{\mathrm{F}} = \left(\frac{9\pi Z}{4A}\right)^{1/3}\frac{1}{r_0}. \tag{68}$$

The relative neutron excess I is

$$I = \frac{N-Z}{N+Z} = \frac{N-Z}{A}. \tag{69}$$

The relative surface energy B_{s}, which is the ratio of the surface area of the nucleus at the actual shape to the surface area of the nucleus at the spherical shape, is given by

$$B_{\mathrm{s}} = \frac{A^{-2/3}}{4\pi{r_0}^2}\int_S dS. \tag{70}$$

The quantity B_1 is the relative generalized surface or nuclear energy in a model that accounts for the effect of the finite range of the nuclear force. It is given by

$$B_1 = \frac{A^{-2/3}}{8\pi^2{r_0}^2a^4}\int\!\!\int_V\left(2 - \frac{|\mathbf{r}-\mathbf{r}'|}{a}\right)\frac{e^{-|\mathbf{r}-\mathbf{r}'|/a}}{|\mathbf{r}-\mathbf{r}'|/a}d^3r\,d^3r'. \tag{71}$$

The relative Coulomb energy B_3 is given by

$$\begin{aligned}
B_3 = {}& \frac{15}{32\pi^2}\frac{A^{-5/3}}{{r_0}^5}\int\!\!\int_V\frac{d^3r\,d^3r'}{|\mathbf{r}-\mathbf{r}'|} \\
&\times\left[1 - \left(1 + \frac{1}{2}\frac{|\mathbf{r}-\mathbf{r}'|}{a_{\mathrm{den}}}\right)e^{-|\mathbf{r}-\mathbf{r}'|/a_{\mathrm{den}}}\right].
\end{aligned} \tag{72}$$

For spherical shapes the quantities B_1 and B_3 can be evaluated analytically. With

$$x_0 = \frac{r_0A^{1/3}}{a} \quad \text{and} \quad y_0 = \frac{r_0A^{1/3}}{a_{\mathrm{den}}} \tag{73}$$

one obtains

$$B_1^{(0)} = 1 - \frac{3}{{x_0}^2} + (1+x_0)\left(2 + \frac{3}{x_0} + \frac{3}{{x_0}^2}\right)e^{-2x_0}$$

$$B_3^{(0)} = 1 - \frac{5}{{y_0}^2}\left[1 - \frac{15}{8y_0} + \frac{21}{8{y_0}^3} - \frac{3}{4} \times \left(1 + \frac{9}{2y_0} + \frac{7}{{y_0}^2} + \frac{7}{2{y_0}^3}\right)e^{-2y_0}\right]. \quad (74)$$

The expression B_3 for the relative Coulomb energy yields the energy for an arbitrarily shaped, homogeneously charged, diffuse-surface nucleus to all orders in the diffuseness constant $a_{\rm den}$. The constants in front of the integrals for B_1 and B_3 have been chosen so that B_1 and B_3 are 1 for a sphere in the limit in which the range a and diffuseness $a_{\rm den}$ are zero, in analogy with the definition of the quantities $B_{\rm s}$ and $B_{\rm C}$ in the standard liquid-drop model.

Relative to the FRLDM(1992) model specification in Ref. [9] we have here introduced a shape-dependent factor $B_{\rm W}$ for the A^0 and Wigner terms. We have earlier pointed out that such a shape dependence is necessary to obtain continuity of the FRLDM potential energy at scission. For example, if in symmetric fission of ^{264}Fm we treat the touching configuration of two symmetric spheres as a single deformed ^{264}Fm system or as two touching ^{132}Sn nuclei a shape dependence is necessary to obtain continuity. This is discussed in detail in Refs. [52,57,70]. To discuss here the postulated shape dependence for the Wigner term that we have used since 1989 [52] we follow closely the discussion there. We note that in an extensive discussion of the Wigner term [8], it was pointed out that if a system is broken up into n identical pieces, then the Wigner term must be evaluated separately for each piece, with the result that it simply jumps to n times its original value. For symmetric fission into two identical fragments this simple argument would imply a shape dependence corresponding to a step function at scission. In reality one would expect that the step function is washed out over some range of shapes in the scission region. Obviously, if the area of a cross section in the neck region is very small then there is hardly any communication between the two fragments and we have essentially the two-system configuration. For cylinder-like shapes and those with even bulgier midsections, that is for shapes (in the three-quadratic-surface parameterizations) with $\sigma_2 \geq 0$, we clearly have a one-system configuration. How close we are to one or the other situation is related to the amount of communication through the neck. If the area of a cross section through the neck is S_3 and the area of the maximum cross section of the smaller one of the end bodies, that is a cross section through the center of the end surface of revolution, is S_1, then we may relate the amount of communication to the dimensionless quantity S_3/S_1. As a simple ansatz we propose the shape dependence

$$B_{\rm W} = \begin{cases} \left(1 - \dfrac{S_3}{S_1}\right)^2 a_{\rm d} + 1, & \sigma_2 \leq 0 \\ 1, & \sigma_2 \geq 0. \end{cases} \quad (75)$$

Suppose $a_{\rm d} = 1.0$. Then, with the above shape dependence we would find that for scission shapes we have a Wigner term that is precisely two times the Wigner term for a single system. For cylinder-like configurations and for shapes with thicker neck regions we would have a Wigner term that is equal to the term for a single shape. Thus, with the above shape dependence we obtain the desired values in the two limiting cases. However, at scission there is still *some* communication between the two fragments. This can be illustrated by considering the shell correction calculated by use of the Strutinsky method, for which we for symmetric configurations have a well-defined prescription, regardless of shape. For two touching ^{132}Sn nuclei we obtain a shell correction whose magnitude is about 10% lower than for two well-separated nuclei. This leads us to choose a value of $a_{\rm d} = 0.9$ for the *damping* coefficient. We have actually calculated potential-energy surfaces and investigated their structure for other choices of the parameter $a_{\rm d}$, which also occurs in the shape dependence of the A^0 term. From such studies it has turned out that the above value leads to potential-energy surfaces that when used in studies of (1) fission half-lives [52,39], (2) fission-barrier heights across the nuclear chart, [57], (3) bimodal fission [52,38], and (4) fission-fragment mass distributions [59] are in good agreement with experimental data. The uncertainty in the estimate of $a_{\rm d}$ from these studies is about 0.1. For the A^0 term we postulate the same shape dependence [52].

2.6. Values of FRLDM macroscopic-model constants

The constants appearing in the expression for the finite-range liquid-drop macroscopic model fall into four categories. The first category, which represents fundamental constants, includes [1,2]

$M_{\rm H} = 7.289034$ MeV	hydrogen-atom mass excess
$M_{\rm n} = 8.071431$ MeV	neutron mass excess
$e^2 = 1.4399764$ MeV fm	electronic charge squared.

The second category, which represents constants that have been determined from considerations other than nuclear masses, includes [1,2]

$a_{\rm el} = 1.433 \times 10^{-5}$ MeV	electronic-binding constant
$r_{\rm p} = 0.80$ fm	proton root-mean-square radius
$r_0 = 1.16$ fm	nuclear-radius constant
$a = 0.68$ fm	range of Yukawa-plus-exponential potential
$a_{\rm den} = 0.70$ fm	range of Yukawa function used to generate nuclear charge distribution.

The third category, representing those constants whose values were obtained from consideration of odd–even mass differences [64,65,16] and other mass-like quantities, are

$r_{\rm mac} = 4.80$ MeV	average pairing-gap constant
$h = 6.6$ MeV	neutron–proton interaction constant
$W = 30$ MeV	Wigner constant
$a_{\rm d} = 0.9$	Wigner damping constant.

It should be noted that the final calculated mass excess is strictly independent of the value used for $r_{\rm mac}$. This constant affects only the division of the mass excess between the macroscopic part and the remaining microscopic correction. We therefore do not include $r_{\rm mac}$ when we later count the number of constants in our mass model. It is the pairing constant $r_{\rm mic}$ which enters the microscopic model that affects the mass excess. It will be discussed below.

Since $\mu_{\rm th} = 0$ in our case, Eqs. (6) and (8) can be solved with the experimental data set of 2149 masses with $Z \geq 8$ and $N \geq 8$ [17] and 31 fission-barrier heights to determine the remaining macroscopic constants and the error of our model. To present all the macroscopic model constants together we list them here but discuss their adjustment later. These constants are

$a_{\rm v} = 16.022835$ MeV	volume–energy constant
$\kappa_{\rm v} = 1.927910$ MeV	volume-asymmetry constant
$a_{\rm s} = 21.269461$ MeV	surface-energy constant
$\kappa_{\rm s} = 2.388587$ MeV	surface-asymmetry constant
$a_0 = 2.649971$ MeV	A^0 constant
$c_{\rm a} = 0.055673$ MeV	charge-asymmetry constant.

The resulting error in the FRLDM is $\sigma_{\rm th} = 0.6618$ MeV. We note that the constants have not changed very much, except possibly the charge-asymmetry constant which decreased to about half its value in the previous version in FRLDM(1992) [9] and in the FRLDM(2002) [57].

2.7. Microscopic model

The shell-plus-pairing correction $E_{s+p}(Z, N, \text{shape})$ is the sum of the proton shell-plus-pairing correction and the neutron shell-plus-pairing correction, namely

$$E_{s+p}(Z, N, \text{shape}) = E_{s+p}^{prot}(Z, \text{shape}) + E_{s+p}^{neut}(N, \text{shape}). \quad (76)$$

We give here the equations for the neutron shell-plus-pairing correction. Completely analogous expressions hold for protons. We have

$$E_{s+p}^{neut}(N, \text{shape}) = E_{shell}^{neut}(N, \text{shape}) + E_{pair}^{neut}(N, \text{shape}). \quad (77)$$

Both terms are evaluated from a set of calculated single-particle levels. As before, the shell correction is calculated by use of Strutinsky's method [11,12]. Thus

$$E_{shell}^{neut}(N, \text{shape}) = \sum_{i=1}^{N} e_i - \widetilde{E}^{neut}(N, \text{shape}) \quad (78)$$

where e_i are calculated single-particle energies and $\widetilde{E}^{neut}(N, \text{shape})$ is the smooth single-particle energy sum calculated in the Strutinsky method. The pairing correction is the difference between the pairing correlation energy and the average pairing correlation energy, namely

$$E_{pair}^{neut}(N, \text{shape}) = E_{p.c.}^{neut}(N, \text{shape}) - \widetilde{E}_{p.c.}^{neut}(N, \text{shape}) \quad (79)$$

where $E_{p.c.}^{neut}(N, \text{shape})$ is given by Eq. (101) and $\widetilde{E}_{p.c.}^{neut}(N, \text{shape})$ is given by Eq. (108). For the pairing correction we now use the Lipkin–Nogami [13–15] version of the BCS method, which takes into account the lowest-order correction to the total energy of the system associated with particle-number fluctuation.

The single-particle potential felt by a nucleon is given by

$$V = V_1 + V_{s.o.} + V_C. \quad (80)$$

The first term is the spin-independent nuclear part of the potential, which is calculated in terms of the folded-Yukawa potential

$$V_1(\mathbf{r}) = -\frac{V_0}{4\pi {a_{pot}}^3} \int_V \frac{e^{-|\mathbf{r}-\mathbf{r}'|/a_{pot}}}{|\mathbf{r}-\mathbf{r}'|/a_{pot}} d^3r' \quad (81)$$

where the integration is over the volume of the generating shape, whose volume is held fixed at $\frac{4}{3}\pi {R_{pot}}^3$ as the shape is deformed. The potential radius R_{pot} is given by

$$R_{pot} = R_{den} + A_{den} - B_{den}/R_{den} \quad (82)$$

with

$$R_{den} = r_0 A^{1/3}(1 + \bar{\varepsilon}). \quad (83)$$

Values of the model constants A_{den} and B_{den} will be given later. The potential depths V_p for protons and V_n for neutrons are given by

$$V_p = V_s + V_a\bar{\delta} \quad (84)$$

$$V_n = V_s - V_a\bar{\delta}. \quad (85)$$

The average bulk nuclear asymmetry $\bar{\delta}$ appearing in Eqs. (84) and (85) and average relative deviation $\bar{\varepsilon}$ in the bulk of the density appearing in Eq. (83) are given by the droplet model and thus depend on the values of the droplet-model constants. The FRDM macroscopic constants are determined in a nonlinear least-squares adjustment, which requires between 1000 and 10,000 steps to find the optimum constants. In principle, these constants should then be used in the determination of the single-particle potential, the potential-energy surfaces should be recalculated with the new constants, a new mass calculation should be performed, and a new set of macroscopic constants should be determined, with this iteration repeated until convergence. Any change of the single-particle potential would also make necessary a redetermination of the spin–orbit strength and the diffuseness. Because the calculation of potential-energy surfaces and other aspects of these steps would be very time-consuming, only one iteration has been performed. In our current mass calculation we have found additional evidence that the above form (and constants) of the single-particle potential are very satisfactory and we will comment further when we discuss the calculated results.

Furthermore, in determining the single-particle potential we have used the following early forms [71] of the droplet model expressions for $\bar{\delta}$ and $\bar{\varepsilon}$:

$$\bar{\delta} = \left(I + \frac{3}{8}\frac{c_1}{Q}\frac{Z^2}{A^{5/3}}\right) \Big/ \left(1 + \frac{9}{4}\frac{J}{Q}\frac{1}{A^{1/3}}\right) \quad (86)$$

$$\bar{\varepsilon} = \left(-\frac{2a_2}{A^{1/3}} + L\bar{\delta}^2 + c_1\frac{Z^2}{A^{4/3}}\right) \Big/ K. \quad (87)$$

The range a_{pot} of the Yukawa function in Eq. (81) has been determined from an adjustment of calculated single-particle levels to experimental data in the rare-earth and actinide regions [37]. It is kept constant for nuclei throughout the periodic system.

The spin–orbit potential is given by the expression

$$V_{s.o.} = -\lambda\left(\frac{\hbar}{2m_{nuc}c}\right)^2 \frac{\boldsymbol{\sigma}\cdot\nabla V_1 \times p}{\hbar} \quad (88)$$

where λ is the spin–orbit interaction strength, m_{nuc} is the nucleon mass, $\boldsymbol{\sigma}$ represents the Pauli spin matrices, and p is the nucleon momentum.

The spin–orbit strength has been determined from adjustments to experimental levels in the rare-earth and actinide regions. It has been shown [37,1,72] that many nuclear properties throughout the periodic system are well reproduced with λ given by a function linear in A through the values determined in these two regions. This gives

$$\lambda_p = 6.0\left(\frac{A}{240}\right) + 28.0 = 0.025A + 28.0 = k_pA + l_p \quad (89)$$

for protons and

$$\lambda_n = 4.5\left(\frac{A}{240}\right) + 31.5 = 0.01875A + 31.5 = k_nA + l_n \quad (90)$$

for neutrons.

Finally, the Coulomb potential for protons is given by

$$V_C(\mathbf{r}) = e\rho_c \int_V \frac{d^3r'}{|\mathbf{r}-\mathbf{r}'|} \quad (91)$$

where the charge density ρ_c is given by

$$\rho_c = \frac{Ze}{\frac{4}{3}\pi R_{pot}^3}. \quad (92)$$

The basis functions used to generate the matrix elements of the single-particle Hamiltonian is a set of deformed, axially symmetric, harmonic-oscillator eigenfunctions, specifically all those that for a given shape have an energy less than or equal to $(N_{bas} + 0.5)\hbar\omega_0$. The overall curvature of the basis functions is chosen to yield

$$\hbar\omega_0 = C_{cur}/A^{1/3}. \quad (93)$$

2.8. Microscopic pairing models

Because of its basic simplicity, the BCS pairing model [73–76] has been the pairing model of choice in most previous nuclear-structure calculations [77,10,1,2]. However, a well-known deficiency of the BCS model is that for large spacings between the single-particle levels at the Fermi surface, no non-trivial solutions exist. In practical applications, these situations occur not only at magic numbers, but also, for example, for deformed actinide nuclei at neutron numbers $N = 142$ and 152. By taking into account effects associated with particle-number fluctuations, the Lipkin–Nogami approximation [13–15] goes beyond the BCS approximation and avoids such collapses.

In solving the pairing equations for neutrons or protons in either the BCS or Lipkin–Nogami model, we consider a constant pairing interaction G acting between $N_2 - N_1 + 1$ doubly degenerate single-particle levels, which are occupied by $N_{\rm int}$ nucleons. This interaction interval starts at level N_1, located below the Fermi surface, and ends at level N_2, located above the Fermi surface. With the definitions we use here, the levels are numbered consecutively starting with number 1 for the level at the bottom of the well. Thus, for even particle numbers, the last occupied levels in the neutron and proton wells are $N/2$ and $Z/2$, respectively.

The level pairs included in the pairing calculation are often chosen symmetrically around the Fermi surface. However, for spherical nuclei it is more reasonable to require that degenerate spherical states have equal occupation probability. This condition cannot generally be satisfied simultaneously with a symmetric choice of levels in the interaction region. We therefore derive the pairing equations below for the more general case of arbitrary N_1 and N_2.

In the Lipkin–Nogami pairing model [13–15] the pairing gap Δ, Fermi energy λ, number-fluctuation constant λ_2, occupation probabilities ${v_k}^2$, and shifted single-particle energies ε_k are determined from the $2(N_2 - N_1) + 5$ coupled nonlinear equations

$$N_{\rm tot} = 2\sum_{k=N_1}^{N_2} {v_k}^2 + 2(N_1 - 1) \tag{94}$$

$$\frac{2}{G} = \sum_{k=N_1}^{N_2} \frac{1}{\sqrt{(\varepsilon_k - \lambda)^2 + \Delta^2}} \tag{95}$$

$${v_k}^2 = \frac{1}{2}\left[1 - \frac{\varepsilon_k - \lambda}{\sqrt{(\varepsilon_k - \lambda)^2 + \Delta^2}}\right],$$

$$k = N_1, N_1 + 1, \ldots, N_2 \tag{96}$$

$$\varepsilon_k = e_k + (4\lambda_2 - G){v_k}^2, \quad k = N_1, N_1 + 1, \ldots, N_2 \tag{97}$$

$$\lambda_2 = \frac{G}{4}\left[\frac{\left(\sum_{k=N_1}^{N_2} {u_k}^3 v_k\right)\left(\sum_{k=N_1}^{N_2} u_k {v_k}^3\right) - \sum_{k=N_1}^{N_2} {u_k}^4 {v_k}^4}{\left(\sum_{k=N_1}^{N_2} {u_k}^2 {v_k}^2\right)^2 - \sum_{k=N_1}^{N_2} {u_k}^4 {v_k}^4}\right] \tag{98}$$

where

$${u_k}^2 = 1 - {v_k}^2, \quad k = N_1, N_1 + 1, \ldots, N_2. \tag{99}$$

The quasi-particle energies E_k of the odd nucleon in an odd-A nucleus are now given by [14]

$$E_k = \left[(\varepsilon_k - \lambda)^2 + \Delta^2\right]^{1/2} + \lambda_2, \quad k = N_1, N_1 + 1, \ldots, N_2. \tag{100}$$

In the Lipkin–Nogami model it is the sum $\Delta + \lambda_2$ that is identified with odd–even mass differences [14]. We denote this sum by $\Delta_{\rm LN}$.

The pairing-correlation energy plus quasi-particle energy in the Lipkin–Nogami model is given by

$$E_{\rm p.c.} = \sum_{k=N_1}^{N_2} (2{v_k}^2 - n_k)e_k - \frac{\Delta^2}{G} - \frac{G}{2}\sum_{k=N_1}^{N_2} (2{v_k}^4 - n_k) - 4\lambda_2 \sum_{k=N_1}^{N_2} {u_k}^2 {v_k}^2 + E_i \theta_{{\rm odd},N_{\rm tot}} \tag{101}$$

where e_k are the single-particle energies and n_k, with values 2, 1, or 0, specify the sharp distribution of particles in the absence of pairing. The quasi-particle energy E_i for the odd particle occupying level i is given by Eq. (100), and $\theta_{{\rm odd},N_{\rm tot}}$ is unity if $N_{\rm tot}$ is odd and zero if $N_{\rm tot}$ is even.

2.9. Effective-interaction pairing-gap models

In microscopic pairing calculations, the pairing strength G for neutrons and protons can be obtained from effective-interaction pairing gaps $\Delta_{G_{\rm n}}$ and $\Delta_{G_{\rm p}}$ given by [16]

$$\Delta_{G_{\rm n}} = \frac{r_{\rm mic} B_{\rm s}}{N^{1/3}} \tag{102}$$

$$\Delta_{G_{\rm p}} = \frac{r_{\rm mic} B_{\rm s}}{Z^{1/3}}. \tag{103}$$

The dependence of the pairing strength G on the corresponding effective-interaction pairing gap Δ_G is obtained from the microscopic equations by assuming a constant level density for the average nucleus in the vicinity of the Fermi surface. This allows the sums in the equations to be replaced by integrals. The average level density of doubly degenerate levels is taken to be

$$\widetilde{\rho} = \frac{1}{2}\widetilde{g}(\widetilde{\lambda}) \tag{104}$$

where $\widetilde{g}$ is the smooth level density that is obtained in Strutinsky's shell-correction method and $\widetilde{\lambda}$ is the Fermi energy of the smoothed single-particle energy [10,78]. Thus, we can make the substitution

$$\sum_{k=N_1}^{N_2} f(e_k - \lambda) \Longrightarrow \widetilde{\rho}\int_{y_1}^{y_2} f(x)dx \tag{105}$$

where

$$y_1 = \frac{-\frac{1}{2}N_{\rm tot} + N_1 - 1}{\widetilde{\rho}}$$

$$y_2 = \frac{-\frac{1}{2}N_{\rm tot} + N_2}{\widetilde{\rho}}. \tag{106}$$

The gap Eq. (95) can now be evaluated for an *average* nucleus, with the result

$$\frac{1}{G} = \frac{1}{2}\widetilde{\rho}\int_{y_1}^{y_2} \frac{dx}{\sqrt{x^2 + {\Delta_G}^2}} = \frac{1}{2}\widetilde{\rho}\left[\ln\left(\sqrt{{y_2}^2 + {\Delta_G}^2} + y_2\right) - \ln\left(\sqrt{{y_1}^2 + {\Delta_G}^2} + y_1\right)\right]. \tag{107}$$

From this expression, the pairing strength G in the BCS model can be determined in any region of the nuclear chart.

The same expression may also be used in the Lipkin–Nogami case, but some reinterpretations are necessary. It is now the energies ε_k occurring in Eq. (95) that are assumed to be equally spaced. These are not precisely the single-particle energies e_k but are related to them by Eq. (97). Thus, in order for ε_k to be equally spaced, the single-particle energies e_k must be shifted downward

by the amounts $(4\lambda_2 - G){v_k}^2$. Since the occupation probability ${v_k}^2$ is approximately unity far below the Fermi surface and zero far above, the corresponding single-particle energy distribution is approximately uniform far above and far below the Fermi surface but spread apart by the additional amount $4\lambda_2 - G$ close to the Fermi surface. Although this decrease in level density near the Fermi surface is accidental, it is in approximate accord with the ground-state structure of real nuclei, since the increased stability associated with ground-state configurations is due to low level densities near the Fermi surface [78,65].

In the Lipkin–Nogami model, it is the quantity $\Delta + \lambda_2$ that is associated with odd–even mass differences, whereas in the BCS model it is Δ only that should be directly compared to the experimental data. This leads to the expectation that there is a related difference between $\Delta_G^{\rm LN}$ and $\Delta_G^{\rm BCS}$, the effective-interaction pairing gaps associated with the LN and BCS models, respectively. Since we determine the constants of the model for $\Delta_G^{\rm LN}$ directly from least-squares minimization, it is not necessary to specify exactly such a relationship. However, the above observation is of value as a rough rule of thumb, and to remind us to expect that the effective-interaction pairing gaps in the BCS and LN models will be of somewhat different magnitude.

The expression for the *average* pairing correlation energy plus quasi-particle energy $\widetilde{E}_{\rm p.c.}$ in the Lipkin–Nogami model is obtained in a similar manner as the expression for the pairing matrix element G. For the average pairing correlation energy plus quasi-particle energy in the Lipkin–Nogami model we then obtain

$$\begin{aligned}\widetilde{E}_{\rm p.c.} &= \frac{1}{2}\widetilde{\rho}\Bigg[(y_2 - G)\left(y_2 - \sqrt{{y_2}^2 + {\Delta_G}^2}\right) \\ &\quad + (y_1 - G)\left(y_1 + \sqrt{{y_1}^2 + {\Delta_G}^2}\right)\Bigg] \\ &\quad + \frac{1}{4}(G - 4\widetilde{\lambda}_2)\widetilde{\rho}\Delta_G\left[\tan^{-1}\left(\frac{y_2}{\Delta_G}\right) - \tan^{-1}\left(\frac{y_1}{\Delta_G}\right)\right] \\ &\quad + \overline{\Delta}\theta_{{\rm odd},N_{\rm tot}} \end{aligned} \tag{108}$$

where the average pairing gap $\overline{\Delta}$ is given by Eqs. (41) and (42) or Eqs. (63) and (64).

The expression for $\widetilde{\lambda}_2$ for an average nucleus is fairly lengthy, being given by

$$\widetilde{\lambda}_2 = \frac{G}{4}\left(\frac{A - C}{B - C}\right) \tag{109}$$

where

$$\begin{aligned} A &= \left(\frac{\widetilde{\rho}\Delta_G}{4}\right)^2\left\{\left(\frac{2}{G\widetilde{\rho}}\right)^2 - \left[\ln\left(\frac{\sqrt{{y_2}^2 + {\Delta_G}^2}}{\sqrt{{y_1}^2 + {\Delta_G}^2}}\right)\right]^2\right\} \\ B &= \frac{{\Delta_G}^2\widetilde{\rho}^2}{16}\left[\tan^{-1}\left(\frac{y_2}{\Delta_G}\right) - \tan^{-1}\left(\frac{y_1}{\Delta_G}\right)\right]^2 \\ C &= \frac{\widetilde{\rho}\Delta_G}{32}\Bigg[\Delta_G\left(\frac{y_2}{{y_2}^2 + {\Delta_G}^2} - \frac{y_1}{{y_1}^2 + {\Delta_G}^2}\right) \\ &\quad + \tan^{-1}\left(\frac{y_2}{\Delta_G}\right) - \tan^{-1}\left(\frac{y_1}{\Delta_G}\right)\Bigg]. \end{aligned} \tag{110}$$

One should note that the pairing strength G depends on the interval (N_1, N_2) over which the pairing force is active. However, in our formulation we do not use G as a primary constant. Instead, we use the effective-interaction pairing gaps $\Delta_{G_{\rm n}}$ and $\Delta_{G_{\rm p}}$, which are independent of the choice of interaction interval (N_1, N_2). We choose the pairing interaction interval so that at least all levels up to 5 MeV above the Fermi surface are included. It has sometimes been asked whether particles scattered into the continuum by the pairing force would escape from the nucleus if the interaction interval includes unbound states. Of course not! The superfluid state is the *most bound* configuration. The single-particle picture does not give the true nuclear ground or excited states; it only serves as the set of basis functions for the pairing calculation. Instead, the quasi-particle energies obtained in the pairing calculation represent a subset of all possible excited states. If, in an excited nucleus, the quasi-particle energies are lower than the particle separation energies, no nucleons escape.

2.10. Shell correction

The Strutinsky shell-correction method [11,12] requires two additional constants, the order p and the range $\gamma_{\rm S}$. The shell correction should be insensitive to these quantities within a certain range of values. Their values can therefore be determined in principle by requiring this "plateau condition" to be fulfilled, that is that the shell correction is constant for a range of these quantities [11,12]. We have found that for heavy nuclei this condition is indeed fulfilled, with the shell correction for nuclear ground-state shapes being insensitive to the values of these two constants. However, for light nuclei this is no longer the case. Here the shell correction may vary by several MeV for a reasonable range of values of the range $\gamma_{\rm S}$. Moreover, the shell correction often does not exhibit any plateau. This probably indicates a gradual breakdown of the shell-correction method as one approaches the very lightest region of nuclei, where the number of single-particle levels is small, as was also discussed earlier, see Ref. [10] and references therein.

In the present calculation we retain the same values of the order in the Strutinsky shell-correction method and the range $\gamma_{\rm S}$ as in Ref. [9]. The range is expressed as

$$\gamma_{\rm S} = C_{\rm S}\hbar\omega_0 B_{\rm s} \tag{111}$$

with $B_{\rm s}$ given by Eq. (70).

The version of the Strutinsky method [11,12] that we use here was originally proposed for infinite single-particle wells. For finite wells the calculated shell correction diverges to $+\infty$ as the number of basis functions approaches $+\infty$. This difficulty is avoided by using only a limited number of basis functions. It has been found that the calculated shell correction is approximately independent of $N_{\rm bas}$ in the range $8 \lesssim N_{\rm bas} \lesssim 13$ [10].

One may expect the Strutinsky method to be less accurate for light nuclei than for heavy nuclei because the smooth, average quantities calculated in the Strutinsky method are less accurately determined from the few levels occurring in light nuclei. One could also ask if the method is less accurate near the drip lines than close to β stability because the truncated single-particle level spectrum that we use deviates more from a realistic single-particle spectrum near the drip lines than near β-stable nuclei. Below, where we study the reliability of the model for light nuclei and for nuclei far from β stability, we find that the model error does indeed grow as the size of the nuclear system decreases. However, we find no obvious increase in the model error for today's known nuclei that are the furthest from β stability. The reliability of the Strutinsky method for the folded-Yukawa single-particle potential is further discussed in the appendix of Ref. [10].

2.11. Zero-point energy

As a final step in the calculation of nuclear ground-state masses, a zero-point energy is added to the calculated potential energy at the ground-state shape. In the FRDM(1992) calculation, only a contribution from zero-point motion in the ε_2 (fission) direction was added because we could not calculate the potential versus the axial asymmetry direction at that time. Since we now have

that capability we also consider zero-point motion in the axial-asymmetry γ variable.

In the harmonic approximation this zero-point energy E_{zp} is given by

$$E_{0,\lambda} = \frac{1}{2}\hbar\omega_\lambda \tag{112}$$

where

$$\omega_\lambda = (C_\lambda/B_\lambda)^{1/2}. \tag{113}$$

Here C_λ is the potential-energy stiffness constant and B_λ is the inertia associated with motion in the λ-direction. We assume here that the inertia B_λ is proportional to the incompressible irrotational flow, with the same proportionality factor for both ε- and γ-vibrations. We write this relationship in the form

$$B_\lambda = B_\lambda^{\rm irr}/\mathcal{K}^2 \tag{114}$$

so that

$$\omega_\lambda = \mathcal{K}\omega_\lambda^{\rm irr}. \tag{115}$$

Since a realistic inertia is larger than the irrotational flow inertia we determine $\mathcal{K}$ in our adjustment of the other FRDM parameters to ground-state masses. We then use the same value of $\mathcal{K}$ in the FRLDM model.

The incompressible-flow values of the inertias for axially symmetric shapes are given by [1]:

$$B_{\varepsilon_2}^{\rm irr} = \frac{2}{15}\frac{\left(1+\frac{2}{9}{\varepsilon_2}^2\right)}{\left(1-\frac{2}{3}\varepsilon_2\right)^2}\left(1-\frac{1}{3}{\varepsilon_2}^2-\frac{2}{27}{\varepsilon_2}^3\right)^{-4/3} M_0{R_0}^2 \tag{116}$$

$$B_\gamma^{\rm irr} = \frac{2}{15}\left(\frac{1-\frac{2}{3}\varepsilon_2}{1+\frac{1}{3}\varepsilon_2}\right)^{2/3}\left[\ln\left(\frac{1+\frac{1}{3}\varepsilon_2}{1-\frac{2}{3}\varepsilon_2}\right)\right]^2 M_0{R_0}^2. \tag{117}$$

The stiffness constants C_λ are determined from the curvatures with respect to ε_2 and γ

$$C_\gamma = \left.\frac{\partial^2 E}{\partial\gamma^2}\right|_{\rm gs} \qquad C_{\varepsilon_2} = \left.\frac{\partial^2 E}{\partial{\varepsilon_2}^2}\right|_{\rm gs}. \tag{118}$$

At the ground state we obtain the harmonic approximation to the potential energy by fitting a second-degree polynomial to the potential. Earlier we used only three points, the ground-state and one point on either side [9]. Now, in the ε parameterization we use potential energies at $\varepsilon_2^{\rm gs}$, $\varepsilon_2^{\rm gs}\pm 0.05$, $\varepsilon_2^{\rm gs}\pm 0.10$, and $\varepsilon_2^{\rm gs}\pm 0.15$, that is, seven points to do a least-squares fit of a second-degree polynomial to these points. In the γ direction we use $\gamma^{\rm gs}$, $\gamma^{\rm gs}\pm 5$, $\gamma^{\rm gs}\pm 10$, and $\gamma^{\rm gs}\pm 15$. For the 746 cases when the ground state is tri-axial, we obtain the inertias by interpolation between the their values on the prolate and oblate axes. As discussed in Ref. [1], as ε_2 goes to zero the ε_2 and γ modes become identical. Also, for small distances away from the spherical shape, it is numerically difficult to calculate ΔE_γ, so for ground states with $\varepsilon_2 < 0.17$ we put $\Delta E_\gamma = \Delta E_{\varepsilon_2}$.

2.12. Values of microscopic-model constants

The constants appearing in the expressions occurring in the microscopic shell-plus-pairing calculation fall into four categories. The first category, which represents fundamental constants, includes

$m_{\rm nuc} = 938.90595$ MeV	nucleon mass
$\hbar c = 197.32891$ MeV fm	Planck's constant multiplied by the speed of light and divided by 2π
$e^2 = 1.4399764$ MeV fm	electronic charge squared.

The electronic charge squared has already been counted among the macroscopic constants.

The second category, which represents constants that have been determined from considerations other than nuclear masses, includes [1,2,10].

$C_{\rm cur} = 41$ MeV	basis curvature constant
$V_{\rm s} = 52.5$ MeV	symmetric potential-depth constant
$V_{\rm a} = 48.7$ MeV	asymmetric potential-depth constant
$A_{\rm den} = 0.82$ fm	potential radius correction constant
$B_{\rm den} = 0.56$ fm^2	potential radius curvature-correction constant
$a_{\rm pot} = 0.8$ fm	potential diffuseness constant
$k_{\rm p} = 0.025$	proton spin–orbit A coefficient
$l_{\rm p} = 28.0$	proton spin–orbit constant
$k_{\rm n} = 0.01875$	neutron spin–orbit A coefficient
$l_{\rm n} = 31.5$	neutron spin–orbit constant.

The third category, representing those constants whose values were obtained from consideration of mass-like quantities, are

$N_{\rm bas} = 12$	number of basis functions
$p = 8$	order of Strutinsky shell correction
$C_{\rm S} = 1.0$	Strutinsky range coefficient.

The fourth category, representing those constants whose values were obtained from a least-squares adjustment simultaneously with the macroscopic constants of the FRDM, are

$r_{\rm mic} = 3.2$ MeV	LN effective-interaction pairing-gap constant
$\mathcal{K} = 0.2475$	Zero-point energy constant.

The constant $r_{\rm mic}$ was determined during the development of FRDM(1992) [9] and we have retained the value determined there.

In addition, the following droplet-model constants, which have been determined in an earlier study [71], are used in the expressions for the *average* bulk nuclear asymmetry $\overline{\delta}$ and *average* relative deviation $\overline{\varepsilon}$ in the bulk density that are used to calculate $V_{\rm p}$, $V_{\rm n}$, and $R_{\rm den}$ in Eqs. (84), (85), and (83), respectively:

$a_2 = 22.00$ MeV	surface-energy constant
$J = 35$ MeV	symmetry-energy constant
$L = 99$ MeV	density-symmetry constant
$Q = 25$ MeV	effective surface-stiffness constant
$K = 300$ MeV	compressibility constant
$r_0 = 1.16$ fm	nuclear-radius constant.

Insertion of these values and the value of e^2 on which c_1 depends in Eqs. (86) and (87) leads to

$$\overline{\delta} = \frac{(N-Z)/A + 0.0112Z^2/A^{5/3}}{1+3.15/A^{1/3}} \tag{119}$$

$$\overline{\varepsilon} = -\frac{0.147}{A^{1/3}} + 0.330\overline{\delta}^2 + \frac{0.00248Z^2}{A^{4/3}}. \tag{120}$$

3. Enumeration of constants

It is always of interest to have a clear picture of exactly what constants enter a model. Naturally, anyone who sets out to verify a calculation by others or uses a model for new applications needs a complete specification of the model, for which a full specification of the constants and their values is an essential part. Also, when different models are compared it is highly valuable to fully understand exactly what constants enter the models. Unfortunately, discussions of model constants are often incomplete, misleading, and/or erroneous. For example, in Table A

Table A
Constants in the FRDM. The third column gives the number of constants adjusted to nuclear masses or mass-like quantities such as odd–even mass differences or fission-barrier heights. The fourth column gives the number of constants determined from other considerations.

Constants	Comment	Mass-like	Other
M_H, M_n, e^2	Macroscopic fundamental constants	0	3
$a_{el}, r_0, r_p, a, a_{den}, K$	Macroscopic constants from considerations other than mass-like data	0	6
a_3, W, h	Macroscopic constants obtained in prior adjustments to mass-like data	3	0
$a_1, a_2, J, Q, a_0, L, C, \gamma, c_a$	Macroscopic constants determined by current least-squares adjustments	9	0
$\hbar c, m_{nuc}$	Microscopic fundamental constants	0	2
$V_s, V_a, A_{den}, B_{den}, C_{cur}, k_p, l_p, k_n, l_n, a_{pot}$	Microscopic constants	0	10
N_{bas}, p, C_S	Microscopic constants determined from considerations of mass-like quantities	3	0
r_{mic},	Microscopic constant determined by previous least-squares adjustments	1	0
$\mathcal{K}$	Microscopic constant determined by current least-squares adjustments	1	0
a_1, a_2, J, K, L, Q	Droplet-model constants that enter the single-particle potential (see discussion in text)	0	0
Subtotals		17	21
Total			38

Table B
Constants in the FRLDM. The third column gives the number of constants adjusted to nuclear masses or mass-like quantities such as odd–even mass differences or fission-barrier heights. The fourth column gives the number of constants determined from other considerations.

Constants	Comment	Mass-like	Other
M_H, M_n, e^2	Macroscopic fundamental constants	0	3
$a_{el}, r_0, r_p, a, a_{den}$	Macroscopic constants from considerations other than mass-like data	0	5
W, h	Macroscopic constants obtained in prior adjustments to mass-like data	2	0
$a_v, \kappa_v, a_s, \kappa_s, a_0, c_a$	Macroscopic constants determined by current least-squares adjustments	6	0
$\hbar c, m_{nuc}$	Microscopic fundamental constants	0	2
$V_s, V_a, A_{den}, B_{den}, C_{cur}, k_p, l_p, k_n, l_n, a_{pot}$	Microscopic constants	0	10
$N_{bas}, p, C_S, r_{mic}, \mathcal{K}$	Microscopic constants determined from considerations of mass-like quantities	4	0
a_1, a_2, J, K, L, Q	Droplet-model constants that enter the single-particle potential (see discussion in text)	3	0
Subtotals		16	20
Total			36

of Ref. [79] the number of parameters of the mass model of Spanier and Johansson [80] is listed as 12. However, in the article [80] by Spanier and Johansson, the authors themselves list in their Table A 30 parameters plus 5 magic numbers that are not calculated within the mass model and must therefore be considered parameters, for a total of at least 35 parameters.

We specify here *all* the constants that enter our model, rather than just those that in the final step are adjusted to experimental data by a least-squares procedure. We also include such constants as the number of basis functions used and fundamental constants like the electronic charge and Planck's constant.

3.1. Constants in the FRDM

The discussion in the previous section allows us to enumerate the constants in the FRDM model in Table A. From this list we see that the macroscopic–microscopic method requires relatively few constants. One feature of the model gives rise to a small complication when counting the number of constants. Droplet-model constants occur also in the determination of the single-particle potential. However, a different set of constants is used here because, as discussed above, one does not know what the optimum values are until the calculation has been completed. In principle, the calculation should be repeated with the new droplet-model constants defining the single-particle potential until convergence is obtained. In Table A we have counted the number of constants as if this procedure had been carried out.

However, since the droplet-model constants used in the present calculations are different in the microscopic part and in the macroscopic part, different counting schemes could also be employed. Since the droplet-model constants used in the microscopic expressions are obtained from four primary constants [71] and nuclear masses were used only to give rough estimates of these constants, one may not wish to regard them as determined from mass-like quantities. One of the four primary constants is the nuclear radius constant r_0, which has the same value as we use in our macroscopic model. Therefore, only three remain that could be considered as additional FRDM constants. With this classification scheme the number of constants adjusted to mass-like quantities remains 17 and the total number of constants in the model increases from 38 to 41. Alternatively, if we do count the three primary constants as adjusted to nuclear masses, the total number of FRDM constants is 41, while the number adjusted to mass-like quantities increases from 17 to 20.

3.2. Constants in the FRLDM

The constants in the FRLDM, which are either identical to or similar to the constants in the FRDM, are enumerated in Table B. We mentioned in the discussion of the FRDM constants that the six constants in the last line of Table A would converge to the values of the same constants listed earlier in the table after a sufficient number of iterations. In the FRDM these constants therefore need not be regarded as additional constants. In contrast, in the FRLDM they must be regarded as constants obtained from adjustments to mass-like quantities. However, as mentioned in the discussion of the FRDM constants, these constants are all obtained from three primary constants, so we only include three in this category.

4. Calculational details

Our mass tabulation includes all nuclei in the FRDM(1992) and 339 additional nuclei requested by astrophysicists: below $N = 82$ we have added nuclei on the neutron-rich side, up to about 20 in each isotope sequence. For example, the most neutron-rich chromium nucleus in the previous table was $^{86}_{24}Cr_{62}$, in the current table it is $^{103}_{24}Cr_{79}$. We refer below to this "new" neutron-rich region as NNR.

The adjustment of constants in the macroscopic model is simplified enormously because the ground-state shape and fission

saddle-point shape are to high accuracy independent of the precise values of these constants when they are varied within a reasonable range [82]. We therefore calculate the ground-state deformation with one set of constants and subsequently determine the various shape-dependent terms in the mass expression at this deformation. The constants of the macroscopic model can then be adjusted, with the nuclear shapes remaining fixed. The ground-state shapes are always determined in the FRLDM.

A significant advantage of this approach is that the effect of new features can often be investigated without repeating the entire calculation from the beginning. With the more elaborate searches for ground-state minima relative to the FRDM(1992) (see below) and the consideration of axial-asymmetry effects that we now undertake, this would take around 50,000 CPU hours, of which about 40,000 CPU hours comes from the consideration of axial-asymmetry degrees of freedom. Our determination of mass-model constants and ground-state nuclear masses involves several steps that were summarized in Fig. 1. We discuss these steps and then continue with a presentation and discussion of our results.

1. We found, when we could profit from vastly increased computer power, that in the optimization of the FRDM(1992) macroscopic constants we had not quite found the optimum values. We had started with about 20 different starting values for these constants and we always converged on the same solution. We later found, as discussed in Ref. [83], that when we investigated a larger set of starting values, several hundred sets, about 5% would lead to a different, lower-$\sigma_{\rm th}$ solution, namely $\sigma_{\rm th} = 0.6614$ MeV. It is interesting to note that when we compare the published FRDM(1992) to the masses that were new in AME2003 relative to AME1989 (529 data points), we found that in this "extrapolated" region the model error was quite low $\sigma_{\rm th} = 0.4617$ MeV. With the more optimized model constants one would perhaps expect poorer extrapolation properties, since conventional wisdom is that a model that is extremely tightly bound to known data will do more poorly when applied to new regions. However, we found that the model with the better determined constants reproduced the masses in the new region with a $\sigma_{\rm th} = 0.4208$ MeV accuracy! These investigations are discussed in slightly more detail in Ref. [83]. Since we had by then realized that the FRDM should not be applied to fission-barrier calculations we also investigated the impact of excluding them from our optimization of model constants. This led to a very minimal decrease in the model deviations, we obtained $\sigma_{\rm th} = 0.6591$ MeV. We also investigated the results obtained when we adjusted to the AME2003 data base (which we also now do here) and obtained a model error $\sigma_{\rm th} = 0.6140$ MeV. Thus, as indicated in the summary Fig. 1 we obtained an improvement of (about) 0.05 MeV from these two enhancements. We now proceed to discuss the remaining steps.
2. As a first step, potential-energy surfaces are calculated versus ε_2, ε_4, and γ. In this calculation, which was actually performed in 2006, the FRLDM as defined in Ref. [9], with macroscopic constants as given in Ref. [57], was used. From these potential-energy surfaces a first estimate of the ground-state ε_2, ε_4 and γ deformations are obtained. The grid-point distances are $\Delta\varepsilon_2 = 0.025$, $\Delta\varepsilon_4 = 0.02$, and $\Delta\gamma = 2.5$. Details of these calculations are in Refs. [44,45,39,25]. A large number of calculated potential-energy surfaces and discussions focused on shape isomers are in Ref. [46]. Calculated potential-energy surfaces in PDF format can be accessed at URL [84]. They should be accessed by following the link "here" at the top of this page. Two sets of surfaces exist. One set is limited in deformations to $0 \le \varepsilon_2 \le 0.45$ and $31 \le A \le 290$ "near-ground-state" potential-energy surfaces; the other to $0 \le \varepsilon_2 \le 0.75$ and $171 \le A \le 330$, so called "fission" potential-energy surfaces. Axial asymmetry was not considered for NNR nuclei, because the request for additional nuclei came 5 years after we had concluded the axial-asymmetry studies. But since deformations in the NNR are usually near spherical and because axial asymmetry is minor for lighter and neutron-rich nuclei (see Fig. 2 in Ref. [44]) we expect little effect on masses from this omission.
3. In our implementation of axial asymmetry we can only study axial asymmetry together with two other multipoles, namely quadrupole (ε_2) and hexadecapole (ε_4) multipoles. The largest effect on the ground state mass that we find in that study is about 0.8 MeV. Only about 10% of the nuclei are affected, usually to a much smaller degree, see Refs. [44,45]. To calculate more accurate ground-state shapes and masses for axially symmetric nuclei we proceed as follows. We minimize the energy with respect to ε_2, ε_3, ε_4, and ε_6. We do a discrete minimization with a step size of 0.01 in each variable. We feel that a determination of the ground-state shapes to an accuracy of 0.01 in each of the four multipoles is quite sufficient, so that little would be gained by implementing cumbersome interpolation schemes. For each nucleus we do a minimization using several different starting points. One group of starting points are all the minima on the oblate and prolate axes that we found in the 3D calculation. We also start from the five locations ($\varepsilon_2 = -0.25, \varepsilon_3 = 0, \varepsilon_4 = -0.04, \varepsilon_6 = 0$), ($\varepsilon_2 = -0.25, \varepsilon_3 = 0, \varepsilon_4 = +0.04, \varepsilon_6 = 0$), ($\varepsilon_2 = +0.25, \varepsilon_3 = 0, \varepsilon_4 = -0.04, \varepsilon_6 = 0$), ($\varepsilon_2 = +0.25, \varepsilon_3 = 0, \varepsilon_4 = +0.04, \varepsilon_6 = 0$), and ($\varepsilon_2 = +0, \varepsilon_3 = 0, \varepsilon_4 = 0, \varepsilon_6 = 0$). During these studies we were surprised to discover that in a few rare cases (10 or 20 or so) that there could be a minimum with $\varepsilon_3 \neq 0$ separated from a minimum at $\varepsilon_3 = 0$ by a saddle in this 4D deformation space. What is also interesting is that we observed that if the octupole-deformed minimum was the lower of the two it would also correspond to a theoretical mass that agreed better with experiment. One example for which this occurs is ^{228}Th. Typically these situations occur in the transition regions between octupole-asymmetric regions and octupole-symmetric regions on the heavy side of the octupole-asymmetric regions. We therefore also did minimizations with all of the above starting points but with $\varepsilon_3 = 0.10$ at the starting location.
4. Once the ground-state shapes in the 4D axially symmetric calculation have been determined, the various shape-dependent functions occurring in the macroscopic energy are calculated for these shapes and stored. The shell-plus-pairing corrections are also stored. Because we cannot calculate the FRDM shape-dependent parameters in the γ plane we account for the axial asymmetry effects on the ground-state mass in the following manner. All the tabulated quantities are for the (lowest) minima in the axially symmetric space, and we account for the effect of axial asymmetry by modifying the calculated shell corrections by the difference between the potential energy at the ground-state minimum in the ($\varepsilon_2, \varepsilon_3, \varepsilon_4, \varepsilon_6$) space and the minimum in the ($\varepsilon_2, \varepsilon_4, \gamma$) if the axially asymmetric minimum is the lower one. The zero-point energies are now also calculated as described above and stored as separate entries.
5. The above rule that we select as the ground state the lowest minimum has to be modified for heavy nuclei. Simply expressed, for a nuclide with a high proton number the "fission-isomer" minimum can be lower than a less deformed "ground state" but the fission isomer minimum can have a much lower barrier with respect to fission than does the less deformed minimum, so the fission-isomer minimum is not a minimum that is sufficiently stable to be observed. We therefore need the auxiliary rule that we check the barrier with respect to fission and select as the ground state the minimum with the

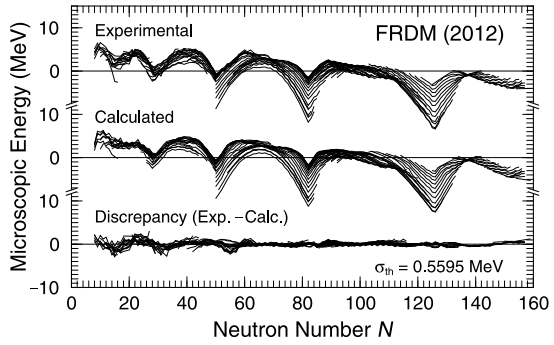

Fig. 3. Comparison of experimental to calculated microscopic energies $E_{\rm mic}$ for 2149 nuclei, for a macroscopic model corresponding to the FRDM. The bottom part showing the difference between these two quantities is equivalent to the difference between measured and calculated ground-state masses. There are almost no systematic errors remaining for nuclei with $N \geq 65$, for which region the error is only 0.355 MeV. The results shown in this figure represent our new mass model. The lines are drawn through isotope chains.

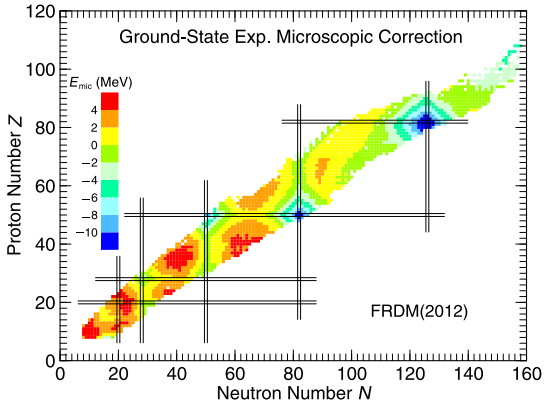

Fig. 4. Experimental microscopic correction corresponding to the top section in Fig. 3. (For a color version of this figure the reader is referred to the web version of this article.)

highest barrier with respect to fission. This consideration only leads to a different selection for the ground state than the much simpler rule to pick the lowest minimum for a few nuclei near ^{228}Fm and for some heavier nuclei, in particular those with $Z > 114$ and $N > 184$. These issues are discussed in detail and pedagogically illustrated in section **III:F** "Identifying the ground-state" in Ref. [39] and in the discussion of Figs. 6 and 8 in Ref. [61].

6. The constants of the FRDM are now determined by the optimization procedure described in Section 2.1. We assume the mean $\mu_{\rm th}$ is zero; thus we need only Eqs. (8), (9), (11) and (12). With all the shape-dependent macroscopic functions calculated and tabulated, and with the ground-state shell-plus-pairing energies and zero-point energies also tabulated, the actual optimization takes only 10 s or so to determine the optimum macroscopic constants. Once the constants are known (and all the tabulated quantities available) the FRDM(2012) is obtained in less than 10 s in the final computational step.
7. In the FRLDM we can calculate fission barriers. Therefore we determine the parameters by minimizing a weighted mean of the rms mass deviation and barrier rms deviations. with the weight 0.888 on the mass rms deviation and 0.111 on the barrier rms deviation. In case of multiple-humped fission barriers we only adjust to the outermost peak. In case of a triple-humped barrier we select the higher of the two outer peaks.
8. The FRLDM(2012) mass table is generated as well a barrier table with barrier heights for the 31 nuclei that we included in the barrier adjustment.

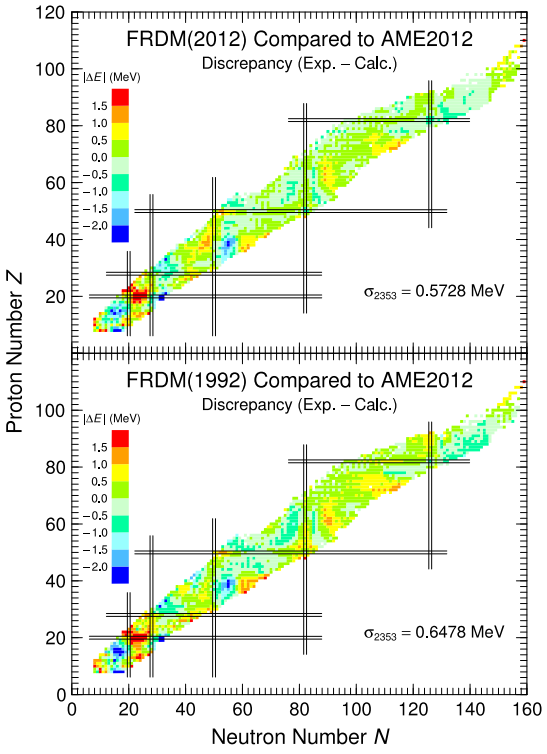

Fig. 5. Top Panel: Difference between measured masses and masses calculated in our current FRDM(2012). The model is adjusted to the AME2003 experimental evaluation [17] but we compare to the AME2012 evaluation [81]. Bottom panel: The previous FRDM(1992) is compared to the same data evaluation. The figure is discussed further in the text. (For a color version of this figure the reader is referred to the web version of this article.)

5. Calculated results

Fig. 3 shows the results of the FRDM calculation. As usual [8,1,9], the top part shows the differences between measured masses and the calculated spherical macroscopic FRDM masses plotted against the neutron number N, with isotopes of a particular element connected by a line. These differences have customarily been called "experimental" microscopic corrections and can be compared with the calculated microscopic corrections plotted in the middle part of the figure. It should be noted that despite the designation "experimental microscopic corrections" these do depend on the macroscopic model used. Please also note that "microscopic corrections" and shell-plus-pairing corrections are different concepts, as elaborated on in the discussion of Fig. 2. In Fig. 4 we plot the experimental microscopic correction in nuclear-chart style. The doubly magic numbers stand out particularly well in the heavy region. In 1936 Bethe and Bacher had the idea that gaps in calculated single-particle level schemes might correspond to large deviations between experimental masses and masses obtained in the semiempirical mass model [86]. At the time there was little mass data available for heavy nuclei so they focused on nucleon number 20 (^{40}Ca), but failed to find clear deviations. They concluded that it could be due to inaccurate experimental mass data. But in Fig. 4 we can see that there is no strong effect on masses for $Z = 20$, $N = 20$.

When the macroscopic and microscopic parts of the mass calculation are added to obtain the calculated mass excess and this sum is subtracted from the measured masses, the deviations shown in the bottom part of Fig. 3 remain. We have also plotted this deviation in "nuclear-chart style" format in Fig. 5. The trends of the error in the heavy region and with neutron number indicate that this mass model should be quite reliable for nuclei beyond the current end of the periodic system and towards the drip lines,

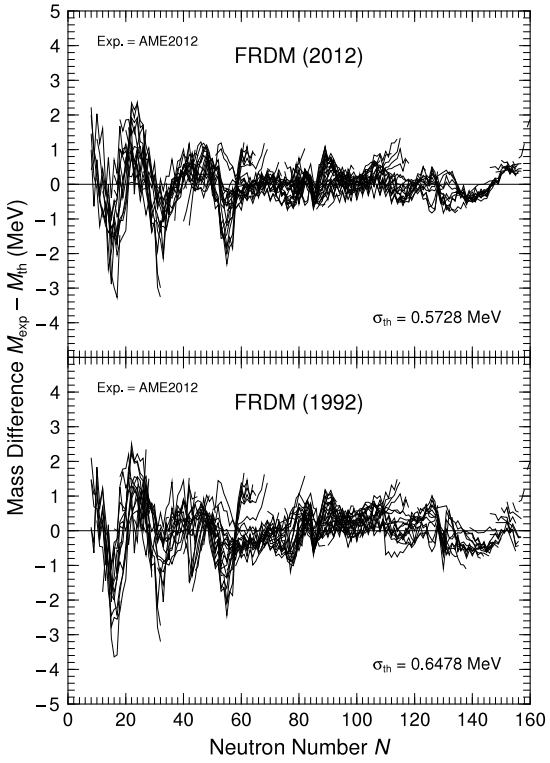

Fig. 6. The most recent mass evaluation AME2012 compared to FRDM(1992) and FRDM(2012). The improvements are particularly noticeable near the magic numbers $N = 82$ and $N = 126$ and in the shape-coexistence region near $N = 40$.

as has also been our experience with the FRDM(1992) [24,83,87]. This is further verified by the studies and simulations discussed in Section 5.1 on extrapability. Because the FRDM(2012) was finalized on September 6, 2012 and the AME2012 appeared in December 2012 the FRDM(2012) is adjusted to the AME2003 data base [17]. Therefore 219 masses in Fig. 5 situated along the upper and lower borders of the colored region were not included in the adjustment of the model constants. But we see no tendency to increasing deviations in these regions.

In Fig. 6 we study the improvement with respect to experimental data in the FRDM(2012) relative to the FRDM(1992). We compare both models to the AME2012 [81]. In Ref. [9] the FRDM(1992) was compared to the AME1989 data set [18]. We obtained a model error $\sigma_{\rm th} = 0.669$ MeV, but with respect to this new data set the deviation is decreased to $\sigma_{\rm th} = 0.6314$ MeV. The reason is that some measured masses were removed from in the new evaluation, others were revised, and also many of the new masses are in the heavier region where the FRDM(1992) is more accurate. In the new mass calculation the deviations are now smaller, $\sigma_{\rm th} = 0.5595$ MeV, an 11% reduction of the deviations. Particularly we notice that the large fluctuations near the magic neutron number $N = 126$ are gone. Also at $N = 82$ the deviations are considerably reduced, in particular when going into the magic shell. These improvements are partly due to the improved calculation of the zero-point energies as discussed in Section 2.11.

We also notice that a group of correlated large deviations just beyond $N = 40$ have almost entirely disappeared. The improvements in this region ($N \approx 40$) of shape coexistence is due to the more accurate execution of our calculations in the current version, made possible by vastly increased computer power. In the FRDM(1992) calculation, to obtain the potential energy at a specific deformation, we started by calculating a set of single-particle levels at this deformation for a single-particle potential with parameters (that is radius and depth) corresponding to a β-stable nucleus at the nucleon number A under consideration. Then we calculated the

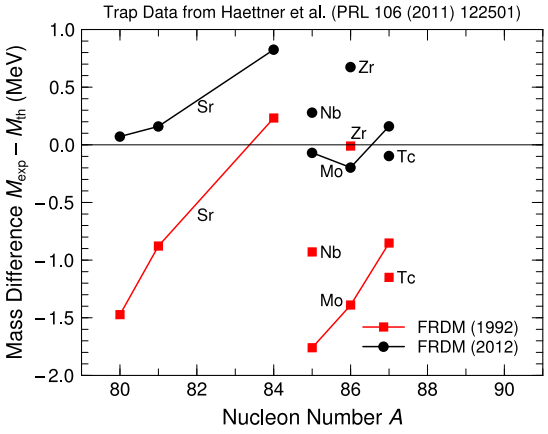

Fig. 7. Recent trap measurements [85] of 9 masses compared to FRDM(1992) and FRDM(2012). The new, more elaborate and accurate calculations have led to much better agreement with experimental masses in this region of shape coexistence. (For a color version of this figure the reader is referred to the web version of this article.)

shell-plus-pairing corrections for all nuclei with this A value from the proton drip line to the neutron drip line, using this same set of calculated single-particle levels. Then the macroscopic energy was calculated for each individual nuclide with correct parameters and correct Z and A, that is no approximation here. By repeating this procedure for different shapes potential-energy surfaces were obtained. We then located all minima and selected the deepest minimum as the ground-state (with consideration of stability with respect to fission as discussed above). At this minimum we then calculated the single-particle levels with the single-particle potential parameters appropriate for this nucleus to obtain more accurate shell-plus-pairing corrections. We also calculated the effect of ε_3 and ε_6 shape variations at this minimum. However we now find that in cases of shape coexistence the other minimum in some cases would have been the lower minimum had these additional step been taken also at that minimum. However, at the time we were limited by computer power and the approximations made resulted in significant inaccuracies in only a few cases. The origin of these results is the dependence of the single-particle radii and depths on $N - Z$, in addition to their A dependence. We find it interesting that our more accurate treatment here gives better agreement with experimental masses. This is a strong indication that we have implemented a realistic isospin dependence for the single-particle potential. We compare in Fig. 7 the FRDM(1992) and FRDM(2012) masses to new experiments [85] in the shape-coexistence region [25,46] near $N = 40$. In the new calculation the agreement with the measured masses is much improved.

Our nuclear-structure model framework allows us to calculate not just masses, but also other quantities such as β-decay half-lives and β-delayed neutron emission probabilities, and ground-state spins. We are currently in the process of calculating such quantities, which will be submitted for consideration for an Atomic Data and Nuclear Data Tables issue with an astrophysical emphasis, in analogy with our previous publication Ref. [24]. But as one example of improvements in the FRDM(2012) relative to FRDM(1992), of interest in r-process calculations we show in Fig. 8 results for the one-neutron separation energy S_{1n}. Displayed are contour lines representing the locations of the $S_{1n} = 1, 2, 3,$ and 4 MeV contours for the two models. For FRDM(1992) there is pronounced staggering in some locations, which are essentially absent in the FRDM(2012). These improvements are mainly due to the more accurate ground-state shape deformations and the improved calculations of the ground-state correlation ("zero-point") energies.

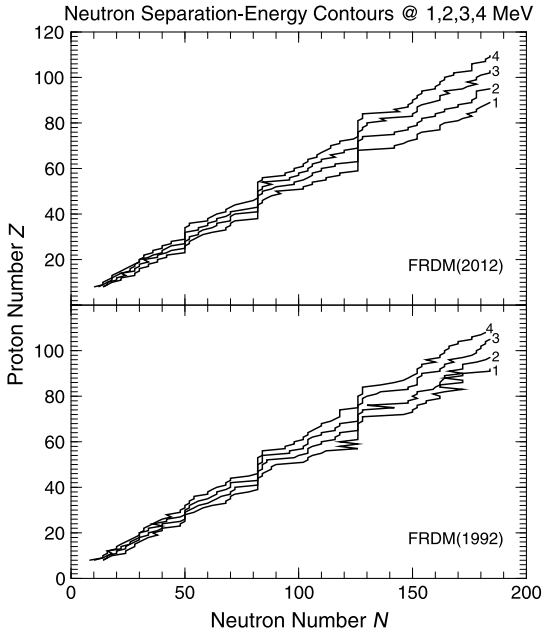

Fig. 8. Neutron separation-energy contours with $S_n = 1, 2, 3$, and 4 MeV in the FRDM(1992) and FRDM(2012). Most of the staggering in the contour lines seen for FRDM(1992) are absent in the FRDM(2012) results.

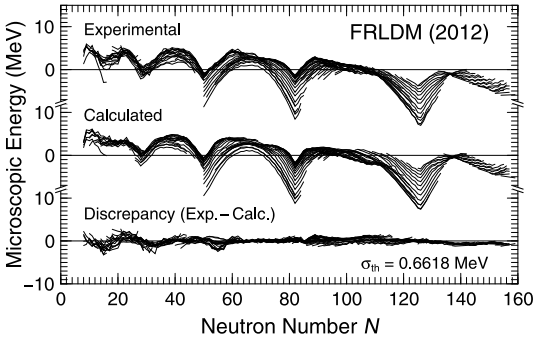

Fig. 9. Analogous to Fig. 3, but for the FRLDM, which contains no Coulomb redistribution terms. This leads to the systematic negative deviations for proton-rich nuclei in the heavy region, which indicate that these calculated masses are systematically too high.

The FRLDM(2012), which does not treat Coulomb redistribution effects, is somewhat less accurate than the FRDM(2012), with an 18% larger σ_{th}, as is seen in Fig. 9 and, in nuclear-chart format, in Fig. 10, as well as in Fig. 11. It is particularly in the heavy region that the FRLDM(2012) extends farther away from the zero deviation line, than does the FRDM(2012). There is also a systematic isospin effect on the differences, an effect which is absent in the FRDM(2012), which is especially clear in Fig. 11. This is a sign that the Coulomb redistribution effect is not treated in the FRLDM, which results in too low binding energies for heavy proton-rich nuclides [88]. We will further illustrate this issue in Section 5.1.

But, in contrast to the FRDM, we can calculate fission barriers in the FRLDM. We have recently published a calculation of fission-barrier heights for 5239 nuclides for all nuclei between the proton and neutron drip lines for the region $171 \leq A \leq 339$ [61]. This calculation was carried out exactly like here with the minor differences that (1) we have now improved the calculation of the ground-state correlation ("zero-point") energies and readjusted the macroscopic parameter set. That is, the shape space for the ground-state and fission saddle-point determinations are the same in the published barrier study as here. We include axial asymmetry corrections at the ground state in both calculations. We expect a

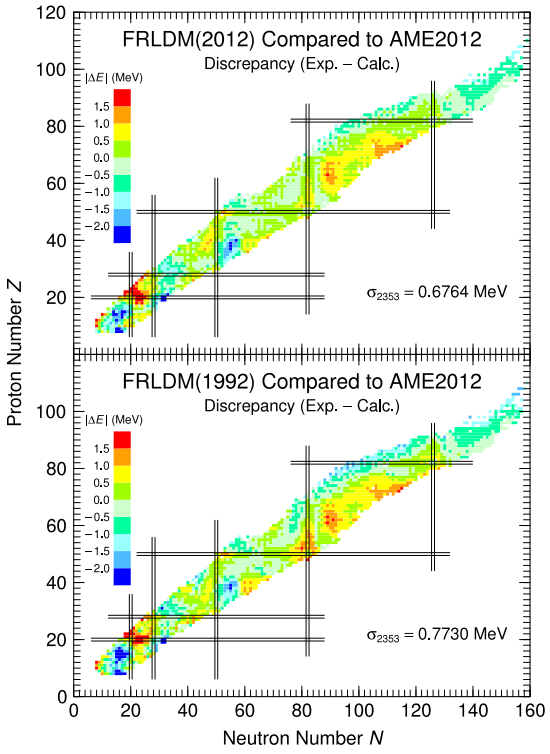

Fig. 10. Top panel: Difference between experimental masses from the AME2012 evaluation and masses calculated in the FRLDM(2012). Bottom panel: We compare here the previous FRLDM(1992) to the same experimental data evaluation. (For a color version of this figure the reader is referred to the web version of this article.)

negligible effect on barrier heights if they were calculated in the precise current model version. We have checked this for $^{180}_{80}Hg_{100}$, for which we tabulated in Ref. [89] a barrier height 9.81 MeV. With the current parameter set and the other features here we obtain a barrier height 9.65 MeV. We use the same experimental barrier data set as in Ref. [57] in our adjustment to barrier heights. We show in Table C and in Fig. 12 a comparison of the calculated barriers to the experimental data set.

Conventional wisdom has usually assumed that because the Coulomb and surface-energy terms in the macroscopic energy contribute with the same sign one cannot accurately determine the surface-energy constants from an adjustment to masses alone Rather one would need to also adjust the model parameters to fission-barrier heights because the terms contribute to the barrier heights with different signs. Obviously, if we were dealing with a completely accurate model this would not be necessary. We have tested this conventional wisdom by adjusting the FRLDM macroscopic constants (the usual 6 of them) considering only the AME2003 data set of 2149 masses and excluding fission barriers. In such an adjustment we obtain $\sigma_{th} = 0.6364$ MeV for the FRLDM. It is somewhat remarkable that the agreement with experimental fission-barrier evaluations does not deteriorate greatly; we in this case obtain an rms deviation of 1.475 MeV with respect to the 31 barriers, which probably indicates the robust character of our mass models. We plot these deviations as (red) diamonds in Fig. 12.

5.1. Extrapability

One test of the reliability of a nuclear mass model is to compare differences between measured and calculated masses in new regions of nuclei that were not considered when the constants of the model were determined. It is common to characterize a mass model error (or accuracy) in a certain region of nuclear masses by the rms deviation. However, as we pointed out in Section 2.1

Table C
Comparison of fission barriers calculated in the FRLDM(2012) and experimental barriers for 31 nuclei.

Z	N	A	E_{exp} (MeV)	E_{th} (MeV)	ΔE (MeV)	Z	N	A	E_{exp} (MeV)	E_{th} (MeV)	ΔE (MeV)
34	36	70	39.40	37.83	1.57	92	146	238	5.50	5.74	−0.24
34	42	76	44.50	44.08	0.42	92	148	240	5.50	6.46	−0.96
42	48	90	40.92	41.07	−0.15	94	142	236	4.50	4.57	−0.07
42	52	94	44.68	44.39	0.29	94	144	238	5.00	4.71	0.29
42	56	98	45.84	47.06	−1.22	94	146	240	5.15	5.05	0.10
80	118	198	20.40	21.60	−1.20	94	148	242	5.05	5.82	−0.77
84	126	210	21.40	22.16	−0.76	94	150	244	5.00	6.59	−1.59
84	128	212	19.50	20.19	−0.69	94	152	246	5.30	7.19	−1.89
88	140	228	8.10	7.59	0.51	96	146	242	5.00	4.61	0.39
90	138	228	6.50	6.59	−0.09	96	148	244	5.10	5.22	−0.12
90	140	230	7.00	5.66	1.34	96	150	246	4.80	6.01	−1.21
90	142	232	6.20	5.53	0.67	96	152	248	4.80	6.65	−1.85
90	144	234	6.50	5.49	1.01	96	154	250	4.40	6.33	−1.93
92	140	232	5.40	4.84	0.56	98	152	250	3.60	6.02	−2.42
92	142	234	5.50	5.10	0.40	98	154	252	4.80	5.78	−0.98
92	144	236	5.67	5.18	0.49						

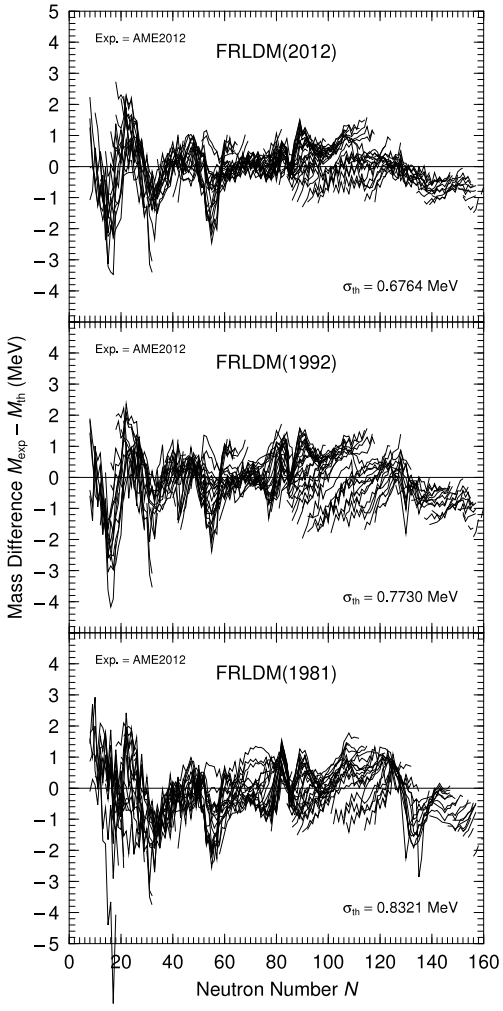

Fig. 11. Difference between measured masses from the AME2012 evaluation and masses calculated in the FRLDM(2012) (top panel) and masses calculated in the FRLDM(1992) (middle panel). The regions of improvement resemble those of the FRDM, namely we find improvements in the regions near $N = 40$, $N = 82$, and $N = 126$. The deviations from experiment are larger than in the FRDM in the heavy region. In the bottom panel we compare our first mass model, the FRLDM(1981) to the same mass evaluation.

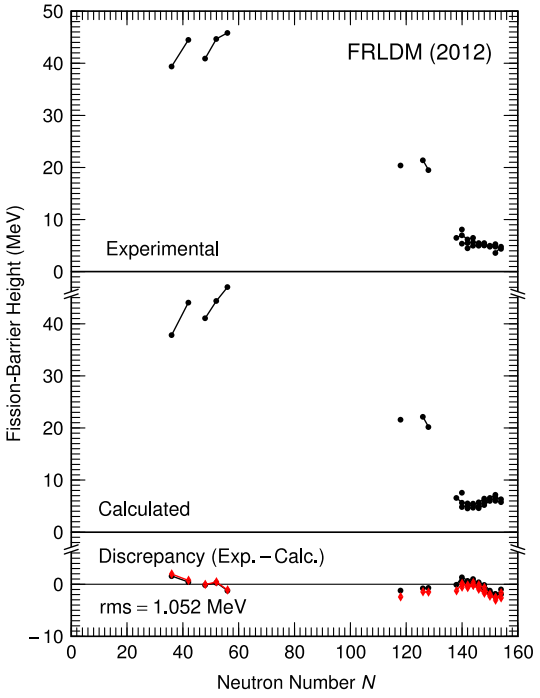

Fig. 12. Comparison of calculated and experimental fission-barrier heights for nuclei throughout the periodic table, after a readjustment of the macroscopic model constants. Experimental barrier heights are well reproduced by the calculations, the rms error is only 1.052 MeV for 31 nuclei. In the actinide region it is the outer of the two peaks in the "double-humped" barrier that is compared to experimental data. In case of a triple-humped barrier we compare to the higher of the outer two peaks. The (red) diamond symbols indicate the barrier-height differences we obtain when the FRLDM is adjusted only to ground-state masses. (For a color version of this figure the reader is referred to the web version of this article.)

this is an unsuitable measure since it is a sum of the model error and the experimental error. Above we discussed a more correct measure, which we introduced in 1988 [3] and normally use ever since. The difference between these two numbers can be substantial, in particular in regions of new nuclei where previously the experimental uncertainties could be sufficiently large to give a noticeable contribution to the rms number. For example, in Ref. [24] we compared (in Table D, first entry) the FRDM(1992) which was adjusted to AME1989 to new measurements in AME1993 that were not included in AME1989; there were 217 such new masses. For the 1654 nuclei in AME1989 to which the FRDM(1992) was adjusted the model error σ_{th} was 0.669 MeV, the rms deviation 0.681 MeV. For the new nuclei we found the model error $\sigma_{th} = 0.642$ MeV but the rms deviation is 0.730 MeV. Thus if the rms measure is used one finds that the "error" diverges in the new region of nuclei because the error is $100 \times 0.730/0.681 - 100$ percent (7.2%) larger in the new region of nuclei. With the more

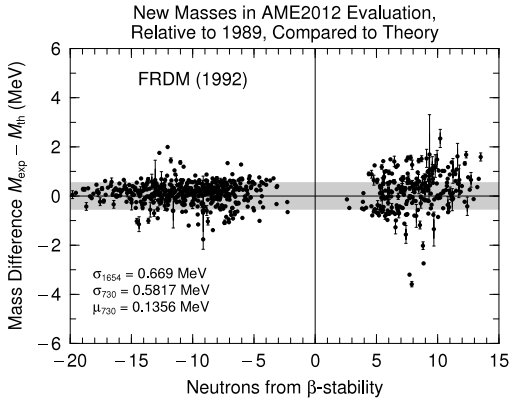

Fig. 13. The previous mass model, the FRDM(1992) compared to masses that are new in AME2012 relative to the data base AME1989. These new masses were not considered in the adjustment of the model constants. There are 730 such new masses. It is gratifying that the deviations are smaller (0.5818 MeV) for these new masses than in the region where the model parameters were adjusted.

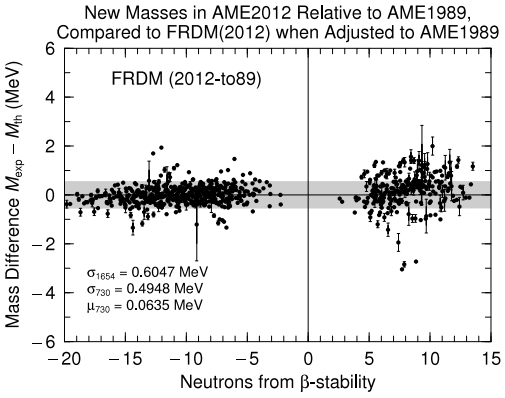

Fig. 14. We have adjusted our current mass model (with all the improvements discussed in the text included) to the older AME1989 experimental evaluation to test the extrapability of the model. It agrees better with the AME1989 data base than FRDM(1992), due to improvements in the calculations, 0.6047 MeV versus 0.669 MeV for the previous FRDM(1992). But it also extrapolates much better 0.4948 MeV for the new nuclei, versus 0.5817 for the previous FRDM(1992).

appropriate error measure we find instead that error is 4% smaller in the new region of nuclei.

We are now in a position to compare the FRDM(1992) to a much larger data set of new mass measurements. In the AME2012 evaluation there are 730 masses that were not in the AME1989 data set. In Fig. 13 we show the differences between the new masses and masses tabulated in FRDM(1992). As is our custom we plot the differences as a function of neutrons from stability where for the position of the line of β-stability we use Green's approximation [90]:

$$N - Z = \frac{0.4A^2}{A + 200}. \tag{121}$$

We observe that the accuracy of the previous (FRDM(1992)) mass model in this new region of nuclei has improved by $[1 - (0.5817/0.669)] \times 100 = 13.0\%$. The reasons are several. One is that this is not a double-blind test, the experimentalists were aware of our mass model and one can assume that if results strongly deviant from our mass model were obtained the results would be reevaluated (when masses are determined from α and β decay chains it is non-trivial to reach iron-clad conclusions). An illustration of this possibility can be seen in the comparison of Figs. 1 and 2 and the associated discussion in [83]. Another reason might be that in the group of new nuclei most (533) correspond to the region with $N > 65$ where the model error is lower than for $N \leq 65$, where our sample only contains 197 nuclides. The systematic deviation (mean deviation, see Section 2.1 for definitions) is 0.1356 MeV indicating that the model masses are underbound by this amount on the average. However, as discussed below we have now found that in 1992 we had not determined the optimum set of constants, with better optimized constants the mean deviation is much smaller, see Table D.

Our current mass model FRDM(2012) is adjusted to a recent data base, AME2003. We could compare it to the masses that are new in AME2012 relative to AME2003 but we proceed slightly differently for two reasons. First the number of new nuclei would be somewhat limited, and, second, we want to compare how FRDM(2012) performs relative to FRDM(1992). Therefore we have adjusted our current model to AME1989 and obtain FRDM(2012-to89). It means that all the technical improvements and "new physics" outlined in Fig. 1 are included, but we adjust the macroscopic parameters to the earlier experimental data set. Thus we can make a consistent comparison of the two versions, because no feature or quantity of the subsequently new masses have entered into the development of FRDM(2012). We show in Fig. 14 the result of this comparison. First, we notice that we agree better with the AME1989 data base than does the FRDM(1992). Since we now adjust two more parameters to the experimental data base, namely the density-symmetry parameter L (see Refs. [87,68] and a renormalization constant related to the inertia used in the zero-point energy calculation (see Section 2.11), one could have the valid concern that the better accuracy is just a consequence of the two additional variable parameters. However, we note that when this mass table (FRDM(2012-to89)) is compared to the new data set that was not taken into account in the adjustment the accuracy is much better than in the FRDM(1992), 0.4949 MeV compared to 0.5817 MeV, that is a 15% improvement, which at this level of accuracy cannot be achieved with addition of some type of arbitrary new terms. Also, normally if more parameters are introduced to fit a model to known regions, and consequently bind the model more tightly to known data, then it is quite common that this leads to an increase in the divergence of the model outside the region of adjustment. Since the opposite occurs here, and our test data set is substantial, we feel that this is a clear suggestion that the new constants varied represent the addition of realistic new features to the mass model.

In Fig. 15 we compare the current FRDM(2012) to the same data set as in the previous two figures. Most of these nuclei were included in the adjustment, namely 519 out of the total of 730. However, the error only decreased by a small amount, from 0.4948 MeV to 0.4788 MeV, a decrease by 0.0160 MeV, that is by 3.2%.

The three nuclei with differences near −3 MeV are $^{25}_{8}O_{17}$, $^{51}_{19}K_{17}$, and $^{52}_{20}Ca_{32}$, with differences −3.264, −2.996, and −3.264 MeV, respectively. The two latter are in region of seemingly localized deviations that stands out in Fig. 5. The deviations occur in a type of region of localized deviations that occur in the chart below $N = 65$, so the large deviations here near $Z = 20$ and $N = 30$ do not necessarily signal a collapse of the model in the neutron-rich region. For $^{25}_{8}O_{17}$ we observe that this is an extreme strain on our mean-field model with only 4 proton orbitals occupied and more than twice as many neutrons as protons. It is actually surprising to us that we do not obtain larger deviations considering that some (neutron–proton) asymmetry terms are only treated in first order. And, surprisingly perhaps, the deviation for the even more neutron-rich nuclide $^{26}_{8}O_{18}$ has *decreased* substantially to only −1.454 MeV. The point with a deviation slightly below −2 MeV is $^{54}_{21}Sc_{33}$ situated in the same region of localized deviations.

We now do similar studies for the FRLDM as in the previous 3 figures for the FRDM. In Fig. 16 we show how the previous FRLDM(1992) predicts the 730 masses that were measured in the time frame 1989–2012. For the FRDM the error (see Fig. 13)

Table D
FRDM(1992) and successive enhancements. Adjustments have been performed for up to 9 macroscopic constants, i.e, the volume–energy (a_1), the surface-energy (a_2), the symmetry-energy (J), the effective surface-stiffness (Q), the density-symmetry (L), the A^0 (a_0), the charge-asymmetry (c_a), the pre-exponential compressibility-term constant (C) and the exponential compressibility-term range (γ) constants. In one case the compressibility constant (K) is also varied, in a few other "sensitivity" studies it is fixed at values different from 240 MeV. These results are in lines 25–32. The second column indicates a model designation and the third is to which data set (denoted by numbers "1" through "6") the model was Adjusted/Compared "(A/C)". The last two columns are the mean deviation (with sign) $\mu_{\rm th}$ and the model error $\sigma_{th;\mu=0}$, both defined in Section 2.1, with respect to the data set specified in the "C" column. In column three, "1" stands for AME1989, "2" for AME2003, "3" for masses in AME2011 that were not in AME2003, "4" for AME2012, "5" for masses in AME2012 that are not in AME2003, and "6" for masses in AME2012 that are not in AME1989. The top line gives the original model constants [9]. When no values are given, the set on the line just above is used. The value "0" in the L column indicates L was fixed at zero. See the text for additional discussions.

Line no	Model	A/C	a_1 (MeV)	a_2 (MeV)	J (MeV)	Q (MeV)	K (MeV)	L (MeV)	a_0 (MeV)	c_a (MeV)	C (MeV)	γ	$\mu_{\rm th}$ (MeV)	$\sigma_{th;\mu=0}$ (MeV)
1	FRDM(1992)	1/1	16.247	22.92	32.73	29.21	240	0	0.00	0.436	60	0.831	0.0156	0.6688
2	FRDM(1992)	1/6											0.1356	0.5817
3	(92)-b	1/1	16.286	23.37	32.34	30.51	240	0	−5.21	0.468	179	1.027	0.0000	0.6591
4	(92)-b	1/6											−0.0243	0.5506
5	(92)-b	1/2											0.0076	0.6157
6	(06)-a	2/2	16.274	23.27	32.19	30.64	240	0	−5.00	0.450	169	1.000	0.0000	0.6140
7	(07)-b	2/2	16.231	22.96	32.11	30.83	240	0	−3.33	0.460	119	0.907	0.0000	0.5964
8	(11)-b	2/2	16.231	22.95	32.10	30.78	240	0	−3.14	0.456	113	0.896	0.0001	0.5863
9	(11)-b	2/3											−0.0850	0.6212
10	(11)-a	2/2	16.147	22.44	32.51	28.54	240	70.84	−2.96	0.531	150	0.880	−0.0004	0.5700
11	(11)-a	2/3											−0.0516	0.5618
12	(11)-c	1/1	16.251	23.10	32.31	30.49	240	0	−3.43	0.471	123	0.935	−0.0003	0.6300
13	(11)-d	1/1	16.142	22.39	32.98	27.58	240	85.95	−2.64	0.548	138	0.853	0.0000	0.6092
14	**FRDM(2012)**	**2/2**	**16.195**	**22.76**	**32.30**	**28.72**	**240**	**53.50**	**−4.00**	**0.489**	**205**	**0.988**	**−0.0007**	**0.5595**
15	**FRDM(2012)**	**2/5**											**0.0642**	**0.6440**
16	**FRDM(2012)**	**2/4**											**0.0094**	**0.5728**
17	(12)-b	4/4	16.175	22.64	32.40	28.51	240	67.77	−3.74	0.513	206	0.974	0.0000	0.5711
18	(12)-c	1/1	16.211	22.87	32.70	27.95	240	59.77	−4.25	0.509	205	0.996	0.0000	0.6047
19	(12)-c	1/4											0.0307	0.5764
20	(12)-c	1/6											0.0635	0.4948
21	(12)-d	4/4	16.268	23.23	32.13	30.53	240	0	−4.89	0.439	179	1.007	0.0000	0.5905
22	(12)-e	1/1	16.288	23.39	32.34	30.39	240	0	−5.56	0.465	218	1.065	−0.0002	0.6147
23	(12)-e	1/4											0.0161	0.5949
24	(12)-e	1/6											−0.0197	0.5306
25	(12-Kfix-1)	2/2	16.319	23.93	32.45	28.41	100	23.54	−8.45	0.384	127	0.823	0.0000	0.6025
26	(12-Kfix-2)	2/2	16.242	23.22	32.32	28.55	150	35.47	−5.82	0.444	151	0.886	0.0000	0.5694
27	(12-Kfix-3)	2/2	16.212	22.92	32.31	28.64	200	46.11	−4.65	0.474	180	0.944	0.0000	0.5612
28	(12-Kvar)	2/2	16.193	22.74	32.31	28.73	256	56.16	−3.91	0.494	217	1.007	0.0000	0.5593
29	(12-Kfix-4)	2/2	16.165	22.47	32.33	28.96	400	76.96	−2.84	0.521	334	1.147	0.0000	0.5619
30	(12-Kfix-5)	2/2	16.141	22.26	32.36	29.21	600	101.28	−1.98	0.541	515	1.286	0.0001	0.5671
31	(12-Kfix-6)	2/2	16.123	22.12	32.38	29.42	800	124.79	−1.39	0.554	623	1.350	0.0000	0.5715
32	(12-Kfix-7)	2/2	16.114	22.04	32.39	29.58	1000	143.45	−1.09	0.561	825	1.439	0.0000	0.5750
33	(FY1970)	2/2	15.949	21.10	31.37	32.49	240	0	1.76	0.543	78	0.589	−0.0001	0.6909
34	(FY1970)-L	2/2	15.935	21.01	31.37	31.96	240	39.03	2.30	0.543	106	0.668	−0.0003	0.6876

is substantially less than in the region of adjustment. Not so for the FRLDM; the error is about the same as in the region of adjustment. The main reason for these deviations is the systematic increase in the deviations towards the proton drip line. We have discussed above and elsewhere (for example in Refs. [88,91]) that this behavior has its roots in the lack of accounting for Coulomb redistribution effects. For proton-rich heavy nuclei there is a tendency for the charge to deviate from the assumption of a constant charge density and redistribute towards the surface, thus increasing the binding energy slightly. The sign of the deviations in Fig. 16 is consistent with this interpretation. When the new version FRLDM(2012) is adjusted to the same region of experimental masses as the FRLDM(1992) the error decreases to 0.7008 MeV (see Fig. 17), that is a decrease by 10.0% (compared to the 13.0%) decrease for the FRDM). It extrapolates better to the 730 new nuclei; the error is now down from 0.7624 MeV to 0.6600 MeV. This represents a 13.4% decrease in the error when we extrapolate to the new, "unknown" nuclei (versus 15.0% for the FRDM). In Fig. 18 we compare the precise FRLDM(2012) to these 730 nuclei; in this case 519 of them were taken into account in the adjustment of the model constants. The agreement is now better but the systematic deviations towards the proton drip line remain, although to a lesser degree. Now that most nuclei in this region were included in the adjustment the error dropped from 0.6600 MeV to 0.5944 MeV, a 9.9% drop. In the comparable study the FRDM dropped much less, only by 3.2%. This probably indicates the FRDM is considerably more reliable in applications to regions of nuclei that were not yet available when the model parameters were determined.

5.2. Detailed comparisons of masses and deformations in the FRDM(1992) and FRDM(2012)

In Fig. 19 we show the difference between the masses calculated in the FRDM(1992) and FRDM(2012). In most of the regions of known nuclei there is little difference, normally it is in the range −0.5 MeV–0.5 MeV. A standard explanation of such results is: "of course, both models are adjusted to this data". But the parameters that are adjusted cannot make the model adapt to the rapid fluctuations in the observed masses that are due to microscopic effects. They are substantial, in the range −12–+5 MeV or so. Rather the reason for the limited differences is that the previous

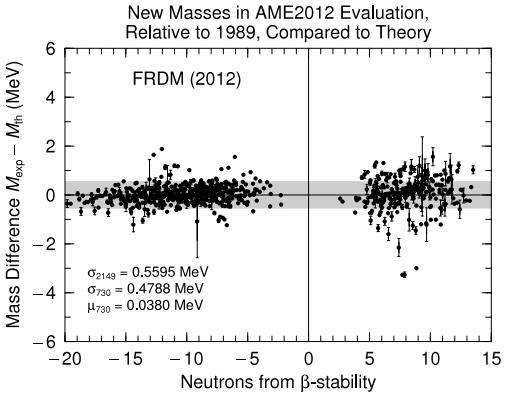

Fig. 15. Masses in FRDM(2012) compared to masses in AME2012 that were not in AME1989. The FRDM(2012) is adjusted to AME2003, so 519 masses shown here were included in this data set. But the accuracy increased only by 0.0160 MeV a 3% change. This indicates that the model extrapolates quite satisfactorily.

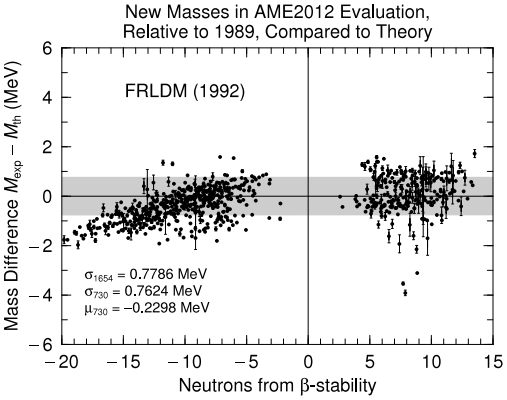

Fig. 16. The FRLDM(1992) compared to masses that are new in AME2012 relative to the data base AME1989. These new masses were not considered in the adjustment of the model constants. There are 730 such new masses. The error has not diverged in this region of new masses, but there is a systematic deviation towards proton drip, which is not present in the FRDM.

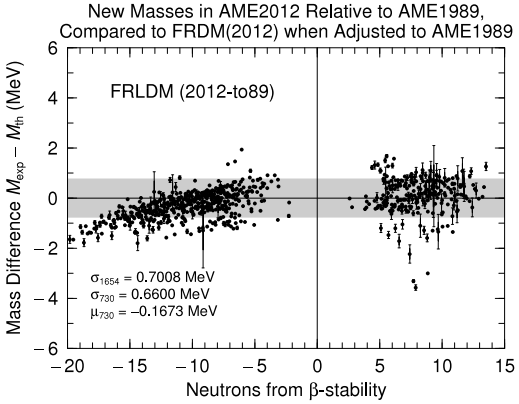

Fig. 17. We have adjusted the current FRLDM(2012) (with all the improvements discussed in the text included) to the older AME1989 experimental evaluation to test the extrapability of the model. It agrees better with the AME1989 data base than FRLDM(1992), due to improvements in the calculations, 0.7008 MeV versus 0.7786 MeV for the previous FRLDM(1992). But it also extrapolates considerably better 0.6600 MeV for the new nuclei, versus 0.7624 MeV for the previous FRDM(1992), although these 730 new nuclei were not taken into account in the adjustment.

model was fairly well executed. But the improvements that have been implemented in the FRDM(2012) do sometimes lead to large changes in some localized regions of known nuclei. Furthermore, the changes lead to improved agreement with the calculated

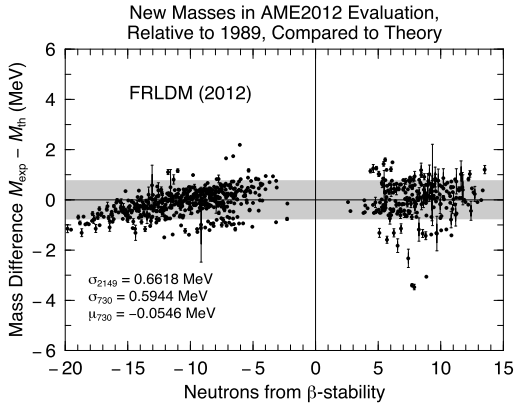

Fig. 18. Masses in FRLDM(2012) compared to masses in AME2012 that were not in AME1989. The FRLDM(2012) is adjusted to AME2003, 519 masses shown here were included in this data set. The inclusion of these masses increased the accuracy from 0.6600 MeV to 0.5944 MeV, a 10% change. This indicates that the model extrapolates somewhat less well than the FRDM to new nuclei.

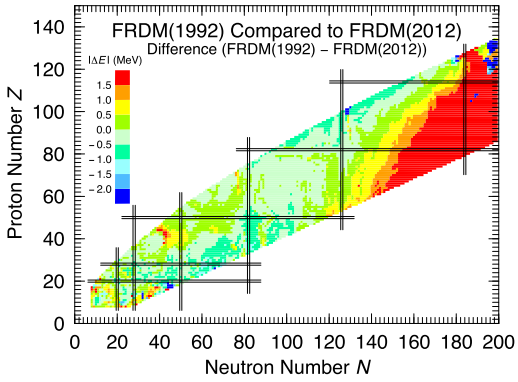

Fig. 19. Difference between masses in the FRDM(1992) and FRDM(2012). The main differences are towards neutron drip in the heavy region, in regions of shape coexistence, and in regions of axial asymmetry, which are all discussed in more detail in the text. (For a color version of this figure the reader is referred to the web version of this article.)

masses. For example, near $Z \approx 40$, $N \approx 40$ and $Z \approx 40$, $N \approx 65$ the changes occur because of aspects of our new calculations which impact shape-coexisting nuclei, as discussed above. The differences near $N = 76$ from about $Z = 60$ to $Z = 70$ is due to the consideration of axially asymmetric ground-state shapes, which also impacts some neutron-deficient nuclei just below $Z = 82$, for example the ground state of ^{192}Pt is lowered by 0.30 MeV by axial asymmetry [45].

The large differences in masses near the proton drip line in the heavy-element region are due to a more exact implementation of the rule to select as the ground state the minimum with the highest fission barrier that we now have, due to our calculation of potential-energy surfaces in the axial-asymmetry shape space. Often when we see the large differences, such as those near ^{228}Fm, in the region $Z > 114$, $N > 184$, and near $^{298}_{108}$Hs$_{190}$ the fission barriers are very low, about one MeV only [61]. Therefore the seemingly pathological results with very sudden, discontinuous jumps in the model differences are not due to any mistake, they are an artifact of very low fission barriers and multiple minima in the calculated potential-energy surface. In the specific case of $^{298}_{108}$Hs$_{190}$ we find in the FRDM(2012) a ground-state deformation $\varepsilon_2 = -0.64$ and mass excess 216.029 MeV, whereas in the FRDM(1992) the values tabulated are $\varepsilon_2 = 0.0$ and mass excess 212.97 MeV. As explained above, we did also consider fission stability in the previous calculations although it was unfortunately not stated in the paper. But, because we could not calculate the potential-energy

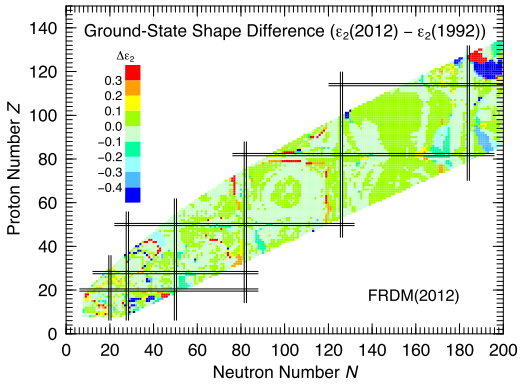

Fig. 20. Difference between the value of the ground-state shape parameter ε_2 obtained in the current model and the value obtained in FRDM(1992). The differences are largest in areas of shape coexistence, axial asymmetry, and going into magic numbers. (For a color version of this figure the reader is referred to the web version of this article.)

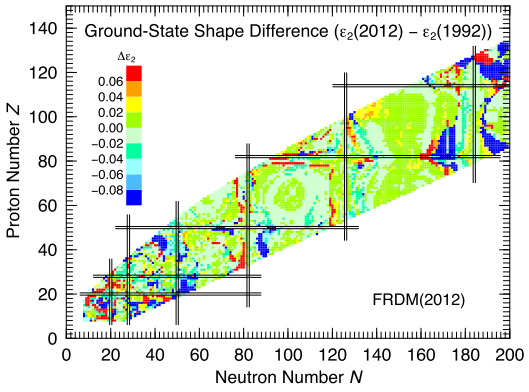

Fig. 21. A more detailed look at difference between the value of the ground-state shape parameter ε_2 obtained in the current model and the value obtained in FRDM(1992). In the well-deformed rare-earth and actinide regions there is little difference. (For a color version of this figure the reader is referred to the web version of this article.)

surface in the axial-asymmetry plane we always assumed that minima on the oblate axis that were higher in energy than prolate minima would always be unstable in the γ plane.

In the case of astrophysical applications, for example to the r-process, one may need to investigate if some other rule should be used in selecting the "ground state". For example in calculations of neutron-capture rates it would perhaps be more correct to select minima in the two nuclei involved in the capture process that have similar deformations. The same holds true in β-decay processes.

The systematic increase in the mass differences towards the neutron drip line in the heavy region is very gradual and may be untestable. For example for our most neutron-rich Pb nuclide we found in FRDM(1992) a mass excess 360.04 MeV, in the FRDM(2012) we obtain the mass excess 353.629 MeV. However, in the FRDM(1992) we have $S_{1n} = -1.58$ MeV and $Q_\beta = 19.12$ MeV. In the FRDM(2012) we find $S_{1n} = -1.41$ MeV and $Q_\beta = 18.88$ MeV. Thus, the differences are smaller than the accuracy stated in Ref. [24] for S_{1n} (0.526 MeV) and Q_{β^-} (0.647 MeV), so the effect on r-process calculations may be much less severe than the fairly large differences in the mass excesses seem to indicate.

Also of interest are the differences in ground-state deformations. We show in Fig. 20 the difference between the quadrupole deformation ε_2 obtained in the FRDM(2012) and FRDM(1992). The same quantity is plotted in a more detailed scale in Fig. 21. Above

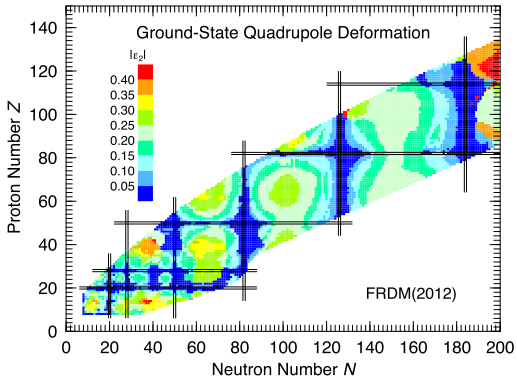

Fig. 22. Calculated values of $|\varepsilon_2|$ for nuclei with $N < 200$. (For a color version of this figure the reader is referred to the web version of this article.)

$N = 160$ there are a substantial number of differences. They occur because there are multiple minima in the calculated potential-energy surfaces. Because we now study the energy with inclusion of axial asymmetry we can more correctly determine which of these minima has the highest barrier with respect to fission. So in many cases we now select a different minimum than was chosen in FRDM(1992) as the most stable minimum. For lighter nuclides most differences occur in the regions of shape coexistence and axial asymmetry. In the transition regions between deformed and spherical nuclei the calculated potential-energy surfaces are very flat and small effects can change the locations of the very shallow minima on such surfaces, therefore we also have differences in those regions. Also in the more detailed scale in Fig. 21 we see little difference between the two calculations in the traditional deformed rare-earth and actinide regions.

5.3. Calculated ground-state masses and deformations

We tabulate the new FRDM(2012) and FRLDM(2012) "mass tables" in the Table 1. As before we also tabulate the calculated shape parameters, both the calculated ε shape parameters and their corresponding β parameters, as well as the microscopic corrections. As explained above the microscopic corrections are different from the shell-plus-pairing corrections and do depend on the macroscopic model used, therefore there are two "microscopic-correction" numbers for each nuclide, one corresponding to the FRDM(2012) and one to the FRLDM(2012). We also include the experimental masses that we used in our adjustment of the model parameters and the quoted errors, from Ref. [17]. We have added one new data set relative to what was tabulated for the FRDM(1992) in Ref. [9], namely the ground-state shell-plus-pairing corrections. These depend only on the single-particle level spectrum and are thus identical in the FRDM and FRLDM, so there is only one column of these data. Finally, we give ground-state masses in the FRDM expressed as total binding energies. It is a new column, but not a new data set because the total binding energy can be obtained from the mass excess through the relation

$$E_{\text{bind}} = ZM_{\text{H}} + NM_{\text{n}} - M(Z, N), \tag{122}$$

where M_{H} is the hydrogen-atom mass excess and M_{n} is the neutron mass excess. This total binding energy is physically the sum of the masses of Z hydrogen atoms and N neutrons at infinity minus the mass of the "assembled" atom. In the present context, total binding energy is used to mean the nuclear binding energy plus the difference between the binding energy of the Z electrons comprising the atom, which we approximate by $a_{\text{el}}Z^{2.39}$, with $a_{\text{el}} = 1.433 \times 10^{-5}$ MeV, and the binding energy of Z hydrogen atoms. For consistency, the values $M_{\text{H}} = 7.289034$ MeV and $M_{\text{n}} = 8.071431$ MeV

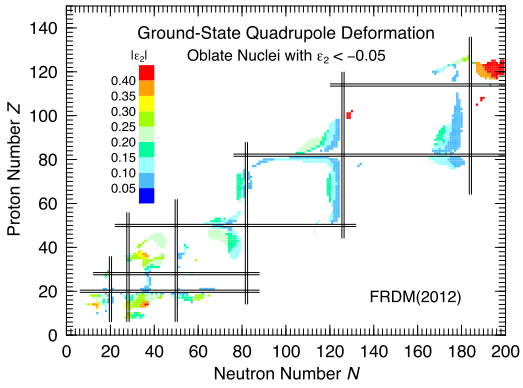

Fig. 23. Calculated values of $|\varepsilon_2|$ for nuclei with oblate ground-state shapes. (For a color version of this figure the reader is referred to the web version of this article.)

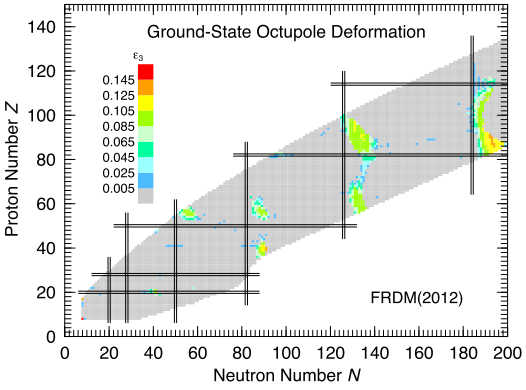

Fig. 24. Calculated values of ε_3. (For a color version of this figure the reader is referred to the web version of this article.)

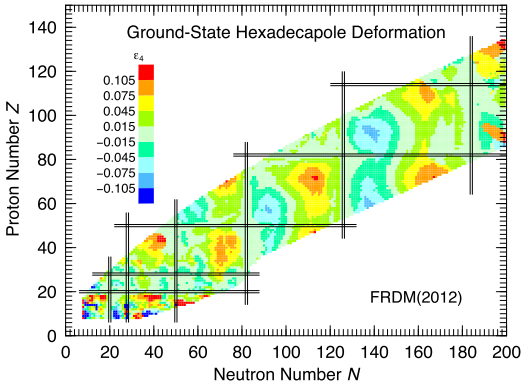

Fig. 25. Calculated values of ε_4. (For a color version of this figure the reader is referred to the web version of this article.)

should be used here for these quantities [9], although more recent evaluations give slightly different results. An alternative possibility would have been to define total binding energy as the difference between the sum of the masses of all constituent particles (consisting of Z protons, Z electrons, and N neutrons) at infinity minus the mass of the atom. This alternative definition of total binding energy differs from the one that has been used historically and that we have adopted here by the binding energy of Z hydrogen atoms, which is numerically equal to Z times 13.6056981 eV.

We show in graphical nuclear-chart style in Fig. 22 the calculated values of $|\varepsilon_2|$, in Fig. 23 the calculated values of $|\varepsilon_2|$ for those nuclei with $\varepsilon_2 < -0.05$, in Fig. 24 the calculated values of ε_3, in Fig. 25 the calculated values of ε_4, and in Fig. 26 the

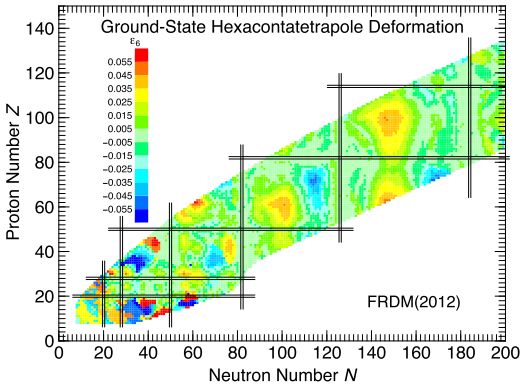

Fig. 26. Calculated values of ε_6. (For a color version of this figure the reader is referred to the web version of this article.)

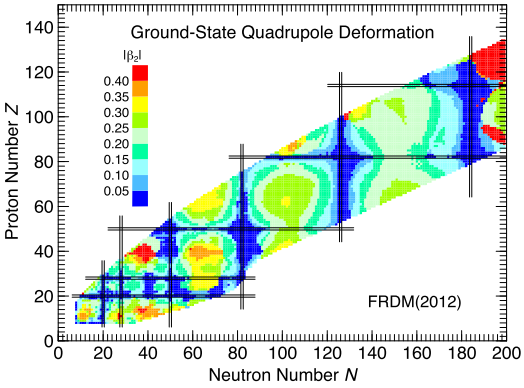

Fig. 27. Values of the shape parameter $|\beta_2|$ corresponding to calculated ground-state shapes, obtained by using the relation in Eq. (38). (For a color version of this figure the reader is referred to the web version of this article.)

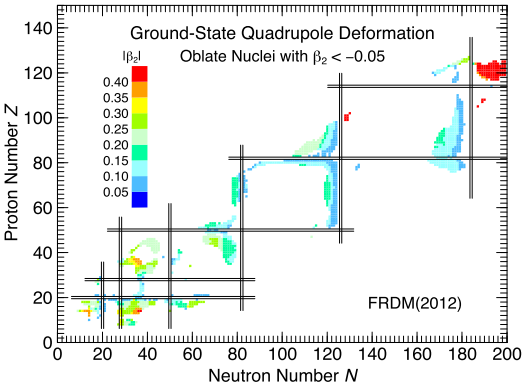

Fig. 28. Values of the shape parameter $|\beta_2|$ corresponding to calculated ground-state shapes, for nuclei with oblate ground-state shapes, obtained by using the relation in Eq. (38). (For a color version of this figure the reader is referred to the web version of this article.)

calculated values of ε_6. The corresponding β shape parameters are plotted in Figs. 27–31. The results for the spheroidal deformation ε_2 in Fig. 22 show the by now well known regular behavior. The deformation increases by about 0.05 with each deformed region as we go towards lighter nuclei. Oblate deformations occur mainly in transition regions from deformed nuclei to magic numbers, on the heavy side of the deformed regions. The microscopic reason for the large prevalence of prolate nuclei has been discussed in Ref. [92]. Lighter nuclei show a more irregular behavior, possibly because a single nucleon orbital here has a (much) larger fractional effect on the system. (See Fig. 32.)

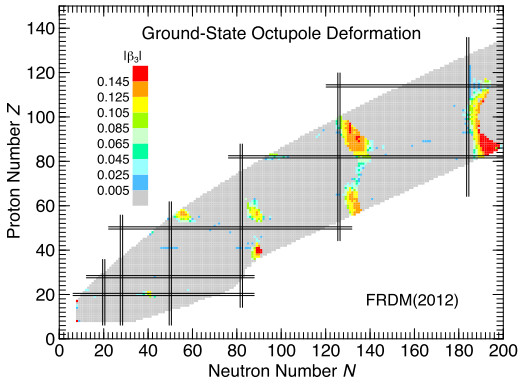

Fig. 29. Values of the shape parameter β_3 corresponding to calculated ground-state shapes, obtained by using the relation in Eq. (38). (For a color version of this figure the reader is referred to the web version of this article.)

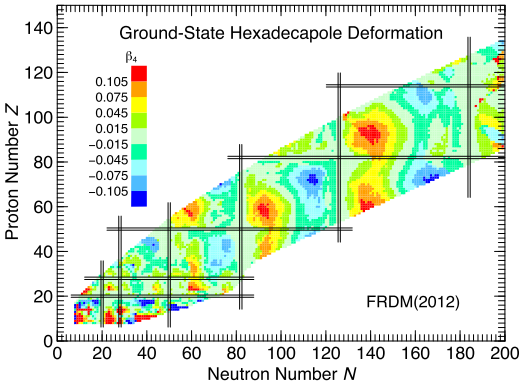

Fig. 30. Values of the shape parameter β_4 corresponding to calculated ground-state shapes, obtained by using the relation in Eq. (38). (For a color version of this figure the reader is referred to the web version of this article.)

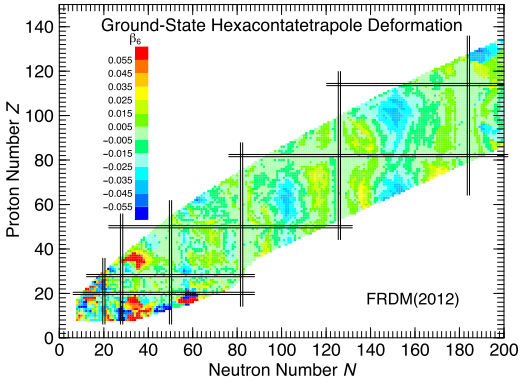

Fig. 31. Values of the shape parameter β_6 corresponding to calculated ground-state shapes, obtained by using the relation in Eq. (38). (For a color version of this figure the reader is referred to the web version of this article.)

Nuclei that are calculated to be octupole deformed in the ground state are relatively rare as is shown in Fig. 24. The most well-known region is around ^{222}Ra. In our model, consideration of octupole shapes leads to significantly improved ground-state masses. The octupole effects were noticed in our first global nuclear mass calculation the FRLDM(1981) [1] and were studied in greater detail subsequently, see for example [27–29,9,45]. Axial asymmetry effects also affect a few nuclides, an in-depth discussion of these results is in Refs. [44,45].

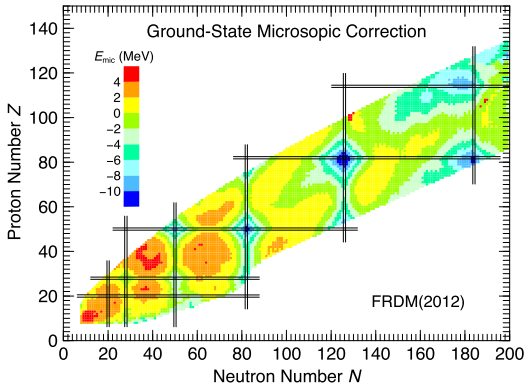

Fig. 32. Calculated ground-state microscopic corrections. The effect at magic numbers generally increases towards heavier nuclei. Large gaps in calculated level spectra at deformed ground-state shapes give enhanced stability, as is by now well-established experimentally, away from doubly magic nucleon numbers near $^{270}_{108}$Hs$_{162}$. This effect could already be seen 40 years ago in our early work [37]. More global studies appeared a little later in Refs. [2,72]. (For a color version of this figure the reader is referred to the web version of this article.)

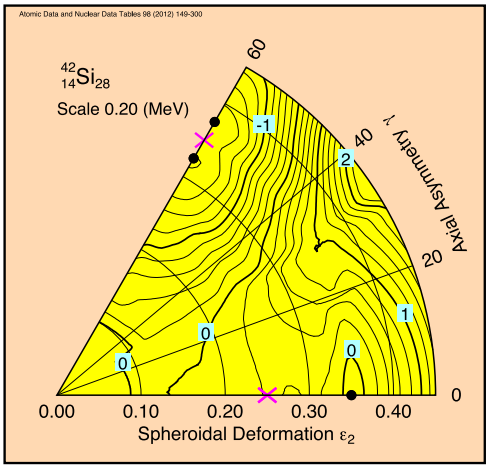

Fig. 33. Calculated potential-energy surface for $^{42}_{14}$Si$_{28}$. Although the neutron number is magic, $N = 28$, the calculated ground-state shape is quite deformed (oblate). See further discussion in the text. (For a color version of this figure the reader is referred to the web version of this article.)

The hexadecapole deformation ε_4 behaves in a very regular fashion throughout most of the chart, except the very lightest region, see Fig. 25. It is minimum, near -0.10, in the beginning of deformed regions and $+0.10$ at the end of the deformed regions. Since the first experimental studies became available calculations have reproduced well this systematic behavior [93,77,94].

5.3.1. Do magic numbers really disappear for some exotic nuclei?

Both in the light and heavy region there are nuclei with either the proton or neutron number "magic" but which are anyway calculated to be deformed. We give one example of this type of result, for $^{42}_{14}$Si$_{28}$ in Fig. 33. We find for this nucleus that the calculated ground-state deformation is $\varepsilon_2 = -0.31$, $\varepsilon_3 = 0.00$, $\varepsilon_4 = -0.12$, and $\varepsilon_6 = -0.05$. When it is experimentally found that a nuclide with either a magic neutron number or a magic proton number is found to be deformed this is sometimes presented as a mystical new phenomenon for "exotic" nuclei, and taken as evidence that a long accepted magic number has "disappeared". But this is not necessarily the case. First let us recall what conventional magic numbers are. They are specific numbers that correspond to large gaps in calculated spherical level spectra for neutrons and protons. Large gaps are associated

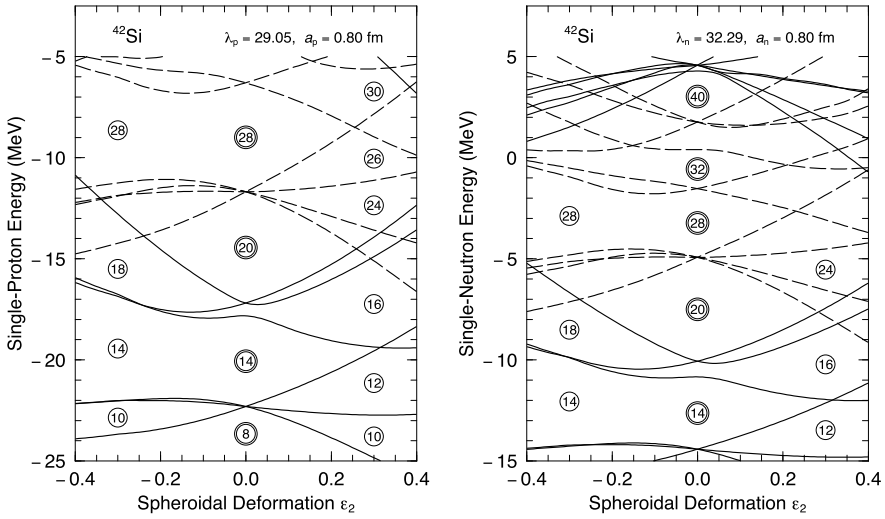

Fig. 34. Calculated proton and neutron single-particle levels for $^{42}_{14}Si_{28}$.

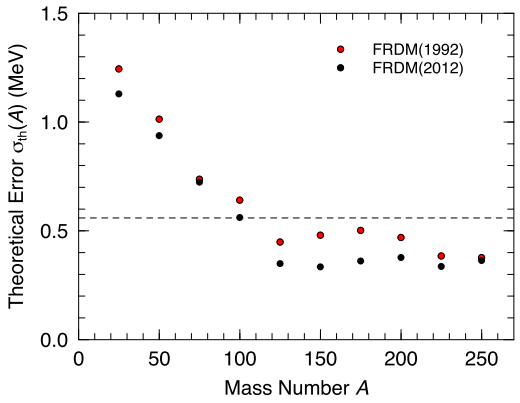

Fig. 35. Error in the mass FRDM(1992) and FRDM(2012) calculations as functions of A. The error is consistently smaller in the FRDM(2012) calculation than in the FRDM(1992) calculation for all regions of A. (For a color version of this figure the reader is referred to the web version of this article.)

with increased stability at these specific numbers, which is also observed experimentally. We show in Fig. 34 calculated proton and neutron single-particle levels versus deformation for $^{42}_{14}Si_{28}$. This figure shows that the conventional magic numbers 8, 20, and 28 still exist for spherical shape. However, in our example the gaps at $Z = 14$ and $N = 28$ are somewhat larger near the oblate shape $\varepsilon_2 = -0.3$ than at spherical shape so this leads to an oblate shape being the most stable configuration for this nuclide, although the normal spherical level gap at neutron number $N = 28$ has not "disappeared".

5.3.2. Dependence of model accuracy with nucleon number A

Fig. 3 shows that the error increases with decreasing nucleon number A in a somewhat systematic fashion. To show this more clearly we have determined the model error for limited regions of nuclei by use of Eq. (9). We select $A = 25(25)250$ as centerpoints of the regions and define each region to extend from $A_{\rm center} - 24$ to $A_{\rm center} + 25$. The errors in these restricted regions are shown as black dots in Fig. 35. The analogous deviations in FRDM(1992) are plotted as black circles with a red interior. The FRDM(2012) errors are always smaller than the FRDM(1992) errors, vary almost completely linearly from $A = 25$ to $A = 125$ and are almost constant from $A = 125$ to $A = 250$. There are 1628 known masses in this region (from $A = 101$ to $A = 270$); for these nuclei together we find $\sigma_{\rm th} = 0.362$ MeV. For the limited regions in this range we find that the smallest error is $\sigma_{\rm th} = 0.335$ MeV for $A_{\rm center} = 150$ and the largest error is $\sigma_{\rm th} = 0.378$ MeV for $A_{\rm center} = 200$.

6. Some additional studies and discussion

It is natural to ask how sensitive our results, (for example extrapability and parameter values) are to various model assumptions we have made (such as setting the compressibility K to 240 MeV and to the data sets used) in the determination of model parameters. We performed some studies on how well the model performs in new regions of masses that were not used in the adjustment of model parameters in Section 5.1. We present the results of the studies of how well the model applies to new regions of nuclei and some sensitivity studies in Table D. First we review the steps that led to FRDM(2012); some of the first steps were discussed in Refs. [83,87]. So that we can refer to specific locations in the table, we give a line number in column 1. In column 2 a model designation is given; most of these "models" were just stages on the path to the current FRDM(2012). Differences between "models" can be of different types, namely new or different physics, different subset of constants varied, or the region of masses used in the adjustment of model parameters. Once a "model" has been developed we can, without changing the model, compare the mass table generated to different mass regions. In such comparisons no values of the constants are given in the table, they are in this case the same as the constant values given immediately above. In column 3 the first number ("A") refers to the data set to which the model was adjusted. The second number refers to the data set to which the model was compared to, that is what data set was used to calculate the model mean deviation $\mu_{\rm th}$ and model error $\sigma_{th;\mu=0}$. There are three mass evaluations and various sets of "new" masses that we use in our adjustments and tests. The numbers and corresponding evaluated mass data bases are

1. This data set is the AME1989 mass evaluation [18]. The FRDM(1992) was adjusted to this data set.

   1654 nuclei

2. This data set is the AME2003 mass evaluation [18]. The FRDM(2012) is adjusted to this data set.

   2149 nuclei

3. This data set is masses that are in the interim AME2011 evaluation [95] but are not in the AME2003 evaluation. In some previous investigations we used this data set to represent "new" masses that were not used in the determination of model parameters (since the most recent AME2012 [81] evaluation was not available at that time).

   154 nuclei

4. This data set is the AME2012 mass in the evaluation [81].

   2352 nuclei

5. This data set is the masses that are in the AME2012 evaluation that are not in the AME2003 evaluation.

   219 nuclei

6. This data set is the masses in the AME2012 evaluation that are not in the AME1989 evaluation.

   730 nuclei

The number of nuclei we indicate are only those with $Z \geq 8$ and $N \geq 8$; we do not consider lighter nuclei in our calculations. When we perform an adjustment to find optimum constants we always show the error for the same region of nuclei used in the adjustment. Therefore, when a line contains a set of constant values the "A" and "C" regions are always the same.

In line 1 of the table we show the previous FRDM(1992) mass model. Its agreement with the 730 new masses in AME2012 is shown on the second line. We later found that we could optimize the parameters better, and this solution yields $\sigma_{\text{th}} = 0.6614$ MeV [83]. We also removed consideration of fission barriers and then arrive at model (92)-b. The mass σ_{th} only decreases by a small amount, to 0.6591 MeV. This represents step 1 in Fig. 1. On line 4 we show how this better optimized model agrees with masses that are new in AME2012. It is remarkable that when we more tightly bind the original model to the AME1989 it reproduces new masses better, in particular the mean ("systematic") error μ_{th} is now much closer to zero. When a model with adjustable parameters is more tightly bound to known data one often finds that its performance outside this region has become poorer, but this is not the case here. On line 5 we compare the FRDM(1992) now in its incarnation (92)-b (with its better optimized parameters and no barriers included in the fit) to (the entire) AME2003, and find the error is now about 0.04 MeV smaller. So the model agrees better with this new data set. This represents step 2 in Fig. 1. If we adjust the model to AME2003, rather than to AME1989 as was done for the model version (92)-b, the error decreases by only a small amount 0.0017 MeV and the constants change by only a little (line 6), see also Ref. [83]. In model (07)-b in line 7 we have implemented the results of a full 4D search for the ground-state in a densely spaced grid, step 3 in Fig. 1 and gain 0.02 MeV in accuracy, first reported at OMEG-7 in Sapporo [96]. Line 8, model (11)-b shows the improvement in accuracy, 0.01 MeV, of taking into account the effect of axial asymmetry on the ground state [44,83,45,87] corresponding to step 4 in Fig. 1 leading to an accuracy gain of 0.01 MeV. The next line shows how well the model at this stage "predicts" the masses that are new in AME2011 relative to AME2003. At this time, in 2011, we realized that the density-symmetry constant L which had been kept at zero in FRDM(1992) (because of a very flat surface "S", see Eq. (8)) could now be determined due to several developments: (1) our model is more accurate, (2) the experimental masses are more accurate, and (3) we adjust to a 30% larger data base. Accounting for the density-symmetry effect leads to a further improvement in accuracy by about 0.02 MeV, corresponding to step 5 in Fig. 1 and line 10 in Table D. The next line shows how this stage (11)-a extrapolates to the new region "3", see Ref. [87]. To get some estimate of uncertainties we adjust the model to the smaller data set AME1989 with L fixed at 0 (line 12) and with also L varying (line 13). Also with this data set we get an improvement in accuracy of about 0.02 MeV and an uncertainty estimate for the density symmetry coefficient $L = 70 \pm 15$ MeV, and the symmetry energy coefficient $J = 32.5 \pm 0.5$ MeV, see Ref. [87].

As discussed in Section 4 we have now implemented the final step leading to FRDM(2012), namely an improved calculation of ground-state correlation energies, resulting in a further 0.01 MeV improvement in accuracy entered as line 14 in Table D and step 6 in Fig. 1. Due to space limitations sideways in the table, we have not entered the values of the constants to the precision we recommend in actual use of the model; the more accurate values given above should be used. When we investigate the extrapability of the model by calculating the accuracy for the 219 new masses in data set 5 we seemingly find a noticeable divergence from 0.5595 to 0.6440, an increase of 15%, see line 15. However this increase is due to two outliers, $^{25}_{8}O_{17}$, and $^{51}_{19}K_{17}$ ($^{52}_{20}Ca_{32}$ is not in set 5, it was measured earlier. But in AME2003 it is given as -32.51 ± 0.70 MeV whereas in AME2012 it is given as -34.26 ± 0.06 MeV(!).) discussed in Section 5.1 in connection with Fig. 15. If these two nuclei are removed from the 219 nuclei in data set 5 we obtain $\sigma_{\text{th}} = 0.5706$ MeV. So the 15% increase when we compare to this limited set of new nuclei does not prove a divergence of the mass model away from the region of adjustment. It is highly likely it is just a statistical fluctuation; see also the more extensive tests we discuss next.

We continue with some sensitivity studies. Line 16 shows the agreement of FRDM(2012) with the entire data set AME2012, of which 219 masses were not used in the determination of the model parameters. The error is 0.5728 MeV in this region. When the whole data set is used in the determination of model parameters the error decreases only very marginally, to 0.5711 MeV, line 17. In line 18 we adjust the model to the more limited data set AME1989. When we compare this mass table to AME2012 we obtain the error 0.5764 MeV, line 18. Although 730 nuclei in this evaluation were not used in the determination of the parameters of model (12)-c the error for the entire region is only $0.5764 - 0.5711 = 0.0053$ MeV larger than when all nuclei in AME2012 were included in the determination of the parameters (line 17). We therefore conclude that the model is very reliable (so far) when applied to nuclei outside the region of adjustment. How (12)-c extrapolates to a region that just contains new nuclei is on line 20, see Fig. 14 for a graphical illustration.

In lines 21–24 we do equivalent studies as in lines 17–20, but with $L = 0$. By comparing lines 23 and 21 we note that also with $L = 0$ the model extrapolates extremely well. But we again observe that the inclusion of density-symmetry effects improve accuracy by about 0.02 MeV (compare lines 17 and 21).

We have in our discussion above fixed the compressibility constant to $K = 240$ MeV. It is of interest to study (as was done in Ref. [9]) how the model accuracy and the values of the model constants depend on K. Lines 25–32 in Table D show the results of such a study when K is fixed at different values. Line 28 shows the value $K = 256$ MeV is obtained when K is varied freely together with the other nine macroscopic constants.

We have also investigated the sensitivity of the mass model to some essential single-particle model parameters, namely the spin–orbit strength λ and potential diffuseness constant a_{pot}. Traditionally in single-particle models these are determined by comparing calculated and experimental single-particle levels. The process is somewhat ambiguous because observed nuclear levels are not single-particle levels. In the folded-Yukawa single-particle model the spin–orbit strengths and diffuseness constants originally used were $\lambda_{\text{p}} = \lambda_{\text{n}} = 32.0$ and $a_{\text{pot}} = 0.9$ fm [10]. These parameters were determined mainly by adjusting to levels in ^{208}Pb, see Ref. [37]. In 1973, during an extended visit to Los Alamos by PM and Sven-Gösta Nilsson, it was observed that this original choice led to a poor description of levels in deformed nuclei [37,91] and new parameters were determined for the actinide region and for the rare-earth region [37]. Somewhat later, see Ref. [1], these studies served as a basis for a global prescription for the spin–orbit strength and diffuseness constant leading to Eqs. (89) and (90) for the proton and neutron spin–orbit strengths and to

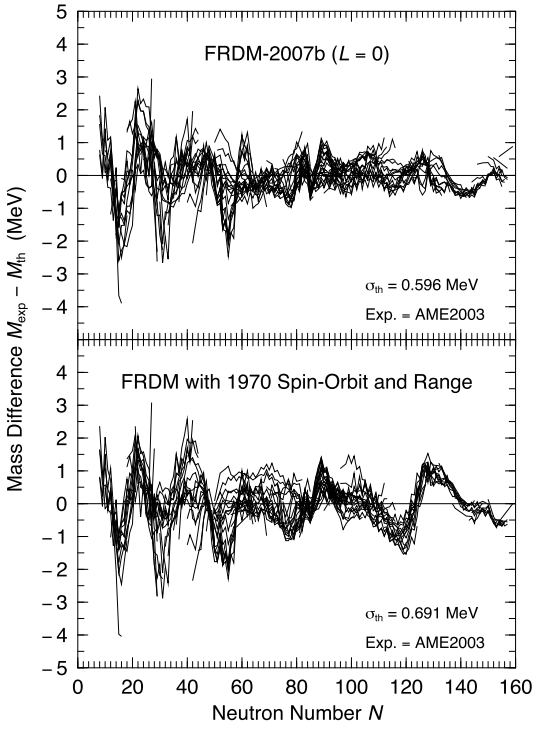

Fig. 36. Differences between experimental masses and FRDM masses for two different single-particle spin–orbit strengths and two different diffuseness parameters. See text for further discussion. The figure was originally published in Ref. [91].

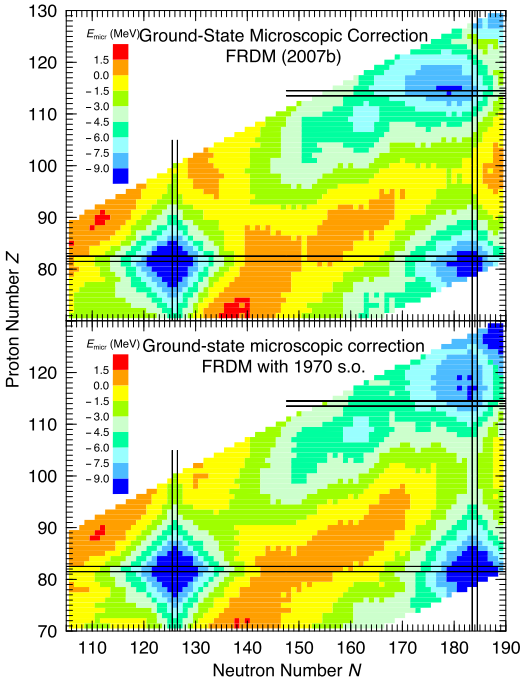

Fig. 37. Calculated microscopic corrections in FRDM models with two different single-particle parameter sets. It is somewhat remarkable that quite different single-particle potentials yield very similar stability properties in the heavy-element region, in particular the stability of the by now well-known region of *deformed* heavy elements in the vicinity of $^{270}_{108}$Hs is clearly manifested in both results. This figure was originally published in Ref. [91]. (For a color version of this figure the reader is referred to the web version of this article.)

the value $a_{\rm pot} = 0.8$ fm for the potential diffuseness constant, see Section 2.12. At the time when we studied the sensitivity of mass model results to the spin–orbit and diffuseness constants, we had developed the model through the third step in Fig. 1, corresponding to line 7 in Table D. We changed the spin–orbit and diffuseness constants to the values used originally and performed a full-fledged mass calculation that included a recalculation of all ground-state shapes in the four-dimensional deformation space discussed in step 3 in Section 4. We then, following the standard procedure detailed above, adjusted the macroscopic parameters to optimize agreement with AME2003. In Fig. 36 bottom panel we show the difference between experimental and calculated masses versus neutron number that we obtained. The results are also given as line 33 in Table D. In the top panel we give the corresponding results with the model (07)-b. It is clear that with the original single-particle model parameters, the calculated masses agree less well with experimental masses than with the current choice of spin–orbit strength and potential diffuseness constant. In fact the calculation is even less accurate than the results with the previous FRDM(1992). A particularly interesting observation is that the current spin–orbit and diffuseness strengths were chosen without any consideration of nuclear masses; in their determination only levels were considered [37]. This result shows that the model is working as a model should; if the model is enhanced so that better agreement with one type of experimental data is obtained, then better agreement with other types of data automatically follows and the model describes many different types of data in a consistent fashion.

We also investigate how the two calculations differ in the superheavy-element region. In Fig. 37 we show calculated microscopic corrections for nuclei from the Pb region to the SHE region calculated with the two different parameter sets. In this type of plot both calculations seem to give very similar results. In particular they both show large negative shell corrections centered around $^{270}_{108}$Hs$_{162}$. This is a result that is quite insensitive to macroscopic–microscopic model formulations within a very large parameter space. Macroscopic–microscopic calculations based on the Woods–Saxon model obtain results very similar to those in Fig. 37, see for example the review in Ref. [97] which again shows how robust these results are in reasonably realistic nuclear-structure models.

In the study with the original single-particle parameters we have also investigated the effect of varying L, see line 34 in Table D. The effect is very small, which shows that this formulation (non-optimum spin–orbit and potential diffuseness) has the consequence that the model is too inaccurate to allow clear manifestations of density-symmetry effects.

One may ask how correlated the values of J and L are in the FRDM(2012). To investigate this we have optimized the mass model with respect to seven other macroscopic constants (K is kept fixed in this investigation) for different combinations of J and L. Specifically we consider $L = 0(10)150$ and $J = 27(1)37$ in units of MeV, for a total of 176 grid points. For each combination we start the minimization at 1440 different starting combinations of the seven parameters that are varied. Sometimes several minima are obtained; in Fig. 38 we show the lowest minimum $\sigma_{\rm th}$ obtained at each gridpoint. In Fig. 39 we show corresponding values of the volume constant a_1. This constant is normally assumed to be close to 16 MeV. However, some distance from the values of L and J that optimize the mass model accuracy the value of a_1 becomes unrealistic. It is very satisfactory that the values of macroscopic parameters that optimize the mass-model accuracy (when J and L are also varied) are all within a realistic range.

The optimal values of the asymmetry variables J and L that we obtained from the mass model FRDM (2012) study are

$$J = 32.3 \pm 0.5 \quad \text{MeV}$$
$$L = 53.5 \pm 15 \quad \text{MeV}.$$

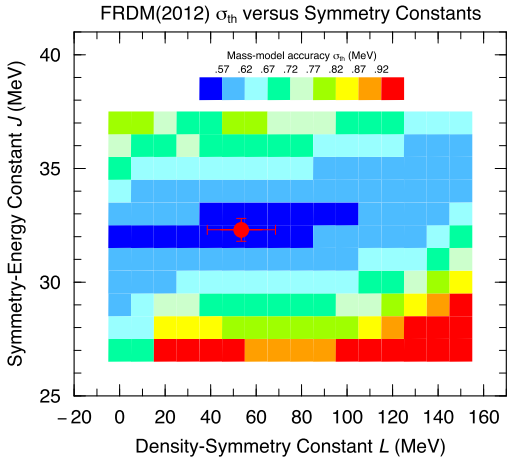

Fig. 38. Calculated mass model accuracy for different combinations of L and J. The best accuracy, is obtained for the L and J in the FRDM(2012), line 14 in Table D, and is indicated with a red dot with uncertainty bars. (For a color version of this figure the reader is referred to the web version of this article.)

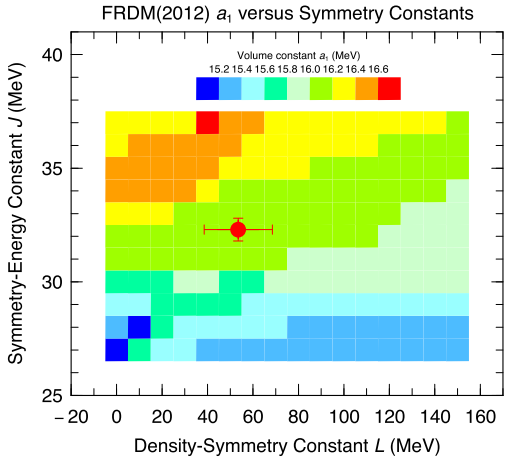

Fig. 39. Values of the volume constant that is obtained when the mass model is optimized with respect to seven macroscopic constants for 176 different value combinations or L and J. The values of these constants in the FRDM(2012) are indicated by a red dot with uncertainty bars. (For a color version of this figure the reader is referred to the web version of this article.)

The above optimal L value is somewhat smaller than the value in Ref. [98], because we have implemented a more accurate calculation of the zero-point fluctuation effect, see Section 2.11. These symmetry energy coefficients have been extensively studied by various experimental and theoretical methods because of their strong impact on astrophysical observables such as the neutron star mass and radius and on simulations of supernovae explosions [68]. The experimental and theoretical methods adopted to extract these values are: mass-fragmentation studies of heavy-ion collisions [99,100], pigmy dipole resonances (PDR) [101,102], dipole polarizability in ^{208}Pb [103,104], charge-exchange anti-analog giant-dipole resonance [105,106], isospin dependence of giant monopole resonances [107–109], isobaric analogues states [110], constraints from observations of masses and sizes of neutron stars [111,112], chiral effective field theories [113], and quantum Monte-Carlo simulations [114]. Compared with the constraints from these studies, our optimal values for J and L are very consistent with those from neutron star studies, PDR and dipole polarizability.

6.1. Can the deviations below $N \approx 65$ be decreased?

In a model of the relative conceptual simplicity of the FRDM(2012), although execution of actual calculations does involve substantial effort, one must expect some limit to how accurate it can eventually become. In our case we have managed to find remedies that removed various types of correlated deviations. In the 1981 mass model we noted that this type of correlated deviations in regions near ^{222}Ra and ^{252}Fm could be removed by searching for ground-state minima in a more general deformation space that included the four shape variables we explore accurately here; earlier somewhat less complete calculations are in [1,27,9]. In particular, minimizations with respect to ε_3 reduced many of the deviations near ^{222}Ra and minimizations with respect to ε_6, those near ^{252}Fm [1,9]. The deviations in the light region in the current calculation look correlated and that could possibly hint that a remedy can be found. We have investigated several ideas, but they all were unsuccessful in removing the deviations. If they had been successful we would obviously have included the methods in our calculations of masses. But, although the ideas were unsuccessful we feel it is useful to give a brief discussion of these investigations. We looked at four different possibilities, namely

1. Possibly more optimum spin–orbit strength and potential diffuseness constants could be found.
2. The zero-point energy calculations might be improved if we instead of using a phenomenological renormalized irrotational-flow inertia used a more microscopic cranking-model inertia.
3. One could have some concerns about the particular version of the Strutinsky normalization we use, which is the original version, and how it would perform for light nuclei in particular, so we have investigated an alternative formulation proposed by Kruppa.
4. Some deviations are clearly outside the current model, such as the deviations near $Z = 40$ and $N = 56$ which we commented on above. We investigated if a tensor force could improve the accuracy in the light region.

In some of these studies we used masses in the Ca isotope chain to test the ideas for improvement for two reasons. First, these nuclei are all calculated to be spherical in shape. We assumed that also with new features implemented they would remain spherical so we would only have to do calculations for this one shape for each of the isotopes with known masses (now ^{36}Ca–^{52}Ca). Second, the deviations are large and highly variable across the isotope chain, with an rms deviation of about one and a half MeV in both the FRDM(1992) and FRDM(2012) so it is a good test to investigate if a new model feature can significantly decrease these deviations. The deviations are very similar in both FRDM(1992) and FRDM(2012), because all shapes are spherical and it is mainly shell-plus-pairing corrections for identical shapes that determine the fluctuations in the deviations.

6.1.1. Improved choice of spin–orbit and single-particle potential diffuseness constants

To study the possibility that a different choice of proton and neutron spin–orbit strengths and a different choice of the diffuseness constants would improve the calculated masses we calculated masses along the Ca isotope chain for a four-dimensional grid in these constants. The maximum improvement in the calculated masses was less than 15% so we do not consider this possibility to be a viable cure for the deviations in the low-A region. Furthermore these constants would not give a globally improved model, and not even locally do we obtain significantly better results.

6.1.2. Improved determination of zero-point energies

We limited this study to zero-point motion in the ε_2 direction. Rather than using the phenomenological inertia in Eq. (116) we calculated the cranking-model inertia in the ε_2 direction at

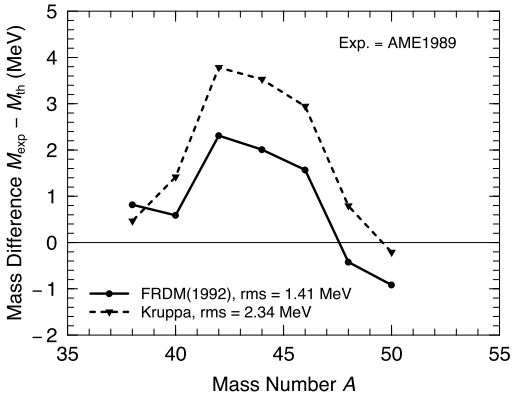

Fig. 40. Deviations between measured and calculated masses for the Ca isotope chain calculated with two models for the shell+pairing corrections. We use these isotopes as a testbed for ideas for improving the mass model in the light region of the nuclear chart. One of the methods is the Strutinsky shell-correction method, the other the Kruppa model.

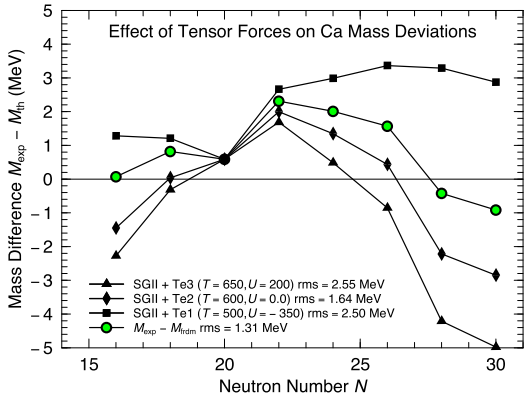

Fig. 41. Effect of tensor force on Ca-isotope mass deviations. The large filled circles show the mass deviations in the FRDM(2012) mass model. The three other curves show how these are modified due to the effect of different tensor forces. It seems that the oscillatory behavior of the deviations cannot be eliminated by these tensor forces. (For a color version of this figure the reader is referred to the web version of this article.)

each calculated ground-state shape and calculated the zero-point energy using this inertia. We renormalized the cranking-model inertia by a constant (same for all nuclei) so as to obtain optimum agreement between all calculated masses and experimental data. We found this approach did not perform well. The main reason was that the zero-point energies could vary by a factor of three between neighboring isotopes also in cases where the potential surface stiffness parameters were almost identical. The main reason was the well-known cranking-model feature that at level crossings the cranking-model inertia is very sensitive to small details of the level crossing. Slightly better results might have been obtained by varying the ground-state deformation and minimizing the sum of the potential energy and zero-point energy. This would have been a massive effort with limited chances of success so we did not investigate this possibility.

6.1.3. Alternative shell-plus-pairing calculation

Here we investigate the alternative shell-correction model put forward in Refs. [115,116]. But the masses calculated with this method show very similar fluctuations with respect to experimental data for the isotopes along the Ca chain, see Fig. 40. And, we recall that very early on it has been pointed out that one can expect decreasing accuracy of Strutinsky-type calculations with decreasing nucleon number A [117,10].

6.1.4. Effect of a tensor force

In this study we have not incorporated a tensor force in the macroscopic–microscopic model which would be a monumental effort. Rather, to get a rough idea of the possible benefits of a tensor force, we study its possible impact indirectly. We calculate masses in an HFB approach with several different Skyrme forces without and with tensor terms. We use a specific case to illustrate our strategy. For example we calculate binding energy of ^{40}Ca and ^{42}Ca in the HFB approach without a tensor force. Then we calculate the binding energies for the same nuclei with the tensor force. We then argue that the effect of the tensor force is the difference in the change in the binding energy between the two calculations. We repeat this for other Ca isotopes. We then modify the errors calculated in the FRDM with the effect of the tensor force determined in this way.

For our calculations we use the Skyrme-type tensor interaction [118], which is the sum of the triplet-even and triplet-odd zero-range tensor parts,

$$v_T = \frac{T}{2}\left\{\left[(\vec{\sigma}_1\cdot k')(\vec{\sigma}_2\cdot k') - \frac{1}{3}(\vec{\sigma}_1\cdot\vec{\sigma}_2)k'^2\right]\delta(\vec{r}_1-\vec{r}_2)\right.$$
$$\left. + \delta(\vec{r}_1-\vec{r}_2)\left[(\vec{\sigma}_1\cdot k)(\vec{\sigma}_2\cdot k) - \frac{1}{3}(\vec{\sigma}_1\cdot\vec{\sigma}_2)k^2\right]\right\}$$
$$+ U\left\{(\vec{\sigma}_1\cdot k')\delta(\vec{r}_1-\vec{r}_2)(\vec{\sigma}_2\cdot k) - \frac{1}{3}(\vec{\sigma}_1\cdot\vec{\sigma}_2)\right.$$
$$\left.\times\left[k'\cdot\delta(\vec{r}_1-\vec{r}_2)k\right]\right\}, \tag{123}$$

where the operator $k = (\overrightarrow{\nabla}_1 - \overrightarrow{\nabla}_2)/2i$ acts on the right and $k' = -(\overleftarrow{\nabla}_1 - \overleftarrow{\nabla}_2)/2i$ on the left. The coupling constants T and U denote the strength of the triplet-even and triplet-odd tensor interactions, respectively. The tensor terms (123) give contributions to the binding energy and to the spin–orbit splitting that are proportional to the spin–orbit density $\vec{J}$. In spherical nuclei only the radial component of this vector does not vanish and is

$$J_q(r) = \frac{1}{4\pi r^3}\sum_{i\in q} v_i^2(2j_i+1)\left[j_i(j_i+1) - l_i(l_i+1) - \frac{3}{4}\right]R_i^2(r), \tag{124}$$

where $i = n,l,j$ runs over all states and $q = 0(1)$ stands for neutrons (protons). The quantity v_i^2 is the occupation probability of each orbit and $R_i(r)$ is the radial part of the HF single-particle wave function. Furthermore, we observed that the exchange part of the central Skyrme interaction gives the same kind of contributions to the total energy density. The tensor contributions give extra terms to the energy density that read

$$\delta E = \frac{1}{2}\alpha(J_n^2 + J_p^2) + \beta J_n J_p \tag{125}$$

where $\alpha = \alpha_C + \alpha_T$ and $\beta = \beta_C + \beta_T$. The central exchange contributions are given by

$$\alpha_C = \frac{1}{8}(t_1 - t_2) - \frac{1}{8}(t_1x_1 + t_2x_2), \qquad \beta_C = -\frac{1}{8}(t_1x_1 + t_2x_2), \tag{126}$$

in terms of the parameters of the Skyrme force as defined in Ref. [119] and the tensor part reads

$$\alpha_T = \frac{5}{12}U, \qquad \beta_T = \frac{5}{24}(T+U), \tag{127}$$

in terms of the triplet-even and triplet-odd terms appearing in Eq. (123).

In Fig. 41 we have plotted the mass deviations in the FRDM(1992) along the Ca isotopes and also the deviations after the

calculated masses have been modified with the tensor effect calculated as described above. The energy contribution of the tensor force increases or decreases monotonically, depending on the details of the adopted tensor interactions, from $A = 40$ to $A = 48$ and it therefore seems unlikely that any implementation of this type of tensor force can remedy the type of fluctuating deviations with respect to experiment that are present in the FRDM(1992) (and FRDM(2012)) along this isotope chain.

6.2. Comments on general nuclear-structure results in the FRDM/FRLDM and other nuclear-structure models

We have presented calculations of nuclear ground-state masses and deformations based on a global, general nuclear-structure model. It is natural to ask how the current mass calculations in this general model compare to other published nuclear-mass calculations. However, to present in a limited space such a comparison and associated discussion is nearly impossible, because few other "mass models" have their origin in what is generally agreed upon is a viable physical model or theory, in contrast to our work. We illustrate some of these issues below, and refer to comparisons to other models and experimental data already available in the literature, but plan a more extensive discussion in a future publication, since such a review is outside the scope of this paper.

To set the basis for our brief comments let us recall that it is generally accepted that a proper physical model should, apart from describing the core data that was the inspiration for the model, also (1) describe new measurements of similar data, in this case new mass measurements, (2) describe new *types* of data, and (3) lead to new insight.

The original Bethe–Weizäcker semi-empirical mass model [86] is an excellent example of a highly useful, proper physical model. Initially, it was instrumental in interpreting experimentally studied element transmutations. A problem in interpreting decays following neutron bombardment of uranium, erroneously ascribed to complex chains of β^- and α-decays between nuclides in the region of the compound nucleus formed, was eventually resolved when the products of the reactions were identified as being light products such as barium with 56 protons [120]. The semi-empirical mass model, which had assumed spherical nuclei, was immediately generalized to include nuclear deformations, so that it could describe the splitting of the atom into two daughter nuclei of "roughly" similar size [121,122], without the introduction of any new parameters.

6.2.1. Ground-state masses

In a recent review of the literature [26] we found no global macroscopic–microscopic calculations of ground-state masses with both a proper treatment of the deformation dependence of the macroscopic energy and a calculation of the shell-plus-pairing corrections based on calculated deformed single-particle spectra, except the early work of Seeger and Howard [123,124], which we have discussed in Refs. [34,98].

In the self-consistent Hartree–Fock treatments there is no obvious clear, straight progression towards models that describe nuclear-structure properties as accurately and generally in a consistent fashion as do our FRDM and FRLDM approaches. For example, there are more than 250 different forces or parameter sets in use [67]. Most fully self-consistent mass calculations are only as accurate (with an rms deviation in the range 3–5 MeV) as a simple liquid-drop model. To some there may seem to be exceptions; for example it is stated in Ref. [125]: *For the first time purely microscopic, self-consistent models of the Hartree–Fock Bogoliubov series (here HFB21) show about equal or even better accuracy than the widely used macroscopic–microscopic models*. The calculation referred to is Ref. [126], but in this work two purely phenomenological corrections (Eqs. (5) and (6)) with 9 adjustable constants are introduced. Therefore this calculation cannot be considered self-consistent.

Studies of how well models predict new masses that were not included in the determination of model parameters may reveal interesting model issues and give clues to model improvements. A problem with addressing this question is that it may be necessary to wait for several years before such a question can be addressed, unless one performs simulations like those we have undertaken in relation to Figs. 13–18, until sufficiently many new mass data become available. In 1992 we undertook such an investigation in Ref. [34], in which we compared the ratios of the model error with respect to about 350 new nuclei, which were not known when the models were published, to the model error in the region of nuclei to which the model parameters were adjusted. Eight different models were studied. For "non-divergent" models, this ratio should be close to one. For the Hilf/von Groote models, which were developed with the aim to be useful in r-process modeling, the ratios were 1.72 and 1.87 for the two versions of the model [127,128], with increasingly severe divergences as one considers more neutron-rich nuclei. Three other investigated models have ratios ranging from 2.67 to 12.33. The FRDM and FRLDM models have ratios of 1.10 and 1.06 respectively. The Seeger–Howard nuclear-structure model [123], which, apart from the FRDM and FRLDM is at this time the only other global mass model which obtains the microscopic corrections by solving a Schrödinger equation, has the ratio 1.36.

In Ref. [24] we compared several models to newly measured masses. We also looked at α-decay Q-values Q_α for the heaviest observed decay chains. In Ref. [39] we have further commented on and compared several models to the Q_α values for the decay of $^{278}113$ and discussed why HFB models, as so far implemented, have significant difficulties in determining correct ground-state masses and related quantities in the heavy-element region. Additional Dubna Q_α data is discussed in Ref. [91]. The FRDM and FRLDM compare extremely well to this new data which are about 40 nucleons distant from nuclei to which the models were adjusted.

6.2.2. Ground-state deformations

Intrinsic nuclear deformations are more difficult to determine experimentally than are nuclear masses; considerable model-dependence exists in the inference of deformations from data. Therefore, it is also somewhat difficult to compare calculated deformation multipoles to experimental "data". The gold standard for extracting deformations from experiments and for a systematic comparison to various model calculations is probably the work by Raman and collaborators [129], to which we refer for an extensive discussion. Although our FRDM(2012) obtained different deformations for a small number of nuclei, its calculated quadrupole deformations are sufficiently similar to those from FRDM(1992) that the Raman review of the FRDM(1992) is also relevant to our current results.

It has been well-known for a long time that calculated hexadecapole deformations β_4 are in good agreement with experimental results (although the values deduced from experiment are quite model-dependent); see Refs. [93,94,37]. More recently, we have also demonstrated that subbarrier fusion cross sections are well described when our calculated nuclear deformations of the target and projectiles are taken into account, including higher-multipole moments such as β_4, relative to treatments where the ground-state shape is assumed to be spherical [130].

We have studied the occurrence of octupole and axially asymmetric shapes in the current model, comparing with various experimental observations in Refs. [44,45] and finding excellent agreement. For example, we obtain the largest effect of octupole

deformation for ^{222}Ra which is the nuclide for which the lowest-lying negative-parity band has been observed. No other global nuclear mass calculations take these symmetry-breaking shapes into account.

We have also studied in the current model shape coexistence across the nuclear chart in Refs. [25,46], where detailed comparisons with experimental data can be found. Our calculated regions of shape coexistence agree well with the experimentally observed locations.

Another method to investigate how realistic the calculated ground-state deformations are is to study ground-state spins of odd-*A* nuclei, because level ordering, and consequently ground-state spins. depend sensitively on deformation [37]. If the shape, even the higher multipole contributions to the shape, is not correct, then the ground-state spin will be incorrect. We found in Ref. [24] that we agreed to 62% with experimentally observed odd-*A* spins in the previous FRDM(1992) calculations. In our current calculation we obtain agreement in 60% of the cases if we exclude nuclei with calculated axial and reflection asymmetry. More details about these studies will be forthcoming. Bonneau and collaborators reviewed several models in Ref. [131]. If nuclei in shape-transition, axially-asymmetric, octupole, and shape-coexistence regions were excluded, they found for the FRDM(1992) spin agreement in 75.4% of the cases, better than any of the three other models (SIII, SkM* and Sly4) they investigated.

6.2.3. Indirect tests of the model

The rapid neutron-capture process (r-process) has been extensively studied over the years. Our first entry into this field with nuclear masses and β-decay properties calculated in a consistent nuclear-structure model framework was through a 1993 study [132]. In a recent study we performed r-process simulations with nuclear masses provided by the FRDM(2012) and the β-decay properties obtained in a calculation (not yet published) based on the ground-state shapes provided here. The new data base led to an obviously better reproduction of the rare-earth abundance peak (without resorting to "fission recycling") than is obtained in calculations based on FRDM(1992) nuclear data [133].

New results on the cooling of the neutron star crust were recently obtained based on implementation of detailed networks of electron capture and β^- decay spectra from our general nuclear-structure model [134].

The values we obtain for the symmetry-energy constant J and density symmetry constant L in our parameter adjustment to nuclear masses are in excellent agreement with values obtained by other methods [68].

6.2.4. New types of data and new insights

We stated above that it is desirable for a proposed model to not only describe new data measurements, but also to be generalizable to description of new types of data.

We mentioned that the model was successfully applied to modeling subbarrier fusion experiments [130]. It has recently been extensively applied to the calculation of fission-fragment yields [59,135,60] New calculations predict a new region of asymmetric fission in the neutron-deficient Pb region [89]; this prediction can be subjected to experimental tests in the near term.

We have in the FRLDM calculated fission-barrier heights for more than 5000 nuclides, in excellent agreement with what can be deduced from experiment, from $A \approx 70$ to $A \approx 290$, see Refs. [39,61]. No other model reproduces barrier data over such an extended region of nuclei as accurately as this work.

Finally, the FRDM/FRLDM results were instrumental in understanding the stability of elements above $Z = 106$ as having its origin in shell gaps for *deformed* nuclei [136,24,137–139].

Notes added in proof.

The shape coordinates ε_1 and β_1 are not indepependent shape parameters but are determined so that the center-of-mass of the (macroscopic) shape be at the origin.

If in the longer term the professional email address of the corresponding author has become defunct, comments on the work and FRDM model may be available from P. Möller: mollerinla@gmail.com, T. Ichkawa: ichikawa@yukawa.kyoto-u.ac.jp, T. Kawano: kawano@lanl.gov.

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Appendix A. Supplementary data

Supplementary material related to this article can be found online at http://dx.doi.org/10.1016/j.adt.2015.10.002.

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Explanation of Tables

Table 1 **Calculated Nuclear Ground-State Masses and Deformations, Compared to Experimental Masses Where Available**

Z	Proton number. The mass table is ordered by increasing proton number. The corresponding chemical symbol of each named element is given in parentheses.
N	Neutron number.
A	Mass Number.
ε_2	Calculated ground-state quadrupole deformation in the Nilsson perturbed-spheroid parameterization.
ε_3	Calculated ground-state octupole deformation in the Nilsson perturbed-spheroid parameterization.
ε_4	Calculated ground-state hexadecapole deformation in the Nilsson perturbed-spheroid parameterization.
ε_6	Calculated ground-state hexacontatetrapole deformation in the Nilsson perturbed-spheroid parameterization.
β_2	Calculated quadrupole deformation of the nuclear ground-state expressed in a spherical-harmonics expansion. The exact definition is given by Eq. (38).
β_3	Calculated octupole deformation of the nuclear ground-state expressed in a spherical-harmonics expansion.
β_4	Calculated hexadecapole deformation of the nuclear ground-state expressed in a spherical-harmonics expansion.
β_6	Calculated hexacontatetrapole deformation of the nuclear ground-state expressed in a spherical-harmonics expansion.
$E_{\mathrm{s+p}}$	Calculated ground-state shell-plus-pairing correction. For a specific deformation this number is independent of the macroscopic model and depends only on the single-particle model.
E_{mic}	Calculated ground-state microscopic energy, given by the difference between the calculated ground-state atomic mass excess and the spherical macroscopic energy calculated in our preferred mass model, the FRDM (2012).
E_{bind}	Calculated ground-state binding energy, calculated in our preferred mass model, the FRDM (2012).
M_{th}	Calculated ground-state atomic mass excess, in our preferred mass model, the FRDM (2012).
M_{exp}	Experimental ground-state atomic mass excess in the AME2003 evaluation (Nucl. Phys. A **729** (2003) 337).
σ_{exp}	Experimental error associated with the ground-state atomic mass excess in the AME2003 evaluation (Nucl. Phys. A **729** (2003) 337).
$E_{\mathrm{mic}}^{\mathrm{FL}}$	Calculated ground-state microscopic energy, given by the difference between the calculated ground-state atomic mass excess and the spherical macroscopic energy calculated in the FRLDM (2012).
$M_{\mathrm{th}}^{\mathrm{FL}}$	Calculated ground-state atomic mass excess, in the FRLDM (2012).

We note again that in the table effects of axial asymmetry on the calculated energy quantities are included; only a few nuclei are affected. However, for reasons of space, the listed deformations refer to the ground-state shape obtained when axial asymmetry is not considered. As discussed in Section 4, item 2, these details are available in previous publications.

Table 1
MCDHF energy levels in Kr XXIV.

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 8 (O)																	
8	16	−0.03	0.20	0.12	−0.02	−0.010	−0.258	−0.122	0.047	−0.62	2.42	128.03	−5.15	−4.74	0.000	2.40	−3.66
9	17	0.05	0.01	−0.12	−0.02	0.061	−0.014	0.152	0.035	1.82	3.74	132.45	−1.49	−0.81	0.000	3.71	−0.04
10	18	0.01	0.00	−0.04	0.02	0.010	0.000	0.048	−0.019	1.60	3.42	141.84	−2.81	−0.78	0.001	3.42	−1.39
11	19	−0.01	0.00	−0.04	0.02	−0.010	0.000	0.047	−0.020	2.23	3.78	144.95	2.15	3.34	0.003	3.78	3.46
12	20	0.01	0.00	0.02	−0.02	0.010	0.000	−0.024	0.020	1.10	2.52	152.98	2.19	3.80	0.001	2.52	3.36
13	21	0.09	0.00	0.03	−0.03	0.096	0.000	−0.034	0.027	0.37	2.02	155.15	8.09	8.06	0.012	2.05	9.11
14	22	0.00	0.00	−0.01	0.03	0.000	0.000	0.012	−0.030	−1.14	0.73	161.39	9.92	9.28	0.057	0.76	10.75
15	23	0.00	0.00	0.00	0.03	0.000	0.000	0.000	−0.029	−1.89	0.18	162.16	17.22	14.61	0.122	0.22	17.83
16	24	0.00	0.00	0.02	0.03	0.001	0.000	−0.023	−0.029	−2.09	−0.17	165.98	21.48	19.07	0.236	−0.10	21.90
17	25	0.04	0.00	0.02	0.03	0.043	0.000	−0.022	−0.030	−2.03	−0.06	164.91	30.61			0.02	30.82
18	26	0.00	0.00	0.00	0.03	0.000	0.000	0.000	−0.029	−2.06	−0.33	167.41	36.19			−0.25	36.16
19	27	−0.02	0.00	0.00	0.03	−0.021	0.000	0.000	−0.029	−2.57	−0.35	165.50	46.17			−0.26	45.93
20	28	0.00	0.00	0.00	−0.03	0.000	0.000	0.000	0.030	−2.87	−0.48	166.82	52.92			−0.37	52.47
21	29	0.08	0.00	−0.05	−0.03	0.087	0.000	0.064	0.037	−2.10	−0.34	163.92	63.89			0.05	63.50
22	30	0.10	0.00	−0.10	−0.03	0.114	0.000	0.131	0.049	−1.84	−1.22	165.12	70.76			−0.00	70.99
23	31	0.18	0.00	−0.12	−0.04	0.205	0.000	0.170	0.081	−2.15	−2.01	162.45	81.50			0.30	82.64
24	32	0.19	0.00	−0.12	−0.04	0.216	0.000	0.172	0.083	−2.01	−2.40	162.41	89.61			0.22	90.88
25	33	0.22	0.00	−0.05	0.00	0.238	0.000	0.083	0.017	−1.64	−0.50	156.45	103.64			−0.03	102.60
26	34	0.17	0.00	0.04	0.04	0.187	0.000	−0.032	−0.046	−1.39	−0.57	155.44	112.72			0.10	111.74
27	35	−0.28	0.00	−0.10	0.04	−0.284	0.000	0.137	−0.068	−2.62	−3.28	153.57	122.67			−0.70	123.47
28	36	−0.32	0.00	−0.12	0.04	−0.322	0.000	0.167	−0.078	−3.40	−4.18	152.82	131.49			−0.39	133.39
29	37	−0.27	0.00	−0.06	0.04	−0.276	0.000	0.090	−0.056	−3.07	−2.51	146.10	146.28			−0.82	145.99
30	38	−0.20	0.00	0.05	−0.04	−0.208	0.000	−0.038	0.047	−2.61	−2.15	143.61	156.84			−1.14	155.81
31	39	−0.20	0.00	0.06	−0.04	−0.209	0.000	−0.049	0.049	−3.07	−2.80	138.81	169.71			−1.59	168.83
32	40	−0.15	0.00	0.12	−0.04	−0.158	0.000	−0.124	0.060	−3.12	−4.78	138.21	178.38			−1.85	179.20
33	41	−0.15	0.00	0.12	−0.05	−0.159	0.000	−0.124	0.069	−3.26	−5.55	133.19	191.48			−2.12	192.79
34	42	−0.17	0.00	0.08	−0.05	−0.179	0.000	−0.076	0.062	−2.66	−3.74	128.40	204.34			−1.49	204.49
Z = 9 (F)																	
8	17	0.05	0.00	−0.12	−0.02	0.061	0.000	0.152	0.035	1.24	3.14	129.22	0.95	1.95	0.000	3.11	2.01
9	18	0.16	0.00	−0.12	−0.02	0.180	0.000	0.165	0.054	2.93	6.08	136.73	1.51	0.87	0.001	5.93	0.85
10	19	0.24	0.00	−0.12	0.02	0.262	0.000	0.180	0.025	2.43	5.87	148.51	−2.19	−1.49	0.000	5.77	−1.12
11	20	0.26	0.00	−0.10	0.02	0.283	0.000	0.159	0.021	2.83	6.25	154.18	0.20	−0.02	0.000	6.14	1.23
12	21	0.25	0.00	−0.05	0.03	0.270	0.000	0.092	−0.010	2.15	4.98	162.95	−0.49	−0.05	0.002	4.96	0.55
13	22	0.21	0.00	−0.03	0.03	0.226	0.000	0.058	−0.020	2.04	4.39	167.59	2.93	2.79	0.012	4.36	3.87
14	23	0.11	0.00	−0.06	0.03	0.117	0.000	0.079	−0.021	1.07	2.85	174.70	3.90	3.33	0.080	2.91	4.77
15	24	0.09	0.00	−0.06	0.03	0.095	0.000	0.077	−0.023	0.52	2.36	177.60	9.07	7.56	0.072	2.43	9.80
16	25	0.11	0.00	−0.04	−0.03	0.119	0.000	0.054	0.037	0.19	2.10	181.85	12.89	11.27	0.098	2.20	13.47
17	26	0.11	0.00	0.00	−0.03	0.118	0.000	0.004	0.030	0.19	2.21	182.80	20.01	18.27	0.167	2.26	20.35
18	27	0.11	0.00	0.00	0.03	0.118	0.000	0.007	−0.030	0.10	2.05	185.65	25.24	24.93	0.377	2.12	25.40
19	28	0.08	0.00	−0.01	0.03	0.085	0.000	0.016	−0.029	−0.25	1.73	185.90	33.06			1.81	33.03
20	29	−0.03	0.00	−0.01	−0.03	−0.031	0.000	0.013	0.029	−0.56	1.39	187.81	39.21			1.48	39.00
21	30	0.10	0.00	−0.07	−0.03	0.111	0.000	0.091	0.042	−0.29	1.05	187.13	47.97			1.54	47.96
22	31	0.18	0.00	−0.12	−0.04	0.205	0.000	0.170	0.081	−1.00	0.15	188.68	54.49			1.87	55.52
23	32	0.21	0.00	−0.12	0.02	0.229	0.000	0.173	0.019	−1.22	0.46	186.52	64.72			1.61	65.00
24	33	0.23	0.00	−0.12	0.04	0.249	0.000	0.178	0.001	−1.43	−0.18	187.00	72.31			1.17	72.61
25	34	0.26	0.00	−0.08	0.04	0.281	0.000	0.133	−0.009	−1.36	0.31	183.96	83.42			1.13	83.03
26	35	0.24	0.00	−0.04	0.04	0.259	0.000	0.078	−0.025	−0.94	0.48	182.94	92.52			1.00	91.68
27	36	0.26	0.00	0.07	0.04	0.292	0.000	−0.049	−0.057	−1.32	−0.15	180.41	103.11			0.80	102.58
28	37	−0.30	0.00	−0.12	0.04	−0.302	0.000	0.163	−0.076	−2.50	−3.00	181.80	109.79			0.07	111.26
29	38	−0.27	0.00	−0.07	0.04	−0.275	0.000	0.102	−0.059	−2.14	−1.77	176.87	122.80			−0.13	122.74
30	39	−0.20	0.00	0.00	0.04	−0.206	0.000	0.013	−0.038	−1.43	−0.94	174.05	133.69			−0.41	132.44
31	40	−0.20	0.00	0.12	−0.04	−0.210	0.000	−0.115	0.064	−2.12	−2.90	171.84	143.98			−0.46	144.57
32	41	−0.20	0.00	0.12	−0.05	−0.210	0.000	−0.115	0.073	−1.93	−3.23	169.69	154.19			−0.25	155.27
33	42	−0.17	0.00	0.08	−0.05	−0.179	0.000	−0.076	0.062	−1.76	−2.59	164.46	167.49			−0.71	167.45
34	43	−0.17	0.00	0.08	−0.05	−0.179	0.000	−0.076	0.062	−1.37	−2.25	161.23	178.80			−0.26	178.86
35	44	−0.20	0.00	0.12	−0.05	−0.210	0.000	−0.115	0.073	−1.64	−3.41	157.42	190.67			−0.05	192.12
36	45	0.28	0.00	−0.12	−0.05	0.320	0.000	0.195	0.115	−2.06	−5.45	156.19	199.98			0.10	203.64

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 9 (F)																	
37	46	0.23	0.00	−0.12	−0.05	0.263	0.000	0.182	0.103	−2.08	−5.16	150.59	213.65			0.00	216.97
Z = 10 (Ne)																	
8	18	−0.01	0.00	0.12	−0.02	−0.008	0.000	−0.139	0.024	0.92	2.89	134.37	3.10	5.32	0.000	2.93	3.77
9	19	0.24	0.00	−0.12	−0.02	0.269	0.000	0.182	0.070	1.98	5.53	144.67	0.87	1.75	0.000	5.43	1.53
10	20	0.33	0.00	−0.12	0.02	0.364	0.000	0.207	0.046	0.80	5.14	160.81	−7.21	−7.04	0.000	5.08	−6.39
11	21	0.34	0.00	−0.08	0.03	0.372	0.000	0.157	0.016	1.50	5.81	166.96	−5.29	−5.73	0.000	5.69	−4.49
12	22	0.35	0.00	−0.03	0.03	0.384	0.000	0.096	−0.007	0.94	4.77	177.97	−8.23	−8.02	0.000	4.75	−7.34
13	23	0.29	0.00	−0.03	0.03	0.316	0.000	0.078	−0.014	1.78	4.77	182.69	−4.87	−5.15	0.000	4.74	−4.04
14	24	−0.06	0.00	−0.01	0.03	−0.063	0.000	0.013	−0.030	2.02	2.70	192.61	−6.72	−5.95	0.000	2.70	−5.93
15	25	0.05	0.00	0.00	0.03	0.053	0.000	0.002	−0.030	1.61	2.68	195.62	−1.66	−2.11	0.026	2.69	−0.98
16	26	0.11	0.00	0.05	0.03	0.121	0.000	−0.052	−0.035	1.16	2.15	202.25	−0.22	0.43	0.027	2.23	0.41
17	27	0.11	0.00	0.02	0.03	0.119	0.000	−0.017	−0.032	1.15	2.59	203.38	6.72	7.07	0.110	2.64	7.18
18	28	−0.02	0.00	0.00	0.03	−0.021	0.000	0.000	−0.029	1.07	2.06	208.55	9.62	11.24	0.147	2.10	9.91
19	29	−0.03	0.00	0.00	0.03	−0.031	0.000	0.000	−0.029	0.61	2.26	208.71	17.53	18.06	0.269	2.32	17.67
20	30	0.00	0.00	0.00	0.03	0.000	0.000	0.000	−0.029	0.01	1.94	212.44	21.87	23.10	0.571	2.01	21.85
21	31	0.10	0.00	−0.06	−0.04	0.111	0.000	0.079	0.051	0.44	1.40	212.33	30.06			1.83	30.23
22	32	0.23	0.00	−0.12	−0.03	0.259	0.000	0.180	0.080	−1.11	0.81	215.27	35.19			2.28	36.23
23	33	0.28	0.00	−0.11	0.04	0.304	0.000	0.178	0.008	−1.80	0.64	213.91	44.62			1.59	44.97
24	34	0.29	0.00	−0.10	0.04	0.315	0.000	0.168	0.005	−2.15	0.18	215.81	50.79			1.16	51.01
25	35	0.28	0.00	−0.07	0.04	0.303	0.000	0.126	−0.009	−1.77	0.28	213.44	61.23			0.93	60.97
26	36	0.29	0.00	−0.03	0.04	0.316	0.000	0.079	−0.024	−1.56	0.39	213.97	68.77			0.86	68.18
27	37	0.35	0.00	0.11	0.04	0.403	0.000	−0.068	−0.075	−2.61	−1.09	212.52	78.30			0.39	78.58
28	38	−0.30	0.00	−0.12	0.04	−0.302	0.000	0.163	−0.076	−2.49	−2.38	213.76	85.12			0.38	86.57
29	39	−0.27	0.00	−0.03	0.02	−0.276	0.000	0.059	−0.030	−1.79	−0.43	208.31	98.65			0.09	97.74
30	40	0.23	0.00	0.00	0.04	0.250	0.000	0.027	−0.037	−1.34	−0.72	207.94	107.09			−0.24	106.06
31	41	−0.17	0.00	0.05	−0.05	−0.178	0.000	−0.043	0.056	−1.36	−1.43	204.63	118.47			−0.38	117.92
32	42	−0.17	0.00	0.08	−0.05	−0.179	0.000	−0.076	0.062	−1.13	−1.56	203.55	127.62			0.09	127.60
33	43	−0.28	0.00	0.11	−0.05	−0.292	0.000	−0.086	0.075	−1.57	−2.36	199.89	139.35			0.21	140.21
34	44	0.21	0.00	0.08	−0.05	0.231	0.000	−0.083	0.031	−1.03	−0.72	196.56	150.76			0.44	150.17
35	45	0.28	0.00	−0.12	−0.05	0.320	0.000	0.195	0.115	−2.53	−4.50	195.47	159.92			0.38	163.04
36	46	0.28	0.00	−0.12	−0.04	0.318	0.000	0.194	0.103	−2.32	−4.09	192.93	170.53			0.45	173.32
37	47	0.32	0.00	−0.12	0.02	0.352	0.000	0.204	0.044	−2.49	−2.72	186.34	185.19			−0.16	186.03
38	48	0.32	0.00	−0.12	0.03	0.351	0.000	0.204	0.033	−2.25	−2.71	183.80	195.80			−0.14	196.69
39	49	0.32	0.00	−0.12	0.05	0.348	0.000	0.204	0.011	−2.45	−3.34	178.88	208.79			−0.74	209.76
40	50	0.30	0.00	−0.10	−0.01	0.332	0.000	0.169	0.062	−2.10	−3.12	175.78	219.96			−0.40	221.14
41	51	0.32	0.00	−0.12	0.06	0.347	0.000	0.205	0.000	−2.63	−4.21	171.04	232.78			−1.34	234.20
Z = 11 (Na)																	
8	19	−0.01	0.00	0.12	0.02	−0.005	0.000	−0.138	−0.014	1.25	2.92	133.28	11.47	12.93	0.012	2.99	11.67
9	20	0.29	0.00	−0.11	0.02	0.317	0.000	0.180	0.031	1.70	5.55	146.20	6.62	6.85	0.007	5.39	6.83
10	21	0.34	0.00	−0.10	0.03	0.372	0.000	0.183	0.027	0.92	5.30	162.95	−2.06	−2.18	0.001	5.17	−1.67
11	22	0.35	0.00	−0.04	0.03	0.384	0.000	0.109	−0.002	1.72	6.08	172.93	−3.97	−5.18	0.000	5.91	−4.87
12	23	0.35	0.00	0.00	0.03	0.386	0.000	0.059	−0.021	1.21	5.20	185.85	−8.82	−9.53	0.000	5.10	−8.21
13	24	0.32	0.00	0.01	0.03	0.353	0.000	0.038	−0.027	2.33	5.62	192.42	−7.31	−8.42	0.000	5.51	−6.70
14	25	0.26	0.00	−0.01	0.02	0.283	0.000	0.044	−0.013	2.09	4.57	201.94	−8.76	−9.36	0.001	4.53	−8.09
15	26	0.24	0.00	0.02	0.03	0.263	0.000	0.004	−0.033	2.21	4.52	207.09	−5.84	−6.86	0.006	4.49	−5.22
16	27	0.25	0.00	0.06	0.03	0.278	0.000	−0.041	−0.044	1.51	3.97	214.29	−4.97	−5.52	0.004	4.02	−4.35
17	28	0.21	0.00	0.05	−0.03	0.230	0.000	−0.045	0.019	2.09	3.85	217.95	−0.56	−0.99	0.013	3.86	−0.06
18	29	−0.06	0.00	0.01	0.03	−0.063	0.000	−0.011	−0.028	2.42	3.14	223.78	1.68	2.66	0.013	3.16	2.07
19	30	−0.04	0.00	0.01	0.03	−0.042	0.000	−0.011	−0.029	2.07	3.27	225.85	7.69	8.36	0.025	3.31	7.95
20	31	0.00	0.00	0.00	0.04	0.000	0.000	0.000	−0.039	1.38	3.09	229.86	11.75	12.65	0.211	3.18	11.93
21	32	0.11	0.00	−0.05	−0.04	0.121	0.000	0.067	0.050	1.72	2.78	231.24	18.44	19.06	0.356	3.04	18.65
22	33	0.23	0.00	−0.12	0.04	0.249	0.000	0.178	0.001	0.09	2.47	234.25	23.49	24.89	0.875	3.21	24.01
23	34	0.27	0.00	−0.11	0.04	0.293	0.000	0.175	0.005	−0.97	1.90	234.92	30.90			2.60	31.24
24	35	0.29	0.00	−0.08	0.04	0.314	0.000	0.141	−0.004	−1.30	1.49	237.09	36.80			2.06	36.86
25	36	0.29	0.00	−0.04	0.04	0.315	0.000	0.091	−0.020	−1.12	1.48	236.34	45.62			1.82	45.31
26	37	0.30	0.00	0.00	0.04	0.329	0.000	0.045	−0.034	−1.10	1.25	237.49	52.54			1.58	52.08

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 11 (Na)																	
27	38	0.35	0.00	0.10	0.04	0.401	0.000	−0.056	−0.071	−2.40	−0.13	237.37	60.74			0.93	60.87
28	39	0.35	0.00	0.11	0.04	0.403	0.000	−0.068	−0.075	−2.49	−0.61	238.04	68.14			0.74	68.44
29	40	0.28	0.00	0.05	0.04	0.312	0.000	−0.020	−0.052	−1.20	−0.22	235.49	78.76			0.41	78.22
30	41	0.22	0.00	0.01	0.05	0.240	0.000	0.014	−0.050	−0.69	0.17	234.64	87.68			0.79	87.04
31	42	0.22	0.00	0.01	0.05	0.240	0.000	0.014	−0.050	−0.72	0.15	231.93	98.46			0.79	97.75
32	43	0.22	0.00	0.00	0.05	0.239	0.000	0.026	−0.048	−0.54	0.20	230.84	107.62			0.86	106.86
33	44	0.22	0.00	0.01	0.05	0.240	0.000	0.014	−0.050	−0.57	0.19	227.60	118.93			0.91	118.16
34	45	0.22	0.00	0.06	−0.05	0.241	0.000	−0.057	0.035	−0.31	0.49	225.76	128.85			1.29	128.12
35	46	0.31	0.00	−0.08	−0.05	0.347	0.000	0.145	0.097	−1.68	−1.67	224.21	138.46			1.25	139.82
36	47	0.31	0.00	−0.07	−0.05	0.346	0.000	0.131	0.091	−1.46	−1.49	222.02	148.73			1.27	149.92
37	48	0.31	0.00	−0.12	0.03	0.339	0.000	0.200	0.030	−1.84	−1.35	217.76	161.06			0.77	161.60
38	49	0.33	0.00	−0.12	0.05	0.359	0.000	0.208	0.014	−1.81	−1.75	215.72	171.17			0.53	171.89
39	50	0.34	0.00	−0.05	−0.02	0.375	0.000	0.114	0.053	−1.74	−0.72	210.20	184.76			0.50	184.45
40	51	0.34	0.00	−0.05	0.00	0.374	0.000	0.115	0.032	−1.61	−0.42	207.10	195.94			0.38	195.26
41	52	0.33	0.00	−0.06	0.02	0.361	0.000	0.127	0.015	−1.96	−0.87	202.72	208.38			−0.09	207.76
42	53	0.31	0.00	−0.09	0.06	0.336	0.000	0.162	−0.016	−1.89	−2.23	200.93	218.25			−0.25	218.91
43	54	0.33	0.00	−0.06	0.06	0.359	0.000	0.131	−0.026	−2.17	−2.27	195.83	231.42			−0.78	231.69
44	55	0.33	0.00	−0.05	0.06	0.359	0.000	0.118	−0.030	−2.01	−2.21	192.31	243.01			−0.75	243.37
Z = 12 (Mg)																	
8	20	0.11	0.00	−0.09	−0.02	0.122	0.000	0.118	0.037	0.21	1.65	136.48	15.56	17.57	0.027	1.78	15.32
9	21	0.29	0.00	−0.03	0.03	0.316	0.000	0.078	−0.014	1.34	4.21	150.19	9.92	10.91	0.016	4.15	9.78
10	22	0.35	0.00	−0.04	0.03	0.384	0.000	0.109	−0.002	0.57	4.24	169.14	−0.96	−0.40	0.001	4.20	−0.85
11	23	0.35	0.00	0.02	0.03	0.388	0.000	0.035	−0.029	1.23	4.99	181.22	−4.97	−5.47	0.001	4.89	−4.74
12	24	0.35	0.00	0.06	0.03	0.393	0.000	−0.012	−0.046	0.78	4.44	197.38	−13.06	−13.93	0.000	4.39	−12.65
13	25	0.31	0.00	0.05	0.03	0.346	0.000	−0.013	−0.042	1.81	4.83	204.63	−12.23	−13.19	0.000	4.76	−11.76
14	26	−0.35	0.00	−0.11	0.03	−0.351	0.000	0.162	−0.070	0.79	3.42	216.69	−16.22	−16.22	0.000	3.49	−15.57
15	27	0.25	0.00	0.05	−0.03	0.275	0.000	−0.037	0.017	1.90	4.25	221.54	−13.00	−14.59	0.000	4.23	−12.45
16	28	0.25	0.00	0.08	−0.03	0.277	0.000	−0.073	0.008	1.26	3.77	230.70	−14.09	−15.02	0.002	3.82	−13.50
17	29	0.21	0.00	0.06	−0.03	0.230	0.000	−0.057	0.016	1.96	3.68	234.84	−10.16	−10.62	0.014	3.70	−9.64
18	30	0.11	0.00	0.01	0.03	0.119	0.000	−0.005	−0.031	2.21	3.38	242.17	−9.42	−8.91	0.008	3.41	−8.97
19	31	−0.05	0.00	0.01	0.04	−0.052	0.000	−0.011	−0.038	2.10	3.24	244.97	−4.14	−3.22	0.012	3.30	−3.77
20	32	0.00	0.00	0.00	0.04	0.000	0.000	0.000	−0.039	1.39	3.04	250.78	−1.89	−0.95	0.018	3.11	−1.60
21	33	0.11	0.00	−0.04	−0.04	0.120	0.000	0.054	0.048	1.80	3.05	252.24	4.72	4.89	0.020	3.24	5.01
22	34	0.20	0.00	−0.09	0.00	0.218	0.000	0.131	0.028	0.69	2.76	256.93	8.11	8.81	0.231	3.17	8.49
23	35	0.25	0.00	−0.09	0.04	0.270	0.000	0.144	−0.006	−0.35	2.26	257.88	15.23			2.72	15.53
24	36	0.28	0.00	−0.05	0.04	0.304	0.000	0.101	−0.017	−0.90	1.85	261.62	19.56			2.20	19.61
25	37	0.28	0.00	0.00	0.04	0.306	0.000	0.039	−0.035	−0.95	1.66	261.37	27.89			1.92	27.72
26	38	0.29	0.00	0.03	0.04	0.321	0.000	0.006	−0.045	−1.18	1.15	264.29	33.03			1.54	32.87
27	39	0.35	0.00	0.10	0.04	0.401	0.000	−0.056	−0.071	−2.70	−0.04	264.25	41.14			0.93	41.43
28	40	−0.31	0.00	−0.12	0.04	−0.312	0.000	0.165	−0.077	−2.71	−1.31	267.12	46.34			0.81	47.67
29	41	−0.27	0.00	−0.06	0.04	−0.276	0.000	0.090	−0.056	−1.62	−0.08	263.97	57.56			0.91	57.64
30	42	0.22	0.00	0.02	0.05	0.241	0.000	0.002	−0.053	−0.82	−0.12	264.89	64.72			0.49	64.31
31	43	0.22	0.00	0.03	0.05	0.242	0.000	−0.010	−0.055	−0.77	0.09	262.16	75.52			0.77	75.10
32	44	0.22	0.00	0.03	0.05	0.242	0.000	−0.010	−0.055	−0.56	0.31	262.17	83.58			1.06	83.15
33	45	0.22	0.00	0.06	−0.05	0.241	0.000	−0.057	0.035	−0.57	0.39	259.02	94.80			1.08	94.24
34	46	0.23	0.00	0.10	−0.05	0.255	0.000	−0.104	0.024	−0.55	0.17	258.89	103.00			1.32	102.83
35	47	0.22	0.00	0.10	−0.05	0.244	0.000	−0.106	0.025	−0.40	−0.09	255.60	114.36			1.11	114.21
36	48	0.33	0.00	−0.01	−0.05	0.365	0.000	0.056	0.062	−0.92	0.19	254.46	123.58			1.43	123.43
37	49	0.35	0.00	−0.01	−0.05	0.389	0.000	0.062	0.064	−1.36	−0.07	250.72	135.39			1.24	135.29
38	50	0.35	0.00	0.00	−0.05	0.389	0.000	0.049	0.058	−1.26	0.05	249.28	144.90			1.27	144.71
39	51	0.35	0.00	0.01	−0.06	0.389	0.000	0.035	0.064	−1.64	−0.59	245.53	156.72			0.88	156.79
40	52	0.35	0.00	0.01	−0.06	0.389	0.000	0.035	0.064	−1.56	−0.80	243.98	166.34			0.77	166.53
41	53	0.34	0.00	0.00	−0.04	0.376	0.000	0.047	0.048	−1.77	−0.47	238.90	179.49			0.40	179.03
42	54	0.34	0.00	0.00	−0.01	0.375	0.000	0.050	0.018	−1.58	0.18	236.12	190.34			0.37	189.27
43	55	0.35	0.00	0.03	0.06	0.391	0.000	0.029	−0.062	−2.07	−1.91	233.13	201.40			−0.31	201.82
44	56	0.35	0.00	0.04	0.06	0.392	0.000	0.017	−0.066	−2.05	−2.06	230.79	211.82			−0.22	212.56
45	57	0.35	0.00	0.04	0.06	0.392	0.000	0.017	−0.066	−2.55	−2.60	225.96	224.71			−0.76	225.57

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 12 (Mg)																	
46	58	0.35	0.00	0.04	0.06	0.392	0.000	0.017	−0.066	−2.54	−2.71	223.25	235.50			−0.78	236.57
47	59	0.33	0.00	0.02	0.06	0.366	0.000	0.034	−0.059	−2.97	−2.95	217.85	248.97			−1.31	249.89
Z = 13 (Al)																	
8	21	0.10	0.00	0.12	0.03	0.117	0.000	−0.134	−0.039	−0.59	0.87	133.77	25.55			1.11	24.91
9	22	0.21	0.00	−0.05	0.03	0.226	0.000	0.083	−0.015	1.38	3.39	149.89	17.50			3.36	16.94
10	23	0.28	0.00	−0.02	0.03	0.305	0.000	0.062	−0.018	1.32	4.04	168.90	6.57	6.77	0.019	3.99	6.27
11	24	0.30	0.00	0.02	0.03	0.331	0.000	0.020	−0.032	1.97	4.86	183.18	0.37	−0.06	0.003	4.74	0.25
12	25	0.31	0.00	0.05	0.03	0.346	0.000	−0.013	−0.042	1.55	4.58	199.71	−8.10	−8.92	0.000	4.50	−8.00
13	26	0.25	0.00	0.02	0.03	0.274	0.000	0.006	−0.033	2.47	4.63	210.69	−11.01	−12.21	0.000	4.55	−11.93
14	27	−0.40	0.00	−0.12	−0.03	−0.392	0.000	0.193	−0.027	−0.29	4.16	223.56	−15.81	−17.20	0.000	4.10	−15.47
15	28	0.20	0.00	0.03	−0.02	0.218	0.000	−0.021	0.014	2.33	3.96	231.47	−15.64	−16.85	0.000	3.91	−15.23
16	29	0.21	0.00	0.05	−0.03	0.230	0.000	−0.045	0.019	1.86	3.78	240.88	−16.99	−18.22	0.001	3.76	−16.52
17	30	0.14	0.00	0.03	−0.03	0.151	0.000	−0.030	0.025	2.61	4.52	246.09	−14.12	−15.87	0.014	4.51	−13.66
18	31	−0.12	0.00	0.03	0.04	−0.124	0.000	−0.030	−0.033	2.27	3.06	255.07	−15.03	−14.95	0.020	3.08	−14.57
19	32	0.05	0.00	0.01	0.04	0.054	0.000	−0.010	−0.040	2.23	3.61	258.96	−10.85	−11.06	0.086	3.64	−10.44
20	33	0.03	0.00	0.00	0.04	0.032	0.000	0.001	−0.039	1.52	3.20	265.42	−9.24	−8.53	0.073	3.25	−8.89
21	34	0.09	0.00	−0.02	−0.04	0.097	0.000	0.027	0.043	2.08	3.55	268.23	−3.98	−2.93	0.113	3.63	−3.68
22	35	0.11	0.00	−0.03	0.04	0.117	0.000	0.043	−0.036	1.87	3.13	273.44	−1.11	−0.13	0.175	3.24	−0.89
23	36	0.22	0.00	−0.08	0.04	0.236	0.000	0.123	−0.015	0.59	3.07	275.54	4.86	5.78	0.215	3.34	5.14
24	37	0.24	0.00	−0.05	0.04	0.259	0.000	0.090	−0.022	0.08	2.59	279.70	8.77	9.95	0.331	2.82	8.89
25	38	0.25	0.00	−0.01	0.04	0.272	0.000	0.044	−0.034	−0.10	2.31	281.04	15.50	16.05	0.731	2.48	15.45
26	39	0.24	0.00	0.02	0.04	0.263	0.000	0.005	−0.043	−0.20	1.74	284.33	20.28	21.40	1.472	1.98	20.19
27	40	−0.31	0.00	−0.12	0.04	−0.312	0.000	0.165	−0.077	−2.10	0.00	286.26	26.42			1.51	27.48
28	41	−0.31	0.00	−0.12	0.05	−0.313	0.000	0.164	−0.086	−3.03	−1.05	289.18	31.57			0.87	32.93
29	42	−0.27	0.00	−0.09	0.00	−0.271	0.000	0.129	−0.027	−1.88	0.22	287.35	41.48			0.98	41.57
30	43	−0.27	0.00	−0.05	−0.05	−0.271	0.000	0.089	0.029	−1.13	0.38	288.31	48.59			0.97	48.41
31	44	−0.27	0.00	−0.02	−0.05	−0.274	0.000	0.055	0.037	−0.93	0.28	287.16	57.81			0.77	57.43
32	45	−0.27	0.00	−0.02	−0.05	−0.274	0.000	0.055	0.037	−0.59	0.76	287.12	65.92			1.31	65.51
33	46	−0.30	0.00	0.04	−0.05	−0.308	0.000	−0.005	0.053	−0.86	0.40	285.64	75.47			1.16	75.20
34	47	−0.36	0.00	0.06	−0.05	−0.369	0.000	−0.010	0.058	−1.16	0.26	285.62	83.56			1.34	83.55
35	48	−0.38	0.00	0.06	−0.05	−0.388	0.000	−0.004	0.058	−1.12	0.11	283.38	93.88			1.22	93.84
36	49	−0.38	0.00	0.03	−0.05	−0.386	0.000	0.027	0.046	−0.64	0.74	282.04	103.29			1.64	102.98
37	50	0.41	0.00	0.07	−0.05	0.463	0.000	−0.019	0.023	−1.16	1.28	278.62	114.77			1.79	114.05
38	51	0.41	0.00	0.08	−0.06	0.464	0.000	−0.033	0.027	−1.29	1.11	277.60	123.87			1.92	123.44
39	52	0.35	0.00	0.04	−0.06	0.390	0.000	−0.004	0.049	−0.99	0.77	274.62	134.92			1.74	134.63
40	53	0.35	0.00	0.04	−0.06	0.390	0.000	−0.004	0.049	−0.96	0.56	273.19	144.42			1.60	144.22
41	54	0.33	0.00	0.02	−0.06	0.366	0.000	0.016	0.058	−1.09	0.06	269.96	155.72			1.27	155.71
42	55	0.34	0.00	0.05	−0.04	0.378	0.000	−0.016	0.024	−1.02	0.72	267.26	166.50			1.17	165.77
43	56	0.35	0.00	0.06	0.02	0.393	0.000	−0.014	−0.037	−1.53	0.22	263.67	178.15			0.68	177.49
44	57	0.35	0.00	0.07	0.06	0.397	0.000	−0.017	−0.078	−1.71	−1.67	263.13	186.76			0.55	187.92
45	58	0.22	0.00	−0.07	0.05	0.236	0.000	0.111	−0.028	−1.50	−1.13	258.18	199.79			0.18	200.12
46	59	0.22	0.00	−0.05	0.06	0.236	0.000	0.087	−0.044	−1.49	−1.29	255.57	210.47			0.19	211.06
47	60	0.27	0.00	−0.02	0.06	0.294	0.000	0.063	−0.049	−2.27	−1.76	251.32	222.79			−0.45	223.34
48	61	0.30	0.00	0.02	0.07	0.332	0.000	0.026	−0.070	−2.47	−2.57	249.05	233.13			−0.42	234.64
49	62	0.28	0.00	0.04	0.07	0.312	0.000	−0.003	−0.077	−2.84	−3.41	244.88	245.37			−0.91	247.38
50	63	0.28	0.00	0.09	0.05	0.318	0.000	−0.065	−0.073	−2.69	−3.36	241.47	256.85			−0.75	259.14
Z = 14 (Si)																	
8	22	0.00	0.01	0.02	0.03	0.001	−0.013	−0.023	−0.029	−1.57	0.18	133.93	32.68			0.22	31.34
9	23	−0.23	0.00	−0.12	0.03	−0.232	0.000	0.154	−0.057	0.18	1.62	151.76	22.93			1.89	22.21
10	24	−0.29	0.00	−0.12	0.03	−0.292	0.000	0.163	−0.065	0.44	1.98	173.33	9.43	10.76	0.019	2.22	9.01
11	25	−0.35	0.00	−0.12	0.03	−0.350	0.000	0.174	−0.073	0.90	3.14	187.88	2.95	3.82	0.010	3.19	2.62
12	26	−0.37	0.00	−0.12	0.03	−0.370	0.000	0.178	−0.076	0.07	3.35	206.11	−7.21	−7.14	0.003	3.42	−7.27
13	27	−0.37	0.00	−0.12	−0.03	−0.363	0.000	0.187	−0.022	−0.30	3.74	218.51	−11.53	−12.38	0.000	3.67	−11.55
14	28	−0.37	0.00	−0.12	−0.03	−0.363	0.000	0.187	−0.022	−1.52	3.06	234.72	−19.68	−21.49	0.000	3.08	−19.46
15	29	−0.35	0.00	−0.07	−0.03	−0.349	0.000	0.126	−0.004	−0.19	3.93	242.12	−19.01	−21.90	0.000	3.88	−18.76
16	30	−0.23	0.00	−0.02	0.03	−0.236	0.000	0.040	−0.034	1.00	3.14	254.09	−22.90	−24.43	0.000	3.14	−22.53

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 14 (Si)																	
17	31	−0.21	0.00	0.03	−0.04	−0.218	0.000	−0.014	0.042	1.57	3.14	260.55	−21.29	−22.95	0.000	3.14	−20.89
18	32	−0.12	0.00	0.03	0.04	−0.124	0.000	−0.030	−0.033	1.59	2.77	270.27	−22.95	−24.08	0.000	2.79	−22.53
19	33	−0.04	0.00	0.01	0.04	−0.041	0.000	−0.011	−0.038	1.67	2.89	275.07	−19.67	−20.49	0.016	2.91	−19.27
20	34	0.00	0.00	0.00	0.04	0.000	0.000	0.000	−0.039	0.82	2.65	283.10	−19.63	−19.96	0.014	2.68	−19.25
21	35	−0.05	0.00	−0.01	0.04	−0.052	0.000	0.012	−0.039	1.66	2.87	286.45	−14.91	−14.36	0.038	2.92	−14.57
22	36	0.01	0.00	0.00	0.04	0.011	0.000	0.001	−0.039	1.67	2.59	293.16	−13.54	−12.48	0.123	2.66	−13.26
23	37	0.18	0.00	−0.06	0.02	0.193	0.000	0.089	−0.004	1.00	3.23	294.93	−7.24	−6.58	0.169	3.36	−6.99
24	38	0.21	0.00	−0.04	0.04	0.226	0.000	0.071	−0.028	0.37	2.46	300.95	−5.19	−4.07	0.137	2.64	−4.97
25	39	0.23	0.00	0.00	0.04	0.250	0.000	0.027	−0.037	0.05	2.20	302.60	1.23	1.93	0.338	2.35	1.33
26	40	0.23	0.00	0.04	−0.04	0.252	0.000	−0.030	0.030	−0.28	1.94	307.05	4.85	5.47	0.556	2.14	4.89
27	41	−0.31	0.00	−0.12	−0.05	−0.302	0.000	0.178	0.007	−2.73	0.07	309.42	10.55	13.56	1.844	1.03	11.25
28	42	−0.31	0.00	−0.12	0.05	−0.313	0.000	0.164	−0.086	−3.85	−1.23	313.99	14.05			0.49	15.41
29	43	−0.28	0.00	−0.10	−0.05	−0.275	0.000	0.149	0.017	−2.67	−0.16	312.62	23.50			0.73	23.92
30	44	−0.28	0.00	−0.09	−0.05	−0.277	0.000	0.137	0.019	−2.10	−0.05	314.96	29.22			0.84	29.56
31	45	−0.27	0.00	−0.04	−0.05	−0.273	0.000	0.077	0.032	−1.51	0.22	313.69	38.57			0.73	38.44
32	46	−0.27	0.00	−0.01	−0.05	−0.275	0.000	0.043	0.040	−1.08	0.46	315.16	45.17			0.96	44.94
33	47	−0.29	0.00	0.02	−0.05	−0.297	0.000	0.015	0.047	−1.27	0.40	313.58	54.82			0.99	54.59
34	48	−0.36	0.00	0.05	−0.05	−0.368	0.000	0.000	0.054	−1.80	0.32	314.70	61.77			1.25	61.81
35	49	−0.38	0.00	0.04	−0.05	−0.387	0.000	0.017	0.050	−1.83	0.44	312.38	72.16			1.30	72.07
36	50	−0.44	0.00	0.04	−0.05	−0.445	0.000	0.035	0.046	−1.93	0.76	312.51	80.10			1.75	80.09
37	51	−0.47	0.00	0.06	−0.06	−0.475	0.000	0.026	0.061	−1.74	0.49	310.06	90.62			1.99	91.08
38	52	0.41	0.00	0.09	−0.06	0.465	0.000	−0.045	0.022	−1.36	1.38	309.08	99.67			2.22	99.44
39	53	0.41	0.00	0.09	−0.06	0.465	0.000	−0.045	0.022	−1.60	1.05	306.23	110.60			1.87	110.32
40	54	0.35	0.00	0.06	−0.06	0.391	0.000	−0.029	0.039	−0.93	0.83	305.87	119.03			1.77	118.87
41	55	0.35	0.00	0.07	−0.06	0.391	0.000	−0.041	0.035	−1.19	0.62	302.48	130.49			1.55	130.33
42	56	0.35	0.00	0.08	−0.04	0.393	0.000	−0.050	0.011	−1.21	0.85	301.22	139.82			1.43	139.33
43	57	0.35	0.00	0.09	−0.01	0.395	0.000	−0.056	−0.021	−1.58	0.40	297.68	151.43			0.91	150.90
44	58	0.33	0.00	0.07	0.03	0.371	0.000	−0.030	−0.050	−1.40	−0.00	296.64	160.54			0.95	160.50
45	59	0.35	0.00	0.09	0.04	0.399	0.000	−0.045	−0.068	−2.19	−1.38	293.67	171.58			0.31	172.34
46	60	0.22	0.00	−0.04	0.06	0.237	0.000	0.075	−0.047	−1.45	−0.96	291.44	181.88			0.37	182.35
47	61	0.26	0.00	0.00	0.07	0.285	0.000	0.038	−0.065	−2.27	−2.00	287.82	193.58			−0.20	194.61
48	62	0.27	0.00	0.04	0.07	0.301	0.000	−0.006	−0.077	−2.42	−2.62	286.28	203.19			−0.28	204.86
49	63	0.27	0.00	0.06	0.07	0.304	0.000	−0.029	−0.083	−3.01	−3.56	282.25	215.29			−0.80	217.50
50	64	−0.25	0.00	−0.12	0.07	−0.256	0.000	0.153	−0.097	−3.20	−6.45	282.66	222.95			−0.57	228.42
51	65	0.27	0.00	0.12	−0.01	0.306	0.000	−0.113	−0.025	−3.42	−2.86	273.84	239.85			−1.24	241.20
52	66	0.30	0.00	0.12	−0.03	0.339	0.000	−0.109	−0.009	−3.22	−2.59	270.79	250.97			−1.07	252.38
53	67	0.30	0.00	0.12	−0.03	0.339	0.000	−0.109	−0.009	−3.52	−2.92	265.64	264.19			−1.42	265.77
54	68	0.31	0.00	0.12	−0.03	0.351	0.000	−0.107	−0.011	−3.08	−2.57	262.23	275.67			−1.08	277.43
Z = 15 (P)																	
8	23	−0.02	0.02	0.12	−0.03	−0.020	−0.025	−0.139	0.035	−2.61	−1.07	129.62	44.28			−0.60	42.85
9	24	0.10	0.00	−0.11	0.03	0.108	0.000	0.141	−0.013	−0.45	1.43	148.57	33.41			1.65	32.16
10	25	0.10	0.00	0.12	0.03	0.117	0.000	−0.134	−0.039	0.56	1.45	171.08	18.97			1.63	18.08
11	26	0.28	0.00	0.07	0.03	0.314	0.000	−0.045	−0.048	1.14	3.49	186.85	11.27			3.44	10.47
12	27	0.28	0.00	0.09	0.03	0.317	0.000	−0.068	−0.054	0.94	3.41	205.96	0.23	−0.72	0.026	3.39	−0.25
13	28	0.20	0.00	0.04	−0.03	0.218	0.000	−0.034	0.021	1.85	3.35	220.82	−6.56	−7.16	0.003	3.30	−6.84
14	29	−0.33	0.00	−0.06	−0.03	−0.331	0.000	0.110	0.002	−0.11	3.45	236.82	−14.49	−16.95	0.001	3.39	−14.58
15	30	−0.12	0.00	0.01	0.03	−0.125	0.000	−0.007	−0.027	1.81	2.87	248.65	−18.25	−20.20	0.000	2.85	−19.17
16	31	−0.21	0.00	0.03	−0.04	−0.218	0.000	−0.014	0.042	1.39	2.70	261.53	−23.06	−24.44	0.000	2.67	−22.87
17	32	−0.19	0.00	0.05	−0.01	−0.198	0.000	−0.041	0.019	1.88	3.71	268.81	−22.26	−24.31	0.000	3.67	−22.01
18	33	−0.12	0.00	0.04	0.04	−0.124	0.000	−0.041	−0.032	1.89	3.08	279.28	−24.66	−26.34	0.001	3.08	−24.33
19	34	−0.06	0.00	0.01	0.00	−0.063	0.000	−0.010	0.001	2.00	3.27	285.73	−23.04	−24.56	0.005	3.25	−22.70
20	35	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	1.23	2.95	294.28	−23.52	−24.86	0.002	2.93	−23.19
21	36	−0.06	0.00	−0.01	0.01	−0.063	0.000	0.013	−0.010	2.05	3.34	299.10	−20.27	−20.25	0.013	3.33	−19.96
22	37	0.11	0.00	−0.01	0.02	0.118	0.000	0.018	−0.018	1.77	3.32	305.95	−19.05	−18.99	0.038	3.33	−18.76
23	38	0.18	0.00	−0.02	0.00	0.194	0.000	0.038	0.006	1.47	3.56	309.68	−14.70	−14.76	0.103	3.57	−14.48
24	39	0.21	0.00	−0.01	0.03	0.227	0.000	0.034	−0.026	0.67	2.95	315.89	−12.85	−12.87	0.103	3.01	−12.63
25	40	0.21	0.00	0.02	0.01	0.229	0.000	−0.004	−0.013	0.37	2.60	319.12	−8.00	−8.11	0.139	2.62	−7.91

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 15 (P)																	
26	41	0.22	0.00	0.05	−0.03	0.241	0.000	−0.043	0.018	−0.19	1.94	324.30	−5.11	−5.28	0.216	2.05	−5.01
27	42	0.16	0.00	0.03	−0.01	0.173	0.000	−0.026	0.005	0.01	1.81	326.33	0.93	0.94	0.447	1.84	0.86
28	43	−0.27	0.00	−0.09	0.00	−0.271	0.000	0.129	−0.027	−2.18	0.88	330.82	4.51	5.77	0.969	1.41	4.85
29	44	−0.27	0.00	−0.04	−0.05	−0.273	0.000	0.077	0.032	−1.59	0.59	332.16	11.24			0.93	11.31
30	45	−0.23	0.00	−0.02	−0.05	−0.235	0.000	0.047	0.040	−0.71	0.72	334.73	16.74			1.06	16.71
31	46	−0.27	0.00	0.00	−0.05	−0.276	0.000	0.032	0.042	−0.86	0.75	334.98	24.56			1.11	24.47
32	47	−0.27	0.00	0.02	−0.05	−0.277	0.000	0.010	0.048	−0.59	0.88	336.80	30.82			1.34	30.75
33	48	−0.27	0.00	0.03	−0.05	−0.278	0.000	−0.001	0.051	−0.65	0.94	336.33	39.36			1.46	39.26
34	49	−0.29	0.00	0.04	−0.05	−0.299	0.000	−0.007	0.053	−0.67	0.97	337.55	46.21			1.63	46.18
35	50	−0.36	0.00	0.05	−0.05	−0.368	0.000	0.000	0.054	−1.13	1.04	336.44	55.39			1.83	55.42
36	51	−0.36	0.00	0.04	−0.06	−0.368	0.000	0.012	0.059	−0.77	1.29	336.83	63.08			2.31	63.28
37	52	−0.36	0.00	0.04	−0.06	−0.368	0.000	0.012	0.059	−0.47	1.25	335.27	72.70			2.28	72.87
38	53	−0.21	0.00	0.10	0.06	−0.213	0.000	−0.096	−0.030	0.81	1.49	335.11	80.94			2.55	81.10
39	54	0.34	0.00	0.06	−0.06	0.379	0.000	−0.032	0.040	−0.51	1.57	332.92	91.20			2.32	91.02
40	55	0.34	0.00	0.06	−0.06	0.379	0.000	−0.032	0.040	−0.54	1.39	332.66	99.53			2.21	99.40
41	56	0.34	0.00	0.07	−0.05	0.380	0.000	−0.042	0.025	−0.82	1.26	330.21	110.05			1.85	109.68
42	57	0.31	0.00	0.05	−0.04	0.344	0.000	−0.024	0.025	−0.39	1.71	328.86	119.47			2.13	118.94
43	58	0.22	0.00	−0.03	−0.01	0.239	0.000	0.058	0.021	−0.17	1.33	326.24	130.16			1.59	129.48
44	59	0.22	0.00	−0.02	0.01	0.238	0.000	0.046	−0.002	−0.45	1.28	324.95	139.52			1.41	138.74
45	60	0.22	0.00	−0.02	0.02	0.238	0.000	0.047	−0.012	−1.19	0.56	322.29	150.25			0.74	149.56
46	61	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−1.42	0.22	320.89	159.72			0.53	159.21
47	62	0.22	0.00	0.01	0.07	0.241	0.000	0.016	−0.070	−2.08	−1.74	319.12	169.57			−0.04	170.52
48	63	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−2.04	−0.44	315.73	181.03			−0.09	180.71
49	64	0.22	0.00	0.07	0.02	0.245	0.000	−0.061	−0.036	−2.78	−1.43	312.65	192.18			−0.65	192.38
50	65	0.26	0.00	0.11	0.01	0.295	0.000	−0.100	−0.040	−3.19	−2.20	310.99	201.91			−0.70	202.94
51	66	0.26	0.00	0.12	−0.02	0.294	0.000	−0.117	−0.014	−3.59	−2.61	307.03	213.94			−1.13	215.08
52	67	0.27	0.00	0.12	−0.03	0.304	0.000	−0.117	−0.006	−3.28	−2.44	304.13	224.92			−0.90	226.24
53	68	0.28	0.00	0.12	−0.03	0.316	0.000	−0.114	−0.007	−3.53	−2.65	299.68	237.43			−1.17	238.86
54	69	0.30	0.00	0.12	−0.03	0.339	0.000	−0.109	−0.009	−3.11	−2.26	296.28	248.91			−0.84	250.45
55	70	0.27	0.00	0.12	−0.03	0.304	0.000	−0.117	−0.006	−2.93	−2.65	291.75	261.51			−1.05	263.39
56	71	0.27	0.00	0.12	−0.03	0.304	0.000	−0.117	−0.006	−2.27	−2.29	288.10	273.23			−0.63	275.37
57	72	−0.06	0.00	0.12	0.08	−0.052	0.000	−0.134	−0.063	−1.99	−5.17	285.83	283.57			−0.92	288.52
58	73	0.06	0.00	0.12	0.08	0.078	0.000	−0.132	−0.081	−1.63	−5.93	283.05	294.42			−0.82	300.45
Z = 16 (S)																	
8	24	0.00	0.00	0.12	−0.03	0.002	0.000	−0.140	0.032	−2.78	−1.33	127.26	53.93			−0.73	52.14
9	25	0.10	0.00	−0.10	−0.03	0.114	0.000	0.131	0.049	−0.69	1.00	146.91	42.36			1.38	40.81
10	26	0.11	0.00	0.10	0.03	0.126	0.000	−0.110	−0.039	0.17	0.93	171.62	25.72			1.15	24.44
11	27	0.28	0.00	0.12	0.03	0.321	0.000	−0.103	−0.063	0.42	2.71	188.21	17.20			2.83	16.19
12	28	0.28	0.00	0.12	0.03	0.321	0.000	−0.103	−0.063	0.23	2.76	209.21	4.27	4.07	0.160	2.87	3.58
13	29	0.21	0.00	0.07	−0.03	0.231	0.000	−0.069	0.014	1.25	3.16	224.15	−2.60	−3.16	0.050	3.14	−3.15
14	30	−0.25	0.00	0.00	−0.03	−0.256	0.000	0.026	0.025	0.60	2.58	242.78	−13.16	−14.06	0.003	2.57	−13.48
15	31	0.19	0.00	0.07	−0.04	0.208	0.000	−0.073	0.025	1.23	3.13	255.01	−17.32	−19.05	0.002	3.11	−17.46
16	32	0.20	0.00	0.09	−0.04	0.221	0.000	−0.095	0.020	0.97	2.82	270.83	−25.07	−26.02	0.000	2.82	−25.03
17	33	−0.20	0.00	0.09	−0.04	−0.209	0.000	−0.082	0.056	1.41	3.37	279.06	−25.22	−26.59	0.000	3.36	−25.08
18	34	−0.23	0.00	0.10	0.04	−0.235	0.000	−0.092	−0.010	0.91	3.19	290.84	−28.93	−29.93	0.000	3.22	−28.68
19	35	−0.09	0.00	0.03	0.04	−0.093	0.000	−0.032	−0.035	1.88	3.17	297.96	−27.98	−28.85	0.000	3.17	−27.70
20	36	0.00	0.00	0.00	−0.03	0.000	0.000	0.000	0.030	1.27	2.86	308.18	−30.13	−30.66	0.000	2.86	−29.82
21	37	−0.06	0.00	0.00	0.03	−0.063	0.000	0.001	−0.029	2.10	3.31	313.37	−27.25	−26.90	0.000	3.31	−26.93
22	38	0.11	0.00	0.01	0.02	0.118	0.000	−0.006	−0.021	1.81	3.31	321.79	−27.60	−26.86	0.007	3.32	−27.29
23	39	0.18	0.00	0.00	−0.01	0.195	0.000	0.013	0.011	1.58	3.59	325.87	−23.60	−23.16	0.050	3.59	−23.33
24	40	0.21	0.00	0.02	0.00	0.229	0.000	−0.005	−0.004	0.68	2.96	333.62	−23.28	−22.87	0.141	2.98	−23.03
25	41	0.23	0.00	0.04	−0.02	0.252	0.000	−0.028	0.011	0.07	2.60	337.20	−18.80	−19.02	0.118	2.64	−18.58
26	42	0.21	0.00	0.06	−0.04	0.230	0.000	−0.058	0.026	−0.31	1.80	343.97	−17.49	−17.68	0.124	1.96	−17.22
27	43	0.18	0.00	0.04	−0.02	0.196	0.000	−0.036	0.012	−0.23	1.36	346.63	−12.08	−11.97	0.202	1.43	−11.97
28	44	−0.24	0.00	−0.03	0.05	−0.247	0.000	0.051	−0.055	−1.34	0.89	352.04	−9.42	−9.12	0.395	1.27	−9.08
29	45	−0.20	0.00	0.01	0.05	−0.206	0.000	0.001	−0.045	−0.77	0.80	353.47	−2.77	−3.25	1.742	1.04	−2.65
30	46	−0.20	0.00	0.02	−0.05	−0.207	0.000	−0.004	0.049	−0.46	0.60	357.70	1.07			0.92	1.20

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 16 (S)																	
31	47	−0.23	0.00	0.04	−0.05	−0.238	0.000	−0.021	0.054	−0.53	0.75	358.07	8.76			1.18	8.92
32	48	−0.27	0.00	0.06	−0.05	−0.280	0.000	−0.034	0.059	−0.68	0.83	361.19	13.71			1.48	14.01
33	49	−0.27	0.00	0.07	−0.05	−0.280	0.000	−0.045	0.062	−0.84	0.62	361.23	21.75			1.38	22.08
34	50	−0.28	0.00	0.07	−0.05	−0.290	0.000	−0.042	0.062	−0.78	0.88	363.43	27.62			1.74	27.98
35	51	−0.27	0.00	0.07	−0.06	−0.280	0.000	−0.044	0.071	−0.36	1.14	362.34	36.78			2.23	37.30
36	52	−0.27	0.00	0.06	−0.06	−0.280	0.000	−0.033	0.068	−0.03	1.23	364.04	43.15			2.31	43.60
37	53	−0.21	0.00	0.10	0.06	−0.213	0.000	−0.096	−0.030	0.49	1.58	362.27	52.99			2.49	53.21
38	54	−0.21	0.00	0.11	0.06	−0.213	0.000	−0.107	−0.027	0.50	1.37	363.66	59.67			2.46	60.03
39	55	−0.22	0.00	0.11	0.06	−0.223	0.000	−0.105	−0.026	0.45	1.36	361.74	69.67			2.46	70.01
40	56	−0.22	0.00	0.10	0.06	−0.223	0.000	−0.094	−0.029	0.58	1.40	362.32	77.16			2.48	77.44
41	57	0.33	0.00	0.06	−0.05	0.367	0.000	−0.033	0.030	−0.52	1.67	359.61	87.94			2.25	87.69
42	58	0.33	0.00	0.07	−0.04	0.368	0.000	−0.043	0.016	−0.72	1.52	359.88	95.74			2.01	95.39
43	59	0.26	0.00	0.02	−0.01	0.285	0.000	0.004	0.007	−0.37	1.52	357.01	106.68			1.59	105.92
44	60	0.22	0.00	0.00	0.00	0.239	0.000	0.021	0.002	−0.39	1.37	356.81	114.95			1.43	114.19
45	61	0.22	0.00	0.00	0.00	0.239	0.000	0.021	0.002	−1.11	0.84	354.07	125.76			0.88	125.01
46	62	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−1.48	0.41	353.72	134.19			0.51	133.53
47	63	0.22	0.00	0.05	−0.01	0.241	0.000	−0.041	−0.002	−2.17	−0.25	350.74	145.24			−0.04	144.74
48	64	0.22	0.00	0.05	−0.01	0.241	0.000	−0.041	−0.002	−2.33	−0.51	349.82	154.22			−0.29	153.81
49	65	0.22	0.00	0.08	−0.02	0.243	0.000	−0.078	0.001	−3.11	−1.54	346.85	165.26			−0.89	165.33
50	66	0.22	0.00	0.08	0.00	0.244	0.000	−0.075	−0.019	−3.01	−1.54	345.32	174.87			−0.85	175.08
51	67	0.23	0.00	0.11	0.00	0.259	0.000	−0.108	−0.027	−3.52	−2.47	341.94	186.32			−1.12	187.29
52	68	0.23	0.00	0.12	0.00	0.261	0.000	−0.120	−0.029	−3.17	−2.54	340.13	196.20			−0.83	197.63
53	69	0.23	0.00	0.12	−0.01	0.260	0.000	−0.122	−0.020	−3.28	−2.74	335.73	208.67			−1.11	210.15
54	70	−0.19	0.00	0.01	−0.07	−0.196	0.000	0.008	0.066	−2.35	−2.95	333.76	218.72			−0.98	220.69
55	71	−0.19	0.00	0.02	−0.08	−0.197	0.000	−0.003	0.078	−2.54	−3.95	329.88	230.66			−1.23	233.54
56	72	−0.19	0.00	0.03	−0.08	−0.197	0.000	−0.014	0.080	−2.05	−3.86	327.31	241.31			−0.89	244.60
57	73	−0.19	0.00	0.03	−0.08	−0.197	0.000	−0.014	0.080	−2.00	−4.22	322.55	254.14			−1.20	257.67
58	74	−0.31	0.00	0.01	−0.08	−0.316	0.000	0.034	0.070	−1.96	−2.87	318.44	266.32			−0.10	269.79
59	75	−0.25	0.00	0.02	−0.08	−0.257	0.000	0.009	0.076	−1.78	−3.99	314.20	278.64			−0.99	282.54
60	76	−0.26	0.00	0.04	−0.08	−0.269	0.000	−0.012	0.081	−1.38	−3.64	310.84	290.06			−0.15	294.69
Z = 17 (Cl)																	
8	25	−0.05	0.13	0.02	0.00	−0.045	−0.172	−0.015	0.011	−2.98	−2.04	120.64	67.84			−1.72	65.30
9	26	0.11	0.00	0.02	0.03	0.119	0.000	−0.017	−0.032	−0.88	0.99	141.61	54.94			1.05	52.63
10	27	0.11	0.00	0.10	0.03	0.126	0.000	−0.110	−0.039	−0.16	0.93	166.81	37.82			1.19	36.16
11	28	0.11	0.00	0.04	0.03	0.120	0.000	−0.041	−0.034	1.39	2.26	185.82	26.88			2.29	25.40
12	29	−0.23	0.00	0.12	−0.03	−0.240	0.000	−0.110	0.058	0.82	2.52	207.13	13.64			2.67	12.63
13	30	−0.23	0.00	0.09	−0.03	−0.240	0.000	−0.077	0.049	1.04	2.92	223.97	4.87			2.92	4.03
14	31	−0.24	0.00	0.06	−0.04	−0.249	0.000	−0.041	0.050	0.42	2.49	242.96	−6.05	−7.07	0.050	2.48	−6.64
15	32	−0.21	0.00	0.07	−0.04	−0.219	0.000	−0.058	0.052	1.02	3.01	257.05	−12.07	−13.33	0.007	2.97	−12.47
16	33	−0.23	0.00	0.11	0.04	−0.235	0.000	−0.102	−0.007	0.84	3.09	272.96	−19.91	−21.00	0.000	3.07	−20.10
17	34	−0.23	0.00	0.12	0.04	−0.234	0.000	−0.113	−0.004	1.03	3.57	283.94	−22.81	−24.44	0.000	3.52	−23.77
18	35	−0.23	0.00	0.12	0.04	−0.234	0.000	−0.113	−0.004	0.80	3.30	297.17	−27.97	−29.01	0.000	3.29	−27.88
19	36	−0.11	0.00	0.04	0.03	−0.114	0.000	−0.042	−0.023	1.90	3.49	305.74	−28.47	−29.52	0.000	3.48	−28.31
20	37	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	1.42	3.13	316.45	−31.11	−31.76	0.000	3.12	−30.88
21	38	−0.07	0.00	0.00	0.01	−0.073	0.000	0.002	−0.010	2.14	3.54	323.26	−29.85	−29.80	0.000	3.53	−29.58
22	39	0.07	0.00	0.00	0.01	0.075	0.000	0.002	−0.010	2.13	3.44	332.19	−30.71	−29.80	0.002	3.43	−30.42
23	40	0.14	0.00	0.00	0.00	0.150	0.000	0.008	0.001	2.17	4.16	337.33	−27.78	−27.56	0.032	4.15	−27.50
24	41	0.18	0.00	0.01	0.00	0.195	0.000	0.002	−0.001	1.39	3.06	345.93	−28.30	−27.31	0.069	3.06	−28.03
25	42	0.19	0.00	0.03	−0.01	0.207	0.000	−0.022	0.004	0.95	2.88	350.77	−25.08	−24.91	0.144	2.89	−24.84
26	43	0.17	0.00	0.04	−0.02	0.185	0.000	−0.038	0.013	0.54	2.22	357.73	−23.97	−24.17	0.157	2.27	−23.73
27	44	−0.17	0.00	0.03	0.05	−0.175	0.000	−0.025	−0.041	0.20	2.00	361.57	−19.73	−20.23	0.108	2.12	−19.47
28	45	−0.15	0.00	0.02	0.04	−0.155	0.000	−0.016	−0.034	−0.35	1.04	367.77	−17.86	−18.36	0.124	1.14	−17.68
29	46	−0.17	0.00	0.03	0.03	−0.176	0.000	−0.024	−0.023	−0.41	0.93	370.54	−12.56	−14.71	0.717	1.00	−12.47
30	47	−0.20	0.00	0.05	0.04	−0.206	0.000	−0.042	−0.026	−0.32	0.99	374.78	−8.73			1.16	−8.61
31	48	−0.23	0.00	0.05	−0.05	−0.239	0.000	−0.032	0.056	−0.37	1.12	376.45	−2.33			1.51	−2.07
32	49	−0.23	0.00	0.06	−0.05	−0.239	0.000	−0.043	0.059	−0.14	1.23	379.80	2.40			1.74	2.71
33	50	−0.27	0.00	0.08	−0.05	−0.280	0.000	−0.056	0.065	−0.68	1.19	380.87	9.39			1.89	9.83

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 17 (Cl)																	
34	51	−0.27	0.00	0.08	−0.06	−0.281	0.000	−0.055	0.074	−0.62	1.26	383.48	14.85			2.24	15.49
35	52	−0.27	0.00	0.08	−0.06	−0.281	0.000	−0.055	0.074	−0.25	1.40	383.68	22.73			2.42	23.35
36	53	−0.23	0.00	0.09	0.02	−0.237	0.000	−0.080	0.005	0.41	2.22	384.86	29.62			2.64	29.58
37	54	−0.21	0.00	0.10	0.06	−0.213	0.000	−0.096	−0.030	0.56	1.99	384.79	37.76			2.77	38.02
38	55	−0.21	0.00	0.11	0.06	−0.213	0.000	−0.107	−0.027	0.49	1.75	386.39	44.23			2.70	44.61
39	56	−0.21	0.00	0.11	0.06	−0.213	0.000	−0.107	−0.027	0.46	1.72	385.56	53.13			2.70	53.50
40	57	−0.22	0.00	0.11	0.06	−0.223	0.000	−0.105	−0.026	0.39	1.57	386.49	60.27			2.62	60.67
41	58	−0.25	0.00	0.12	0.06	−0.253	0.000	−0.110	−0.019	0.10	1.39	385.29	69.55			2.52	70.01
42	59	−0.27	0.00	0.12	0.06	−0.274	0.000	−0.106	−0.017	−0.26	0.94	385.99	76.92			2.12	77.40
43	60	−0.27	0.00	0.12	0.06	−0.274	0.000	−0.106	−0.017	−0.54	0.61	384.45	86.53			1.82	87.03
44	61	0.17	0.00	−0.02	0.00	0.183	0.000	0.037	0.005	0.16	1.32	383.52	95.53			1.41	94.91
45	62	0.17	0.00	−0.02	0.01	0.183	0.000	0.037	−0.005	−0.45	1.22	381.31	105.81			1.30	105.20
46	63	0.17	0.00	0.00	0.01	0.183	0.000	0.013	−0.009	−0.83	0.63	381.23	113.97			0.68	113.34
47	64	0.17	0.00	0.04	0.00	0.185	0.000	−0.036	−0.007	−1.54	−0.45	379.59	123.67			−0.31	123.17
48	65	0.17	0.00	0.04	−0.01	0.185	0.000	−0.037	0.003	−1.76	−0.75	378.81	132.52			−0.60	132.08
49	66	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−2.29	−1.32	376.29	143.12			−1.10	142.80
50	67	−0.12	0.00	−0.01	0.01	−0.125	0.000	0.017	−0.011	−2.25	−1.21	374.72	152.76			−1.14	152.35
51	68	−0.18	0.00	−0.01	0.02	−0.186	0.000	0.023	−0.022	−2.79	−1.45	371.52	164.03			−1.24	163.84
52	69	−0.12	0.00	−0.01	0.00	−0.125	0.000	0.017	−0.002	−2.51	−1.43	369.69	173.93			−1.40	173.65
53	70	−0.18	0.00	0.01	−0.02	−0.187	0.000	0.002	0.020	−2.85	−1.58	366.08	185.61			−1.42	185.57
54	71	−0.19	0.00	0.02	−0.06	−0.197	0.000	−0.004	0.059	−2.60	−2.57	364.94	194.83			−1.14	196.17
55	72	−0.19	0.00	0.03	−0.08	−0.197	0.000	−0.014	0.080	−2.79	−3.99	362.30	205.54			−1.34	208.24
56	73	−0.19	0.00	0.04	−0.08	−0.198	0.000	−0.026	0.082	−2.31	−3.89	359.76	216.14			−0.97	219.25
57	74	−0.19	0.00	0.04	−0.08	−0.198	0.000	−0.026	0.082	−2.26	−4.17	355.71	228.27			−1.19	231.60
58	75	−0.21	0.00	0.04	−0.08	−0.218	0.000	−0.022	0.082	−1.84	−3.70	352.52	239.53			−0.61	243.14
59	76	−0.26	0.00	0.04	−0.08	−0.269	0.000	−0.012	0.081	−2.12	−3.62	347.85	252.27			−0.47	256.12
60	77	−0.26	0.00	0.04	−0.08	−0.269	0.000	−0.012	0.081	−1.63	−3.30	344.54	263.65			−0.05	267.81
61	78	−0.26	0.00	0.05	−0.08	−0.269	0.000	−0.023	0.083	−1.54	−3.56	339.97	276.30			−0.01	280.95
62	79	−0.26	0.00	0.08	−0.05	−0.270	0.000	−0.058	0.065	−1.06	−2.30	335.47	288.87			0.24	292.73
Z = 18 (Ar)																	
9	27	0.11	0.00	0.00	−0.03	0.118	0.000	0.004	0.030	−0.88	0.93	137.69	66.15			1.01	63.42
10	28	0.11	0.00	0.03	0.03	0.120	0.000	−0.029	−0.033	−0.29	1.11	164.61	47.31			1.20	45.06
11	29	−0.27	0.00	0.11	−0.03	−0.280	0.000	−0.090	0.058	0.38	2.16	184.38	35.61			2.42	33.97
12	30	−0.27	0.00	0.11	−0.03	−0.280	0.000	−0.090	0.058	0.20	2.02	207.99	20.07			2.24	18.77
13	31	−0.27	0.00	0.10	−0.04	−0.281	0.000	−0.078	0.063	0.31	2.25	225.49	10.64			2.35	9.56
14	32	−0.27	0.00	0.10	−0.04	−0.281	0.000	−0.078	0.063	−0.25	2.02	246.12	−1.91	−2.20	0.002	2.12	−2.69
15	33	−0.20	0.00	0.09	−0.04	−0.209	0.000	−0.082	0.056	0.62	2.47	260.75	−8.48	−9.38	0.000	2.49	−9.08
16	34	−0.22	0.00	0.12	−0.04	−0.230	0.000	−0.111	0.066	0.42	2.74	278.25	−17.91	−18.38	0.000	2.80	−18.25
17	35	−0.23	0.00	0.12	0.04	−0.234	0.000	−0.113	−0.004	0.57	3.28	290.52	−22.11	−23.05	0.001	3.26	−22.34
18	36	−0.25	0.00	0.12	0.04	−0.255	0.000	−0.109	−0.002	0.21	3.22	306.06	−29.57	−30.23	0.000	3.24	−29.62
19	37	−0.07	0.00	0.02	0.03	−0.073	0.000	−0.022	−0.027	1.50	2.88	315.61	−31.06	−30.95	0.000	2.87	−31.01
20	38	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.78	2.68	327.77	−35.14	−34.72	0.000	2.67	−35.00
21	39	−0.04	0.00	0.00	0.02	−0.042	0.000	0.000	−0.019	1.63	3.01	335.08	−34.38	−33.24	0.005	3.00	−34.17
22	40	−0.03	0.00	0.00	0.04	−0.031	0.000	0.000	−0.039	1.60	2.79	345.67	−36.90	−35.04	0.000	2.80	−36.63
23	41	0.07	0.00	0.00	0.02	0.075	0.000	0.003	−0.020	2.10	3.33	351.38	−34.54	−33.07	0.000	3.33	−34.27
24	42	−0.03	0.00	0.00	0.02	−0.032	0.000	0.000	−0.020	1.88	2.45	361.23	−36.31	−34.42	0.006	2.46	−36.03
25	43	0.11	0.00	0.01	0.01	0.118	0.000	−0.007	−0.011	1.43	2.88	365.83	−32.85	−32.01	0.005	2.88	−32.57
26	44	−0.14	0.00	0.04	0.05	−0.144	0.000	−0.039	−0.040	0.56	2.02	374.41	−33.35	−32.67	0.002	2.12	−33.01
27	45	−0.15	0.00	0.04	0.05	−0.154	0.000	−0.038	−0.040	−0.06	1.38	378.97	−29.85	−29.77	0.001	1.49	−29.52
28	46	−0.13	0.00	0.02	0.03	−0.135	0.000	−0.017	−0.025	−0.67	0.71	386.25	−29.05	−29.72	0.041	0.76	−28.83
29	47	−0.14	0.00	0.03	0.02	−0.146	0.000	−0.027	−0.014	−0.63	0.84	389.07	−23.80	−25.91	0.100	0.88	−23.64
30	48	−0.20	0.00	0.06	0.05	−0.205	0.000	−0.054	−0.032	−0.64	1.19	394.33	−20.99			1.41	−20.70
31	49	−0.21	0.00	0.08	−0.05	−0.220	0.000	−0.069	0.064	−0.58	1.26	396.32	−14.91			1.76	−14.41
32	50	−0.23	0.00	0.07	−0.05	−0.240	0.000	−0.054	0.062	−0.39	1.57	400.72	−11.24			2.10	−10.77
33	51	−0.27	0.00	0.09	−0.06	−0.281	0.000	−0.066	0.077	−0.94	1.39	402.17	−4.61			2.26	−3.87
34	52	−0.27	0.00	0.09	−0.06	−0.281	0.000	−0.066	0.077	−0.87	1.39	406.06	−0.43			2.38	0.37
35	53	−0.27	0.00	0.10	−0.02	−0.280	0.000	−0.079	0.045	−0.42	2.02	405.99	7.71			2.62	8.06

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 18 (Ar)																	
36	54	−0.27	0.00	0.11	0.03	−0.276	0.000	−0.094	0.005	−0.25	2.16	408.99	12.78			2.72	13.02
37	55	−0.21	0.00	0.11	0.06	−0.213	0.000	−0.107	−0.027	0.28	2.06	408.99	20.85			2.86	21.27
38	56	−0.21	0.00	0.12	0.06	−0.212	0.000	−0.118	−0.024	0.15	1.85	411.68	26.23			2.82	26.78
39	57	−0.21	0.00	0.11	0.06	−0.213	0.000	−0.107	−0.027	0.18	1.82	411.02	34.97			2.73	35.41
40	58	−0.22	0.00	0.12	0.06	−0.222	0.000	−0.116	−0.023	−0.03	1.59	413.11	40.95			2.66	41.52
41	59	−0.25	0.00	0.12	0.06	−0.253	0.000	−0.110	−0.019	−0.31	1.52	411.94	50.19			2.58	50.71
42	60	−0.25	0.00	0.12	0.06	−0.253	0.000	−0.110	−0.019	−0.40	1.18	413.57	56.63			2.32	57.20
43	61	−0.27	0.00	0.12	0.07	−0.273	0.000	−0.107	−0.026	−0.79	0.58	412.44	65.83			1.86	66.53
44	62	0.12	0.00	−0.02	0.00	0.128	0.000	0.030	0.003	0.35	1.57	412.21	74.13			1.64	73.60
45	63	0.16	0.00	−0.02	0.01	0.172	0.000	0.036	−0.005	−0.38	1.04	410.56	83.85			1.13	83.34
46	64	0.16	0.00	0.00	0.01	0.172	0.000	0.012	−0.009	−0.80	0.70	411.19	91.29			0.75	90.75
47	65	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−1.54	−0.02	409.30	101.25			0.02	100.72
48	66	−0.12	0.00	0.02	0.02	−0.125	0.000	−0.018	−0.016	−1.63	−0.57	409.70	108.93			−0.43	108.52
49	67	−0.12	0.00	0.02	0.02	−0.125	0.000	−0.018	−0.016	−2.46	−1.37	407.50	119.19			−1.23	118.83
50	68	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−2.53	−1.87	407.44	127.33			−1.87	126.88
51	69	−0.12	0.00	0.02	−0.01	−0.125	0.000	−0.017	0.012	−3.37	−2.19	404.40	138.44			−2.10	138.13
52	70	−0.12	0.00	0.03	0.00	−0.125	0.000	−0.029	0.004	−3.14	−2.04	403.31	147.60			−1.93	147.39
53	71	−0.16	0.00	0.04	−0.03	−0.167	0.000	−0.034	0.035	−3.32	−2.33	399.91	159.07			−1.77	159.40
54	72	−0.12	0.00	0.02	−0.02	−0.125	0.000	−0.016	0.022	−2.86	−1.93	398.22	168.83			−1.72	168.91
55	73	−0.16	0.00	0.05	−0.06	−0.168	0.000	−0.044	0.065	−3.02	−3.31	395.60	179.52			−1.54	181.27
56	74	0.00	0.00	0.01	0.06	0.001	0.000	−0.011	−0.058	−2.03	−2.51	393.17	190.02			−1.21	191.42
57	75	0.01	0.00	0.00	0.08	0.012	0.000	0.001	−0.078	−2.13	−3.38	389.76	201.51			−1.03	204.09
58	76	0.01	0.00	0.00	0.08	0.012	0.000	0.001	−0.078	−1.64	−2.99	387.43	211.91			−0.55	214.72
59	77	−0.26	0.00	0.05	−0.08	−0.269	0.000	−0.023	0.083	−2.29	−3.57	383.46	223.95			−0.34	227.71
60	78	−0.26	0.00	0.06	−0.07	−0.270	0.000	−0.034	0.077	−1.83	−2.88	380.55	234.93			0.05	238.56
61	79	−0.26	0.00	0.08	−0.05	−0.270	0.000	−0.058	0.065	−1.77	−2.31	375.18	248.37			0.05	251.62
62	80	−0.26	0.00	0.09	−0.03	−0.270	0.000	−0.070	0.051	−1.35	−1.50	371.88	259.74			0.31	262.64
63	81	−0.25	0.00	0.12	0.00	−0.258	0.000	−0.107	0.033	−1.48	−1.48	366.82	272.88			0.45	276.10
64	82	−0.25	0.00	0.12	0.00	−0.258	0.000	−0.107	0.033	−1.18	−1.27	363.87	283.89			0.71	287.40
65	83	−0.26	0.00	0.10	−0.01	−0.269	0.000	−0.083	0.036	−1.19	−0.92	358.26	297.57			0.60	300.86
Z = 19 (K)																	
10	29	0.07	0.00	−0.01	0.03	0.075	0.000	0.015	−0.029	−0.84	0.85	158.29	60.91			0.92	58.25
11	30	0.10	0.00	0.01	0.03	0.108	0.000	−0.006	−0.031	0.38	1.95	179.85	47.43			1.99	45.18
12	31	0.08	0.00	0.01	0.04	0.086	0.000	−0.008	−0.040	0.45	1.93	203.79	31.56			2.00	29.74
13	32	0.08	0.00	0.01	0.04	0.086	0.000	−0.008	−0.040	0.70	2.43	222.81	20.61			2.47	19.13
14	33	0.00	0.00	0.02	0.04	0.001	0.000	−0.023	−0.039	0.25	1.72	244.38	7.10			1.74	5.95
15	34	0.02	0.00	−0.02	0.04	0.021	0.000	0.024	−0.039	0.88	2.45	260.47	−0.91			2.46	−1.79
16	35	−0.03	0.02	0.00	−0.04	−0.031	−0.027	0.001	0.040	1.28	2.49	278.64	−11.01	−11.17	0.020	2.50	−11.65
17	36	−0.03	0.00	0.01	−0.04	−0.032	0.000	−0.011	0.040	1.66	2.84	292.78	−17.07	−17.43	0.008	2.83	−17.51
18	37	−0.06	0.00	0.02	0.04	−0.062	0.000	−0.022	−0.037	1.42	2.70	308.83	−25.06	−24.80	0.000	2.70	−25.31
19	38	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	1.17	2.93	320.26	−28.41	−28.80	0.000	2.91	−29.31
20	39	−0.03	0.00	0.00	0.01	−0.032	0.000	0.000	−0.010	0.40	2.50	333.85	−33.93	−33.81	0.000	2.49	−33.92
21	40	−0.05	0.00	0.00	0.01	−0.052	0.000	0.001	−0.010	1.18	2.99	342.54	−34.55	−33.53	0.000	2.98	−34.44
22	41	−0.03	0.00	0.00	0.01	−0.032	0.000	0.000	−0.010	1.03	2.75	353.54	−37.48	−35.56	0.000	2.74	−37.30
23	42	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	1.69	3.08	360.93	−36.80	−35.02	0.000	3.07	−36.58
24	43	−0.05	0.00	0.00	0.01	−0.052	0.000	0.001	−0.010	1.32	2.65	370.69	−38.49	−36.59	0.009	2.65	−38.23
25	44	−0.06	0.00	0.00	0.00	−0.063	0.000	0.001	0.000	1.21	2.50	377.28	−37.01	−35.81	0.036	2.49	−36.74
26	45	−0.05	0.00	0.00	0.00	−0.052	0.000	0.001	0.000	0.53	1.70	386.14	−37.79	−36.61	0.010	1.70	−37.53
27	46	0.06	0.00	0.01	0.00	0.064	0.000	−0.010	−0.001	−0.02	1.49	391.64	−35.22	−35.42	0.016	1.49	−34.97
28	47	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−0.84	0.48	399.56	−35.07	−35.70	0.008	0.47	−34.85
29	48	−0.05	0.00	0.00	0.00	−0.052	0.000	0.001	0.000	−0.59	0.58	403.71	−31.15	−32.12	0.024	0.57	−30.97
30	49	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	0.05	1.09	409.09	−28.46	−30.32	0.070	1.09	−28.31
31	50	−0.05	0.00	0.00	0.01	−0.052	0.000	0.001	−0.010	0.68	1.65	411.85	−23.15	−25.35	0.278	1.66	−23.04
32	51	−0.08	0.00	0.01	−0.01	−0.084	0.000	−0.009	0.010	1.25	2.17	416.29	−19.52			2.18	−19.46
33	52	−0.13	0.00	0.02	−0.03	−0.136	0.000	−0.015	0.031	1.37	2.52	418.43	−13.58			2.62	−13.49
34	53	−0.29	0.00	0.09	−0.06	−0.301	0.000	−0.061	0.078	−0.26	2.39	422.67	−9.76			3.22	−8.99
35	54	−0.16	0.00	0.04	−0.02	−0.167	0.000	−0.034	0.025	1.56	3.04	423.74	−2.75			3.17	−2.74

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 19 (K)																	
36	55	−0.14	0.00	0.05	0.02	−0.145	0.000	−0.050	−0.010	1.67	3.08	427.06	2.00			3.22	1.96
37	56	−0.13	0.00	0.06	0.03	−0.134	0.000	−0.062	−0.018	1.64	3.05	428.12	9.01			3.27	9.01
38	57	−0.13	0.00	0.07	0.06	−0.132	0.000	−0.074	−0.044	1.37	2.44	431.39	13.81			3.02	14.11
39	58	−0.07	0.00	0.03	0.02	−0.073	0.000	−0.033	−0.016	1.87	2.84	431.38	21.90			2.93	21.66
40	59	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	1.56	2.76	433.48	27.86			2.76	27.49
41	60	−0.07	0.07	0.00	0.00	−0.071	−0.092	0.004	0.003	1.16	2.51	433.54	35.88			2.65	35.60
42	61	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	1.17	2.30	435.20	42.29			2.29	41.84
43	62	−0.08	0.05	0.02	0.00	−0.083	−0.065	−0.019	0.003	0.81	1.99	434.77	50.78			2.09	50.42
44	63	−0.09	0.00	0.00	0.00	−0.094	0.000	0.003	−0.000	0.53	1.71	435.97	57.66			1.72	57.18
45	64	0.12	0.00	−0.02	0.00	0.128	0.000	0.030	0.003	−0.16	1.35	435.11	66.59			1.40	66.15
46	65	0.12	0.00	0.00	0.01	0.129	0.000	0.007	−0.010	−0.64	0.84	436.03	73.74			0.87	73.28
47	66	0.12	0.00	0.01	0.00	0.129	0.000	−0.006	−0.001	−1.41	0.11	435.09	82.75			0.12	82.28
48	67	−0.10	0.00	0.01	0.01	−0.105	0.000	−0.008	−0.009	−1.89	−0.67	435.83	90.08			−0.64	89.65
49	68	−0.09	0.00	0.00	0.00	−0.094	0.000	0.003	−0.000	−2.75	−1.53	434.59	99.39			−1.52	98.95
50	69	0.00	0.00	0.00	0.01	0.000	0.000	0.000	−0.010	−3.29	−2.23	434.83	107.23			−2.20	106.84
51	70	−0.10	0.00	0.00	0.00	−0.105	0.000	0.004	−0.000	−3.65	−2.39	432.52	117.61			−2.39	117.25
52	71	−0.10	0.00	0.00	0.00	−0.105	0.000	0.004	−0.000	−3.36	−2.15	431.41	126.79			−2.14	126.49
53	72	−0.10	0.00	0.01	−0.01	−0.105	0.000	−0.007	0.011	−3.39	−2.26	428.69	137.58			−2.22	137.39
54	73	−0.10	0.00	0.01	−0.01	−0.105	0.000	−0.007	0.011	−2.92	−1.84	427.05	147.30			−1.79	147.18
55	74	−0.10	0.00	0.02	−0.01	−0.105	0.000	−0.019	0.012	−2.89	−1.89	423.91	158.50			−1.80	158.51
56	75	0.02	0.00	0.01	0.04	0.022	0.000	−0.011	−0.039	−2.24	−1.80	422.26	168.22			−1.25	168.80
57	76	0.00	0.00	0.00	0.08	0.001	0.000	0.001	−0.078	−2.33	−3.30	420.28	178.27			−1.13	180.59
58	77	0.00	0.00	0.00	0.08	0.001	0.000	0.001	−0.078	−1.80	−2.89	417.98	188.64			−0.63	191.17
59	78	0.04	0.00	−0.02	0.08	0.043	0.000	0.026	−0.078	−1.49	−2.68	414.00	200.70			−0.30	203.49
60	79	0.02	0.00	0.01	0.08	0.023	0.000	−0.010	−0.078	−0.93	−2.20	411.34	211.43			0.21	214.39
61	80	0.06	0.00	0.00	0.08	0.065	0.000	0.004	−0.079	−0.77	−2.03	407.12	223.72			0.45	226.91
62	81	−0.06	0.00	0.00	0.08	−0.062	0.000	0.001	−0.077	−0.35	−2.04	404.67	234.24			0.48	237.64
63	82	0.05	0.00	0.04	−0.02	0.054	0.000	−0.047	0.018	−0.09	0.40	397.93	249.05			0.78	250.51
64	83	0.05	0.00	0.04	−0.02	0.054	0.000	−0.047	0.018	0.14	0.62	394.99	260.07			1.01	261.73
65	84	0.05	0.00	0.04	−0.02	0.054	0.000	−0.047	0.018	−0.03	0.49	390.58	272.55			0.88	274.43
66	85	0.05	0.00	0.03	−0.01	0.054	0.000	−0.035	0.008	0.07	0.82	387.29	283.91			0.99	285.79
67	86	0.05	0.00	0.03	−0.02	0.053	0.000	−0.035	0.018	−0.31	0.37	382.96	296.31			0.68	298.56
68	87	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.41	0.74	379.41	307.93			0.74	310.13
Z = 20 (Ca)																	
10	30	0.00	0.00	0.00	−0.03	0.000	0.000	0.000	0.030	−1.16	0.69	154.64	71.85			0.77	68.82
11	31	0.00	0.00	0.00	0.04	0.000	0.000	0.000	−0.039	0.08	1.71	176.70	57.87			1.81	55.32
12	32	0.00	0.00	0.00	0.04	0.000	0.000	0.000	−0.039	−0.03	1.51	202.61	40.03			1.59	37.89
13	33	0.03	0.00	0.01	0.04	0.033	0.000	−0.011	−0.040	0.09	1.88	222.19	28.51			1.94	26.74
14	34	0.00	0.00	−0.01	0.04	0.000	0.000	0.012	−0.039	−0.55	1.30	245.36	13.41			1.35	11.98
15	35	0.00	0.00	0.00	0.04	0.000	0.000	0.000	−0.039	0.10	1.86	262.07	4.78			1.88	3.63
16	36	0.00	0.00	0.00	0.04	0.000	0.000	0.000	−0.039	0.55	2.19	281.63	−6.71	−6.44	0.040	2.20	−7.59
17	37	−0.02	0.00	0.00	0.04	−0.021	0.000	0.000	−0.039	0.93	2.60	296.13	−13.14	−13.16	0.022	2.60	−13.78
18	38	0.00	0.00	0.00	0.04	0.000	0.000	0.000	−0.039	0.63	2.55	313.72	−22.66	−22.06	0.005	2.55	−23.10
19	39	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	0.33	2.57	326.55	−27.42	−27.27	0.002	2.56	−27.69
20	40	0.00	0.00	0.00	0.01	0.000	0.000	0.000	−0.010	−0.52	1.98	342.62	−35.42	−34.85	0.000	1.97	−35.55
21	41	−0.02	0.00	−0.01	0.02	−0.021	0.000	0.012	−0.020	0.38	2.55	351.62	−36.34	−35.14	0.000	2.54	−36.35
22	42	0.00	0.00	0.00	0.01	0.000	0.000	0.000	−0.010	0.08	2.19	364.24	−40.89	−38.55	0.000	2.18	−40.81
23	43	0.01	0.00	0.00	0.02	0.011	0.000	0.000	−0.020	0.75	2.55	371.98	−40.56	−38.41	0.000	2.54	−40.40
24	44	0.00	0.00	0.00	0.02	0.000	0.000	0.000	−0.020	0.37	2.02	383.28	−43.79	−41.47	0.000	2.02	−43.58
25	45	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	0.28	1.88	390.21	−42.65	−40.81	0.000	1.87	−42.40
26	46	0.00	0.00	0.00	0.01	0.000	0.000	0.000	−0.010	−0.57	1.03	400.50	−44.86	−43.13	0.002	1.03	−44.60
27	47	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−0.98	0.76	406.38	−42.67	−42.34	0.002	0.75	−42.40
28	48	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.94	−0.11	415.48	−43.71	−44.21	0.004	−0.11	−43.45
29	49	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.54	0.16	419.77	−39.92	−41.29	0.004	0.15	−39.68
30	50	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.88	0.65	426.45	−38.53	−39.57	0.009	0.64	−38.32
31	51	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.09	1.34	429.35	−33.36	−35.86	0.094	1.33	−33.19
32	52	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.56	1.82	435.06	−31.00	−32.51	0.699	1.82	−30.86

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 20 (Ca)																	
33	53	0.06	0.00	0.00	0.00	0.064	0.000	0.002	0.000	1.32	2.67	436.95	−24.82			2.67	−24.72
34	54	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	1.72	2.60	442.33	−22.12			2.59	−22.08
35	55	−0.07	0.03	0.01	0.00	−0.073	−0.039	−0.009	0.001	1.93	2.88	443.99	−15.71			2.90	−15.70
36	56	−0.07	0.02	0.02	0.02	−0.073	−0.026	−0.021	−0.017	1.92	2.90	448.48	−12.13			2.96	−12.12
37	57	−0.07	0.03	0.01	0.00	−0.073	−0.039	−0.009	0.001	1.93	3.09	449.51	−5.09			3.11	−5.18
38	58	0.00	0.04	0.00	0.00	0.001	−0.054	0.001	0.001	1.50	2.92	453.45	−0.96			2.95	−1.09
39	59	0.00	0.05	0.00	0.00	0.001	−0.067	0.001	0.002	1.13	2.77	454.18	6.38			2.82	6.23
40	60	0.00	0.07	0.00	0.00	0.002	−0.094	0.002	0.003	0.33	2.16	457.88	10.75			2.28	10.62
41	61	−0.02	0.09	0.00	0.00	−0.018	−0.121	0.004	0.005	0.23	2.08	457.93	18.77			2.29	18.69
42	62	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.33	1.78	460.70	24.07			1.78	23.75
43	63	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	0.32	1.58	460.33	32.51			1.58	32.16
44	64	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.05	1.11	462.71	38.21			1.11	37.83
45	65	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.41	0.58	462.16	46.83			0.58	46.44
46	66	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.96	0.00	464.11	52.95			−0.00	52.54
47	67	0.02	0.00	−0.01	0.01	0.021	0.000	0.012	−0.010	−1.75	−0.86	463.42	61.71			−0.83	61.33
48	68	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.62	−1.49	464.95	68.26			−1.50	67.86
49	69	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−3.58	−2.35	463.83	77.45			−2.35	77.07
50	70	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.43	−3.02	464.92	84.42			−3.02	84.06
51	71	−0.02	0.00	0.00	0.01	−0.021	0.000	0.000	−0.010	−4.34	−3.11	462.64	94.78			−3.09	94.47
52	72	0.00	0.00	0.00	0.01	0.000	0.000	0.000	−0.010	−4.09	−2.88	462.42	103.07			−2.85	102.81
53	73	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.92	−2.75	459.54	114.02			−2.75	113.78
54	74	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.42	−2.27	458.68	122.95			−2.27	122.78
55	75	0.01	0.00	0.00	0.01	0.011	0.000	0.000	−0.010	−3.31	−2.18	455.49	134.21			−2.15	134.14
56	76	0.00	0.00	0.00	0.03	0.000	0.000	0.000	−0.029	−2.84	−1.93	454.50	143.27			−1.65	143.54
57	77	0.00	0.00	0.00	0.08	0.001	0.000	0.001	−0.078	−2.88	−3.51	452.66	153.18			−1.47	155.31
58	78	0.00	0.00	0.00	0.06	0.001	0.000	0.001	−0.058	−2.20	−2.14	450.20	163.71			−0.93	165.10
59	79	0.01	0.00	0.00	0.08	0.012	0.000	0.001	−0.078	−1.88	−2.73	447.07	174.92			−0.54	177.40
60	80	0.00	0.00	0.01	0.08	0.002	0.000	−0.010	−0.078	−1.36	−2.35	445.29	184.77			−0.09	187.46
61	81	0.04	0.00	0.00	0.09	0.044	0.000	0.003	−0.088	−1.10	−2.71	441.64	196.49			0.23	200.00
62	82	0.05	0.00	0.00	0.04	0.054	0.000	0.002	−0.039	−0.49	0.00	437.23	208.97			0.62	210.31
63	83	0.05	0.00	0.03	−0.01	0.054	0.000	−0.035	0.008	−0.38	0.49	432.47	221.80			0.65	222.85
64	84	0.05	0.00	0.02	0.00	0.054	0.000	−0.023	−0.001	−0.16	0.80	430.17	232.17			0.86	233.29
65	85	0.05	0.00	0.03	−0.01	0.054	0.000	−0.035	0.008	−0.33	0.56	425.90	244.51			0.73	245.93
66	86	0.04	0.00	0.02	−0.01	0.043	0.000	−0.023	0.009	−0.27	0.69	423.52	254.96			0.78	256.51
67	87	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.61	0.58	418.88	267.67			0.58	269.33
68	88	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.88	0.38	416.58	278.05			0.38	279.93
69	89	−0.02	0.00	0.01	0.01	−0.021	0.000	−0.012	−0.009	−1.34	−0.05	412.04	290.66			0.01	292.84
70	90	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.62	−0.26	409.52	301.25			−0.26	303.62
71	91	−0.02	0.00	−0.01	0.01	−0.021	0.000	0.012	−0.010	−1.81	−0.49	404.58	314.26			−0.42	316.96
72	92	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.88	−0.54	401.68	325.24			−0.54	328.14
Z = 21 (Sc)																	
11	32	0.40	0.00	−0.07	0.04	0.440	0.000	0.167	0.013	−1.67	2.09	169.89	71.97			2.20	69.07
12	33	0.11	0.00	−0.07	−0.04	0.122	0.000	0.093	0.054	0.06	0.87	197.22	52.70			1.20	50.47
13	34	0.11	0.00	−0.06	−0.04	0.121	0.000	0.079	0.052	0.25	1.71	218.02	39.97			1.90	38.00
14	35	0.08	0.00	−0.05	−0.04	0.088	0.000	0.064	0.047	0.03	1.62	241.12	24.95			1.75	23.28
15	36	0.08	0.00	−0.02	−0.04	0.086	0.000	0.026	0.043	0.76	2.29	259.35	14.79			2.33	13.37
16	37	0.08	0.00	−0.01	−0.04	0.086	0.000	0.014	0.041	1.26	2.70	279.25	2.96			2.72	1.83
17	38	−0.06	0.00	0.00	0.04	−0.063	0.000	0.001	−0.039	1.73	2.90	295.55	−5.27			2.91	−6.15
18	39	−0.06	0.00	0.00	0.04	−0.063	0.000	0.001	−0.039	1.48	2.87	313.54	−15.19	−14.17	0.024	2.87	−15.84
19	40	−0.04	0.00	−0.01	0.03	−0.042	0.000	0.012	−0.030	1.23	2.98	327.81	−21.38	−20.52	0.003	2.98	−21.85
20	41	−0.02	0.00	−0.01	0.03	−0.021	0.000	0.012	−0.030	0.49	2.58	344.09	−29.59	−28.64	0.000	2.57	−29.88
21	42	−0.06	0.00	−0.01	0.03	−0.063	0.000	0.013	−0.030	1.18	3.09	355.38	−32.81	−32.12	0.000	3.08	−33.68
22	43	−0.04	0.00	−0.02	0.02	−0.042	0.000	0.024	−0.020	0.96	2.75	369.08	−38.44	−36.19	0.002	2.74	−38.47
23	44	0.05	0.00	−0.02	0.00	0.053	0.000	0.025	0.001	1.44	2.91	378.44	−39.73	−37.82	0.002	2.90	−39.67
24	45	0.04	0.00	−0.01	−0.03	0.043	0.000	0.013	0.031	1.10	2.27	390.21	−43.43	−41.07	0.001	2.27	−43.28
25	46	−0.05	0.00	−0.01	0.01	−0.052	0.000	0.013	−0.010	0.97	2.40	398.24	−43.39	−41.76	0.001	2.39	−43.19
26	47	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	0.14	1.45	408.97	−46.04	−44.33	0.002	1.44	−45.81

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 21 (Sc)																	
27	48	0.06	0.00	−0.01	−0.01	0.064	0.000	0.013	0.011	−0.32	1.20	416.14	−45.15	−44.50	0.005	1.20	−44.89
28	49	−0.03	0.00	−0.01	0.00	−0.032	0.000	0.012	−0.000	−1.07	0.41	425.49	−46.42	−46.55	0.004	0.40	−46.15
29	50	−0.04	0.00	−0.01	0.00	−0.042	0.000	0.012	−0.001	−0.62	0.73	430.99	−43.86	−44.54	0.016	0.73	−43.59
30	51	−0.04	0.00	−0.01	0.00	−0.042	0.000	0.012	−0.001	−0.03	1.20	437.98	−42.77	−43.22	0.020	1.20	−42.51
31	52	−0.04	0.00	−0.01	0.00	−0.042	0.000	0.012	−0.001	0.79	1.91	442.09	−38.81	−40.36	0.193	1.91	−38.58
32	53	0.06	0.00	−0.02	−0.01	0.064	0.000	0.025	0.012	1.41	2.61	447.86	−36.51			2.62	−36.28
33	54	0.10	0.00	0.00	−0.01	0.107	0.000	0.004	0.010	1.92	3.51	450.87	−31.45	−34.22	0.370	3.51	−31.27
34	55	−0.10	0.00	−0.01	−0.02	−0.104	0.000	0.016	0.018	2.25	3.48	456.45	−28.96	−29.58	0.736	3.51	−28.80
35	56	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	2.58	3.83	459.19	−23.63			3.84	−23.53
36	57	−0.10	0.00	0.01	0.00	−0.105	0.000	−0.008	0.001	2.57	3.87	463.88	−20.24			3.88	−20.19
37	58	−0.10	0.00	0.02	0.01	−0.105	0.000	−0.019	−0.007	2.62	3.96	466.12	−14.42			3.98	−14.39
38	59	−0.07	0.03	0.01	0.01	−0.073	−0.039	−0.009	−0.008	2.43	3.63	470.43	−10.65			3.66	−10.67
39	60	−0.04	0.06	0.00	0.00	−0.040	−0.080	0.002	0.002	2.05	3.51	472.19	−4.34			3.57	−4.37
40	61	−0.02	0.08	0.00	0.00	−0.018	−0.107	0.003	0.004	1.34	3.04	475.94	−0.02			3.17	−0.02
41	62	−0.04	0.09	−0.01	0.00	−0.038	−0.121	0.016	0.005	1.19	2.97	477.02	6.97			3.15	6.98
42	63	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	1.43	2.61	480.02	12.04			2.61	11.83
43	64	0.05	0.00	−0.02	0.00	0.053	0.000	0.025	0.001	1.25	2.26	480.80	19.34			2.29	19.12
44	65	0.12	0.00	−0.04	−0.01	0.129	0.000	0.055	0.017	0.37	1.99	483.12	25.08			2.16	24.98
45	66	0.12	0.00	−0.03	0.00	0.128	0.000	0.043	0.005	−0.24	1.45	483.55	32.73			1.53	32.52
46	67	0.12	0.00	−0.02	0.00	0.128	0.000	0.030	0.003	−0.75	0.90	485.61	38.74			0.95	38.48
47	68	0.12	0.00	−0.01	0.00	0.128	0.000	0.018	0.002	−1.53	0.13	485.77	46.65			0.15	46.35
48	69	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−1.81	−0.72	487.64	52.86			−0.72	52.53
49	70	0.05	0.00	0.00	−0.01	0.053	0.000	0.001	0.010	−2.85	−1.80	487.64	60.92			−1.78	60.62
50	71	−0.03	0.00	−0.01	0.00	−0.032	0.000	0.012	−0.000	−3.68	−2.42	488.81	67.83			−2.41	67.53
51	72	−0.07	0.00	−0.03	0.01	−0.073	0.000	0.037	−0.012	−3.70	−2.45	487.33	77.38			−2.33	77.21
52	73	−0.03	0.00	0.00	0.01	−0.032	0.000	0.000	−0.010	−3.20	−2.17	487.17	85.60			−2.15	85.37
53	74	−0.04	0.00	0.00	0.01	−0.042	0.000	0.001	−0.010	−2.99	−1.98	485.07	95.77			−1.95	95.58
54	75	−0.04	0.00	−0.01	0.01	−0.042	0.000	0.012	−0.010	−2.48	−1.50	484.31	104.61			−1.46	104.48
55	76	−0.04	0.00	−0.01	0.01	−0.042	0.000	0.012	−0.010	−2.26	−1.28	481.82	115.17			−1.24	115.10
56	77	−0.03	0.00	−0.02	0.01	−0.032	0.000	0.024	−0.010	−1.73	−0.83	480.70	124.36			−0.75	124.39
57	78	−0.03	0.00	−0.01	0.05	−0.031	0.000	0.012	−0.049	−1.55	−1.28	478.53	134.60			−0.51	135.40
58	79	0.02	0.00	−0.03	−0.06	0.024	0.000	0.038	0.062	−1.07	−1.19	477.43	143.77			0.12	145.21
59	80	0.06	0.00	−0.06	0.03	0.063	0.000	0.074	−0.025	−0.83	−0.27	473.56	155.71			0.41	156.61
60	81	0.06	0.00	−0.06	0.04	0.063	0.000	0.074	−0.035	−0.36	−0.05	472.00	165.35			0.87	166.60
61	82	−0.06	0.00	−0.04	0.03	−0.063	0.000	0.047	−0.032	0.07	0.37	468.33	177.08			0.93	178.09
62	83	−0.06	0.00	−0.03	0.00	−0.062	0.000	0.037	−0.002	0.49	1.10	465.96	187.53			1.22	188.24
63	84	−0.06	0.00	−0.03	−0.02	−0.062	0.000	0.038	0.018	0.59	1.09	462.44	199.12			1.35	200.11
64	85	−0.06	0.00	0.00	0.00	−0.063	0.000	0.001	0.000	0.81	1.42	460.15	209.48			1.42	210.36
65	86	−0.06	0.00	0.01	0.01	−0.063	0.000	−0.010	−0.009	0.67	1.29	456.49	221.21			1.34	222.31
66	87	−0.06	0.00	0.03	0.03	−0.062	0.000	−0.034	−0.026	0.56	0.92	454.64	231.13			1.35	232.79
67	88	−0.06	0.00	0.03	0.02	−0.062	0.000	−0.033	−0.017	0.25	0.87	450.65	243.19			1.12	244.86
68	89	0.02	0.00	−0.01	0.00	0.021	0.000	0.012	0.000	0.26	1.31	447.73	254.18			1.33	255.82
69	90	−0.04	0.00	0.01	0.01	−0.042	0.000	−0.011	−0.009	−0.28	0.65	444.11	265.88			0.70	267.76
70	91	−0.01	0.00	−0.01	0.00	−0.010	0.000	0.012	−0.000	−0.50	0.68	441.37	276.69			0.69	278.76
71	92	−0.03	0.00	−0.02	0.01	−0.032	0.000	0.024	−0.010	−0.84	0.28	437.26	288.87			0.39	291.27
72	93	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−0.91	0.26	434.33	299.87			0.28	302.42
73	94	0.04	0.00	−0.03	−0.01	0.043	0.000	0.037	0.012	−1.35	−0.46	430.34	311.94			−0.24	314.95
74	95	0.08	0.00	−0.07	−0.04	0.090	0.000	0.090	0.051	−1.85	−2.27	428.99	321.36			−0.36	326.34
Z = 22 (Ti)																	
12	34	0.23	0.02	−0.12	−0.04	0.261	−0.029	0.181	0.092	−1.36	0.35	194.38	62.83			1.45	61.05
13	35	0.18	0.02	−0.12	−0.04	0.206	−0.029	0.170	0.081	−0.70	1.15	215.61	49.68			1.88	47.94
14	36	0.10	0.00	−0.03	0.04	0.106	0.000	0.042	−0.036	0.14	1.34	240.07	33.28			1.42	31.29
15	37	0.11	0.00	−0.02	0.04	0.117	0.000	0.031	−0.037	0.67	2.07	258.64	22.79			2.12	21.11
16	38	0.11	0.00	0.00	−0.04	0.118	0.000	0.004	0.041	1.08	2.39	280.22	9.28			2.43	7.90
17	39	0.10	0.00	0.00	0.04	0.107	0.000	0.006	−0.040	1.59	3.11	296.39	1.18			3.13	0.06
18	40	−0.03	0.00	0.00	0.04	−0.031	0.000	0.000	−0.039	1.54	2.64	316.36	−10.72	−8.85	0.160	2.66	−11.58
19	41	−0.03	0.00	0.00	0.05	−0.031	0.000	0.000	−0.049	1.27	2.84	330.94	−17.23			2.85	−17.87

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 22 (Ti)																	
20	42	0.00	0.00	0.00	0.05	0.001	0.000	0.000	−0.049	0.47	2.41	348.74	−26.96	−25.12	0.005	2.42	−27.41
21	43	−0.04	0.00	−0.01	0.05	−0.042	0.000	0.012	−0.049	1.33	3.01	361.04	−31.19	−29.32	0.007	3.01	−31.48
22	44	0.00	0.00	0.00	0.04	0.000	0.000	0.000	−0.039	1.10	2.63	376.91	−38.98	−37.55	0.001	2.63	−39.13
23	45	0.04	0.00	0.00	0.04	0.043	0.000	0.002	−0.039	1.63	2.77	386.65	−40.65	−39.01	0.001	2.77	−40.69
24	46	0.02	0.00	0.00	0.01	0.021	0.000	0.000	−0.010	1.20	2.65	399.29	−45.22	−44.12	0.001	2.65	−45.17
25	47	0.05	0.00	−0.01	0.01	0.053	0.000	0.013	−0.009	1.03	1.88	408.56	−46.42	−44.93	0.001	1.88	−46.29
26	48	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	0.15	1.21	420.36	−50.14	−48.49	0.001	1.20	−49.96
27	49	0.05	0.00	0.00	0.00	0.053	0.000	0.001	0.000	−0.44	0.86	427.95	−49.67	−48.56	0.001	0.85	−49.44
28	50	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.38	0.08	438.59	−52.24	−51.43	0.001	0.07	−51.98
29	51	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−0.86	0.47	444.32	−49.89	−49.73	0.001	0.47	−49.62
30	52	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.23	0.90	452.60	−50.10	−49.47	0.007	0.89	−49.83
31	53	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	0.60	1.60	456.99	−46.43	−46.83	0.100	1.60	−46.16
32	54	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	1.35	2.10	464.16	−45.52	−45.59	0.125	2.10	−45.28
33	55	0.10	0.00	0.00	0.00	0.107	0.000	0.004	0.000	1.71	3.14	467.30	−40.59	−41.67	0.152	3.14	−40.35
34	56	0.12	0.00	0.02	−0.01	0.129	0.000	−0.019	0.007	1.89	3.51	473.65	−38.86	−38.94	0.196	3.54	−38.64
35	57	0.12	0.00	0.03	−0.02	0.129	0.000	−0.031	0.016	2.23	3.83	476.66	−33.80	−33.54	0.455	3.88	−33.59
36	58	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	2.50	3.69	482.65	−31.73			3.71	−31.58
37	59	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	2.58	3.83	485.06	−26.07			3.85	−25.96
38	60	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	2.48	3.51	490.44	−23.38			3.51	−23.33
39	61	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	2.20	3.45	492.36	−17.22			3.44	−17.21
40	62	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	1.65	2.97	497.16	−13.95			2.97	−13.99
41	63	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	1.79	3.01	498.31	−7.03			3.02	−7.10
42	64	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	1.21	2.45	502.54	−3.19			2.44	−3.30
43	65	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	1.15	2.23	503.35	4.08			2.23	3.93
44	66	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	0.73	1.61	507.01	8.48			1.61	8.31
45	67	0.12	0.00	−0.04	0.00	0.129	0.000	0.055	0.007	−0.48	1.20	507.46	16.10			1.33	16.03
46	68	0.12	0.00	−0.02	0.01	0.128	0.000	0.031	−0.007	−0.94	0.63	510.50	21.13			0.69	20.97
47	69	0.12	0.00	−0.01	0.00	0.128	0.000	0.018	0.002	−1.74	−0.13	510.79	28.92			−0.11	28.70
48	70	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.10	−1.13	513.73	34.05			−1.13	33.80
49	71	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−3.21	−2.09	513.74	42.11			−2.08	41.87
50	72	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.07	−2.75	515.85	48.08			−2.75	47.83
51	73	−0.03	0.00	−0.01	−0.01	−0.031	0.000	0.012	0.009	−3.82	−2.71	514.42	57.57			−2.68	57.37
52	74	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.48	−2.39	515.08	64.98			−2.39	64.76
53	75	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.11	−2.12	513.02	75.11			−2.12	74.93
54	76	0.00	0.00	0.00	0.01	0.000	0.000	0.000	−0.010	−2.53	−1.60	513.06	83.15			−1.58	83.02
55	77	0.02	0.00	0.00	0.01	0.021	0.000	0.000	−0.010	−2.21	−1.36	510.64	93.64			−1.34	93.56
56	78	0.00	0.00	0.00	0.02	0.000	0.000	0.000	−0.020	−1.65	−0.85	510.28	102.07			−0.74	102.13
57	79	0.00	0.00	0.00	0.05	0.001	0.000	0.000	−0.049	−1.38	−1.11	508.01	112.42			−0.41	113.13
58	80	0.00	0.03	0.00	0.04	0.001	−0.039	0.001	−0.039	−0.76	−0.35	507.03	121.47			0.15	122.05
59	81	0.04	0.00	−0.02	0.02	0.042	0.000	0.025	−0.019	−0.25	0.29	503.52	133.05			0.45	133.38
60	82	0.05	0.00	−0.01	0.04	0.053	0.000	0.014	−0.039	0.18	0.47	502.77	141.87			0.98	142.64
61	83	0.05	0.00	−0.02	0.04	0.053	0.000	0.026	−0.038	0.48	0.67	499.38	153.33			1.23	154.25
62	84	0.05	0.00	−0.01	0.02	0.053	0.000	0.013	−0.019	0.86	1.39	497.77	163.01			1.53	163.63
63	85	0.07	0.00	0.03	−0.01	0.075	0.000	−0.034	0.008	0.92	1.54	494.14	174.71			1.67	175.44
64	86	0.05	0.00	0.02	0.00	0.054	0.000	−0.023	−0.001	1.12	1.75	492.72	184.20			1.80	184.99
65	87	0.05	0.00	0.03	−0.01	0.054	0.000	−0.035	0.008	0.98	1.56	489.16	195.84			1.71	196.86
66	88	0.05	0.00	0.02	−0.01	0.053	0.000	−0.023	0.009	0.96	1.62	487.60	205.46			1.70	206.59
67	89	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.71	1.62	483.59	217.55			1.62	218.75
68	90	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.42	1.41	482.03	227.18			1.41	228.57
69	91	−0.02	0.00	0.01	0.00	−0.021	0.000	−0.012	0.000	−0.04	1.06	478.12	239.15			1.07	240.74
70	92	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.35	0.76	476.39	248.96			0.76	250.74
71	93	−0.02	0.00	−0.01	0.01	−0.021	0.000	0.012	−0.010	−0.62	0.49	472.17	261.25			0.55	263.30
72	94	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.82	0.28	470.10	271.39			0.28	273.61
73	95	−0.02	0.00	0.00	−0.01	−0.021	0.000	0.000	0.010	−1.19	−0.10	465.79	283.78			−0.06	286.27
74	96	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.31	−0.25	463.42	294.21			−0.25	296.91
75	97	0.11	0.00	−0.07	−0.02	0.120	0.000	0.092	0.033	−2.49	−2.20	460.46	305.24			−1.00	309.39
76	98	0.11	0.00	−0.05	0.01	0.118	0.000	0.067	−0.002	−2.53	−1.75	457.28	316.49			−1.31	320.17

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
***Z* = 23 (V)**																	
13	36	0.24	0.00	−0.10	0.04	0.259	0.000	0.154	−0.004	−1.08	0.64	210.14	62.44			0.93	59.97
14	37	0.18	0.00	−0.09	−0.04	0.201	0.000	0.129	0.069	−0.75	1.02	234.78	45.87			1.47	43.94
15	38	0.18	0.00	−0.05	−0.04	0.197	0.000	0.075	0.056	0.08	2.01	254.64	34.08			2.15	32.21
16	39	0.20	0.00	−0.02	−0.04	0.218	0.000	0.040	0.048	0.44	2.46	276.47	20.32			2.52	18.70
17	40	0.17	0.00	−0.01	−0.04	0.184	0.000	0.023	0.044	1.39	2.89	294.46	10.40			2.90	9.04
18	41	0.11	0.00	0.00	0.05	0.118	0.000	0.008	−0.049	1.72	3.23	313.99	−1.06			3.26	−2.13
19	42	0.05	0.00	0.00	0.05	0.054	0.000	0.002	−0.049	1.77	3.08	330.39	−9.39			3.10	−10.23
20	43	0.01	0.00	0.00	0.05	0.011	0.000	0.001	−0.049	1.03	2.66	348.55	−19.48			2.68	−20.11
21	44	0.07	0.00	−0.02	−0.02	0.075	0.000	0.026	0.022	1.75	3.08	362.45	−25.31	−24.12	0.121	3.07	−25.78
22	45	0.03	0.00	0.00	0.04	0.032	0.000	0.001	−0.039	1.60	2.71	378.67	−33.45	−31.88	0.017	2.71	−33.75
23	46	0.18	0.00	−0.08	0.01	0.195	0.000	0.115	0.012	0.22	3.26	390.07	−36.79	−37.07	0.001	3.24	−37.61
24	47	0.19	0.00	−0.07	0.02	0.205	0.000	0.104	−0.001	−0.38	2.58	404.27	−42.92	−42.00	0.001	2.59	−42.95
25	48	0.19	0.00	−0.05	0.01	0.205	0.000	0.078	0.004	−0.34	2.38	414.30	−44.88	−44.47	0.003	2.37	−44.84
26	49	0.15	0.00	−0.03	0.00	0.161	0.000	0.046	0.007	−0.31	1.59	426.54	−49.04	−47.96	0.001	1.59	−48.92
27	50	0.10	0.00	−0.01	0.00	0.107	0.000	0.016	0.001	−0.30	1.16	435.51	−49.94	−49.22	0.001	1.15	−49.76
28	51	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−0.90	0.29	446.54	−52.90	−52.20	0.001	0.28	−52.67
29	52	0.05	0.00	0.00	0.01	0.053	0.000	0.001	−0.010	−0.43	0.67	453.53	−51.82	−51.44	0.001	0.67	−51.56
30	53	0.11	0.00	−0.02	0.01	0.117	0.000	0.030	−0.007	−0.06	1.43	461.77	−51.98	−51.85	0.003	1.43	−51.70
31	54	0.11	0.00	−0.02	0.01	0.117	0.000	0.030	−0.007	0.74	2.20	467.30	−49.44	−49.89	0.015	2.21	−49.15
32	55	0.16	0.00	−0.01	0.01	0.172	0.000	0.024	−0.007	0.90	3.05	474.39	−48.46	−49.15	0.100	3.06	−48.17
33	56	0.16	0.00	0.01	0.00	0.173	0.000	−0.001	−0.001	1.50	3.69	479.08	−45.08	−46.08	0.204	3.70	−44.81
34	57	0.16	0.00	0.03	−0.02	0.173	0.000	−0.027	0.015	1.79	3.89	485.85	−43.78	−44.19	0.233	3.93	−43.49
35	58	0.13	0.00	0.03	−0.02	0.140	0.000	−0.030	0.016	2.47	4.09	490.11	−39.97	−40.21	0.248	4.12	−39.71
36	59	0.13	0.00	0.03	−0.02	0.140	0.000	−0.030	0.016	2.68	4.14	496.14	−37.93	−37.07	0.307	4.19	−37.69
37	60	−0.13	0.00	0.03	0.01	−0.135	0.000	−0.028	−0.005	2.87	4.38	499.55	−33.26	−32.58	0.475	4.41	−33.07
38	61	−0.10	0.00	0.03	0.01	−0.104	0.000	−0.031	−0.006	2.85	4.12	505.08	−30.73			4.15	−30.57
39	62	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	2.93	3.95	508.15	−25.73			3.94	−25.64
40	63	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	2.43	3.51	513.12	−22.63			3.50	−22.58
41	64	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	2.57	3.56	515.29	−16.72			3.56	−16.70
42	65	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	2.00	2.97	519.71	−13.07			2.97	−13.10
43	66	0.12	0.00	−0.04	−0.01	0.129	0.000	0.055	0.017	1.26	2.71	521.56	−6.85			2.83	−6.78
44	67	0.15	0.00	−0.06	−0.01	0.162	0.000	0.084	0.024	0.05	2.09	525.39	−2.60			2.38	−2.40
45	68	0.16	0.00	−0.04	0.01	0.172	0.000	0.060	−0.001	−0.55	1.50	526.97	3.88			1.63	3.89
46	69	0.16	0.00	−0.03	0.01	0.172	0.000	0.048	−0.003	−1.04	0.90	530.20	8.73			1.00	8.68
47	70	0.12	0.00	−0.01	0.00	0.128	0.000	0.018	0.002	−1.38	0.03	531.53	15.47			0.05	15.33
48	71	0.12	0.00	0.01	−0.01	0.129	0.000	−0.007	0.009	−1.94	−0.43	534.07	21.00			−0.40	20.86
49	72	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−2.67	−1.71	535.30	27.84			−1.70	27.67
50	73	0.01	0.00	0.00	0.01	0.011	0.000	0.000	−0.010	−3.49	−2.33	537.50	33.71			−2.32	33.54
51	74	0.03	0.00	−0.02	0.00	0.032	0.000	0.024	0.001	−3.18	−2.28	536.93	42.35			−2.25	42.20
52	75	−0.01	0.00	0.01	0.00	−0.010	0.000	−0.012	0.000	−2.78	−1.86	537.61	49.75			−1.85	49.58
53	76	−0.01	0.00	0.01	0.00	−0.010	0.000	−0.012	0.000	−2.31	−1.51	536.32	59.10			−1.51	58.96
54	77	−0.01	0.00	0.01	0.00	−0.010	0.000	−0.012	0.000	−1.68	−0.94	536.41	67.09			−0.94	66.96
55	78	−0.02	0.00	0.01	0.00	−0.021	0.000	−0.012	0.000	−1.27	−0.53	534.65	76.92			−0.52	76.83
56	79	−0.01	0.00	0.01	0.00	−0.010	0.000	−0.012	0.000	−0.66	−0.03	534.39	85.25			−0.02	85.20
57	80	0.02	0.00	0.00	0.03	0.021	0.000	0.001	−0.030	−0.26	0.04	532.59	95.12			0.28	95.35
58	81	0.17	0.00	−0.01	0.03	0.183	0.000	0.026	−0.027	−0.32	0.90	531.59	104.19			1.16	104.50
59	82	0.27	0.00	−0.07	0.00	0.295	0.000	0.121	0.031	−1.90	0.95	529.46	114.40			1.66	115.24
60	83	0.27	0.00	−0.07	0.00	0.295	0.000	0.121	0.031	−1.63	1.12	528.79	123.14			1.88	124.10
61	84	0.28	0.00	−0.06	0.00	0.306	0.000	0.110	0.028	−1.67	1.30	526.19	133.80			1.88	134.67
62	85	0.28	0.00	−0.06	0.01	0.305	0.000	0.111	0.018	−1.27	1.53	525.12	142.95			2.07	143.87
63	86	0.27	0.00	−0.06	0.01	0.294	0.000	0.108	0.016	−1.10	1.45	522.47	153.67			1.96	154.67
64	87	0.27	0.00	−0.05	0.00	0.294	0.000	0.095	0.023	−0.68	1.74	521.03	163.18			2.19	164.24
65	88	0.27	0.00	−0.04	−0.01	0.295	0.000	0.081	0.029	−0.63	1.74	518.00	174.28			2.15	175.43
66	89	0.27	0.00	−0.03	−0.01	0.295	0.000	0.069	0.025	−0.21	2.00	516.29	184.07			2.29	185.23
67	90	0.28	0.00	−0.01	−0.02	0.307	0.000	0.045	0.028	−0.29	1.86	513.12	195.30			2.08	196.54
68	91	0.01	0.00	0.00	0.01	0.011	0.000	0.000	−0.010	1.39	2.14	511.11	205.39			2.17	206.61
69	92	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	0.94	1.81	507.87	216.70			1.81	218.05

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 23 (V)																	
70	93	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.61	1.51	506.17	226.47			1.51	228.01
71	94	−0.03	0.00	−0.01	0.00	−0.032	0.000	0.012	−0.000	0.30	1.28	502.59	238.12			1.29	239.86
72	95	0.01	0.00	0.00	0.01	0.011	0.000	0.000	−0.010	0.03	0.94	500.67	248.11			0.98	250.08
73	96	0.03	0.00	−0.01	0.00	0.032	0.000	0.012	0.000	−0.43	0.42	497.15	259.70			0.43	261.86
74	97	0.11	0.00	−0.06	−0.02	0.120	0.000	0.079	0.031	−1.26	−0.82	495.90	269.03			0.06	272.28
75	98	0.11	0.00	−0.06	0.00	0.118	0.000	0.079	0.010	−2.00	−1.26	492.07	280.92			−0.68	284.11
76	99	0.11	0.00	−0.05	0.00	0.118	0.000	0.066	0.008	−2.24	−1.41	489.50	291.57			−0.99	294.84
77	100	0.11	0.00	−0.03	0.01	0.117	0.000	0.042	−0.005	−2.95	−1.96	485.58	303.55			−1.80	306.83
78	101	0.11	0.00	−0.01	0.02	0.118	0.000	0.018	−0.018	−3.20	−2.27	482.96	314.25			−2.10	317.81
Z = 24 (Cr)																	
14	38	0.24	0.00	−0.06	0.04	0.259	0.000	0.103	−0.019	−1.19	0.56	232.19	55.75			0.74	53.27
15	39	0.23	0.00	−0.03	0.04	0.249	0.000	0.063	−0.029	−0.57	1.59	252.37	43.63			1.64	41.41
16	40	0.23	0.00	0.01	0.04	0.251	0.000	0.015	−0.040	−0.25	1.83	275.93	28.15			1.89	26.27
17	41	0.18	0.00	0.00	0.05	0.195	0.000	0.018	−0.049	0.88	2.27	294.27	17.88			2.33	16.32
18	42	0.11	0.00	0.00	0.05	0.118	0.000	0.008	−0.049	1.42	2.63	315.26	4.96			2.70	3.69
19	43	0.08	0.00	0.00	0.05	0.086	0.000	0.005	−0.049	1.50	2.73	331.77	−3.48			2.77	−4.51
20	44	0.00	0.00	0.00	0.05	0.001	0.000	0.000	−0.049	0.87	2.28	351.40	−15.04			2.31	−15.85
21	45	0.09	0.00	−0.03	−0.04	0.098	0.000	0.040	0.045	1.39	2.77	365.59	−21.16	−18.97	0.503	2.78	−21.78
22	46	0.15	0.00	−0.05	0.00	0.161	0.000	0.071	0.011	0.66	2.69	382.90	−30.40	−29.47	0.020	2.71	−30.85
23	47	0.20	0.00	−0.07	0.03	0.215	0.000	0.106	−0.010	−0.20	2.81	395.74	−35.16	−34.56	0.014	2.81	−35.46
24	48	0.21	0.00	−0.05	0.03	0.226	0.000	0.083	−0.015	−0.79	2.11	411.93	−43.29	−42.82	0.007	2.13	−43.43
25	49	0.21	0.00	−0.03	0.02	0.227	0.000	0.057	−0.010	−0.84	1.94	422.27	−45.55	−45.33	0.002	1.94	−45.60
26	50	0.18	0.00	−0.02	0.00	0.194	0.000	0.038	0.006	−0.92	1.19	435.77	−50.98	−50.26	0.001	1.20	−50.93
27	51	0.11	0.00	−0.01	0.00	0.118	0.000	0.017	0.002	−0.72	0.69	445.12	−52.26	−51.45	0.001	0.69	−52.14
28	52	0.00	0.00	0.00	−0.02	0.000	0.000	0.000	0.020	−1.27	−0.17	457.40	−56.47	−55.42	0.001	−0.17	−56.29
29	53	0.05	0.00	0.00	0.00	0.053	0.000	0.001	0.000	−0.77	0.20	464.70	−55.70	−55.28	0.001	0.19	−55.48
30	54	0.15	0.00	−0.03	0.03	0.161	0.000	0.048	−0.024	−0.86	1.21	473.90	−56.83	−56.93	0.001	1.25	−56.54
31	55	0.16	0.00	−0.01	0.02	0.172	0.000	0.024	−0.017	−0.15	2.02	479.68	−54.54	−55.11	0.001	2.04	−54.25
32	56	0.17	0.00	0.00	0.01	0.183	0.000	0.013	−0.009	0.27	2.17	488.65	−55.43	−55.28	0.002	2.19	−55.12
33	57	0.17	0.00	0.02	0.00	0.184	0.000	−0.012	−0.003	0.82	2.79	493.62	−52.34	−52.52	0.002	2.81	−52.04
34	58	0.17	0.00	0.04	−0.02	0.185	0.000	−0.038	0.013	1.09	3.11	501.42	−52.06	−51.83	0.203	3.16	−51.74
35	59	0.16	0.00	0.04	−0.02	0.174	0.000	−0.039	0.013	1.66	3.68	505.55	−48.12	−47.89	0.244	3.73	−47.81
36	60	0.16	0.00	0.03	−0.02	0.173	0.000	−0.027	0.015	1.97	3.70	512.72	−47.21	−46.50	0.213	3.76	−46.92
37	61	−0.13	0.00	0.03	0.01	−0.135	0.000	−0.028	−0.005	2.53	4.01	516.28	−42.71	−42.18	0.255	4.04	−42.46
38	62	−0.10	0.00	0.03	0.01	−0.104	0.000	−0.031	−0.006	2.53	3.79	522.85	−41.20	−40.42	0.337	3.83	−40.98
39	63	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	2.63	3.56	526.18	−36.47			3.56	−36.31
40	64	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	2.14	3.18	532.14	−34.35			3.18	−34.23
41	65	−0.03	0.00	−0.01	0.00	−0.032	0.000	0.012	−0.000	2.27	3.24	534.49	−28.63			3.24	−28.54
42	66	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	1.74	2.69	539.89	−25.96			2.68	−25.91
43	67	0.15	0.00	−0.06	−0.01	0.162	0.000	0.084	0.024	0.47	2.37	541.97	−19.96			2.62	−19.69
44	68	0.16	0.00	−0.04	0.00	0.172	0.000	0.060	0.009	−0.08	1.87	546.66	−16.58			2.00	−16.46
45	69	0.16	0.00	−0.04	0.01	0.172	0.000	0.060	−0.001	−0.91	1.18	548.50	−10.36			1.31	−10.27
46	70	0.16	0.00	−0.02	0.01	0.172	0.000	0.036	−0.005	−1.36	0.59	552.67	−6.46			0.66	−6.45
47	71	0.16	0.00	0.00	0.00	0.172	0.000	0.011	0.001	−2.05	0.08	553.79	0.49			0.10	0.43
48	72	0.12	0.00	0.01	0.00	0.129	0.000	−0.006	−0.001	−2.30	−0.78	557.65	4.71			−0.76	4.62
49	73	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−2.98	−2.04	559.00	11.43			−2.04	11.32
50	74	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.81	−2.64	562.06	16.44			−2.64	16.31
51	75	0.03	0.00	−0.01	0.00	0.032	0.000	0.012	0.000	−3.38	−2.52	561.57	25.01			−2.52	24.89
52	76	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.96	−2.08	563.09	31.56			−2.08	31.43
53	77	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−2.40	−1.70	561.88	40.83			−1.71	40.72
54	78	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−1.72	−1.05	562.73	48.05			−1.05	47.95
55	79	0.16	0.00	−0.02	0.03	0.172	0.000	0.037	−0.025	−2.03	−0.69	561.13	57.73			−0.46	57.89
56	80	0.17	0.00	−0.01	0.03	0.183	0.000	0.026	−0.027	−1.50	−0.10	561.60	65.33			0.14	65.52
57	81	0.17	0.00	0.00	0.03	0.184	0.000	0.014	−0.029	−1.00	0.17	559.69	75.31			0.41	75.54
58	82	0.17	0.00	0.00	0.03	0.184	0.000	0.014	−0.029	−0.53	0.67	559.86	83.21			0.92	83.51
59	83	0.27	0.00	−0.06	0.01	0.294	0.000	0.108	0.016	−2.03	0.96	557.56	93.58			1.45	94.17
60	84	0.27	0.00	−0.06	0.01	0.294	0.000	0.108	0.016	−1.79	1.14	557.66	101.56			1.67	102.24

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 24 (Cr)																	
61	85	0.28	0.00	−0.05	0.01	0.305	0.000	0.098	0.014	−1.87	1.15	555.31	111.98			1.53	112.59
62	86	0.29	0.00	−0.05	0.02	0.316	0.000	0.102	0.004	−1.68	1.31	555.07	120.29			1.73	121.02
63	87	0.28	0.00	−0.04	0.00	0.306	0.000	0.085	0.020	−1.38	1.44	552.27	131.16			1.76	131.88
64	88	0.28	0.00	−0.03	0.00	0.306	0.000	0.072	0.016	−0.97	1.74	551.56	139.94			1.96	140.67
65	89	0.28	0.00	−0.03	0.01	0.305	0.000	0.073	0.005	−0.99	1.69	548.64	150.93			1.85	151.71
66	90	0.28	0.00	−0.02	0.00	0.306	0.000	0.059	0.012	−0.63	1.91	547.68	159.96			2.03	160.82
67	91	0.28	0.00	−0.01	0.00	0.306	0.000	0.047	0.008	−0.70	1.86	544.48	171.24			1.88	172.13
68	92	0.29	0.00	0.01	−0.01	0.318	0.000	0.023	0.011	−0.58	2.01	543.29	180.49			2.01	181.50
69	93	0.27	0.00	0.02	−0.02	0.296	0.000	0.005	0.017	−0.56	1.74	540.04	191.82			1.82	193.05
70	94	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.91	1.67	538.79	201.13			1.67	202.46
71	95	−0.03	0.00	−0.01	0.00	−0.032	0.000	0.012	−0.000	0.55	1.44	535.26	212.74			1.45	214.25
72	96	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.27	1.08	534.03	222.04			1.08	223.72
73	97	0.03	0.00	−0.01	0.00	0.032	0.000	0.012	0.000	−0.24	0.51	530.58	233.56			0.52	235.45
74	98	0.05	0.00	−0.02	0.00	0.053	0.000	0.025	0.001	−0.63	0.13	529.12	243.09			0.19	245.23
75	99	0.05	0.00	−0.02	0.00	0.053	0.000	0.025	0.001	−1.33	−0.50	525.52	254.77			−0.44	257.12
76	100	0.11	0.00	−0.04	0.01	0.117	0.000	0.054	−0.004	−2.18	−1.29	524.22	264.14			−1.02	266.92
77	101	0.11	0.00	−0.03	0.02	0.117	0.000	0.042	−0.016	−3.04	−2.14	520.62	275.81			−1.87	278.83
78	102	0.11	0.00	−0.01	0.02	0.118	0.000	0.018	−0.018	−3.31	−2.37	518.54	285.96			−2.20	289.14
79	103	0.09	0.00	0.01	0.00	0.096	0.000	−0.009	−0.001	−4.15	−3.08	514.58	297.99			−3.08	301.24
Z = 25 (Mn)																	
15	40	0.23	0.00	0.01	0.04	0.251	0.000	0.015	−0.040	−0.93	1.00	247.29	56.01			1.05	53.52
16	41	0.24	0.00	0.04	0.05	0.266	0.000	−0.017	−0.058	−0.90	1.16	271.28	40.09			1.30	38.05
17	42	0.21	0.00	0.03	−0.05	0.229	0.000	−0.022	0.044	0.24	1.79	290.87	28.57			1.84	26.76
18	43	0.16	0.00	0.02	−0.05	0.173	0.000	−0.017	0.047	0.86	2.08	312.28	15.23			2.14	13.73
19	44	0.10	0.00	0.00	0.05	0.108	0.000	0.007	−0.049	1.16	2.53	329.86	5.72			2.57	4.48
20	45	0.01	0.00	0.00	0.05	0.011	0.000	0.001	−0.049	0.67	1.94	349.97	−6.32			1.98	−7.32
21	46	0.11	0.00	−0.03	−0.02	0.118	0.000	0.041	0.025	1.05	2.61	365.35	−13.62			2.61	−14.45
22	47	0.11	0.00	−0.03	−0.01	0.118	0.000	0.041	0.015	0.75	2.06	383.47	−23.68			2.06	−24.31
23	48	0.20	0.00	−0.04	0.01	0.216	0.000	0.067	0.002	−0.12	2.54	397.28	−29.41	−29.32	0.112	2.52	−29.89
24	49	0.20	0.00	−0.03	0.00	0.216	0.000	0.054	0.009	−0.79	1.80	413.85	−37.91	−37.62	0.024	1.79	−38.22
25	50	0.21	0.00	−0.01	0.00	0.228	0.000	0.031	0.004	−1.08	1.56	426.17	−42.16	−42.63	0.001	1.54	−42.96
26	51	0.18	0.00	0.00	0.00	0.194	0.000	0.014	0.001	−1.30	1.05	440.35	−48.27	−48.24	0.001	1.04	−48.33
27	52	0.14	0.00	0.00	0.00	0.150	0.000	0.008	0.001	−1.26	0.53	450.97	−50.82	−50.71	0.002	0.52	−50.80
28	53	−0.02	0.00	0.00	−0.01	−0.021	0.000	0.000	0.010	−1.50	−0.46	463.68	−55.46	−54.69	0.001	−0.46	−55.36
29	54	0.11	0.00	−0.01	0.01	0.118	0.000	0.018	−0.008	−1.35	0.11	472.00	−55.71	−55.56	0.001	0.11	−55.54
30	55	0.16	0.00	−0.02	0.03	0.172	0.000	0.037	−0.025	−1.21	1.01	481.60	−57.24	−57.71	0.001	1.02	−57.01
31	56	0.17	0.00	−0.01	0.02	0.183	0.000	0.026	−0.017	−0.54	1.30	489.08	−56.64	−56.91	0.001	1.30	−56.39
32	57	0.18	0.00	0.01	0.01	0.195	0.000	0.002	−0.011	−0.11	1.98	497.78	−57.27	−57.49	0.002	1.99	−56.99
33	58	0.18	0.00	0.03	−0.01	0.196	0.000	−0.023	0.004	0.39	2.55	503.95	−55.37	−55.91	0.030	2.56	−55.08
34	59	0.18	0.00	0.04	−0.02	0.196	0.000	−0.036	0.012	0.69	2.89	511.97	−55.32	−55.48	0.030	2.93	−55.00
35	60	0.16	0.00	0.04	−0.02	0.174	0.000	−0.039	0.013	1.42	3.47	517.20	−52.47	−53.18	0.086	3.50	−52.16
36	61	0.16	0.00	0.04	−0.02	0.174	0.000	−0.039	0.013	1.73	3.53	524.56	−51.77	−51.56	0.228	3.58	−51.45
37	62	−0.13	0.00	0.03	0.01	−0.135	0.000	−0.028	−0.005	2.42	3.97	529.06	−48.20	−48.04	0.223	3.99	−47.92
38	63	−0.10	0.00	0.03	0.01	−0.104	0.000	−0.031	−0.006	2.42	3.68	535.92	−46.99	−46.35	0.258	3.70	−46.73
39	64	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	2.66	3.54	540.21	−43.21	−42.62	0.267	3.54	−43.00
40	65	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	2.18	3.15	546.37	−41.29	−40.67	0.537	3.15	−41.12
41	66	−0.03	0.00	−0.01	0.00	−0.032	0.000	0.012	−0.000	2.27	3.18	549.76	−36.61			3.18	−36.46
42	67	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	1.76	2.65	555.33	−34.11			2.65	−33.99
43	68	0.12	0.00	−0.03	−0.01	0.129	0.000	0.042	0.015	1.05	2.43	558.29	−29.00			2.50	−28.84
44	69	0.16	0.00	−0.03	0.01	0.172	0.000	0.048	−0.003	0.05	1.96	563.13	−25.76			2.03	−25.63
45	70	0.16	0.00	−0.03	0.01	0.172	0.000	0.048	−0.003	−0.77	1.26	565.94	−20.51			1.33	−20.41
46	71	0.16	0.00	−0.01	0.01	0.172	0.000	0.024	−0.007	−1.32	0.83	570.10	−16.59			0.87	−16.55
47	72	0.16	0.00	0.00	0.00	0.172	0.000	0.011	0.001	−2.13	0.04	572.42	−10.84			0.06	−10.85
48	73	0.12	0.00	0.01	−0.01	0.129	0.000	−0.007	0.009	−2.40	−0.85	576.47	−6.82			−0.83	−6.83
49	74	0.06	0.00	0.01	0.00	0.064	0.000	−0.010	−0.001	−3.09	−2.07	578.67	−0.95			−2.06	−1.00
50	75	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.97	−2.79	582.00	3.79			−2.79	3.72
51	76	0.04	0.00	−0.01	0.00	0.043	0.000	0.013	0.001	−3.42	−2.50	582.19	11.67			−2.49	11.60

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 25 (Mn)																	
52	77	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−2.93	−2.06	583.85	18.08			−2.06	18.00
53	78	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−2.28	−1.57	583.37	26.63			−1.57	26.56
54	79	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−1.57	−0.89	584.31	33.76			−0.89	33.69
55	80	0.16	0.00	−0.01	0.02	0.172	0.000	0.024	−0.017	−1.88	−0.42	583.42	42.73			−0.32	42.77
56	81	0.17	0.00	0.00	0.03	0.184	0.000	0.014	−0.029	−1.41	0.04	584.13	50.09			0.26	50.27
57	82	0.18	0.00	0.01	0.02	0.195	0.000	0.003	−0.021	−1.01	0.51	582.83	59.46			0.62	59.57
58	83	0.19	0.00	0.01	0.03	0.206	0.000	0.006	−0.031	−0.66	0.82	583.27	67.09			1.07	67.37
59	84	0.27	0.00	−0.04	0.00	0.294	0.000	0.082	0.019	−1.62	1.32	581.55	76.88			1.58	77.22
60	85	0.28	0.00	−0.04	0.01	0.305	0.000	0.085	0.009	−1.56	1.59	581.65	84.85			1.84	85.23
61	86	0.29	0.00	−0.04	0.01	0.316	0.000	0.088	0.010	−1.85	1.47	580.18	94.39			1.71	94.82
62	87	0.30	0.00	−0.03	0.01	0.328	0.000	0.078	0.007	−1.62	1.70	579.96	102.69			1.88	103.12
63	88	0.30	0.00	−0.02	0.02	0.328	0.000	0.067	−0.007	−1.48	1.69	578.04	112.68			1.82	113.14
64	89	0.30	0.00	−0.01	0.01	0.329	0.000	0.053	−0.001	−1.14	1.91	577.47	121.32			1.96	121.79
65	90	0.30	0.00	0.00	0.00	0.329	0.000	0.040	0.005	−1.17	1.79	575.35	131.51			1.77	132.01
66	91	0.30	0.00	0.01	−0.01	0.330	0.000	0.026	0.011	−0.90	1.97	574.49	140.44			1.97	141.06
67	92	0.29	0.00	0.03	−0.03	0.319	0.000	−0.004	0.023	−0.99	1.65	572.27	150.73			1.85	151.67
68	93	0.30	0.00	0.04	−0.03	0.331	0.000	−0.014	0.019	−1.04	1.75	571.19	159.88			1.95	160.95
69	94	0.28	0.00	0.03	−0.02	0.308	0.000	−0.005	0.013	−0.97	1.64	568.47	170.68			1.69	171.72
70	95	0.28	0.00	0.04	−0.02	0.309	0.000	−0.017	0.010	−0.84	1.65	567.18	180.04			1.73	181.26
71	96	0.28	0.00	0.05	−0.02	0.309	0.000	−0.029	0.006	−1.10	1.35	564.38	190.91			1.46	192.31
72	97	0.03	0.00	−0.01	0.00	0.032	0.000	0.012	0.000	0.47	1.11	563.07	200.29			1.12	201.76
73	98	−0.03	0.00	0.01	−0.02	−0.032	0.000	−0.011	0.020	−0.09	0.60	560.22	211.21			0.77	213.00
74	99	0.05	0.00	−0.02	0.00	0.053	0.000	0.025	0.001	−0.51	0.22	558.80	220.71			0.28	222.58
75	100	0.05	0.00	−0.02	0.00	0.053	0.000	0.025	0.001	−1.25	−0.44	555.86	231.71			−0.38	233.77
76	101	−0.04	0.00	0.00	−0.01	−0.042	0.000	0.001	0.010	−1.52	−0.83	554.20	241.44			−0.79	243.70
77	102	0.11	0.00	−0.02	0.01	0.117	0.000	0.030	−0.007	−2.99	−1.94	551.48	252.24			−1.86	254.75
78	103	0.11	0.00	0.00	0.01	0.118	0.000	0.005	−0.010	−3.37	−2.28	549.54	262.25			−2.26	264.93
79	104	0.09	0.00	0.01	0.00	0.096	0.000	−0.009	−0.001	−4.30	−3.20	546.41	273.45			−3.20	276.34
80	105	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.78	−3.66	544.36	283.57			−3.66	286.71
Z = 26 (Fe)																	
16	42	0.26	0.00	0.09	−0.05	0.289	0.000	−0.086	0.024	−1.59	0.53	269.07	49.58			0.72	47.35
17	43	0.20	0.00	0.06	−0.05	0.219	0.000	−0.060	0.036	−0.24	1.09	289.07	37.66			1.20	35.68
18	44	−0.15	0.00	0.04	0.05	−0.154	0.000	−0.038	−0.040	0.26	1.28	311.99	22.81			1.37	21.12
19	45	0.08	0.00	0.01	−0.05	0.086	0.000	−0.011	0.049	0.55	1.76	329.87	12.99			1.83	11.57
20	46	0.00	0.00	0.00	0.05	0.001	0.000	0.000	−0.049	−0.14	1.23	351.31	−0.37			1.29	−1.55
21	47	0.06	0.00	−0.01	−0.05	0.065	0.000	0.013	0.051	0.63	1.80	367.12	−8.11			1.84	−9.07
22	48	0.01	0.00	0.00	0.01	0.011	0.000	0.000	−0.010	0.43	1.47	386.38	−19.29			1.46	−20.09
23	49	0.13	0.00	−0.01	−0.01	0.140	0.000	0.019	0.012	0.38	1.81	400.63	−25.48			1.80	−26.09
24	50	0.18	0.00	−0.01	−0.01	0.194	0.000	0.025	0.014	−0.71	1.30	418.28	−35.05	−34.48	0.060	1.30	−35.49
25	51	0.18	0.00	0.01	−0.01	0.195	0.000	0.001	0.009	−0.98	1.27	431.30	−40.01	−40.22	0.015	1.26	−40.32
26	52	0.11	0.00	0.01	−0.01	0.118	0.000	−0.007	0.009	−1.18	0.04	448.05	−48.68	−48.33	0.007	0.04	−48.85
27	53	0.10	0.00	0.01	−0.01	0.107	0.000	−0.008	0.009	−1.64	−0.25	458.75	−51.31	−50.94	0.002	−0.25	−51.38
28	54	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.31	−1.17	472.62	−57.11	−56.25	0.001	−1.17	−57.09
29	55	0.02	0.00	−0.01	0.00	0.021	0.000	0.012	0.000	−1.70	−0.74	481.36	−57.78	−57.48	0.001	−0.74	−57.69
30	56	0.11	0.00	−0.02	0.01	0.117	0.000	0.030	−0.007	−1.35	0.13	492.19	−60.53	−60.60	0.001	0.14	−60.37
31	57	0.15	0.00	0.00	0.01	0.162	0.000	0.010	−0.009	−0.87	1.15	499.21	−59.48	−60.18	0.001	1.15	−59.27
32	58	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−0.45	1.33	509.57	−61.78	−62.15	0.001	1.34	−61.52
33	59	0.17	0.00	0.04	0.00	0.185	0.000	−0.036	−0.007	−0.14	1.95	515.95	−60.08	−60.66	0.001	1.97	−59.79
34	60	0.17	0.00	0.05	−0.02	0.185	0.000	−0.050	0.011	0.13	2.27	525.11	−61.18	−61.41	0.003	2.32	−60.84
35	61	0.15	0.00	0.05	−0.02	0.163	0.000	−0.052	0.012	0.80	2.78	530.65	−58.64	−58.92	0.020	2.83	−58.30
36	62	0.14	0.00	0.04	−0.02	0.152	0.000	−0.041	0.014	1.28	2.85	539.10	−59.02	−58.90	0.014	2.89	−58.68
37	63	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	1.84	3.21	543.91	−55.76	−55.55	0.168	3.21	−55.47
38	64	−0.08	0.00	0.02	0.01	−0.084	0.000	−0.021	−0.008	1.84	2.89	551.85	−55.63	−54.77	0.277	2.90	−55.35
39	65	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	1.87	2.87	556.23	−51.94	−50.88	0.243	2.87	−51.69
40	66	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	1.39	2.46	563.44	−51.07	−49.57	0.303	2.46	−50.85
41	67	−0.03	0.00	−0.01	0.00	−0.032	0.000	0.012	−0.000	1.55	2.54	566.98	−46.54	−45.69	0.416	2.54	−46.34
42	68	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	1.04	2.02	573.53	−45.02	−43.13	0.699	2.02	−44.85

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 26 (Fe)																	
43	69	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	1.01	1.83	576.66	−40.08			1.82	−39.93
44	70	0.12	0.00	−0.02	0.00	0.128	0.000	0.030	0.003	−0.02	1.45	582.36	−37.71			1.49	−37.55
45	71	0.12	0.00	−0.02	0.00	0.128	0.000	0.030	0.003	−0.73	0.89	585.21	−32.49			0.92	−32.36
46	72	0.12	0.00	0.00	0.00	0.129	0.000	0.006	0.000	−1.38	0.19	590.58	−29.79			0.20	−29.70
47	73	0.12	0.00	0.01	0.00	0.129	0.000	−0.006	−0.001	−2.28	−0.65	593.11	−24.25			−0.64	−24.19
48	74	0.12	0.00	0.02	−0.01	0.129	0.000	−0.019	0.007	−2.94	−1.34	597.86	−20.92			−1.30	−20.86
49	75	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−3.74	−2.67	600.33	−15.32			−2.66	−15.31
50	76	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.62	−3.37	604.52	−11.44			−3.37	−11.46
51	77	0.04	0.00	−0.01	0.01	0.042	0.000	0.013	−0.009	−4.02	−2.99	604.76	−3.61			−2.97	−3.62
52	78	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−3.49	−2.53	607.26	1.96			−2.53	1.92
53	79	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−2.75	−1.97	606.84	10.45			−1.97	10.41
54	80	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−1.97	−1.27	608.60	16.76			−1.27	16.73
55	81	0.16	0.00	−0.01	0.02	0.172	0.000	0.024	−0.017	−2.06	−0.32	607.34	26.09			−0.22	26.17
56	82	0.17	0.00	0.00	0.03	0.184	0.000	0.014	−0.029	−1.56	0.12	608.90	32.61			0.33	32.80
57	83	0.17	0.00	0.01	0.03	0.184	0.000	0.002	−0.031	−1.08	0.48	607.81	41.77			0.70	42.00
58	84	0.18	0.00	0.02	0.02	0.196	0.000	−0.009	−0.023	−0.66	0.96	608.88	48.77			1.12	48.96
59	85	0.27	0.00	−0.04	0.01	0.294	0.000	0.083	0.008	−1.70	1.75	606.97	58.75			1.99	59.06
60	86	0.29	0.00	−0.03	0.02	0.316	0.000	0.076	−0.004	−1.73	1.97	607.89	65.90			2.20	66.24
61	87	0.30	0.00	−0.03	0.02	0.327	0.000	0.079	−0.003	−2.06	1.48	606.89	74.98			1.69	75.35
62	88	0.30	0.00	−0.02	0.02	0.328	0.000	0.067	−0.007	−1.71	1.63	607.48	82.45			1.82	82.85
63	89	0.31	0.00	−0.01	0.03	0.340	0.000	0.059	−0.020	−1.84	1.44	605.83	92.17			1.67	92.69
64	90	0.30	0.00	−0.01	0.02	0.328	0.000	0.054	−0.011	−1.40	1.71	605.95	100.13			1.86	100.62
65	91	0.30	0.00	0.01	0.01	0.330	0.000	0.029	−0.009	−1.36	1.72	603.77	110.38			1.73	110.83
66	92	0.30	0.00	0.02	0.00	0.330	0.000	0.015	−0.002	−1.15	1.86	603.68	118.54			1.86	119.07
67	93	0.30	0.00	0.03	−0.01	0.331	0.000	0.002	0.004	−1.36	1.77	601.28	129.01			1.77	129.63
68	94	0.30	0.00	0.04	−0.02	0.331	0.000	−0.012	0.009	−1.37	1.70	601.08	137.29			1.80	138.12
69	95	0.30	0.00	0.05	−0.02	0.332	0.000	−0.024	0.006	−1.58	1.44	598.55	147.88			1.55	148.85
70	96	0.30	0.00	0.06	−0.02	0.333	0.000	−0.036	0.002	−1.50	1.45	597.97	156.54			1.64	157.71
71	97	0.30	0.00	0.06	−0.02	0.333	0.000	−0.036	0.002	−1.74	1.17	595.19	167.39			1.34	168.67
72	98	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.37	1.07	594.42	176.23			1.06	177.49
73	99	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−0.16	0.58	591.58	187.14			0.58	188.55
74	100	0.05	0.00	−0.01	0.00	0.053	0.000	0.013	0.001	−0.61	0.13	590.89	195.90			0.14	197.50
75	101	0.05	0.00	−0.01	0.00	0.053	0.000	0.013	0.001	−1.36	−0.55	588.00	206.86			−0.54	208.63
76	102	0.11	0.00	−0.02	0.01	0.117	0.000	0.030	−0.007	−2.14	−1.15	587.19	215.74			−1.07	217.77
77	103	0.11	0.00	−0.02	0.01	0.117	0.000	0.030	−0.007	−3.11	−2.04	584.28	226.73			−1.96	228.95
78	104	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−3.38	−2.37	582.95	236.13			−2.36	238.49
79	105	0.05	0.00	0.00	0.01	0.053	0.000	0.001	−0.010	−4.54	−3.48	580.03	247.11			−3.44	249.72
80	106	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.19	−4.04	578.71	256.51			−4.04	259.30
81	107	0.01	0.00	0.01	0.00	0.011	0.000	−0.012	−0.000	−6.50	−5.21	575.64	267.65			−5.19	270.70
Z = 27 (Co)																	
17	44	−0.23	0.00	0.01	0.05	−0.237	0.000	0.006	−0.045	−0.88	0.66	284.06	49.96			0.74	47.74
18	45	−0.20	0.00	0.04	0.05	−0.206	0.000	−0.032	−0.037	−0.73	0.82	307.33	34.75			0.89	32.84
19	46	0.08	0.00	0.01	−0.01	0.086	0.000	−0.010	0.009	−0.12	1.42	326.44	23.72			1.41	22.01
20	47	0.04	0.00	0.01	−0.02	0.043	0.000	−0.012	0.019	−0.79	0.80	348.28	9.95			0.81	8.52
21	48	0.06	0.00	−0.01	−0.03	0.064	0.000	0.013	0.031	−0.08	1.32	365.47	0.83			1.33	−0.35
22	49	0.06	0.00	0.00	−0.01	0.064	0.000	0.001	0.010	−0.39	0.94	385.09	−10.72			0.93	−11.69
23	50	0.06	0.00	0.00	0.00	0.064	0.000	0.002	0.000	0.07	1.10	400.83	−18.38			1.09	−19.16
24	51	0.07	0.00	−0.01	0.01	0.075	0.000	0.014	−0.009	−0.56	0.44	418.92	−28.41			0.44	−29.00
25	52	0.11	0.00	0.00	0.00	0.118	0.000	0.005	0.000	−0.97	0.39	433.22	−34.64			0.38	−35.08
26	53	0.07	0.00	−0.01	0.00	0.075	0.000	0.014	0.001	−1.77	−0.56	450.00	−43.34	−42.65	0.018	−0.57	−43.64
27	54	0.05	0.00	0.00	0.00	0.053	0.000	0.001	0.000	−2.38	−1.11	462.75	−48.02	−48.01	0.001	−1.11	−48.75
28	55	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−3.12	−1.73	477.17	−54.37	−54.03	0.001	−1.74	−54.44
29	56	0.07	0.00	0.00	0.00	0.075	0.000	0.002	0.000	−2.69	−1.24	487.03	−56.16	−56.04	0.002	−1.24	−56.15
30	57	0.10	0.00	0.00	0.00	0.107	0.000	0.004	0.000	−1.98	−0.47	498.24	−59.30	−59.34	0.001	−0.47	−59.20
31	58	0.09	0.00	0.00	0.00	0.096	0.000	0.003	0.000	−1.04	0.26	506.70	−59.69	−59.85	0.001	0.25	−59.53
32	59	0.11	0.00	0.00	0.00	0.118	0.000	0.005	0.000	−0.46	1.01	516.75	−61.67	−62.23	0.001	1.01	−61.47
33	60	0.14	0.00	0.03	−0.01	0.151	0.000	−0.029	0.005	−0.18	1.77	524.10	−60.95	−61.65	0.001	1.78	−60.70

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 27 (Co)																	
34	61	0.14	0.00	0.04	−0.02	0.152	0.000	−0.041	0.014	0.17	2.07	533.54	−62.32	−62.90	0.001	2.09	−62.03
35	62	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	0.74	2.32	540.43	−61.13	−61.43	0.020	2.33	−60.83
36	63	0.10	0.00	0.03	−0.01	0.108	0.000	−0.032	0.007	1.18	2.38	549.11	−61.74	−61.84	0.020	2.40	−61.44
37	64	−0.10	0.00	0.02	0.01	−0.105	0.000	−0.019	−0.007	1.41	2.60	555.12	−59.68	−59.79	0.020	2.60	−59.39
38	65	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	1.44	2.40	563.16	−59.65	−59.17	0.013	2.40	−59.37
39	66	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	1.33	2.46	568.49	−56.90	−56.11	0.252	2.46	−56.63
40	67	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	0.93	2.12	575.84	−56.19	−55.06	0.318	2.12	−55.93
41	68	0.03	0.00	0.01	−0.01	0.032	0.000	−0.012	0.009	1.07	2.18	580.39	−52.67	−51.35	0.318	2.18	−52.42
42	69	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	0.58	1.68	587.12	−51.33	−50.00	0.335	1.68	−51.11
43	70	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	0.45	1.46	591.23	−47.37	−45.64	0.838	1.46	−47.17
44	71	0.05	0.00	0.00	0.00	0.053	0.000	0.001	0.000	−0.06	0.89	597.32	−45.38	−43.87	0.838	0.89	−45.21
45	72	0.12	0.00	−0.01	0.00	0.128	0.000	0.018	0.002	−1.00	0.64	600.79	−40.78			0.65	−40.62
46	73	0.12	0.00	0.00	0.00	0.129	0.000	0.006	0.000	−1.71	−0.06	606.34	−38.26			−0.05	−38.13
47	74	0.12	0.00	0.01	0.00	0.129	0.000	−0.006	−0.001	−2.62	−0.92	609.80	−33.65			−0.91	−33.54
48	75	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−3.09	−2.06	615.16	−30.93			−2.06	−30.86
49	76	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−4.32	−3.09	618.22	−25.92			−3.09	−25.86
50	77	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−5.14	−3.80	622.56	−22.19			−3.80	−22.16
51	78	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−4.51	−3.33	623.58	−15.14			−3.32	−15.12
52	79	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−3.91	−2.81	626.16	−9.64			−2.81	−9.64
53	80	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−3.17	−2.19	626.52	−1.94			−2.18	−1.93
54	81	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−2.35	−1.52	628.44	4.21			−1.52	4.22
55	82	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−1.60	−0.97	628.40	12.32			−0.97	12.33
56	83	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−0.84	−0.32	629.85	18.94			−0.31	18.96
57	84	0.12	0.00	−0.01	0.02	0.128	0.000	0.019	−0.018	−0.58	0.48	629.13	27.74			0.56	27.85
58	85	0.14	0.00	0.00	0.02	0.151	0.000	0.009	−0.020	−0.21	0.93	630.33	34.61			1.03	34.74
59	86	0.14	0.00	0.01	0.02	0.151	0.000	−0.002	−0.021	0.28	1.30	629.62	43.39			1.40	43.56
60	87	0.29	0.00	−0.02	0.02	0.317	0.000	0.064	−0.007	−1.54	2.13	630.03	51.05			2.29	51.31
61	88	0.30	0.00	−0.02	0.02	0.328	0.000	0.067	−0.007	−1.87	2.13	629.29	59.86			2.26	60.13
62	89	0.30	0.00	−0.01	0.01	0.329	0.000	0.053	−0.001	−1.58	2.32	629.95	67.27			2.39	67.53
63	90	0.31	0.00	0.00	0.02	0.340	0.000	0.045	−0.014	−1.76	1.73	629.43	75.86			1.81	76.18
64	91	0.30	0.00	0.01	0.01	0.330	0.000	0.029	−0.009	−1.30	1.90	629.73	83.64			1.93	83.96
65	92	0.30	0.00	0.02	0.00	0.330	0.000	0.015	−0.002	−1.39	1.81	628.38	93.06			1.78	93.40
66	93	0.30	0.00	0.03	0.00	0.331	0.000	0.003	−0.006	−1.28	1.84	628.46	101.05			1.85	101.50
67	94	0.30	0.00	0.04	−0.01	0.332	0.000	−0.011	−0.000	−1.54	1.62	626.90	110.68			1.64	111.22
68	95	0.30	0.00	0.06	−0.02	0.333	0.000	−0.036	0.002	−1.69	1.41	626.90	118.75			1.59	119.55
69	96	0.31	0.00	0.07	−0.02	0.346	0.000	−0.046	−0.002	−2.10	1.17	625.05	128.67			1.38	129.61
70	97	0.30	0.00	0.07	−0.02	0.334	0.000	−0.048	−0.002	−1.85	1.28	624.41	137.38			1.54	138.47
71	98	0.30	0.00	0.07	−0.02	0.334	0.000	−0.048	−0.002	−2.10	1.00	622.32	147.55			1.23	148.74
72	99	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	0.27	0.94	621.55	156.39			0.94	157.48
73	100	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−0.31	0.35	619.48	166.53			0.35	167.76
74	101	0.05	0.00	−0.01	0.00	0.053	0.000	0.013	0.001	−0.81	−0.03	618.76	175.32			−0.01	176.71
75	102	0.05	0.00	−0.01	0.00	0.053	0.000	0.013	0.001	−1.58	−0.72	616.53	185.62			−0.71	187.17
76	103	0.05	0.00	0.00	0.00	0.053	0.000	0.001	0.000	−2.12	−1.20	615.64	194.59			−1.20	196.29
77	104	0.05	0.00	0.00	0.00	0.053	0.000	0.001	0.000	−3.12	−2.12	613.39	204.91			−2.12	206.79
78	105	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−3.77	−2.70	612.34	214.02			−2.69	216.10
79	106	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−4.98	−3.83	610.06	224.37			−3.82	226.65
80	107	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−5.67	−4.45	608.82	233.69			−4.44	236.17
81	108	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−7.03	−5.69	606.43	244.15			−5.68	246.85
82	109	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−7.66	−6.24	604.88	253.77			−6.24	256.69
Z = 28 (Ni)																	
18	46	−0.26	0.00	0.02	0.05	−0.267	0.000	−0.000	−0.041	−1.75	0.51	304.95	44.43			0.61	42.34
19	47	−0.05	0.00	0.00	−0.04	−0.052	0.000	0.002	0.039	−0.74	0.13	325.34	32.10			0.19	30.27
20	48	0.00	0.00	0.00	−0.01	0.000	0.000	0.000	0.010	−1.61	0.01	348.01	17.51			0.01	15.88
21	49	−0.04	0.00	−0.01	0.01	−0.042	0.000	0.012	−0.010	−0.72	0.56	365.47	8.12			0.56	6.74
22	50	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−1.12	0.28	386.29	−4.63			0.27	−5.78
23	51	0.02	0.00	0.00	0.01	0.021	0.000	0.000	−0.010	−0.52	0.65	402.11	−12.38			0.65	−13.32
24	52	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−1.09	0.03	421.44	−23.64			0.03	−24.38

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 28 (Ni)																	
25	53	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−1.28	−0.20	436.22	−30.35			−0.20	−30.92
26	54	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.32	−1.12	454.18	−40.24	−39.21	0.050	−1.12	−40.66
27	55	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−2.98	−1.55	467.68	−45.66	−45.34	0.011	−1.56	−45.95
28	56	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.00	−2.47	484.13	−54.04	−53.90	0.011	−2.47	−54.21
29	57	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−3.24	−1.85	494.14	−55.98	−56.08	0.002	−1.86	−56.05
30	58	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.37	−1.29	506.72	−60.49	−60.23	0.001	−1.30	−60.47
31	59	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.44	−0.49	515.37	−61.07	−61.16	0.001	−0.50	−60.98
32	60	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.56	0.12	526.70	−64.33	−64.47	0.001	0.11	−64.18
33	61	0.10	0.00	0.01	0.00	0.107	0.000	−0.008	−0.001	−0.14	1.20	533.98	−63.54	−64.22	0.001	1.20	−63.34
34	62	0.10	0.00	0.02	−0.01	0.107	0.000	−0.020	0.008	0.27	1.56	544.47	−65.95	−66.75	0.001	1.56	−65.71
35	63	0.10	0.00	0.02	−0.01	0.107	0.000	−0.020	0.008	0.62	1.87	551.52	−64.93	−65.51	0.001	1.88	−64.67
36	64	−0.09	0.00	0.01	0.00	−0.094	0.000	−0.008	0.001	0.77	1.71	561.51	−66.85	−67.10	0.001	1.71	−66.57
37	65	−0.08	0.00	0.01	0.00	−0.084	0.000	−0.009	0.001	0.92	1.90	567.77	−65.04	−65.13	0.001	1.90	−64.75
38	66	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.73	1.84	576.71	−65.91	−66.01	0.001	1.84	−65.62
39	67	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.51	1.78	582.37	−63.49	−63.74	0.003	1.78	−63.21
40	68	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.09	1.43	590.74	−63.80	−63.46	0.003	1.43	−63.52
41	69	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	0.28	1.51	595.47	−60.45	−59.98	0.004	1.51	−60.19
42	70	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.21	1.04	603.15	−60.07	−59.15	0.346	1.04	−59.82
43	71	0.00	0.01	0.00	0.01	0.000	−0.013	0.000	−0.010	−0.22	0.94	607.34	−56.18	−55.20	0.368	0.95	−55.94
44	72	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.67	0.40	614.35	−55.12	−53.94	0.436	0.40	−54.91
45	73	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.07	−0.09	618.23	−50.94			−0.09	−50.75
46	74	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−1.77	−0.80	624.72	−49.35			−0.80	−49.19
47	75	0.02	0.00	0.00	0.01	0.021	0.000	0.000	−0.010	−2.66	−1.70	628.39	−44.95			−1.69	−44.80
48	76	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.70	−2.56	634.37	−42.86			−2.56	−42.74
49	77	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−4.89	−3.56	637.56	−37.97			−3.56	−37.87
50	78	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.89	−4.43	642.95	−35.29			−4.43	−35.21
51	79	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−5.06	−3.84	643.99	−28.26			−3.84	−28.20
52	80	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.47	−3.28	647.38	−23.58			−3.28	−23.53
53	81	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.57	−2.52	647.74	−15.87			−2.52	−15.83
54	82	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.69	−1.76	650.40	−10.45			−1.76	−10.43
55	83	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−1.85	−1.09	650.37	−2.35			−1.09	−2.33
56	84	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.07	−0.37	652.57	3.52			−0.37	3.55
57	85	−0.12	0.00	−0.03	0.01	−0.124	0.000	0.040	−0.014	−0.70	0.44	651.94	12.22			0.55	12.36
58	86	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.46	0.80	654.04	18.19			0.79	18.23
59	87	0.27	0.00	−0.02	0.03	0.294	0.000	0.060	−0.019	−1.38	1.80	652.79	27.50			2.03	27.80
60	88	0.30	0.00	−0.02	0.03	0.328	0.000	0.068	−0.017	−1.82	2.10	654.51	33.87			2.37	34.22
61	89	0.30	0.00	−0.02	0.03	0.328	0.000	0.068	−0.017	−1.98	2.00	653.97	42.47			2.24	42.83
62	90	0.30	0.00	−0.01	0.03	0.328	0.000	0.056	−0.021	−1.72	2.10	655.47	49.05			2.35	49.45
63	91	0.31	0.00	0.00	0.03	0.340	0.000	0.047	−0.024	−1.93	1.56	654.99	57.60			1.79	58.02
64	92	0.31	0.00	0.01	0.03	0.341	0.000	0.034	−0.027	−1.68	1.66	656.10	64.55			1.92	65.07
65	93	0.31	0.00	0.02	0.02	0.342	0.000	0.021	−0.022	−1.73	1.65	654.73	73.99			1.79	74.43
66	94	0.30	0.00	0.03	0.01	0.331	0.000	0.004	−0.016	−1.42	1.76	655.47	81.33			1.86	81.80
67	95	0.30	0.00	0.05	−0.01	0.333	0.000	−0.023	−0.004	−1.72	1.56	653.96	90.91			1.65	91.45
68	96	0.30	0.00	0.06	−0.02	0.333	0.000	−0.036	0.002	−1.83	1.41	654.61	98.33			1.61	99.07
69	97	0.31	0.00	0.07	−0.02	0.346	0.000	−0.046	−0.002	−2.30	1.13	652.86	108.15			1.37	109.01
70	98	0.31	0.00	0.08	−0.02	0.347	0.000	−0.058	−0.006	−2.27	1.06	653.09	115.99			1.42	117.07
71	99	0.30	0.00	0.07	−0.01	0.335	0.000	−0.047	−0.011	−2.28	0.87	650.96	126.20			1.11	127.26
72	100	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.15	0.87	650.81	134.42			0.87	135.35
73	101	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−0.38	0.38	648.69	144.61			0.38	145.67
74	102	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−0.89	−0.08	648.70	152.67			−0.08	153.87
75	103	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−1.61	−0.76	646.51	162.93			−0.76	164.27
76	104	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−2.20	−1.28	646.30	171.21			−1.28	172.70
77	105	0.05	0.00	−0.01	0.00	0.053	0.000	0.013	0.001	−3.27	−2.23	644.12	181.46			−2.22	183.12
78	106	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−3.92	−2.84	643.73	189.92			−2.84	191.74
79	107	−0.03	0.00	0.00	−0.01	−0.032	0.000	0.001	0.010	−5.20	−4.12	641.65	200.08			−4.09	202.12
80	108	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.02	−4.80	641.07	208.73			−4.80	210.91
81	109	0.02	0.00	0.01	−0.01	0.021	0.000	−0.012	0.010	−7.46	−6.11	638.78	219.08			−6.06	221.52

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 28 (Ni)																	
82	110	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.20	−6.76	637.93	228.01			−6.76	230.60
83	111	−0.01	0.00	−0.01	0.00	−0.010	0.000	0.012	−0.000	−7.67	−6.38	633.74	240.27			−6.37	243.10
Z = 29 (Cu)																	
19	48	−0.06	0.00	0.02	−0.05	−0.063	0.000	−0.021	0.050	−0.67	0.14	320.04	44.70			0.27	42.75
20	49	0.01	0.00	0.00	−0.03	0.011	0.000	0.000	0.030	−1.31	0.13	342.89	29.92			0.17	28.14
21	50	0.06	0.00	−0.02	−0.03	0.065	0.000	0.025	0.032	−0.37	1.03	361.28	19.60			1.06	18.08
22	51	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−0.61	0.58	382.55	6.40			0.58	5.08
23	52	0.08	0.00	−0.01	0.01	0.085	0.000	0.015	−0.009	−0.02	1.09	399.49	−2.47			1.08	−3.57
24	53	0.08	0.00	−0.01	0.00	0.085	0.000	0.015	0.001	−0.52	0.50	419.07	−13.98			0.50	−14.88
25	54	0.10	0.00	−0.02	0.01	0.107	0.000	0.029	−0.007	−0.78	0.47	434.87	−21.71			0.46	−22.43
26	55	0.06	0.00	−0.01	0.00	0.064	0.000	0.014	0.001	−1.50	−0.47	453.15	−31.91			−0.48	−32.47
27	56	0.07	0.00	−0.01	0.00	0.075	0.000	0.014	0.001	−2.17	−0.84	467.75	−38.44			−0.84	−38.85
28	57	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−2.93	−1.59	484.32	−46.94	−47.31	0.016	−1.60	−47.22
29	58	0.06	0.00	−0.03	0.00	0.064	0.000	0.038	0.002	−2.49	−1.10	496.15	−50.70	−51.66	0.002	−1.10	−51.39
30	59	0.10	0.00	−0.03	0.02	0.106	0.000	0.041	−0.016	−1.88	−0.27	509.24	−55.72	−56.36	0.001	−0.27	−55.79
31	60	0.13	0.00	−0.02	0.02	0.139	0.000	0.032	−0.016	−1.19	0.50	519.05	−57.46	−58.34	0.002	0.50	−57.45
32	61	0.14	0.00	−0.01	0.02	0.150	0.000	0.022	−0.018	−0.62	1.33	530.41	−60.75	−61.98	0.001	1.34	−60.66
33	62	0.14	0.00	0.01	0.01	0.151	0.000	−0.003	−0.011	−0.03	1.90	539.31	−61.58	−62.80	0.004	1.89	−61.44
34	63	0.14	0.00	0.02	0.00	0.151	0.000	−0.016	−0.003	0.39	2.21	550.08	−64.28	−65.58	0.001	2.21	−64.08
35	64	0.11	0.00	0.02	0.00	0.118	0.000	−0.019	−0.002	1.04	2.38	558.35	−64.47	−65.42	0.001	2.38	−64.25
36	65	−0.12	0.00	0.01	−0.01	−0.125	0.000	−0.005	0.011	1.19	2.37	568.41	−66.46	−67.26	0.001	2.38	−66.20
37	66	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	1.31	2.57	575.69	−65.67	−66.26	0.001	2.57	−65.40
38	67	−0.08	0.00	0.01	0.00	−0.084	0.000	−0.009	0.001	1.42	2.37	585.00	−66.91	−67.32	0.001	2.37	−66.63
39	68	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	1.47	2.38	591.60	−65.43	−65.57	0.002	2.38	−65.15
40	69	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	1.13	2.15	600.06	−65.82	−65.74	0.001	2.14	−65.54
41	70	0.05	0.00	−0.02	0.00	0.053	0.000	0.025	0.001	1.13	2.20	605.80	−63.50	−62.98	0.002	2.20	−63.21
42	71	0.03	0.00	−0.01	0.00	0.032	0.000	0.012	0.000	0.76	1.78	613.63	−63.26	−62.71	0.001	1.78	−62.99
43	72	0.07	0.00	−0.02	0.00	0.075	0.000	0.026	0.002	0.47	1.60	618.85	−60.40	−59.78	0.001	1.61	−60.14
44	73	0.08	0.00	−0.03	0.01	0.085	0.000	0.039	−0.007	−0.25	1.03	626.06	−59.54	−58.99	0.004	1.07	−59.28
45	74	0.12	0.00	−0.03	0.01	0.128	0.000	0.043	−0.005	−1.14	0.73	630.70	−56.11	−56.01	0.006	0.77	−55.85
46	75	0.12	0.00	−0.02	0.01	0.128	0.000	0.031	−0.007	−1.81	0.01	637.36	−54.70	−54.12	0.978	0.05	−54.47
47	76	0.12	0.00	−0.01	0.01	0.128	0.000	0.019	−0.008	−2.60	−0.79	641.84	−51.11	−50.98	0.007	−0.77	−50.91
48	77	0.07	0.00	−0.01	0.00	0.075	0.000	0.014	0.001	−3.02	−1.76	648.10	−49.30			−1.75	−49.14
49	78	0.06	0.00	0.00	0.00	0.064	0.000	0.002	0.000	−4.12	−2.84	652.24	−45.37			−2.84	−45.23
50	79	0.03	0.00	−0.02	0.00	0.032	0.000	0.024	0.001	−4.94	−3.62	657.70	−42.75			−3.61	−42.62
51	80	0.05	0.00	−0.02	0.00	0.053	0.000	0.025	0.001	−4.38	−3.17	659.73	−36.72			−3.15	−36.60
52	81	0.04	0.00	−0.02	0.00	0.043	0.000	0.025	0.001	−3.63	−2.60	663.25	−32.17			−2.58	−32.06
53	82	0.05	0.00	−0.02	0.00	0.053	0.000	0.025	0.001	−2.77	−1.84	664.45	−25.29			−1.82	−25.20
54	83	0.12	0.00	−0.03	0.01	0.128	0.000	0.043	−0.005	−2.43	−0.72	666.89	−19.66			−0.65	−19.52
55	84	0.12	0.00	−0.03	0.02	0.128	0.000	0.043	−0.015	−1.80	−0.21	667.83	−12.53			−0.10	−12.37
56	85	0.16	0.00	−0.02	0.04	0.172	0.000	0.038	−0.035	−1.46	0.39	670.27	−6.89			0.67	−6.57
57	86	0.16	0.00	−0.01	0.04	0.172	0.000	0.026	−0.037	−0.83	0.91	670.74	0.71			1.18	1.03
58	87	0.16	0.00	−0.01	0.04	0.172	0.000	0.026	−0.037	−0.32	1.25	672.97	6.55			1.54	6.90
59	88	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−0.39	1.91	672.83	14.76			2.10	15.00
60	89	0.27	0.00	−0.03	0.03	0.293	0.000	0.072	−0.016	−1.15	2.20	674.66	21.00			2.45	21.33
61	90	0.28	0.00	−0.03	0.03	0.305	0.000	0.075	−0.015	−1.41	2.23	674.75	28.98			2.47	29.32
62	91	0.28	0.00	−0.02	0.03	0.305	0.000	0.062	−0.018	−1.11	2.05	676.64	35.17			2.27	35.53
63	92	0.30	0.00	−0.01	0.03	0.328	0.000	0.056	−0.021	−1.43	1.98	676.42	43.45			2.18	43.81
64	93	0.29	0.00	0.00	0.03	0.318	0.000	0.041	−0.025	−0.99	2.12	677.58	50.36			2.34	50.79
65	94	0.29	0.00	0.01	0.02	0.318	0.000	0.027	−0.019	−1.01	2.15	676.90	59.12			2.25	59.47
66	95	0.28	0.00	0.02	0.01	0.308	0.000	0.011	−0.013	−0.72	2.17	677.80	66.29			2.23	66.65
67	96	0.29	0.00	0.04	0.00	0.320	0.000	−0.012	−0.010	−1.14	1.98	676.99	75.17			2.03	75.59
68	97	0.29	0.00	0.05	−0.01	0.321	0.000	−0.025	−0.004	−1.24	1.89	677.65	82.58			1.99	83.12
69	98	0.28	0.00	0.05	−0.01	0.310	0.000	−0.028	−0.004	−1.31	1.65	676.56	91.75			1.74	92.36
70	99	0.27	0.00	0.05	−0.01	0.298	0.000	−0.030	−0.003	−1.12	1.60	676.83	99.54			1.71	100.26
71	100	0.27	0.00	0.06	−0.01	0.299	0.000	−0.042	−0.007	−1.46	1.22	675.57	108.88			1.39	109.75
72	101	0.27	0.00	0.06	−0.01	0.299	0.000	−0.042	−0.007	−1.29	1.28	675.41	117.10			1.46	118.09

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 29 (Cu)																	
73	102	0.05	0.00	−0.02	0.00	0.053	0.000	0.025	0.001	0.20	0.66	674.09	126.49			0.70	127.45
74	103	0.05	0.00	−0.02	0.00	0.053	0.000	0.025	0.001	−0.40	0.31	674.05	134.61			0.35	135.69
75	104	0.09	0.00	−0.03	0.00	0.096	0.000	0.040	0.004	−1.44	−0.41	672.54	144.19			−0.30	145.46
76	105	0.11	0.00	−0.02	0.02	0.117	0.000	0.030	−0.017	−2.21	−1.11	672.56	152.24			−0.95	153.70
77	106	0.09	0.00	−0.02	0.01	0.096	0.000	0.028	−0.008	−3.12	−1.99	670.94	161.93			−1.92	163.44
78	107	0.06	0.00	−0.01	0.01	0.064	0.000	0.014	−0.009	−3.63	−2.59	670.58	170.36			−2.54	172.00
79	108	0.05	0.00	−0.01	0.00	0.053	0.000	0.013	0.001	−4.91	−3.77	669.01	180.00			−3.76	181.77
80	109	0.04	0.00	−0.01	0.00	0.043	0.000	0.013	0.001	−5.67	−4.47	668.50	188.59			−4.46	190.53
81	110	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−7.15	−5.84	666.88	198.28			−5.84	200.39
82	111	0.01	0.00	−0.01	0.00	0.011	0.000	0.012	0.000	−7.88	−6.49	666.06	207.17			−6.48	209.48
83	112	0.03	0.00	−0.02	0.00	0.032	0.000	0.024	0.001	−7.47	−6.22	662.57	218.73			−6.17	221.29
Z = 30 (Zn)																	
21	51	0.08	0.00	−0.02	−0.04	0.086	0.000	0.026	0.043	0.09	1.41	358.56	29.61			1.49	27.97
22	52	0.00	0.00	0.00	−0.02	0.000	0.000	0.000	0.020	−0.02	0.90	381.15	15.09			0.91	13.62
23	53	0.16	0.00	−0.04	0.06	0.171	0.000	0.063	−0.051	−0.16	1.85	397.92	6.39			1.94	5.23
24	54	0.16	0.00	−0.04	0.06	0.171	0.000	0.063	−0.051	−0.72	1.32	418.67	−6.28			1.41	−7.24
25	55	0.16	0.00	−0.02	0.04	0.172	0.000	0.038	−0.035	−0.71	1.31	434.73	−14.27			1.32	−15.12
26	56	0.13	0.00	−0.02	0.02	0.139	0.000	0.032	−0.016	−1.11	0.52	454.04	−25.52			0.52	−26.20
27	57	0.09	0.00	0.00	0.00	0.096	0.000	0.003	0.000	−1.34	−0.04	469.12	−32.52			−0.05	−33.06
28	58	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.99	−0.97	487.03	−42.36	−42.30	0.050	−0.98	−42.76
29	59	0.10	0.00	−0.03	0.02	0.106	0.000	0.041	−0.016	−1.67	−0.09	499.25	−46.51	−47.26	0.037	−0.09	−46.78
30	60	0.15	0.00	−0.04	0.05	0.160	0.000	0.061	−0.042	−1.61	0.77	513.95	−53.14	−54.19	0.011	0.80	−53.28
31	61	0.15	0.00	−0.02	0.04	0.161	0.000	0.036	−0.036	−0.80	1.44	524.11	−55.23	−56.35	0.016	1.45	−55.29
32	62	0.18	0.00	0.00	0.03	0.195	0.000	0.016	−0.029	−0.47	2.10	536.75	−59.80	−61.17	0.010	2.12	−59.77
33	63	0.17	0.00	0.01	0.02	0.184	0.000	0.002	−0.021	0.19	2.09	546.47	−61.45	−62.21	0.002	2.10	−61.37
34	64	0.17	0.00	0.03	0.00	0.185	0.000	−0.024	−0.005	0.60	2.92	557.80	−64.71	−66.00	0.001	2.94	−64.56
35	65	0.15	0.00	0.03	0.00	0.162	0.000	−0.027	−0.005	1.28	3.19	566.21	−65.04	−65.91	0.001	3.20	−64.85
36	66	−0.17	0.00	0.01	−0.02	−0.176	0.000	0.001	0.020	1.45	3.12	577.38	−68.14	−68.90	0.001	3.15	−67.90
37	67	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	1.65	3.42	584.79	−67.48	−67.88	0.001	3.44	−67.22
38	68	−0.13	0.00	0.03	0.00	−0.136	0.000	−0.027	0.004	1.86	3.16	595.18	−69.80	−70.01	0.001	3.18	−69.52
39	69	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	2.44	3.10	602.06	−68.61	−68.42	0.001	3.09	−68.34
40	70	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	2.06	2.81	611.58	−70.05	−69.57	0.002	2.80	−69.78
41	71	−0.03	0.00	−0.01	0.00	−0.032	0.000	0.012	−0.000	2.15	2.76	617.61	−68.02	−67.33	0.010	2.77	−67.74
42	72	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	1.71	2.36	626.40	−68.73	−68.13	0.006	2.36	−68.46
43	73	0.12	0.00	−0.03	0.01	0.128	0.000	0.043	−0.005	0.79	2.42	631.57	−65.83	−65.41	0.040	2.45	−65.53
44	74	0.13	0.00	−0.03	0.02	0.139	0.000	0.045	−0.015	−0.02	1.87	639.71	−65.90	−65.71	0.047	1.92	−65.59
45	75	0.13	0.00	−0.03	0.02	0.139	0.000	0.045	−0.015	−0.70	1.28	644.81	−62.93	−62.47	0.071	1.34	−62.63
46	76	0.14	0.00	−0.02	0.02	0.150	0.000	0.034	−0.016	−1.48	0.61	652.34	−62.39	−62.14	0.080	0.67	−62.11
47	77	0.12	0.00	−0.01	0.02	0.128	0.000	0.019	−0.018	−2.03	−0.26	657.06	−59.04	−58.72	0.120	−0.21	−58.79
48	78	0.12	0.00	−0.01	0.01	0.128	0.000	0.019	−0.008	−2.66	−0.91	663.89	−57.80	−57.34	0.090	−0.88	−57.59
49	79	0.07	0.00	0.00	0.00	0.075	0.000	0.002	0.000	−3.29	−2.07	668.27	−54.11			−2.07	−53.94
50	80	−0.01	0.00	0.01	0.00	−0.010	0.000	−0.012	0.000	−3.94	−2.88	674.63	−52.40	−51.85	0.172	−2.88	−52.25
51	81	0.06	0.00	−0.02	0.00	0.064	0.000	0.025	0.002	−3.46	−2.35	676.73	−46.43			−2.33	−46.28
52	82	0.12	0.00	−0.04	0.02	0.128	0.000	0.056	−0.014	−3.27	−1.37	680.71	−42.33			−1.25	−42.09
53	83	0.12	0.00	−0.04	0.02	0.128	0.000	0.056	−0.014	−2.65	−0.79	682.22	−35.77			−0.67	−35.55
54	84	0.16	0.00	−0.03	0.04	0.171	0.000	0.050	−0.033	−2.32	−0.12	685.92	−31.40			0.14	−31.07
55	85	0.16	0.00	−0.03	0.04	0.171	0.000	0.050	−0.033	−1.86	0.30	687.09	−24.50			0.56	−24.17
56	86	0.17	0.00	−0.02	0.05	0.183	0.000	0.040	−0.045	−1.34	0.76	690.49	−19.82			1.15	−19.37
57	87	0.18	0.00	−0.01	0.04	0.194	0.000	0.029	−0.037	−0.77	1.38	690.96	−12.23			1.65	−11.90
58	88	0.19	0.00	−0.01	0.04	0.205	0.000	0.031	−0.036	−0.41	1.74	693.97	−7.16			2.03	−6.81
59	89	0.22	0.00	−0.01	0.04	0.238	0.000	0.037	−0.035	−0.32	2.13	694.22	0.65			2.42	1.02
60	90	0.25	0.00	−0.03	0.03	0.271	0.000	0.067	−0.017	−0.60	2.44	696.80	6.15			2.69	6.48
61	91	0.28	0.00	−0.03	0.03	0.305	0.000	0.075	−0.015	−1.21	2.20	697.27	13.76			2.45	14.10
62	92	0.28	0.00	−0.02	0.03	0.305	0.000	0.062	−0.018	−0.89	2.30	699.62	19.47			2.55	19.84
63	93	0.30	0.00	−0.01	0.03	0.328	0.000	0.056	−0.021	−1.19	2.26	699.48	27.69			2.48	28.05
64	94	0.28	0.00	0.00	0.02	0.306	0.000	0.037	−0.016	−0.51	2.55	701.22	34.01			2.68	34.33
65	95	0.28	0.00	0.01	0.02	0.307	0.000	0.025	−0.019	−0.63	2.44	700.76	42.54			2.57	42.88

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 30 (Zn)																	
66	96	0.28	0.00	0.03	0.00	0.308	0.000	−0.002	−0.006	−0.46	2.51	702.34	49.03			2.57	49.36
67	97	0.29	0.00	0.04	0.00	0.320	0.000	−0.012	−0.010	−0.93	2.23	701.70	57.75			2.30	58.14
68	98	0.28	0.00	0.05	−0.01	0.310	0.000	−0.028	−0.004	−0.91	2.12	703.08	64.44			2.25	64.95
69	99	0.30	0.00	0.08	−0.03	0.335	0.000	−0.062	0.004	−1.75	1.64	702.30	73.29			2.03	74.12
70	100	0.28	0.00	0.07	−0.02	0.311	0.000	−0.053	−0.001	−1.29	1.68	703.17	80.49			1.98	81.30
71	101	0.27	0.00	0.06	−0.01	0.299	0.000	−0.042	−0.007	−1.33	1.49	701.79	89.94			1.67	90.73
72	102	0.25	0.00	0.06	−0.01	0.276	0.000	−0.047	−0.006	−0.91	1.42	702.43	97.37			1.65	98.29
73	103	0.21	0.00	0.03	0.01	0.229	0.000	−0.016	−0.016	−0.47	1.27	700.70	107.18			1.37	108.06
74	104	0.11	0.00	−0.03	0.01	0.117	0.000	0.042	−0.005	−0.13	0.90	701.33	114.61			1.02	115.63
75	105	0.11	0.00	−0.02	0.01	0.117	0.000	0.030	−0.007	−0.90	0.19	699.87	124.15			0.26	125.22
76	106	0.11	0.00	−0.02	0.02	0.117	0.000	0.030	−0.017	−1.62	−0.49	700.51	131.58			−0.33	132.87
77	107	0.11	0.00	−0.02	0.02	0.117	0.000	0.030	−0.017	−2.64	−1.43	699.01	141.15			−1.27	142.57
78	108	0.11	0.00	−0.01	0.01	0.118	0.000	0.018	−0.008	−3.25	−1.95	699.20	149.03			−1.91	150.47
79	109	0.09	0.00	0.00	0.01	0.096	0.000	0.004	−0.010	−4.34	−3.13	697.67	158.63			−3.10	160.20
80	110	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−5.03	−3.89	697.83	166.55			−3.88	168.25
81	111	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−6.59	−5.36	696.34	176.10			−5.35	177.98
82	112	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.38	−6.07	696.20	184.32			−6.07	186.36
83	113	0.03	0.00	−0.01	0.00	0.032	0.000	0.012	0.000	−6.85	−5.66	692.60	195.99			−5.65	198.22
Z = 31 (Ga)																	
22	53	0.10	0.00	−0.03	0.06	0.106	0.000	0.043	−0.056	0.42	1.57	375.54	27.99			1.72	26.50
23	54	0.17	0.00	−0.02	0.05	0.183	0.000	0.040	−0.045	0.38	1.96	394.08	17.52			2.01	16.16
24	55	0.18	0.00	−0.02	0.05	0.194	0.000	0.042	−0.044	−0.25	1.52	415.01	4.66			1.57	3.51
25	56	0.18	0.00	0.00	0.03	0.195	0.000	0.016	−0.029	−0.27	1.55	432.21	−4.47			1.53	−5.48
26	57	0.16	0.00	0.00	0.02	0.172	0.000	0.012	−0.019	−0.67	1.34	451.22	−15.40			1.33	−16.23
27	58	0.13	0.00	0.00	0.01	0.140	0.000	0.008	−0.010	−0.73	0.97	467.25	−23.36			0.95	−24.03
28	59	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.92	−0.22	485.68	−33.73			−0.23	−34.24
29	60	0.13	0.00	−0.02	0.02	0.139	0.000	0.032	−0.016	−0.94	0.92	498.77	−38.74			0.92	−39.13
30	61	0.16	0.00	−0.02	0.04	0.172	0.000	0.038	−0.035	−0.83	1.51	514.00	−45.90	−47.09	0.053	1.51	−46.15
31	62	0.18	0.00	0.00	0.03	0.195	0.000	0.016	−0.029	−0.39	1.72	526.22	−50.05	−52.00	0.028	1.71	−50.71
32	63	0.18	0.00	0.01	0.02	0.195	0.000	0.003	−0.021	0.10	2.25	539.72	−55.48	−56.55	0.001	2.25	−55.54
33	64	0.18	0.00	0.04	0.01	0.197	0.000	−0.034	−0.017	0.45	2.67	550.08	−57.77	−58.83	0.002	2.67	−57.77
34	65	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	0.74	3.02	562.13	−61.74	−62.66	0.001	3.03	−61.66
35	66	−0.25	0.00	0.00	−0.06	−0.256	0.000	0.029	0.052	0.53	3.27	571.60	−63.14	−63.72	0.003	3.29	−62.99
36	67	−0.24	0.00	0.01	−0.05	−0.247	0.000	0.015	0.046	0.99	3.48	582.72	−66.19	−66.88	0.001	3.52	−65.97
37	68	−0.20	0.00	0.02	−0.02	−0.207	0.000	−0.006	0.022	1.85	3.78	591.15	−66.55	−67.09	0.002	3.79	−66.33
38	69	−0.17	0.00	0.03	0.00	−0.177	0.000	−0.023	0.005	2.12	3.72	601.55	−68.88	−69.33	0.001	3.73	−68.63
39	70	−0.17	0.00	0.03	0.00	−0.177	0.000	−0.023	0.005	2.13	3.80	609.28	−68.54	−68.91	0.001	3.81	−68.28
40	71	−0.20	0.00	0.03	0.00	−0.207	0.000	−0.018	0.006	1.63	3.36	619.14	−70.33	−70.14	0.001	3.39	−70.04
41	72	−0.20	0.00	0.04	0.01	−0.207	0.000	−0.030	−0.001	1.52	3.56	625.91	−69.03	−68.59	0.001	3.59	−68.73
42	73	−0.20	0.00	0.04	0.01	−0.207	0.000	−0.030	−0.001	1.15	3.19	634.86	−69.90	−69.70	0.002	3.23	−69.59
43	74	0.13	0.00	−0.02	0.01	0.139	0.000	0.032	−0.006	1.51	3.24	640.98	−67.95	−68.05	0.004	3.25	−67.67
44	75	0.13	0.00	−0.02	0.01	0.139	0.000	0.032	−0.006	0.71	2.57	649.43	−68.33	−68.46	0.002	2.59	−68.04
45	76	0.16	0.00	−0.02	0.02	0.172	0.000	0.036	−0.015	−0.30	2.11	655.32	−66.15	−66.30	0.002	2.15	−65.86
46	77	0.16	0.00	0.00	0.01	0.172	0.000	0.012	−0.009	−1.02	1.36	663.11	−65.87	−65.99	0.002	1.38	−65.61
47	78	0.14	0.00	0.00	0.01	0.150	0.000	0.009	−0.009	−1.56	0.57	668.64	−63.33	−63.71	0.002	0.59	−63.09
48	79	0.12	0.00	0.01	0.00	0.129	0.000	−0.006	−0.001	−2.09	−0.30	675.86	−62.47	−62.51	0.098	−0.29	−62.26
49	80	0.08	0.00	0.01	0.00	0.086	0.000	−0.009	−0.001	−2.64	−1.36	681.01	−59.56	−59.13	0.123	−1.35	−59.37
50	81	0.03	0.00	−0.01	0.00	0.032	0.000	0.012	0.000	−3.10	−2.13	687.48	−57.96	−57.98	0.192	−2.13	−57.78
51	82	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	−2.88	−1.53	690.38	−52.78			−1.52	−52.61
52	83	0.12	0.00	−0.02	0.01	0.128	0.000	0.031	−0.007	−2.42	−0.63	694.56	−48.89			−0.59	−48.72
53	84	0.13	0.00	−0.02	0.02	0.139	0.000	0.032	−0.016	−1.92	−0.09	696.95	−43.21			−0.02	−43.02
54	85	0.16	0.00	−0.02	0.03	0.172	0.000	0.037	−0.025	−1.63	0.64	700.74	−38.93			0.77	−38.69
55	86	0.17	0.00	−0.01	0.03	0.183	0.000	0.026	−0.027	−1.24	0.80	702.97	−33.09			0.93	−32.87
56	87	0.18	0.00	0.00	0.04	0.195	0.000	0.017	−0.039	−0.81	1.12	706.64	−28.68			1.35	−28.37
57	88	0.18	0.00	0.01	0.03	0.195	0.000	0.004	−0.031	−0.24	1.81	707.84	−21.82			1.96	−21.59
58	89	0.19	0.00	0.01	0.03	0.206	0.000	0.006	−0.031	0.12	2.17	710.95	−16.86			2.34	−16.61
59	90	0.20	0.00	0.00	0.03	0.217	0.000	0.020	−0.028	0.55	2.68	711.87	−9.70			2.83	−9.47

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 31 (Ga)																	
60	91	0.28	0.00	−0.05	0.02	0.304	0.000	0.099	0.003	−1.08	2.84	714.71	−4.47			3.12	−4.11
61	92	0.28	0.00	−0.04	0.02	0.305	0.000	0.086	−0.001	−0.93	2.82	715.70	2.61			3.02	2.90
62	93	0.29	0.00	−0.04	0.02	0.316	0.000	0.089	0.000	−0.90	3.02	718.06	8.32			3.25	8.66
63	94	0.30	0.00	−0.02	0.02	0.328	0.000	0.067	−0.007	−0.83	3.10	718.54	15.91			3.22	16.17
64	95	0.30	0.00	−0.01	0.02	0.328	0.000	0.054	−0.011	−0.61	3.12	720.65	21.88			3.24	22.16
65	96	0.27	0.00	0.02	0.00	0.296	0.000	0.007	−0.003	−0.05	3.07	720.86	29.73			3.08	29.94
66	97	0.27	0.00	0.03	−0.01	0.297	0.000	−0.006	0.003	0.01	3.00	722.65	36.01			3.06	36.29
67	98	0.27	0.00	0.04	−0.01	0.297	0.000	−0.018	0.000	−0.23	2.60	722.84	43.90			2.66	44.22
68	99	0.27	0.00	0.05	−0.02	0.298	0.000	−0.032	0.007	−0.39	2.52	724.27	50.54			2.67	51.00
69	100	0.27	0.00	0.06	−0.02	0.299	0.000	−0.044	0.003	−0.77	2.17	724.06	58.82			2.35	59.38
70	101	0.27	0.00	0.07	−0.02	0.299	0.000	−0.056	0.000	−0.89	2.03	725.18	65.77			2.31	66.48
71	102	0.25	0.00	0.06	−0.01	0.276	0.000	−0.047	−0.006	−0.82	1.74	724.57	74.46			1.93	75.14
72	103	0.24	0.00	0.06	−0.01	0.265	0.000	−0.049	−0.005	−0.63	1.57	725.39	81.71			1.78	82.50
73	104	0.21	0.00	0.04	0.00	0.230	0.000	−0.030	−0.009	−0.53	1.48	724.26	90.90			1.56	91.66
74	105	0.18	0.00	0.02	0.01	0.195	0.000	−0.010	−0.013	−0.50	1.20	724.86	98.38			1.26	99.20
75	106	0.11	0.00	−0.01	0.01	0.118	0.000	0.018	−0.008	−0.54	0.66	723.88	107.43			0.69	108.33
76	107	0.11	0.00	−0.01	0.01	0.118	0.000	0.018	−0.008	−1.13	0.11	724.43	114.94			0.15	115.95
77	108	0.11	0.00	−0.01	0.01	0.118	0.000	0.018	−0.008	−2.16	−0.84	723.57	123.88			−0.80	125.00
78	109	0.11	0.00	0.00	0.01	0.118	0.000	0.005	−0.010	−2.91	−1.55	724.01	131.51			−1.52	132.75
79	110	0.11	0.00	0.01	0.00	0.118	0.000	−0.007	−0.001	−4.11	−2.68	723.05	140.54			−2.68	141.88
80	111	0.06	0.00	0.02	−0.01	0.064	0.000	−0.023	0.009	−4.70	−3.57	723.39	148.28			−3.50	149.83
81	112	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−6.19	−5.00	722.47	157.26			−4.99	158.91
82	113	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.97	−5.73	722.38	165.43			−5.73	167.22
83	114	0.04	0.00	−0.01	−0.01	0.043	0.000	0.013	0.010	−6.50	−5.36	719.41	176.46			−5.31	178.47
Z = 32 (Ge)																	
23	55	0.17	0.00	−0.01	0.04	0.183	0.000	0.027	−0.037	0.77	2.32	391.39	27.50			2.35	25.99
24	56	0.18	0.00	0.00	0.03	0.195	0.000	0.016	−0.029	0.20	1.94	413.43	13.53			1.96	12.21
25	57	0.18	0.00	0.01	0.02	0.195	0.000	0.003	−0.021	0.13	1.88	430.98	4.05			1.86	2.90
26	58	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−0.25	1.35	451.47	−8.37			1.34	−9.32
27	59	0.14	0.00	0.01	0.00	0.151	0.000	−0.004	−0.001	−0.27	1.48	467.26	−16.09			1.46	−16.88
28	60	0.07	0.00	0.00	0.00	0.075	0.000	0.002	0.000	−0.29	0.66	486.45	−27.20			0.66	−27.83
29	61	0.14	0.00	−0.01	0.02	0.150	0.000	0.022	−0.018	−0.36	1.51	500.08	−32.77			1.51	−33.26
30	62	0.17	0.00	0.00	0.03	0.184	0.000	0.014	−0.029	−0.20	2.14	516.37	−40.99			2.15	−41.34
31	63	0.18	0.00	0.02	0.02	0.196	0.000	−0.009	−0.023	0.19	2.23	529.45	−45.99			2.23	−46.25
32	64	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	0.46	2.65	544.61	−53.08	−54.35	0.032	2.66	−53.23
33	65	0.19	0.00	0.05	−0.01	0.208	0.000	−0.046	−0.000	0.69	3.16	555.12	−55.52	−56.42	0.100	3.16	−55.59
34	66	0.19	0.00	0.06	−0.02	0.208	0.000	−0.059	0.007	0.89	3.38	568.35	−60.68	−61.62	0.030	3.41	−60.65
35	67	−0.27	0.00	0.01	−0.07	−0.276	0.000	0.023	0.063	0.49	3.64	578.04	−62.30	−62.66	0.005	3.68	−62.19
36	68	−0.27	0.00	0.01	−0.07	−0.276	0.000	0.023	0.063	0.71	3.65	590.39	−66.58	−66.98	0.006	3.74	−66.37
37	69	−0.23	0.00	0.02	−0.04	−0.237	0.000	0.001	0.040	1.78	4.16	598.83	−66.94	−67.10	0.001	4.20	−66.74
38	70	−0.21	0.00	0.03	−0.02	−0.218	0.000	−0.015	0.024	2.09	4.20	610.13	−70.18	−70.56	0.001	4.24	−69.94
39	71	−0.20	0.00	0.04	0.00	−0.207	0.000	−0.029	0.008	2.21	4.03	618.33	−70.30	−69.91	0.001	4.05	−70.06
40	72	−0.21	0.00	0.04	0.00	−0.217	0.000	−0.028	0.008	1.84	3.81	628.96	−72.86	−72.59	0.002	3.85	−72.57
41	73	−0.22	0.00	0.05	0.01	−0.227	0.000	−0.038	0.002	1.55	3.88	636.05	−71.88	−71.30	0.002	3.92	−71.58
42	74	−0.23	0.00	0.05	0.01	−0.237	0.000	−0.036	0.002	1.02	3.49	645.96	−73.72	−73.42	0.002	3.55	−73.40
43	75	0.17	0.00	0.00	0.01	0.183	0.000	0.013	−0.009	1.43	3.37	652.45	−72.13	−71.86	0.002	3.39	−71.85
44	76	0.15	0.00	−0.01	0.01	0.161	0.000	0.022	−0.007	1.07	3.11	661.42	−73.04	−73.21	0.002	3.13	−72.75
45	77	0.16	0.00	0.00	0.01	0.172	0.000	0.012	−0.009	0.32	2.60	667.54	−71.08	−71.21	0.002	2.62	−70.80
46	78	0.16	0.00	0.01	0.01	0.173	0.000	−0.001	−0.011	−0.57	1.79	676.30	−71.77	−71.86	0.004	1.82	−71.49
47	79	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−1.34	1.08	681.92	−69.32	−69.49	0.090	1.11	−69.06
48	80	0.13	0.00	0.02	0.00	0.140	0.000	−0.017	−0.003	−1.72	0.22	690.01	−69.34	−69.51	0.028	0.25	−69.10
49	81	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−2.33	−0.54	695.03	−66.29	−66.30	0.120	−0.52	−66.06
50	82	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−2.20	−1.44	702.50	−65.68	−65.62	0.244	−1.45	−65.50
51	83	0.12	0.00	0.00	0.00	0.129	0.000	0.006	0.000	−2.39	−0.67	705.36	−60.48			−0.65	−60.30
52	84	0.12	0.00	−0.01	0.01	0.128	0.000	0.019	−0.008	−1.71	−0.01	710.65	−57.69			0.01	−57.51
53	85	0.16	0.00	−0.01	0.02	0.172	0.000	0.024	−0.017	−1.52	0.76	712.94	−51.91			0.82	−51.71
54	86	0.16	0.00	−0.01	0.02	0.172	0.000	0.024	−0.017	−0.97	0.88	718.16	−49.06			0.95	−48.87

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 32 (Ge)																	
55	87	0.17	0.00	0.00	0.03	0.184	0.000	0.014	−0.029	−0.69	1.18	720.39	−43.22			1.31	−42.98
56	88	0.18	0.00	0.01	0.03	0.195	0.000	0.004	−0.031	−0.28	1.72	724.63	−39.39			1.88	−39.14
57	89	0.19	0.00	0.02	0.03	0.207	0.000	−0.006	−0.033	0.03	2.16	726.22	−32.90			2.33	−32.64
58	90	0.19	0.00	0.03	0.02	0.207	0.000	−0.019	−0.025	0.50	2.57	730.07	−28.68			2.71	−28.46
59	91	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	0.64	2.94	731.24	−21.78			3.04	−21.60
60	92	0.29	0.00	−0.05	0.02	0.316	0.000	0.102	0.004	−1.09	3.18	734.77	−17.24			3.48	−16.86
61	93	0.30	0.00	−0.04	0.02	0.327	0.000	0.092	0.002	−1.13	3.13	735.90	−10.30			3.37	−9.98
62	94	0.30	0.00	−0.03	0.02	0.327	0.000	0.079	−0.003	−0.72	3.36	738.98	−5.31			3.57	−5.00
63	95	0.30	0.00	−0.02	0.02	0.328	0.000	0.067	−0.007	−0.57	3.39	739.61	2.13			3.54	2.40
64	96	0.27	0.00	0.01	0.00	0.296	0.000	0.020	0.000	0.34	3.49	742.37	7.44			3.55	7.64
65	97	0.27	0.00	0.02	−0.01	0.296	0.000	0.006	0.007	0.14	3.31	742.80	15.08			3.37	15.29
66	98	0.27	0.00	0.04	−0.02	0.297	0.000	−0.020	0.010	0.17	3.23	745.33	20.62			3.37	20.95
67	99	0.27	0.00	0.05	−0.02	0.298	0.000	−0.032	0.007	−0.09	2.81	745.63	28.40			2.96	28.77
68	100	0.27	0.00	0.06	−0.02	0.299	0.000	−0.044	0.003	−0.39	2.67	747.82	34.28			2.89	34.76
69	101	0.27	0.00	0.07	−0.02	0.299	0.000	−0.056	0.000	−0.85	2.31	747.69	42.48			2.58	43.06
70	102	0.27	0.00	0.08	−0.03	0.300	0.000	−0.069	0.007	−1.02	2.05	749.62	48.62			2.48	49.41
71	103	0.26	0.00	0.08	−0.02	0.289	0.000	−0.070	−0.002	−1.18	1.77	749.07	57.24			2.15	58.04
72	104	0.24	0.00	0.07	−0.02	0.265	0.000	−0.062	0.002	−0.72	1.71	750.45	63.93			2.04	64.75
73	105	0.21	0.00	0.05	−0.01	0.230	0.000	−0.043	−0.001	−0.43	1.71	749.30	73.15			1.87	73.87
74	106	0.20	0.00	0.05	−0.01	0.219	0.000	−0.044	−0.001	−0.63	1.37	750.62	79.91			1.55	80.73
75	107	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−0.96	0.87	749.66	88.94			0.99	89.79
76	108	0.15	0.00	0.02	0.00	0.162	0.000	−0.015	−0.003	−0.82	0.68	750.51	96.16			0.71	97.02
77	109	0.11	0.00	0.02	0.00	0.118	0.000	−0.019	−0.002	−1.51	−0.23	749.66	105.07			−0.20	106.04
78	110	0.11	0.00	0.02	0.00	0.118	0.000	−0.019	−0.002	−2.34	−0.98	750.77	112.04			−0.95	113.12
79	111	0.11	0.00	0.02	0.00	0.118	0.000	−0.019	−0.002	−3.57	−2.14	749.89	120.99			−2.11	122.19
80	112	0.09	0.00	0.02	−0.01	0.097	0.000	−0.021	0.008	−4.20	−2.92	750.74	128.21			−2.86	129.57
81	113	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−5.56	−4.38	749.90	137.13			−4.37	138.57
82	114	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−6.36	−5.14	750.44	144.65			−5.14	146.23
83	115	0.05	0.00	−0.01	0.00	0.053	0.000	0.013	0.001	−5.89	−4.72	747.47	155.70			−4.71	157.44
84	116	0.06	0.00	−0.01	0.00	0.064	0.000	0.014	0.001	−5.03	−3.89	746.15	165.09			−3.87	166.98
Z = 33 (As)																	
24	57	0.18	0.00	0.03	−0.01	0.196	0.000	−0.023	0.004	0.57	2.35	408.12	26.13			2.33	24.64
25	58	0.19	0.00	0.04	−0.02	0.207	0.000	−0.035	0.012	0.35	2.34	426.76	15.56			2.31	14.27
26	59	0.18	0.00	0.05	−0.02	0.196	0.000	−0.048	0.010	−0.14	1.86	447.44	2.95			1.85	1.87
27	60	0.16	0.00	0.04	−0.01	0.174	0.000	−0.038	0.003	−0.04	2.00	464.34	−5.88			1.99	−6.79
28	61	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	0.05	1.50	483.46	−16.92			1.50	−17.67
29	62	0.14	0.00	0.01	0.01	0.151	0.000	−0.003	−0.011	0.25	2.07	498.48	−23.87			2.05	−24.48
30	63	0.17	0.00	0.02	0.01	0.184	0.000	−0.011	−0.013	0.37	2.19	515.52	−32.85			2.18	−33.32
31	64	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	0.58	2.71	529.23	−38.48			2.70	−38.85
32	65	0.19	0.00	0.05	−0.01	0.208	0.000	−0.046	−0.000	0.72	3.05	544.71	−45.90			3.05	−46.14
33	66	0.20	0.00	0.07	−0.02	0.220	0.000	−0.069	0.005	0.60	3.40	556.90	−50.01	−51.50	0.680	3.39	−50.63
34	67	0.20	0.00	0.08	−0.03	0.220	0.000	−0.082	0.012	0.65	3.66	570.78	−55.82	−56.65	0.100	3.68	−55.87
35	68	−0.28	0.00	0.02	−0.07	−0.287	0.000	0.014	0.065	0.29	3.81	581.59	−58.56	−58.90	0.043	3.82	−58.55
36	69	−0.29	0.00	0.02	−0.07	−0.297	0.000	0.017	0.065	0.36	3.97	594.01	−62.91	−63.09	0.031	4.03	−62.79
37	70	−0.26	0.00	0.02	−0.05	−0.267	0.000	0.008	0.048	1.41	4.33	603.60	−64.42	−64.34	0.050	4.35	−64.29
38	71	−0.25	0.00	0.03	−0.04	−0.258	0.000	−0.006	0.042	1.63	4.41	615.08	−67.83	−67.89	0.004	4.45	−67.64
39	72	−0.25	0.00	0.03	−0.03	−0.258	0.000	−0.007	0.033	1.77	4.62	623.86	−68.55	−68.23	0.004	4.64	−68.34
40	73	−0.23	0.00	0.04	−0.01	−0.238	0.000	−0.023	0.018	1.77	4.30	634.80	−71.41	−70.96	0.004	4.33	−71.17
41	74	−0.23	0.00	0.05	0.00	−0.238	0.000	−0.035	0.011	1.60	4.18	643.03	−71.57	−70.86	0.002	4.21	−71.31
42	75	−0.23	0.00	0.05	0.00	−0.238	0.000	−0.035	0.011	1.31	3.83	653.10	−73.57	−73.03	0.002	3.88	−73.28
43	76	−0.24	0.00	0.06	0.01	−0.248	0.000	−0.045	0.005	0.95	3.62	660.60	−73.00	−72.29	0.002	3.66	−72.71
44	77	0.16	0.00	0.02	−0.01	0.173	0.000	−0.014	0.007	1.38	3.52	669.60	−73.93	−73.92	0.002	3.54	−73.65
45	78	0.16	0.00	0.01	0.00	0.173	0.000	−0.001	−0.001	0.77	3.03	676.61	−72.86	−72.82	0.010	3.04	−72.60
46	79	0.16	0.00	0.03	0.00	0.174	0.000	−0.025	−0.005	−0.27	2.15	685.61	−73.80	−73.64	0.006	2.17	−73.52
47	80	0.16	0.00	0.03	−0.01	0.173	0.000	−0.026	0.005	−1.05	1.43	692.13	−72.24	−72.16	0.023	1.45	−71.98
48	81	0.14	0.00	0.03	−0.01	0.151	0.000	−0.029	0.005	−1.57	0.57	700.39	−72.43	−72.53	0.006	0.60	−72.17
49	82	0.12	0.00	0.02	−0.01	0.129	0.000	−0.019	0.007	−2.03	−0.22	706.30	−70.26	−70.32	0.200	−0.20	−70.03

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
***Z* = 33 (As)**																	
50	83	0.07	0.00	0.00	0.00	0.075	0.000	0.002	0.000	−2.00	−0.82	713.62	−69.52	−69.88	0.220	−0.82	−69.32
51	84	0.12	0.00	0.01	−0.01	0.129	0.000	−0.007	0.009	−1.99	−0.27	717.55	−65.38			−0.25	−65.18
52	85	0.12	0.00	0.01	−0.01	0.129	0.000	−0.007	0.009	−1.30	0.37	723.00	−62.76			0.39	−62.57
53	86	0.14	0.00	0.01	0.00	0.151	0.000	−0.004	−0.001	−0.81	1.14	726.12	−57.81			1.15	−57.64
54	87	0.16	0.00	0.01	0.01	0.173	0.000	−0.001	−0.011	−0.48	1.74	731.00	−54.61			1.78	−54.44
55	88	0.17	0.00	0.01	0.02	0.184	0.000	0.002	−0.021	−0.23	1.74	734.33	−49.87			1.80	−49.69
56	89	0.19	0.00	0.03	0.02	0.207	0.000	−0.019	−0.025	−0.03	2.25	738.74	−46.22			2.36	−45.99
57	90	0.19	0.00	0.04	0.01	0.208	0.000	−0.032	−0.018	0.32	2.65	741.15	−40.55			2.74	−40.36
58	91	0.19	0.00	0.04	0.01	0.208	0.000	−0.032	−0.018	0.76	2.94	745.25	−36.58			3.04	−36.38
59	92	0.19	0.00	0.05	0.00	0.208	0.000	−0.045	−0.010	1.21	3.39	747.10	−30.36			3.50	−30.17
60	93	0.29	0.00	−0.05	0.01	0.316	0.000	0.101	0.015	−0.88	3.52	750.86	−26.05			3.77	−25.71
61	94	0.29	0.00	−0.04	0.01	0.316	0.000	0.088	0.010	−0.68	3.54	752.68	−19.79			3.72	−19.53
62	95	0.30	0.00	−0.03	0.01	0.328	0.000	0.078	0.007	−0.49	3.66	755.97	−15.01			3.83	−14.76
63	96	0.30	0.00	−0.01	0.01	0.329	0.000	0.053	−0.001	−0.27	3.78	757.25	−8.22			3.85	−8.04
64	97	0.27	0.00	0.02	−0.01	0.296	0.000	0.006	0.007	0.55	3.84	760.15	−3.05			3.90	−2.88
65	98	0.27	0.00	0.03	−0.02	0.297	0.000	−0.007	0.013	0.36	3.59	761.37	3.80			3.68	4.02
66	99	0.27	0.00	0.05	−0.02	0.298	0.000	−0.032	0.007	0.34	3.53	763.97	9.27			3.68	9.57
67	100	0.27	0.00	0.06	−0.04	0.298	0.000	−0.047	0.023	−0.11	2.95	765.13	16.18			3.29	16.70
68	101	0.27	0.00	0.07	−0.03	0.299	0.000	−0.057	0.010	−0.42	2.85	767.38	22.01			3.15	22.53
69	102	0.27	0.00	0.08	−0.03	0.300	0.000	−0.069	0.007	−0.94	2.41	768.02	29.44			2.77	30.06
70	103	0.25	0.00	0.07	−0.02	0.277	0.000	−0.060	0.001	−0.54	2.37	769.81	35.72			2.65	36.30
71	104	0.25	0.00	0.08	−0.02	0.278	0.000	−0.072	−0.002	−1.04	1.95	770.08	43.52			2.30	44.22
72	105	0.23	0.00	0.07	−0.02	0.254	0.000	−0.064	0.002	−0.59	1.93	771.48	50.19			2.24	50.90
73	106	0.21	0.00	0.06	−0.02	0.230	0.000	−0.056	0.006	−0.44	1.81	771.12	58.63			2.06	59.34
74	107	0.20	0.00	0.06	−0.01	0.220	0.000	−0.056	−0.003	−0.56	1.55	772.43	65.39			1.78	66.17
75	108	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−0.84	1.07	772.09	73.79			1.24	74.58
76	109	0.15	0.00	0.04	−0.01	0.163	0.000	−0.039	0.003	−0.76	0.80	773.08	80.88			0.93	81.71
77	110	0.11	0.00	0.02	0.00	0.118	0.000	−0.019	−0.002	−1.29	0.03	772.73	89.30			0.06	90.13
78	111	0.11	0.00	0.03	0.00	0.119	0.000	−0.031	−0.004	−2.18	−0.78	773.96	96.14			−0.71	97.12
79	112	0.11	0.00	0.02	0.00	0.118	0.000	−0.019	−0.002	−3.38	−1.92	773.68	104.49			−1.89	105.53
80	113	0.09	0.00	0.03	−0.01	0.097	0.000	−0.033	0.007	−4.09	−2.78	774.65	111.59			−2.68	112.81
81	114	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−5.38	−4.20	774.38	119.93			−4.19	121.18
82	115	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−6.26	−5.03	775.05	127.34			−5.03	128.71
83	116	0.04	0.00	−0.01	0.00	0.043	0.000	0.013	0.001	−5.73	−4.59	772.65	137.81			−4.58	139.33
84	117	0.08	0.00	0.00	0.00	0.085	0.000	0.003	0.000	−4.87	−3.64	771.26	147.27			−3.64	148.93
85	118	0.10	0.00	0.00	0.00	0.107	0.000	0.004	0.000	−4.62	−3.29	768.70	157.90			−3.30	159.70
86	119	0.11	0.00	0.00	0.00	0.118	0.000	0.005	0.000	−3.79	−2.44	767.15	167.52			−2.45	169.48
***Z* = 34 (Se)**																	
25	59	0.20	0.00	0.06	−0.04	0.219	0.000	−0.059	0.026	0.32	2.43	424.29	25.32			2.46	23.97
26	60	0.19	0.00	0.07	−0.04	0.208	0.000	−0.073	0.025	−0.19	1.99	446.05	11.62			2.05	10.49
27	61	0.16	0.00	0.05	−0.02	0.174	0.000	−0.051	0.011	0.14	2.07	463.26	2.49			2.07	1.48
28	62	−0.20	0.00	−0.02	−0.06	−0.204	0.000	0.043	0.051	−0.39	1.54	483.51	−9.69			1.60	−10.48
29	63	−0.20	0.00	−0.01	−0.06	−0.205	0.000	0.032	0.053	0.07	2.16	498.71	−16.82			2.19	−17.49
30	64	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	0.61	2.60	516.52	−26.55			2.60	−27.12
31	65	0.19	0.00	0.05	−0.01	0.208	0.000	−0.046	−0.000	0.79	3.07	530.51	−32.48			3.06	−32.93
32	66	0.20	0.00	0.07	−0.02	0.220	0.000	−0.069	0.005	0.72	3.37	547.09	−40.98			3.39	−41.29
33	67	0.20	0.00	0.08	−0.03	0.220	0.000	−0.082	0.012	0.68	3.66	560.02	−45.84			3.67	−46.06
34	68	0.21	0.00	0.10	−0.04	0.233	0.000	−0.106	0.016	0.38	3.85	575.44	−53.19	−54.22	0.033	3.90	−53.28
35	69	−0.30	0.00	0.02	−0.07	−0.307	0.000	0.019	0.064	0.08	3.96	586.52	−56.20	−56.30	0.034	3.99	−56.24
36	70	−0.30	0.00	0.02	−0.07	−0.307	0.000	0.019	0.064	0.27	4.06	600.01	−61.61	−62.05	0.062	4.13	−61.54
37	71	−0.29	0.00	0.02	−0.07	−0.297	0.000	0.017	0.065	0.98	4.53	609.70	−63.24	−63.12	0.032	4.58	−63.13
38	72	−0.29	0.00	0.03	−0.06	−0.298	0.000	0.005	0.059	1.07	4.55	622.22	−67.69	−67.89	0.012	4.63	−67.50
39	73	−0.27	0.00	0.03	−0.04	−0.278	0.000	−0.002	0.041	1.63	4.76	631.21	−68.61	−68.22	0.011	4.80	−68.42
40	74	−0.23	0.00	0.04	−0.01	−0.238	0.000	−0.023	0.018	2.00	4.56	642.98	−72.31	−72.21	0.002	4.60	−72.09
41	75	−0.23	0.00	0.04	−0.01	−0.238	0.000	−0.023	0.018	1.85	4.46	651.40	−72.65	−72.17	0.002	4.49	−72.42
42	76	−0.24	0.00	0.05	0.00	−0.248	0.000	−0.033	0.011	1.36	4.10	662.42	−75.60	−75.25	0.002	4.15	−75.33
43	77	−0.25	0.00	0.05	0.00	−0.258	0.000	−0.031	0.012	1.07	3.83	670.17	−75.28	−74.60	0.002	3.88	−75.00

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 34 (Se)																	
44	78	0.16	0.00	0.03	−0.01	0.173	0.000	−0.026	0.005	1.71	3.75	680.06	−77.10	−77.03	0.002	3.78	−76.83
45	79	0.16	0.00	0.03	−0.01	0.173	0.000	−0.026	0.005	1.06	3.25	687.25	−76.22	−75.92	0.002	3.28	−75.95
46	80	0.16	0.00	0.04	−0.01	0.174	0.000	−0.038	0.003	−0.01	2.39	697.14	−78.03	−77.76	0.002	2.43	−77.75
47	81	0.16	0.00	0.04	−0.01	0.174	0.000	−0.038	0.003	−0.85	1.63	703.86	−76.68	−76.39	0.002	1.67	−76.41
48	82	0.14	0.00	0.05	−0.02	0.152	0.000	−0.053	0.012	−1.49	0.75	713.01	−77.76	−77.59	0.002	0.82	−77.46
49	83	0.12	0.00	0.03	−0.01	0.129	0.000	−0.031	0.006	−1.75	0.05	719.01	−75.68	−75.34	0.004	0.08	−75.44
50	84	0.07	0.00	0.01	0.00	0.075	0.000	−0.010	−0.001	−1.72	−0.57	727.19	−75.80	−75.95	0.015	−0.56	−75.59
51	85	0.12	0.00	0.02	−0.01	0.129	0.000	−0.019	0.007	−1.57	0.09	731.17	−71.71	−72.43	0.030	0.12	−71.50
52	86	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−0.86	0.74	737.44	−69.91	−70.54	0.016	0.76	−69.71
53	87	0.14	0.00	0.02	0.00	0.151	0.000	−0.016	−0.003	−0.35	1.53	740.69	−65.08	−66.58	0.039	1.56	−64.90
54	88	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	0.00	2.16	746.36	−62.69	−63.88	0.049	2.19	−62.51
55	89	0.18	0.00	0.03	0.01	0.196	0.000	−0.022	−0.015	0.07	2.27	749.73	−57.98			2.33	−57.78
56	90	0.19	0.00	0.05	0.01	0.208	0.000	−0.044	−0.020	0.21	2.62	755.09	−55.27			2.75	−55.02
57	91	0.20	0.00	0.05	0.01	0.220	0.000	−0.042	−0.020	0.44	2.96	757.68	−49.79			3.09	−49.56
58	92	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	0.88	3.38	762.43	−46.47			3.49	−46.25
59	93	−0.28	0.00	−0.03	−0.06	−0.283	0.000	0.069	0.043	−0.08	3.39	764.85	−40.81			3.86	−40.25
60	94	0.31	0.00	−0.04	0.01	0.339	0.000	0.094	0.013	−1.11	3.74	769.15	−37.04			3.98	−36.72
61	95	0.30	0.00	−0.03	0.00	0.328	0.000	0.077	0.018	−0.74	3.65	771.19	−31.02			3.83	−30.75
62	96	0.31	0.00	−0.02	0.01	0.340	0.000	0.069	0.004	−0.55	3.72	775.28	−27.03			3.88	−26.78
63	97	0.31	0.00	−0.01	0.01	0.340	0.000	0.056	0.000	−0.50	3.90	776.60	−20.28			4.01	−20.08
64	98	0.30	0.00	0.01	−0.01	0.330	0.000	0.026	0.011	−0.01	3.99	780.20	−15.81			4.10	−15.61
65	99	0.29	0.00	0.03	−0.02	0.319	0.000	−0.002	0.013	0.05	3.75	781.52	−9.06			3.86	−8.84
66	100	0.27	0.00	0.06	−0.03	0.298	0.000	−0.045	0.013	0.26	3.56	784.97	−4.43			3.82	−4.05
67	101	0.27	0.00	0.07	−0.04	0.299	0.000	−0.059	0.019	−0.28	3.01	786.18	2.42			3.39	2.94
68	102	0.27	0.00	0.08	−0.04	0.300	0.000	−0.071	0.016	−0.69	2.71	789.32	7.36			3.18	7.99
69	103	0.28	0.00	0.09	−0.04	0.312	0.000	−0.080	0.012	−1.42	2.28	790.04	14.70			2.79	15.42
70	104	0.27	0.00	0.09	−0.04	0.301	0.000	−0.083	0.013	−1.31	2.17	792.59	20.22			2.73	21.03
71	105	0.25	0.00	0.09	−0.03	0.278	0.000	−0.085	0.005	−1.32	1.88	792.81	28.08			2.38	28.86
72	106	0.24	0.00	0.08	−0.03	0.266	0.000	−0.075	0.009	−0.92	1.86	794.89	34.07			2.31	34.85
73	107	0.22	0.00	0.09	−0.03	0.244	0.000	−0.091	0.008	−0.95	1.37	794.97	42.06			1.94	43.02
74	108	0.21	0.00	0.07	−0.02	0.231	0.000	−0.068	0.004	−0.54	1.47	796.58	48.53			1.81	49.33
75	109	0.19	0.00	0.07	−0.02	0.209	0.000	−0.071	0.005	−0.87	1.21	796.09	57.08			1.57	57.97
76	110	0.17	0.00	0.06	−0.02	0.186	0.000	−0.062	0.009	−0.84	0.92	797.74	63.50			1.23	64.40
77	111	0.15	0.00	0.05	−0.01	0.163	0.000	−0.051	0.002	−1.38	0.43	797.17	72.14			0.62	73.01
78	112	0.11	0.00	0.04	0.00	0.119	0.000	−0.043	−0.005	−1.78	−0.38	799.02	78.36			−0.24	79.26
79	113	0.11	0.00	0.03	−0.01	0.119	0.000	−0.032	0.006	−2.97	−1.52	798.81	86.64			−1.43	87.60
80	114	0.09	0.00	0.03	−0.01	0.097	0.000	−0.033	0.007	−3.66	−2.36	800.38	93.15			−2.26	94.21
81	115	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−5.02	−3.84	800.22	101.38			−3.83	102.46
82	116	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.96	−4.75	801.57	108.10			−4.75	109.29
83	117	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−5.34	−4.30	799.22	118.53			−4.30	119.84
84	118	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−4.39	−3.41	798.48	127.34			−3.41	128.78
85	119	0.09	0.00	0.00	0.00	0.096	0.000	0.003	0.000	−4.09	−2.86	795.76	138.12			−2.86	139.71
86	120	0.10	0.00	0.00	0.00	0.107	0.000	0.004	0.000	−3.21	−1.98	794.77	147.19			−1.98	148.93
Z = 35 (Br)																	
26	61	0.17	0.00	0.06	−0.04	0.185	0.000	−0.064	0.028	0.49	2.16	440.95	24.01			2.21	22.76
27	62	0.16	0.00	0.05	−0.03	0.174	0.000	−0.052	0.021	0.61	2.34	459.15	13.89			2.34	12.77
28	63	−0.27	0.00	−0.03	−0.07	−0.272	0.000	0.068	0.053	−0.73	1.43	480.01	1.10			1.50	0.20
29	64	−0.26	0.00	−0.01	−0.07	−0.264	0.000	0.044	0.058	−0.10	2.28	496.05	−6.87			2.30	−7.66
30	65	−0.27	0.00	−0.01	−0.07	−0.275	0.000	0.046	0.058	0.02	3.13	513.68	−16.42			3.16	−17.06
31	66	−0.28	0.00	0.01	−0.07	−0.286	0.000	0.025	0.062	0.24	3.17	529.15	−23.82			3.17	−24.36
32	67	−0.28	0.00	0.01	−0.07	−0.286	0.000	0.025	0.062	0.35	3.45	545.97	−32.58			3.47	−32.98
33	68	−0.29	0.00	0.02	−0.07	−0.297	0.000	0.017	0.065	0.20	3.76	559.90	−38.44			3.75	−38.76
34	69	−0.30	0.00	0.02	−0.07	−0.307	0.000	0.019	0.064	−0.02	3.81	575.69	−46.15			3.83	−46.35
35	70	−0.32	0.00	0.02	−0.07	−0.327	0.000	0.024	0.063	−0.29	3.98	588.15	−50.53			3.97	−51.12
36	71	−0.35	0.00	0.03	−0.08	−0.357	0.000	0.022	0.073	−0.81	4.04	602.32	−56.64	−57.06	0.568	4.08	−56.66
37	72	−0.35	0.00	0.03	−0.08	−0.357	0.000	0.022	0.073	−0.35	4.47	613.03	−59.27	−59.01	0.060	4.49	−59.26
38	73	0.33	0.00	0.04	−0.06	0.366	0.000	−0.009	0.049	0.03	4.66	625.58	−63.76	−63.63	0.051	4.71	−63.66

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
***Z* = 35 (Br)**																	
39	74	0.36	0.00	0.04	−0.04	0.401	0.000	0.002	0.029	−0.38	4.85	635.55	−65.66	−65.31	0.015	4.86	−65.56
40	75	−0.27	0.00	0.03	−0.03	−0.278	0.000	−0.003	0.032	1.67	4.77	647.40	−69.44	−69.14	0.014	4.80	−69.27
41	76	−0.27	0.00	0.04	−0.02	−0.278	0.000	−0.015	0.027	1.56	4.76	656.66	−70.62	−70.29	0.009	4.78	−70.44
42	77	−0.26	0.00	0.05	−0.01	−0.268	0.000	−0.028	0.021	1.35	4.38	667.90	−73.79	−73.24	0.003	4.42	−73.56
43	78	−0.27	0.00	0.05	0.00	−0.278	0.000	−0.027	0.012	1.02	4.14	676.53	−74.35	−73.45	0.004	4.16	−74.12
44	79	−0.27	0.00	0.05	0.00	−0.278	0.000	−0.027	0.012	0.69	4.08	686.59	−76.33	−76.07	0.002	4.12	−76.07
45	80	0.13	0.00	0.02	−0.01	0.140	0.000	−0.018	0.007	1.93	3.45	694.80	−76.48	−75.89	0.002	3.46	−76.25
46	81	0.13	0.00	0.03	−0.01	0.140	0.000	−0.030	0.006	0.86	2.59	704.86	−78.46	−77.97	0.002	2.61	−78.21
47	82	0.13	0.00	0.03	−0.01	0.140	0.000	−0.030	0.006	0.09	1.91	712.38	−77.91	−77.50	0.002	1.93	−77.67
48	83	0.12	0.00	0.03	−0.01	0.129	0.000	−0.031	0.006	−0.75	0.92	721.81	−79.27	−79.01	0.004	0.94	−79.03
49	84	0.09	0.00	0.02	−0.01	0.097	0.000	−0.021	0.008	−1.16	0.13	728.74	−78.13	−77.80	0.015	0.14	−77.91
50	85	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−1.54	−0.64	737.24	−78.56	−78.61	0.019	−0.64	−78.35
51	86	−0.09	0.00	0.00	0.00	−0.094	0.000	0.003	−0.000	−1.15	−0.08	742.16	−75.40	−75.64	0.011	−0.07	−75.21
52	87	−0.10	0.00	0.00	0.00	−0.105	0.000	0.004	−0.000	−0.29	0.79	748.36	−73.54	−73.86	0.018	0.79	−73.35
53	88	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	0.30	1.75	752.25	−69.36	−70.73	0.038	1.77	−69.17
54	89	0.18	0.00	0.01	0.00	0.195	0.000	0.002	−0.001	0.44	2.74	757.70	−66.73	−68.57	0.060	2.77	−66.56
55	90	0.19	0.00	0.02	0.00	0.206	0.000	−0.009	−0.003	0.60	2.78	761.93	−62.89	−64.62	0.077	2.81	−62.73
56	91	0.22	0.00	0.04	0.01	0.241	0.000	−0.026	−0.019	0.43	3.13	767.43	−60.32	−61.51	0.073	3.22	−60.11
57	92	0.22	0.00	0.04	0.00	0.241	0.000	−0.028	−0.009	0.80	3.49	770.79	−55.61	−56.58	0.050	3.55	−55.44
58	93	0.22	0.00	0.04	0.00	0.241	0.000	−0.028	−0.009	1.15	3.77	775.80	−52.56			3.84	−52.38
59	94	0.29	0.00	−0.03	0.00	0.317	0.000	0.075	0.017	−0.51	3.84	778.92	−47.60			3.97	−47.38
60	95	0.31	0.00	−0.03	0.01	0.339	0.000	0.081	0.009	−1.00	3.83	783.70	−44.30			3.99	−44.06
61	96	0.31	0.00	−0.02	0.00	0.340	0.000	0.068	0.014	−0.92	3.75	786.48	−39.02			3.86	−38.83
62	97	0.31	0.00	−0.01	0.01	0.340	0.000	0.056	0.000	−0.56	3.83	790.67	−35.13			3.94	−34.95
63	98	0.31	0.00	−0.01	0.00	0.340	0.000	0.055	0.010	−0.60	3.96	792.78	−29.17			4.04	−29.01
64	99	0.30	0.00	0.01	−0.01	0.330	0.000	0.026	0.011	−0.06	4.08	796.45	−24.78			4.16	−24.61
65	100	0.29	0.00	0.03	−0.02	0.319	0.000	−0.002	0.013	0.03	3.89	798.44	−18.69			3.97	−18.51
66	101	0.28	0.00	0.05	−0.03	0.309	0.000	−0.031	0.016	0.11	3.56	802.12	−14.30			3.75	−14.01
67	102	0.28	0.00	0.06	−0.03	0.310	0.000	−0.043	0.013	−0.36	3.25	803.80	−7.91			3.46	−7.59
68	103	0.28	0.00	0.07	−0.04	0.310	0.000	−0.056	0.019	−0.75	2.90	807.08	−3.12			3.26	−2.62
69	104	0.29	0.00	0.09	−0.04	0.324	0.000	−0.078	0.011	−1.62	2.46	808.50	3.53			2.90	4.14
70	105	0.28	0.00	0.09	−0.04	0.312	0.000	−0.080	0.012	−1.46	2.33	811.15	8.95			2.82	9.64
71	106	0.27	0.00	0.09	−0.04	0.301	0.000	−0.083	0.013	−1.56	2.02	812.07	16.11			2.51	16.83
72	107	0.25	0.00	0.08	−0.03	0.277	0.000	−0.073	0.008	−0.89	2.18	814.05	22.20			2.57	22.86
73	108	0.25	0.00	0.08	−0.04	0.277	0.000	−0.075	0.018	−0.90	1.86	814.61	29.71			2.34	30.51
74	109	0.21	0.00	0.07	−0.03	0.231	0.000	−0.069	0.014	−0.13	1.88	816.37	36.02			2.26	36.78
75	110	0.20	0.00	0.06	−0.03	0.219	0.000	−0.058	0.017	−0.51	1.60	816.56	43.91			1.92	44.66
76	111	−0.15	0.00	0.06	0.03	−0.155	0.000	−0.060	−0.017	−0.27	1.22	818.37	50.17			1.59	51.03
77	112	−0.15	0.00	0.06	0.03	−0.155	0.000	−0.060	−0.017	−1.14	0.44	818.72	57.88			0.81	58.81
78	113	0.11	0.00	0.04	0.00	0.119	0.000	−0.043	−0.005	−1.52	−0.14	820.41	64.27			−0.02	65.04
79	114	0.09	0.00	0.02	0.00	0.097	0.000	−0.021	−0.002	−2.54	−1.30	820.83	71.92			−1.27	72.68
80	115	0.09	0.00	0.03	−0.01	0.097	0.000	−0.033	0.007	−3.54	−2.24	822.56	78.26			−2.14	79.17
81	116	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−5.01	−3.83	823.13	85.76			−3.83	86.69
82	117	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.15	−4.88	824.67	92.30			−4.88	93.32
83	118	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−5.41	−4.32	822.79	102.24			−4.32	103.38
84	119	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−4.44	−3.43	822.11	111.00			−3.43	112.25
85	120	0.06	0.00	0.00	0.00	0.064	0.000	0.002	0.000	−3.87	−2.81	819.91	121.26			−2.82	122.65
86	121	0.09	0.00	0.00	0.00	0.096	0.000	0.003	0.000	−2.98	−1.85	818.88	130.37			−1.85	131.89
87	122	0.10	0.00	0.02	0.00	0.107	0.000	−0.020	−0.002	−2.54	−1.40	816.59	140.73			−1.37	142.42
88	123	0.11	0.00	0.01	0.00	0.118	0.000	−0.007	−0.001	−1.68	−0.54	815.40	149.99			−0.54	151.81
***Z* = 36 (Kr)**																	
27	63	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	1.12	2.21	456.83	23.50			2.19	22.26
28	64	−0.13	0.00	0.00	−0.01	−0.135	0.000	0.007	0.009	0.66	1.57	478.49	9.91			1.56	8.84
29	65	−0.14	0.00	0.01	−0.01	−0.146	0.000	−0.003	0.011	1.22	2.34	494.84	1.63			2.33	0.71
30	66	−0.27	0.00	−0.01	−0.07	−0.275	0.000	0.046	0.058	0.30	2.84	513.86	−9.32			2.91	−10.01
31	67	−0.27	0.00	0.00	−0.07	−0.275	0.000	0.034	0.060	0.66	3.26	529.18	−16.57			3.29	−17.17
32	68	−0.30	0.00	0.01	−0.07	−0.306	0.000	0.030	0.061	0.38	3.59	546.97	−26.29			3.65	−26.74

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 36 (Kr)																	
33	69	−0.32	0.00	0.02	−0.07	−0.327	0.000	0.024	0.063	0.06	3.92	561.11	−32.35			3.94	−32.74
34	70	−0.32	0.00	0.02	−0.07	−0.327	0.000	0.024	0.063	−0.10	3.89	577.98	−41.15			3.94	−41.40
35	71	−0.35	0.00	0.03	−0.08	−0.357	0.000	0.022	0.073	−0.74	4.03	591.12	−46.22	−46.92	0.652	4.06	−46.40
36	72	−0.36	0.00	0.03	−0.08	−0.366	0.000	0.025	0.073	−0.91	4.05	606.72	−53.76	−53.94	0.008	4.13	−53.81
37	73	−0.36	0.00	0.03	−0.08	−0.366	0.000	0.025	0.073	−0.50	4.32	617.80	−56.76	−56.55	0.007	4.37	−56.78
38	74	0.36	0.00	0.04	−0.05	0.401	0.000	0.001	0.039	−0.92	4.35	631.49	−62.38	−62.33	0.002	4.41	−62.32
39	75	0.36	0.00	0.05	−0.04	0.402	0.000	−0.010	0.024	−0.89	4.39	641.82	−64.63	−64.32	0.008	4.41	−64.56
40	76	0.36	0.00	0.06	−0.05	0.403	0.000	−0.024	0.029	−0.71	4.50	654.42	−69.16	−69.01	0.004	4.58	−68.99
41	77	0.32	0.00	0.05	−0.04	0.355	0.000	−0.022	0.025	0.39	4.55	663.81	−70.48	−70.17	0.002	4.59	−70.32
42	78	−0.24	0.00	0.05	0.00	−0.248	0.000	−0.033	0.011	1.84	4.44	675.69	−74.29	−74.18	0.001	4.48	−74.10
43	79	−0.25	0.00	0.06	0.01	−0.258	0.000	−0.043	0.006	1.46	4.22	684.49	−75.02	−74.44	0.004	4.25	−74.81
44	80	−0.26	0.00	0.05	0.00	−0.268	0.000	−0.029	0.012	1.02	3.79	695.82	−78.28	−77.89	0.001	3.84	−78.03
45	81	0.12	0.00	0.02	−0.01	0.129	0.000	−0.019	0.007	2.25	3.41	703.97	−78.35	−77.69	0.002	3.42	−78.14
46	82	0.12	0.00	0.03	−0.01	0.129	0.000	−0.031	0.006	1.15	2.56	714.90	−81.21	−80.59	0.002	2.58	−80.98
47	83	0.12	0.00	0.03	−0.01	0.129	0.000	−0.031	0.006	0.38	1.89	722.58	−80.82	−79.98	0.003	1.91	−80.59
48	84	0.08	0.00	0.02	0.00	0.086	0.000	−0.021	−0.002	−0.27	0.80	732.97	−83.14	−82.43	0.003	0.81	−82.92
49	85	0.07	0.00	0.02	0.00	0.075	0.000	−0.022	−0.002	−1.04	0.08	739.99	−82.09	−81.48	0.002	0.09	−81.88
50	86	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.76	−0.75	749.40	−83.43	−83.27	0.000	−0.75	−83.23
51	87	−0.07	0.00	0.01	0.00	−0.073	0.000	−0.010	0.001	−1.12	−0.17	754.44	−80.40	−80.71	0.000	−0.16	−80.21
52	88	−0.10	0.00	0.00	0.00	−0.105	0.000	0.004	−0.000	−0.28	0.82	761.35	−79.24	−79.69	0.013	0.83	−79.05
53	89	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	0.55	1.87	765.30	−75.12	−76.73	0.052	1.89	−74.93
54	90	0.16	0.00	0.01	0.00	0.173	0.000	−0.001	−0.001	0.94	2.79	771.64	−73.38	−74.97	0.019	2.81	−73.20
55	91	0.19	0.00	0.02	0.01	0.206	0.000	−0.008	−0.013	0.89	2.97	775.85	−69.53	−71.31	0.057	3.02	−69.34
56	92	0.22	0.00	0.04	0.01	0.241	0.000	−0.026	−0.019	0.69	3.34	782.13	−67.73	−68.79	0.012	3.44	−67.51
57	93	0.22	0.00	0.05	0.00	0.242	0.000	−0.040	−0.011	0.99	3.66	785.66	−63.19	−64.02	0.100	3.76	−62.98
58	94	0.28	0.00	−0.01	−0.01	0.306	0.000	0.046	0.018	0.17	3.99	791.39	−60.85			4.12	−60.62
59	95	0.30	0.00	−0.02	0.00	0.328	0.000	0.065	0.013	−0.70	3.83	794.88	−56.26			3.95	−56.05
60	96	0.31	0.00	−0.02	0.00	0.340	0.000	0.068	0.014	−1.02	3.78	800.45	−53.77			3.93	−53.53
61	97	0.31	0.00	−0.01	0.00	0.340	0.000	0.055	0.010	−0.96	3.65	803.40	−48.64			3.76	−48.46
62	98	0.32	0.00	0.00	0.00	0.352	0.000	0.045	0.006	−0.92	3.67	808.39	−45.56			3.79	−45.37
63	99	0.31	0.00	0.01	−0.01	0.341	0.000	0.029	0.012	−0.65	3.55	810.86	−39.96			3.64	−39.80
64	100	0.31	0.00	0.02	−0.02	0.342	0.000	0.015	0.017	−0.46	3.74	815.19	−36.22			3.88	−36.01
65	101	0.30	0.00	0.03	−0.02	0.331	0.000	0.000	0.013	−0.37	3.64	817.19	−30.15			3.75	−29.97
66	102	0.30	0.00	0.05	−0.03	0.332	0.000	−0.026	0.015	−0.48	3.39	821.50	−26.39			3.60	−26.10
67	103	0.30	0.00	0.06	−0.04	0.333	0.000	−0.039	0.021	−0.99	3.03	823.33	−20.15			3.33	−19.76
68	104	0.29	0.00	0.07	−0.04	0.322	0.000	−0.054	0.018	−1.07	2.81	827.18	−15.93			3.16	−15.46
69	105	0.30	0.00	0.08	−0.04	0.334	0.000	−0.064	0.014	−1.79	2.44	828.62	−9.29			2.82	−8.79
70	106	0.29	0.00	0.09	−0.04	0.324	0.000	−0.078	0.011	−1.73	2.36	831.90	−4.51			2.85	−3.87
71	107	0.28	0.00	0.09	−0.04	0.312	0.000	−0.080	0.012	−1.73	2.12	832.83	2.64			2.60	3.30
72	108	0.27	0.00	0.08	−0.04	0.300	0.000	−0.071	0.016	−1.13	2.27	835.49	8.05			2.73	8.72
73	109	0.25	0.00	0.09	−0.04	0.278	0.000	−0.087	0.015	−0.97	2.12	835.97	15.64			2.67	16.45
74	110	0.21	0.00	0.07	−0.03	0.231	0.000	−0.069	0.014	0.13	2.17	838.35	21.33			2.55	22.01
75	111	−0.15	0.00	0.06	0.03	−0.155	0.000	−0.060	−0.017	0.36	1.84	838.65	29.10			2.18	29.79
76	112	−0.15	0.00	0.06	0.03	−0.155	0.000	−0.060	−0.017	−0.03	1.42	841.15	34.68			1.78	35.44
77	113	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	−0.82	0.42	841.79	42.10			0.80	42.95
78	114	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	−1.39	−0.20	844.15	47.81			0.19	48.74
79	115	0.09	0.00	0.03	0.00	0.097	0.000	−0.032	−0.003	−2.26	−1.02	844.30	55.74			−0.95	56.42
80	116	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−3.10	−2.01	846.70	61.41			−2.00	62.11
81	117	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−4.91	−3.71	847.42	68.75			−3.70	69.54
82	118	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.11	−4.80	849.62	74.63			−4.80	75.51
83	119	−0.03	0.00	0.01	0.00	−0.032	0.000	−0.011	0.000	−5.32	−4.19	847.74	84.58			−4.18	85.56
84	120	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.35	−3.34	847.70	92.69			−3.34	93.78
85	121	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−3.63	−2.62	845.44	103.02			−2.62	104.22
86	122	0.06	0.00	0.00	0.00	0.064	0.000	0.002	0.000	−2.58	−1.61	844.95	111.59			−1.61	112.91
87	123	0.08	0.05	0.00	0.00	0.086	−0.068	0.004	0.002	−2.34	−1.12	842.67	121.94			−1.03	123.48
88	124	0.10	0.07	0.00	0.00	0.109	−0.096	0.006	0.004	−1.87	−0.37	842.16	130.52			−0.20	132.28

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 37 (Rb)																	
29	66	−0.13	0.00	0.02	0.00	−0.136	0.000	−0.016	0.003	1.44	2.53	490.71	13.05			2.51	12.04
30	67	0.28	0.00	0.02	−0.01	0.308	0.000	0.009	0.007	0.69	3.07	509.91	1.92			3.00	1.01
31	68	−0.27	0.00	0.01	−0.05	−0.277	0.000	0.021	0.045	1.21	3.70	526.04	−6.14			3.68	−6.87
32	69	−0.32	0.00	0.02	−0.07	−0.327	0.000	0.024	0.063	0.60	3.97	544.11	−16.13			4.00	−16.70
33	70	−0.34	0.00	0.04	−0.07	−0.348	0.000	0.008	0.069	0.16	4.15	559.39	−23.34			4.14	−23.84
34	71	−0.35	0.00	0.03	−0.08	−0.357	0.000	0.022	0.073	−0.29	4.11	576.48	−32.36			4.14	−32.71
35	72	−0.36	0.00	0.03	−0.08	−0.366	0.000	0.025	0.073	−0.59	4.27	590.57	−38.38			4.26	−38.68
36	73	−0.36	0.00	0.03	−0.08	−0.366	0.000	0.025	0.073	−0.64	4.24	606.45	−46.19			4.27	−46.36
37	74	0.33	0.00	0.04	−0.06	0.366	0.000	−0.009	0.049	−0.55	4.22	619.19	−50.86	−51.92	0.004	4.20	−51.42
38	75	0.36	0.00	0.05	−0.05	0.402	0.000	−0.012	0.034	−1.47	3.90	633.83	−57.43	−57.22	0.007	3.91	−57.48
39	76	0.36	0.00	0.06	−0.05	0.403	0.000	−0.024	0.029	−1.58	3.90	645.13	−60.65	−60.48	0.002	3.89	−60.68
40	77	0.36	0.00	0.06	−0.04	0.403	0.000	−0.022	0.020	−1.36	4.00	657.94	−65.40	−64.82	0.007	4.02	−65.34
41	78	0.33	0.00	0.05	−0.03	0.367	0.000	−0.018	0.015	−0.34	4.23	668.07	−67.45	−66.94	0.007	4.22	−67.38
42	79	0.32	0.00	0.05	−0.03	0.355	0.000	−0.020	0.015	0.16	4.27	679.99	−71.31	−70.80	0.006	4.30	−71.16
43	80	−0.24	0.00	0.06	0.02	−0.247	0.000	−0.045	−0.004	1.75	4.28	689.46	−72.70	−72.17	0.007	4.29	−72.55
44	81	−0.23	0.00	0.06	0.03	−0.237	0.000	−0.048	−0.013	1.52	3.80	701.01	−76.18	−75.46	0.006	3.84	−75.99
45	82	0.08	0.00	0.01	0.00	0.086	0.000	−0.009	−0.001	2.73	3.26	710.20	−77.30	−76.19	0.003	3.26	−77.12
46	83	0.08	0.00	0.02	0.00	0.086	0.000	−0.021	−0.002	1.67	2.45	721.26	−80.29	−79.07	0.006	2.46	−80.10
47	84	0.09	0.00	0.01	0.00	0.096	0.000	−0.009	−0.001	0.89	1.83	729.76	−80.71	−79.75	0.003	1.83	−80.51
48	85	0.06	0.00	0.01	0.00	0.064	0.000	−0.010	−0.001	−0.08	0.83	740.23	−83.12	−82.17	0.000	0.83	−82.92
49	86	0.07	0.00	0.02	0.00	0.075	0.000	−0.022	−0.002	−1.09	0.06	748.14	−82.95	−82.75	0.000	0.07	−82.75
50	87	−0.02	0.00	0.01	0.00	−0.021	0.000	−0.012	0.000	−1.82	−0.75	757.69	−84.43	−84.60	0.000	−0.75	−84.24
51	88	−0.07	0.00	0.00	0.00	−0.073	0.000	0.002	−0.000	−1.15	−0.14	763.54	−82.21	−82.61	0.000	−0.14	−82.02
52	89	−0.09	0.00	0.00	0.00	−0.094	0.000	0.003	−0.000	−0.19	0.86	770.57	−81.17	−81.71	0.005	0.87	−80.99
53	90	−0.10	0.00	0.01	0.00	−0.105	0.000	−0.008	0.001	0.81	1.97	775.28	−77.81	−79.36	0.007	1.97	−77.63
54	91	−0.13	0.00	0.00	0.00	−0.135	0.000	0.007	−0.000	1.55	2.89	781.75	−76.21	−77.75	0.008	2.90	−76.04
55	92	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	0.77	3.30	786.53	−72.92	−74.77	0.006	3.34	−72.74
56	93	0.23	0.00	0.03	0.01	0.252	0.000	−0.013	−0.016	0.85	3.60	793.01	−71.33	−72.62	0.008	3.66	−71.13
57	94	0.26	0.00	0.01	0.00	0.284	0.000	0.017	0.000	0.57	3.86	797.37	−67.62	−68.55	0.008	3.90	−67.46
58	95	0.29	0.00	−0.01	−0.01	0.318	0.000	0.048	0.019	−0.30	3.93	803.50	−65.68	−65.85	0.021	4.03	−65.47
59	96	0.30	0.00	−0.01	−0.01	0.329	0.000	0.051	0.019	−0.88	3.69	807.82	−61.92	−61.22	0.029	3.78	−61.73
60	97	0.31	0.00	−0.01	0.00	0.340	0.000	0.055	0.010	−1.14	3.65	813.51	−59.54	−58.36	0.031	3.75	−59.35
61	98	0.31	0.00	0.00	−0.01	0.341	0.000	0.041	0.016	−1.21	3.43	817.29	−55.25	−54.22	0.050	3.51	−55.10
62	99	0.32	0.00	0.00	0.00	0.352	0.000	0.045	0.006	−1.26	3.52	822.32	−52.21	−50.88	0.126	3.61	−52.05
63	100	0.32	0.00	0.01	−0.01	0.353	0.000	0.032	0.012	−1.25	3.45	825.47	−47.28			3.52	−47.15
64	101	0.32	0.00	0.02	−0.01	0.353	0.000	0.019	0.008	−1.02	3.50	830.05	−43.79	−43.60	0.166	3.58	−43.65
65	102	0.31	0.00	0.03	−0.02	0.342	0.000	0.003	0.013	−0.95	3.30	832.86	−38.53			3.39	−38.39
66	103	0.31	0.00	0.04	−0.03	0.343	0.000	−0.011	0.019	−0.98	3.28	837.04	−34.64			3.45	−34.42
67	104	0.31	0.00	0.06	−0.03	0.344	0.000	−0.035	0.011	−1.44	2.99	839.51	−29.04			3.16	−28.80
68	105	0.31	0.00	0.07	−0.04	0.345	0.000	−0.049	0.017	−1.69	2.77	843.45	−24.91			3.07	−24.53
69	106	0.30	0.00	0.08	−0.04	0.334	0.000	−0.064	0.014	−2.02	2.41	845.56	−18.95			2.74	−18.53
70	107	0.30	0.00	0.08	−0.04	0.334	0.000	−0.064	0.014	−1.93	2.41	848.86	−14.18			2.77	−13.70
71	108	0.29	0.00	0.08	−0.04	0.323	0.000	−0.066	0.015	−1.83	2.24	850.38	−7.62			2.61	−7.13
72	109	0.29	0.00	0.08	−0.04	0.323	0.000	−0.066	0.015	−1.48	2.45	853.07	−2.24			2.85	−1.69
73	110	0.29	0.00	0.07	−0.04	0.322	0.000	−0.054	0.018	−1.22	2.56	853.94	4.95			2.89	5.48
74	111	0.27	0.00	0.07	−0.04	0.299	0.000	−0.059	0.019	−0.56	2.58	856.43	10.54			2.97	11.15
75	112	−0.15	0.00	0.07	0.03	−0.154	0.000	−0.071	−0.015	0.42	2.02	857.61	17.43			2.39	18.08
76	113	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	0.17	1.47	860.32	22.79			1.81	23.46
77	114	−0.12	0.00	0.07	0.03	−0.123	0.000	−0.074	−0.017	−1.01	0.44	861.62	29.56			0.86	30.36
78	115	−0.12	0.00	0.06	0.02	−0.124	0.000	−0.063	−0.010	−1.46	−0.09	863.96	35.29			0.19	36.02
79	116	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−1.92	−0.96	864.77	42.55			−0.95	43.06
80	117	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−3.08	−2.00	867.29	48.11			−2.00	48.69
81	118	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−4.96	−3.73	868.65	54.82			−3.72	55.47
82	119	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−6.20	−4.83	870.91	60.63			−4.83	61.36
83	120	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−5.39	−4.22	869.64	69.97			−4.22	70.80
84	121	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−4.39	−3.30	869.57	78.11			−3.30	79.04
85	122	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−3.64	−2.65	867.98	87.77			−2.65	88.80

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 37 (Rb)																	
86	123	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−2.46	−1.59	867.49	96.33			−1.60	97.48
87	124	0.08	0.07	0.00	0.00	0.087	−0.095	0.004	0.004	−2.57	−1.07	865.75	106.15			−0.92	107.56
88	125	0.09	0.08	0.00	0.00	0.099	−0.109	0.006	0.005	−1.91	−0.27	865.23	114.73			−0.06	116.32
89	126	0.11	0.09	−0.01	0.00	0.121	−0.124	0.020	0.007	−1.86	0.08	863.42	124.62			0.34	126.40
90	127	0.11	0.09	−0.02	0.00	0.121	−0.124	0.032	0.009	−1.12	0.73	862.78	133.33			1.04	135.30
91	128	0.25	0.00	−0.05	−0.01	0.273	0.000	0.090	0.031	−1.43	1.62	860.17	144.02			2.05	146.25
Z = 38 (Sr)																	
30	68	0.36	0.00	0.04	−0.02	0.401	0.000	0.006	0.010	−0.59	3.31	508.15	10.97			3.22	9.95
31	69	0.27	0.00	0.03	−0.01	0.297	0.000	−0.006	0.003	1.16	3.61	524.81	2.38			3.55	1.52
32	70	0.29	0.00	0.04	−0.03	0.320	0.000	−0.016	0.019	1.10	3.94	543.83	−8.56			3.92	−9.26
33	71	−0.29	0.00	0.02	−0.07	−0.297	0.000	0.017	0.065	1.17	4.16	559.28	−15.94			4.20	−16.47
34	72	−0.32	0.00	0.03	−0.08	−0.327	0.000	0.014	0.075	0.58	4.19	577.28	−25.87			4.28	−26.24
35	73	0.36	0.00	0.03	−0.03	0.400	0.000	0.016	0.024	−0.29	4.51	591.42	−31.94			4.47	−32.34
36	74	0.36	0.00	0.04	−0.05	0.401	0.000	0.001	0.039	−0.95	4.05	608.68	−41.14			4.07	−41.38
37	75	0.36	0.00	0.05	−0.05	0.402	0.000	−0.012	0.034	−1.41	3.83	622.23	−46.61	−46.62	0.220	3.82	−46.82
38	76	0.36	0.00	0.05	−0.04	0.402	0.000	−0.010	0.024	−1.85	3.47	638.26	−54.57	−54.24	0.037	3.50	−54.66
39	77	0.36	0.00	0.06	−0.04	0.403	0.000	−0.022	0.020	−1.99	3.40	649.82	−58.06	−57.80	0.009	3.40	−58.12
40	78	0.36	0.00	0.06	−0.03	0.403	0.000	−0.020	0.010	−1.82	3.51	663.55	−63.72	−63.17	0.007	3.55	−63.69
41	79	0.36	0.00	0.06	−0.03	0.403	0.000	−0.020	0.010	−1.47	3.81	673.80	−65.89	−65.48	0.008	3.83	−65.84
42	80	0.36	0.00	0.06	−0.03	0.403	0.000	−0.020	0.010	−1.04	4.12	686.36	−70.39	−70.31	0.007	4.18	−70.25
43	81	0.36	0.00	0.06	−0.02	0.403	0.000	−0.019	0.001	−0.69	4.40	695.74	−71.69	−71.53	0.006	4.43	−71.55
44	82	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	3.05	3.76	708.35	−76.23	−76.01	0.006	3.76	−76.10
45	83	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	2.63	3.29	717.64	−77.45	−76.79	0.010	3.29	−77.30
46	84	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	1.57	2.31	729.73	−81.47	−80.64	0.003	2.31	−81.31
47	85	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	0.73	1.57	738.52	−82.18	−81.10	0.003	1.57	−82.01
48	86	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.50	0.45	749.95	−85.55	−84.52	0.001	0.45	−85.37
49	87	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−1.33	−0.24	757.95	−85.48	−84.88	0.001	−0.24	−85.29
50	88	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.36	−1.16	768.44	−87.89	−87.92	0.001	−1.16	−87.71
51	89	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−1.44	−0.46	774.35	−85.73	−86.21	0.001	−0.46	−85.55
52	90	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.25	0.54	782.21	−85.52	−85.94	0.003	0.54	−85.35
53	91	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	1.00	1.54	787.17	−82.41	−83.64	0.005	1.53	−82.25
54	92	−0.13	0.00	0.01	0.00	−0.135	0.000	−0.005	0.001	1.40	2.70	794.20	−81.36	−82.87	0.003	2.72	−81.20
55	93	0.22	0.00	0.01	0.01	0.239	0.000	0.010	−0.011	0.88	3.26	798.98	−78.08	−80.08	0.008	3.30	−77.90
56	94	0.24	0.00	0.03	0.01	0.263	0.000	−0.010	−0.016	0.78	3.62	806.18	−77.21	−78.84	0.007	3.70	−77.00
57	95	0.28	0.00	0.02	0.00	0.308	0.000	0.010	−0.003	0.16	3.83	810.73	−73.68	−75.12	0.007	3.89	−73.51
58	96	0.31	0.00	0.00	−0.01	0.341	0.000	0.041	0.016	−0.78	3.84	817.68	−72.56	−72.94	0.027	3.96	−72.34
59	97	0.32	0.00	0.00	−0.01	0.352	0.000	0.044	0.016	−1.36	3.63	822.10	−68.91	−68.79	0.019	3.73	−68.71
60	98	0.32	0.00	0.00	0.00	0.352	0.000	0.045	0.006	−1.49	3.44	828.68	−67.42	−66.65	0.026	3.56	−67.22
61	99	0.32	0.00	0.00	0.00	0.352	0.000	0.045	0.006	−1.62	3.31	832.49	−63.16	−62.19	0.080	3.40	−63.00
62	100	0.32	0.00	0.01	0.00	0.353	0.000	0.033	0.002	−1.42	3.35	838.32	−60.92	−60.22	0.127	3.45	−60.75
63	101	0.33	0.00	0.02	0.00	0.365	0.000	0.024	−0.002	−1.68	3.25	841.60	−56.13	−55.41	0.124	3.33	−56.00
64	102	0.32	0.00	0.02	0.00	0.353	0.000	0.021	−0.002	−1.27	3.33	846.88	−53.33	−53.08	0.111	3.43	−53.18
65	103	0.32	0.00	0.04	−0.01	0.355	0.000	−0.005	−0.000	−1.41	3.13	849.79	−48.18			3.22	−48.04
66	104	0.32	0.00	0.05	−0.02	0.355	0.000	−0.019	0.005	−1.42	3.09	854.71	−45.02			3.24	−44.83
67	105	0.32	0.00	0.06	−0.03	0.356	0.000	−0.032	0.011	−1.86	2.79	857.27	−39.51			2.98	−39.28
68	106	0.31	0.00	0.07	−0.04	0.345	0.000	−0.049	0.017	−1.89	2.58	861.90	−36.07			2.89	−35.70
69	107	0.31	0.00	0.08	−0.04	0.346	0.000	−0.061	0.013	−2.41	2.22	864.10	−30.20			2.56	−29.81
70	108	0.31	0.00	0.08	−0.04	0.346	0.000	−0.061	0.013	−2.28	2.30	868.01	−26.03			2.67	−25.59
71	109	0.31	0.00	0.08	−0.04	0.346	0.000	−0.061	0.013	−2.27	2.29	869.46	−19.42			2.64	−18.97
72	110	0.31	0.00	0.08	−0.04	0.346	0.000	−0.061	0.013	−1.91	2.52	872.79	−14.68			2.91	−14.18
73	111	0.31	0.00	0.07	−0.03	0.345	0.000	−0.047	0.007	−1.61	2.44	873.93	−7.75			2.69	−7.36
74	112	−0.16	0.00	0.07	0.03	−0.165	0.000	−0.070	−0.014	1.02	2.60	876.95	−2.69			2.95	−2.16
75	113	−0.15	0.00	0.08	0.04	−0.154	0.000	−0.082	−0.022	0.09	1.76	878.49	3.84			2.28	4.57
76	114	−0.15	0.00	0.07	0.03	−0.154	0.000	−0.071	−0.015	−0.34	1.42	881.62	8.78			1.80	9.42
77	115	−0.12	0.00	0.07	0.03	−0.123	0.000	−0.074	−0.017	−1.19	0.33	883.05	15.42			0.74	16.12
78	116	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	−1.66	−0.27	886.09	20.45			0.08	21.15
79	117	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	−2.78	−1.34	887.18	27.44			−0.99	28.20

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 38 (Sr)																	
80	118	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.06	−2.09	890.01	32.67			−2.09	33.14
81	119	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−5.01	−3.78	891.41	39.35			−3.77	39.89
82	120	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.34	−4.97	894.36	44.47			−4.97	45.08
83	121	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−5.47	−4.26	893.05	53.85			−4.27	54.54
84	122	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.49	−3.39	893.63	61.34			−3.39	62.12
85	123	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−3.64	−2.66	892.01	71.03			−2.66	71.91
86	124	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.46	−1.62	892.11	79.00			−1.62	79.98
87	125	0.05	0.07	0.00	0.00	0.055	−0.095	0.003	0.003	−2.39	−0.99	890.32	88.86			−0.84	90.10
88	126	0.07	0.09	−0.01	0.00	0.078	−0.123	0.017	0.007	−1.95	−0.19	890.38	96.88			0.09	98.35
89	127	0.10	0.10	−0.02	0.00	0.111	−0.138	0.032	0.010	−1.90	0.25	888.52	106.81			0.60	108.49
90	128	0.10	0.10	−0.02	0.01	0.111	−0.137	0.032	−0.000	−1.02	0.96	888.38	115.02			1.33	116.83
91	129	0.24	0.00	−0.05	−0.01	0.261	0.000	0.087	0.030	−1.07	2.03	885.63	125.84			2.46	127.85
92	130	0.26	0.00	−0.05	−0.01	0.284	0.000	0.092	0.032	−1.38	1.92	886.06	133.48			2.40	135.68
93	131	0.27	0.00	−0.05	0.00	0.294	0.000	0.095	0.023	−1.82	1.70	884.36	143.26			2.05	145.48
Z = 39 (Y)																	
31	70	0.36	0.00	0.03	−0.01	0.400	0.000	0.020	0.005	−0.11	3.47	520.89	13.59			3.31	12.56
32	71	0.36	0.00	0.04	−0.02	0.401	0.000	0.006	0.010	−0.01	3.89	540.02	2.53			3.78	1.68
33	72	0.36	0.00	0.04	−0.03	0.401	0.000	0.004	0.019	0.19	4.41	556.15	−5.53			4.28	−6.28
34	73	0.36	0.00	0.05	−0.04	0.402	0.000	−0.010	0.024	−0.12	4.29	574.51	−15.81			4.22	−16.40
35	74	0.36	0.00	0.04	−0.04	0.401	0.000	0.002	0.029	−0.37	4.38	589.83	−23.06			4.29	−23.58
36	75	0.36	0.00	0.05	−0.04	0.402	0.000	−0.010	0.024	−0.98	3.92	607.29	−32.46			3.88	−32.83
37	76	0.36	0.00	0.06	−0.04	0.403	0.000	−0.022	0.020	−1.48	3.70	621.78	−38.87			3.63	−39.20
38	77	0.36	0.00	0.07	−0.03	0.404	0.000	−0.032	0.006	−2.05	3.22	638.12	−47.14			3.19	−47.35
39	78	0.36	0.00	0.07	−0.03	0.404	0.000	−0.032	0.006	−2.26	3.16	650.99	−51.94			3.11	−52.49
40	79	0.37	0.00	0.08	−0.03	0.417	0.000	−0.041	0.001	−2.45	3.23	665.33	−58.21	−58.36	0.450	3.22	−58.27
41	80	0.38	0.00	0.08	−0.02	0.429	0.000	−0.036	−0.009	−2.28	3.62	676.38	−61.19	−61.22	0.177	3.59	−61.24
42	81	0.36	0.00	0.07	−0.02	0.404	0.000	−0.031	−0.004	−1.42	3.84	689.23	−65.96	−66.02	0.062	3.85	−65.92
43	82	0.36	0.00	0.07	−0.02	0.404	0.000	−0.031	−0.004	−1.08	4.12	699.48	−68.14	−68.19	0.103	4.11	−68.09
44	83	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	2.92	3.67	712.08	−72.67	−72.33	0.044	3.67	−72.58
45	84	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	2.51	3.21	722.23	−74.75	−74.16	0.091	3.20	−74.64
46	85	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	1.45	2.21	734.51	−78.96	−77.84	0.019	2.21	−78.83
47	86	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	0.74	1.53	744.08	−80.46	−79.28	0.014	1.53	−80.31
48	87	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.63	0.35	755.76	−84.06	−83.02	0.002	0.35	−83.90
49	88	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−1.40	−0.33	764.56	−84.80	−84.30	0.002	−0.33	−84.64
50	89	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.48	−1.27	775.24	−87.40	−87.70	0.003	−1.27	−87.24
51	90	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−1.54	−0.55	781.93	−86.03	−86.49	0.003	−0.55	−85.87
52	91	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.34	0.47	789.93	−85.96	−86.35	0.003	0.47	−85.80
53	92	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.95	1.48	795.68	−83.63	−84.81	0.009	1.48	−83.48
54	93	−0.14	0.00	0.01	0.00	−0.146	0.000	−0.004	0.001	1.30	2.77	802.72	−82.60	−84.22	0.011	2.79	−82.44
55	94	0.20	0.00	0.00	0.01	0.217	0.000	0.018	−0.009	1.18	3.37	808.24	−80.05	−82.35	0.007	3.39	−79.89
56	95	0.26	0.00	0.03	0.01	0.286	0.000	−0.006	−0.016	0.49	3.64	815.66	−79.40	−81.21	0.007	3.71	−79.22
57	96	0.28	0.00	0.02	0.01	0.308	0.000	0.011	−0.013	0.15	3.84	820.99	−76.65	−78.35	0.023	3.89	−76.50
58	97	0.31	0.00	0.01	0.00	0.341	0.000	0.030	0.002	−0.68	3.84	828.08	−75.68	−76.26	0.012	3.91	−75.51
59	98	0.32	0.00	0.01	0.00	0.353	0.000	0.033	0.002	−1.23	3.63	833.24	−72.77	−72.47	0.025	3.69	−72.63
60	99	0.33	0.00	0.01	0.00	0.364	0.000	0.036	0.003	−1.69	3.44	839.96	−71.41	−70.20	0.024	3.53	−71.25
61	100	0.34	0.00	0.01	0.01	0.376	0.000	0.041	−0.006	−2.11	3.31	844.51	−67.89	−67.29	0.079	3.38	−67.76
62	101	0.34	0.00	0.02	0.01	0.376	0.000	0.029	−0.011	−1.97	3.30	850.51	−65.81	−64.91	0.095	3.39	−65.67
63	102	0.34	0.00	0.02	0.01	0.376	0.000	0.029	−0.011	−2.06	3.20	854.50	−61.74	−61.89	0.086	3.28	−61.63
64	103	0.33	0.00	0.03	0.00	0.366	0.000	0.012	−0.006	−1.64	3.25	859.92	−59.09			3.34	−58.97
65	104	0.33	0.00	0.04	−0.01	0.366	0.000	−0.002	−0.000	−1.78	3.09	863.51	−54.60			3.16	−54.51
66	105	0.32	0.00	0.05	−0.02	0.355	0.000	−0.019	0.005	−1.57	3.04	868.54	−51.56			3.16	−51.42
67	106	0.32	0.00	0.06	−0.02	0.356	0.000	−0.031	0.001	−2.00	2.77	871.77	−46.72			2.89	−46.57
68	107	0.32	0.00	0.08	−0.03	0.358	0.000	−0.057	0.003	−2.35	2.58	876.48	−43.36			2.82	−43.08
69	108	0.32	0.00	0.09	−0.04	0.359	0.000	−0.070	0.009	−2.95	2.18	879.41	−38.22			2.50	−37.86
70	109	0.32	0.00	0.09	−0.04	0.359	0.000	−0.070	0.009	−2.84	2.22	883.44	−34.17			2.58	−33.77
71	110	0.33	0.00	0.08	−0.03	0.370	0.000	−0.054	0.003	−2.78	2.38	885.39	−28.06			2.61	−27.77
72	111	0.32	0.00	0.08	−0.03	0.358	0.000	−0.057	0.003	−2.22	2.60	888.83	−23.42			2.86	−23.08

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 39 (Y)																	
73	112	0.32	0.00	0.07	−0.03	0.357	0.000	−0.045	0.007	−1.93	2.73	890.41	−16.93			2.94	−16.63
74	113	−0.16	0.00	0.07	0.02	−0.165	0.000	−0.069	−0.005	0.98	2.72	893.66	−12.12			3.00	−11.73
75	114	−0.16	0.00	0.07	0.03	−0.165	0.000	−0.070	−0.014	0.14	2.12	895.62	−6.00			2.44	−5.53
76	115	−0.15	0.00	0.07	0.03	−0.154	0.000	−0.071	−0.015	−0.40	1.46	899.14	−1.45			1.81	−0.92
77	116	−0.15	0.00	0.07	0.04	−0.154	0.000	−0.071	−0.024	−1.45	0.41	901.17	4.59			0.85	5.25
78	117	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	−1.64	−0.19	904.28	9.55			0.13	10.14
79	118	−0.12	0.00	0.05	0.03	−0.124	0.000	−0.052	−0.021	−2.67	−1.25	905.98	15.93			−0.98	16.51
80	119	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.98	−2.04	908.92	21.06			−2.04	21.42
81	120	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−4.95	−3.72	910.92	27.13			−3.72	27.57
82	121	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.33	−4.96	913.98	32.14			−4.96	32.63
83	122	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−5.41	−4.22	913.23	40.96			−4.22	41.53
84	123	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.42	−3.33	913.85	48.41			−3.33	49.05
85	124	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−3.53	−2.54	912.75	57.58			−2.54	58.31
86	125	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.35	−1.52	912.94	65.46			−1.52	66.28
87	126	0.03	0.07	−0.01	0.00	0.034	−0.095	0.014	0.004	−2.27	−0.92	911.75	74.72			−0.77	75.79
88	127	0.04	0.09	−0.01	0.01	0.046	−0.122	0.016	−0.004	−1.75	−0.13	911.87	82.68			0.13	83.95
89	128	0.04	0.11	−0.01	0.01	0.048	−0.149	0.017	−0.001	−1.74	0.28	910.60	92.02			0.64	93.51
90	129	0.04	0.12	−0.01	0.02	0.048	−0.162	0.018	−0.010	−1.09	1.01	910.50	100.19			1.49	101.92
91	130	0.09	0.13	−0.03	0.01	0.103	−0.180	0.046	0.006	−1.42	1.37	909.01	109.75			1.93	111.68
92	131	0.25	0.00	−0.05	0.00	0.272	0.000	0.090	0.020	−1.16	2.05	908.69	118.14			2.38	119.96
93	132	0.26	0.00	−0.05	0.00	0.283	0.000	0.092	0.022	−1.68	1.75	907.61	127.29			2.06	129.24
94	133	0.26	0.00	−0.04	0.00	0.283	0.000	0.080	0.018	−1.24	1.96	907.52	135.46			2.17	137.46
95	134	0.27	0.00	−0.04	0.01	0.294	0.000	0.083	0.008	−1.57	1.76	906.09	144.95			1.92	147.05
Z = 40 (Zr)																	
32	72	−0.24	0.00	0.04	−0.01	−0.248	0.000	−0.022	0.018	1.70	3.57	538.66	11.18			3.55	10.36
33	73	−0.26	0.00	0.05	−0.01	−0.268	0.000	−0.028	0.021	1.63	4.00	555.07	2.85			3.97	2.12
34	74	0.36	0.00	0.06	−0.03	0.403	0.000	−0.020	0.010	0.15	4.25	574.01	−8.03			4.19	−8.67
35	75	0.36	0.00	0.05	−0.03	0.402	0.000	−0.008	0.015	−0.03	4.39	589.49	−15.44			4.30	−16.00
36	76	0.36	0.00	0.07	−0.03	0.404	0.000	−0.032	0.006	−0.74	3.95	607.88	−25.75			3.92	−26.17
37	77	0.36	0.00	0.07	−0.03	0.404	0.000	−0.032	0.006	−1.22	3.76	622.53	−32.33			3.70	−32.69
38	78	0.37	0.00	0.08	−0.03	0.417	0.000	−0.041	0.001	−2.05	3.32	639.75	−41.48			3.31	−41.72
39	79	0.37	0.00	0.08	−0.03	0.417	0.000	−0.041	0.001	−2.31	3.23	653.22	−46.88			3.20	−47.08
40	80	0.38	0.00	0.09	−0.02	0.430	0.000	−0.047	−0.014	−2.57	3.29	668.85	−54.44	−55.52	1.490	3.31	−54.53
41	81	0.39	0.00	0.09	−0.02	0.442	0.000	−0.044	−0.014	−2.45	3.66	680.11	−57.63	−58.49	0.167	3.65	−57.70
42	82	0.39	0.00	0.09	−0.01	0.443	0.000	−0.042	−0.023	−2.08	3.93	693.79	−63.23			3.98	−63.20
43	83	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	0.76	3.89	704.55	−65.93	−66.46	0.096	3.92	−65.87
44	84	−0.23	0.00	0.09	0.05	−0.235	0.000	−0.081	−0.022	0.49	3.39	718.07	−71.37			3.44	−71.26
45	85	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	2.32	2.98	728.34	−73.58	−73.15	0.101	2.98	−73.49
46	86	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	1.24	1.98	741.48	−78.65	−77.80	0.030	1.98	−78.54
47	87	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	0.53	1.27	751.25	−80.34	−79.35	0.008	1.27	−80.22
48	88	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−0.84	0.10	763.75	−84.76	−83.62	0.010	0.10	−84.63
49	89	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−1.80	−0.69	772.83	−85.78	−84.87	0.004	−0.69	−85.64
50	90	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.80	−1.59	784.28	−89.15	−88.77	0.002	−1.59	−89.01
51	91	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−1.84	−0.84	791.11	−87.92	−87.89	0.002	−0.85	−87.77
52	92	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.69	0.12	799.96	−88.69	−88.45	0.002	0.12	−88.55
53	93	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	0.65	1.19	805.79	−86.46	−87.12	0.002	1.19	−86.32
54	94	−0.15	0.00	0.01	0.01	−0.156	0.000	−0.003	−0.008	0.95	2.62	813.49	−86.08	−87.27	0.002	2.64	−85.93
55	95	−0.17	0.00	0.01	0.00	−0.176	0.000	−0.000	0.001	1.35	3.02	819.35	−83.87	−85.66	0.002	3.04	−83.73
56	96	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	1.13	3.38	827.47	−83.91	−85.44	0.003	3.44	−83.74
57	97	0.27	0.00	0.02	0.01	0.296	0.000	0.009	−0.013	0.50	3.79	832.71	−81.09	−82.95	0.003	3.85	−80.93
58	98	0.31	0.00	0.02	0.00	0.342	0.000	0.018	−0.002	−0.37	3.94	840.41	−80.72	−81.29	0.020	4.03	−80.54
59	99	0.32	0.00	0.01	0.00	0.353	0.000	0.033	0.002	−0.92	3.82	845.62	−77.85	−77.77	0.020	3.90	−77.69
60	100	0.33	0.00	0.01	0.01	0.364	0.000	0.038	−0.007	−1.39	3.62	853.08	−77.24	−76.60	0.036	3.74	−77.06
61	101	0.34	0.00	0.02	0.01	0.376	0.000	0.029	−0.011	−1.78	3.45	857.79	−73.89	−73.46	0.031	3.55	−73.74
62	102	0.34	0.00	0.02	0.01	0.376	0.000	0.029	−0.011	−1.73	3.44	864.51	−72.53	−71.74	0.051	3.57	−72.37
63	103	0.34	0.00	0.03	0.01	0.377	0.000	0.016	−0.015	−1.77	3.35	868.63	−68.58	−68.37	0.109	3.45	−68.44
64	104	0.34	0.00	0.04	0.00	0.378	0.000	0.003	−0.010	−1.64	3.38	874.78	−66.66			3.51	−66.51

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 40 (Zr)																	
65	105	0.33	0.00	0.05	−0.01	0.367	0.000	−0.014	−0.004	−1.57	3.22	878.47	−62.28			3.33	−62.16
66	106	0.33	0.00	0.06	−0.01	0.368	0.000	−0.026	−0.008	−1.62	3.21	884.16	−59.90			3.37	−59.73
67	107	0.32	0.00	0.07	−0.02	0.357	0.000	−0.043	−0.002	−1.89	2.91	887.54	−55.20			3.08	−55.02
68	108	0.32	0.00	0.08	−0.03	0.358	0.000	−0.057	0.003	−2.13	2.78	892.86	−52.46			3.04	−52.19
69	109	0.32	0.00	0.09	−0.03	0.359	0.000	−0.068	−0.001	−2.76	2.38	895.90	−47.42			2.66	−47.12
70	110	0.32	0.00	0.09	−0.03	0.359	0.000	−0.068	−0.001	−2.65	2.43	900.59	−44.04			2.75	−43.70
71	111	0.33	0.00	0.09	−0.03	0.371	0.000	−0.066	−0.001	−2.79	2.49	902.73	−38.11			2.79	−37.79
72	112	0.32	0.00	0.09	−0.03	0.359	0.000	−0.068	−0.001	−2.18	2.77	906.78	−34.08			3.10	−33.71
73	113	0.33	0.00	0.08	−0.03	0.370	0.000	−0.054	0.003	−2.01	2.83	908.52	−27.75			3.09	−27.44
74	114	−0.18	0.00	0.07	0.03	−0.185	0.000	−0.067	−0.013	0.52	2.47	912.78	−23.94			2.78	−23.57
75	115	−0.16	0.00	0.08	0.04	−0.164	0.000	−0.081	−0.021	−0.34	1.48	915.20	−18.29			1.92	−17.75
76	116	−0.16	0.00	0.08	0.04	−0.164	0.000	−0.081	−0.021	−0.95	1.17	919.01	−14.03			1.65	−13.43
77	117	−0.15	0.00	0.08	0.04	−0.154	0.000	−0.082	−0.022	−1.90	0.17	921.07	−8.02			0.66	−7.38
78	118	−0.15	0.00	0.07	0.03	−0.154	0.000	−0.071	−0.015	−2.27	−0.31	924.68	−3.56			0.05	−3.01
79	119	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	−3.04	−1.48	926.56	2.63			−1.16	3.18
80	120	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.18	−2.22	930.08	7.19			−2.22	7.47
81	121	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−5.16	−3.92	932.16	13.18			−3.92	13.52
82	122	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.57	−5.19	935.85	17.56			−5.19	17.95
83	123	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−5.63	−4.41	935.14	26.34			−4.41	26.80
84	124	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.62	−3.51	936.34	33.21			−3.51	33.74
85	125	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−3.69	−2.67	935.25	42.37			−2.67	42.97
86	126	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.50	−1.64	936.01	49.69			−1.64	50.37
87	127	0.02	0.05	0.00	0.00	0.022	−0.067	0.001	0.002	−2.00	−0.93	934.76	59.00			−0.86	59.84
88	128	0.03	0.09	−0.01	0.01	0.035	−0.122	0.015	−0.004	−1.78	−0.15	935.46	66.37			0.10	67.49
89	129	0.03	0.11	−0.01	0.01	0.037	−0.149	0.017	−0.001	−1.74	0.28	934.22	75.68			0.64	77.01
90	130	0.03	0.12	−0.01	0.02	0.038	−0.162	0.018	−0.010	−1.10	1.01	934.69	83.29			1.49	84.84
91	131	0.04	0.13	−0.02	0.01	0.049	−0.178	0.031	0.003	−0.91	1.56	933.05	93.00			2.09	94.71
92	132	0.24	0.00	−0.06	0.00	0.261	0.000	0.101	0.023	−1.08	2.14	933.39	100.73			2.59	102.48
93	133	0.25	0.00	−0.05	0.00	0.272	0.000	0.090	0.020	−1.28	1.96	932.23	109.96			2.28	111.70
94	134	0.26	0.00	−0.04	0.00	0.283	0.000	0.080	0.018	−1.02	2.18	932.66	117.60			2.42	119.40
95	135	0.28	0.00	−0.03	0.01	0.305	0.000	0.073	0.005	−1.35	2.06	931.20	127.13			2.17	128.94
96	136	0.28	0.00	−0.02	0.01	0.305	0.000	0.060	0.002	−1.03	2.23	931.44	134.97			2.28	136.88
97	137	0.29	0.00	−0.01	0.01	0.317	0.000	0.051	−0.001	−1.41	1.97	929.88	144.60			1.96	146.59
Z = 41 (Nb)																	
33	74	−0.26	0.00	0.06	0.00	−0.268	0.000	−0.040	0.015	1.39	3.91	550.96	14.24			3.85	13.44
34	75	−0.26	0.00	0.06	−0.01	−0.269	0.000	−0.039	0.024	1.53	4.21	570.05	3.22			4.18	2.56
35	76	0.36	0.00	0.05	−0.03	0.402	0.000	−0.008	0.015	0.35	4.53	586.27	−4.93			4.40	−5.59
36	77	0.38	0.00	0.06	−0.02	0.426	0.000	−0.012	0.001	−0.58	4.20	604.75	−15.33			4.10	−15.88
37	78	0.38	0.00	0.07	−0.03	0.427	0.000	−0.026	0.005	−1.09	4.05	620.28	−22.79			3.93	−23.27
38	79	0.38	0.00	0.07	−0.02	0.428	0.000	−0.024	−0.004	−1.78	3.56	637.73	−32.17			3.49	−32.53
39	80	0.39	0.00	0.08	−0.02	0.441	0.000	−0.032	−0.009	−2.37	3.47	652.11	−38.48			3.37	−38.80
40	81	0.40	0.00	0.09	−0.01	0.455	0.000	−0.038	−0.023	−2.71	3.48	667.97	−46.27			3.44	−46.47
41	82	0.41	0.00	0.09	0.00	0.467	0.000	−0.032	−0.033	−2.85	3.74	680.60	−50.83			3.67	−51.37
42	83	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	0.58	3.78	695.06	−57.21	−58.96	0.315	3.80	−57.25
43	84	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	0.33	3.55	706.87	−60.96			3.56	−60.97
44	85	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	−0.08	3.07	720.54	−66.56	−67.15	0.224	3.10	−66.50
45	86	−0.23	0.00	0.09	0.05	−0.235	0.000	−0.081	−0.022	−0.21	2.76	731.57	−69.52	−69.83	0.085	2.77	−69.45
46	87	0.01	0.01	0.00	0.00	0.011	−0.013	0.000	0.000	1.22	1.91	744.73	−74.60	−74.18	0.061	1.91	−74.52
47	88	0.01	0.01	0.00	0.00	0.011	−0.013	0.000	0.000	0.52	1.22	755.31	−77.11	−76.07	0.101	1.22	−77.02
48	89	0.01	0.01	0.00	0.00	0.011	−0.013	0.000	0.000	−0.86	0.05	767.97	−81.70	−80.65	0.027	0.05	−81.59
49	90	0.03	0.01	0.00	0.00	0.032	−0.014	0.000	0.000	−1.77	−0.69	777.82	−83.48	−82.66	0.005	−0.69	−83.36
50	91	0.01	0.01	0.00	0.00	0.011	−0.013	0.000	0.000	−2.87	−1.66	789.50	−87.09	−86.63	0.004	−1.66	−86.96
51	92	0.02	0.01	−0.01	0.00	0.021	−0.014	0.012	0.000	−1.91	−0.86	797.07	−86.59	−86.45	0.003	−0.86	−86.46
52	93	0.01	0.01	0.00	0.00	0.011	−0.013	0.000	0.000	−0.73	0.06	806.13	−87.57	−87.21	0.002	0.06	−87.44
53	94	0.02	0.01	0.00	0.00	0.021	−0.014	0.000	0.000	0.61	1.13	812.74	−86.12	−86.36	0.002	1.13	−85.99
54	95	−0.17	0.00	0.02	0.01	−0.176	0.000	−0.012	−0.006	0.51	2.29	820.86	−86.16	−86.78	0.002	2.31	−86.02
55	96	0.16	0.00	−0.02	0.01	0.172	0.000	0.036	−0.005	1.08	2.91	827.26	−84.49	−85.60	0.004	2.93	−84.36

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 41 (Nb)																	
56	97	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	0.90	3.38	835.41	−84.57	−85.61	0.003	3.42	−84.42
57	98	0.24	0.00	0.01	0.02	0.262	0.000	0.015	−0.020	0.95	3.70	841.51	−82.59	−83.53	0.006	3.74	−82.46
58	99	0.27	0.00	0.01	0.01	0.296	0.000	0.021	−0.010	0.57	3.79	849.39	−82.41	−82.33	0.013	3.85	−82.27
59	100	0.37	0.00	0.03	0.01	0.412	0.000	0.027	−0.014	−1.92	4.14	854.87	−79.82	−79.94	0.026	4.22	−79.67
60	101	0.36	0.00	0.02	0.02	0.400	0.000	0.037	−0.019	−1.88	3.88	862.53	−79.40	−78.94	0.019	4.00	−79.22
61	102	0.36	0.00	0.02	0.02	0.400	0.000	0.037	−0.019	−2.12	3.65	868.02	−76.83	−76.35	0.041	3.74	−76.69
62	103	0.35	0.00	0.02	0.02	0.388	0.000	0.034	−0.020	−1.78	3.64	874.86	−75.59	−75.32	0.068	3.77	−75.44
63	104	0.35	0.00	0.03	0.02	0.389	0.000	0.022	−0.024	−1.84	3.54	879.70	−72.36	−72.22	0.105	3.64	−72.24
64	105	0.35	0.00	0.04	0.01	0.390	0.000	0.008	−0.019	−1.60	3.65	885.89	−70.48	−70.85	0.100	3.76	−70.35
65	106	0.34	0.00	0.05	0.00	0.379	0.000	−0.009	−0.014	−1.57	3.65	890.12	−66.64			3.73	−66.56
66	107	0.34	0.00	0.06	−0.01	0.380	0.000	−0.023	−0.009	−1.55	3.64	895.92	−64.37			3.76	−64.25
67	108	0.30	0.00	0.06	−0.02	0.333	0.000	−0.036	0.002	−0.95	3.32	900.01	−60.38			3.43	−60.28
68	109	0.30	0.00	0.07	−0.02	0.334	0.000	−0.048	−0.002	−1.19	3.14	905.49	−57.79			3.30	−57.64
69	110	0.30	0.00	0.08	−0.03	0.335	0.000	−0.062	0.004	−1.82	2.76	909.17	−53.40			2.97	−53.21
70	111	0.30	0.00	0.09	−0.03	0.336	0.000	−0.074	0.001	−1.93	2.74	914.04	−50.20			3.02	−49.93
71	112	0.29	0.00	0.08	−0.03	0.323	0.000	−0.064	0.005	−1.54	2.73	916.92	−45.01			2.96	−44.78
72	113	0.28	0.00	0.08	−0.03	0.312	0.000	−0.067	0.006	−0.98	2.89	921.16	−41.18			3.16	−40.91
73	114	−0.21	0.00	0.07	0.02	−0.217	0.000	−0.062	−0.002	0.38	2.78	923.73	−35.67			2.99	−35.46
74	115	−0.19	0.00	0.08	0.03	−0.195	0.000	−0.076	−0.010	0.04	2.28	928.22	−32.10			2.60	−31.75
75	116	−0.18	0.00	0.08	0.04	−0.184	0.000	−0.078	−0.020	−0.60	1.45	931.11	−26.91			1.84	−26.48
76	117	−0.16	0.00	0.08	0.04	−0.164	0.000	−0.081	−0.021	−1.06	0.83	935.32	−23.05			1.27	−22.55
77	118	−0.16	0.00	0.07	0.04	−0.164	0.000	−0.070	−0.023	−1.93	0.22	937.61	−17.28			0.60	−16.80
78	119	−0.15	0.00	0.07	0.03	−0.154	0.000	−0.071	−0.015	−2.37	−0.32	941.37	−12.96			0.00	−12.51
79	120	−0.15	0.00	0.07	0.03	−0.154	0.000	−0.071	−0.015	−3.42	−1.36	943.73	−7.25			−1.03	−6.76
80	121	0.01	0.01	0.00	0.00	0.011	−0.013	0.000	0.000	−3.09	−2.11	947.33	−2.78			−2.11	−2.58
81	122	0.02	0.01	0.01	0.00	0.021	−0.013	−0.012	−0.000	−5.09	−3.87	950.08	2.55			−3.86	2.80
82	123	0.01	0.01	−0.01	0.00	0.011	−0.014	0.012	0.000	−6.54	−5.12	953.82	6.87			−5.11	7.18
83	124	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−5.48	−4.29	953.64	15.12			−4.28	15.48
84	125	0.01	0.01	0.00	0.00	0.011	−0.013	0.000	0.000	−4.54	−3.42	954.94	21.90			−3.42	22.31
85	126	0.01	0.01	0.00	0.00	0.011	−0.013	0.000	0.000	−3.58	−2.58	954.45	30.47			−2.58	30.95
86	127	0.01	0.01	0.00	0.00	0.011	−0.013	0.000	0.000	−2.38	−1.52	955.23	37.76			−1.52	38.31
87	128	0.03	0.05	−0.01	0.00	0.033	−0.068	0.013	0.002	−1.88	−0.81	954.55	46.50			−0.74	47.20
88	129	0.03	0.07	−0.01	0.00	0.034	−0.095	0.014	0.004	−1.19	0.07	955.22	53.91			0.21	54.76
89	130	0.01	0.11	−0.01	0.02	0.016	−0.147	0.017	−0.012	−1.36	0.53	954.51	62.69			0.91	63.87
90	131	0.00	0.12	−0.02	0.02	0.006	−0.162	0.029	−0.010	−0.86	1.22	955.06	70.21			1.70	71.59
91	132	0.21	0.00	−0.05	0.00	0.227	0.000	0.081	0.016	−0.73	1.86	953.90	79.43			2.12	80.70
92	133	0.21	0.00	−0.05	0.00	0.227	0.000	0.081	0.016	−0.46	2.10	954.62	86.79			2.39	88.18
93	134	0.24	0.00	−0.05	0.00	0.261	0.000	0.088	0.019	−1.17	1.98	953.96	95.52			2.26	97.03
94	135	0.25	0.00	−0.05	0.01	0.271	0.000	0.091	0.010	−1.06	2.11	954.51	103.04			2.38	104.66
95	136	0.26	0.00	−0.04	0.01	0.282	0.000	0.080	0.007	−1.19	1.95	953.63	111.99			2.12	113.64
96	137	0.27	0.00	−0.02	0.01	0.294	0.000	0.058	0.001	−0.86	2.28	953.74	119.95			2.32	121.61
97	138	0.28	0.00	−0.01	0.01	0.306	0.000	0.048	−0.002	−1.23	1.99	952.74	129.03			1.98	130.77
98	139	0.29	0.00	0.00	0.01	0.318	0.000	0.038	−0.005	−1.24	2.11	952.81	137.03			2.07	138.90
99	140	0.29	0.00	0.01	0.01	0.318	0.000	0.026	−0.009	−1.59	1.76	951.63	146.28			1.70	148.28
Z = 42 (Mo)																	
35	77	−0.27	0.00	0.06	−0.01	−0.278	0.000	−0.037	0.024	1.44	4.17	584.96	3.68			4.13	3.06
36	78	0.36	0.00	0.06	−0.03	0.403	0.000	−0.020	0.010	0.12	4.35	603.84	−7.13			4.28	−7.69
37	79	0.36	0.00	0.06	−0.03	0.403	0.000	−0.020	0.010	−0.30	4.09	619.66	−14.89			4.00	−15.39
38	80	0.38	0.00	0.07	−0.02	0.428	0.000	−0.024	−0.004	−1.26	3.79	637.84	−24.99			3.73	−25.38
39	81	0.39	0.00	0.07	−0.01	0.440	0.000	−0.018	−0.014	−1.74	3.76	652.34	−31.42			3.68	−31.76
40	82	0.41	0.00	0.08	0.00	0.465	0.000	−0.020	−0.028	−2.29	3.80	669.06	−40.07			3.78	−40.29
41	83	0.43	0.00	0.09	0.01	0.492	0.000	−0.021	−0.042	−2.91	3.96	682.34	−45.28			3.91	−45.46
42	84	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	0.22	3.41	698.60	−53.47			3.45	−53.53
43	85	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	−0.04	3.13	710.64	−57.44			3.15	−57.47
44	86	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	−0.46	2.64	725.19	−63.91	−64.56	0.438	2.68	−63.88
45	87	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	−0.75	2.32	736.39	−67.04	−67.69	0.223	2.35	−66.99
46	88	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.85	1.50	750.36	−72.94	−72.70	0.020	1.50	−72.90

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
***Z* = 42 (Mo)**																	
47	89	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	0.12	0.80	761.12	−75.63	−75.00	0.015	0.80	−75.56
48	90	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.25	−0.38	774.61	−81.05	−80.17	0.006	−0.38	−80.96
49	91	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−2.19	−1.13	784.63	−83.00	−82.20	0.011	−1.13	−82.91
50	92	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.30	−2.14	797.16	−87.46	−86.81	0.004	−2.15	−87.35
51	93	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−2.39	−1.44	804.99	−87.22	−86.80	0.004	−1.45	−87.11
52	94	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.24	−0.48	814.78	−88.94	−88.41	0.002	−0.48	−88.83
53	95	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.10	0.55	821.59	−87.68	−87.71	0.002	0.55	−87.57
54	96	0.14	0.00	−0.03	0.01	0.150	0.000	0.045	−0.004	0.17	1.85	830.34	−88.36	−88.79	0.002	1.88	−88.22
55	97	0.16	0.00	−0.02	0.02	0.172	0.000	0.036	−0.015	0.60	2.39	836.98	−86.92	−87.54	0.002	2.42	−86.79
56	98	0.19	0.00	0.00	0.02	0.206	0.000	0.017	−0.019	0.86	2.97	845.77	−87.64	−88.11	0.002	3.02	−87.50
57	99	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	0.85	3.48	851.81	−85.61	−85.97	0.002	3.53	−85.48
58	100	0.23	0.00	0.01	0.02	0.251	0.000	0.013	−0.021	1.10	3.82	860.21	−85.94	−86.18	0.006	3.88	−85.80
59	101	0.27	0.00	0.00	0.01	0.295	0.000	0.033	−0.006	0.55	3.93	866.05	−83.71	−83.51	0.006	3.99	−83.59
60	102	0.30	0.00	0.00	0.01	0.329	0.000	0.041	−0.005	−0.11	3.92	874.20	−83.78	−83.56	0.021	4.01	−83.64
61	103	0.34	0.00	0.01	0.02	0.376	0.000	0.042	−0.016	−1.19	3.79	879.72	−81.23	−80.85	0.061	3.89	−81.09
62	104	0.34	0.00	0.02	0.02	0.377	0.000	0.030	−0.020	−1.09	3.81	887.25	−80.69	−80.33	0.054	3.95	−80.52
63	105	0.35	0.00	0.03	0.02	0.389	0.000	0.022	−0.024	−1.40	3.94	891.97	−77.35	−77.34	0.071	4.07	−77.20
64	106	0.32	0.00	0.03	0.01	0.354	0.000	0.010	−0.016	−0.65	3.99	898.93	−76.23	−76.25	0.018	4.11	−76.11
65	107	0.31	0.00	0.04	0.00	0.343	0.000	−0.006	−0.010	−0.63	3.84	903.43	−72.66	−72.94	0.162	3.92	−72.58
66	108	0.30	0.00	0.05	−0.01	0.333	0.000	−0.023	−0.004	−0.47	3.79	909.96	−71.12			3.91	−71.02
67	109	0.30	0.00	0.06	−0.02	0.333	0.000	−0.036	0.002	−0.65	3.59	914.03	−67.11			3.72	−67.01
68	110	0.30	0.00	0.07	−0.03	0.334	0.000	−0.050	0.008	−0.91	3.28	920.33	−65.34			3.49	−65.17
69	111	0.30	0.00	0.08	−0.03	0.335	0.000	−0.062	0.004	−1.50	3.01	924.00	−60.94			3.23	−60.76
70	112	0.29	0.00	0.08	−0.03	0.323	0.000	−0.064	0.005	−1.25	2.99	929.54	−58.41			3.25	−58.19
71	113	0.28	0.00	0.08	−0.03	0.312	0.000	−0.067	0.006	−1.14	2.87	932.62	−53.42			3.12	−53.21
72	114	−0.22	0.00	0.07	0.01	−0.227	0.000	−0.059	0.007	0.25	2.84	937.72	−50.44			3.05	−50.28
73	115	−0.22	0.00	0.08	0.02	−0.227	0.000	−0.071	0.001	−0.35	2.25	940.85	−45.51			2.51	−45.28
74	116	−0.19	0.00	0.08	0.03	−0.195	0.000	−0.076	−0.010	−0.34	1.95	945.80	−42.38			2.26	−42.08
75	117	−0.18	0.00	0.08	0.04	−0.184	0.000	−0.078	−0.020	−0.97	1.06	948.83	−37.35			1.44	−36.97
76	118	−0.16	0.00	0.08	0.04	−0.164	0.000	−0.081	−0.021	−1.42	0.51	953.61	−34.05			0.93	−33.62
77	119	−0.16	0.00	0.08	0.04	−0.164	0.000	−0.081	−0.021	−2.45	−0.14	956.02	−28.39			0.29	−27.93
78	120	−0.15	0.00	0.07	0.03	−0.154	0.000	−0.071	−0.015	−2.73	−0.66	960.38	−24.68			−0.34	−24.30
79	121	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	−3.43	−1.79	962.91	−19.14			−1.50	−18.76
80	122	0.00	0.00	−0.01	0.00	0.000	0.000	0.012	0.000	−3.65	−2.64	967.22	−15.38			−2.63	−15.25
81	123	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−5.61	−4.36	970.00	−10.09			−4.36	−9.92
82	124	0.00	0.00	0.01	0.00	0.000	0.000	−0.012	0.000	−7.06	−5.67	974.41	−6.42			−5.66	−6.21
83	125	−0.01	0.00	−0.01	0.01	−0.011	0.000	0.012	−0.010	−6.05	−4.83	974.28	1.77			−4.80	2.05
84	126	0.00	0.00	0.01	0.00	0.000	0.000	−0.012	0.000	−5.03	−3.89	976.11	8.02			−3.89	8.33
85	127	0.00	0.00	0.01	0.00	0.000	0.000	−0.012	0.000	−4.06	−3.05	975.66	16.54			−3.04	16.91
86	128	0.00	0.00	0.01	0.00	0.000	0.000	−0.012	0.000	−2.86	−1.96	977.01	23.26			−1.96	23.70
87	129	0.00	0.00	0.01	0.00	0.000	0.000	−0.012	0.000	−1.93	−1.16	976.30	32.04			−1.15	32.54
88	130	0.00	0.00	0.00	0.01	0.000	0.000	0.000	−0.010	−0.83	−0.22	977.47	38.94			−0.19	39.54
89	131	0.02	0.09	−0.01	0.02	0.025	−0.121	0.015	−0.014	−1.22	0.29	976.77	47.71			0.57	48.65
90	132	0.00	0.10	−0.01	0.01	0.004	−0.135	0.016	−0.003	−0.53	1.11	977.76	54.79			1.40	55.83
91	133	0.20	0.00	−0.06	0.00	0.216	0.000	0.092	0.018	−0.94	1.70	976.70	63.93			2.07	65.14
92	134	0.21	0.00	−0.05	0.00	0.227	0.000	0.081	0.016	−0.53	2.08	977.84	70.86			2.37	72.08
93	135	0.21	0.00	−0.05	0.00	0.227	0.000	0.081	0.016	−0.59	2.01	977.16	79.60			2.29	80.93
94	136	0.24	0.00	−0.05	0.01	0.260	0.000	0.088	0.009	−0.80	2.24	978.17	86.67			2.52	88.10
95	137	0.25	0.00	−0.04	0.01	0.271	0.000	0.078	0.006	−0.91	2.22	977.19	95.72			2.40	97.18
96	138	0.25	0.00	−0.03	0.01	0.271	0.000	0.065	0.003	−0.50	2.51	977.87	103.11			2.64	104.64
97	139	0.27	0.00	−0.02	0.02	0.294	0.000	0.059	−0.009	−0.98	2.24	976.89	112.16			2.35	113.80
98	140	0.28	0.00	−0.01	0.02	0.306	0.000	0.049	−0.012	−0.90	2.30	977.55	119.57			2.38	121.33
99	141	0.28	0.00	0.00	0.02	0.306	0.000	0.037	−0.016	−1.21	1.91	976.45	128.75			1.97	130.63
100	142	0.29	0.00	0.01	0.02	0.318	0.000	0.027	−0.019	−1.29	1.96	976.86	136.41			2.04	138.45
101	143	0.29	0.00	0.02	0.02	0.319	0.000	0.015	−0.022	−1.61	1.63	975.48	145.86			1.72	148.07
102	144	0.29	0.00	0.03	0.02	0.320	0.000	0.003	−0.026	−1.51	1.64	975.70	153.71			1.79	156.16

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 43 (Tc)																	
36	79	−0.27	0.00	0.08	0.02	−0.277	0.000	−0.061	0.004	1.12	3.89	600.13	3.86			3.85	3.30
37	80	−0.24	0.00	0.08	0.03	−0.247	0.000	−0.068	−0.007	1.64	4.18	616.30	−4.24			4.14	−4.72
38	81	0.37	0.00	0.06	−0.02	0.415	0.000	−0.015	0.001	−0.62	3.93	634.61	−14.47			3.83	−14.95
39	82	0.38	0.00	0.07	−0.01	0.428	0.000	−0.022	−0.014	−1.10	3.92	649.96	−21.76			3.79	−22.19
40	83	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	0.56	3.59	667.23	−30.96			3.60	−31.19
41	84	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	0.28	3.51	681.62	−37.27			3.50	−37.47
42	85	−0.24	0.00	0.11	0.06	−0.243	0.000	−0.101	−0.024	−0.49	3.00	698.02	−45.60			3.02	−45.72
43	86	−0.24	0.00	0.12	0.06	−0.243	0.000	−0.112	−0.021	−0.95	2.73	711.27	−50.78			2.73	−51.21
44	87	−0.24	0.00	0.11	0.06	−0.243	0.000	−0.101	−0.024	−1.21	2.21	726.35	−57.79			2.23	−57.81
45	88	−0.24	0.00	0.11	0.05	−0.244	0.000	−0.101	−0.015	−1.50	2.11	738.17	−61.54			2.11	−61.55
46	89	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	0.49	1.17	752.42	−67.72			1.17	−67.70
47	90	0.05	0.00	0.00	0.00	0.053	0.000	0.001	0.000	−0.28	0.53	763.95	−71.17	−71.21	0.242	0.53	−71.13
48	91	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−1.57	−0.68	777.62	−76.77	−75.98	0.200	−0.68	−76.72
49	92	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−2.51	−1.43	788.45	−79.53	−78.93	0.026	−1.43	−79.46
50	93	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.59	−2.45	801.15	−84.15	−83.60	0.004	−2.45	−84.07
51	94	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−2.59	−1.62	809.64	−84.58	−84.15	0.004	−1.62	−84.49
52	95	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−1.43	−0.67	819.60	−86.47	−86.02	0.005	−0.67	−86.37
53	96	0.12	0.00	−0.03	0.00	0.128	0.000	0.043	0.005	−0.91	0.89	826.66	−85.45	−85.82	0.005	0.90	−85.35
54	97	0.14	0.00	−0.03	0.01	0.150	0.000	0.045	−0.004	−0.31	1.50	836.24	−86.96	−87.22	0.005	1.52	−86.85
55	98	0.16	0.00	−0.01	0.02	0.172	0.000	0.024	−0.017	0.21	2.03	843.65	−86.30	−86.43	0.004	2.04	−86.20
56	99	0.18	0.00	−0.01	0.03	0.194	0.000	0.028	−0.027	0.47	2.60	852.58	−87.16	−87.32	0.002	2.65	−87.04
57	100	0.19	0.00	0.01	0.02	0.206	0.000	0.005	−0.021	0.88	3.19	859.29	−85.80	−86.02	0.002	3.21	−85.71
58	101	0.21	0.00	0.00	0.02	0.228	0.000	0.021	−0.018	0.99	3.51	867.84	−86.28	−86.34	0.024	3.55	−86.17
59	102	0.25	0.00	−0.01	0.02	0.272	0.000	0.041	−0.014	0.51	3.80	874.24	−84.61	−84.57	0.009	3.84	−84.52
60	103	0.27	0.00	−0.01	0.01	0.294	0.000	0.045	−0.003	0.27	3.96	882.34	−84.64	−84.60	0.010	4.01	−84.54
61	104	0.28	0.00	0.00	0.01	0.306	0.000	0.036	−0.006	0.13	4.01	888.40	−82.62	−82.49	0.046	4.05	−82.56
62	105	0.29	0.00	0.00	0.01	0.318	0.000	0.038	−0.005	−0.07	4.03	896.05	−82.21	−82.29	0.055	4.09	−82.13
63	106	0.29	0.00	0.01	0.01	0.318	0.000	0.026	−0.009	−0.16	3.94	901.71	−79.79	−79.78	0.013	3.99	−79.74
64	107	0.28	0.00	0.02	0.00	0.308	0.000	0.010	−0.003	0.08	3.92	908.85	−78.86	−79.10	0.150	3.97	−78.82
65	108	0.28	0.00	0.03	0.00	0.308	0.000	−0.002	−0.006	−0.13	3.73	914.09	−76.03	−75.95	0.126	3.77	−76.01
66	109	0.28	0.00	0.04	−0.01	0.309	0.000	−0.016	−0.000	−0.17	3.67	920.73	−74.60	−74.54	0.096	3.75	−74.57
67	110	0.28	0.00	0.05	−0.02	0.309	0.000	−0.029	0.006	−0.29	3.58	925.38	−71.17	−70.96	0.077	3.66	−71.14
68	111	0.28	0.00	0.06	−0.02	0.310	0.000	−0.041	0.003	−0.35	3.58	931.47	−69.19	−69.22	0.109	3.70	−69.12
69	112	0.28	0.00	0.07	−0.03	0.311	0.000	−0.055	0.009	−0.92	3.20	935.93	−65.58	−66.00	0.124	3.36	−65.48
70	113	−0.25	0.00	0.08	0.00	−0.258	0.000	−0.064	0.021	−0.36	3.09	941.66	−63.24			3.31	−63.08
71	114	−0.25	0.00	0.08	0.01	−0.258	0.000	−0.064	0.012	−0.58	2.74	945.63	−59.14			2.93	−59.01
72	115	−0.22	0.00	0.07	0.01	−0.227	0.000	−0.059	0.007	−0.12	2.52	951.01	−56.45			2.70	−56.34
73	116	−0.22	0.00	0.08	0.02	−0.227	0.000	−0.071	0.001	−0.74	2.03	954.69	−52.06			2.26	−51.90
74	117	−0.19	0.00	0.08	0.03	−0.195	0.000	−0.076	−0.010	−0.72	1.69	959.76	−49.06			1.97	−48.83
75	118	−0.18	0.00	0.08	0.03	−0.185	0.000	−0.078	−0.011	−1.34	1.09	963.15	−44.37			1.38	−44.13
76	119	−0.16	0.00	0.08	0.04	−0.164	0.000	−0.081	−0.021	−1.62	0.41	968.13	−41.29			0.79	−40.94
77	120	−0.16	0.00	0.08	0.04	−0.164	0.000	−0.081	−0.021	−2.67	−0.60	971.54	−36.62			−0.22	−36.26
78	121	−0.16	0.00	0.07	0.04	−0.164	0.000	−0.070	−0.023	−3.05	−0.83	975.68	−32.69			−0.47	−32.33
79	122	−0.15	0.00	0.07	0.03	−0.154	0.000	−0.071	−0.015	−3.99	−1.83	978.70	−27.64			−1.53	−27.32
80	123	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.67	−2.75	983.15	−24.02			−2.75	−23.96
81	124	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−5.71	−4.49	986.55	−19.35			−4.48	−19.25
82	125	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.15	−5.78	991.02	−15.74			−5.78	−15.62
83	126	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−6.13	−4.94	991.49	−8.15			−4.94	−7.98
84	127	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.09	−3.99	993.36	−1.95			−3.99	−1.73
85	128	−0.01	0.01	0.01	0.00	−0.010	−0.013	−0.012	0.000	−4.10	−3.11	993.47	6.02			−3.10	6.29
86	129	0.00	0.00	0.00	0.01	0.000	0.000	0.000	−0.010	−2.87	−2.03	994.88	12.68			−2.01	13.02
87	130	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−1.90	−1.18	994.71	20.92			−1.18	21.31
88	131	0.00	0.00	0.01	−0.01	0.000	0.000	−0.012	0.010	−0.84	−0.22	995.92	27.78			−0.19	28.27
89	132	0.03	0.08	0.00	0.01	0.034	−0.108	0.003	−0.006	−0.90	0.44	995.63	36.14			0.60	36.83
90	133	0.15	0.00	−0.04	0.01	0.161	0.000	0.059	−0.002	−0.46	1.36	996.57	43.28			1.51	44.03
91	134	0.18	0.00	−0.05	0.01	0.194	0.000	0.076	0.003	−0.61	1.56	996.45	51.47			1.78	52.37
92	135	0.20	0.00	−0.06	0.00	0.216	0.000	0.092	0.018	−0.89	1.84	997.75	58.24			2.19	59.38

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 43 (Tc)																	
93	136	0.21	0.00	−0.05	0.00	0.227	0.000	0.081	0.016	−0.85	1.84	997.55	66.51			2.09	67.64
94	137	0.23	0.00	−0.05	0.01	0.249	0.000	0.086	0.008	−0.80	2.10	998.57	73.56			2.35	74.79
95	138	0.25	0.00	−0.04	0.02	0.271	0.000	0.079	−0.004	−1.08	2.15	998.05	82.15			2.34	83.42
96	139	0.25	0.00	−0.03	0.01	0.271	0.000	0.065	0.003	−0.69	2.37	998.86	89.42			2.47	90.72
97	140	0.26	0.00	−0.02	0.02	0.283	0.000	0.056	−0.010	−0.97	2.17	998.33	98.01			2.26	99.42
98	141	0.27	0.00	−0.01	0.02	0.294	0.000	0.046	−0.013	−0.86	2.25	999.00	105.41			2.33	106.94
99	142	0.28	0.00	0.00	0.02	0.306	0.000	0.037	−0.016	−1.31	1.89	998.40	114.09			1.94	115.72
100	143	0.28	0.00	0.01	0.02	0.307	0.000	0.025	−0.019	−1.18	1.92	998.87	121.69			1.99	123.48
101	144	0.29	0.00	0.02	0.02	0.319	0.000	0.015	−0.022	−1.66	1.62	997.97	130.66			1.69	132.60
102	145	0.28	0.00	0.02	0.02	0.308	0.000	0.013	−0.023	−1.34	1.70	998.15	138.55			1.79	140.67
103	146	0.29	0.00	0.03	0.02	0.320	0.000	0.003	−0.026	−1.80	1.40	997.01	147.76			1.51	150.06
104	147	0.28	0.00	0.04	0.02	0.310	0.000	−0.011	−0.029	−1.44	1.46	996.98	155.86			1.66	158.42
Z = 44 (Ru)																	
37	81	−0.24	0.00	0.08	0.03	−0.247	0.000	−0.068	−0.007	1.35	3.69	614.91	4.44			3.67	3.94
38	82	−0.23	0.00	0.09	0.04	−0.235	0.000	−0.081	−0.013	1.15	3.57	633.97	−6.54			3.59	−6.93
39	83	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	0.88	3.56	649.51	−14.01			3.57	−14.33
40	84	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	0.36	3.21	667.67	−24.10			3.23	−24.34
41	85	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	0.08	3.04	682.32	−30.68			3.04	−30.88
42	86	−0.24	0.00	0.11	0.06	−0.243	0.000	−0.101	−0.024	−0.69	2.63	699.47	−39.76			2.67	−39.89
43	87	−0.24	0.00	0.11	0.06	−0.243	0.000	−0.101	−0.024	−0.98	2.43	713.16	−45.38			2.44	−45.48
44	88	−0.24	0.00	0.11	0.06	−0.243	0.000	−0.101	−0.024	−1.41	2.13	729.21	−53.36			2.17	−53.39
45	89	−0.24	0.00	0.11	0.06	−0.243	0.000	−0.101	−0.024	−1.72	1.87	741.35	−57.43			1.89	−57.45
46	90	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−0.27	0.52	756.85	−64.86			0.52	−64.87
47	91	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−0.98	−0.19	768.60	−68.53			−0.19	−68.52
48	92	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.37	−1.41	783.10	−74.97			−1.41	−74.93
49	93	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−3.27	−2.16	794.09	−77.88	−77.27	0.085	−2.16	−77.83
50	94	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.38	−3.17	807.56	−83.28	−82.57	0.013	−3.17	−83.22
51	95	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−3.36	−2.40	816.27	−83.92	−83.45	0.012	−2.40	−83.85
52	96	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.22	−1.45	827.01	−86.59	−86.07	0.008	−1.45	−86.51
53	97	0.10	0.00	−0.03	0.00	0.107	0.000	0.041	0.004	−1.45	0.12	834.20	−85.70	−86.11	0.008	0.13	−85.61
54	98	0.13	0.00	−0.03	0.01	0.139	0.000	0.044	−0.005	−0.89	1.05	844.23	−87.66	−88.22	0.006	1.08	−87.56
55	99	0.15	0.00	−0.02	0.02	0.161	0.000	0.035	−0.016	−0.40	1.72	851.64	−87.00	−87.62	0.002	1.74	−86.91
56	100	0.17	0.00	−0.01	0.03	0.183	0.000	0.026	−0.027	0.00	1.92	861.71	−89.00	−89.22	0.002	1.97	−88.89
57	101	0.18	0.00	0.01	0.02	0.195	0.000	0.003	−0.021	0.58	2.63	868.43	−87.65	−87.95	0.002	2.66	−87.56
58	102	0.19	0.00	0.01	0.02	0.206	0.000	0.005	−0.021	0.86	3.13	877.54	−88.69	−89.10	0.002	3.17	−88.59
59	103	0.21	0.00	0.01	0.02	0.228	0.000	0.009	−0.021	0.86	3.45	884.04	−87.12	−87.26	0.002	3.49	−87.04
60	104	0.24	0.00	−0.01	0.01	0.261	0.000	0.038	−0.004	0.53	3.65	892.82	−87.83	−88.09	0.003	3.71	−87.74
61	105	0.26	0.00	−0.01	0.01	0.283	0.000	0.043	−0.003	0.24	3.71	899.00	−85.94	−85.93	0.003	3.76	−85.87
62	106	0.26	0.00	0.00	0.01	0.284	0.000	0.031	−0.007	0.42	3.83	907.27	−86.14	−86.32	0.008	3.89	−86.07
63	107	0.26	0.00	0.01	0.01	0.284	0.000	0.018	−0.010	0.36	3.76	913.02	−83.81	−83.92	0.124	3.81	−83.77
64	108	0.26	0.00	0.02	0.00	0.285	0.000	0.005	−0.003	0.37	3.73	920.87	−83.59	−83.67	0.116	3.80	−83.56
65	109	0.26	0.00	0.03	−0.01	0.285	0.000	−0.008	0.003	0.21	3.63	926.13	−80.78	−80.85	0.066	3.69	−80.76
66	110	−0.24	0.00	0.06	0.00	−0.248	0.000	−0.044	0.014	0.42	3.53	933.52	−80.10	−79.98	0.053	3.65	−80.03
67	111	−0.24	0.00	0.06	0.00	−0.248	0.000	−0.044	0.014	0.34	3.34	938.37	−76.88	−76.67	0.074	3.45	−76.82
68	112	−0.25	0.00	0.07	0.00	−0.258	0.000	−0.053	0.018	−0.08	3.29	945.19	−75.62	−75.48	0.074	3.46	−75.53
69	113	−0.25	0.00	0.08	0.00	−0.258	0.000	−0.064	0.021	−0.62	2.92	949.73	−72.10	−72.20	0.070	3.12	−71.98
70	114	−0.25	0.00	0.08	0.01	−0.258	0.000	−0.064	0.012	−0.69	2.72	956.22	−70.51			2.93	−70.39
71	115	−0.25	0.00	0.08	0.01	−0.258	0.000	−0.064	0.012	−0.94	2.36	960.30	−66.53	−66.43	0.129	2.56	−66.41
72	116	−0.22	0.00	0.07	0.01	−0.227	0.000	−0.059	0.007	−0.51	2.16	966.32	−64.47			2.34	−64.38
73	117	−0.22	0.00	0.08	0.02	−0.227	0.000	−0.071	0.001	−1.13	1.69	970.08	−60.16			1.91	−60.03
74	118	−0.19	0.00	0.08	0.03	−0.195	0.000	−0.076	−0.010	−1.17	1.36	975.77	−57.78			1.64	−57.59
75	119	−0.18	0.00	0.09	0.04	−0.184	0.000	−0.089	−0.017	−1.97	0.64	979.37	−53.31			1.02	−53.01
76	120	−0.16	0.00	0.08	0.04	−0.164	0.000	−0.081	−0.021	−2.02	0.13	984.83	−50.69			0.49	−50.40
77	121	−0.16	0.00	0.08	0.04	−0.164	0.000	−0.081	−0.021	−3.05	−0.65	988.08	−45.87			−0.28	−45.56
78	122	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	−2.96	−1.32	993.28	−43.00			−1.07	−42.81
79	123	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	−4.15	−2.44	996.50	−38.15			−2.19	−37.93
80	124	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.47	−3.48	1001.68	−35.26			−3.48	−35.27

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 44 (Ru)																	
81	125	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−6.48	−5.22	1005.16	−30.67			−5.21	−30.64
82	126	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.98	−6.57	1010.28	−27.72			−6.57	−27.67
83	127	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.89	−5.65	1010.75	−20.12			−5.65	−20.03
84	128	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.86	−4.71	1013.22	−14.52			−4.71	−14.39
85	129	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−4.77	−3.73	1013.29	−6.52			−3.73	−6.34
86	130	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.54	−2.64	1015.28	−0.43			−2.64	−0.21
87	131	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.55	−1.78	1015.15	7.77			−1.78	8.05
88	132	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.42	−0.76	1016.87	14.12			−0.76	14.46
89	133	0.11	0.03	−0.03	0.00	0.118	−0.041	0.042	0.005	−1.33	0.17	1016.37	22.69			0.27	23.19
90	134	0.14	0.02	−0.04	0.01	0.150	−0.028	0.058	−0.002	−0.83	0.97	1018.00	29.13			1.13	29.77
91	135	0.15	0.00	−0.04	0.01	0.161	0.000	0.059	−0.002	−0.40	1.44	1017.66	37.54			1.59	38.24
92	136	0.19	0.00	−0.05	0.01	0.205	0.000	0.078	0.004	−0.59	1.78	1019.45	43.83			2.02	44.70
93	137	0.21	0.00	−0.05	0.01	0.227	0.000	0.082	0.006	−0.93	1.81	1019.28	52.07			2.04	53.03
94	138	0.21	0.00	−0.05	0.01	0.227	0.000	0.082	0.006	−0.61	2.08	1020.84	58.58			2.33	59.65
95	139	0.23	0.00	−0.04	0.01	0.249	0.000	0.073	0.005	−0.72	2.24	1020.26	67.24			2.41	68.32
96	140	0.24	0.00	−0.04	0.02	0.260	0.000	0.076	−0.005	−0.72	2.29	1021.76	73.80			2.51	75.04
97	141	0.25	0.00	−0.03	0.02	0.271	0.000	0.066	−0.007	−0.93	2.16	1021.21	82.42			2.31	83.70
98	142	0.25	0.00	−0.02	0.02	0.271	0.000	0.054	−0.010	−0.55	2.36	1022.29	89.41			2.49	90.78
99	143	0.26	0.00	−0.01	0.02	0.283	0.000	0.044	−0.013	−0.90	2.05	1021.68	98.10			2.13	99.55
100	144	0.27	0.00	0.00	0.02	0.295	0.000	0.034	−0.016	−0.89	2.11	1022.63	105.21			2.20	106.80
101	145	0.28	0.00	0.01	0.03	0.307	0.000	0.026	−0.029	−1.41	1.65	1021.92	113.99			1.88	115.85
102	146	0.28	0.00	0.02	0.02	0.308	0.000	0.013	−0.023	−1.17	1.87	1022.48	121.50			1.98	123.40
103	147	0.28	0.00	0.03	0.02	0.309	0.000	0.001	−0.026	−1.45	1.60	1021.34	130.71			1.75	132.79
104	148	0.28	0.00	0.04	0.02	0.310	0.000	−0.011	−0.029	−1.25	1.75	1021.73	138.40			1.98	140.71
105	149	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−1.07	1.64	1020.22	147.99			1.74	150.33
106	150	0.26	0.00	0.05	0.00	0.287	0.000	−0.031	−0.013	−0.97	1.77	1020.38	155.89			1.88	158.41
Z = 45 (Rh)																	
38	83	−0.23	0.00	0.09	0.04	−0.235	0.000	−0.081	−0.013	0.69	3.18	630.02	4.70			3.18	4.28
39	84	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	0.45	3.28	646.31	−3.53			3.27	−3.89
40	85	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	−0.08	2.74	664.83	−13.97			2.75	−14.26
41	86	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	−0.36	2.57	680.33	−21.40			2.55	−21.65
42	87	−0.24	0.00	0.11	0.06	−0.243	0.000	−0.101	−0.024	−1.14	2.20	697.61	−30.61			2.21	−30.79
43	88	−0.24	0.00	0.11	0.06	−0.243	0.000	−0.101	−0.024	−1.44	2.09	712.05	−36.98			2.07	−37.13
44	89	−0.24	0.00	0.11	0.06	−0.243	0.000	−0.101	−0.024	−1.87	1.70	728.35	−45.21			1.71	−45.30
45	90	0.10	0.00	−0.01	0.00	0.107	0.000	0.016	0.001	−0.06	1.24	741.86	−50.65			1.23	−51.05
46	91	0.07	0.00	0.00	0.00	0.075	0.000	0.002	0.000	−1.00	0.02	757.71	−58.43			0.02	−58.47
47	92	0.08	0.00	0.00	0.00	0.085	0.000	0.003	0.000	−1.82	−0.64	770.22	−62.87			−0.64	−62.88
48	93	0.00	0.00	0.00	0.01	0.000	0.000	0.000	−0.010	−2.96	−2.02	785.04	−69.61			−2.02	−69.60
49	94	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−3.83	−2.76	796.81	−73.31			−2.76	−73.28
50	95	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.95	−3.78	810.44	−78.87	−78.34	0.150	−3.78	−78.83
51	96	0.05	0.00	−0.02	0.00	0.053	0.000	0.025	0.001	−4.07	−2.82	819.74	−80.10	−79.68	0.013	−2.82	−80.04
52	97	0.04	0.00	−0.01	0.00	0.043	0.000	0.013	0.001	−2.85	−1.91	830.67	−82.96	−82.59	0.036	−1.91	−82.90
53	98	0.10	0.00	−0.03	0.00	0.107	0.000	0.041	0.004	−2.21	−0.56	838.84	−83.06	−83.18	0.012	−0.55	−82.99
54	99	0.13	0.00	−0.03	0.01	0.139	0.000	0.044	−0.005	−1.60	0.42	848.97	−85.11	−85.57	0.007	0.44	−85.04
55	100	0.15	0.00	−0.01	0.02	0.161	0.000	0.023	−0.018	−1.03	1.09	857.13	−85.21	−85.58	0.018	1.10	−85.14
56	101	0.17	0.00	0.00	0.03	0.184	0.000	0.014	−0.029	−0.65	1.25	867.38	−87.38	−87.41	0.017	1.28	−87.29
57	102	0.17	0.00	0.01	0.02	0.184	0.000	0.002	−0.021	0.03	1.82	874.98	−86.91	−86.78	0.005	1.84	−86.84
58	103	0.18	0.00	0.01	0.02	0.195	0.000	0.003	−0.021	0.43	2.33	884.21	−88.07	−88.02	0.003	2.35	−88.00
59	104	0.20	0.00	0.01	0.01	0.217	0.000	0.006	−0.011	0.63	3.06	891.03	−86.82	−86.95	0.003	3.07	−86.77
60	105	0.20	0.00	0.01	0.01	0.217	0.000	0.006	−0.011	0.88	3.28	899.92	−87.64	−87.85	0.004	3.30	−87.60
61	106	0.23	0.00	−0.01	0.01	0.250	0.000	0.036	−0.005	0.51	3.47	906.68	−86.32	−86.36	0.008	3.50	−86.29
62	107	0.23	0.00	0.00	0.00	0.250	0.000	0.023	0.002	0.63	3.49	915.17	−86.74	−86.86	0.012	3.53	−86.72
63	108	0.23	0.00	0.01	0.00	0.250	0.000	0.011	−0.001	0.70	3.55	921.50	−85.00	−85.02	0.105	3.57	−85.00
64	109	0.24	0.00	0.02	−0.01	0.262	0.000	−0.001	0.006	0.48	3.46	929.53	−84.96	−85.01	0.012	3.50	−84.96
65	110	−0.24	0.00	0.05	0.01	−0.248	0.000	−0.034	0.002	0.31	3.32	935.52	−82.88	−82.78	0.050	3.37	−82.87
66	111	−0.24	0.00	0.06	0.01	−0.248	0.000	−0.045	0.005	0.21	3.29	942.94	−82.23	−82.36	0.030	3.38	−82.21
67	112	−0.24	0.00	0.06	0.00	−0.248	0.000	−0.044	0.014	0.06	3.03	948.53	−79.75	−79.74	0.052	3.12	−79.74

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 45 (Rh)																	
68	113	−0.24	0.00	0.07	0.00	−0.248	0.000	−0.055	0.017	−0.32	2.92	955.53	−78.67	−78.68	0.049	3.05	−78.62
69	114	−0.25	0.00	0.07	0.00	−0.258	0.000	−0.053	0.018	−0.83	2.62	960.67	−75.74	−75.63	0.113	2.75	−75.71
70	115	−0.25	0.00	0.08	0.01	−0.258	0.000	−0.064	0.012	−1.07	2.37	967.30	−74.30	−74.21	0.081	2.55	−74.23
71	116	−0.25	0.00	0.08	0.01	−0.258	0.000	−0.064	0.012	−1.32	2.03	972.02	−70.95	−70.74	0.138	2.20	−70.89
72	117	−0.23	0.00	0.07	0.01	−0.237	0.000	−0.058	0.008	−1.07	1.80	978.16	−69.02			1.95	−68.99
73	118	−0.22	0.00	0.08	0.02	−0.227	0.000	−0.071	0.001	−1.53	1.38	982.52	−65.31			1.57	−65.23
74	119	−0.19	0.00	0.08	0.03	−0.195	0.000	−0.076	−0.010	−1.59	1.04	988.32	−63.04			1.28	−62.91
75	120	−0.18	0.00	0.08	0.03	−0.185	0.000	−0.078	−0.011	−2.16	0.43	992.43	−59.08			0.67	−58.95
76	121	−0.16	0.00	0.08	0.04	−0.164	0.000	−0.081	−0.021	−2.38	−0.12	998.01	−56.59			0.20	−56.37
77	122	−0.16	0.00	0.08	0.04	−0.164	0.000	−0.081	−0.021	−3.38	−0.92	1001.91	−52.41			−0.59	−52.18
78	123	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	−3.35	−1.67	1007.28	−49.71			−1.45	−49.58
79	124	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−3.54	−2.76	1011.08	−45.44			−2.76	−45.52
80	125	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−4.96	−4.00	1016.54	−42.83			−4.00	−42.89
81	126	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−6.82	−5.57	1020.45	−38.67			−5.57	−38.70
82	127	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.36	−6.96	1025.69	−35.83			−6.96	−35.85
83	128	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−7.24	−6.00	1026.70	−28.78			−6.00	−28.76
84	129	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.20	−5.05	1029.24	−23.25			−5.05	−23.19
85	130	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−5.07	−4.04	1029.86	−15.80			−4.04	−15.71
86	131	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.84	−2.94	1031.90	−9.76			−2.94	−9.62
87	132	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.82	−2.06	1032.32	−2.11			−2.06	−1.93
88	133	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.69	−1.04	1034.11	4.17			−1.04	4.40
89	134	0.11	0.02	−0.03	0.00	0.118	−0.028	0.042	0.005	−1.60	−0.11	1034.17	12.18			−0.03	12.55
90	135	0.14	0.00	−0.04	0.01	0.150	0.000	0.058	−0.002	−1.17	0.50	1036.04	18.38			0.64	18.87
91	136	0.15	0.00	−0.02	0.01	0.161	0.000	0.034	−0.006	−0.49	1.23	1036.01	26.49			1.28	26.96
92	137	0.15	0.00	−0.03	0.01	0.161	0.000	0.047	−0.004	−0.03	1.70	1037.71	32.85			1.79	33.44
93	138	0.21	0.00	−0.05	0.01	0.227	0.000	0.082	0.006	−1.20	1.65	1038.16	40.47			1.86	41.26
94	139	0.21	0.00	−0.05	0.01	0.227	0.000	0.082	0.006	−0.88	1.86	1039.83	46.88			2.09	47.76
95	140	0.21	0.00	−0.04	0.01	0.227	0.000	0.069	0.003	−0.64	1.93	1039.88	54.90			2.08	55.80
96	141	0.23	0.00	−0.04	0.02	0.249	0.000	0.074	−0.006	−0.68	2.19	1041.22	61.63			2.39	62.67
97	142	0.25	0.00	−0.03	0.02	0.271	0.000	0.066	−0.007	−1.05	2.09	1041.18	69.75			2.22	70.82
98	143	0.26	0.00	−0.02	0.02	0.283	0.000	0.056	−0.010	−0.92	2.25	1042.34	76.65			2.36	77.82
99	144	0.26	0.00	−0.01	0.02	0.283	0.000	0.044	−0.013	−1.10	1.94	1042.24	84.82			2.01	86.06
100	145	0.27	0.00	0.00	0.02	0.295	0.000	0.034	−0.016	−1.07	2.03	1043.21	91.92			2.10	93.28
101	146	0.27	0.00	0.01	0.02	0.296	0.000	0.022	−0.019	−1.30	1.74	1042.85	100.36			1.81	101.84
102	147	0.27	0.00	0.02	0.02	0.296	0.000	0.010	−0.023	−1.16	1.80	1043.59	107.69			1.91	109.34
103	148	0.28	0.00	0.03	0.02	0.309	0.000	0.001	−0.026	−1.59	1.58	1042.93	116.42			1.70	118.23
104	149	0.27	0.00	0.03	0.02	0.297	0.000	−0.002	−0.026	−1.17	1.66	1043.40	124.02			1.81	125.99
105	150	0.25	0.00	0.04	0.01	0.275	0.000	−0.020	−0.019	−1.12	1.54	1042.40	133.09			1.63	135.16
106	151	0.25	0.00	0.05	0.00	0.276	0.000	−0.033	−0.012	−1.01	1.60	1042.67	140.90			1.70	143.14
107	152	0.24	0.00	0.06	−0.01	0.265	0.000	−0.049	−0.005	−1.29	1.27	1041.65	149.98			1.43	152.45
108	153	0.24	0.00	0.07	−0.01	0.266	0.000	−0.061	−0.008	−1.33	1.20	1041.82	157.88			1.48	160.63
Z = 46 (Pd)																	
40	86	−0.23	0.00	0.09	0.05	−0.235	0.000	−0.081	−0.022	−0.10	2.39	663.95	−5.80			2.41	−6.09
41	87	−0.23	0.00	0.09	0.05	−0.235	0.000	−0.081	−0.022	−0.35	2.24	679.59	−13.37			2.24	−13.62
42	88	−0.23	0.00	0.10	0.05	−0.234	0.000	−0.092	−0.019	−1.00	1.89	697.69	−23.40			1.91	−23.58
43	89	−0.23	0.00	0.10	0.06	−0.234	0.000	−0.093	−0.028	−1.28	1.78	712.29	−29.93			1.79	−30.08
44	90	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.12	0.63	730.18	−39.75			0.63	−39.87
45	91	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−0.53	0.19	744.17	−45.66			0.18	−45.75
46	92	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.72	−0.90	761.03	−54.45			−0.90	−54.51
47	93	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−2.42	−1.58	773.71	−59.07			−1.59	−59.10
48	94	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−3.84	−2.84	789.20	−66.49			−2.84	−66.49
49	95	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−4.73	−3.58	801.13	−70.35			−3.59	−70.33
50	96	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.87	−4.63	815.59	−76.73	−76.23	0.151	−4.64	−76.70
51	97	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−4.84	−3.81	825.16	−78.23	−77.80	0.302	−3.81	−78.19
52	98	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−3.69	−2.83	836.80	−81.79	−81.30	0.021	−2.83	−81.75
53	99	0.10	0.00	−0.02	0.00	0.107	0.000	0.028	0.003	−2.92	−1.32	844.96	−81.88	−82.19	0.015	−1.32	−81.83
54	100	0.12	0.00	−0.02	0.01	0.128	0.000	0.031	−0.007	−2.15	−0.35	855.85	−84.71	−85.23	0.011	−0.34	−84.64

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 46 (Pd)																	
55	101	0.14	0.00	−0.01	0.02	0.150	0.000	0.022	−0.018	−1.67	0.34	864.12	−84.91	−85.43	0.018	0.35	−84.85
56	102	0.15	0.00	0.00	0.03	0.162	0.000	0.012	−0.029	−1.11	0.98	874.63	−87.35	−87.93	0.003	1.01	−87.27
57	103	0.16	0.00	0.01	0.02	0.173	0.000	0.000	−0.021	−0.54	1.60	882.32	−86.97	−87.48	0.003	1.62	−86.91
58	104	0.16	0.00	0.01	0.02	0.173	0.000	0.000	−0.021	0.05	1.79	892.61	−89.18	−89.39	0.004	1.81	−89.12
59	105	0.16	0.00	0.03	0.00	0.174	0.000	−0.025	−0.005	0.63	2.34	899.73	−88.23	−88.41	0.004	2.36	−88.19
60	106	0.17	0.00	0.03	0.00	0.185	0.000	−0.024	−0.005	0.97	2.68	909.22	−89.65	−89.90	0.004	2.71	−89.61
61	107	0.18	0.00	0.02	0.00	0.195	0.000	−0.010	−0.003	1.22	3.24	915.74	−88.09	−88.37	0.004	3.26	−88.08
62	108	0.20	0.00	0.02	−0.01	0.217	0.000	−0.008	0.006	1.10	3.32	924.88	−89.16	−89.52	0.003	3.36	−89.14
63	109	0.22	0.00	0.01	−0.01	0.239	0.000	0.008	0.009	0.84	3.37	931.33	−87.54	−87.61	0.003	3.41	−87.54
64	110	0.22	0.00	0.03	−0.01	0.240	0.000	−0.017	0.004	0.81	3.31	940.03	−88.17	−88.35	0.011	3.36	−88.16
65	111	−0.24	0.00	0.05	0.01	−0.248	0.000	−0.034	0.002	0.36	3.31	945.99	−86.07	−86.00	0.011	3.37	−86.06
66	112	−0.24	0.00	0.05	0.00	−0.248	0.000	−0.033	0.011	0.29	3.20	954.18	−86.18	−86.34	0.018	3.28	−86.17
67	113	−0.24	0.00	0.06	0.00	−0.248	0.000	−0.044	0.014	−0.12	2.97	959.85	−83.78	−83.69	0.036	3.07	−83.77
68	114	−0.25	0.00	0.07	0.00	−0.258	0.000	−0.053	0.018	−0.73	2.63	967.75	−83.60	−83.50	0.024	2.77	−83.56
69	115	−0.25	0.00	0.07	0.00	−0.258	0.000	−0.053	0.018	−1.10	2.37	972.95	−80.74	−80.40	0.061	2.51	−80.71
70	116	−0.25	0.00	0.07	0.00	−0.258	0.000	−0.053	0.018	−1.23	2.15	980.21	−79.93	−79.96	0.056	2.31	−79.89
71	117	−0.25	0.00	0.07	0.00	−0.258	0.000	−0.053	0.018	−1.46	1.84	985.01	−76.65	−76.53	0.059	1.99	−76.63
72	118	−0.22	0.00	0.07	0.01	−0.227	0.000	−0.059	0.007	−1.15	1.56	991.85	−75.42	−75.47	0.210	1.72	−75.40
73	119	−0.20	0.00	0.07	0.02	−0.206	0.000	−0.063	−0.003	−1.33	1.21	996.23	−71.73			1.36	−71.72
74	120	−0.16	0.00	0.07	0.03	−0.165	0.000	−0.070	−0.014	−1.37	0.78	1002.75	−70.18	−70.15	0.124	0.99	−70.12
75	121	−0.16	0.00	0.07	0.03	−0.165	0.000	−0.070	−0.014	−2.06	0.10	1007.03	−66.39			0.30	−66.33
76	122	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	−2.25	−0.66	1013.46	−64.74			−0.47	−64.69
77	123	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	−3.28	−1.56	1017.54	−60.76			−1.37	−60.70
78	124	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−3.12	−2.30	1023.51	−58.65			−2.29	−58.78
79	125	0.01	0.00	0.00	0.01	0.011	0.000	0.000	−0.010	−4.52	−3.58	1027.58	−54.65			−3.57	−54.76
80	126	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.11	−5.03	1033.86	−52.86			−5.03	−52.97
81	127	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−7.72	−6.42	1037.67	−48.60			−6.42	−48.69
82	128	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.09	−7.66	1043.35	−46.21			−7.66	−46.28
83	129	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−8.17	−6.89	1044.63	−39.42			−6.89	−39.47
84	130	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.12	−5.92	1047.73	−34.45			−5.92	−34.47
85	131	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.95	−4.88	1048.40	−27.04			−4.88	−27.03
86	132	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.70	−3.74	1050.97	−21.55			−3.74	−21.50
87	133	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.66	−2.82	1051.43	−13.93			−2.82	−13.84
88	134	0.03	0.02	0.00	0.00	0.032	−0.027	0.001	0.000	−2.60	−1.75	1053.73	−8.16			−1.74	−8.01
89	135	0.11	0.00	−0.03	0.00	0.118	0.000	0.042	0.005	−2.19	−0.72	1053.75	−0.11			−0.65	0.14
90	136	0.11	0.00	−0.03	0.00	0.118	0.000	0.042	0.005	−1.44	−0.04	1056.12	5.59			0.04	5.91
91	137	0.14	0.01	−0.02	0.01	0.150	−0.014	0.033	−0.006	−0.91	0.71	1056.12	13.67			0.77	14.03
92	138	0.15	0.00	−0.03	0.01	0.161	0.000	0.047	−0.004	−0.52	1.24	1058.32	19.54			1.34	20.00
93	139	0.20	0.00	−0.06	0.01	0.216	0.000	0.093	0.008	−1.53	1.65	1058.36	27.56			1.94	28.30
94	140	0.20	0.00	−0.05	0.01	0.216	0.000	0.080	0.005	−0.89	1.74	1060.69	33.30			1.97	34.05
95	141	0.21	0.00	−0.05	0.01	0.227	0.000	0.082	0.006	−1.07	1.76	1060.85	41.22			1.99	42.05
96	142	0.23	0.00	−0.04	0.02	0.249	0.000	0.074	−0.006	−0.83	2.11	1062.63	47.51			2.32	48.40
97	143	0.24	0.00	−0.03	0.02	0.260	0.000	0.064	−0.008	−0.96	2.03	1062.60	55.61			2.18	56.54
98	144	0.25	0.00	−0.02	0.02	0.271	0.000	0.054	−0.010	−0.81	2.20	1064.29	62.00			2.33	63.00
99	145	0.25	0.00	−0.02	0.03	0.271	0.000	0.055	−0.021	−1.12	1.79	1064.33	70.02			2.01	71.22
100	146	0.26	0.00	−0.01	0.03	0.283	0.000	0.045	−0.023	−1.03	1.93	1065.78	76.65			2.15	77.96
101	147	0.26	0.00	0.00	0.02	0.284	0.000	0.032	−0.016	−1.13	1.84	1065.25	85.25			1.92	86.53
102	148	0.26	0.00	0.01	0.02	0.284	0.000	0.020	−0.020	−0.94	1.92	1066.49	92.08			2.03	93.51
103	149	0.26	0.00	0.02	0.02	0.285	0.000	0.007	−0.023	−1.15	1.68	1065.88	100.76			1.79	102.33
104	150	0.26	0.00	0.03	0.01	0.286	0.000	−0.006	−0.016	−0.88	1.86	1066.76	107.95			1.93	109.61
105	151	0.25	0.00	0.04	0.01	0.275	0.000	−0.020	−0.019	−0.99	1.66	1065.87	116.91			1.77	118.75
106	152	0.24	0.00	0.05	0.00	0.264	0.000	−0.036	−0.012	−0.80	1.75	1066.60	124.25			1.88	126.26
107	153	0.23	0.00	0.05	−0.01	0.253	0.000	−0.039	−0.002	−0.91	1.48	1065.56	133.36			1.59	135.51
108	154	0.22	0.00	0.06	−0.01	0.242	0.000	−0.053	−0.004	−0.82	1.42	1066.21	140.79			1.64	143.20
109	155	0.21	0.00	0.07	−0.02	0.231	0.000	−0.068	0.004	−1.14	1.03	1065.07	150.00			1.39	152.72
110	156	0.21	0.00	0.07	−0.02	0.231	0.000	−0.068	0.004	−1.05	0.92	1065.54	157.60			1.30	160.51

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 47 (Ag)																	
41	88	0.05	0.01	0.00	0.00	0.053	−0.014	0.001	0.000	0.74	1.48	676.65	−3.14			1.48	−3.41
42	89	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−0.04	0.76	695.29	−13.71			0.76	−13.93
43	90	0.07	0.00	0.00	0.00	0.075	0.000	0.002	0.000	−0.35	0.66	710.70	−21.05			0.65	−21.22
44	91	0.05	0.00	0.00	0.00	0.053	0.000	0.001	0.000	−1.30	−0.35	728.61	−30.89			−0.36	−31.02
45	92	0.08	0.00	0.00	0.00	0.085	0.000	0.003	0.000	−1.89	−0.67	743.27	−37.48			−0.68	−37.58
46	93	0.07	0.00	0.00	0.00	0.075	0.000	0.002	0.000	−3.01	−1.79	760.33	−46.47			−1.80	−46.53
47	94	0.07	0.00	0.00	0.00	0.075	0.000	0.002	0.000	−3.76	−2.50	774.16	−52.23			−2.51	−52.59
48	95	0.06	0.00	0.00	0.02	0.064	0.000	0.002	−0.020	−5.04	−3.70	790.07	−60.06			−3.70	−60.08
49	96	0.06	0.00	0.00	0.00	0.064	0.000	0.002	0.000	−5.91	−4.54	802.87	−64.79			−4.54	−64.79
50	97	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−6.86	−5.62	817.50	−71.35	−70.82	0.322	−5.62	−71.33
51	98	0.05	0.00	−0.01	0.00	0.053	0.000	0.013	0.001	−6.01	−4.72	827.77	−73.55	−73.06	0.067	−4.72	−73.52
52	99	0.07	0.00	−0.01	0.00	0.075	0.000	0.014	0.001	−4.95	−3.62	839.43	−77.14	−76.76	0.151	−3.62	−77.11
53	100	0.10	0.00	−0.02	0.00	0.107	0.000	0.028	0.003	−4.07	−2.39	848.62	−78.26	−78.15	0.077	−2.39	−78.22
54	101	0.11	0.00	−0.02	0.01	0.117	0.000	0.030	−0.007	−3.16	−1.42	859.66	−81.22	−81.22	0.104	−1.42	−81.18
55	102	0.13	0.00	−0.01	0.02	0.139	0.000	0.020	−0.018	−2.61	−0.68	868.63	−82.12	−82.26	0.028	−0.67	−82.08
56	103	0.14	0.00	0.00	0.03	0.151	0.000	0.010	−0.029	−1.94	0.08	879.16	−84.58	−84.79	0.017	0.10	−84.52
57	104	0.14	0.00	0.01	0.02	0.151	0.000	−0.002	−0.021	−1.20	0.72	887.55	−84.90	−85.11	0.006	0.73	−84.86
58	105	0.15	0.00	0.02	0.01	0.162	0.000	−0.014	−0.013	−0.65	1.30	897.58	−86.86	−87.07	0.011	1.31	−86.82
59	106	0.15	0.00	0.03	0.00	0.162	0.000	−0.027	−0.005	−0.11	1.84	905.43	−86.64	−86.94	0.005	1.84	−86.62
60	107	0.16	0.00	0.03	0.00	0.174	0.000	−0.025	−0.005	0.33	2.30	914.93	−88.07	−88.40	0.004	2.31	−88.05
61	108	0.17	0.00	0.03	−0.01	0.184	0.000	−0.025	0.005	0.70	2.49	922.52	−87.59	−87.60	0.004	2.50	−87.58
62	109	0.17	0.00	0.03	−0.01	0.184	0.000	−0.025	0.005	0.96	2.74	931.60	−88.60	−88.72	0.003	2.76	−88.60
63	110	0.19	0.00	0.03	−0.01	0.207	0.000	−0.022	0.004	0.96	3.01	938.54	−87.46	−87.46	0.003	3.03	−87.48
64	111	0.19	0.00	0.03	−0.02	0.206	0.000	−0.023	0.014	1.01	2.99	947.31	−88.16	−88.22	0.003	3.03	−88.17
65	112	−0.23	0.00	0.04	0.00	−0.238	0.000	−0.024	0.009	0.41	3.08	953.87	−86.65	−86.62	0.017	3.11	−86.68
66	113	−0.24	0.00	0.05	0.00	−0.248	0.000	−0.033	0.011	−0.08	2.90	962.24	−86.95	−87.03	0.017	2.96	−86.97
67	114	−0.23	0.00	0.05	0.00	−0.238	0.000	−0.035	0.011	−0.22	2.70	968.55	−85.19	−84.95	0.025	2.76	−85.23
68	115	−0.24	0.00	0.06	−0.01	−0.248	0.000	−0.043	0.023	−0.87	2.38	976.53	−85.10	−84.99	0.035	2.48	−85.11
69	116	−0.24	0.00	0.06	0.00	−0.248	0.000	−0.044	0.014	−1.15	2.08	982.44	−82.93	−82.57	0.047	2.16	−82.98
70	117	−0.24	0.00	0.07	0.00	−0.248	0.000	−0.055	0.017	−1.45	1.84	989.83	−82.26	−82.26	0.050	1.96	−82.27
71	118	−0.24	0.00	0.06	0.00	−0.248	0.000	−0.044	0.014	−1.49	1.62	995.17	−79.53	−79.57	0.064	1.71	−79.58
72	119	−0.22	0.00	0.06	0.01	−0.227	0.000	−0.048	0.005	−1.32	1.33	1002.13	−78.41	−78.56	0.090	1.43	−78.46
73	120	0.16	0.00	0.04	−0.01	0.174	0.000	−0.038	0.003	−0.88	0.91	1007.21	−75.42	−75.65	0.073	0.96	−75.54
74	121	−0.12	0.00	0.05	0.02	−0.124	0.000	−0.052	−0.012	−1.17	0.17	1014.14	−74.29	−74.66	0.147	0.27	−74.36
75	122	−0.12	0.00	0.05	0.02	−0.124	0.000	−0.052	−0.012	−1.98	−0.47	1019.01	−71.08			−0.37	−71.16
76	123	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	−2.99	−1.28	1025.57	−69.57			−1.11	−69.57
77	124	−0.12	0.00	0.06	0.03	−0.124	0.000	−0.063	−0.019	−3.99	−2.21	1030.30	−66.22			−2.03	−66.22
78	125	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−3.99	−3.19	1036.60	−64.46			−3.19	−64.63
79	126	0.02	0.00	−0.01	0.01	0.021	0.000	0.012	−0.010	−5.34	−4.43	1041.24	−61.02			−4.41	−61.17
80	127	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.80	−5.69	1047.42	−59.13			−5.69	−59.28
81	128	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−8.38	−7.03	1051.76	−55.40			−7.03	−55.54
82	129	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.76	−8.33	1057.58	−53.15			−8.33	−53.28
83	130	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−8.86	−7.56	1059.45	−46.95			−7.56	−47.06
84	131	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.76	−6.54	1062.58	−42.01			−6.54	−42.10
85	132	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.58	−5.49	1063.82	−35.17			−5.49	−35.23
86	133	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.33	−4.34	1066.45	−29.74			−4.34	−29.76
87	134	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.23	−3.36	1067.42	−22.63			−3.36	−22.62
88	135	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−3.10	−2.30	1069.79	−16.93			−2.30	−16.88
89	136	0.09	0.00	−0.03	0.00	0.096	0.000	0.040	0.004	−2.62	−1.30	1070.41	−9.48			−1.24	−9.33
90	137	0.11	0.00	−0.03	0.01	0.117	0.000	0.042	−0.005	−2.01	−0.58	1072.79	−3.79			−0.50	−3.57
91	138	0.13	0.00	−0.02	0.01	0.139	0.000	0.032	−0.006	−1.33	0.07	1073.45	3.63			0.11	3.87
92	139	0.14	0.00	−0.01	0.01	0.150	0.000	0.021	−0.008	−0.68	0.84	1075.45	9.69			0.88	9.98
93	140	0.15	0.00	−0.03	0.01	0.161	0.000	0.047	−0.004	−0.55	1.23	1076.07	17.15			1.31	17.54
94	141	0.20	0.00	−0.05	0.01	0.216	0.000	0.080	0.005	−1.17	1.79	1077.98	23.30			2.00	23.90
95	142	0.21	0.00	−0.04	0.01	0.227	0.000	0.069	0.003	−1.12	1.62	1078.87	30.49			1.76	31.09
96	143	0.21	0.00	−0.04	0.01	0.227	0.000	0.069	0.003	−0.83	1.87	1080.79	36.63			2.02	37.33
97	144	0.24	0.00	−0.03	0.02	0.260	0.000	0.064	−0.008	−1.24	1.79	1081.30	44.20			1.92	44.95

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 47 (Ag)																	
98	145	0.25	0.00	−0.02	0.02	0.271	0.000	0.054	−0.010	−1.08	1.98	1083.01	50.57			2.10	51.39
99	146	0.25	0.00	−0.02	0.03	0.271	0.000	0.055	−0.021	−1.40	1.63	1083.52	58.12			1.82	59.12
100	147	0.25	0.00	−0.01	0.02	0.272	0.000	0.041	−0.014	−1.05	1.88	1084.89	64.82			1.97	65.82
101	148	0.25	0.00	0.00	0.02	0.273	0.000	0.029	−0.017	−1.22	1.68	1084.98	72.80			1.75	73.89
102	149	0.26	0.00	0.01	0.02	0.284	0.000	0.020	−0.020	−1.20	1.78	1086.25	79.61			1.87	80.82
103	150	0.25	0.00	0.02	0.01	0.274	0.000	0.004	−0.013	−1.16	1.63	1086.04	87.89			1.65	89.14
104	151	0.25	0.00	0.03	0.01	0.274	0.000	−0.008	−0.016	−1.00	1.69	1087.09	94.91			1.75	96.34
105	152	0.24	0.00	0.04	0.00	0.264	0.000	−0.024	−0.009	−1.02	1.56	1086.63	103.44			1.60	104.99
106	153	0.23	0.00	0.05	0.01	0.254	0.000	−0.036	−0.021	−0.90	1.57	1087.47	110.67			1.76	112.49
107	154	0.23	0.00	0.05	−0.01	0.253	0.000	−0.039	−0.002	−1.02	1.41	1086.82	119.40			1.51	121.28
108	155	0.21	0.00	0.06	−0.01	0.231	0.000	−0.054	−0.004	−0.91	1.27	1087.57	126.71			1.48	128.85
109	156	0.21	0.00	0.07	−0.02	0.231	0.000	−0.068	0.004	−1.49	0.80	1086.99	135.36			1.14	137.78
110	157	0.21	0.00	0.07	−0.02	0.231	0.000	−0.068	0.004	−1.48	0.77	1087.42	143.00			1.12	145.60
111	158	0.20	0.00	0.08	−0.03	0.220	0.000	−0.082	0.012	−2.09	0.11	1086.82	151.68			0.67	154.66
112	159	0.20	0.00	0.08	−0.03	0.220	0.000	−0.082	0.012	−2.16	−0.02	1087.12	159.45			0.56	162.63
113	160	−0.23	0.00	0.11	0.04	−0.235	0.000	−0.102	−0.007	−3.27	−0.89	1086.51	168.13			0.14	171.93
Z = 48 (Cd)																	
42	90	−0.01	0.04	0.00	0.00	−0.010	−0.054	0.001	0.001	−1.22	−0.13	694.69	−5.82			−0.12	−6.04
43	91	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−1.23	−0.27	710.30	−13.36			−0.27	−13.54
44	92	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−2.27	−1.21	728.95	−23.94			−1.21	−24.08
45	93	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−2.70	−1.65	743.90	−30.82			−1.66	−30.92
46	94	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−3.90	−2.78	761.76	−40.60			−2.78	−40.68
47	95	0.05	0.00	0.00	0.00	0.053	0.000	0.001	0.000	−4.65	−3.45	776.02	−46.80			−3.46	−46.85
48	96	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−6.00	−4.84	793.21	−55.92			−4.84	−55.94
49	97	0.04	0.00	0.01	−0.01	0.043	0.000	−0.011	0.009	−6.95	−5.58	806.06	−60.70			−5.58	−60.70
50	98	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−8.03	−6.68	821.48	−68.05	−67.63	0.078	−6.68	−68.04
51	99	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−7.05	−5.85	831.97	−70.47			−5.85	−70.45
52	100	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−5.89	−4.84	844.48	−74.90	−74.25	0.095	−4.84	−74.87
53	101	0.07	0.00	0.00	0.00	0.075	0.000	0.002	0.000	−4.68	−3.39	853.60	−75.95	−75.75	0.151	−3.39	−75.92
54	102	0.10	0.00	−0.01	0.00	0.107	0.000	0.016	0.001	−3.78	−2.24	865.20	−79.48	−79.68	0.029	−2.24	−79.44
55	103	0.11	0.00	−0.01	0.01	0.118	0.000	0.018	−0.008	−3.06	−1.43	874.23	−80.44	−80.65	0.015	−1.43	−80.40
56	104	0.12	0.00	0.00	0.01	0.129	0.000	0.007	−0.010	−2.27	−0.63	885.46	−83.60	−83.97	0.009	−0.63	−83.56
57	105	0.13	0.00	0.01	0.01	0.140	0.000	−0.004	−0.011	−1.72	−0.01	894.01	−84.07	−84.33	0.012	−0.01	−84.04
58	106	0.14	0.00	0.02	0.01	0.151	0.000	−0.015	−0.013	−1.21	0.59	904.74	−86.73	−87.13	0.006	0.60	−86.70
59	107	0.13	0.00	0.03	0.00	0.141	0.000	−0.029	−0.004	−0.63	1.06	912.79	−86.71	−86.99	0.006	1.07	−86.69
60	108	0.14	0.00	0.03	−0.01	0.151	0.000	−0.029	0.005	−0.21	1.53	922.99	−88.84	−89.25	0.006	1.55	−88.82
61	109	0.13	0.00	0.03	−0.01	0.140	0.000	−0.030	0.006	0.38	1.92	930.50	−88.28	−88.51	0.004	1.93	−88.28
62	110	0.14	0.00	0.04	−0.01	0.152	0.000	−0.041	0.004	0.50	2.20	940.26	−89.97	−90.35	0.003	2.23	−89.96
63	111	0.15	0.00	0.04	−0.02	0.162	0.000	−0.040	0.013	0.74	2.52	947.26	−88.90	−89.26	0.003	2.55	−88.91
64	112	0.16	0.00	0.04	−0.02	0.174	0.000	−0.039	0.013	0.73	2.59	956.64	−90.20	−90.58	0.003	2.63	−90.21
65	113	0.17	0.00	0.04	−0.02	0.185	0.000	−0.038	0.013	0.73	2.73	963.25	−88.74	−89.05	0.003	2.77	−88.77
66	114	0.18	0.00	0.04	−0.02	0.196	0.000	−0.036	0.012	0.52	2.61	972.24	−89.67	−90.02	0.003	2.66	−89.70
67	115	−0.22	0.00	0.04	0.00	−0.228	0.000	−0.026	0.008	−0.13	2.54	978.53	−87.88	−88.09	0.003	2.59	−87.94
68	116	−0.23	0.00	0.05	−0.01	−0.238	0.000	−0.034	0.020	−0.71	2.27	987.12	−88.40	−88.72	0.003	2.36	−88.43
69	117	−0.23	0.00	0.05	−0.01	−0.238	0.000	−0.034	0.020	−1.01	2.03	993.09	−86.29	−86.43	0.003	2.11	−86.35
70	118	−0.23	0.00	0.05	0.00	−0.238	0.000	−0.035	0.011	−1.13	1.81	1001.11	−86.25	−86.71	0.020	1.89	−86.31
71	119	0.16	0.00	0.04	−0.01	0.174	0.000	−0.038	0.003	−0.51	1.51	1006.63	−83.70	−83.91	0.080	1.56	−83.81
72	120	0.13	0.00	0.03	−0.01	0.140	0.000	−0.030	0.006	−0.62	0.98	1014.47	−83.47	−83.97	0.019	1.01	−83.60
73	121	0.13	0.00	0.03	−0.01	0.140	0.000	−0.030	0.006	−1.15	0.52	1019.69	−80.61	−81.06	0.085	0.56	−80.76
74	122	−0.10	0.00	0.04	0.01	−0.104	0.000	−0.042	−0.005	−1.81	−0.65	1027.69	−80.54	−80.73	0.043	−0.59	−80.68
75	123	−0.10	0.00	0.04	0.02	−0.104	0.000	−0.042	−0.014	−2.59	−1.34	1032.70	−77.48	−77.31	0.041	−1.27	−77.61
76	124	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.97	−2.22	1039.95	−76.66	−76.71	0.063	−2.22	−76.86
77	125	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−3.98	−3.15	1044.77	−73.41	−73.36	0.069	−3.15	−73.61
78	126	−0.02	0.00	−0.01	0.01	−0.021	0.000	0.012	−0.010	−5.33	−4.34	1051.89	−72.46	−72.33	0.054	−4.32	−72.65
79	127	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.51	−5.48	1056.52	−69.01	−68.52	0.074	−5.48	−69.21
80	128	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.07	−6.86	1063.42	−67.84	−67.29	0.294	−6.86	−68.04
81	129	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−9.61	−8.22	1067.87	−64.22			−8.22	−64.40

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 48 (Cd)																	
82	130	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−11.02	−9.52	1074.28	−62.56	−61.57	0.283	−9.52	−62.74
83	131	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−10.04	−8.67	1076.15	−56.36			−8.67	−56.52
84	132	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.98	−7.67	1079.88	−52.02			−7.67	−52.16
85	133	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−7.73	−6.54	1081.10	−45.17			−6.54	−45.29
86	134	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.47	−5.39	1084.31	−40.31			−5.39	−40.40
87	135	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.36	−4.38	1085.32	−33.25			−4.39	−33.31
88	136	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.20	−3.31	1088.26	−28.11			−3.31	−28.14
89	137	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−3.11	−2.34	1088.96	−20.74			−2.34	−20.74
90	138	0.09	0.00	−0.03	0.00	0.096	0.000	0.040	0.004	−2.56	−1.30	1091.59	−15.30			−1.24	−15.19
91	139	0.11	0.00	−0.02	0.00	0.118	0.000	0.029	0.003	−1.87	−0.58	1092.22	−7.86			−0.54	−7.73
92	140	0.11	0.00	−0.02	0.01	0.117	0.000	0.030	−0.007	−1.17	0.02	1094.96	−2.53			0.07	−2.33
93	141	0.14	0.00	−0.02	0.01	0.150	0.000	0.033	−0.006	−0.70	0.82	1095.22	5.28			0.87	5.54
94	142	0.15	0.00	−0.02	0.01	0.161	0.000	0.034	−0.006	−0.32	1.30	1097.76	10.82			1.36	11.14
95	143	0.21	0.00	−0.05	0.01	0.227	0.000	0.082	0.006	−1.62	1.35	1098.47	18.17			1.56	18.72
96	144	0.21	0.00	−0.04	0.01	0.227	0.000	0.069	0.003	−1.07	1.67	1100.86	23.85			1.84	24.42
97	145	0.23	0.00	−0.04	0.02	0.249	0.000	0.074	−0.006	−1.45	1.60	1101.41	31.38			1.79	32.04
98	146	0.24	0.00	−0.03	0.02	0.260	0.000	0.064	−0.008	−1.23	1.83	1103.61	37.25			1.99	37.97
99	147	0.25	0.00	−0.02	0.03	0.271	0.000	0.055	−0.021	−1.55	1.54	1104.10	44.83			1.75	45.68
100	148	0.25	0.00	−0.01	0.02	0.272	0.000	0.041	−0.014	−1.18	1.81	1105.97	51.03			1.92	51.88
101	149	0.25	0.00	0.00	0.02	0.273	0.000	0.029	−0.017	−1.32	1.63	1106.10	58.97			1.71	59.90
102	150	0.25	0.00	0.01	0.02	0.273	0.000	0.017	−0.020	−1.12	1.75	1107.85	65.29			1.85	66.34
103	151	0.25	0.00	0.01	0.02	0.273	0.000	0.017	−0.020	−1.30	1.54	1107.74	73.48			1.64	74.62
104	152	0.25	0.00	0.02	0.01	0.274	0.000	0.004	−0.013	−1.02	1.74	1109.15	80.14			1.78	81.35
105	153	0.24	0.00	0.03	0.00	0.263	0.000	−0.012	−0.006	−1.00	1.55	1108.79	88.57			1.57	89.88
106	154	0.23	0.00	0.04	0.00	0.252	0.000	−0.026	−0.009	−0.75	1.70	1109.99	95.44			1.77	96.92
107	155	0.21	0.00	0.05	−0.01	0.230	0.000	−0.043	−0.001	−0.81	1.36	1109.54	103.96			1.49	105.64
108	156	0.21	0.00	0.05	−0.01	0.230	0.000	−0.043	−0.001	−0.80	1.42	1110.59	110.98			1.57	112.81
109	157	0.20	0.00	0.06	−0.01	0.220	0.000	−0.056	−0.003	−1.18	1.01	1109.99	119.66			1.23	121.71
110	158	0.20	0.00	0.07	−0.02	0.220	0.000	−0.069	0.005	−1.41	0.78	1111.09	126.63			1.15	128.98
111	159	0.19	0.00	0.07	−0.02	0.209	0.000	−0.071	0.005	−1.78	0.39	1110.25	135.54			0.76	138.06
112	160	0.18	0.00	0.07	−0.03	0.197	0.000	−0.073	0.016	−1.87	0.06	1111.22	142.63			0.57	145.45
113	161	0.18	0.00	0.08	−0.03	0.198	0.000	−0.085	0.014	−2.61	−0.36	1110.19	151.74			0.26	154.83
114	162	0.15	0.00	0.07	−0.02	0.164	0.000	−0.076	0.008	−2.29	−0.46	1110.72	159.28			0.00	162.39
115	163	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−2.99	−1.19	1109.80	168.27			−0.62	171.68
Z = 49 (In)																	
43	92	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−3.03	−1.81	707.92	−3.69			−1.81	−3.86
44	93	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−4.07	−2.81	726.78	−14.48			−2.81	−14.62
45	94	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−4.51	−3.24	742.51	−22.14			−3.24	−22.24
46	95	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−5.72	−4.42	760.57	−32.13			−4.42	−32.20
47	96	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−6.44	−5.09	775.62	−39.11			−5.10	−39.16
48	97	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−7.86	−6.43	792.91	−48.33			−6.43	−48.35
49	98	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−8.79	−7.24	806.92	−54.26			−7.25	−54.58
50	99	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−9.85	−8.28	822.73	−62.01			−8.28	−62.00
51	100	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−8.88	−7.42	833.94	−65.14	−64.17	0.249	−7.42	−65.12
52	101	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−7.77	−6.41	846.59	−69.73			−6.41	−69.70
53	102	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−6.41	−5.16	856.65	−71.71	−70.71	0.112	−5.16	−71.68
54	103	0.05	0.00	0.00	−0.01	0.053	0.000	0.001	0.010	−5.17	−4.00	868.38	−75.37	−74.60	0.025	−4.01	−75.34
55	104	0.08	0.00	−0.01	0.00	0.085	0.000	0.015	0.001	−4.29	−2.95	877.91	−76.83	−76.11	0.085	−2.95	−76.80
56	105	0.08	0.00	−0.01	0.01	0.085	0.000	0.015	−0.009	−3.33	−2.09	889.20	−80.04	−79.48	0.017	−2.08	−80.01
57	106	0.10	0.00	0.00	0.01	0.107	0.000	0.005	−0.010	−2.71	−1.33	898.34	−81.11	−80.61	0.012	−1.33	−81.09
58	107	0.11	0.00	0.01	0.01	0.118	0.000	−0.007	−0.011	−2.05	−0.63	909.09	−83.79	−83.56	0.011	−0.62	−83.77
59	108	0.10	0.00	0.02	0.00	0.107	0.000	−0.020	−0.002	−1.44	−0.13	917.83	−84.46	−84.12	0.010	−0.13	−84.45
60	109	0.10	0.00	0.02	−0.01	0.107	0.000	−0.020	0.008	−0.77	0.45	928.03	−86.60	−86.49	0.006	0.46	−86.60
61	110	0.09	0.00	0.02	0.00	0.097	0.000	−0.021	−0.002	−0.11	0.94	936.15	−86.64	−86.47	0.012	0.94	−86.66
62	111	0.10	0.00	0.03	−0.01	0.108	0.000	−0.032	0.007	0.10	1.29	945.96	−88.38	−88.40	0.005	1.30	−88.40
63	112	0.10	0.00	0.03	−0.01	0.108	0.000	−0.032	0.007	0.54	1.65	953.61	−87.96	−88.00	0.005	1.66	−88.00
64	113	0.08	0.00	0.02	−0.01	0.086	0.000	−0.022	0.008	0.87	1.66	963.16	−89.43	−89.37	0.003	1.67	−89.48

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 49 (In)																	
65	114	0.08	0.00	0.02	−0.01	0.086	0.000	−0.022	0.008	1.10	1.80	970.45	−88.65	−88.57	0.003	1.81	−88.72
66	115	−0.11	0.00	0.00	−0.01	−0.115	0.000	0.005	0.009	0.82	1.83	979.40	−89.54	−89.54	0.004	1.84	−89.62
67	116	−0.14	0.00	0.01	−0.01	−0.146	0.000	−0.003	0.011	0.49	1.87	986.25	−88.31	−88.25	0.004	1.88	−88.41
68	117	−0.12	0.01	0.01	−0.01	−0.125	−0.013	−0.005	0.011	0.38	1.50	995.05	−89.04	−88.94	0.006	1.52	−89.15
69	118	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	0.22	1.32	1001.61	−87.53	−87.23	0.008	1.33	−87.66
70	119	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	−0.26	0.86	1009.97	−87.82	−87.70	0.008	0.87	−87.97
71	120	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−0.45	0.46	1016.24	−86.02	−85.74	0.040	0.47	−86.18
72	121	−0.10	0.00	0.03	0.01	−0.104	0.000	−0.031	−0.006	−1.23	−0.17	1024.28	−85.99	−85.84	0.027	−0.15	−86.14
73	122	−0.09	0.00	0.03	0.01	−0.094	0.000	−0.032	−0.006	−1.70	−0.68	1030.18	−83.82	−83.58	0.050	−0.65	−83.99
74	123	−0.09	0.00	0.03	0.01	−0.094	0.000	−0.032	−0.006	−2.59	−1.48	1037.90	−83.47	−83.43	0.024	−1.45	−83.64
75	124	−0.09	0.00	0.04	0.02	−0.094	0.000	−0.043	−0.014	−3.44	−2.17	1043.54	−81.03	−80.88	0.049	−2.11	−81.18
76	125	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−4.08	−3.10	1050.93	−80.35	−80.48	0.030	−3.09	−80.57
77	126	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−4.99	−3.94	1056.27	−77.62	−77.81	0.040	−3.93	−77.85
78	127	0.01	0.00	0.01	0.00	0.011	0.000	−0.012	−0.000	−6.33	−5.26	1063.62	−76.89	−76.99	0.040	−5.26	−77.12
79	128	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−7.49	−6.24	1068.68	−73.89	−74.36	0.049	−6.24	−74.12
80	129	0.01	0.00	0.01	−0.01	0.011	0.000	−0.012	0.010	−9.11	−7.80	1075.84	−72.98	−72.94	0.043	−7.78	−73.19
81	130	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−10.45	−9.01	1080.74	−69.80	−69.89	0.039	−9.01	−70.03
82	131	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−11.70	−10.15	1087.07	−68.06	−68.14	0.028	−10.15	−68.28
83	132	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−10.81	−9.35	1089.58	−62.50	−62.42	0.062	−9.35	−62.71
84	133	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−9.70	−8.34	1093.37	−58.22			−8.34	−58.42
85	134	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−8.51	−7.21	1095.17	−51.95			−7.20	−52.12
86	135	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−7.20	−6.01	1098.41	−47.11			−6.01	−47.27
87	136	0.02	0.00	0.00	0.01	0.021	0.000	0.000	−0.010	−6.09	−5.03	1100.01	−40.64			−5.02	−40.76
88	137	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−4.95	−3.92	1102.97	−35.54			−3.92	−35.64
89	138	0.03	0.00	0.01	−0.01	0.032	0.000	−0.012	0.009	−3.85	−2.93	1104.22	−28.71			−2.91	−28.76
90	139	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−2.85	−2.01	1107.03	−23.45			−2.01	−23.49
91	140	0.09	0.00	−0.02	0.00	0.096	0.000	0.028	0.002	−2.32	−1.19	1108.12	−16.47			−1.17	−16.44
92	141	0.10	0.00	−0.02	0.00	0.107	0.000	0.028	0.003	−1.65	−0.51	1110.83	−11.11			−0.48	−11.03
93	142	0.11	0.00	−0.01	0.01	0.118	0.000	0.018	−0.008	−1.02	0.11	1111.81	−4.02			0.13	−3.90
94	143	0.11	0.00	−0.01	0.01	0.118	0.000	0.018	−0.008	−0.47	0.57	1114.43	1.44			0.60	1.62
95	144	0.20	0.00	−0.05	0.01	0.216	0.000	0.080	0.005	−1.74	1.30	1114.99	8.94			1.49	9.34
96	145	0.20	0.00	−0.04	0.01	0.216	0.000	0.067	0.002	−1.18	1.61	1117.46	14.55			1.75	14.97
97	146	0.23	0.00	−0.04	0.02	0.249	0.000	0.074	−0.006	−1.72	1.44	1118.63	21.44			1.60	21.96
98	147	0.23	0.00	−0.03	0.02	0.249	0.000	0.062	−0.009	−1.29	1.67	1120.87	27.28			1.81	27.84
99	148	0.24	0.00	−0.02	0.02	0.260	0.000	0.051	−0.011	−1.52	1.52	1121.75	34.47			1.61	35.07
100	149	0.25	0.00	−0.01	0.02	0.272	0.000	0.041	−0.014	−1.38	1.73	1123.72	40.57			1.82	41.24
101	150	0.25	0.00	0.00	0.02	0.273	0.000	0.029	−0.017	−1.51	1.50	1124.41	47.95			1.57	48.70
102	151	0.25	0.00	0.01	0.02	0.273	0.000	0.017	−0.020	−1.32	1.61	1126.21	54.22			1.70	55.08
103	152	0.25	0.00	0.02	0.01	0.274	0.000	0.004	−0.013	−1.45	1.46	1126.55	61.95			1.49	62.84
104	153	0.25	0.00	0.02	0.01	0.274	0.000	0.004	−0.013	−1.25	1.58	1128.08	68.50			1.61	69.50
105	154	0.23	0.00	0.03	0.00	0.252	0.000	−0.014	−0.006	−1.12	1.36	1128.25	76.40			1.37	77.50
106	155	0.23	0.00	0.04	0.00	0.252	0.000	−0.026	−0.009	−1.03	1.50	1129.49	83.22			1.57	84.49
107	156	0.23	0.00	0.05	−0.01	0.253	0.000	−0.039	−0.002	−1.29	1.26	1129.43	91.36			1.36	92.78
108	157	0.21	0.00	0.05	−0.01	0.230	0.000	−0.043	−0.001	−1.04	1.23	1130.61	98.25			1.36	99.83
109	158	0.21	0.00	0.06	−0.02	0.230	0.000	−0.056	0.006	−1.52	0.85	1130.46	106.47			1.08	108.29
110	159	0.20	0.00	0.06	−0.02	0.219	0.000	−0.057	0.007	−1.37	0.81	1131.40	113.60			1.07	115.59
111	160	0.18	0.00	0.06	−0.02	0.197	0.000	−0.060	0.008	−1.62	0.35	1131.10	121.97			0.63	124.13
112	161	0.15	0.00	0.05	−0.01	0.163	0.000	−0.051	0.002	−1.38	0.33	1131.80	129.35			0.51	131.56
113	162	0.15	0.00	0.06	−0.02	0.163	0.000	−0.064	0.010	−2.11	−0.32	1131.47	137.74			0.00	140.26
114	163	0.15	0.00	0.06	−0.02	0.163	0.000	−0.064	0.010	−2.43	−0.64	1132.25	145.04			−0.31	147.73
115	164	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−3.32	−1.45	1131.88	153.48			−0.91	156.56
116	165	0.11	0.00	0.05	−0.02	0.119	0.000	−0.056	0.014	−3.20	−1.88	1132.54	160.89			−1.58	163.90
117	166	0.11	0.00	0.05	−0.02	0.119	0.000	−0.056	0.014	−4.05	−2.68	1131.95	169.55			−2.38	172.74
Z = 50 (Sn)																	
44	94	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.24	−3.85	726.09	−6.50			−3.85	−6.62
45	95	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.65	−4.28	741.96	−14.31			−4.28	−14.39
46	96	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.88	−5.46	760.81	−25.08			−5.46	−25.14

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 50 (Sn)																	
47	97	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−7.57	−6.16	776.03	−32.23			−6.16	−32.27
48	98	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.06	−7.53	794.13	−42.26			−7.53	−42.28
49	99	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−9.84	−8.24	808.48	−48.53			−8.24	−48.54
50	100	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−11.12	−9.44	825.52	−57.50	−56.78	0.705	−9.44	−57.49
51	101	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−10.04	−8.50	836.79	−60.71			−8.50	−60.69
52	102	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.96	−7.53	850.23	−66.07	−64.93	0.132	−7.53	−66.04
53	103	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.51	−6.24	860.39	−68.16			−6.25	−68.13
54	104	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.20	−5.07	872.84	−72.54	−71.59	0.104	−5.07	−72.50
55	105	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.04	−4.03	882.51	−74.14	−73.26	0.081	−4.03	−74.11
56	106	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.96	−3.04	894.41	−77.97	−77.43	0.050	−3.04	−77.94
57	107	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.00	−2.15	903.54	−79.03	−78.58	0.083	−2.15	−79.00
58	108	0.06	0.00	0.00	0.00	0.064	0.000	0.002	0.000	−2.21	−1.22	914.78	−82.20	−82.04	0.020	−1.22	−82.18
59	109	0.08	0.00	0.01	0.00	0.086	0.000	−0.009	−0.001	−1.70	−0.62	923.54	−82.88	−82.64	0.010	−0.62	−82.88
60	110	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.90	−0.18	934.59	−85.87	−85.84	0.014	−0.18	−85.87
61	111	−0.01	0.00	−0.01	0.00	−0.010	0.000	0.012	−0.000	−0.47	0.26	942.89	−86.09	−85.94	0.007	0.26	−86.10
62	112	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.19	0.51	953.49	−88.62	−88.66	0.004	0.51	−88.65
63	113	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	0.18	0.87	961.25	−88.31	−88.33	0.004	0.87	−88.35
64	114	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.26	0.89	971.47	−90.45	−90.56	0.003	0.89	−90.51
65	115	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	0.52	1.12	978.79	−89.70	−90.04	0.003	1.12	−89.78
66	116	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.37	0.96	988.60	−91.45	−91.53	0.003	0.95	−91.54
67	117	−0.07	0.00	0.00	0.00	−0.073	0.000	0.002	−0.000	0.31	1.09	995.47	−90.24	−90.40	0.003	1.09	−90.36
68	118	−0.09	0.00	0.00	0.00	−0.094	0.000	0.003	−0.000	−0.15	0.81	1004.84	−91.54	−91.66	0.003	0.81	−91.67
69	119	−0.10	0.00	0.01	0.00	−0.105	0.000	−0.008	0.001	−0.37	0.64	1011.48	−90.12	−90.07	0.003	0.65	−90.26
70	120	−0.08	0.00	0.01	0.00	−0.084	0.000	−0.009	0.001	−0.74	0.14	1020.54	−91.10	−91.11	0.003	0.14	−91.26
71	121	−0.09	0.00	0.01	0.00	−0.094	0.000	−0.008	0.001	−1.12	−0.14	1026.80	−89.29	−89.20	0.002	−0.14	−89.46
72	122	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.62	−0.93	1035.63	−90.05	−89.95	0.003	−0.93	−90.24
73	123	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.10	−1.39	1041.59	−87.93	−87.82	0.003	−1.40	−88.14
74	124	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.20	−2.35	1050.10	−88.37	−88.24	0.001	−2.36	−88.60
75	125	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.88	−3.01	1055.79	−85.99	−85.90	0.002	−3.01	−86.23
76	126	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.16	−4.15	1064.02	−86.15	−86.02	0.011	−4.15	−86.39
77	127	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.05	−5.02	1069.47	−83.53	−83.50	0.025	−5.02	−83.79
78	128	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.51	−6.34	1077.42	−83.41	−83.33	0.027	−6.34	−83.67
79	129	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−8.61	−7.39	1082.66	−80.57	−80.59	0.029	−7.39	−80.83
80	130	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−10.24	−8.84	1090.31	−80.15	−80.14	0.011	−8.84	−80.41
81	131	0.01	0.00	0.01	0.00	0.011	0.000	−0.012	−0.000	−11.40	−9.92	1095.15	−76.92	−77.31	0.021	−9.92	−77.18
82	132	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−12.82	−11.22	1102.23	−75.94	−76.55	0.014	−11.22	−76.20
83	133	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−11.82	−10.33	1104.73	−70.36	−70.95	0.036	−10.33	−70.61
84	134	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.73	−9.31	1109.09	−66.65	−66.80	0.100	−9.31	−66.89
85	135	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.42	−8.12	1110.91	−60.40			−8.12	−60.63
86	136	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.13	−6.91	1114.71	−56.13			−6.91	−56.34
87	137	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.97	−5.86	1116.30	−49.65			−5.86	−49.85
88	138	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.79	−4.76	1119.84	−45.11			−4.76	−45.28
89	139	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.65	−3.73	1121.11	−38.32			−3.73	−38.46
90	140	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.62	−2.76	1124.43	−33.57			−2.76	−33.68
91	141	0.00	0.00	0.01	0.00	0.000	0.000	−0.012	0.000	−2.53	−1.74	1125.39	−26.45			−1.74	−26.52
92	142	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.72	−1.03	1128.62	−21.61			−1.03	−21.65
93	143	0.07	0.00	−0.02	0.00	0.075	0.000	0.026	0.002	−1.12	−0.38	1129.62	−14.54			−0.35	−14.51
94	144	0.09	0.00	−0.02	0.00	0.096	0.000	0.028	0.002	−0.65	0.16	1132.70	−9.55			0.20	−9.47
95	145	0.20	0.00	−0.05	0.01	0.216	0.000	0.080	0.005	−2.04	1.01	1133.21	−1.99			1.20	−1.69
96	146	0.21	0.00	−0.05	0.02	0.226	0.000	0.082	−0.004	−1.89	1.29	1136.23	3.07			1.53	3.46
97	147	0.21	0.00	−0.04	0.02	0.226	0.000	0.070	−0.007	−1.68	1.12	1137.45	9.91			1.30	10.31
98	148	0.23	0.00	−0.03	0.02	0.249	0.000	0.062	−0.009	−1.53	1.46	1140.12	15.32			1.61	15.76
99	149	0.24	0.00	−0.02	0.02	0.260	0.000	0.051	−0.011	−1.72	1.35	1141.00	22.51			1.46	22.98
100	150	0.24	0.00	−0.01	0.02	0.261	0.000	0.039	−0.014	−1.40	1.54	1143.52	28.06			1.64	28.60
101	151	0.24	0.00	−0.01	0.02	0.261	0.000	0.039	−0.014	−1.59	1.35	1144.21	35.44			1.44	36.06
102	152	0.24	0.00	0.00	0.02	0.261	0.000	0.027	−0.017	−1.34	1.52	1146.46	41.26			1.62	41.97
103	153	0.25	0.00	0.01	0.02	0.273	0.000	0.017	−0.020	−1.66	1.32	1146.90	48.89			1.41	49.69

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 50 (Sn)																	
104	154	0.24	0.00	0.02	0.01	0.262	0.000	0.002	−0.013	−1.23	1.49	1148.88	54.99			1.54	55.84
105	155	0.24	0.00	0.02	0.01	0.262	0.000	0.002	−0.013	−1.36	1.38	1148.97	62.97			1.42	63.91
106	156	0.23	0.00	0.03	0.00	0.252	0.000	−0.014	−0.006	−0.99	1.53	1150.71	69.30			1.57	70.34
107	157	0.23	0.00	0.04	0.00	0.252	0.000	−0.026	−0.009	−1.19	1.35	1150.62	77.46			1.42	78.64
108	158	0.21	0.00	0.04	−0.01	0.229	0.000	−0.031	0.001	−0.85	1.36	1152.25	83.90			1.45	85.23
109	159	0.21	0.00	0.05	−0.01	0.230	0.000	−0.043	−0.001	−1.24	1.03	1152.08	92.14			1.16	93.64
110	160	0.18	0.00	0.04	−0.01	0.196	0.000	−0.035	0.002	−0.71	1.05	1153.45	98.84			1.15	100.44
111	161	0.18	0.00	0.05	−0.02	0.196	0.000	−0.048	0.010	−1.29	0.74	1153.04	107.33			0.94	109.17
112	162	0.15	0.00	0.04	−0.01	0.163	0.000	−0.039	0.003	−1.09	0.52	1154.41	114.03			0.63	115.92
113	163	0.15	0.00	0.05	−0.01	0.163	0.000	−0.051	0.002	−1.76	−0.05	1154.02	122.49			0.13	124.59
114	164	0.11	0.00	0.03	0.00	0.119	0.000	−0.031	−0.004	−1.73	−0.56	1155.46	129.11			−0.50	131.27
115	165	0.11	0.00	0.04	−0.01	0.119	0.000	−0.043	0.005	−2.54	−1.28	1155.02	137.63			−1.14	140.02
116	166	0.10	0.00	0.04	−0.01	0.108	0.000	−0.044	0.005	−3.05	−1.84	1156.29	144.44			−1.69	147.00
117	167	0.10	0.00	0.04	−0.01	0.108	0.000	−0.044	0.005	−3.92	−2.66	1155.73	153.06			−2.51	155.80
118	168	0.10	0.00	0.04	−0.02	0.108	0.000	−0.045	0.015	−4.46	−3.22	1156.79	160.08			−2.99	163.08
119	169	0.08	0.00	0.03	−0.01	0.086	0.000	−0.034	0.007	−5.15	−4.01	1156.01	168.93			−3.91	171.99
Z = 51 (Sb)																	
46	97	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−5.26	−4.10	755.45	−12.43			−4.10	−12.48
47	98	0.02	0.00	−0.01	0.00	0.021	0.000	0.012	0.000	−5.95	−4.76	771.40	−20.31			−4.77	−20.33
48	99	0.01	0.00	−0.01	0.00	0.011	0.000	0.012	0.000	−7.36	−6.06	789.57	−30.41			−6.06	−30.42
49	100	0.03	0.00	−0.01	0.00	0.032	0.000	0.012	0.000	−8.19	−6.78	804.68	−37.45			−6.78	−37.44
50	101	0.01	0.00	−0.01	0.00	0.011	0.000	0.012	0.000	−9.37	−7.90	821.78	−46.48			−7.90	−46.46
51	102	0.03	0.00	−0.02	−0.01	0.032	0.000	0.024	0.011	−8.41	−6.98	834.12	−50.75			−6.98	−51.01
52	103	0.02	0.00	−0.01	−0.01	0.021	0.000	0.012	0.010	−7.24	−6.03	848.01	−56.57			−6.03	−56.53
53	104	0.07	0.00	−0.04	0.00	0.075	0.000	0.051	0.004	−6.25	−4.61	858.77	−59.25			−4.60	−59.21
54	105	0.08	0.00	−0.04	−0.01	0.086	0.000	0.051	0.015	−5.20	−3.51	871.44	−63.85	−63.82	0.105	−3.50	−63.80
55	106	0.10	0.00	−0.04	0.00	0.107	0.000	0.053	0.006	−4.40	−2.57	881.94	−66.28			−2.57	−66.24
56	107	0.11	0.00	−0.03	0.01	0.117	0.000	0.042	−0.005	−3.40	−1.70	894.08	−70.35			−1.70	−70.31
57	108	0.11	0.00	−0.03	0.01	0.117	0.000	0.042	−0.005	−2.61	−0.99	904.10	−72.30			−0.99	−72.27
58	109	0.12	0.00	−0.02	0.01	0.128	0.000	0.031	−0.007	−1.87	−0.32	915.73	−75.85	−76.26	0.019	−0.32	−75.83
59	110	0.11	0.00	−0.01	0.00	0.118	0.000	0.017	0.002	−1.08	0.18	925.29	−77.34			0.17	−77.33
60	111	0.11	0.00	0.00	0.00	0.118	0.000	0.005	0.000	−0.46	0.68	936.40	−80.39	−80.89	0.028	0.68	−80.39
61	112	0.11	0.00	0.00	0.00	0.118	0.000	0.005	0.000	0.05	1.11	945.39	−81.31	−81.60	0.018	1.11	−81.32
62	113	0.10	0.00	0.00	−0.01	0.107	0.000	0.004	0.010	0.46	1.36	956.11	−83.96	−84.42	0.018	1.36	−83.98
63	114	−0.13	0.00	−0.01	0.00	−0.135	0.000	0.018	−0.002	0.48	1.90	964.38	−84.15	−84.51	0.028	1.90	−84.19
64	115	−0.13	0.00	−0.01	−0.01	−0.135	0.000	0.019	0.008	0.45	1.88	974.75	−86.45	−87.00	0.016	1.89	−86.50
65	116	−0.13	0.00	−0.01	−0.01	−0.135	0.000	0.019	0.008	0.46	1.94	982.91	−86.54	−86.82	0.006	1.95	−86.61
66	117	−0.14	0.00	−0.01	−0.01	−0.145	0.000	0.020	0.007	0.17	1.79	992.82	−88.38	−88.64	0.009	1.80	−88.46
67	118	−0.15	0.00	0.00	−0.02	−0.156	0.000	0.010	0.018	−0.04	1.71	1000.56	−88.05	−88.00	0.004	1.73	−88.15
68	119	−0.14	0.00	0.00	−0.01	−0.146	0.000	0.008	0.009	−0.14	1.44	1010.04	−89.45	−89.48	0.008	1.45	−89.57
69	120	−0.14	0.00	0.00	−0.01	−0.146	0.000	0.008	0.009	−0.26	1.32	1017.27	−88.61	−88.42	0.008	1.33	−88.76
70	121	−0.12	0.01	0.01	0.00	−0.125	−0.013	−0.006	0.001	−0.52	0.78	1026.48	−89.75	−89.60	0.002	0.79	−89.91
71	122	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	−0.86	0.46	1033.41	−88.61	−88.33	0.002	0.46	−88.79
72	123	−0.11	0.00	0.02	0.00	−0.115	0.000	−0.018	0.002	−1.42	−0.19	1042.20	−89.33	−89.22	0.002	−0.18	−89.52
73	124	−0.10	0.00	0.02	0.01	−0.105	0.000	−0.019	−0.007	−1.85	−0.67	1048.81	−87.86	−87.62	0.002	−0.66	−88.07
74	125	−0.10	0.00	0.02	0.01	−0.105	0.000	−0.019	−0.007	−2.74	−1.49	1057.28	−88.26	−88.26	0.003	−1.48	−88.48
75	126	−0.10	0.00	0.03	0.01	−0.104	0.000	−0.031	−0.006	−3.52	−2.16	1063.60	−86.51	−86.40	0.032	−2.14	−86.73
76	127	−0.05	0.00	0.00	0.00	−0.052	0.000	0.001	0.000	−4.20	−3.28	1071.89	−86.73	−86.70	0.005	−3.28	−86.99
77	128	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−5.06	−4.15	1077.97	−84.74	−84.61	0.025	−4.15	−85.01
78	129	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−6.43	−5.43	1085.96	−84.67	−84.63	0.021	−5.43	−84.94
79	130	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−7.54	−6.48	1091.79	−82.42	−82.29	0.017	−6.48	−82.71
80	131	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−9.17	−7.96	1099.55	−82.11	−81.99	0.021	−7.96	−82.40
81	132	0.03	0.00	0.00	−0.01	0.032	0.000	0.000	0.010	−10.33	−8.90	1104.86	−79.34	−79.67	0.014	−8.90	−79.63
82	133	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−11.64	−10.17	1111.99	−78.40	−78.94	0.025	−10.17	−78.69
83	134	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−10.82	−9.43	1115.21	−73.56	−74.17	0.043	−9.43	−73.84
84	135	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−9.60	−8.31	1119.55	−69.82	−69.71	0.103	−8.31	−70.10
85	136	0.02	0.00	−0.01	0.00	0.021	0.000	0.012	0.000	−8.33	−7.13	1121.96	−64.16			−7.12	−64.43

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 51 (Sb)																	
86	137	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−7.06	−5.97	1125.88	−60.01			−5.97	−60.27
87	138	−0.03	0.00	−0.01	0.00	−0.032	0.000	0.012	−0.000	−5.92	−4.91	1128.03	−54.09			−4.91	−54.33
88	139	0.05	0.00	−0.03	−0.02	0.054	0.000	0.037	0.022	−5.15	−3.94	1131.77	−49.76			−3.84	−49.88
89	140	0.06	0.00	−0.03	−0.02	0.065	0.000	0.038	0.023	−4.19	−3.03	1133.72	−43.64			−2.93	−43.74
90	141	0.09	0.00	−0.04	−0.01	0.097	0.000	0.052	0.015	−3.61	−2.13	1137.17	−39.02			−2.03	−39.09
91	142	0.10	0.00	−0.04	0.00	0.107	0.000	0.053	0.006	−2.86	−1.40	1138.96	−32.74			−1.31	−32.80
92	143	0.11	0.00	−0.04	0.00	0.118	0.000	0.054	0.006	−2.23	−0.72	1142.29	−27.99			−0.62	−28.02
93	144	0.13	0.00	−0.04	0.00	0.140	0.000	0.056	0.007	−1.74	−0.00	1143.77	−21.40			0.09	−21.39
94	145	0.15	0.00	−0.05	0.00	0.161	0.000	0.071	0.011	−1.71	0.52	1146.92	−16.48			0.69	−16.35
95	146	0.20	0.00	−0.05	0.01	0.216	0.000	0.080	0.005	−2.30	0.86	1148.48	−9.96			1.02	−9.79
96	147	0.20	0.00	−0.05	0.01	0.216	0.000	0.080	0.005	−1.97	1.14	1151.55	−4.97			1.32	−4.72
97	148	0.21	0.00	−0.04	0.02	0.226	0.000	0.070	−0.007	−1.92	0.95	1153.32	1.34			1.11	1.60
98	149	0.21	0.00	−0.04	0.02	0.226	0.000	0.070	−0.007	−1.63	1.19	1156.13	6.59			1.36	6.93
99	150	0.23	0.00	−0.02	0.02	0.249	0.000	0.049	−0.012	−1.67	1.24	1157.37	13.43			1.34	13.76
100	151	0.21	0.00	−0.02	0.02	0.227	0.000	0.045	−0.013	−1.12	1.39	1159.98	18.89			1.50	19.30
101	152	0.23	0.00	−0.01	0.02	0.250	0.000	0.037	−0.015	−1.52	1.31	1161.07	25.87			1.39	26.33
102	153	0.23	0.00	0.00	0.02	0.250	0.000	0.025	−0.018	−1.25	1.47	1163.38	31.63			1.55	32.17
103	154	0.24	0.00	0.01	0.02	0.262	0.000	0.015	−0.020	−1.57	1.28	1164.31	38.77			1.36	39.40
104	155	0.23	0.00	0.01	0.01	0.250	0.000	0.012	−0.011	−1.14	1.49	1166.29	44.86			1.52	45.52
105	156	0.24	0.00	0.03	0.01	0.263	0.000	−0.010	−0.016	−1.53	1.28	1166.98	52.24			1.34	53.02
106	157	0.23	0.00	0.03	0.00	0.252	0.000	−0.014	−0.006	−1.10	1.45	1168.74	58.55			1.48	59.41
107	158	0.23	0.00	0.04	0.00	0.252	0.000	−0.026	−0.009	−1.33	1.28	1169.14	66.23			1.33	67.21
108	159	0.21	0.00	0.04	−0.01	0.229	0.000	−0.031	0.001	−0.98	1.28	1170.81	72.63			1.36	73.75
109	160	0.21	0.00	0.04	−0.01	0.229	0.000	−0.031	0.001	−1.22	1.03	1171.04	80.47			1.10	81.69
110	161	0.18	0.00	0.04	−0.01	0.196	0.000	−0.035	0.002	−0.80	1.00	1172.50	87.08			1.09	88.45
111	162	0.18	0.00	0.05	−0.02	0.196	0.000	−0.048	0.010	−1.34	0.52	1172.73	94.93			0.71	96.52
112	163	0.15	0.00	0.03	−0.01	0.162	0.000	−0.027	0.005	−0.99	0.64	1173.80	101.93			0.70	103.53
113	164	0.15	0.00	0.04	−0.01	0.163	0.000	−0.039	0.003	−1.62	0.09	1173.86	109.93			0.19	111.72
114	165	−0.14	0.00	0.02	−0.01	−0.146	0.000	−0.015	0.012	−1.79	−0.46	1175.37	116.50			−0.40	118.39
115	166	0.11	0.00	0.02	0.00	0.118	0.000	−0.019	−0.002	−2.23	−1.04	1175.26	124.68			−1.02	126.68
116	167	0.11	0.00	0.03	−0.01	0.119	0.000	−0.032	0.006	−2.85	−1.59	1176.53	131.48			−1.51	133.70
117	168	0.10	0.00	0.04	−0.01	0.108	0.000	−0.044	0.005	−3.75	−2.47	1176.50	139.58			−2.33	142.02
118	169	0.10	0.00	0.04	−0.02	0.108	0.000	−0.045	0.015	−4.31	−3.05	1177.59	146.56			−2.83	149.25
119	170	0.10	0.00	0.04	−0.02	0.108	0.000	−0.045	0.015	−5.37	−4.30	1177.73	154.49			−4.08	157.36
120	171	0.08	0.00	0.02	−0.01	0.086	0.000	−0.022	0.008	−5.46	−4.45	1178.19	162.11			−4.40	165.00
121	172	−0.06	0.00	0.01	0.00	−0.063	0.000	−0.010	0.001	−6.49	−5.70	1178.12	170.25			−5.70	173.27
Z = 52 (Te)																	
47	99	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.73	−3.71	768.49	−10.12			−3.71	−10.11
48	100	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.13	−4.98	787.40	−20.95			−4.98	−20.93
49	101	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−6.92	−5.66	802.61	−28.09			−5.66	−28.06
50	102	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.09	−6.75	820.43	−37.84			−6.75	−37.80
51	103	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−6.99	−5.82	833.20	−42.54			−5.83	−42.49
52	104	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.87	−4.85	848.09	−49.36			−4.85	−49.31
53	105	0.08	0.00	−0.04	−0.01	0.086	0.000	0.051	0.015	−5.16	−3.48	859.04	−52.23			−3.47	−52.17
54	106	0.11	0.00	−0.05	−0.01	0.119	0.000	0.066	0.018	−4.54	−2.37	872.41	−57.53	−58.21	0.132	−2.35	−57.46
55	107	0.12	0.00	−0.05	0.01	0.128	0.000	0.068	−0.002	−3.78	−1.58	883.19	−60.24			−1.57	−60.18
56	108	0.13	0.00	−0.04	0.01	0.139	0.000	0.056	−0.003	−2.84	−0.77	896.11	−65.09	−65.72	0.104	−0.76	−65.03
57	109	0.13	0.00	−0.03	0.01	0.139	0.000	0.044	−0.005	−1.91	−0.06	906.26	−67.17	−67.61	0.063	−0.06	−67.13
58	110	0.14	0.00	−0.03	0.01	0.150	0.000	0.045	−0.004	−1.36	0.52	918.68	−71.52	−72.28	0.053	0.53	−71.48
59	111	0.16	0.00	−0.03	0.01	0.172	0.000	0.048	−0.003	−0.94	1.14	928.25	−73.02	−73.49	0.071	1.14	−72.99
60	112	0.17	0.00	−0.04	0.01	0.183	0.000	0.062	−0.000	−0.71	1.58	940.13	−76.82	−77.30	0.170	1.60	−76.79
61	113	0.18	0.00	−0.04	0.00	0.194	0.000	0.063	0.011	−0.50	1.85	949.39	−78.02	−78.35	0.028	1.87	−78.00
62	114	0.18	0.00	−0.03	0.00	0.194	0.000	0.051	0.008	−0.01	2.03	960.87	−81.42	−81.89	0.028	2.05	−81.42
63	115	0.19	0.00	−0.03	0.00	0.205	0.000	0.052	0.009	0.03	2.27	969.55	−82.03	−82.06	0.028	2.29	−82.05
64	116	0.20	0.00	−0.02	0.00	0.216	0.000	0.042	0.007	0.19	2.43	980.42	−84.83	−85.27	0.028	2.45	−84.86
65	117	0.20	0.00	−0.01	−0.01	0.216	0.000	0.029	0.014	0.32	2.50	988.68	−85.01	−85.10	0.013	2.52	−85.07
66	118	−0.16	0.00	−0.01	−0.02	−0.165	0.000	0.023	0.016	0.70	2.56	999.04	−87.31	−87.72	0.015	2.59	−87.38

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 52 (Te)																	
67	119	−0.17	0.00	0.00	−0.02	−0.176	0.000	0.012	0.018	0.44	2.30	1007.07	−87.27	−87.18	0.008	2.32	−87.36
68	120	−0.17	0.00	0.00	−0.02	−0.176	0.000	0.012	0.018	0.20	2.18	1017.05	−89.18	−89.40	0.010	2.20	−89.28
69	121	−0.17	0.00	0.00	−0.02	−0.176	0.000	0.012	0.018	0.05	1.85	1024.60	−88.65	−88.55	0.026	1.88	−88.78
70	122	−0.16	0.00	0.01	−0.01	−0.166	0.000	−0.001	0.010	−0.11	1.65	1034.11	−90.10	−90.31	0.001	1.67	−90.24
71	123	−0.14	0.00	0.01	−0.01	−0.146	0.000	−0.003	0.011	−0.14	1.36	1041.12	−89.03	−89.17	0.001	1.37	−89.20
72	124	−0.12	0.01	0.01	0.00	−0.125	−0.013	−0.006	0.001	−0.54	0.74	1050.51	−90.35	−90.53	0.001	0.75	−90.55
73	125	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	−1.05	0.26	1057.21	−88.98	−89.02	0.001	0.27	−89.19
74	126	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−1.74	−0.57	1066.31	−90.01	−90.07	0.001	−0.56	−90.24
75	127	−0.10	0.00	0.02	0.01	−0.105	0.000	−0.019	−0.007	−2.43	−1.21	1072.70	−88.33	−88.28	0.002	−1.20	−88.57
76	128	−0.09	0.00	0.02	0.01	−0.094	0.000	−0.020	−0.007	−3.37	−2.17	1081.45	−89.01	−88.99	0.002	−2.15	−89.26
77	129	−0.09	0.00	0.02	0.01	−0.094	0.000	−0.020	−0.007	−4.24	−3.01	1087.58	−87.06	−87.00	0.002	−2.99	−87.33
78	130	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.39	−4.50	1096.40	−87.81	−87.35	0.002	−4.50	−88.11
79	131	0.01	0.00	0.00	0.01	0.011	0.000	0.000	−0.010	−6.45	−5.44	1102.20	−85.54	−85.21	0.002	−5.44	−85.84
80	132	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.19	−7.04	1110.68	−85.95	−85.18	0.007	−7.04	−86.26
81	133	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−9.26	−7.95	1116.03	−83.22	−82.94	0.024	−7.94	−83.54
82	134	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.64	−9.23	1123.77	−82.90	−82.56	0.011	−9.23	−83.22
83	135	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−9.71	−8.42	1127.00	−78.06	−77.83	0.090	−8.42	−78.38
84	136	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.61	−7.40	1132.02	−75.00	−74.43	0.045	−7.40	−75.32
85	137	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−7.26	−6.18	1134.46	−69.37	−69.56	0.122	−6.18	−69.68
86	138	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.96	−5.00	1138.92	−65.76			−5.00	−66.07
87	139	0.08	0.00	−0.05	−0.02	0.087	0.000	0.064	0.026	−5.82	−3.91	1141.12	−59.89			−3.74	−60.02
88	140	0.09	0.00	−0.05	−0.01	0.097	0.000	0.064	0.017	−4.80	−2.95	1145.43	−56.13			−2.81	−56.27
89	141	0.11	0.00	−0.05	0.00	0.118	0.000	0.066	0.008	−4.13	−2.15	1147.56	−50.19			−2.03	−50.33
90	142	0.11	0.00	−0.05	0.00	0.118	0.000	0.066	0.008	−3.37	−1.49	1151.81	−46.36			−1.35	−46.47
91	143	0.14	0.00	−0.05	0.01	0.150	0.000	0.070	−0.000	−3.03	−0.79	1153.70	−40.19			−0.65	−40.26
92	144	0.15	0.00	−0.06	0.01	0.161	0.000	0.084	0.003	−2.82	−0.24	1157.70	−36.12			−0.03	−36.10
93	145	0.18	0.00	−0.07	0.01	0.194	0.000	0.102	0.009	−3.32	0.12	1159.61	−29.95			0.40	−29.83
94	146	0.18	0.00	−0.06	0.01	0.194	0.000	0.089	0.006	−2.52	0.56	1163.38	−25.65			0.80	−25.53
95	147	0.19	0.00	−0.06	0.01	0.205	0.000	0.091	0.007	−2.58	0.49	1165.39	−19.59			0.72	−19.44
96	148	0.20	0.00	−0.05	0.02	0.215	0.000	0.080	−0.005	−2.09	0.80	1168.97	−15.10			1.01	−14.92
97	149	0.21	0.00	−0.05	0.02	0.226	0.000	0.082	−0.004	−2.26	0.84	1170.57	−8.62			1.05	−8.41
98	150	0.21	0.00	−0.04	0.02	0.226	0.000	0.070	−0.007	−1.73	1.12	1173.86	−3.84			1.30	−3.61
99	151	0.21	0.00	−0.03	0.02	0.227	0.000	0.057	−0.010	−1.59	1.11	1175.21	2.88			1.24	3.12
100	152	0.21	0.00	−0.03	0.02	0.227	0.000	0.057	−0.010	−1.33	1.34	1178.26	7.90			1.48	8.22
101	153	0.23	0.00	−0.01	0.02	0.250	0.000	0.037	−0.015	−1.56	1.30	1179.35	14.87			1.39	15.22
102	154	0.24	0.00	0.00	0.03	0.261	0.000	0.028	−0.027	−1.58	1.35	1182.29	20.02			1.55	20.53
103	155	0.24	0.00	0.01	0.02	0.262	0.000	0.015	−0.020	−1.64	1.25	1183.17	27.20			1.34	27.69
104	156	0.24	0.00	0.02	0.02	0.263	0.000	0.003	−0.023	−1.46	1.38	1185.73	32.71			1.51	33.32
105	157	0.23	0.00	0.02	0.01	0.251	0.000	−0.001	−0.013	−1.35	1.29	1186.35	40.17			1.34	40.78
106	158	0.23	0.00	0.03	0.01	0.252	0.000	−0.013	−0.016	−1.18	1.41	1188.66	45.93			1.49	46.67
107	159	0.23	0.00	0.04	0.00	0.252	0.000	−0.026	−0.009	−1.34	1.31	1189.02	53.63			1.38	54.46
108	160	0.21	0.00	0.03	0.00	0.229	0.000	−0.018	−0.006	−0.85	1.36	1191.13	59.60			1.40	60.50
109	161	0.21	0.00	0.04	0.00	0.230	0.000	−0.030	−0.009	−1.16	1.12	1191.39	67.41			1.20	68.45
110	162	0.20	0.00	0.04	−0.01	0.218	0.000	−0.032	0.002	−0.90	1.17	1193.25	73.62			1.26	74.79
111	163	0.18	0.00	0.04	−0.01	0.196	0.000	−0.035	0.002	−0.99	0.86	1193.34	81.60			0.95	82.89
112	164	0.17	0.00	0.04	−0.01	0.185	0.000	−0.037	0.003	−0.99	0.94	1194.92	88.10			1.04	89.52
113	165	0.15	0.00	0.03	−0.01	0.162	0.000	−0.027	0.005	−1.20	0.49	1194.92	96.16			0.55	97.67
114	166	0.15	0.00	0.04	−0.01	0.163	0.000	−0.039	0.003	−1.65	−0.00	1196.84	102.31			0.11	104.01
115	167	−0.15	0.00	0.03	0.00	−0.156	0.000	−0.025	0.005	−2.20	−0.65	1196.82	110.41			−0.60	112.19
116	168	0.11	0.00	0.03	−0.01	0.119	0.000	−0.032	0.006	−2.40	−1.13	1198.49	116.81			−1.04	118.77
117	169	0.11	0.00	0.04	−0.01	0.119	0.000	−0.043	0.005	−3.37	−1.98	1198.46	124.91			−1.85	127.07
118	170	0.11	0.00	0.04	−0.02	0.119	0.000	−0.044	0.015	−3.87	−2.51	1199.96	131.48			−2.30	133.88
119	171	0.10	0.00	0.04	−0.02	0.108	0.000	−0.045	0.015	−4.69	−3.37	1199.72	139.79			−3.15	142.36
120	172	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−5.02	−3.82	1200.93	146.65			−3.82	149.18
121	173	−0.07	0.00	0.01	0.00	−0.073	0.000	−0.010	0.001	−5.81	−4.99	1200.81	154.85			−4.98	157.56
122	174	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−6.72	−5.87	1202.23	161.50			−5.81	164.45
123	175	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−8.08	−7.11	1201.99	169.81			−7.05	172.95

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 52 (Te)																	
124	176	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−8.85	−7.82	1203.04	176.83			−7.81	180.11
Z = 53 (I)																	
48	101	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−4.57	−3.66	781.84	−8.10			−3.66	−8.05
49	102	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−5.38	−4.31	797.77	−15.96			−4.31	−15.90
50	103	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.45	−5.33	815.65	−25.77			−5.33	−25.70
51	104	0.05	0.00	−0.03	−0.02	0.054	0.000	0.037	0.022	−5.82	−4.48	829.23	−31.27			−4.47	−31.20
52	105	0.08	0.00	−0.05	−0.02	0.087	0.000	0.064	0.026	−5.31	−3.44	844.19	−38.16			−3.43	−38.07
53	106	0.12	0.00	−0.05	0.00	0.129	0.000	0.068	0.009	−4.60	−2.33	856.41	−42.31			−2.34	−42.52
54	107	0.12	0.03	−0.05	0.01	0.129	−0.041	0.068	−0.001	−3.94	−1.59	870.57	−48.40			−1.58	−48.32
55	108	0.14	0.05	−0.05	0.02	0.150	−0.068	0.071	−0.009	−3.72	−0.86	882.12	−51.88			−0.86	−51.81
56	109	0.15	0.06	−0.04	0.02	0.162	−0.082	0.060	−0.009	−3.11	−0.18	895.29	−56.98	−57.61	0.104	−0.17	−56.91
57	110	0.16	0.06	−0.03	0.02	0.173	−0.082	0.049	−0.011	−2.37	0.52	906.16	−59.78			0.51	−59.73
58	111	0.16	0.06	−0.03	0.02	0.173	−0.082	0.049	−0.011	−1.79	1.01	918.79	−64.34			1.02	−64.29
59	112	0.17	0.04	−0.03	0.02	0.183	−0.055	0.051	−0.011	−1.03	1.22	929.46	−66.94			1.22	−66.91
60	113	0.19	0.02	−0.04	0.02	0.205	−0.027	0.066	−0.009	−0.79	1.64	941.48	−70.89	−71.13	0.053	1.65	−70.85
61	114	0.20	0.02	−0.04	0.01	0.216	−0.028	0.067	0.002	−0.63	2.00	951.34	−72.67			2.01	−72.66
62	115	0.20	0.00	−0.03	0.01	0.216	0.000	0.055	−0.001	−0.09	2.26	962.85	−76.11	−76.34	0.029	2.28	−76.11
63	116	0.21	0.00	−0.02	0.01	0.227	0.000	0.044	−0.003	0.02	2.42	972.28	−77.48	−77.49	0.097	2.42	−77.50
64	117	0.21	0.00	−0.01	0.00	0.228	0.000	0.031	0.004	0.24	2.54	983.31	−80.43	−80.43	0.028	2.55	−80.46
65	118	0.22	0.00	0.00	0.00	0.239	0.000	0.021	0.002	0.16	2.60	992.25	−81.29	−80.97	0.020	2.60	−81.36
66	119	0.22	0.00	0.01	0.00	0.239	0.000	0.009	−0.001	0.23	2.61	1002.77	−83.75	−83.77	0.028	2.62	−83.82
67	120	0.22	0.00	0.01	0.00	0.239	0.000	0.009	−0.001	0.10	2.61	1011.19	−84.10	−83.79	0.018	2.61	−84.20
68	121	−0.18	0.00	0.00	−0.02	−0.186	0.000	0.014	0.018	0.48	2.44	1021.32	−86.15	−86.29	0.010	2.46	−86.26
69	122	−0.19	0.00	0.00	−0.03	−0.196	0.000	0.016	0.027	0.11	2.18	1029.46	−86.22	−86.08	0.005	2.21	−86.33
70	123	−0.18	0.00	0.01	−0.02	−0.187	0.000	0.002	0.020	0.05	1.94	1039.10	−87.79	−87.94	0.004	1.97	−87.93
71	124	0.17	0.00	0.00	0.00	0.183	0.000	0.012	0.001	−0.03	1.68	1046.70	−87.33	−87.36	0.002	1.69	−87.51
72	125	−0.16	0.00	0.01	−0.01	−0.166	0.000	−0.001	0.010	−0.34	1.26	1056.00	−88.55	−88.84	0.001	1.28	−88.74
73	126	0.15	0.00	0.00	0.00	0.162	0.000	0.009	0.001	−0.76	1.14	1062.97	−87.45	−87.91	0.004	1.14	−87.67
74	127	−0.12	0.00	0.02	0.01	−0.125	0.000	−0.018	−0.007	−1.11	0.52	1071.96	−88.36	−88.98	0.004	0.53	−88.59
75	128	−0.12	0.00	0.02	0.01	−0.125	0.000	−0.018	−0.007	−1.78	−0.17	1079.01	−87.35	−87.74	0.004	−0.16	−87.60
76	129	−0.11	0.00	0.02	0.01	−0.115	0.000	−0.019	−0.007	−2.56	−1.24	1087.96	−88.22	−88.50	0.003	−1.22	−88.48
77	130	−0.12	0.00	0.03	0.02	−0.125	0.000	−0.029	−0.015	−3.64	−2.05	1094.67	−86.87	−86.93	0.003	−2.02	−87.12
78	131	0.03	0.00	0.00	0.01	0.032	0.000	0.001	−0.010	−4.04	−3.29	1103.32	−87.44	−87.44	0.001	−3.28	−87.74
79	132	0.03	0.00	0.00	0.01	0.032	0.000	0.001	−0.010	−5.21	−4.37	1109.86	−85.91	−85.70	0.006	−4.37	−86.22
80	133	0.02	0.00	0.00	0.01	0.021	0.000	0.000	−0.010	−6.81	−5.78	1118.24	−86.22	−85.89	0.005	−5.78	−86.54
81	134	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−7.95	−6.73	1124.22	−84.13	−84.07	0.008	−6.73	−84.46
82	135	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.27	−7.97	1131.99	−83.83	−83.79	0.007	−7.98	−84.18
83	136	0.03	0.00	−0.01	0.00	0.032	0.000	0.012	0.000	−8.37	−7.12	1135.76	−79.53	−79.50	0.050	−7.12	−79.87
84	137	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−7.22	−6.13	1140.89	−76.58	−76.50	0.028	−6.13	−76.93
85	138	0.03	0.00	0.00	0.01	0.032	0.000	0.001	−0.010	−6.03	−4.99	1143.98	−71.60	−72.33	0.082	−4.98	−71.94
86	139	0.09	0.00	−0.05	−0.01	0.097	0.000	0.064	0.017	−5.71	−3.70	1148.42	−67.97	−68.84	0.031	−3.59	−68.19
87	140	0.10	0.00	−0.05	0.00	0.107	0.000	0.065	0.007	−4.98	−2.95	1151.51	−62.99			−2.85	−63.23
88	141	0.11	0.00	−0.05	0.00	0.118	0.000	0.066	0.008	−4.19	−2.12	1156.02	−59.43			−2.01	−59.65
89	142	0.13	0.07	−0.05	0.01	0.141	−0.097	0.070	0.003	−4.62	−1.46	1158.85	−54.19			−1.29	−54.33
90	143	0.14	0.06	−0.05	0.01	0.151	−0.083	0.071	0.003	−3.86	−0.85	1163.21	−50.48			−0.68	−50.61
91	144	0.14	0.07	−0.05	0.01	0.152	−0.097	0.072	0.004	−3.59	−0.40	1165.90	−45.10			−0.22	−45.19
92	145	0.16	0.00	−0.06	0.01	0.172	0.000	0.086	0.004	−2.67	−0.05	1170.17	−41.29			0.14	−41.36
93	146	0.18	0.00	−0.06	0.01	0.194	0.000	0.089	0.006	−2.81	0.42	1172.50	−35.55			0.61	−35.59
94	147	0.18	0.00	−0.06	0.01	0.194	0.000	0.089	0.006	−2.38	0.52	1176.67	−31.65			0.73	−31.64
95	148	0.20	0.00	−0.05	0.02	0.215	0.000	0.080	−0.005	−2.35	0.64	1179.02	−25.93			0.81	−25.92
96	149	0.20	0.00	−0.05	0.02	0.215	0.000	0.080	−0.005	−2.04	0.90	1182.71	−21.55			1.09	−21.49
97	150	0.21	0.00	−0.04	0.02	0.226	0.000	0.070	−0.007	−1.99	0.96	1184.81	−15.58			1.10	−15.52
98	151	0.21	0.00	−0.04	0.03	0.226	0.000	0.071	−0.018	−1.78	1.11	1188.30	−10.99			1.32	−10.81
99	152	0.21	0.00	−0.03	0.03	0.226	0.000	0.058	−0.020	−1.67	1.04	1190.22	−4.84			1.23	−4.65
100	153	0.21	0.00	−0.02	0.02	0.227	0.000	0.045	−0.013	−1.21	1.34	1193.24	0.20			1.44	0.37
101	154	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−1.71	1.19	1194.97	6.55			1.35	6.84
102	155	0.24	0.00	0.00	0.03	0.261	0.000	0.028	−0.027	−1.65	1.31	1197.87	11.72			1.49	12.09

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 53 (I)																	
103	156	0.24	0.00	0.01	0.03	0.262	0.000	0.016	−0.030	−1.85	1.10	1199.38	18.29			1.28	18.73
104	157	0.24	0.00	0.02	0.02	0.263	0.000	0.003	−0.023	−1.55	1.33	1201.89	23.85			1.44	24.30
105	158	0.23	0.00	0.02	0.02	0.251	0.000	0.001	−0.023	−1.55	1.15	1203.08	30.72			1.25	31.24
106	159	0.23	0.00	0.03	0.01	0.252	0.000	−0.013	−0.016	−1.30	1.33	1205.37	36.51			1.40	37.08
107	160	0.23	0.00	0.04	0.00	0.252	0.000	−0.026	−0.009	−1.47	1.23	1206.22	43.72			1.29	44.37
108	161	0.21	0.00	0.03	0.00	0.229	0.000	−0.018	−0.006	−0.98	1.28	1208.38	49.64			1.31	50.36
109	162	0.21	0.00	0.04	0.00	0.230	0.000	−0.030	−0.009	−1.29	1.05	1209.11	56.98			1.12	57.83
110	163	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−1.02	1.11	1210.99	63.17			1.19	64.13
111	164	0.20	0.00	0.05	−0.01	0.219	0.000	−0.044	−0.001	−1.45	0.76	1211.60	70.63			0.88	71.74
112	165	0.18	0.00	0.04	−0.01	0.196	0.000	−0.035	0.002	−1.11	0.73	1213.32	76.98			0.82	78.18
113	166	0.17	0.00	0.04	−0.01	0.185	0.000	−0.037	0.003	−1.40	0.32	1213.76	84.61			0.41	85.93
114	167	0.15	0.00	0.04	−0.01	0.163	0.000	−0.039	0.003	−1.48	0.32	1215.22	91.23			0.42	92.69
115	168	0.15	0.00	0.04	−0.01	0.163	0.000	−0.039	0.003	−2.16	−0.43	1215.76	98.76			−0.33	100.35
116	169	0.13	0.00	0.03	−0.01	0.140	0.000	−0.030	0.006	−2.25	−0.79	1217.34	105.25			−0.72	106.95
117	170	0.11	0.00	0.03	−0.01	0.119	0.000	−0.032	0.006	−2.94	−1.59	1217.71	112.95			−1.51	114.80
118	171	0.11	0.00	0.04	−0.01	0.119	0.000	−0.043	0.005	−3.53	−2.10	1219.23	119.50			−1.97	121.56
119	172	0.10	0.00	0.04	−0.01	0.108	0.000	−0.044	0.005	−4.30	−2.92	1219.41	127.40			−2.79	129.61
120	173	−0.12	0.00	0.01	−0.01	−0.125	0.000	−0.005	0.011	−4.66	−3.40	1220.66	134.21			−3.36	136.49
121	174	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−5.69	−4.45	1220.86	142.08			−4.45	144.49
122	175	−0.06	0.00	0.02	0.00	−0.063	0.000	−0.022	0.002	−6.11	−5.31	1222.30	148.72			−5.28	151.34
123	176	−0.06	0.00	0.02	0.00	−0.063	0.000	−0.022	0.002	−7.49	−6.56	1222.50	156.59			−6.53	159.39
124	177	−0.05	0.00	0.02	0.01	−0.052	0.000	−0.022	−0.008	−8.33	−7.34	1223.64	163.52			−7.28	166.53
125	178	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−9.78	−8.62	1223.68	171.55			−8.62	174.69
126	179	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.56	−9.35	1224.57	178.73			−9.35	182.07
Z = 54 (Xe)																	
49	103	0.05	0.01	−0.01	0.00	0.053	−0.014	0.013	0.001	−4.18	−3.14	794.48	−5.38			−3.14	−5.29
50	104	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.16	−4.15	813.09	−15.92			−4.15	−15.82
51	105	0.07	0.00	−0.04	−0.02	0.076	0.000	0.051	0.024	−4.73	−3.19	826.70	−21.45			−3.18	−21.34
52	106	0.12	0.00	−0.05	0.00	0.129	0.000	0.068	0.009	−4.42	−2.27	842.50	−29.19			−2.26	−29.07
53	107	0.13	0.03	−0.05	0.01	0.140	−0.041	0.069	−0.000	−3.88	−1.47	855.44	−34.05			−1.46	−33.94
54	108	0.15	0.05	−0.05	0.02	0.162	−0.069	0.073	−0.008	−3.65	−0.74	870.61	−41.15			−0.73	−41.04
55	109	0.15	0.07	−0.04	0.02	0.162	−0.096	0.061	−0.008	−3.32	−0.21	882.49	−44.96			−0.20	−44.86
56	110	0.16	0.07	−0.04	0.03	0.173	−0.095	0.063	−0.018	−2.85	0.37	896.47	−50.87	−51.90	0.133	0.40	−50.76
57	111	0.17	0.08	−0.03	0.03	0.185	−0.109	0.052	−0.018	−2.39	0.58	907.95	−54.28			0.59	−54.19
58	112	0.18	0.07	−0.03	0.03	0.195	−0.095	0.054	−0.019	−1.77	1.16	921.20	−59.46	−59.97	0.104	1.18	−59.36
59	113	0.19	0.06	−0.03	0.03	0.206	−0.081	0.055	−0.019	−1.20	1.65	931.70	−61.88	−62.09	0.081	1.66	−61.82
60	114	0.22	0.01	−0.05	0.02	0.237	−0.014	0.084	−0.003	−1.07	2.06	944.41	−66.53	−67.09	0.011	2.09	−66.46
61	115	0.22	0.00	−0.05	0.02	0.237	0.000	0.084	−0.003	−0.85	2.29	954.53	−68.57	−68.66	0.012	2.31	−68.53
62	116	0.22	0.00	−0.03	0.02	0.238	0.000	0.059	−0.009	−0.17	2.49	966.77	−72.74	−73.05	0.013	2.52	−72.71
63	117	0.22	0.00	−0.02	0.01	0.238	0.000	0.046	−0.002	0.12	2.70	976.27	−74.18	−74.18	0.010	2.70	−74.18
64	118	0.22	0.00	−0.01	0.01	0.238	0.000	0.034	−0.005	0.36	2.81	987.97	−77.80	−78.08	0.010	2.83	−77.81
65	119	0.23	0.00	0.00	0.01	0.250	0.000	0.024	−0.008	0.23	2.80	997.08	−78.84	−78.79	0.010	2.81	−78.89
66	120	0.23	0.00	0.01	0.00	0.250	0.000	0.011	−0.001	0.28	2.78	1008.30	−81.99	−82.17	0.012	2.80	−82.04
67	121	0.23	0.00	0.02	0.00	0.251	0.000	−0.002	−0.004	0.12	2.80	1016.81	−82.43	−82.47	0.011	2.81	−82.51
68	122	0.23	0.00	0.03	0.00	0.252	0.000	−0.014	−0.006	0.01	2.73	1027.49	−85.03	−85.36	0.011	2.75	−85.12
69	123	0.23	0.00	0.03	0.00	0.252	0.000	−0.014	−0.006	−0.23	2.59	1035.60	−85.07	−85.25	0.010	2.61	−85.19
70	124	0.21	0.00	0.03	0.00	0.229	0.000	−0.018	−0.006	−0.01	2.47	1045.77	−87.17	−87.66	0.002	2.50	−87.30
71	125	0.20	0.00	0.02	0.00	0.217	0.000	−0.007	−0.004	−0.11	2.11	1053.58	−86.91	−87.19	0.002	2.12	−87.07
72	126	0.18	0.00	0.01	0.00	0.195	0.000	0.002	−0.001	−0.11	1.65	1063.54	−88.80	−89.17	0.006	1.67	−88.98
73	127	0.16	0.00	0.00	0.01	0.172	0.000	0.012	−0.009	−0.32	1.42	1070.71	−87.90	−88.32	0.004	1.43	−88.11
74	128	0.16	0.00	0.01	0.00	0.173	0.000	−0.001	−0.001	−0.79	0.96	1080.16	−89.28	−89.86	0.001	0.98	−89.50
75	129	0.15	0.00	0.01	0.00	0.162	0.000	−0.003	−0.001	−1.32	0.38	1087.19	−88.24	−88.70	0.001	0.39	−88.49
76	130	−0.12	0.00	0.02	0.01	−0.125	0.000	−0.018	−0.007	−1.69	−0.09	1096.16	−89.14	−89.88	0.001	−0.08	−89.40
77	131	−0.12	0.00	0.03	0.01	−0.125	0.000	−0.029	−0.005	−2.59	−1.08	1103.14	−88.04	−88.42	0.001	−1.06	−88.32
78	132	−0.12	0.00	0.03	0.01	−0.125	0.000	−0.029	−0.005	−3.54	−2.00	1112.07	−88.90	−89.28	0.001	−1.97	−89.19
79	133	0.05	0.00	−0.01	0.00	0.053	0.000	0.013	0.001	−4.04	−3.24	1118.85	−87.61	−87.64	0.002	−3.23	−87.94
80	134	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.59	−4.69	1127.86	−88.55	−88.12	0.001	−4.69	−88.89

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 54 (Xe)																	
81	135	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−6.74	−5.60	1133.89	−86.51	−86.42	0.005	−5.60	−86.86
82	136	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.12	−6.91	1142.31	−86.86	−86.43	0.007	−6.91	−87.22
83	137	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−7.20	−6.09	1146.20	−82.68	−82.38	0.007	−6.09	−83.04
84	138	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.99	−5.01	1151.81	−80.21	−80.15	0.043	−5.01	−80.59
85	139	0.08	0.00	−0.04	0.00	0.086	0.000	0.051	0.005	−5.38	−3.70	1154.81	−75.14	−75.64	0.021	−3.64	−75.46
86	140	0.09	0.00	−0.05	−0.01	0.097	0.000	0.064	0.017	−4.80	−2.84	1160.24	−72.50	−72.99	0.061	−2.73	−72.76
87	141	0.12	0.04	−0.05	0.00	0.129	−0.056	0.068	0.010	−4.74	−2.17	1163.49	−67.68	−68.33	0.091	−2.05	−67.93
88	142	0.13	0.06	−0.06	0.01	0.141	−0.083	0.083	0.004	−4.73	−1.50	1168.72	−64.84	−65.47	0.101	−1.30	−65.01
89	143	0.14	0.08	−0.05	0.01	0.152	−0.111	0.072	0.005	−4.62	−1.03	1171.81	−59.85			−0.84	−60.02
90	144	0.15	0.07	−0.05	0.02	0.162	−0.096	0.073	−0.006	−3.84	−0.46	1176.76	−56.74			−0.25	−56.88
91	145	0.16	0.08	−0.05	0.02	0.174	−0.110	0.075	−0.004	−3.83	−0.28	1179.78	−51.68			−0.05	−51.79
92	146	0.18	0.01	−0.07	0.01	0.194	−0.014	0.102	0.009	−3.14	0.22	1184.44	−48.28			0.48	−48.33
93	147	0.20	0.00	−0.07	0.01	0.216	0.000	0.105	0.011	−3.47	0.28	1187.25	−43.01			0.54	−43.05
94	148	0.20	0.00	−0.07	0.01	0.216	0.000	0.105	0.011	−3.06	0.60	1191.74	−39.43			0.88	−39.42
95	149	0.20	0.01	−0.06	0.02	0.215	−0.014	0.093	−0.002	−2.65	0.62	1194.26	−33.88			0.85	−33.89
96	150	0.21	0.00	−0.05	0.02	0.226	0.000	0.082	−0.004	−2.22	0.94	1198.41	−29.96			1.14	−29.97
97	151	0.21	0.00	−0.05	0.02	0.226	0.000	0.082	−0.004	−2.24	0.92	1200.64	−24.12			1.11	−24.10
98	152	0.21	0.00	−0.04	0.03	0.226	0.000	0.071	−0.018	−1.78	1.11	1204.61	−20.01			1.33	−19.92
99	153	0.23	0.00	−0.03	0.03	0.249	0.000	0.062	−0.019	−2.05	1.08	1206.55	−13.89			1.27	−13.78
100	154	0.23	0.00	−0.02	0.03	0.249	0.000	0.050	−0.022	−1.68	1.28	1210.19	−9.45			1.47	−9.30
101	155	0.24	0.00	−0.01	0.04	0.261	0.000	0.041	−0.034	−2.09	1.06	1212.04	−3.23			1.34	−2.92
102	156	0.24	0.00	0.00	0.03	0.261	0.000	0.028	−0.027	−1.71	1.29	1215.34	1.54			1.48	1.81
103	157	0.24	0.00	0.01	0.03	0.262	0.000	0.016	−0.030	−1.91	1.07	1216.90	8.06			1.26	8.39
104	158	0.24	0.00	0.02	0.03	0.263	0.000	0.004	−0.033	−1.73	1.20	1220.01	13.02			1.44	13.46
105	159	0.23	0.00	0.02	0.02	0.251	0.000	0.001	−0.023	−1.59	1.14	1221.13	19.96			1.25	20.35
106	160	0.23	0.00	0.03	0.02	0.252	0.000	−0.011	−0.026	−1.42	1.26	1223.97	25.19			1.42	25.71
107	161	0.23	0.00	0.04	0.01	0.253	0.000	−0.024	−0.019	−1.57	1.18	1224.85	32.38			1.29	32.93
108	162	0.21	0.00	0.03	0.01	0.229	0.000	−0.016	−0.016	−1.01	1.30	1227.42	37.89			1.38	38.49
109	163	0.21	0.00	0.04	0.00	0.230	0.000	−0.030	−0.009	−1.26	1.12	1228.14	45.24			1.20	45.93
110	164	0.21	0.00	0.05	0.00	0.230	0.000	−0.041	−0.011	−1.24	1.17	1230.52	50.93			1.30	51.78
111	165	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	−1.38	0.89	1231.09	58.43			1.02	59.37
112	166	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−0.93	0.98	1233.18	64.42			1.07	65.43
113	167	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−1.44	0.55	1233.66	72.00			0.69	73.18
114	168	0.15	0.00	0.03	0.00	0.162	0.000	−0.027	−0.005	−0.99	0.48	1235.66	78.08			0.53	79.28
115	169	0.15	0.00	0.04	−0.01	0.163	0.000	−0.039	0.003	−1.73	0.12	1235.85	85.96			0.22	87.34
116	170	0.15	0.00	0.04	−0.01	0.163	0.000	−0.039	0.003	−1.98	−0.15	1237.80	92.07			−0.05	93.59
117	171	0.13	0.00	0.04	−0.01	0.141	0.000	−0.042	0.004	−2.51	−0.87	1238.13	99.82			−0.76	101.48
118	172	0.11	0.00	0.04	−0.02	0.119	0.000	−0.044	0.015	−2.95	−1.55	1240.26	105.76			−1.36	107.64
119	173	0.11	0.00	0.04	−0.02	0.119	0.000	−0.044	0.015	−3.76	−2.32	1240.41	113.68			−2.12	115.70
120	174	−0.12	0.00	0.01	−0.01	−0.125	0.000	−0.005	0.011	−3.90	−2.69	1242.02	120.15			−2.65	122.16
121	175	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−4.96	−3.67	1242.17	128.06			−3.67	130.20
122	176	−0.06	0.00	0.02	0.00	−0.063	0.000	−0.022	0.002	−5.24	−4.49	1244.01	134.29			−4.46	136.62
123	177	−0.06	0.00	0.02	0.00	−0.063	0.000	−0.022	0.002	−6.64	−5.74	1244.23	142.14			−5.71	144.64
124	178	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−7.47	−6.49	1245.78	148.67			−6.43	151.37
125	179	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.88	−7.78	1245.85	156.66			−7.78	159.49
126	180	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.65	−8.48	1247.15	163.44			−8.48	166.45
127	181	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−8.77	−7.68	1244.94	173.72			−7.68	176.93
128	182	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.67	−6.64	1244.31	182.42			−6.64	185.83
Z = 55 (Cs)																	
51	106	0.09	0.00	−0.04	0.00	0.096	0.000	0.052	0.005	−3.68	−2.16	821.91	−9.38			−2.17	−9.23
52	107	0.12	0.04	−0.05	0.01	0.129	−0.056	0.068	−0.000	−3.79	−1.51	838.11	−17.51			−1.51	−17.36
53	108	0.15	0.07	−0.05	0.02	0.162	−0.096	0.073	−0.006	−4.02	−0.81	851.86	−23.19			−0.82	−23.06
54	109	0.16	0.08	−0.05	0.03	0.173	−0.109	0.075	−0.014	−3.92	−0.35	867.42	−30.68			−0.34	−30.54
55	110	0.16	0.09	−0.04	0.03	0.174	−0.123	0.064	−0.015	−3.66	−0.39	880.86	−36.04			−0.40	−36.20
56	111	0.17	0.09	−0.04	0.03	0.185	−0.123	0.065	−0.014	−3.29	0.14	895.28	−42.40			0.15	−42.27
57	112	0.18	0.09	−0.03	0.03	0.196	−0.122	0.054	−0.016	−2.67	0.76	907.05	−46.09			0.75	−45.99
58	113	0.19	0.09	−0.03	0.03	0.207	−0.122	0.056	−0.016	−2.32	1.23	920.53	−51.49	−51.70	0.104	1.24	−51.39

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 55 (Cs)																	
59	114	0.21	0.07	−0.04	0.03	0.228	−0.095	0.072	−0.014	−1.83	1.72	931.72	−54.62			1.71	−54.55
60	115	0.24	0.00	−0.06	0.01	0.260	0.000	0.101	0.013	−1.82	2.06	944.62	−59.45			2.07	−59.37
61	116	0.24	0.00	−0.06	0.01	0.260	0.000	0.101	0.013	−1.64	2.25	955.44	−62.20			2.25	−62.15
62	117	0.24	0.00	−0.04	0.01	0.260	0.000	0.076	0.005	−0.80	2.46	967.79	−66.48	−66.44	0.062	2.47	−66.44
63	118	0.24	0.01	−0.03	0.02	0.260	−0.013	0.064	−0.008	−0.47	2.64	977.99	−68.60	−68.41	0.013	2.64	−68.60
64	119	0.24	0.00	−0.01	0.01	0.261	0.000	0.038	−0.004	−0.03	2.86	989.69	−72.23	−72.31	0.014	2.87	−72.24
65	120	0.23	0.00	0.00	0.01	0.250	0.000	0.024	−0.008	0.19	2.84	999.48	−73.95	−73.89	0.010	2.83	−73.99
66	121	0.23	0.00	0.01	0.01	0.250	0.000	0.012	−0.011	0.19	2.74	1010.88	−77.28	−77.10	0.014	2.74	−77.33
67	122	0.24	0.00	0.02	0.01	0.262	0.000	0.002	−0.013	−0.15	2.70	1020.09	−78.41	−78.14	0.032	2.70	−78.50
68	123	0.23	0.00	0.03	0.01	0.252	0.000	−0.013	−0.016	−0.09	2.70	1030.80	−81.06	−81.04	0.012	2.72	−81.14
69	124	0.23	0.00	0.03	0.00	0.252	0.000	−0.014	−0.006	−0.29	2.52	1039.59	−81.78	−81.73	0.008	2.52	−81.90
70	125	0.22	0.00	0.03	0.00	0.240	0.000	−0.016	−0.006	−0.16	2.49	1049.78	−83.89	−84.09	0.008	2.50	−84.02
71	126	0.22	0.00	0.04	0.00	0.241	0.000	−0.028	−0.009	−0.51	2.23	1058.11	−84.15	−84.35	0.012	2.24	−84.31
72	127	0.19	0.00	0.02	0.01	0.206	0.000	−0.008	−0.013	−0.15	1.91	1068.03	−86.00	−86.24	0.006	1.93	−86.18
73	128	0.19	0.00	0.02	0.01	0.206	0.000	−0.008	−0.013	−0.56	1.50	1076.00	−85.90	−85.93	0.005	1.51	−86.11
74	129	0.17	0.00	0.02	0.01	0.184	0.000	−0.011	−0.013	−0.66	1.25	1085.33	−87.16	−87.50	0.005	1.27	−87.38
75	130	0.16	0.00	0.01	0.01	0.173	0.000	−0.001	−0.011	−1.09	0.77	1092.89	−86.64	−86.90	0.008	0.77	−86.89
76	131	0.14	0.00	0.01	0.01	0.151	0.000	−0.003	−0.011	−1.36	0.44	1101.80	−87.48	−88.06	0.005	0.45	−87.75
77	132	0.13	0.00	0.01	0.00	0.140	0.000	−0.005	−0.001	−1.82	−0.27	1109.10	−86.72	−87.16	0.002	−0.27	−87.01
78	133	−0.12	0.00	0.03	0.01	−0.125	0.000	−0.029	−0.005	−2.76	−1.27	1118.20	−87.74	−88.07	0.000	−1.25	−88.04
79	134	−0.12	0.00	0.03	0.01	−0.125	0.000	−0.029	−0.005	−3.69	−2.27	1125.33	−86.81	−86.89	0.000	−2.25	−87.12
80	135	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.49	−3.68	1134.39	−87.79	−87.58	0.001	−3.68	−88.14
81	136	0.05	0.00	0.00	0.00	0.053	0.000	0.001	0.000	−5.75	−4.60	1141.01	−86.34	−86.34	0.002	−4.60	−86.70
82	137	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.06	−5.91	1149.51	−86.77	−86.55	0.000	−5.91	−87.15
83	138	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−6.12	−5.10	1153.99	−83.17	−82.89	0.009	−5.10	−83.56
84	139	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.94	−4.03	1159.69	−80.81	−80.70	0.003	−4.03	−81.20
85	140	0.09	0.03	−0.04	−0.01	0.097	−0.042	0.052	0.016	−4.84	−2.86	1163.39	−76.44	−77.05	0.008	−2.79	−76.76
86	141	0.11	0.04	−0.05	0.00	0.119	−0.056	0.067	0.009	−4.52	−2.06	1168.96	−73.94	−74.48	0.011	−1.96	−74.23
87	142	0.13	0.07	−0.05	0.01	0.141	−0.097	0.070	0.003	−4.97	−1.68	1173.06	−69.96	−70.51	0.011	−1.54	−70.23
88	143	0.14	0.08	−0.06	0.01	0.153	−0.112	0.084	0.007	−5.09	−1.13	1178.48	−67.32	−67.67	0.024	−0.92	−67.51
89	144	0.15	0.09	−0.05	0.02	0.163	−0.124	0.074	−0.004	−4.83	−0.77	1182.24	−62.99	−63.27	0.026	−0.58	−63.20
90	145	0.15	0.08	−0.05	0.02	0.163	−0.110	0.073	−0.005	−3.91	−0.22	1187.28	−59.97	−60.06	0.011	−0.03	−60.16
91	146	0.16	0.09	−0.05	0.02	0.174	−0.124	0.075	−0.003	−4.03	−0.14	1190.94	−55.56	−55.62	0.071	0.07	−55.73
92	147	0.19	0.04	−0.07	0.01	0.206	−0.055	0.104	0.011	−3.48	0.41	1195.62	−52.17	−52.02	0.053	0.66	−52.28
93	148	0.20	0.00	−0.07	0.01	0.216	0.000	0.105	0.011	−3.40	0.40	1199.02	−47.50	−47.30	0.576	0.63	−47.62
94	149	0.21	0.00	−0.07	0.01	0.227	0.000	0.107	0.012	−3.22	0.74	1203.56	−43.97			0.99	−44.04
95	150	0.22	0.02	−0.06	0.02	0.237	−0.027	0.097	0.000	−3.10	0.68	1206.69	−39.02			0.89	−39.11
96	151	0.21	0.00	−0.05	0.02	0.226	0.000	0.082	−0.004	−2.19	1.02	1210.88	−35.14			1.20	−35.24
97	152	0.23	0.00	−0.05	0.03	0.248	0.000	0.087	−0.013	−2.68	0.87	1213.78	−29.97			1.08	−30.00
98	153	0.23	0.00	−0.03	0.03	0.249	0.000	0.062	−0.019	−1.97	1.13	1217.71	−25.83			1.31	−25.87
99	154	0.24	0.00	−0.02	0.03	0.260	0.000	0.052	−0.021	−2.18	1.06	1220.21	−20.26			1.21	−20.28
100	155	0.24	0.00	−0.01	0.03	0.261	0.000	0.040	−0.024	−1.85	1.26	1223.91	−15.89			1.42	−15.85
101	156	0.24	0.00	−0.01	0.04	0.261	0.000	0.041	−0.034	−2.21	0.96	1226.33	−10.24			1.22	−10.06
102	157	0.24	0.00	0.00	0.04	0.262	0.000	0.029	−0.037	−1.98	1.09	1229.80	−5.63			1.37	−5.37
103	158	0.24	0.00	0.01	0.03	0.262	0.000	0.016	−0.030	−2.03	1.01	1231.72	0.52			1.18	0.72
104	159	0.24	0.00	0.02	0.03	0.263	0.000	0.004	−0.033	−1.85	1.11	1234.90	5.41			1.32	5.71
105	160	0.24	0.00	0.03	0.02	0.263	0.000	−0.009	−0.026	−1.93	1.06	1236.51	11.87			1.19	12.15
106	161	0.23	0.00	0.03	0.02	0.252	0.000	−0.011	−0.026	−1.54	1.20	1239.37	17.08			1.35	17.44
107	162	0.23	0.00	0.04	0.01	0.253	0.000	−0.024	−0.019	−1.68	1.11	1240.75	23.77			1.21	24.17
108	163	0.21	0.00	0.04	0.01	0.230	0.000	−0.028	−0.018	−1.21	1.22	1243.38	29.22			1.33	29.71
109	164	0.21	0.00	0.04	0.01	0.230	0.000	−0.028	−0.018	−1.40	1.05	1244.57	36.10			1.16	36.66
110	165	0.21	0.00	0.05	0.00	0.230	0.000	−0.041	−0.011	−1.32	1.15	1246.94	41.80			1.27	42.47
111	166	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	−1.43	0.89	1247.97	48.84			1.01	49.60
112	167	0.19	0.00	0.05	0.00	0.208	0.000	−0.045	−0.010	−1.20	0.93	1250.14	54.74			1.06	55.61
113	168	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−1.41	0.65	1250.95	62.00			0.77	62.98
114	169	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−1.45	0.55	1253.01	68.02			0.68	69.11
115	170	0.15	0.00	0.05	−0.01	0.163	0.000	−0.051	0.002	−1.75	0.23	1253.61	75.49			0.38	76.70

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 55 (Cs)																	
116	171	0.15	0.00	0.05	−0.01	0.163	0.000	−0.051	0.002	−1.99	−0.04	1255.60	81.57			0.12	82.92
117	172	0.13	0.00	0.04	−0.02	0.140	0.000	−0.042	0.014	−2.32	−0.67	1256.30	88.94			−0.51	90.42
118	173	0.11	0.00	0.04	−0.02	0.119	0.000	−0.044	0.015	−2.64	−1.22	1258.32	94.98			−1.04	96.61
119	174	0.11	0.00	0.04	−0.02	0.119	0.000	−0.044	0.015	−3.43	−1.98	1258.92	102.46			−1.80	104.22
120	175	0.10	0.00	0.03	−0.01	0.108	0.000	−0.032	0.007	−3.48	−2.19	1260.39	109.06			−2.11	110.87
121	176	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−4.51	−3.22	1261.05	116.48			−3.22	118.35
122	177	−0.07	0.00	0.02	0.01	−0.073	0.000	−0.021	−0.008	−4.80	−4.02	1262.88	122.71			−3.97	124.79
123	178	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−6.15	−5.23	1263.52	130.15			−5.20	132.37
124	179	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−6.96	−5.99	1265.10	136.64			−5.93	139.05
125	180	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−8.34	−7.27	1265.60	144.21			−7.27	146.74
126	181	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.08	−7.92	1266.86	151.02			−7.92	153.72
127	182	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−8.25	−7.17	1265.13	160.82			−7.17	163.70
128	183	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−7.14	−6.14	1264.53	169.50			−6.14	172.57
129	184	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−6.17	−5.20	1262.42	179.68			−5.20	182.95
130	185	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.94	−4.11	1261.56	188.61			−4.11	192.08
Z = 56 (Ba)																	
52	108	0.13	0.05	−0.05	0.01	0.140	−0.069	0.070	0.001	−3.12	−0.72	835.66	−7.76			−0.71	−7.55
53	109	0.15	0.08	−0.05	0.02	0.163	−0.110	0.073	−0.005	−3.47	−0.17	849.69	−13.73			−0.17	−13.53
54	110	0.17	0.09	−0.04	0.03	0.185	−0.123	0.065	−0.014	−3.42	−0.28	866.53	−22.49			−0.27	−22.29
55	111	0.17	0.10	−0.04	0.03	0.186	−0.136	0.066	−0.013	−3.43	0.13	879.90	−27.80			0.13	−27.62
56	112	0.18	0.10	−0.03	0.04	0.197	−0.135	0.056	−0.025	−3.03	0.59	895.36	−35.19			0.62	−35.00
57	113	0.19	0.10	−0.03	0.04	0.208	−0.135	0.057	−0.024	−2.63	1.09	907.37	−39.13			1.09	−38.97
58	114	0.20	0.09	−0.03	0.04	0.218	−0.121	0.059	−0.025	−2.10	1.52	921.58	−45.26	−45.95	0.139	1.54	−45.10
59	115	0.24	0.00	−0.07	0.01	0.261	0.000	0.114	0.016	−2.25	1.88	933.01	−48.62			1.90	−48.49
60	116	0.26	0.00	−0.06	0.02	0.282	0.000	0.106	0.005	−2.20	2.01	946.80	−54.34			2.04	−54.21
61	117	0.26	0.00	−0.05	0.02	0.282	0.000	0.094	0.001	−1.75	2.17	957.77	−57.24			2.18	−57.15
62	118	0.27	0.00	−0.04	0.02	0.293	0.000	0.084	−0.002	−1.45	2.32	970.86	−62.25			2.34	−62.17
63	119	0.26	0.00	−0.03	0.01	0.283	0.000	0.068	0.004	−0.89	2.57	981.09	−64.41	−64.59	0.200	2.58	−64.37
64	120	0.26	0.00	−0.01	0.02	0.283	0.000	0.044	−0.013	−0.39	2.85	993.39	−68.64	−68.89	0.300	2.87	−68.61
65	121	0.26	0.00	0.00	0.02	0.284	0.000	0.032	−0.016	−0.35	2.87	1003.24	−70.43	−70.74	0.142	2.87	−70.43
66	122	0.25	0.00	0.01	0.01	0.273	0.000	0.016	−0.010	−0.10	2.78	1015.29	−74.40	−74.61	0.028	2.79	−74.42
67	123	0.25	0.00	0.02	0.01	0.274	0.000	0.004	−0.013	−0.29	2.71	1024.64	−75.68	−75.65	0.012	2.71	−75.73
68	124	0.24	0.00	0.03	0.01	0.263	0.000	−0.010	−0.016	−0.21	2.73	1035.97	−78.94	−79.09	0.012	2.75	−79.00
69	125	0.24	0.00	0.04	0.01	0.264	0.000	−0.022	−0.019	−0.55	2.55	1044.87	−79.77	−79.67	0.011	2.56	−79.86
70	126	0.24	0.00	0.05	0.00	0.264	0.000	−0.036	−0.012	−0.62	2.55	1055.64	−82.47	−82.67	0.012	2.59	−82.56
71	127	0.23	0.00	0.04	0.01	0.253	0.000	−0.024	−0.019	−0.57	2.35	1064.02	−82.77	−82.82	0.011	2.38	−82.90
72	128	0.21	0.00	0.03	0.01	0.229	0.000	−0.016	−0.016	−0.21	2.22	1074.38	−85.07	−85.40	0.010	2.25	−85.21
73	129	0.20	0.00	0.03	0.01	0.218	0.000	−0.018	−0.016	−0.43	1.85	1082.41	−85.02	−85.07	0.011	1.87	−85.20
74	130	0.18	0.00	0.02	0.01	0.195	0.000	−0.010	−0.013	−0.36	1.50	1092.45	−86.99	−87.26	0.003	1.53	−87.19
75	131	0.17	0.00	0.02	0.01	0.184	0.000	−0.011	−0.013	−0.74	1.20	1099.91	−86.38	−86.68	0.003	1.22	−86.61
76	132	0.15	0.00	0.02	0.01	0.162	0.000	−0.014	−0.013	−0.90	0.99	1109.31	−87.71	−88.43	0.001	1.01	−87.96
77	133	0.14	0.00	0.02	0.00	0.151	0.000	−0.016	−0.003	−1.41	0.38	1116.60	−86.93	−87.55	0.001	0.39	−87.21
78	134	−0.12	0.00	0.03	0.01	−0.125	0.000	−0.029	−0.005	−1.95	−0.40	1126.09	−88.34	−88.95	0.000	−0.38	−88.63
79	135	−0.12	0.00	0.03	0.01	−0.125	0.000	−0.029	−0.005	−2.83	−1.32	1133.23	−87.41	−87.85	0.000	−1.30	−87.72
80	136	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−3.57	−2.75	1142.89	−89.00	−88.89	0.000	−2.75	−89.36
81	137	0.05	0.00	0.00	0.00	0.053	0.000	0.001	0.000	−4.83	−3.74	1149.66	−87.70	−87.72	0.000	−3.74	−88.07
82	138	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.12	−5.02	1158.72	−88.69	−88.26	0.000	−5.02	−89.07
83	139	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−5.23	−4.24	1163.30	−85.20	−84.91	0.000	−4.24	−85.60
84	140	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.05	−3.21	1169.61	−83.44	−83.27	0.008	−3.21	−83.85
85	141	0.09	0.05	−0.04	0.00	0.097	−0.069	0.053	0.007	−4.20	−2.05	1173.41	−79.16	−79.73	0.008	−1.98	−79.50
86	142	0.12	0.06	−0.05	0.01	0.130	−0.083	0.069	0.001	−4.20	−1.33	1179.62	−77.30	−77.82	0.006	−1.20	−77.60
87	143	0.14	0.08	−0.05	0.01	0.152	−0.111	0.072	0.005	−4.76	−1.07	1183.92	−73.53	−73.94	0.013	−0.92	−73.80
88	144	0.15	0.09	−0.05	0.02	0.163	−0.124	0.074	−0.004	−4.66	−0.60	1189.97	−71.52	−71.77	0.013	−0.40	−71.74
89	145	0.16	0.10	−0.05	0.02	0.175	−0.138	0.076	−0.001	−4.88	−0.32	1193.87	−67.34	−67.42	0.071	−0.10	−67.55
90	146	0.16	0.09	−0.05	0.02	0.174	−0.124	0.075	−0.003	−3.98	−0.11	1199.80	−65.20	−65.00	0.072	0.12	−65.40
91	147	0.17	0.09	−0.05	0.03	0.185	−0.123	0.077	−0.012	−3.87	0.18	1203.33	−60.66			0.42	−60.83
92	148	0.21	0.00	−0.08	0.01	0.228	0.000	0.120	0.016	−3.92	0.54	1208.73	−57.99	−58.01	0.084	0.85	−58.09

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 56 (Ba)																	
93	149	0.22	0.00	−0.08	0.01	0.239	0.000	0.122	0.017	−4.27	0.39	1212.35	−53.53			0.69	−53.63
94	150	0.22	0.00	−0.07	0.02	0.237	0.000	0.110	0.003	−3.38	0.72	1217.43	−50.54			0.99	−50.65
95	151	0.23	0.00	−0.06	0.02	0.249	0.000	0.099	0.001	−3.28	0.69	1220.59	−45.63			0.90	−45.78
96	152	0.23	0.00	−0.05	0.02	0.249	0.000	0.087	−0.002	−2.63	0.96	1225.37	−42.34			1.15	−42.49
97	153	0.24	0.00	−0.05	0.03	0.259	0.000	0.090	−0.012	−3.02	0.81	1228.33	−37.23			1.03	−37.32
98	154	0.24	0.00	−0.04	0.03	0.259	0.000	0.077	−0.015	−2.52	1.02	1232.84	−33.67			1.23	−33.74
99	155	0.25	0.00	−0.02	0.03	0.271	0.000	0.055	−0.021	−2.54	0.92	1235.43	−28.18			1.08	−28.27
100	156	0.24	0.00	−0.02	0.04	0.260	0.000	0.053	−0.031	−2.24	1.05	1239.70	−24.39			1.32	−24.33
101	157	0.25	0.00	−0.01	0.04	0.272	0.000	0.044	−0.034	−2.58	0.83	1242.10	−18.71			1.10	−18.62
102	158	0.25	0.00	0.00	0.04	0.273	0.000	0.032	−0.037	−2.33	0.98	1246.05	−14.59			1.27	−14.43
103	159	0.25	0.00	0.01	0.04	0.273	0.000	0.020	−0.040	−2.55	0.75	1248.17	−8.64			1.05	−8.42
104	160	0.25	0.00	0.02	0.03	0.274	0.000	0.006	−0.033	−2.15	1.02	1251.68	−4.08			1.24	−3.88
105	161	0.24	0.00	0.02	0.03	0.263	0.000	0.004	−0.033	−2.10	0.87	1253.45	2.22			1.07	2.47
106	162	0.24	0.00	0.03	0.02	0.263	0.000	−0.009	−0.026	−1.76	1.15	1256.66	7.08			1.30	7.34
107	163	0.23	0.00	0.04	0.02	0.253	0.000	−0.023	−0.029	−1.84	1.02	1258.12	13.69			1.21	14.05
108	164	0.23	0.00	0.04	0.01	0.253	0.000	−0.024	−0.019	−1.46	1.30	1261.06	18.82			1.42	19.18
109	165	0.21	0.00	0.04	0.01	0.230	0.000	−0.028	−0.018	−1.35	1.08	1262.34	25.61			1.19	26.04
110	166	0.21	0.00	0.05	0.00	0.230	0.000	−0.041	−0.011	−1.26	1.26	1265.11	30.91			1.39	31.44
111	167	0.21	0.00	0.05	0.00	0.230	0.000	−0.041	−0.011	−1.47	1.02	1266.16	37.94			1.14	38.54
112	168	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	−1.19	1.16	1268.70	43.47			1.30	44.18
113	169	0.20	0.00	0.06	−0.01	0.220	0.000	−0.056	−0.003	−1.65	0.81	1269.61	50.63			0.99	51.48
114	170	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−1.22	0.82	1272.04	56.28			0.96	57.19
115	171	0.17	0.00	0.05	−0.01	0.185	0.000	−0.049	0.001	−1.55	0.65	1272.53	63.85			0.79	64.87
116	172	0.15	0.00	0.05	−0.01	0.163	0.000	−0.051	0.002	−1.63	0.33	1275.03	69.43			0.49	70.58
117	173	0.15	0.00	0.05	−0.02	0.163	0.000	−0.052	0.012	−2.29	−0.32	1275.78	76.75			−0.12	78.06
118	174	0.13	0.00	0.05	−0.02	0.141	0.000	−0.054	0.013	−2.40	−0.66	1278.05	82.54			−0.43	84.00
119	175	0.11	0.00	0.04	−0.01	0.119	0.000	−0.043	0.005	−2.85	−1.38	1278.65	90.02			−1.27	91.50
120	176	0.11	0.00	0.03	−0.01	0.119	0.000	−0.032	0.006	−2.95	−1.59	1280.56	96.18			−1.52	97.75
121	177	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−3.86	−2.59	1281.21	103.60			−2.59	105.24
122	178	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−4.07	−3.15	1283.26	109.63			−3.12	111.43
123	179	−0.06	0.00	0.02	0.00	−0.063	0.000	−0.022	0.002	−5.41	−4.56	1284.11	116.84			−4.53	118.80
124	180	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−6.24	−5.29	1286.11	122.92			−5.24	125.05
125	181	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.54	−6.49	1286.54	130.56			−6.49	132.80
126	182	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−8.24	−7.12	1288.22	136.94			−7.12	139.35
127	183	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−7.45	−6.42	1286.57	146.67			−6.42	149.25
128	184	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.33	−5.34	1286.33	154.98			−5.34	157.74
129	185	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−5.36	−4.42	1284.26	165.12			−4.42	168.07
130	186	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.11	−3.32	1283.82	173.64			−3.32	176.77
131	187	0.10	0.06	−0.05	0.00	0.109	−0.083	0.066	0.010	−5.04	−2.99	1282.15	183.37			−2.66	187.04
132	188	0.11	0.08	−0.05	0.00	0.121	−0.112	0.068	0.013	−4.93	−2.40	1282.02	191.57			−1.99	195.53
133	189	0.11	0.09	−0.06	0.01	0.121	−0.125	0.082	0.006	−5.30	−2.43	1280.53	201.14			−1.90	205.41
Z = 57 (La)																	
53	110	0.17	0.06	−0.05	0.02	0.184	−0.082	0.076	−0.005	−2.69	−0.03	845.52	−2.27			−0.06	−2.04
54	111	0.18	0.09	−0.04	0.03	0.196	−0.123	0.067	−0.014	−3.03	0.24	862.10	−10.78			0.23	−10.55
55	112	0.18	0.10	−0.04	0.04	0.196	−0.135	0.068	−0.023	−3.12	0.55	876.28	−16.89			0.52	−16.68
56	113	0.20	0.10	−0.03	0.04	0.219	−0.135	0.059	−0.024	−2.91	0.82	892.05	−24.59			0.81	−24.39
57	114	0.21	0.08	−0.05	0.04	0.228	−0.108	0.085	−0.020	−2.54	1.31	905.01	−29.48			1.29	−29.57
58	115	0.24	0.05	−0.06	0.02	0.261	−0.068	0.102	0.004	−2.50	1.53	919.82	−36.21			1.52	−36.03
59	116	0.25	0.00	−0.07	0.02	0.271	0.000	0.117	0.007	−2.76	1.60	932.22	−40.54			1.58	−40.40
60	117	0.26	0.00	−0.06	0.02	0.282	0.000	0.106	0.005	−2.65	1.63	946.22	−46.47			1.62	−46.34
61	118	0.27	0.00	−0.05	0.02	0.293	0.000	0.096	0.002	−2.41	1.76	957.89	−50.07			1.73	−49.98
62	119	0.27	0.00	−0.05	0.02	0.293	0.000	0.096	0.002	−2.18	1.96	971.04	−55.15			1.96	−55.05
63	120	0.27	0.00	−0.04	0.02	0.293	0.000	0.084	−0.002	−1.75	2.17	981.97	−58.00			2.15	−57.95
64	121	0.27	0.00	−0.02	0.02	0.294	0.000	0.059	−0.009	−1.10	2.46	994.37	−62.33			2.45	−62.29
65	122	0.27	0.00	0.00	0.02	0.295	0.000	0.034	−0.016	−0.88	2.48	1004.87	−64.76			2.45	−64.76
66	123	0.26	0.00	0.01	0.01	0.284	0.000	0.018	−0.010	−0.56	2.46	1016.95	−68.77			2.45	−68.78
67	124	0.26	0.00	0.02	0.01	0.285	0.000	0.006	−0.013	−0.71	2.49	1026.83	−70.58	−70.26	0.057	2.48	−70.63

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 57 (La)																	
68	125	0.26	0.00	0.03	0.01	0.286	0.000	−0.006	−0.016	−0.69	2.53	1038.25	−73.93	−73.76	0.026	2.54	−73.98
69	126	0.26	0.00	0.04	0.00	0.286	0.000	−0.019	−0.010	−0.92	2.43	1047.70	−75.31	−74.97	0.091	2.42	−75.40
70	127	0.25	0.00	0.04	0.00	0.275	0.000	−0.022	−0.009	−0.65	2.50	1058.52	−78.05	−77.90	0.026	2.51	−78.15
71	128	0.24	0.00	0.04	0.00	0.264	0.000	−0.024	−0.009	−0.62	2.36	1067.44	−78.91	−78.63	0.054	2.36	−79.04
72	129	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−0.19	2.36	1077.78	−81.17	−81.33	0.021	2.37	−81.31
73	130	0.21	0.00	0.02	0.01	0.229	0.000	−0.004	−0.013	−0.25	2.09	1086.31	−81.64	−81.63	0.026	2.09	−81.82
74	131	0.19	0.00	0.02	0.01	0.206	0.000	−0.008	−0.013	−0.11	1.93	1096.27	−83.52	−83.77	0.028	1.94	−83.72
75	132	0.17	0.00	0.03	0.00	0.185	0.000	−0.024	−0.005	−0.37	1.67	1104.29	−83.47	−83.74	0.039	1.67	−83.70
76	133	0.16	0.00	0.03	0.00	0.174	0.000	−0.025	−0.005	−0.67	1.25	1113.99	−85.10	−85.49	0.028	1.26	−85.35
77	134	0.14	0.00	0.02	0.00	0.151	0.000	−0.016	−0.003	−0.94	0.83	1121.69	−84.73	−85.22	0.020	0.83	−85.01
78	135	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−1.30	0.15	1131.16	−86.12	−86.65	0.010	0.16	−86.42
79	136	0.10	0.00	0.01	0.00	0.107	0.000	−0.008	−0.001	−1.97	−0.66	1138.78	−85.68	−86.04	0.053	−0.66	−86.00
80	137	0.05	0.00	0.00	0.00	0.053	0.000	0.001	0.000	−2.84	−1.88	1148.32	−87.15	−87.10	0.013	−1.88	−87.50
81	138	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−4.06	−3.00	1155.79	−86.55	−86.53	0.004	−2.99	−86.91
82	139	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.29	−4.22	1164.88	−87.56	−87.23	0.002	−4.22	−87.95
83	140	0.05	0.00	−0.01	0.00	0.053	0.000	0.013	0.001	−4.49	−3.40	1169.99	−84.60	−84.32	0.002	−3.40	−85.00
84	141	0.05	0.00	0.00	0.00	0.053	0.000	0.001	0.000	−3.32	−2.35	1176.37	−82.90	−82.94	0.005	−2.35	−83.32
85	142	0.10	0.06	−0.03	0.00	0.108	−0.083	0.042	0.007	−3.62	−1.37	1180.90	−79.36	−80.04	0.006	−1.31	−79.74
86	143	0.12	0.08	−0.04	0.00	0.131	−0.111	0.057	0.012	−3.97	−0.77	1187.31	−77.71	−78.19	0.015	−0.66	−78.03
87	144	0.14	0.09	−0.05	0.01	0.153	−0.125	0.073	0.006	−4.61	−0.60	1192.25	−74.57	−74.89	0.049	−0.45	−74.87
88	145	0.16	0.09	−0.05	0.02	0.174	−0.124	0.075	−0.003	−4.42	−0.19	1198.45	−72.70	−72.99	0.090	−0.02	−72.97
89	146	0.16	0.10	−0.04	0.02	0.175	−0.137	0.064	−0.004	−4.28	−0.23	1203.21	−69.39	−69.12	0.071	−0.07	−69.68
90	147	0.17	0.09	−0.05	0.02	0.185	−0.124	0.077	−0.002	−3.84	0.27	1208.92	−67.03	−66.85	0.048	0.46	−67.29
91	148	0.21	0.02	−0.08	0.01	0.228	−0.028	0.120	0.016	−4.27	0.39	1213.16	−63.19	−63.13	0.059	0.63	−63.40
92	149	0.22	0.00	−0.08	0.01	0.239	0.000	0.122	0.017	−4.30	0.47	1218.91	−60.88			0.74	−61.06
93	150	0.22	0.00	−0.08	0.01	0.239	0.000	0.122	0.017	−4.46	0.31	1223.07	−56.97			0.57	−57.14
94	151	0.23	0.00	−0.07	0.02	0.249	0.000	0.112	0.004	−3.83	0.62	1228.23	−54.05			0.87	−54.24
95	152	0.24	0.00	−0.06	0.02	0.260	0.000	0.101	0.002	−3.75	0.56	1231.95	−49.70			0.74	−49.93
96	153	0.24	0.00	−0.06	0.03	0.259	0.000	0.102	−0.008	−3.45	0.77	1236.86	−46.54			1.01	−46.70
97	154	0.24	0.00	−0.05	0.03	0.259	0.000	0.090	−0.012	−3.31	0.61	1240.34	−41.95			0.80	−42.13
98	155	0.25	0.00	−0.04	0.03	0.271	0.000	0.079	−0.014	−3.00	0.84	1244.90	−38.44			1.02	−38.60
99	156	0.25	0.00	−0.03	0.03	0.271	0.000	0.067	−0.017	−2.96	0.73	1248.00	−33.47			0.88	−33.64
100	157	0.25	0.00	−0.02	0.04	0.271	0.000	0.056	−0.031	−2.70	0.83	1252.36	−29.76			1.08	−29.80
101	158	0.25	0.00	−0.01	0.04	0.272	0.000	0.044	−0.034	−2.83	0.65	1255.23	−24.55			0.88	−24.58
102	159	0.25	0.00	0.00	0.04	0.273	0.000	0.032	−0.037	−2.56	0.81	1259.21	−20.47			1.07	−20.42
103	160	0.25	0.00	0.01	0.04	0.273	0.000	0.020	−0.040	−2.76	0.60	1261.81	−14.99			0.87	−14.89
104	161	0.25	0.00	0.01	0.03	0.273	0.000	0.018	−0.030	−2.30	0.93	1265.33	−10.44			1.10	−10.39
105	162	0.25	0.00	0.02	0.03	0.274	0.000	0.006	−0.033	−2.41	0.79	1267.56	−4.60			0.98	−4.49
106	163	0.24	0.00	0.03	0.02	0.263	0.000	−0.009	−0.026	−1.84	1.10	1270.80	0.23			1.23	0.35
107	164	0.24	0.00	0.04	0.01	0.264	0.000	−0.022	−0.019	−1.92	1.04	1272.68	6.42			1.12	6.56
108	165	0.23	0.00	0.04	0.01	0.253	0.000	−0.024	−0.019	−1.44	1.33	1275.65	11.53			1.44	11.74
109	166	0.23	0.00	0.05	0.00	0.253	0.000	−0.038	−0.012	−1.60	1.22	1277.31	17.94			1.32	18.22
110	167	0.21	0.00	0.05	0.00	0.230	0.000	−0.041	−0.011	−1.11	1.35	1280.16	23.15			1.47	23.52
111	168	0.21	0.00	0.06	−0.01	0.231	0.000	−0.054	−0.004	−1.53	1.16	1281.64	29.75			1.31	30.23
112	169	0.20	0.00	0.06	−0.01	0.220	0.000	−0.056	−0.003	−1.24	1.26	1284.27	35.19			1.43	35.78
113	170	0.20	0.00	0.07	−0.02	0.220	0.000	−0.069	0.005	−1.80	0.86	1285.70	41.83			1.11	42.60
114	171	0.18	0.00	0.06	−0.01	0.197	0.000	−0.059	−0.002	−1.28	0.98	1288.04	47.56			1.17	48.35
115	172	0.17	0.00	0.06	−0.02	0.186	0.000	−0.062	0.009	−1.65	0.71	1289.10	54.57			0.93	55.50
116	173	0.15	0.00	0.05	−0.01	0.163	0.000	−0.051	0.002	−1.46	0.53	1291.49	60.25			0.67	61.20
117	174	0.15	0.00	0.05	−0.02	0.163	0.000	−0.052	0.012	−2.14	−0.14	1292.72	67.10			0.04	68.20
118	175	0.14	0.00	0.05	−0.02	0.152	0.000	−0.053	0.012	−2.28	−0.42	1294.97	72.92			−0.22	74.15
119	176	0.11	0.00	0.04	−0.01	0.119	0.000	−0.043	0.005	−2.55	−1.08	1295.94	80.01			−0.97	81.27
120	177	0.11	0.00	0.04	−0.02	0.119	0.000	−0.044	0.015	−2.81	−1.38	1297.99	86.04			−1.21	87.49
121	178	0.10	0.00	0.03	−0.01	0.108	0.000	−0.032	0.007	−3.46	−2.26	1298.97	93.14			−2.19	94.61
122	179	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−3.69	−2.72	1300.93	99.24			−2.69	100.81
123	180	−0.06	0.00	0.02	0.00	−0.063	0.000	−0.022	0.002	−4.98	−4.15	1302.24	106.00			−4.12	107.71
124	181	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−5.81	−4.87	1304.26	112.06			−4.82	113.94

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 57 (La)																	
125	182	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−7.09	−6.02	1305.08	119.31			−6.02	121.28
126	183	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−7.76	−6.62	1306.76	125.70			−6.62	127.84
127	184	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−6.98	−5.96	1305.57	134.96			−5.96	137.26
128	185	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−5.86	−4.86	1305.34	143.26			−4.86	145.73
129	186	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−4.89	−3.96	1303.71	152.96			−3.96	155.60
130	187	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−3.64	−2.82	1303.25	161.50			−2.83	164.32
131	188	0.10	0.07	−0.04	0.00	0.109	−0.097	0.054	0.009	−4.69	−2.56	1302.06	170.75			−2.30	174.02
132	189	0.11	0.08	−0.05	0.00	0.121	−0.112	0.068	0.013	−4.59	−2.02	1302.00	178.89			−1.63	182.48
133	190	0.11	0.09	−0.05	0.00	0.121	−0.126	0.069	0.014	−4.79	−1.98	1300.85	188.10			−1.56	191.93
134	191	0.13	0.10	−0.05	0.01	0.143	−0.139	0.072	0.007	−4.69	−1.49	1300.65	196.38			−1.04	200.43
135	192	0.14	0.10	−0.06	0.02	0.153	−0.138	0.085	−0.001	−5.01	−1.61	1299.48	205.61			−1.05	209.98
Z = 58 (Ce)																	
55	113	0.20	0.08	−0.04	0.04	0.217	−0.108	0.071	−0.024	−2.41	0.98	874.02	−7.33			0.96	−7.06
56	114	0.21	0.08	−0.03	0.04	0.228	−0.107	0.060	−0.026	−2.13	1.21	890.51	−15.76			1.21	−15.49
57	115	0.23	0.06	−0.05	0.03	0.249	−0.082	0.088	−0.010	−2.16	1.47	904.09	−21.27			1.45	−21.04
58	116	0.26	0.00	−0.06	0.02	0.282	0.000	0.106	0.005	−2.54	1.50	920.01	−29.11			1.50	−28.89
59	117	0.26	0.00	−0.06	0.02	0.282	0.000	0.106	0.005	−2.77	1.44	932.66	−33.69			1.42	−33.51
60	118	0.28	0.00	−0.05	0.03	0.304	0.000	0.100	−0.007	−2.99	1.34	947.47	−40.43			1.34	−40.24
61	119	0.28	0.00	−0.05	0.03	0.304	0.000	0.100	−0.007	−2.93	1.45	959.27	−44.16			1.43	−44.01
62	120	0.28	0.00	−0.04	0.03	0.304	0.000	0.087	−0.011	−2.48	1.62	973.10	−49.92			1.63	−49.78
63	121	0.28	0.00	−0.03	0.03	0.305	0.000	0.075	−0.015	−2.13	1.79	984.19	−52.94			1.78	−52.84
64	122	0.28	0.00	−0.02	0.02	0.305	0.000	0.061	−0.008	−1.64	2.00	997.32	−58.00			2.00	−57.91
65	123	0.28	0.00	−0.01	0.02	0.306	0.000	0.049	−0.012	−1.49	2.08	1007.87	−60.47			2.06	−60.43
66	124	0.27	0.00	0.00	0.01	0.295	0.000	0.033	−0.006	−1.04	2.21	1020.44	−64.97			2.22	−64.93
67	125	0.27	0.00	0.01	0.00	0.296	0.000	0.020	0.000	−1.03	2.24	1030.43	−66.89			2.23	−66.90
68	126	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−0.93	2.35	1042.42	−70.81	−70.82	0.028	2.35	−70.83
69	127	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−1.06	2.32	1051.90	−72.22	−71.98	0.058	2.31	−72.28
70	128	0.26	0.00	0.04	0.00	0.286	0.000	−0.019	−0.010	−0.81	2.46	1063.26	−75.51	−75.53	0.028	2.48	−75.57
71	129	0.25	0.00	0.04	0.00	0.275	0.000	−0.022	−0.009	−0.70	2.41	1072.21	−76.38	−76.29	0.028	2.42	−76.49
72	130	0.23	0.00	0.03	0.01	0.252	0.000	−0.013	−0.016	−0.17	2.49	1083.07	−79.17	−79.42	0.028	2.52	−79.29
73	131	0.21	0.00	0.03	0.01	0.229	0.000	−0.016	−0.016	−0.10	2.28	1091.65	−79.68	−79.71	0.034	2.29	−79.83
74	132	0.19	0.00	0.03	0.01	0.207	0.000	−0.020	−0.015	0.09	2.11	1102.22	−82.18	−82.47	0.021	2.13	−82.35
75	133	0.18	0.00	0.03	0.00	0.196	0.000	−0.023	−0.005	−0.14	1.89	1110.30	−82.19	−82.42	0.016	1.90	−82.39
76	134	0.17	0.00	0.03	0.00	0.185	0.000	−0.024	−0.005	−0.38	1.61	1120.45	−84.27	−84.84	0.020	1.63	−84.50
77	135	0.15	0.00	0.03	0.00	0.162	0.000	−0.027	−0.005	−0.70	1.10	1128.33	−84.08	−84.62	0.011	1.12	−84.33
78	136	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−0.79	0.68	1138.13	−85.81	−86.47	0.013	0.69	−86.10
79	137	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−1.58	−0.13	1145.84	−85.45	−85.88	0.013	−0.12	−85.76
80	138	0.06	0.00	0.01	0.00	0.064	0.000	−0.010	−0.001	−2.24	−1.25	1155.87	−87.40	−87.57	0.010	−1.25	−87.74
81	139	0.05	0.00	0.01	−0.01	0.053	0.000	−0.011	0.009	−3.43	−2.40	1163.46	−86.92	−86.95	0.007	−2.39	−87.28
82	140	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.65	−3.62	1173.12	−88.51	−88.08	0.002	−3.62	−88.89
83	141	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−3.74	−2.84	1178.35	−85.67	−85.44	0.002	−2.84	−86.07
84	142	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−2.57	−1.79	1185.30	−84.55	−84.54	0.003	−1.79	−84.96
85	143	0.12	0.06	−0.03	0.00	0.130	−0.083	0.044	0.008	−3.22	−0.79	1189.88	−81.06	−81.61	0.003	−0.73	−81.43
86	144	0.13	0.07	−0.04	0.01	0.141	−0.097	0.058	0.001	−3.16	−0.22	1196.88	−79.99	−80.44	0.003	−0.12	−80.33
87	145	0.15	0.08	−0.04	0.01	0.163	−0.110	0.061	0.003	−3.57	−0.04	1201.90	−76.93	−77.10	0.041	0.07	−77.27
88	146	0.16	0.09	−0.05	0.02	0.174	−0.124	0.075	−0.003	−3.88	0.04	1208.96	−75.93	−75.68	0.066	0.22	−76.21
89	147	0.17	0.08	−0.05	0.02	0.185	−0.110	0.077	−0.003	−3.49	0.33	1213.47	−72.37	−72.03	0.031	0.50	−72.68
90	148	0.19	0.07	−0.05	0.02	0.206	−0.096	0.080	−0.002	−3.14	0.74	1219.82	−70.64	−70.39	0.029	0.92	−70.94
91	149	0.21	0.00	−0.08	0.01	0.228	0.000	0.120	0.016	−4.11	0.46	1224.53	−67.28	−66.69	0.097	0.70	−67.51
92	150	0.22	0.00	−0.08	0.01	0.239	0.000	0.122	0.017	−4.33	0.49	1230.88	−65.55	−64.82	0.048	0.77	−65.75
93	151	0.23	0.00	−0.07	0.02	0.249	0.000	0.112	0.004	−4.25	0.31	1235.12	−61.73	−61.50	0.103	0.53	−61.97
94	152	0.24	0.00	−0.07	0.03	0.259	0.000	0.115	−0.005	−4.22	0.48	1240.95	−59.49			0.75	−59.68
95	153	0.24	0.00	−0.06	0.03	0.259	0.000	0.102	−0.008	−4.00	0.34	1244.80	−55.27			0.57	−55.50
96	154	0.25	0.00	−0.05	0.03	0.270	0.000	0.092	−0.010	−3.63	0.53	1250.27	−52.66			0.74	−52.89
97	155	0.25	0.00	−0.05	0.03	0.270	0.000	0.092	−0.010	−3.85	0.33	1253.85	−48.17			0.53	−48.39
98	156	0.25	0.00	−0.04	0.03	0.271	0.000	0.079	−0.014	−3.33	0.54	1258.94	−45.19			0.73	−45.40
99	157	0.26	0.00	−0.03	0.04	0.282	0.000	0.071	−0.026	−3.64	0.37	1262.17	−40.35			0.60	−40.49

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 58 (Ce)																	
100	158	0.26	0.00	−0.02	0.04	0.282	0.000	0.058	−0.030	−3.24	0.56	1266.94	−37.05			0.81	−37.15
101	159	0.26	0.00	−0.01	0.04	0.283	0.000	0.046	−0.033	−3.36	0.38	1269.86	−31.90			0.62	−31.99
102	160	0.26	0.00	0.00	0.04	0.284	0.000	0.034	−0.036	−3.02	0.60	1274.30	−28.26			0.87	−28.28
103	161	0.26	0.00	0.01	0.04	0.285	0.000	0.022	−0.039	−3.19	0.39	1276.94	−22.84			0.67	−22.82
104	162	0.25	0.00	0.01	0.03	0.273	0.000	0.018	−0.030	−2.48	0.78	1280.90	−18.72			0.96	−18.75
105	163	0.25	0.00	0.02	0.03	0.274	0.000	0.006	−0.033	−2.58	0.66	1283.16	−12.91			0.85	−12.89
106	164	0.25	0.00	0.03	0.02	0.275	0.000	−0.007	−0.026	−2.14	1.00	1286.86	−8.54			1.14	−8.51
107	165	0.24	0.00	0.04	0.01	0.264	0.000	−0.022	−0.019	−2.04	0.95	1288.78	−2.38			1.05	−2.34
108	166	0.24	0.00	0.04	0.01	0.264	0.000	−0.022	−0.019	−1.69	1.21	1292.26	2.20			1.33	2.32
109	167	0.23	0.00	0.05	0.01	0.254	0.000	−0.036	−0.021	−1.76	1.13	1293.93	8.60			1.28	8.81
110	168	0.21	0.00	0.05	0.00	0.230	0.000	−0.041	−0.011	−1.13	1.41	1297.12	13.48			1.53	13.74
111	169	0.21	0.00	0.06	0.00	0.231	0.000	−0.053	−0.013	−1.55	1.12	1298.73	19.94			1.29	20.31
112	170	0.21	0.00	0.06	−0.01	0.231	0.000	−0.054	−0.004	−1.31	1.35	1301.71	25.04			1.52	25.49
113	171	0.20	0.00	0.07	−0.02	0.220	0.000	−0.069	0.005	−1.71	0.99	1303.14	31.68			1.24	32.30
114	172	0.19	0.00	0.07	−0.02	0.209	0.000	−0.071	0.005	−1.48	1.10	1305.96	36.93			1.38	37.66
115	173	0.18	0.00	0.06	−0.02	0.197	0.000	−0.060	0.008	−1.57	0.70	1307.18	43.78			0.92	44.54
116	174	0.15	0.00	0.06	−0.02	0.163	0.000	−0.064	0.010	−1.39	0.74	1309.81	49.22			0.99	50.10
117	175	0.15	0.00	0.06	−0.02	0.163	0.000	−0.064	0.010	−2.07	0.08	1311.06	56.05			0.33	57.03
118	176	0.14	0.00	0.05	−0.02	0.152	0.000	−0.053	0.012	−1.95	−0.09	1313.66	61.51			0.11	62.56
119	177	0.13	0.00	0.05	−0.02	0.141	0.000	−0.054	0.013	−2.35	−0.59	1314.51	68.74			−0.38	69.90
120	178	0.11	0.00	0.04	−0.02	0.119	0.000	−0.044	0.015	−2.33	−0.92	1317.03	74.29			−0.74	75.54
121	179	0.10	0.00	0.03	−0.01	0.108	0.000	−0.032	0.007	−2.90	−1.68	1317.92	81.47			−1.61	82.73
122	180	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−3.11	−2.17	1320.36	87.10			−2.14	88.44
123	181	−0.06	0.00	0.02	0.00	−0.063	0.000	−0.022	0.002	−4.41	−3.59	1321.69	93.84			−3.56	95.32
124	182	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−5.24	−4.30	1324.14	99.46			−4.25	101.10
125	183	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.50	−5.47	1325.01	106.67			−5.47	108.40
126	184	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.20	−6.09	1327.13	112.61			−6.09	114.49
127	185	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.37	−5.34	1325.88	121.94			−5.34	123.97
128	186	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.27	−4.30	1326.14	129.75			−4.30	131.94
129	187	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−4.25	−3.36	1324.49	139.47			−3.36	141.83
130	188	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.02	−2.24	1324.47	147.57			−2.24	150.09
131	189	0.10	0.08	−0.04	0.00	0.110	−0.111	0.055	0.011	−4.43	−2.04	1323.37	156.74			−1.74	159.74
132	190	0.11	0.08	−0.04	0.00	0.120	−0.111	0.056	0.011	−3.82	−1.41	1323.63	164.54			−1.11	167.74
133	191	0.12	0.09	−0.05	0.01	0.131	−0.125	0.070	0.005	−4.31	−1.43	1322.56	173.68			−1.03	177.16
134	192	0.13	0.10	−0.05	0.01	0.143	−0.139	0.072	0.007	−4.22	−0.99	1322.83	181.49			−0.54	185.21
135	193	0.14	0.10	−0.05	0.02	0.153	−0.138	0.073	−0.003	−4.27	−1.02	1321.59	190.80			−0.55	194.74
136	194	0.15	0.10	−0.05	0.02	0.164	−0.138	0.074	−0.002	−3.93	−0.70	1321.78	198.68			−0.22	202.84
137	195	0.18	0.00	−0.09	0.00	0.196	0.000	0.127	0.025	−4.46	−1.15	1320.79	207.75			−0.36	212.42
Z = 59 (Pr)																	
56	115	0.24	0.00	−0.06	0.02	0.260	0.000	0.101	0.002	−2.36	1.11	886.44	−4.40			1.07	−4.10
57	116	0.26	0.00	−0.06	0.02	0.282	0.000	0.106	0.005	−2.81	1.18	900.88	−10.77			1.12	−10.52
58	117	0.27	0.00	−0.05	0.03	0.293	0.000	0.097	−0.008	−2.97	0.99	917.14	−18.96			0.94	−18.71
59	118	0.27	0.00	−0.05	0.03	0.293	0.000	0.097	−0.008	−3.24	0.87	930.78	−24.52			0.81	−24.57
60	119	0.28	0.00	−0.05	0.03	0.304	0.000	0.100	−0.007	−3.60	0.78	945.94	−31.61			0.74	−31.41
61	120	0.29	0.00	−0.04	0.04	0.315	0.000	0.091	−0.020	−3.58	0.85	958.43	−36.03			0.79	−35.88
62	121	0.29	0.00	−0.03	0.03	0.316	0.000	0.078	−0.014	−3.12	0.97	972.43	−41.96			0.94	−41.81
63	122	0.29	0.00	−0.03	0.03	0.316	0.000	0.078	−0.014	−3.01	1.10	984.21	−45.67			1.04	−45.56
64	123	0.29	0.00	−0.02	0.03	0.316	0.000	0.065	−0.018	−2.55	1.42	997.33	−50.72			1.40	−50.61
65	124	0.29	0.00	−0.01	0.02	0.317	0.000	0.052	−0.011	−2.29	1.45	1008.57	−53.88			1.41	−53.83
66	125	0.29	0.00	0.00	0.01	0.318	0.000	0.038	−0.005	−1.95	1.72	1021.11	−58.36			1.69	−58.31
67	126	0.28	0.00	0.01	0.01	0.307	0.000	0.023	−0.009	−1.71	1.80	1031.69	−60.86			1.76	−60.85
68	127	0.28	0.00	0.01	0.01	0.307	0.000	0.023	−0.009	−1.53	1.98	1043.70	−64.80			1.97	−64.80
69	128	0.27	0.00	0.02	0.00	0.296	0.000	0.007	−0.003	−1.36	1.99	1053.76	−66.79	−66.33	0.030	1.97	−66.84
70	129	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−1.18	2.19	1065.18	−70.14	−69.77	0.030	2.18	−70.19
71	130	0.26	0.00	0.03	0.00	0.285	0.000	−0.007	−0.007	−0.95	2.23	1074.64	−71.53	−71.18	0.064	2.22	−71.62
72	131	0.24	0.00	0.03	0.00	0.263	0.000	−0.012	−0.006	−0.33	2.45	1085.47	−74.28	−74.28	0.052	2.45	−74.39
73	132	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−0.11	2.32	1094.57	−75.32	−75.21	0.057	2.31	−75.46

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 59 (Pr)																	
74	133	0.21	0.00	0.02	0.01	0.229	0.000	−0.004	−0.013	0.08	2.26	1105.12	−77.80	−77.94	0.012	2.27	−77.96
75	134	0.19	0.00	0.03	0.00	0.207	0.000	−0.021	−0.006	−0.13	2.12	1113.72	−78.32	−78.51	0.035	2.12	−78.51
76	135	0.17	0.00	0.04	−0.01	0.185	0.000	−0.037	0.003	−0.21	1.87	1123.94	−80.47	−80.94	0.012	1.89	−80.68
77	136	0.15	0.00	0.04	−0.01	0.163	0.000	−0.039	0.003	−0.55	1.37	1132.40	−80.86	−81.33	0.012	1.38	−81.10
78	137	0.13	0.00	0.03	−0.01	0.140	0.000	−0.030	0.006	−0.61	1.03	1142.21	−82.60	−83.18	0.012	1.04	−82.86
79	138	0.12	0.00	0.03	−0.01	0.129	0.000	−0.031	0.006	−1.20	0.29	1150.44	−82.75	−83.13	0.014	0.30	−83.04
80	139	0.07	0.00	0.01	0.00	0.075	0.000	−0.010	−0.001	−1.70	−0.69	1160.40	−84.65	−84.82	0.008	−0.69	−84.98
81	140	0.06	0.00	0.01	0.00	0.064	0.000	−0.010	−0.001	−2.84	−1.80	1168.53	−84.71	−84.69	0.006	−1.80	−85.06
82	141	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.02	−3.02	1178.27	−86.38	−86.02	0.002	−3.02	−86.75
83	142	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−3.12	−2.24	1184.07	−84.11	−83.79	0.002	−2.24	−84.50
84	143	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−1.98	−1.18	1191.09	−83.05	−83.07	0.003	−1.18	−83.46
85	144	0.12	0.07	−0.03	0.00	0.130	−0.097	0.044	0.009	−2.97	−0.34	1196.40	−80.29	−80.76	0.003	−0.28	−80.66
86	145	0.13	0.07	−0.04	0.00	0.141	−0.097	0.058	0.011	−2.71	0.23	1203.47	−79.29	−79.63	0.007	0.31	−79.65
87	146	0.15	0.08	−0.04	0.01	0.163	−0.110	0.061	0.003	−3.11	0.19	1209.25	−76.99	−76.71	0.062	0.29	−77.36
88	147	0.17	0.07	−0.05	0.02	0.184	−0.096	0.076	−0.004	−3.03	0.50	1216.17	−75.85	−75.46	0.023	0.63	−76.19
89	148	0.19	0.05	−0.06	0.02	0.205	−0.069	0.092	−0.002	−3.13	0.63	1221.39	−72.99	−72.53	0.026	0.77	−73.34
90	149	0.21	0.00	−0.07	0.02	0.227	0.000	0.108	0.002	−3.39	0.75	1228.10	−71.63	−71.06	0.082	0.92	−71.94
91	150	0.22	0.00	−0.08	0.02	0.238	0.000	0.123	0.006	−4.44	0.37	1233.44	−68.90	−68.30	0.026	0.58	−69.18
92	151	0.23	0.00	−0.07	0.02	0.249	0.000	0.112	0.004	−4.26	0.37	1239.88	−67.27	−66.77	0.023	0.56	−67.57
93	152	0.24	0.00	−0.07	0.02	0.260	0.000	0.114	0.006	−4.74	0.15	1244.70	−64.01	−63.81	0.122	0.34	−64.32
94	153	0.24	0.00	−0.07	0.03	0.259	0.000	0.115	−0.005	−4.54	0.25	1250.66	−61.91	−61.63	0.104	0.49	−62.17
95	154	0.25	0.00	−0.06	0.03	0.270	0.000	0.105	−0.007	−4.56	0.03	1255.13	−58.30	−58.20	0.152	0.22	−58.60
96	155	0.25	0.00	−0.05	0.03	0.270	0.000	0.092	−0.010	−3.99	0.26	1260.60	−55.70			0.45	−56.00
97	156	0.26	0.00	−0.04	0.03	0.282	0.000	0.082	−0.013	−4.15	0.08	1264.68	−51.71			0.23	−52.03
98	157	0.26	0.00	−0.03	0.03	0.282	0.000	0.069	−0.016	−3.70	0.27	1269.85	−48.81			0.42	−49.12
99	158	0.26	0.00	−0.03	0.04	0.282	0.000	0.071	−0.026	−4.03	0.06	1273.63	−44.52			0.26	−44.76
100	159	0.26	0.00	−0.02	0.04	0.282	0.000	0.058	−0.030	−3.58	0.30	1278.42	−41.24			0.52	−41.43
101	160	0.27	0.00	−0.01	0.04	0.294	0.000	0.049	−0.032	−3.94	0.04	1281.92	−36.67			0.25	−36.85
102	161	0.27	0.00	0.00	0.04	0.295	0.000	0.037	−0.036	−3.58	0.28	1286.39	−33.06			0.52	−33.19
103	162	0.27	0.00	0.01	0.04	0.296	0.000	0.025	−0.039	−3.70	0.14	1289.46	−28.07			0.38	−28.15
104	163	0.26	0.00	0.01	0.03	0.285	0.000	0.021	−0.030	−2.95	0.52	1293.48	−24.01			0.68	−24.14
105	164	0.26	0.00	0.02	0.03	0.285	0.000	0.009	−0.033	−2.97	0.50	1296.13	−18.59			0.67	−18.67
106	165	0.25	0.00	0.02	0.02	0.274	0.000	0.005	−0.023	−2.26	0.88	1299.84	−14.23			0.98	−14.34
107	166	0.25	0.00	0.04	0.01	0.275	0.000	−0.020	−0.019	−2.35	0.84	1302.23	−8.55			0.92	−8.63
108	167	0.24	0.00	0.04	0.01	0.264	0.000	−0.022	−0.019	−1.79	1.15	1305.72	−3.96			1.25	−3.97
109	168	0.24	0.00	0.05	0.00	0.264	0.000	−0.036	−0.012	−1.88	1.10	1307.84	1.98			1.18	2.02
110	169	0.23	0.00	0.05	0.00	0.253	0.000	−0.038	−0.012	−1.38	1.43	1311.02	6.88			1.53	6.99
111	170	0.21	0.00	0.06	−0.01	0.231	0.000	−0.054	−0.004	−1.43	1.23	1313.02	12.95			1.37	13.17
112	171	0.21	0.00	0.06	−0.01	0.231	0.000	−0.054	−0.004	−1.22	1.43	1316.05	17.99			1.59	18.29
113	172	0.21	0.00	0.07	−0.02	0.231	0.000	−0.068	0.004	−1.71	1.12	1317.91	24.20			1.34	24.65
114	173	0.19	0.00	0.07	−0.02	0.209	0.000	−0.071	0.005	−1.33	1.28	1320.71	29.47			1.54	30.02
115	174	0.18	0.00	0.07	−0.03	0.197	0.000	−0.073	0.016	−1.74	0.75	1322.53	35.72			1.08	36.44
116	175	0.15	0.00	0.06	−0.02	0.163	0.000	−0.064	0.010	−1.20	0.95	1325.04	41.28			1.18	41.99
117	176	0.15	0.00	0.06	−0.03	0.163	0.000	−0.065	0.020	−1.98	0.20	1326.83	47.56			0.51	48.44
118	177	0.14	0.00	0.06	−0.02	0.152	0.000	−0.065	0.011	−1.98	0.07	1329.43	53.03			0.31	53.95
119	178	0.13	0.00	0.05	−0.02	0.141	0.000	−0.054	0.013	−2.10	−0.33	1330.63	59.90			−0.14	60.87
120	179	0.11	0.00	0.04	−0.02	0.119	0.000	−0.044	0.015	−2.00	−0.60	1333.12	65.49			−0.44	66.53
121	180	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−2.51	−1.27	1334.36	72.32			−1.26	73.31
122	181	−0.07	0.00	0.01	0.00	−0.073	0.000	−0.010	0.001	−2.69	−1.80	1336.88	77.87			−1.79	78.99
123	182	−0.06	0.00	0.02	0.00	−0.063	0.000	−0.022	0.002	−4.06	−3.24	1338.68	84.15			−3.22	85.41
124	183	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−4.87	−3.95	1341.14	89.76			−3.90	91.17
125	184	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−6.08	−5.08	1342.40	96.56			−5.08	98.06
126	185	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.72	−5.63	1344.49	102.54			−5.63	104.18
127	186	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−5.92	−4.93	1343.71	111.40			−4.93	113.18
128	187	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.79	−3.85	1343.95	119.22			−3.85	121.16
129	188	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−3.80	−2.96	1342.78	128.46			−2.96	130.55
130	189	0.07	0.07	−0.03	0.00	0.077	−0.097	0.040	0.007	−3.87	−2.02	1342.96	136.36			−1.83	138.80

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 59 (Pr)																	
131	190	0.09	0.09	−0.03	0.00	0.099	−0.125	0.043	0.010	−4.25	−1.76	1342.22	145.17			−1.50	147.84
132	191	0.10	0.09	−0.04	0.00	0.110	−0.125	0.056	0.012	−3.83	−1.18	1342.56	152.91			−0.85	155.82
133	192	0.11	0.10	−0.05	0.01	0.121	−0.139	0.069	0.005	−4.29	−1.15	1341.86	161.68			−0.74	164.86
134	193	0.13	0.10	−0.05	0.01	0.143	−0.139	0.072	0.007	−3.97	−0.68	1342.10	169.50			−0.26	172.88
135	194	0.14	0.10	−0.05	0.02	0.153	−0.138	0.073	−0.003	−4.01	−0.76	1341.33	178.35			−0.32	181.93
136	195	0.17	0.00	−0.09	−0.01	0.186	0.000	0.126	0.035	−4.05	−0.69	1341.78	185.97			0.17	190.16
137	196	0.18	0.00	−0.09	0.00	0.196	0.000	0.127	0.025	−4.44	−0.98	1341.03	194.79			−0.23	199.07
138	197	0.19	0.00	−0.09	0.00	0.207	0.000	0.129	0.027	−4.46	−0.95	1341.34	202.55			−0.18	207.06
139	198	0.21	0.00	−0.08	0.01	0.228	0.000	0.120	0.016	−4.57	−1.12	1340.30	211.66			−0.57	216.16
Z = 60 (Nd)																	
58	118	0.28	0.00	−0.05	0.03	0.304	0.000	0.100	−0.007	−3.36	0.75	915.92	−10.44			0.72	−10.11
59	119	0.28	0.00	−0.05	0.03	0.304	0.000	0.100	−0.007	−3.69	0.58	929.97	−16.43			0.53	−16.14
60	120	0.30	0.00	−0.04	0.04	0.326	0.000	0.094	−0.019	−4.16	0.31	946.23	−24.61			0.28	−24.33
61	121	0.30	0.00	−0.04	0.04	0.326	0.000	0.094	−0.019	−4.23	0.31	958.90	−29.22			0.26	−28.98
62	122	0.30	0.00	−0.03	0.04	0.327	0.000	0.082	−0.023	−3.85	0.48	973.51	−35.74			0.46	−35.51
63	123	0.30	0.00	−0.03	0.04	0.327	0.000	0.082	−0.023	−3.69	0.67	985.33	−39.50			0.63	−39.32
64	124	0.30	0.00	−0.02	0.03	0.328	0.000	0.068	−0.017	−3.13	0.94	999.15	−45.25			0.93	−45.08
65	125	0.30	0.00	−0.01	0.03	0.328	0.000	0.056	−0.021	−2.89	1.07	1010.39	−48.42			1.04	−48.29
66	126	0.29	0.00	0.00	0.02	0.318	0.000	0.039	−0.015	−2.31	1.30	1023.60	−53.56			1.29	−53.45
67	127	0.29	0.00	0.01	0.01	0.318	0.000	0.026	−0.009	−2.15	1.43	1034.24	−56.12			1.40	−56.06
68	128	0.29	0.00	0.02	0.01	0.319	0.000	0.014	−0.013	−1.94	1.65	1046.84	−60.65			1.64	−60.60
69	129	0.29	0.00	0.02	0.00	0.319	0.000	0.012	−0.003	−1.91	1.74	1056.93	−62.67			1.72	−62.66
70	130	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−1.70	2.00	1068.89	−66.56	−66.60	0.028	2.00	−66.56
71	131	0.30	0.00	0.02	0.00	0.330	0.000	0.015	−0.002	−1.71	2.17	1078.33	−67.93	−67.77	0.028	2.16	−67.98
72	132	0.26	0.00	0.02	0.00	0.285	0.000	0.005	−0.003	−0.64	2.49	1089.66	−71.19	−71.43	0.024	2.50	−71.25
73	133	0.23	0.00	0.02	0.01	0.251	0.000	−0.001	−0.013	−0.16	2.37	1098.85	−72.30	−72.33	0.047	2.37	−72.40
74	134	0.21	0.00	0.03	0.00	0.229	0.000	−0.018	−0.006	0.21	2.32	1110.00	−75.38	−75.65	0.012	2.33	−75.50
75	135	0.20	0.00	0.03	0.00	0.218	0.000	−0.019	−0.006	−0.06	2.21	1118.66	−75.97	−76.21	0.019	2.21	−76.13
76	136	0.17	0.00	0.04	−0.01	0.185	0.000	−0.037	0.003	−0.03	2.06	1129.37	−78.61	−79.20	0.012	2.08	−78.79
77	137	0.16	0.00	0.04	−0.01	0.174	0.000	−0.038	0.003	−0.40	1.59	1137.89	−79.06	−79.58	0.011	1.61	−79.27
78	138	0.13	0.00	0.03	−0.01	0.140	0.000	−0.030	0.006	−0.30	1.28	1148.26	−81.35	−82.02	0.012	1.30	−81.59
79	139	0.12	0.00	0.03	−0.01	0.129	0.000	−0.031	0.006	−0.86	0.69	1156.41	−81.44	−81.99	0.026	0.70	−81.71
80	140	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−1.14	−0.39	1167.07	−84.02	−84.25	0.028	−0.39	−84.33
81	141	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−2.39	−1.45	1175.23	−84.11	−84.20	0.004	−1.45	−84.45
82	142	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.67	−2.68	1185.55	−86.36	−85.96	0.002	−2.68	−86.72
83	143	0.03	0.00	−0.01	−0.01	0.032	0.000	0.012	0.010	−2.74	−1.83	1191.36	−84.10	−84.01	0.002	−1.82	−84.48
84	144	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.55	−0.84	1199.01	−83.68	−83.75	0.002	−0.84	−84.09
85	145	0.10	0.07	−0.02	0.00	0.109	−0.096	0.030	0.006	−2.08	0.11	1204.29	−80.89	−81.44	0.002	0.16	−81.27
86	146	0.14	0.06	−0.04	0.00	0.152	−0.083	0.058	0.011	−2.04	0.69	1211.91	−80.44	−80.93	0.002	0.78	−80.80
87	147	0.16	0.06	−0.04	0.01	0.173	−0.083	0.062	0.002	−2.18	0.70	1217.72	−78.18	−78.15	0.002	0.78	−78.56
88	148	0.18	0.06	−0.05	0.02	0.194	−0.082	0.078	−0.004	−2.46	0.93	1225.26	−77.65	−77.41	0.003	1.07	−77.99
89	149	0.20	0.03	−0.06	0.02	0.216	−0.041	0.093	−0.002	−2.72	0.92	1230.69	−75.01	−74.38	0.003	1.05	−75.36
90	150	0.22	0.00	−0.07	0.02	0.237	0.000	0.110	0.003	−3.49	0.83	1238.15	−74.39	−73.69	0.003	1.02	−74.71
91	151	0.23	0.00	−0.07	0.02	0.249	0.000	0.112	0.004	−4.17	0.46	1243.55	−71.73	−70.95	0.003	0.64	−72.05
92	152	0.24	0.00	−0.07	0.02	0.260	0.000	0.114	0.006	−4.55	0.32	1250.67	−70.77	−70.16	0.025	0.54	−71.07
93	153	0.24	0.00	−0.07	0.03	0.259	0.000	0.115	−0.005	−4.82	0.01	1255.65	−67.68	−67.35	0.027	0.23	−67.98
94	154	0.25	0.00	−0.06	0.03	0.270	0.000	0.105	−0.007	−4.55	0.09	1262.16	−66.12	−65.69	0.114	0.31	−66.42
95	155	0.25	0.00	−0.06	0.03	0.270	0.000	0.105	−0.007	−4.76	−0.12	1266.68	−62.56			0.09	−62.88
96	156	0.26	0.00	−0.05	0.04	0.281	0.000	0.095	−0.020	−4.55	−0.01	1272.80	−60.61	−60.53	0.203	0.24	−60.88
97	157	0.26	0.00	−0.05	0.04	0.281	0.000	0.095	−0.020	−4.79	−0.23	1276.98	−56.72			0.00	−56.99
98	158	0.27	0.00	−0.03	0.04	0.293	0.000	0.073	−0.026	−4.34	−0.11	1282.73	−54.40			0.12	−54.67
99	159	0.27	0.00	−0.02	0.04	0.294	0.000	0.061	−0.029	−4.40	−0.28	1286.54	−50.14			−0.08	−50.41
100	160	0.27	0.00	−0.02	0.04	0.294	0.000	0.061	−0.029	−4.17	−0.07	1291.86	−47.39			0.16	−47.62
101	161	0.27	0.00	−0.01	0.04	0.294	0.000	0.049	−0.032	−4.30	−0.29	1295.38	−42.84			−0.07	−43.07
102	162	0.28	0.00	0.00	0.04	0.306	0.000	0.039	−0.035	−4.14	−0.04	1300.34	−39.73			0.20	−39.90
103	163	0.27	0.00	0.01	0.04	0.296	0.000	0.025	−0.039	−4.02	−0.16	1303.45	−34.77			0.09	−34.91
104	164	0.27	0.00	0.01	0.03	0.296	0.000	0.023	−0.029	−3.40	0.28	1307.89	−31.13			0.46	−31.32

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 60 (Nd)																	
105	165	0.26	0.00	0.02	0.03	0.285	0.000	0.009	−0.033	−3.19	0.30	1310.56	−25.74			0.48	−25.89
106	166	0.26	0.00	0.02	0.02	0.285	0.000	0.007	−0.023	−2.60	0.74	1314.70	−21.80			0.85	−21.98
107	167	0.25	0.00	0.04	0.01	0.275	0.000	−0.020	−0.019	−2.52	0.68	1317.16	−16.19			0.78	−16.34
108	168	0.25	0.00	0.04	0.01	0.275	0.000	−0.020	−0.019	−2.11	1.01	1321.10	−12.06			1.12	−12.15
109	169	0.24	0.00	0.05	0.00	0.264	0.000	−0.036	−0.012	−2.03	0.98	1323.26	−6.14			1.07	−6.20
110	170	0.23	0.00	0.05	0.00	0.253	0.000	−0.038	−0.012	−1.48	1.31	1326.91	−1.73			1.42	−1.71
111	171	0.23	0.00	0.06	−0.01	0.254	0.000	−0.051	−0.005	−1.74	1.22	1328.85	4.41			1.36	4.51
112	172	0.21	0.00	0.07	−0.02	0.231	0.000	−0.068	0.004	−1.52	1.37	1332.41	8.92			1.61	9.19
113	173	0.21	0.00	0.07	−0.02	0.231	0.000	−0.068	0.004	−1.79	1.09	1334.27	15.13			1.32	15.46
114	174	0.20	0.00	0.07	−0.02	0.220	0.000	−0.069	0.005	−1.48	1.22	1337.57	19.90			1.47	20.32
115	175	0.18	0.00	0.07	−0.03	0.197	0.000	−0.073	0.016	−1.70	0.83	1339.29	26.25			1.15	26.82
116	176	0.17	0.00	0.07	−0.03	0.186	0.000	−0.075	0.017	−1.56	1.01	1342.28	31.33			1.36	32.01
117	177	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−2.07	0.33	1344.04	37.65			0.70	38.43
118	178	0.15	0.00	0.06	−0.02	0.163	0.000	−0.064	0.010	−1.87	0.27	1347.01	42.74			0.51	43.49
119	179	0.14	0.00	0.05	−0.02	0.152	0.000	−0.053	0.012	−1.89	−0.05	1348.17	49.66			0.14	50.44
120	180	0.11	0.00	0.05	−0.02	0.119	0.000	−0.056	0.014	−1.80	−0.28	1351.07	54.83			−0.07	55.74
121	181	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−2.10	−0.99	1352.39	61.58			−0.98	62.40
122	182	−0.08	0.00	0.01	0.00	−0.084	0.000	−0.009	0.001	−2.31	−1.40	1355.22	66.82			−1.39	67.74
123	183	−0.06	0.00	0.02	0.00	−0.063	0.000	−0.022	0.002	−3.61	−2.81	1357.02	73.09			−2.79	74.15
124	184	−0.06	0.00	0.03	0.01	−0.063	0.000	−0.033	−0.007	−4.52	−3.53	1359.94	78.24			−3.45	79.48
125	185	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.64	−4.63	1361.20	85.06			−4.63	86.34
126	186	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.29	−5.21	1363.75	90.58			−5.21	91.99
127	187	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−5.44	−4.44	1362.93	99.47			−4.44	101.02
128	188	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.34	−3.40	1363.63	106.83			−3.40	108.52
129	189	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−3.30	−2.43	1362.41	116.12			−2.43	117.96
130	190	0.07	0.07	−0.03	0.00	0.077	−0.097	0.040	0.007	−3.44	−1.59	1363.10	123.50			−1.39	125.68
131	191	0.09	0.09	−0.03	0.00	0.099	−0.125	0.043	0.010	−3.83	−1.32	1362.39	132.30			−1.06	134.70
132	192	0.10	0.09	−0.03	0.00	0.110	−0.125	0.043	0.010	−3.19	−0.66	1363.06	139.69			−0.39	142.27
133	193	0.11	0.09	−0.05	0.00	0.121	−0.126	0.069	0.014	−3.53	−0.62	1362.36	148.46			−0.22	151.34
134	194	0.13	0.10	−0.05	0.01	0.143	−0.139	0.072	0.007	−3.42	−0.12	1362.99	155.90			0.31	158.98
135	195	0.14	0.10	−0.05	0.02	0.153	−0.138	0.073	−0.003	−3.44	−0.16	1362.20	164.77			0.28	168.04
136	196	0.18	0.00	−0.08	−0.01	0.196	0.000	0.114	0.033	−3.34	−0.11	1363.09	171.95			0.59	175.67
137	197	0.19	0.00	−0.08	0.00	0.206	0.000	0.116	0.023	−3.77	−0.42	1362.36	180.74			0.18	184.54
138	198	0.20	0.00	−0.08	0.01	0.216	0.000	0.118	0.014	−3.72	−0.37	1363.06	188.12			0.20	192.09
139	199	0.21	0.00	−0.08	0.01	0.228	0.000	0.120	0.016	−4.32	−0.80	1362.30	196.96			−0.25	201.12
140	200	0.21	0.00	−0.08	0.02	0.227	0.000	0.120	0.005	−4.23	−0.83	1362.89	204.43			−0.25	208.83
141	201	0.22	0.00	−0.07	0.02	0.237	0.000	0.110	0.003	−4.49	−1.22	1361.91	213.49			−0.79	217.96
Z = 61 (Pm)																	
59	120	0.29	0.00	−0.04	0.04	0.315	0.000	0.091	−0.020	−3.94	0.21	926.56	−5.73			0.11	−5.41
60	121	0.30	0.00	−0.04	0.05	0.326	0.000	0.095	−0.029	−4.59	−0.10	942.96	−14.06			−0.16	−13.73
61	122	0.30	0.00	−0.04	0.05	0.326	0.000	0.095	−0.029	−4.69	−0.11	956.55	−19.57			−0.19	−19.55
62	123	0.31	0.00	−0.03	0.05	0.338	0.000	0.086	−0.031	−4.57	0.01	971.56	−26.51			−0.05	−26.25
63	124	0.31	0.00	−0.02	0.05	0.339	0.000	0.074	−0.035	−4.26	0.20	984.02	−30.90			0.12	−30.69
64	125	0.31	0.00	−0.01	0.04	0.340	0.000	0.060	−0.030	−3.70	0.47	997.94	−36.75			0.42	−36.55
65	126	0.31	0.00	0.00	0.04	0.341	0.000	0.048	−0.033	−3.51	0.62	1009.80	−40.54			0.55	−40.39
66	127	0.30	0.00	0.00	0.03	0.329	0.000	0.044	−0.024	−2.98	0.85	1023.12	−45.78			0.81	−45.64
67	128	0.30	0.00	0.01	0.02	0.330	0.000	0.030	−0.018	−2.75	1.03	1034.33	−48.92			0.97	−48.83
68	129	0.30	0.00	0.02	0.01	0.330	0.000	0.016	−0.012	−2.48	1.25	1047.03	−53.55			1.22	−53.47
69	130	0.29	0.00	0.02	0.01	0.319	0.000	0.014	−0.013	−2.30	1.36	1057.71	−56.16			1.31	−56.13
70	131	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−2.06	1.61	1069.78	−60.16			1.59	−60.14
71	132	0.31	0.00	0.03	0.00	0.343	0.000	0.006	−0.006	−2.29	1.75	1079.86	−62.17			1.71	−62.20
72	133	0.31	0.00	0.02	0.01	0.342	0.000	0.019	−0.012	−1.96	2.05	1091.30	−65.54	−65.41	0.050	2.04	−65.58
73	134	0.30	0.00	0.01	0.01	0.330	0.000	0.029	−0.009	−1.60	2.26	1100.77	−66.94	−66.74	0.058	2.23	−67.03
74	135	0.21	0.00	0.03	0.00	0.229	0.000	−0.018	−0.006	0.14	2.42	1111.80	−69.90	−69.98	0.059	2.42	−69.99
75	136	0.21	0.00	0.03	−0.01	0.229	0.000	−0.019	0.004	−0.17	2.22	1121.14	−71.16	−71.20	0.078	2.21	−71.30
76	137	0.19	0.00	0.04	−0.01	0.207	0.000	−0.034	0.002	−0.22	2.08	1131.94	−73.89	−74.07	0.013	2.09	−74.05
77	138	0.17	0.00	0.04	−0.01	0.185	0.000	−0.037	0.003	−0.37	1.71	1140.94	−74.83	−74.94	0.027	1.71	−75.01

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 61 (Pm)																	
78	139	0.14	0.00	0.03	−0.01	0.151	0.000	−0.029	0.005	−0.19	1.42	1151.38	−77.19	−77.50	0.013	1.42	−77.41
79	140	−0.15	0.00	0.04	0.02	−0.156	0.000	−0.037	−0.012	−0.96	0.88	1160.06	−77.80	−78.21	0.037	0.90	−78.04
80	141	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.64	−0.17	1170.77	−80.44	−80.52	0.014	−0.17	−80.72
81	142	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−1.93	−1.05	1179.32	−80.92	−81.16	0.025	−1.05	−81.23
82	143	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.22	−2.27	1189.72	−83.25	−82.97	0.003	−2.27	−83.59
83	144	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−2.27	−1.44	1196.12	−81.57	−81.42	0.003	−1.45	−81.94
84	145	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.11	−0.44	1203.83	−81.21	−81.27	0.003	−0.44	−81.61
85	146	0.09	0.07	−0.02	0.00	0.098	−0.096	0.029	0.006	−1.58	0.46	1209.71	−79.03	−79.46	0.005	0.50	−79.41
86	147	0.16	0.03	−0.04	0.00	0.172	−0.042	0.060	0.010	−1.46	0.96	1217.50	−78.74	−79.05	0.002	1.01	−79.12
87	148	0.17	0.05	−0.04	0.01	0.184	−0.069	0.063	0.002	−1.86	0.94	1223.88	−77.05	−76.87	0.006	0.99	−77.45
88	149	0.19	0.04	−0.05	0.02	0.205	−0.055	0.079	−0.005	−2.09	1.11	1231.56	−76.66	−76.07	0.004	1.21	−77.04
89	150	0.21	0.03	−0.06	0.02	0.227	−0.041	0.095	−0.001	−2.81	1.03	1237.60	−74.63	−73.60	0.020	1.14	−75.01
90	151	0.23	0.00	−0.06	0.03	0.248	0.000	0.100	−0.009	−3.26	0.90	1245.17	−74.13	−73.39	0.005	1.05	−74.48
91	152	0.23	0.00	−0.07	0.02	0.249	0.000	0.112	0.004	−4.13	0.51	1251.13	−72.01	−71.26	0.026	0.66	−72.38
92	153	0.24	0.00	−0.07	0.03	0.259	0.000	0.115	−0.005	−4.56	0.27	1258.42	−71.23	−70.68	0.011	0.46	−71.56
93	154	0.25	0.00	−0.06	0.03	0.270	0.000	0.105	−0.007	−4.73	−0.02	1263.90	−68.64	−68.50	0.045	0.14	−69.01
94	155	0.26	0.00	−0.06	0.04	0.281	0.000	0.108	−0.016	−4.95	−0.04	1270.58	−67.25	−66.97	0.030	0.18	−67.57
95	156	0.26	0.00	−0.05	0.04	0.281	0.000	0.095	−0.020	−4.88	−0.26	1275.63	−64.23	−64.22	0.034	−0.08	−64.58
96	157	0.26	0.00	−0.05	0.04	0.281	0.000	0.095	−0.020	−4.77	−0.20	1281.86	−62.39	−62.37	0.112	0.01	−62.72
97	158	0.27	0.00	−0.04	0.04	0.293	0.000	0.086	−0.022	−5.01	−0.49	1286.63	−59.08	−59.09	0.127	−0.31	−59.44
98	159	0.27	0.00	−0.03	0.04	0.293	0.000	0.073	−0.026	−4.63	−0.37	1292.44	−56.83			−0.17	−57.16
99	160	0.27	0.00	−0.02	0.04	0.294	0.000	0.061	−0.029	−4.70	−0.55	1296.76	−53.07			−0.37	−53.42
100	161	0.28	0.00	−0.01	0.04	0.306	0.000	0.051	−0.032	−4.58	−0.36	1302.17	−50.41			−0.16	−50.72
101	162	0.28	0.00	−0.01	0.05	0.306	0.000	0.053	−0.042	−5.05	−0.68	1306.29	−46.46			−0.39	−46.67
102	163	0.28	0.00	0.00	0.04	0.306	0.000	0.039	−0.035	−4.50	−0.38	1311.25	−43.35			−0.16	−43.60
103	164	0.28	0.00	0.01	0.04	0.307	0.000	0.027	−0.039	−4.59	−0.49	1314.85	−38.87			−0.27	−39.11
104	165	0.27	0.00	0.01	0.04	0.296	0.000	0.025	−0.039	−3.92	−0.10	1319.40	−35.35			0.14	−35.54
105	166	0.27	0.00	0.02	0.03	0.297	0.000	0.011	−0.032	−3.65	0.03	1322.45	−30.34			0.18	−30.58
106	167	0.26	0.00	0.02	0.02	0.285	0.000	0.007	−0.023	−2.87	0.50	1326.61	−26.42			0.59	−26.69
107	168	0.25	0.00	0.04	0.01	0.275	0.000	−0.020	−0.019	−2.75	0.49	1329.50	−21.24			0.56	−21.49
108	169	0.25	0.00	0.04	0.01	0.275	0.000	−0.020	−0.019	−2.34	0.82	1333.49	−17.16			0.91	−17.36
109	170	0.25	0.00	0.05	0.00	0.276	0.000	−0.033	−0.012	−2.37	0.83	1336.08	−11.68			0.90	−11.84
110	171	0.24	0.00	0.05	0.00	0.264	0.000	−0.036	−0.012	−1.79	1.25	1339.70	−7.22			1.34	−7.32
111	172	0.23	0.00	0.06	−0.01	0.254	0.000	−0.051	−0.005	−1.86	1.14	1342.12	−1.58			1.25	−1.60
112	173	0.21	0.00	0.06	−0.01	0.231	0.000	−0.054	−0.004	−1.31	1.35	1345.66	2.96			1.49	3.02
113	174	0.21	0.00	0.07	−0.02	0.231	0.000	−0.068	0.004	−1.83	1.09	1347.96	8.72			1.30	8.91
114	175	0.20	0.00	0.07	−0.03	0.220	0.000	−0.070	0.014	−1.55	1.19	1351.34	13.42			1.48	13.75
115	176	0.19	0.00	0.07	−0.03	0.208	0.000	−0.072	0.015	−1.77	0.88	1353.44	19.39			1.17	19.80
116	177	0.18	0.00	0.07	−0.03	0.197	0.000	−0.073	0.016	−1.60	0.86	1356.67	24.23			1.18	24.74
117	178	0.15	0.00	0.06	−0.03	0.163	0.000	−0.065	0.020	−1.63	0.57	1358.49	30.48			0.86	31.04
118	179	0.15	0.00	0.06	−0.03	0.163	0.000	−0.065	0.020	−1.77	0.39	1361.63	35.41			0.68	36.06
119	180	0.14	0.00	0.05	−0.02	0.152	0.000	−0.053	0.012	−1.66	0.19	1363.12	41.99			0.36	42.61
120	181	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−1.63	0.14	1365.87	47.31			0.17	47.88
121	182	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−1.91	−0.80	1367.86	53.39			−0.80	54.03
122	183	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−2.09	−1.17	1370.69	58.64			−1.15	59.40
123	184	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−3.33	−2.54	1372.89	64.51			−2.50	65.40
124	185	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−4.13	−3.22	1375.79	69.68			−3.18	70.68
125	186	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−5.31	−4.30	1377.47	76.07			−4.30	77.15
126	187	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.95	−4.88	1380.04	81.57			−4.88	82.77
127	188	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−5.07	−4.09	1379.63	90.05			−4.09	91.38
128	189	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.97	−3.04	1380.36	97.39			−3.04	98.86
129	190	0.04	0.05	−0.01	0.00	0.043	−0.068	0.014	0.002	−3.45	−2.15	1379.63	106.19			−2.09	107.85
130	191	0.07	0.08	−0.03	0.00	0.077	−0.111	0.041	0.008	−3.55	−1.42	1380.46	113.43			−1.21	115.39
131	192	0.08	0.09	−0.03	0.00	0.089	−0.124	0.042	0.009	−3.63	−1.16	1380.17	121.80			−0.92	123.93
132	193	0.10	0.09	−0.03	0.00	0.110	−0.125	0.043	0.010	−3.03	−0.47	1380.83	129.21			−0.22	131.51
133	194	0.11	0.10	−0.04	0.01	0.121	−0.138	0.057	0.004	−3.36	−0.33	1380.46	137.65			−0.01	140.18
134	195	0.12	0.10	−0.05	0.01	0.132	−0.139	0.070	0.006	−3.11	0.14	1381.14	145.04			0.54	147.81

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 61 (Pm)																	
135	196	0.13	0.10	−0.05	0.01	0.143	−0.139	0.072	0.007	−3.15	0.17	1380.68	153.58			0.56	156.50
136	197	0.18	0.00	−0.08	−0.01	0.196	0.000	0.114	0.033	−3.27	0.06	1381.74	160.59			0.72	163.96
137	198	0.19	0.00	−0.08	0.00	0.206	0.000	0.116	0.023	−3.70	−0.25	1381.44	168.96			0.30	172.41
138	199	0.20	0.00	−0.08	0.00	0.217	0.000	0.118	0.025	−3.79	−0.27	1382.22	176.25			0.31	179.91
139	200	0.21	0.00	−0.07	0.01	0.227	0.000	0.107	0.012	−3.86	−0.54	1381.69	184.85			−0.15	188.51
140	201	0.21	0.00	−0.07	0.01	0.227	0.000	0.107	0.012	−3.85	−0.63	1382.36	192.25			−0.23	196.13
141	202	0.22	0.00	−0.07	0.02	0.237	0.000	0.110	0.003	−4.47	−1.13	1381.88	200.80			−0.72	204.89
142	203	0.23	0.00	−0.06	0.03	0.248	0.000	0.100	−0.009	−4.36	−1.21	1382.35	208.40			−0.81	212.69
143	204	0.23	0.00	−0.06	0.04	0.248	0.000	0.101	−0.020	−4.99	−1.87	1381.87	216.96			−1.33	221.61
144	205	0.24	0.00	−0.05	0.04	0.259	0.000	0.090	−0.022	−4.87	−1.81	1382.03	224.87			−1.32	229.68
Z = 62 (Sm)																	
61	123	0.31	0.00	−0.03	0.06	0.338	0.000	0.087	−0.041	−4.61	−0.09	955.12	−10.85			−0.16	−10.48
62	124	0.32	0.00	−0.02	0.06	0.350	0.000	0.078	−0.045	−4.56	0.01	971.03	−18.69			−0.03	−18.33
63	125	0.31	0.00	−0.02	0.05	0.339	0.000	0.074	−0.035	−4.07	0.16	983.64	−23.23			0.09	−22.93
64	126	0.31	0.00	−0.01	0.05	0.340	0.000	0.062	−0.039	−3.69	0.46	998.18	−29.69			0.43	−29.40
65	127	0.31	0.00	0.00	0.04	0.341	0.000	0.048	−0.033	−3.36	0.60	1010.14	−33.59			0.54	−33.36
66	128	0.31	0.00	0.01	0.03	0.341	0.000	0.034	−0.027	−2.97	0.83	1024.09	−39.46			0.80	−39.25
67	129	0.30	0.00	0.02	0.02	0.331	0.000	0.018	−0.022	−2.64	0.98	1035.42	−42.73			0.93	−42.57
68	130	0.30	0.00	0.02	0.02	0.331	0.000	0.018	−0.022	−2.48	1.19	1048.76	−47.99			1.17	−47.84
69	131	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−2.32	1.25	1059.58	−50.75			1.21	−50.65
70	132	0.29	0.00	0.04	0.00	0.320	0.000	−0.012	−0.010	−2.09	1.51	1072.26	−55.35			1.50	−55.27
71	133	0.31	0.00	0.03	0.01	0.343	0.000	0.007	−0.016	−2.30	1.66	1082.43	−57.45			1.63	−57.42
72	134	0.31	0.00	0.03	0.00	0.343	0.000	0.006	−0.006	−1.88	1.99	1094.45	−61.40			1.98	−61.38
73	135	0.30	0.00	0.02	0.01	0.330	0.000	0.016	−0.012	−1.51	2.21	1104.00	−62.88	−62.86	0.155	2.19	−62.90
74	136	0.22	0.00	0.04	0.00	0.241	0.000	−0.028	−0.009	−0.13	2.33	1115.66	−66.46	−66.81	0.012	2.34	−66.50
75	137	0.20	0.00	0.04	−0.01	0.218	0.000	−0.032	0.002	−0.20	2.15	1125.08	−67.81	−68.03	0.042	2.15	−67.90
76	138	0.20	0.00	0.04	−0.01	0.218	0.000	−0.032	0.002	−0.32	2.02	1136.45	−71.11	−71.50	0.012	2.04	−71.22
77	139	0.17	0.00	0.04	−0.01	0.185	0.000	−0.037	0.003	−0.34	1.73	1145.47	−72.06	−72.38	0.011	1.73	−72.21
78	140	−0.16	0.00	0.03	0.02	−0.166	0.000	−0.025	−0.014	−0.32	1.43	1156.50	−75.02	−75.46	0.012	1.44	−75.19
79	141	−0.15	0.00	0.04	0.02	−0.156	0.000	−0.037	−0.012	−0.85	1.00	1165.16	−75.61	−75.94	0.009	1.01	−75.81
80	142	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.49	−0.04	1176.42	−78.80	−78.99	0.006	−0.04	−79.05
81	143	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−1.70	−0.88	1185.02	−79.33	−79.52	0.004	−0.88	−79.61
82	144	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.06	−2.12	1196.01	−82.24	−81.97	0.003	−2.12	−82.56
83	145	−0.03	0.00	−0.01	0.00	−0.032	0.000	0.012	−0.000	−2.11	−1.28	1202.47	−80.63	−80.66	0.003	−1.28	−80.97
84	146	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.92	−0.27	1210.74	−80.83	−81.00	0.004	−0.27	−81.20
85	147	0.13	0.00	−0.03	−0.01	0.140	0.000	0.043	0.016	−0.93	0.74	1216.59	−78.62	−79.27	0.002	0.77	−78.98
86	148	0.16	0.00	−0.04	0.00	0.172	0.000	0.060	0.009	−0.98	1.09	1225.07	−79.02	−79.34	0.002	1.14	−79.39
87	149	0.17	0.03	−0.04	0.01	0.183	−0.041	0.062	0.001	−1.23	1.22	1231.38	−77.26	−77.14	0.002	1.27	−77.65
88	150	0.19	0.04	−0.04	0.02	0.205	−0.055	0.066	−0.008	−1.50	1.39	1239.61	−77.42	−77.06	0.002	1.48	−77.80
89	151	0.21	0.02	−0.05	0.02	0.227	−0.027	0.082	−0.004	−2.10	1.30	1245.73	−75.47	−74.58	0.002	1.39	−75.86
90	152	0.22	0.00	−0.06	0.02	0.237	0.000	0.097	−0.000	−2.69	1.20	1253.82	−75.48	−74.77	0.002	1.33	−75.85
91	153	0.24	0.00	−0.06	0.03	0.259	0.000	0.102	−0.008	−3.60	0.80	1259.85	−73.44	−72.57	0.002	0.95	−73.81
92	154	0.25	0.00	−0.06	0.03	0.270	0.000	0.105	−0.007	−4.04	0.57	1267.66	−73.19	−72.46	0.003	0.74	−73.54
93	155	0.25	0.00	−0.06	0.03	0.270	0.000	0.105	−0.007	−4.38	0.25	1273.24	−70.69	−70.20	0.003	0.41	−71.07
94	156	0.26	0.00	−0.05	0.03	0.282	0.000	0.094	−0.009	−4.26	0.24	1280.44	−69.82	−69.37	0.010	0.41	−70.20
95	157	0.26	0.00	−0.05	0.04	0.281	0.000	0.095	−0.020	−4.63	−0.07	1285.64	−66.95	−66.73	0.050	0.12	−67.31
96	158	0.27	0.00	−0.04	0.04	0.293	0.000	0.086	−0.022	−4.52	−0.04	1292.43	−65.66	−65.21	0.078	0.16	−66.02
97	159	0.27	0.00	−0.03	0.04	0.293	0.000	0.073	−0.026	−4.61	−0.36	1297.28	−62.45	−62.21	0.100	−0.18	−62.83
98	160	0.27	0.00	−0.03	0.04	0.293	0.000	0.073	−0.026	−4.52	−0.31	1303.68	−60.78			−0.11	−61.13
99	161	0.27	0.00	−0.02	0.04	0.294	0.000	0.061	−0.029	−4.63	−0.52	1308.08	−57.10			−0.33	−57.47
100	162	0.28	0.00	−0.01	0.04	0.306	0.000	0.051	−0.032	−4.58	−0.41	1314.07	−55.03			−0.20	−55.36
101	163	0.28	0.00	0.00	0.04	0.306	0.000	0.039	−0.035	−4.79	−0.66	1318.19	−51.07			−0.46	−51.40
102	164	0.28	0.00	0.01	0.04	0.307	0.000	0.027	−0.039	−4.55	−0.48	1323.77	−48.58			−0.24	−48.86
103	165	0.28	0.00	0.01	0.04	0.307	0.000	0.027	−0.039	−4.68	−0.60	1327.44	−44.17			−0.38	−44.45
104	166	0.27	0.00	0.02	0.03	0.297	0.000	0.011	−0.032	−3.87	−0.17	1332.43	−41.10			0.01	−41.40
105	167	0.27	0.00	0.03	0.02	0.297	0.000	−0.002	−0.026	−3.74	−0.12	1335.62	−36.21			−0.01	−36.55
106	168	0.26	0.00	0.03	0.02	0.286	0.000	−0.004	−0.026	−3.14	0.21	1340.40	−32.92			0.34	−33.22

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 62 (Sm)																	
107	169	0.25	0.00	0.04	0.01	0.275	0.000	−0.020	−0.019	−2.99	0.25	1343.29	−27.75			0.34	−28.05
108	170	0.25	0.00	0.05	0.00	0.276	0.000	−0.033	−0.012	−2.66	0.60	1347.76	−24.14			0.70	−24.39
109	171	0.25	0.00	0.06	0.00	0.277	0.000	−0.045	−0.015	−2.83	0.56	1350.44	−18.75			0.69	−18.94
110	172	0.24	0.00	0.06	−0.01	0.265	0.000	−0.049	−0.005	−2.21	0.95	1354.56	−14.79			1.08	−14.94
111	173	0.24	0.00	0.07	−0.02	0.265	0.000	−0.062	0.002	−2.47	0.89	1356.98	−9.15			1.07	−9.19
112	174	0.23	0.00	0.07	−0.02	0.254	0.000	−0.064	0.002	−1.99	1.16	1360.92	−5.02			1.37	−4.99
113	175	0.21	0.00	0.07	−0.02	0.231	0.000	−0.068	0.004	−2.00	0.95	1363.22	0.75			1.16	0.84
114	176	0.21	0.00	0.07	−0.03	0.231	0.000	−0.069	0.014	−1.81	1.09	1367.03	5.02			1.37	5.24
115	177	0.20	0.00	0.07	−0.03	0.220	0.000	−0.070	0.014	−1.98	0.78	1369.17	10.95			1.06	11.23
116	178	0.18	0.00	0.07	−0.03	0.197	0.000	−0.073	0.016	−1.66	0.85	1372.76	15.43			1.17	15.81
117	179	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−1.87	0.57	1374.62	21.64			0.90	22.12
118	180	0.15	0.00	0.06	−0.03	0.163	0.000	−0.065	0.020	−1.74	0.43	1378.16	26.17			0.73	26.68
119	181	0.15	0.00	0.06	−0.03	0.163	0.000	−0.065	0.020	−1.95	0.19	1379.73	32.68			0.48	33.27
120	182	−0.17	0.00	0.02	−0.01	−0.177	0.000	−0.011	0.012	−1.62	0.12	1382.95	37.52			0.17	37.96
121	183	−0.14	0.00	0.01	0.00	−0.146	0.000	−0.004	0.001	−1.91	−0.54	1384.70	43.85			−0.54	44.33
122	184	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−2.11	−1.03	1388.09	48.53			−1.02	49.11
123	185	−0.06	0.00	0.02	0.00	−0.063	0.000	−0.022	0.002	−3.07	−2.29	1390.20	54.48			−2.27	55.18
124	186	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−3.86	−2.96	1393.54	59.22			−2.92	60.04
125	187	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.99	−4.01	1395.21	65.62			−4.01	66.50
126	188	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.62	−4.57	1398.20	70.70			−4.57	71.70
127	189	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.69	−3.72	1397.77	79.21			−3.73	80.33
128	190	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.58	−2.67	1398.92	86.12			−2.68	87.37
129	191	0.04	0.06	−0.01	0.00	0.044	−0.082	0.014	0.003	−3.31	−1.84	1398.28	94.83			−1.76	96.30
130	192	0.07	0.08	−0.02	0.00	0.077	−0.110	0.028	0.007	−3.08	−1.04	1399.47	101.72			−0.87	103.40
131	193	0.08	0.09	−0.03	0.00	0.089	−0.124	0.042	0.009	−3.29	−0.81	1399.22	110.04			−0.56	111.94
132	194	0.09	0.10	−0.03	0.01	0.100	−0.138	0.043	0.001	−2.88	−0.12	1400.30	117.03			0.17	119.11
133	195	0.10	0.09	−0.04	0.00	0.110	−0.125	0.056	0.012	−2.62	0.08	1399.89	125.51			0.38	127.76
134	196	0.12	0.10	−0.04	0.01	0.132	−0.138	0.058	0.004	−2.42	0.65	1400.89	132.59			0.99	135.03
135	197	0.17	0.00	−0.07	−0.01	0.185	0.000	0.100	0.029	−2.28	0.59	1400.53	141.01			1.09	143.77
136	198	0.18	0.00	−0.08	−0.01	0.196	0.000	0.114	0.033	−2.87	0.50	1401.99	147.62			1.16	150.71
137	199	0.19	0.00	−0.08	0.00	0.206	0.000	0.116	0.023	−3.30	0.18	1401.71	155.98			0.73	159.14
138	200	0.20	0.00	−0.07	0.00	0.217	0.000	0.105	0.022	−2.96	0.26	1402.80	162.96			0.71	166.19
139	201	0.21	0.00	−0.07	0.01	0.227	0.000	0.107	0.012	−3.49	−0.16	1402.44	171.39			0.23	174.76
140	202	0.21	0.00	−0.07	0.02	0.227	0.000	0.108	0.002	−3.44	−0.28	1403.53	178.37			0.16	181.96
141	203	0.22	0.00	−0.06	0.02	0.237	0.000	0.097	−0.000	−3.79	−0.70	1402.99	186.99			−0.38	190.65
142	204	0.23	0.00	−0.06	0.03	0.248	0.000	0.100	−0.009	−4.09	−0.92	1404.00	194.04			−0.50	198.01
143	205	0.23	0.00	−0.05	0.03	0.248	0.000	0.087	−0.013	−4.34	−1.34	1403.29	202.83			−1.01	206.91
144	206	0.24	0.00	−0.05	0.04	0.259	0.000	0.090	−0.022	−4.62	−1.55	1404.10	210.08			−1.05	214.55
145	207	0.24	0.00	−0.04	0.04	0.259	0.000	0.078	−0.025	−4.90	−1.98	1403.23	219.02			−1.54	223.65
146	208	0.24	0.00	−0.04	0.05	0.259	0.000	0.079	−0.035	−5.03	−2.27	1403.95	226.38			−1.56	231.49
Z = 63 (Eu)																	
62	125	0.31	0.00	−0.02	0.05	0.339	0.000	0.074	−0.035	−4.08	−0.05	967.11	−7.49			−0.13	−7.08
63	126	0.31	0.00	−0.01	0.05	0.340	0.000	0.062	−0.039	−3.89	0.12	980.58	−12.88			0.02	−12.77
64	127	0.31	0.00	0.00	0.04	0.341	0.000	0.048	−0.033	−3.43	0.33	995.55	−19.78			0.25	−19.45
65	128	0.30	0.00	0.01	0.03	0.330	0.000	0.032	−0.028	−3.07	0.59	1008.03	−24.18			0.49	−23.91
66	129	0.30	0.00	0.02	0.02	0.331	0.000	0.018	−0.022	−2.81	0.75	1022.14	−30.23			0.68	−29.98
67	130	0.30	0.00	0.03	0.01	0.331	0.000	0.004	−0.016	−2.78	0.68	1034.31	−34.33			0.60	−34.13
68	131	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−2.55	0.85	1047.79	−39.74			0.79	−39.55
69	132	0.29	0.00	0.04	0.00	0.320	0.000	−0.012	−0.010	−2.64	0.89	1059.25	−43.12			0.81	−42.99
70	133	0.29	0.00	0.05	0.00	0.321	0.000	−0.024	−0.013	−2.55	1.10	1072.07	−47.87			1.06	−47.75
71	134	0.30	0.00	0.04	0.00	0.332	0.000	−0.009	−0.010	−2.42	1.33	1082.76	−50.49			1.26	−50.43
72	135	0.30	0.00	0.04	0.00	0.332	0.000	−0.009	−0.010	−2.00	1.69	1094.85	−54.51			1.65	−54.46
73	136	0.29	0.00	0.03	0.00	0.320	0.000	0.000	−0.006	−1.54	1.80	1105.09	−56.68			1.76	−56.68
74	137	0.23	0.00	0.03	0.00	0.252	0.000	−0.014	−0.006	−0.41	1.89	1116.89	−60.41			1.87	−60.41
75	138	0.21	0.00	0.04	−0.01	0.229	0.000	−0.031	0.001	−0.54	1.92	1126.68	−62.12	−61.75	0.028	1.90	−62.17
76	139	0.20	0.00	0.04	−0.01	0.218	0.000	−0.032	0.002	−0.43	1.89	1138.04	−65.42	−65.40	0.013	1.89	−65.49
77	140	0.18	0.00	0.04	−0.02	0.196	0.000	−0.036	0.012	−0.56	1.61	1147.64	−66.94	−66.99	0.052	1.60	−67.05

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 63 (Eu)																	
78	141	−0.17	0.00	0.03	0.02	−0.176	0.000	−0.024	−0.013	−0.39	1.43	1158.63	−69.86	−69.93	0.013	1.43	−70.00
79	142	−0.16	0.00	0.03	0.02	−0.166	0.000	−0.025	−0.014	−0.72	0.97	1167.89	−71.05	−71.32	0.031	0.97	−71.22
80	143	−0.13	0.00	0.02	0.01	−0.135	0.000	−0.017	−0.007	−0.88	0.45	1178.72	−73.81	−74.24	0.011	0.45	−74.02
81	144	−0.06	0.00	0.01	0.00	−0.063	0.000	−0.010	0.001	−1.47	−0.77	1188.26	−75.28	−75.62	0.011	−0.77	−75.53
82	145	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−2.72	−1.82	1199.14	−78.09	−78.00	0.004	−1.82	−78.37
83	146	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−1.77	−1.00	1206.18	−77.06	−77.12	0.006	−1.00	−77.37
84	147	0.04	0.05	−0.01	0.00	0.043	−0.068	0.014	0.002	−1.14	0.00	1214.54	−77.34	−77.55	0.003	0.02	−77.67
85	148	0.14	0.00	−0.03	−0.01	0.151	0.000	0.045	0.016	−0.88	0.91	1221.05	−75.78	−76.30	0.010	0.93	−76.13
86	149	0.17	0.00	−0.03	0.00	0.183	0.000	0.049	0.008	−0.80	1.20	1229.67	−76.33	−76.45	0.004	1.22	−76.70
87	150	0.18	0.00	−0.03	0.01	0.194	0.000	0.051	−0.002	−0.88	1.34	1236.52	−75.11	−74.80	0.006	1.36	−75.51
88	151	0.20	0.01	−0.04	0.02	0.215	−0.014	0.068	−0.008	−1.32	1.45	1244.88	−75.40	−74.66	0.002	1.50	−75.79
89	152	0.21	0.00	−0.04	0.02	0.226	0.000	0.070	−0.007	−1.67	1.37	1251.53	−73.97	−72.89	0.002	1.42	−74.39
90	153	0.23	0.00	−0.05	0.02	0.249	0.000	0.087	−0.002	−2.47	1.26	1259.69	−74.07	−73.37	0.002	1.35	−74.47
91	154	0.23	0.00	−0.05	0.02	0.249	0.000	0.087	−0.002	−2.90	0.91	1266.21	−72.51	−71.74	0.002	0.99	−72.94
92	155	0.25	0.00	−0.05	0.03	0.270	0.000	0.092	−0.010	−3.55	0.69	1274.08	−72.31	−71.82	0.002	0.81	−72.72
93	156	0.25	0.00	−0.05	0.03	0.270	0.000	0.092	−0.010	−3.88	0.39	1280.16	−70.32	−70.09	0.006	0.50	−70.75
94	157	0.26	0.00	−0.04	0.03	0.282	0.000	0.082	−0.013	−3.84	0.35	1287.46	−69.55	−69.47	0.005	0.47	−69.98
95	158	0.26	0.00	−0.04	0.03	0.282	0.000	0.082	−0.013	−4.16	0.05	1293.17	−67.19	−67.21	0.077	0.15	−67.64
96	159	0.26	0.00	−0.03	0.03	0.282	0.000	0.069	−0.016	−3.89	0.06	1300.03	−65.98	−66.05	0.007	0.17	−66.44
97	160	0.27	0.00	−0.03	0.04	0.293	0.000	0.073	−0.026	−4.58	−0.36	1305.51	−63.38			−0.22	−63.81
98	161	0.27	0.00	−0.02	0.04	0.294	0.000	0.061	−0.029	−4.41	−0.37	1312.02	−61.83			−0.20	−62.24
99	162	0.27	0.00	−0.01	0.04	0.294	0.000	0.049	−0.032	−4.59	−0.60	1316.96	−58.69			−0.45	−59.11
100	163	0.28	0.00	0.00	0.04	0.306	0.000	0.039	−0.035	−4.65	−0.56	1323.07	−56.73			−0.37	−57.12
101	164	0.28	0.00	0.01	0.04	0.307	0.000	0.027	−0.039	−4.92	−0.81	1327.69	−53.28			−0.63	−53.67
102	165	0.28	0.00	0.01	0.04	0.307	0.000	0.027	−0.039	−4.75	−0.67	1333.37	−50.89			−0.47	−51.24
103	166	0.28	0.00	0.02	0.04	0.308	0.000	0.015	−0.042	−4.94	−0.83	1337.56	−47.01			−0.62	−47.34
104	167	0.27	0.00	0.02	0.03	0.297	0.000	0.011	−0.032	−4.16	−0.44	1342.66	−44.04			−0.29	−44.41
105	168	0.27	0.00	0.03	0.02	0.297	0.000	−0.002	−0.026	−4.06	−0.42	1346.36	−39.67			−0.33	−40.08
106	169	0.26	0.00	0.03	0.02	0.286	0.000	−0.004	−0.026	−3.47	−0.11	1351.21	−36.45			−0.00	−36.82
107	170	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−3.49	−0.06	1354.58	−31.75			0.00	−32.13
108	171	0.25	0.00	0.05	0.00	0.276	0.000	−0.033	−0.012	−3.01	0.27	1359.10	−28.20			0.35	−28.54
109	172	0.25	0.00	0.06	0.00	0.277	0.000	−0.045	−0.015	−3.17	0.28	1362.22	−23.24			0.38	−23.52
110	173	0.24	0.00	0.06	−0.01	0.265	0.000	−0.049	−0.005	−2.52	0.68	1366.38	−19.33			0.79	−19.56
111	174	0.24	0.00	0.07	−0.02	0.265	0.000	−0.062	0.002	−2.77	0.64	1369.24	−14.12			0.80	−14.27
112	175	0.23	0.00	0.07	−0.02	0.254	0.000	−0.064	0.002	−2.25	0.95	1373.19	−10.00			1.14	−10.08
113	176	0.21	0.00	0.07	−0.02	0.231	0.000	−0.068	0.004	−2.17	0.83	1375.87	−4.61			1.02	−4.64
114	177	0.21	0.00	0.07	−0.03	0.231	0.000	−0.069	0.014	−1.97	0.98	1379.71	−0.37			1.24	−0.28
115	178	0.20	0.00	0.07	−0.03	0.220	0.000	−0.070	0.014	−2.11	0.70	1382.28	5.13			0.95	5.28
116	179	0.18	0.00	0.07	−0.03	0.197	0.000	−0.073	0.016	−1.74	0.82	1385.87	9.61			1.11	9.86
117	180	0.17	0.00	0.07	−0.03	0.186	0.000	−0.075	0.017	−2.04	0.62	1388.09	15.46			0.91	15.77
118	181	0.15	0.00	0.06	−0.02	0.163	0.000	−0.064	0.010	−1.62	0.55	1391.61	20.01			0.75	20.31
119	182	0.15	0.00	0.05	−0.02	0.163	0.000	−0.052	0.012	−1.58	0.18	1393.75	25.94			0.33	26.26
120	183	−0.17	0.00	0.02	−0.01	−0.177	0.000	−0.011	0.012	−1.67	0.10	1397.02	30.74			0.14	31.04
121	184	−0.14	0.00	0.02	0.00	−0.146	0.000	−0.015	0.003	−1.93	−0.53	1399.18	36.66			−0.51	37.01
122	185	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−2.04	−0.95	1402.54	41.37			−0.94	41.80
123	186	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−2.96	−2.11	1404.99	46.99			−2.09	47.52
124	187	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−3.62	−2.74	1408.32	51.73			−2.70	52.38
125	188	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.74	−3.79	1410.43	57.69			−3.79	58.41
126	189	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.36	−4.33	1413.43	62.77			−4.33	63.59
127	190	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.42	−3.48	1413.41	70.86			−3.48	71.79
128	191	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.31	−2.42	1414.59	77.75			−2.43	78.79
129	192	0.04	0.07	−0.02	0.00	0.045	−0.096	0.026	0.004	−3.50	−1.75	1414.53	85.88			−1.62	87.17
130	193	0.06	0.09	−0.02	0.00	0.067	−0.124	0.029	0.007	−3.22	−0.91	1415.70	92.77			−0.71	94.27
131	194	0.07	0.10	−0.03	0.01	0.078	−0.137	0.042	0.000	−3.45	−0.71	1415.91	100.64			−0.46	102.32
132	195	0.08	0.10	−0.03	0.01	0.089	−0.138	0.043	0.001	−2.72	0.01	1416.98	107.64			0.28	109.47
133	196	0.10	0.10	−0.04	0.01	0.110	−0.138	0.056	0.003	−2.75	0.26	1416.93	115.76			0.57	117.77
134	197	0.11	0.10	−0.05	0.01	0.121	−0.139	0.069	0.005	−2.42	0.81	1417.97	122.79			1.18	125.02

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 63 (Eu)																	
135	198	0.17	0.00	−0.07	−0.01	0.185	0.000	0.100	0.029	−2.16	0.79	1418.00	130.84			1.25	133.31
136	199	0.17	0.00	−0.08	−0.01	0.185	0.000	0.113	0.032	−2.58	0.71	1419.46	137.44			1.31	140.22
137	200	0.19	0.00	−0.07	0.00	0.206	0.000	0.103	0.020	−2.73	0.47	1419.50	145.48			0.87	148.21
138	201	0.20	0.00	−0.07	0.00	0.217	0.000	0.105	0.022	−2.86	0.41	1420.75	152.30			0.83	155.22
139	202	0.21	0.00	−0.06	0.01	0.227	0.000	0.094	0.009	−3.01	0.09	1420.68	160.43			0.36	163.38
140	203	0.22	0.00	−0.05	0.01	0.238	0.000	0.084	0.007	−2.91	0.00	1421.77	167.42			0.19	170.47
141	204	0.22	0.01	−0.05	0.02	0.237	−0.014	0.084	−0.003	−3.45	−0.54	1421.74	175.52			−0.32	178.77
142	205	0.23	0.00	−0.05	0.03	0.248	0.000	0.087	−0.013	−3.76	−0.74	1422.76	182.58			−0.43	186.12
143	206	0.23	0.00	−0.05	0.03	0.248	0.000	0.087	−0.013	−4.33	−1.27	1422.54	190.86			−0.97	194.59
144	207	0.24	0.00	−0.04	0.04	0.259	0.000	0.078	−0.025	−4.39	−1.45	1423.33	198.14			−1.02	202.19
145	208	0.24	0.00	−0.04	0.04	0.259	0.000	0.078	−0.025	−4.93	−1.96	1422.93	206.61			−1.55	210.86
146	209	0.24	0.00	−0.04	0.05	0.259	0.000	0.079	−0.035	−5.08	−2.25	1423.67	213.95			−1.58	218.66
147	210	0.25	0.00	−0.03	0.05	0.271	0.000	0.069	−0.037	−5.54	−2.69	1423.03	222.66			−2.07	227.55
148	211	0.25	0.00	−0.02	0.05	0.271	0.000	0.057	−0.040	−5.28	−2.61	1423.22	230.54			−1.96	235.68
Z = 64 (Gd)																	
64	128	0.31	0.00	0.01	0.03	0.341	0.000	0.034	−0.027	−2.88	0.69	994.32	−11.26			0.61	−10.84
65	129	0.30	0.00	0.02	0.02	0.331	0.000	0.018	−0.022	−2.65	0.83	1007.01	−15.88			0.74	−15.52
66	130	0.30	0.00	0.03	0.01	0.331	0.000	0.004	−0.016	−2.55	0.92	1021.83	−22.62			0.85	−22.28
67	131	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−2.53	0.66	1034.29	−27.01			0.59	−26.72
68	132	0.29	0.00	0.04	0.00	0.320	0.000	−0.012	−0.010	−2.54	0.76	1048.45	−33.10			0.70	−32.83
69	133	0.29	0.00	0.05	0.00	0.321	0.000	−0.024	−0.013	−2.79	0.82	1059.98	−36.57			0.75	−36.35
70	134	0.29	0.00	0.06	−0.01	0.322	0.000	−0.037	−0.007	−2.76	0.98	1073.46	−41.98			0.94	−41.78
71	135	0.27	0.00	0.05	0.00	0.299	0.000	−0.029	−0.013	−2.16	1.17	1084.29	−44.73			1.12	−44.58
72	136	0.27	0.00	0.05	−0.01	0.298	0.000	−0.030	−0.003	−1.72	1.50	1096.99	−49.36			1.48	−49.23
73	137	0.24	0.00	0.05	−0.01	0.264	0.000	−0.037	−0.002	−1.16	1.58	1107.37	−51.67			1.55	−51.58
74	138	0.23	0.00	0.04	−0.01	0.252	0.000	−0.027	0.001	−0.67	1.72	1119.70	−55.93			1.71	−55.87
75	139	0.21	0.00	0.05	−0.01	0.230	0.000	−0.043	−0.001	−0.81	1.75	1129.58	−57.74			1.74	−57.72
76	140	0.20	0.00	0.04	−0.01	0.218	0.000	−0.032	0.002	−0.54	1.71	1141.54	−61.63	−61.78	0.028	1.71	−61.64
77	141	0.19	0.00	0.04	−0.01	0.207	0.000	−0.034	0.002	−0.72	1.47	1151.18	−63.19	−63.22	0.020	1.46	−63.25
78	142	−0.17	0.00	0.03	0.01	−0.176	0.000	−0.023	−0.004	−0.40	1.32	1162.72	−66.66	−66.96	0.028	1.32	−66.75
79	143	−0.16	0.00	0.03	0.02	−0.166	0.000	−0.025	−0.014	−0.81	0.83	1172.10	−67.97	−68.23	0.200	0.83	−68.09
80	144	−0.14	0.00	0.02	0.01	−0.146	0.000	−0.015	−0.007	−1.15	0.30	1183.51	−71.31	−71.76	0.028	0.31	−71.47
81	145	−0.06	0.00	0.01	0.00	−0.063	0.000	−0.010	0.001	−1.53	−0.83	1193.05	−72.78	−72.93	0.019	−0.84	−72.99
82	146	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.80	−1.91	1204.52	−76.18	−76.09	0.005	−1.91	−76.42
83	147	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−1.81	−1.05	1211.60	−75.19	−75.36	0.003	−1.05	−75.46
84	148	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.63	−0.06	1220.53	−76.04	−76.28	0.003	−0.06	−76.35
85	149	0.13	0.00	−0.03	−0.01	0.140	0.000	0.043	0.016	−0.67	1.00	1226.96	−74.40	−75.13	0.004	1.02	−74.72
86	150	0.16	0.00	−0.03	−0.01	0.172	0.000	0.047	0.017	−0.60	1.44	1235.97	−75.34	−75.77	0.006	1.48	−75.67
87	151	0.18	0.00	−0.03	0.01	0.194	0.000	0.051	−0.002	−0.73	1.44	1243.03	−74.33	−74.19	0.004	1.47	−74.70
88	152	0.19	0.00	−0.03	0.01	0.205	0.000	0.053	−0.001	−0.69	1.64	1251.85	−75.08	−74.71	0.003	1.68	−75.46
89	153	0.21	0.00	−0.04	0.02	0.226	0.000	0.070	−0.007	−1.38	1.58	1258.55	−73.71	−72.89	0.003	1.64	−74.10
90	154	0.22	0.00	−0.04	0.02	0.237	0.000	0.072	−0.007	−1.65	1.52	1267.20	−74.29	−73.71	0.003	1.59	−74.69
91	155	0.23	0.00	−0.05	0.02	0.249	0.000	0.087	−0.002	−2.49	1.23	1273.73	−72.75	−72.08	0.003	1.32	−73.15
92	156	0.24	0.00	−0.05	0.02	0.260	0.000	0.089	−0.001	−2.88	1.04	1282.10	−73.04	−72.54	0.003	1.15	−73.45
93	157	0.25	0.00	−0.04	0.02	0.271	0.000	0.079	−0.004	−3.13	0.74	1288.25	−71.13	−70.83	0.003	0.82	−71.57
94	158	0.26	0.00	−0.04	0.03	0.282	0.000	0.082	−0.013	−3.43	0.65	1296.12	−70.92	−70.70	0.003	0.78	−71.34
95	159	0.26	0.00	−0.03	0.03	0.282	0.000	0.069	−0.016	−3.54	0.35	1301.89	−68.62	−68.57	0.003	0.46	−69.08
96	160	0.26	0.00	−0.03	0.03	0.282	0.000	0.069	−0.016	−3.57	0.30	1309.34	−68.00	−67.95	0.003	0.42	−68.44
97	161	0.27	0.00	−0.02	0.03	0.294	0.000	0.060	−0.019	−3.96	−0.10	1314.85	−65.44	−65.51	0.003	0.00	−65.92
98	162	0.27	0.00	−0.01	0.03	0.294	0.000	0.047	−0.023	−3.89	−0.14	1321.91	−64.43	−64.29	0.005	−0.02	−64.89
99	163	0.27	0.00	−0.01	0.04	0.294	0.000	0.049	−0.032	−4.38	−0.47	1327.00	−61.45			−0.31	−61.87
100	164	0.27	0.00	0.00	0.04	0.295	0.000	0.037	−0.036	−4.28	−0.44	1333.64	−60.01			−0.26	−60.42
101	165	0.28	0.00	0.01	0.04	0.307	0.000	0.027	−0.039	−4.80	−0.73	1338.35	−56.65			−0.55	−57.05
102	166	0.28	0.00	0.02	0.04	0.308	0.000	0.015	−0.042	−4.72	−0.66	1344.59	−54.82			−0.43	−55.17
103	167	0.28	0.00	0.03	0.03	0.309	0.000	0.002	−0.036	−4.77	−0.79	1348.81	−50.97			−0.63	−51.39
104	168	0.27	0.00	0.03	0.03	0.298	0.000	−0.001	−0.036	−4.28	−0.55	1354.55	−48.64			−0.37	−49.02
105	169	0.27	0.00	0.04	0.02	0.298	0.000	−0.014	−0.029	−4.30	−0.60	1358.38	−44.40			−0.48	−44.81

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 64 (Gd)																	
106	170	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−3.67	−0.30	1363.73	−41.68			−0.21	−42.11
107	171	0.26	0.00	0.05	0.01	0.287	0.000	−0.030	−0.022	−3.95	−0.39	1367.29	−37.16			−0.28	−37.56
108	172	0.25	0.00	0.05	0.00	0.276	0.000	−0.033	−0.012	−3.33	−0.04	1372.27	−34.07			0.06	−34.46
109	173	0.25	0.00	0.06	0.00	0.277	0.000	−0.045	−0.015	−3.54	−0.10	1375.50	−29.23			0.02	−29.56
110	174	0.25	0.00	0.07	−0.01	0.277	0.000	−0.059	−0.009	−3.28	0.29	1380.14	−25.81			0.45	−26.06
111	175	0.24	0.00	0.07	−0.02	0.265	0.000	−0.062	0.002	−3.14	0.29	1383.02	−20.61			0.46	−20.82
112	176	0.23	0.00	0.08	−0.03	0.254	0.000	−0.077	0.010	−2.94	0.56	1387.48	−17.00			0.84	−17.06
113	177	0.21	0.00	0.07	−0.02	0.231	0.000	−0.068	0.004	−2.47	0.55	1390.10	−11.55			0.74	−11.65
114	178	0.21	0.00	0.07	−0.03	0.231	0.000	−0.069	0.014	−2.26	0.72	1394.37	−7.74			0.98	−7.74
115	179	0.20	0.00	0.08	−0.03	0.220	0.000	−0.082	0.012	−2.68	0.41	1397.01	−2.32			0.71	−2.21
116	180	0.19	0.00	0.07	−0.03	0.208	0.000	−0.072	0.015	−2.04	0.66	1400.93	1.84			0.94	1.97
117	181	0.17	0.00	0.07	−0.03	0.186	0.000	−0.075	0.017	−2.18	0.29	1403.37	7.47			0.58	7.68
118	182	0.15	0.00	0.06	−0.02	0.163	0.000	−0.064	0.010	−1.69	0.49	1407.06	11.85			0.69	12.03
119	183	−0.18	0.00	0.03	−0.01	−0.187	0.000	−0.021	0.014	−1.63	0.24	1409.12	17.86			0.31	17.98
120	184	−0.17	0.00	0.02	−0.01	−0.177	0.000	−0.011	0.012	−1.81	−0.01	1413.01	22.05			0.04	22.22
121	185	−0.15	0.00	0.02	0.00	−0.156	0.000	−0.014	0.003	−2.10	−0.55	1415.11	28.01			−0.53	28.23
122	186	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−2.04	−0.95	1418.89	32.31			−0.94	32.60
123	187	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−2.90	−2.07	1421.33	37.93			−2.05	38.32
124	188	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−3.52	−2.65	1425.05	42.29			−2.61	42.78
125	189	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.54	−3.61	1427.10	48.31			−3.61	48.86
126	190	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.14	−4.12	1430.51	52.97			−4.12	53.62
127	191	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−4.22	−3.29	1430.54	61.01			−3.29	61.77
128	192	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.07	−2.20	1432.11	67.51			−2.20	68.37
129	193	0.04	0.07	−0.02	0.00	0.045	−0.096	0.026	0.004	−3.24	−1.49	1432.04	75.65			−1.36	76.76
130	194	0.05	0.08	−0.02	0.00	0.056	−0.110	0.027	0.006	−2.59	−0.61	1433.60	82.16			−0.45	83.42
131	195	0.07	0.10	−0.02	0.01	0.079	−0.137	0.030	−0.001	−3.00	−0.37	1433.79	90.04			−0.14	91.49
132	196	0.08	0.10	−0.03	0.01	0.089	−0.138	0.043	0.001	−2.41	0.34	1435.30	96.61			0.61	98.23
133	197	0.10	0.09	−0.04	0.00	0.110	−0.125	0.056	0.012	−2.17	0.59	1435.27	104.71			0.87	106.47
134	198	0.12	0.09	−0.05	0.01	0.131	−0.125	0.070	0.005	−1.84	1.17	1436.69	111.36			1.51	113.32
135	199	0.16	0.00	−0.07	−0.01	0.174	0.000	0.098	0.027	−1.71	1.18	1436.70	119.42			1.64	121.64
136	200	0.17	0.00	−0.07	−0.01	0.185	0.000	0.100	0.029	−1.81	1.13	1438.55	125.64			1.61	128.04
137	201	0.18	0.00	−0.07	−0.01	0.196	0.000	0.101	0.030	−2.36	0.76	1438.74	133.52			1.25	136.08
138	202	0.19	0.00	−0.07	0.00	0.206	0.000	0.103	0.020	−2.32	0.79	1440.31	140.03			1.21	142.68
139	203	0.21	0.00	−0.06	0.01	0.227	0.000	0.094	0.009	−2.60	0.48	1440.25	148.16			0.76	150.83
140	204	0.22	0.00	−0.05	0.01	0.238	0.000	0.084	0.007	−2.53	0.37	1441.75	154.73			0.58	157.50
141	205	0.22	0.00	−0.05	0.02	0.237	0.000	0.084	−0.003	−3.06	−0.17	1441.74	162.81			0.06	165.78
142	206	0.22	0.00	−0.05	0.02	0.237	0.000	0.084	−0.003	−3.17	−0.29	1443.07	169.55			−0.05	172.72
143	207	0.23	0.00	−0.04	0.03	0.248	0.000	0.075	−0.016	−3.69	−0.85	1442.90	177.79			−0.59	181.16
144	208	0.24	0.00	−0.04	0.04	0.259	0.000	0.078	−0.025	−4.02	−1.08	1444.15	184.62			−0.65	188.35
145	209	0.24	0.00	−0.03	0.04	0.260	0.000	0.066	−0.028	−4.39	−1.61	1443.77	193.06			−1.22	196.96
146	210	0.24	0.00	−0.03	0.04	0.260	0.000	0.066	−0.028	−4.42	−1.67	1444.67	200.24			−1.26	204.35
147	211	0.25	0.00	−0.02	0.04	0.271	0.000	0.056	−0.031	−4.89	−2.06	1443.98	208.99			−1.69	213.28
148	212	0.25	0.00	−0.02	0.04	0.271	0.000	0.056	−0.031	−4.80	−2.06	1444.64	216.41			−1.67	220.92
149	213	0.25	0.00	−0.01	0.04	0.272	0.000	0.044	−0.034	−5.07	−2.42	1443.75	225.37			−2.03	230.10
150	214	0.25	0.00	0.00	0.04	0.273	0.000	0.032	−0.037	−4.83	−2.30	1444.12	233.07			−1.88	238.05
Z = 65 (Tb)																	
65	130	0.30	0.00	0.03	0.02	0.331	0.000	0.006	−0.026	−2.93	0.65	1003.79	−5.37			0.52	−5.17
66	131	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−2.84	0.45	1019.22	−12.73			0.35	−12.31
67	132	0.29	0.00	0.04	0.01	0.321	0.000	−0.010	−0.020	−3.02	0.40	1032.08	−17.52			0.29	−17.17
68	133	0.29	0.00	0.05	0.00	0.321	0.000	−0.024	−0.013	−3.08	0.28	1046.56	−23.93			0.19	−23.59
69	134	0.29	0.00	0.06	−0.01	0.322	0.000	−0.037	−0.007	−3.37	0.23	1058.81	−28.10			0.13	−27.83
70	135	0.29	0.00	0.06	−0.01	0.322	0.000	−0.037	−0.007	−3.27	0.43	1072.34	−33.56			0.36	−33.31
71	136	0.28	0.00	0.06	−0.01	0.310	0.000	−0.040	−0.007	−2.92	0.65	1083.73	−36.88			0.57	−36.68
72	137	0.27	0.00	0.06	−0.01	0.299	0.000	−0.042	−0.007	−2.37	0.99	1096.53	−41.61			0.94	−41.43
73	138	0.25	0.00	0.05	−0.01	0.275	0.000	−0.035	−0.003	−1.72	1.17	1107.39	−44.40			1.12	−44.27
74	139	0.23	0.00	0.05	−0.02	0.252	0.000	−0.040	0.008	−1.24	1.31	1119.81	−48.75			1.28	−48.63
75	140	0.22	0.00	0.05	−0.01	0.241	0.000	−0.041	−0.002	−1.28	1.35	1130.26	−51.13	−50.48	0.800	1.32	−51.06

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 65 (Tb)																	
76	141	0.21	0.00	0.05	−0.02	0.230	0.000	−0.044	0.009	−1.14	1.43	1142.19	−54.99	−54.54	0.105	1.42	−54.95
77	142	0.19	0.00	0.05	−0.02	0.207	0.000	−0.047	0.010	−1.10	1.26	1152.34	−57.06			1.24	−57.06
78	143	−0.17	0.00	0.03	0.01	−0.176	0.000	−0.023	−0.004	−0.47	1.26	1163.80	−60.46	−60.43	0.060	1.26	−60.50
79	144	−0.16	0.00	0.03	0.01	−0.166	0.000	−0.024	−0.004	−0.86	0.75	1173.77	−62.36	−62.37	0.028	0.74	−62.44
80	145	−0.15	0.00	0.03	0.01	−0.156	0.000	−0.026	−0.005	−1.37	0.28	1185.21	−65.73	−65.88	0.057	0.28	−65.84
81	146	−0.06	0.00	0.00	0.00	−0.063	0.000	0.001	0.000	−1.41	−0.75	1195.21	−67.65	−67.77	0.045	−0.75	−67.80
82	147	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−2.53	−1.70	1206.63	−71.00	−70.75	0.012	−1.70	−71.19
83	148	−0.04	0.00	−0.01	0.00	−0.042	0.000	0.012	−0.001	−1.69	−0.93	1214.36	−70.65	−70.54	0.014	−0.93	−70.88
84	149	−0.05	0.00	−0.01	0.00	−0.052	0.000	0.013	−0.001	−0.55	0.14	1223.28	−71.51	−71.50	0.004	0.14	−71.77
85	150	0.14	0.00	−0.03	−0.01	0.151	0.000	0.045	0.016	−0.77	1.04	1230.43	−70.58	−71.11	0.008	1.05	−70.86
86	151	0.16	0.00	−0.03	0.00	0.172	0.000	0.048	0.007	−0.57	1.43	1239.57	−71.65	−71.63	0.005	1.45	−71.96
87	152	0.18	0.00	−0.02	0.00	0.194	0.000	0.038	0.006	−0.57	1.44	1247.16	−71.17	−70.72	0.040	1.45	−71.53
88	153	0.20	0.00	−0.02	0.02	0.216	0.000	0.043	−0.013	−0.75	1.58	1256.11	−72.05	−71.32	0.004	1.61	−72.41
89	154	0.21	0.00	−0.03	0.02	0.227	0.000	0.057	−0.010	−1.21	1.53	1263.34	−71.21	−70.16	0.045	1.56	−71.60
90	155	0.22	0.00	−0.03	0.01	0.238	0.000	0.059	0.001	−1.42	1.49	1272.04	−71.84	−71.25	0.012	1.52	−72.25
91	156	0.23	0.00	−0.04	0.02	0.249	0.000	0.074	−0.006	−2.17	1.24	1279.06	−70.79	−70.10	0.004	1.29	−71.21
92	157	0.24	0.00	−0.04	0.02	0.260	0.000	0.076	−0.005	−2.53	1.06	1287.48	−71.14	−70.77	0.003	1.13	−71.57
93	158	0.25	0.00	−0.04	0.02	0.271	0.000	0.079	−0.004	−3.05	0.77	1294.15	−69.73	−69.48	0.003	0.83	−70.19
94	159	0.25	0.00	−0.03	0.02	0.271	0.000	0.066	−0.007	−2.90	0.68	1302.08	−69.59	−69.54	0.003	0.75	−70.06
95	160	0.26	0.00	−0.02	0.02	0.283	0.000	0.056	−0.010	−3.22	0.40	1308.35	−67.80	−67.84	0.003	0.44	−68.31
96	161	0.26	0.00	−0.02	0.02	0.283	0.000	0.056	−0.010	−3.31	0.30	1315.92	−67.29	−67.47	0.003	0.35	−67.79
97	162	0.26	0.00	−0.02	0.03	0.283	0.000	0.057	−0.020	−3.76	−0.11	1321.94	−65.24	−65.68	0.036	−0.03	−65.74
98	163	0.27	0.00	0.00	0.03	0.295	0.000	0.035	−0.026	−3.88	−0.24	1329.15	−64.38	−64.60	0.005	−0.14	−64.88
99	164	0.27	0.00	0.00	0.03	0.295	0.000	0.035	−0.026	−4.26	−0.56	1334.74	−61.90	−62.08	0.100	−0.48	−62.42
100	165	0.27	0.00	0.01	0.03	0.296	0.000	0.023	−0.029	−4.23	−0.54	1341.44	−60.53			−0.43	−61.02
101	166	0.27	0.00	0.02	0.03	0.297	0.000	0.011	−0.032	−4.60	−0.85	1346.67	−57.68	−57.76	0.100	−0.74	−58.18
102	167	0.27	0.00	0.02	0.03	0.297	0.000	0.011	−0.032	−4.52	−0.79	1352.98	−55.93			−0.67	−56.40
103	168	0.27	0.00	0.03	0.03	0.298	0.000	−0.001	−0.036	−4.86	−1.04	1357.82	−52.69			−0.91	−53.15
104	169	0.27	0.00	0.03	0.03	0.298	0.000	−0.001	−0.036	−4.59	−0.84	1363.65	−50.45			−0.69	−50.89
105	170	0.27	0.00	0.04	0.02	0.298	0.000	−0.014	−0.029	−4.67	−0.97	1368.04	−46.77			−0.87	−47.25
106	171	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−4.07	−0.61	1373.39	−44.05			−0.54	−44.54
107	172	0.26	0.00	0.05	0.01	0.287	0.000	−0.030	−0.022	−4.39	−0.79	1377.52	−40.10			−0.71	−40.56
108	173	0.25	0.00	0.06	0.00	0.277	0.000	−0.045	−0.015	−3.98	−0.47	1382.58	−37.10			−0.37	−37.52
109	174	0.25	0.00	0.06	0.00	0.277	0.000	−0.045	−0.015	−3.97	−0.50	1386.25	−32.69			−0.40	−33.10
110	175	0.25	0.00	0.07	−0.01	0.277	0.000	−0.059	−0.009	−3.69	−0.08	1390.92	−29.29			0.05	−29.63
111	176	0.24	0.00	0.07	−0.01	0.266	0.000	−0.061	−0.008	−3.53	−0.11	1394.29	−24.59			0.02	−24.90
112	177	0.24	0.00	0.08	−0.03	0.266	0.000	−0.075	0.009	−3.41	0.28	1398.69	−20.92			0.51	−21.09
113	178	0.23	0.00	0.08	−0.03	0.254	0.000	−0.077	0.010	−3.38	0.18	1401.84	−16.00			0.42	−16.13
114	179	0.21	0.00	0.07	−0.03	0.231	0.000	−0.069	0.014	−2.56	0.47	1406.05	−12.14			0.69	−12.24
115	180	0.20	0.00	0.08	−0.03	0.220	0.000	−0.082	0.012	−2.95	0.20	1409.11	−7.12			0.47	−7.13
116	181	0.19	0.00	0.08	−0.03	0.209	0.000	−0.084	0.013	−2.59	0.43	1413.08	−3.03			0.73	−2.96
117	182	0.18	0.00	0.07	−0.03	0.197	0.000	−0.073	0.016	−2.48	0.14	1415.89	2.23			0.40	2.31
118	183	0.15	0.00	0.06	−0.02	0.163	0.000	−0.064	0.010	−1.80	0.40	1419.57	6.63			0.58	6.69
119	184	−0.18	0.00	0.03	−0.01	−0.187	0.000	−0.021	0.014	−1.82	0.09	1422.14	12.13			0.15	12.13
120	185	−0.17	0.00	0.02	−0.01	−0.177	0.000	−0.011	0.012	−1.98	−0.15	1426.05	16.29			−0.10	16.34
121	186	−0.15	0.00	0.02	−0.01	−0.156	0.000	−0.014	0.012	−2.27	−0.67	1428.58	21.83			−0.63	21.95
122	187	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−2.09	−0.98	1432.30	26.18			−0.97	26.34
123	188	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−2.89	−2.07	1435.16	31.40			−2.05	31.65
124	189	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−3.47	−2.63	1438.88	35.75			−2.59	36.10
125	190	0.01	0.01	0.01	0.00	0.011	−0.013	−0.012	0.000	−4.40	−3.44	1441.22	41.48			−3.43	41.89
126	191	0.00	0.01	0.00	0.01	0.000	−0.013	0.000	−0.010	−4.95	−3.94	1444.64	46.13			−3.92	46.64
127	192	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−4.04	−3.13	1445.12	53.72			−3.12	54.31
128	193	0.01	0.02	0.00	0.00	0.011	−0.027	0.000	0.000	−2.95	−2.02	1446.70	60.21			−2.01	60.91
129	194	0.03	0.05	−0.01	0.01	0.033	−0.067	0.013	−0.008	−2.49	−1.25	1447.00	67.98			−1.18	68.85
130	195	0.07	0.08	−0.03	0.00	0.077	−0.111	0.041	0.008	−2.63	−0.43	1448.64	74.41			−0.25	75.51
131	196	0.07	0.10	−0.03	0.01	0.078	−0.137	0.042	0.000	−2.96	−0.17	1449.24	81.89			0.06	83.15
132	197	0.08	0.10	−0.03	0.01	0.089	−0.138	0.043	0.001	−2.25	0.53	1450.77	88.42			0.78	89.82

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 65 (Tb)																	
133	198	0.11	0.08	−0.04	0.00	0.120	−0.111	0.056	0.011	−1.81	0.75	1451.20	96.07			0.97	97.57
134	199	0.13	0.08	−0.05	0.01	0.142	−0.111	0.071	0.004	−1.55	1.32	1452.65	102.69			1.61	104.39
135	200	0.16	0.00	−0.07	−0.01	0.174	0.000	0.098	0.027	−1.72	1.09	1453.31	110.10			1.52	112.07
136	201	0.17	0.00	−0.07	−0.01	0.185	0.000	0.100	0.029	−1.79	1.16	1455.06	116.42			1.61	118.56
137	202	0.18	0.00	−0.07	0.00	0.195	0.000	0.101	0.019	−2.17	0.92	1455.53	124.02			1.29	126.22
138	203	0.19	0.00	−0.06	0.00	0.206	0.000	0.090	0.017	−1.87	0.97	1457.09	130.53			1.26	132.80
139	204	0.20	0.00	−0.06	0.01	0.216	0.000	0.093	0.008	−2.36	0.60	1457.50	138.19			0.85	140.59
140	205	0.22	0.00	−0.05	0.01	0.238	0.000	0.084	0.007	−2.45	0.46	1459.05	144.72			0.65	147.21
141	206	0.22	0.00	−0.05	0.02	0.237	0.000	0.084	−0.003	−2.98	−0.07	1459.43	152.41			0.14	155.08
142	207	0.22	0.00	−0.04	0.02	0.237	0.000	0.072	−0.007	−2.84	−0.14	1460.72	159.19			0.02	161.99
143	208	0.23	0.00	−0.04	0.03	0.248	0.000	0.075	−0.016	−3.63	−0.76	1461.00	166.98			−0.52	170.03
144	209	0.23	0.00	−0.04	0.03	0.248	0.000	0.075	−0.016	−3.69	−0.84	1462.11	173.94			−0.58	177.20
145	210	0.24	0.00	−0.03	0.04	0.260	0.000	0.066	−0.028	−4.34	−1.53	1462.29	181.84			−1.16	185.39
146	211	0.24	0.00	−0.02	0.04	0.260	0.000	0.053	−0.031	−4.24	−1.52	1463.13	189.07			−1.15	192.82
147	212	0.24	0.00	−0.02	0.04	0.260	0.000	0.053	−0.031	−4.74	−2.05	1462.97	197.30			−1.69	201.24
148	213	0.24	0.00	−0.01	0.04	0.261	0.000	0.041	−0.034	−4.60	−2.05	1463.63	204.71			−1.67	208.87
149	214	0.24	0.00	−0.01	0.04	0.261	0.000	0.041	−0.034	−4.99	−2.43	1463.16	213.25			−2.06	217.62
150	215	0.24	0.00	0.00	0.04	0.262	0.000	0.029	−0.037	−4.80	−2.36	1463.57	220.91			−1.95	225.52
151	216	0.25	0.00	0.01	0.04	0.273	0.000	0.020	−0.040	−5.27	−2.72	1462.91	229.64			−2.30	234.49
152	217	0.25	0.00	0.02	0.03	0.274	0.000	0.006	−0.033	−4.89	−2.37	1462.89	237.74			−2.13	242.63
153	218	0.25	0.00	0.03	0.03	0.275	0.000	−0.005	−0.036	−5.18	−2.63	1461.96	246.74			−2.34	251.92
Z = 66 (Dy)																	
67	133	0.29	0.00	0.05	0.00	0.321	0.000	−0.024	−0.013	−3.10	0.23	1031.14	−9.29			0.12	−8.83
68	134	0.29	0.00	0.06	−0.01	0.322	0.000	−0.037	−0.007	−3.33	0.16	1046.17	−16.25			0.08	−15.81
69	135	0.29	0.00	0.07	−0.01	0.323	0.000	−0.049	−0.011	−3.76	0.03	1058.60	−20.61			−0.06	−20.23
70	136	0.28	0.00	0.07	−0.01	0.311	0.000	−0.052	−0.010	−3.61	0.09	1072.87	−26.81			0.03	−26.45
71	137	0.27	0.00	0.07	−0.01	0.300	0.000	−0.054	−0.010	−3.28	0.29	1084.37	−30.23			0.23	−29.93
72	138	0.27	0.00	0.07	−0.02	0.299	0.000	−0.056	0.000	−2.87	0.62	1097.77	−35.56			0.58	−35.28
73	139	0.25	0.00	0.06	−0.01	0.276	0.000	−0.047	−0.006	−2.24	0.78	1108.74	−38.47			0.74	−38.24
74	140	0.23	0.00	0.05	−0.01	0.253	0.000	−0.039	−0.002	−1.52	1.03	1121.64	−43.29			1.01	−43.09
75	141	0.22	0.00	0.05	−0.01	0.241	0.000	−0.041	−0.002	−1.49	1.04	1132.22	−45.80			1.01	−45.65
76	142	0.21	0.00	0.05	−0.02	0.230	0.000	−0.044	0.009	−1.30	1.19	1144.66	−50.16			1.18	−50.04
77	143	0.19	0.00	0.05	−0.01	0.208	0.000	−0.046	−0.000	−1.18	1.07	1154.82	−52.26			1.06	−52.19
78	144	−0.17	0.00	0.04	0.01	−0.176	0.000	−0.034	−0.002	−0.65	1.12	1166.82	−56.18	−56.58	0.031	1.12	−56.15
79	145	−0.17	0.00	0.04	0.01	−0.176	0.000	−0.034	−0.002	−1.33	0.41	1177.07	−58.37	−58.29	0.046	0.41	−58.38
80	146	−0.15	0.00	0.03	0.01	−0.156	0.000	−0.026	−0.005	−1.65	−0.02	1189.04	−62.26	−62.55	0.027	−0.02	−62.31
81	147	−0.07	0.00	0.01	0.00	−0.073	0.000	−0.010	0.001	−1.79	−1.05	1199.12	−64.27	−64.19	0.020	−1.06	−64.37
82	148	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−2.89	−2.02	1211.12	−68.20	−67.86	0.011	−2.02	−68.33
83	149	−0.04	0.00	−0.01	0.00	−0.042	0.000	0.012	−0.001	−1.97	−1.19	1218.87	−67.88	−67.71	0.009	−1.19	−68.05
84	150	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.76	−0.21	1228.43	−69.37	−69.32	0.005	−0.22	−69.58
85	151	0.11	0.00	−0.03	−0.01	0.118	0.000	0.041	0.015	−0.55	0.90	1235.43	−68.30	−68.76	0.004	0.92	−68.54
86	152	0.16	0.00	−0.02	0.00	0.172	0.000	0.035	0.005	−0.38	1.42	1244.99	−69.79	−70.12	0.005	1.44	−70.06
87	153	0.17	0.00	−0.02	0.00	0.183	0.000	0.037	0.005	−0.40	1.45	1252.65	−69.37	−69.15	0.005	1.46	−69.68
88	154	0.19	0.00	−0.02	0.01	0.205	0.000	0.041	−0.004	−0.45	1.69	1262.03	−70.68	−70.40	0.008	1.72	−71.01
89	155	0.21	0.00	−0.02	0.01	0.227	0.000	0.044	−0.003	−0.80	1.67	1269.30	−69.89	−69.16	0.012	1.69	−70.25
90	156	0.22	0.00	−0.02	0.01	0.238	0.000	0.046	−0.002	−0.99	1.66	1278.50	−71.01	−70.53	0.007	1.70	−71.39
91	157	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−1.60	1.49	1285.52	−69.96	−69.43	0.007	1.52	−70.36
92	158	0.24	0.00	−0.03	0.01	0.260	0.000	0.063	0.002	−1.92	1.33	1294.44	−70.81	−70.41	0.003	1.39	−71.22
93	159	0.24	0.00	−0.03	0.01	0.260	0.000	0.063	0.002	−2.21	1.09	1301.13	−69.42	−69.17	0.003	1.14	−69.87
94	160	0.25	0.00	−0.02	0.01	0.272	0.000	0.053	−0.001	−2.30	0.99	1309.59	−69.81	−69.68	0.003	1.04	−70.28
95	161	0.25	0.00	−0.02	0.02	0.271	0.000	0.054	−0.010	−2.68	0.67	1315.97	−68.13	−68.06	0.003	0.72	−68.61
96	162	0.26	0.00	−0.01	0.02	0.283	0.000	0.044	−0.013	−2.88	0.53	1324.08	−68.16	−68.19	0.003	0.60	−68.65
97	163	0.26	0.00	−0.01	0.02	0.283	0.000	0.044	−0.013	−3.24	0.16	1330.14	−66.15	−66.39	0.003	0.21	−66.67
98	164	0.27	0.00	0.01	0.02	0.296	0.000	0.022	−0.019	−3.47	−0.00	1337.89	−65.83	−65.97	0.003	0.07	−66.34
99	165	0.27	0.00	0.01	0.03	0.296	0.000	0.023	−0.029	−4.03	−0.40	1343.61	−63.48	−63.62	0.003	−0.30	−63.98
100	166	0.27	0.00	0.02	0.03	0.297	0.000	0.011	−0.032	−4.11	−0.46	1350.90	−62.69	−62.59	0.003	−0.34	−63.17
101	167	0.27	0.00	0.02	0.03	0.297	0.000	0.011	−0.032	−4.49	−0.79	1356.21	−59.93	−59.94	0.060	−0.68	−60.43

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 66 (Dy)																	
102	168	0.27	0.00	0.03	0.03	0.298	0.000	−0.001	−0.036	−4.55	−0.79	1363.07	−58.72	−58.56	0.140	−0.64	−59.19
103	169	0.27	0.00	0.03	0.03	0.298	0.000	−0.001	−0.036	−4.83	−1.06	1367.98	−55.56	−55.60	0.301	−0.92	−56.04
104	170	0.27	0.00	0.04	0.02	0.298	0.000	−0.014	−0.029	−4.59	−0.90	1374.34	−53.86			−0.78	−54.34
105	171	0.27	0.00	0.05	0.01	0.299	0.000	−0.027	−0.023	−4.80	−1.00	1378.76	−50.20			−0.91	−50.71
106	172	0.26	0.00	0.05	0.01	0.287	0.000	−0.030	−0.022	−4.45	−0.87	1384.81	−48.18			−0.76	−48.66
107	173	0.26	0.00	0.06	0.00	0.288	0.000	−0.043	−0.016	−4.76	−1.06	1389.01	−44.31			−0.96	−44.79
108	174	0.25	0.00	0.06	0.00	0.277	0.000	−0.045	−0.015	−4.32	−0.82	1394.64	−41.86			−0.71	−42.31
109	175	0.25	0.00	0.07	−0.01	0.277	0.000	−0.059	−0.009	−4.57	−0.90	1398.41	−37.56			−0.77	−37.98
110	176	0.25	0.00	0.07	−0.01	0.277	0.000	−0.059	−0.009	−4.12	−0.50	1403.56	−34.64			−0.36	−35.02
111	177	0.24	0.00	0.08	−0.02	0.266	0.000	−0.074	−0.001	−4.29	−0.55	1407.00	−30.01			−0.36	−30.32
112	178	0.24	0.00	0.08	−0.03	0.266	0.000	−0.075	0.009	−3.88	−0.12	1411.81	−26.75			0.13	−26.98
113	179	0.23	0.00	0.09	−0.03	0.255	0.000	−0.089	0.007	−4.20	−0.27	1415.07	−21.94			0.02	−22.09
114	180	0.22	0.00	0.09	−0.04	0.243	0.000	−0.092	0.018	−3.81	0.03	1419.73	−18.53			0.41	−18.54
115	181	0.20	0.00	0.08	−0.03	0.220	0.000	−0.082	0.012	−3.33	−0.08	1422.68	−13.40			0.19	−13.48
116	182	0.20	0.00	0.08	−0.04	0.220	0.000	−0.083	0.022	−3.18	0.03	1427.23	−9.89			0.39	−9.83
117	183	0.18	0.00	0.07	−0.03	0.197	0.000	−0.073	0.016	−2.82	−0.14	1429.95	−4.54			0.12	−4.55
118	184	0.15	0.00	0.06	−0.02	0.163	0.000	−0.064	0.010	−2.04	0.17	1434.03	−0.54			0.36	−0.57
119	185	−0.18	0.00	0.03	−0.01	−0.187	0.000	−0.021	0.014	−2.11	−0.18	1436.69	4.87			−0.12	4.78
120	186	−0.17	0.00	0.02	−0.01	−0.177	0.000	−0.011	0.012	−2.25	−0.40	1441.02	8.61			−0.35	8.56
121	187	−0.15	0.00	0.02	−0.01	−0.156	0.000	−0.014	0.012	−2.49	−0.89	1443.56	14.14			−0.85	14.15
122	188	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−2.26	−1.14	1447.67	18.10			−1.14	18.15
123	189	−0.09	0.00	0.02	0.01	−0.094	0.000	−0.020	−0.007	−3.10	−2.20	1450.53	23.32			−2.17	23.46
124	190	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−3.55	−2.70	1454.63	27.29			−2.66	27.51
125	191	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.43	−3.54	1457.02	32.97			−3.54	33.23
126	192	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.98	−4.00	1460.84	37.22			−4.00	37.57
127	193	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−4.05	−3.15	1461.32	44.81			−3.15	45.26
128	194	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.88	−2.05	1463.33	50.87			−2.05	51.41
129	195	0.03	0.06	−0.01	0.00	0.033	−0.082	0.014	0.003	−2.64	−1.20	1463.58	58.69			−1.13	59.40
130	196	0.05	0.08	−0.02	0.00	0.056	−0.110	0.027	0.006	−2.28	−0.29	1465.56	64.79			−0.14	65.68
131	197	0.07	0.09	−0.02	0.01	0.078	−0.123	0.029	−0.002	−2.30	0.03	1466.11	72.30			0.21	73.33
132	198	0.08	0.10	−0.02	0.01	0.089	−0.137	0.030	−0.001	−1.88	0.77	1468.03	78.46			0.99	79.64
133	199	0.11	0.08	−0.04	0.00	0.120	−0.111	0.056	0.011	−1.62	0.96	1468.50	86.05			1.19	87.36
134	200	0.11	0.08	−0.04	0.00	0.120	−0.111	0.056	0.011	−0.95	1.56	1470.34	92.29			1.80	93.74
135	201	0.15	0.00	−0.07	−0.01	0.163	0.000	0.097	0.026	−1.32	1.50	1470.86	99.84			1.92	101.59
136	202	0.17	0.00	−0.07	−0.01	0.185	0.000	0.100	0.029	−1.51	1.44	1473.14	105.63			1.89	107.55
137	203	0.18	0.00	−0.07	0.00	0.195	0.000	0.101	0.019	−1.86	1.21	1473.63	113.21			1.58	115.19
138	204	0.19	0.00	−0.06	0.00	0.206	0.000	0.090	0.017	−1.55	1.28	1475.57	119.34			1.57	121.38
139	205	0.19	0.00	−0.06	0.00	0.206	0.000	0.090	0.017	−1.93	0.91	1476.00	126.98			1.19	129.17
140	206	0.22	0.00	−0.04	0.01	0.238	0.000	0.071	0.004	−1.75	0.89	1477.83	133.23			1.02	135.41
141	207	0.22	0.00	−0.05	0.02	0.237	0.000	0.084	−0.003	−2.57	0.31	1478.27	140.85			0.53	143.28
142	208	0.22	0.00	−0.04	0.02	0.237	0.000	0.072	−0.007	−2.47	0.21	1479.99	147.21			0.38	149.74
143	209	0.23	0.00	−0.04	0.03	0.248	0.000	0.075	−0.016	−3.22	−0.37	1480.26	155.01			−0.12	157.80
144	210	0.23	0.00	−0.03	0.03	0.249	0.000	0.062	−0.019	−3.09	−0.40	1481.71	161.63			−0.18	164.57
145	211	0.24	0.00	−0.02	0.03	0.260	0.000	0.052	−0.021	−3.62	−0.88	1481.69	169.73			−0.69	172.81
146	212	0.24	0.00	−0.02	0.04	0.260	0.000	0.053	−0.031	−3.85	−1.15	1483.19	176.29			−0.77	179.75
147	213	0.24	0.00	−0.02	0.04	0.260	0.000	0.053	−0.031	−4.36	−1.68	1483.04	184.51			−1.31	188.15
148	214	0.24	0.00	−0.01	0.04	0.261	0.000	0.041	−0.034	−4.25	−1.70	1484.12	191.51			−1.31	195.36
149	215	0.24	0.00	0.00	0.04	0.262	0.000	0.029	−0.037	−4.64	−2.14	1483.70	200.00			−1.74	204.05
150	216	0.24	0.00	0.01	0.03	0.262	0.000	0.016	−0.030	−4.36	−1.91	1484.35	207.42			−1.68	211.51
151	217	0.25	0.00	0.02	0.03	0.274	0.000	0.006	−0.033	−4.91	−2.32	1483.75	216.09			−2.08	220.41
152	218	0.25	0.00	0.03	0.03	0.275	0.000	−0.005	−0.036	−4.81	−2.23	1484.36	223.55			−1.92	228.16
153	219	0.25	0.00	0.03	0.03	0.275	0.000	−0.005	−0.036	−5.05	−2.49	1483.44	232.54			−2.18	237.36
154	220	0.25	0.00	0.04	0.03	0.276	0.000	−0.017	−0.039	−4.91	−2.36	1483.84	240.21			−1.96	245.35
155	221	0.24	0.00	0.04	0.03	0.265	0.000	−0.020	−0.038	−4.99	−2.58	1482.72	249.41			−2.18	254.77
Z = 67 (Ho)																	
69	136	0.28	0.00	0.07	−0.01	0.311	0.000	−0.052	−0.010	−4.27	−0.58	1056.41	−11.12			−0.70	−10.67
70	137	0.28	0.00	0.08	−0.02	0.312	0.000	−0.065	−0.004	−4.51	−0.57	1070.82	−17.47			−0.66	−17.04

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 67 (Ho)																	
71	138	0.27	0.00	0.07	−0.01	0.300	0.000	−0.054	−0.010	−3.94	−0.35	1082.89	−21.47			−0.44	−21.10
72	139	0.27	0.00	0.07	−0.01	0.300	0.000	−0.054	−0.010	−3.53	0.00	1096.36	−26.87			−0.07	−26.52
73	140	0.26	0.00	0.08	−0.02	0.289	0.000	−0.070	−0.002	−3.43	0.21	1107.87	−30.30			0.13	−30.02
74	141	0.24	0.00	0.07	−0.02	0.265	0.000	−0.062	0.002	−2.58	0.44	1120.88	−35.24			0.40	−34.97
75	142	0.22	0.00	0.06	−0.01	0.242	0.000	−0.053	−0.004	−2.19	0.48	1131.99	−38.28			0.44	−38.07
76	143	0.21	0.00	0.06	−0.02	0.230	0.000	−0.056	0.006	−1.91	0.74	1144.41	−42.63			0.71	−42.44
77	144	0.20	0.00	0.05	−0.01	0.219	0.000	−0.044	−0.001	−1.58	0.81	1154.96	−45.11			0.78	−44.98
78	145	−0.18	0.00	0.04	0.01	−0.187	0.000	−0.033	−0.002	−0.98	0.87	1167.04	−49.12			0.85	−49.02
79	146	−0.17	0.00	0.04	0.01	−0.176	0.000	−0.034	−0.002	−1.56	0.20	1177.81	−51.82			0.18	−51.77
80	147	−0.16	0.00	0.03	0.01	−0.166	0.000	−0.024	−0.004	−1.90	−0.19	1189.82	−55.75	−55.84	0.028	−0.20	−55.74
81	148	−0.08	0.00	0.00	0.00	−0.084	0.000	0.002	−0.000	−1.78	−1.01	1200.24	−58.10	−58.01	0.129	−1.01	−58.13
82	149	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−2.62	−1.83	1212.18	−61.97	−61.69	0.018	−1.83	−62.04
83	150	−0.06	0.00	−0.01	0.00	−0.063	0.000	0.013	−0.001	−1.88	−1.11	1220.58	−62.31	−61.95	0.014	−1.12	−62.42
84	151	−0.07	0.00	−0.01	0.00	−0.073	0.000	0.014	−0.001	−0.84	−0.09	1230.19	−63.84	−63.63	0.012	−0.10	−63.99
85	152	0.13	0.00	−0.03	−0.01	0.140	0.000	0.043	0.016	−0.83	0.89	1237.87	−63.45	−63.61	0.014	0.90	−63.63
86	153	0.15	0.00	−0.03	0.00	0.161	0.000	0.046	0.007	−0.52	1.37	1247.55	−65.05	−65.02	0.006	1.38	−65.28
87	154	0.18	0.00	−0.01	0.01	0.194	0.000	0.027	−0.007	−0.45	1.35	1255.78	−65.21	−64.64	0.008	1.35	−65.49
88	155	0.20	0.00	−0.01	0.01	0.216	0.000	0.030	−0.006	−0.56	1.59	1265.24	−66.61	−66.04	0.018	1.59	−66.91
89	156	0.21	0.00	−0.01	0.01	0.227	0.000	0.032	−0.006	−0.74	1.59	1273.02	−66.31	−65.36	0.045	1.59	−66.65
90	157	0.22	0.00	−0.01	0.01	0.238	0.000	0.034	−0.005	−0.90	1.59	1282.28	−67.50	−66.83	0.024	1.60	−67.87
91	158	0.23	0.00	−0.02	0.01	0.249	0.000	0.048	−0.002	−1.39	1.48	1289.76	−66.91	−66.19	0.027	1.49	−67.31
92	159	0.24	0.00	−0.02	0.01	0.261	0.000	0.051	−0.001	−1.67	1.39	1298.68	−67.76	−67.34	0.004	1.42	−68.17
93	160	0.24	0.00	−0.02	0.01	0.261	0.000	0.051	−0.001	−1.96	1.11	1305.93	−66.93	−66.39	0.015	1.13	−67.38
94	161	0.25	0.00	−0.01	0.01	0.272	0.000	0.041	−0.004	−2.12	1.00	1314.48	−67.41	−67.20	0.003	1.02	−67.88
95	162	0.25	0.00	−0.01	0.01	0.272	0.000	0.041	−0.004	−2.48	0.68	1321.36	−66.22	−66.05	0.004	0.69	−66.72
96	163	0.26	0.00	0.00	0.02	0.284	0.000	0.032	−0.016	−2.82	0.48	1329.59	−66.39	−66.38	0.003	0.52	−66.88
97	164	0.26	0.00	0.01	0.02	0.284	0.000	0.020	−0.020	−3.17	0.14	1336.13	−64.85	−64.99	0.003	0.17	−65.37
98	165	0.26	0.00	0.01	0.02	0.284	0.000	0.020	−0.020	−3.41	−0.13	1344.06	−64.71	−64.90	0.003	−0.09	−65.23
99	166	0.27	0.00	0.02	0.02	0.296	0.000	0.010	−0.023	−4.02	−0.50	1350.25	−62.83	−63.08	0.003	−0.46	−63.37
100	167	0.27	0.00	0.02	0.03	0.297	0.000	0.011	−0.032	−4.28	−0.63	1357.67	−62.17	−62.29	0.006	−0.54	−62.67
101	168	0.27	0.00	0.03	0.03	0.298	0.000	−0.001	−0.036	−4.77	−0.98	1363.48	−59.92	−60.07	0.030	−0.88	−60.43
102	169	0.27	0.00	0.04	0.03	0.299	0.000	−0.013	−0.039	−4.92	−1.04	1370.47	−58.83	−58.80	0.020	−0.90	−59.31
103	170	0.27	0.00	0.04	0.02	0.298	0.000	−0.014	−0.029	−5.06	−1.30	1375.86	−56.16	−56.24	0.050	−1.23	−56.70
104	171	0.27	0.00	0.05	0.02	0.299	0.000	−0.026	−0.032	−5.09	−1.22	1382.36	−54.58	−54.53	0.600	−1.11	−55.08
105	172	0.26	0.00	0.05	0.01	0.287	0.000	−0.030	−0.022	−5.04	−1.46	1387.39	−51.54			−1.39	−52.09
106	173	0.26	0.00	0.06	0.01	0.289	0.000	−0.042	−0.025	−5.11	−1.29	1393.47	−49.55			−1.18	−50.05
107	174	0.26	0.00	0.06	0.00	0.288	0.000	−0.043	−0.016	−5.25	−1.51	1398.16	−46.17			−1.43	−46.70
108	175	0.25	0.00	0.07	0.00	0.278	0.000	−0.057	−0.018	−5.11	−1.33	1403.91	−43.84			−1.21	−44.31
109	176	0.25	0.00	0.07	−0.01	0.277	0.000	−0.059	−0.009	−5.08	−1.35	1408.09	−39.96			−1.25	−40.43
110	177	0.25	0.00	0.08	−0.01	0.278	0.000	−0.071	−0.011	−4.96	−1.02	1413.36	−37.15			−0.86	−37.55
111	178	0.24	0.00	0.08	−0.02	0.266	0.000	−0.074	−0.001	−4.83	−1.03	1417.24	−32.96			−0.87	−33.34
112	179	0.24	0.00	0.09	−0.03	0.267	0.000	−0.087	0.006	−4.78	−0.65	1422.14	−29.79			−0.39	−30.05
113	180	0.23	0.00	0.09	−0.03	0.255	0.000	−0.089	0.007	−4.74	−0.74	1425.81	−25.39			−0.49	−25.62
114	181	0.22	0.00	0.09	−0.04	0.243	0.000	−0.092	0.018	−4.32	−0.46	1430.53	−22.04			−0.12	−22.15
115	182	0.21	0.00	0.09	−0.04	0.232	0.000	−0.094	0.019	−4.35	−0.56	1433.92	−17.35			−0.22	−17.43
116	183	0.20	0.00	0.08	−0.04	0.220	0.000	−0.083	0.022	−3.61	−0.33	1438.39	−13.76			0.00	−13.81
117	184	0.18	0.00	0.07	−0.03	0.197	0.000	−0.073	0.016	−3.18	−0.45	1441.52	−8.82			−0.22	−8.93
118	185	0.15	0.00	0.06	−0.02	0.163	0.000	−0.064	0.010	−2.33	−0.08	1445.58	−4.80			0.09	−4.93
119	186	−0.19	0.00	0.04	−0.01	−0.197	0.000	−0.030	0.017	−2.65	−0.45	1448.70	0.15			−0.37	−0.01
120	187	−0.18	0.00	0.03	−0.01	−0.187	0.000	−0.021	0.014	−2.74	−0.68	1453.08	3.84			−0.61	3.71
121	188	−0.15	0.00	0.02	−0.01	−0.156	0.000	−0.014	0.012	−2.72	−1.10	1455.99	9.00			−1.06	8.90
122	189	−0.13	0.00	0.02	0.00	−0.136	0.000	−0.016	0.003	−2.57	−1.29	1460.07	12.99			−1.27	12.94
123	190	−0.09	0.00	0.02	0.00	−0.094	0.000	−0.020	0.002	−3.23	−2.36	1463.37	17.76			−2.34	17.77
124	191	−0.07	0.00	0.02	0.01	−0.073	0.000	−0.021	−0.008	−3.69	−2.82	1467.48	21.72			−2.79	21.82
125	192	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.44	−3.55	1470.20	27.08			−3.56	27.22
126	193	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.95	−3.99	1474.02	31.32			−3.99	31.54
127	194	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−4.02	−3.16	1474.95	38.47			−3.16	38.78

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 67 (Ho)																	
128	195	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−2.86	−2.06	1476.99	44.49			−2.06	44.89
129	196	0.04	0.05	−0.01	0.00	0.043	−0.068	0.014	0.002	−2.38	−1.12	1477.58	51.98			−1.08	52.51
130	197	0.07	0.06	−0.02	0.00	0.076	−0.082	0.027	0.004	−1.72	−0.17	1479.54	58.10			−0.08	58.77
131	198	0.07	0.09	−0.02	0.01	0.078	−0.123	0.029	−0.002	−2.13	0.21	1480.46	65.24			0.37	66.09
132	199	0.11	0.05	−0.04	−0.01	0.119	−0.070	0.055	0.019	−1.09	0.83	1482.52	71.26			1.02	72.24
133	200	0.11	0.07	−0.04	0.00	0.120	−0.097	0.056	0.010	−1.30	1.03	1483.40	78.45			1.22	79.53
134	201	0.13	0.05	−0.05	0.00	0.141	−0.069	0.069	0.011	−0.67	1.62	1485.27	84.65			1.84	85.88
135	202	0.15	0.00	−0.07	−0.01	0.163	0.000	0.097	0.026	−1.39	1.50	1486.26	91.73			1.89	93.25
136	203	0.17	0.00	−0.06	−0.01	0.184	0.000	0.087	0.026	−1.11	1.54	1488.47	97.59			1.86	99.17
137	204	0.17	0.00	−0.07	0.00	0.184	0.000	0.100	0.018	−1.73	1.22	1489.44	104.69			1.56	106.42
138	205	0.18	0.00	−0.06	0.00	0.194	0.000	0.089	0.016	−1.39	1.36	1491.34	110.86			1.63	112.66
139	206	0.19	0.00	−0.06	0.01	0.205	0.000	0.091	0.007	−1.86	0.94	1492.22	118.06			1.18	119.96
140	207	0.20	0.00	−0.05	0.01	0.216	0.000	0.080	0.005	−1.69	0.98	1494.01	124.33			1.16	126.32
141	208	0.22	0.00	−0.04	0.02	0.237	0.000	0.072	−0.007	−2.20	0.47	1494.79	131.63			0.61	133.73
142	209	0.22	0.00	−0.04	0.02	0.237	0.000	0.072	−0.007	−2.38	0.32	1496.57	137.92			0.48	140.19
143	210	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−2.97	−0.23	1497.19	145.37			0.01	147.88
144	211	0.23	0.00	−0.03	0.03	0.249	0.000	0.062	−0.019	−2.98	−0.28	1498.68	151.95			−0.07	154.60
145	212	0.24	0.00	−0.02	0.03	0.260	0.000	0.052	−0.021	−3.52	−0.75	1499.04	159.66			−0.58	162.44
146	213	0.24	0.00	−0.01	0.03	0.261	0.000	0.040	−0.024	−3.49	−0.85	1500.39	166.38			−0.68	169.34
147	214	0.24	0.00	−0.01	0.03	0.261	0.000	0.040	−0.024	−4.03	−1.39	1500.64	174.20			−1.23	177.33
148	215	0.24	0.00	0.00	0.03	0.261	0.000	0.028	−0.027	−4.00	−1.46	1501.78	181.14			−1.28	184.48
149	216	0.24	0.00	0.00	0.03	0.261	0.000	0.028	−0.027	−4.47	−1.91	1501.76	189.23			−1.74	192.75
150	217	0.24	0.00	0.01	0.03	0.262	0.000	0.016	−0.030	−4.43	−1.95	1502.68	196.38			−1.74	200.12
151	218	0.24	0.00	0.02	0.03	0.263	0.000	0.004	−0.033	−4.90	−2.40	1502.50	204.63			−2.17	208.61
152	219	0.25	0.00	0.03	0.03	0.275	0.000	−0.005	−0.036	−4.98	−2.35	1503.16	212.04			−2.06	216.28
153	220	0.25	0.00	0.04	0.03	0.276	0.000	−0.017	−0.039	−5.36	−2.68	1502.69	220.59			−2.33	225.10
154	221	0.24	0.00	0.04	0.03	0.265	0.000	−0.020	−0.038	−5.01	−2.52	1503.06	228.28			−2.14	233.04
155	222	0.24	0.00	0.05	0.02	0.265	0.000	−0.033	−0.031	−5.21	−2.61	1502.18	237.23			−2.35	242.09
156	223	0.24	0.00	0.05	0.02	0.265	0.000	−0.033	−0.031	−4.99	−2.44	1502.39	245.09			−2.17	250.19
157	224	0.24	0.00	0.06	0.02	0.266	0.000	−0.045	−0.034	−5.46	−2.79	1501.61	253.94			−2.43	259.37
Z = 68 (Er)																	
70	138	0.28	0.00	0.09	−0.02	0.313	0.000	−0.077	−0.007	−4.96	−0.83	1070.22	−9.58			−0.91	−9.03
71	139	0.28	0.00	0.09	−0.03	0.312	0.000	−0.079	0.002	−4.77	−0.62	1082.39	−13.68			−0.71	−13.19
72	140	0.27	0.00	0.09	−0.02	0.301	0.000	−0.079	−0.006	−4.25	−0.27	1096.45	−19.66			−0.32	−19.20
73	141	0.25	0.00	0.08	−0.02	0.278	0.000	−0.072	−0.002	−3.55	−0.04	1108.03	−23.17			−0.10	−22.77
74	142	0.24	0.00	0.08	−0.02	0.266	0.000	−0.074	−0.001	−3.07	0.28	1121.53	−28.60			0.24	−28.22
75	143	0.23	0.00	0.07	−0.02	0.254	0.000	−0.064	0.002	−2.73	0.22	1132.83	−31.83			0.17	−31.52
76	144	0.21	0.00	0.07	−0.02	0.231	0.000	−0.068	0.004	−2.36	0.36	1145.94	−36.87			0.34	−36.58
77	145	0.20	0.00	0.06	−0.02	0.219	0.000	−0.057	0.007	−1.93	0.51	1156.50	−39.36			0.48	−39.13
78	146	−0.18	0.00	0.03	0.01	−0.187	0.000	−0.022	−0.004	−1.24	0.42	1169.29	−44.08			0.40	−43.89
79	147	−0.18	0.00	0.04	0.01	−0.187	0.000	−0.033	−0.002	−1.98	−0.23	1180.13	−46.85			−0.25	−46.72
80	148	−0.14	0.00	0.03	0.00	−0.146	0.000	−0.026	0.004	−2.08	−0.60	1192.67	−51.32			−0.61	−51.22
81	149	−0.09	0.00	0.01	0.00	−0.094	0.000	−0.008	0.001	−2.16	−1.31	1203.07	−53.64	−53.74	0.028	−1.32	−53.60
82	150	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−2.92	−2.11	1215.53	−58.03	−57.83	0.017	−2.11	−58.03
83	151	−0.06	0.00	−0.01	0.00	−0.063	0.000	0.013	−0.001	−2.17	−1.41	1224.04	−58.47	−58.27	0.016	−1.41	−58.51
84	152	−0.08	0.00	−0.01	0.00	−0.084	0.000	0.014	−0.001	−1.18	−0.39	1234.18	−60.54	−60.50	0.011	−0.39	−60.63
85	153	0.12	0.00	−0.03	−0.01	0.129	0.000	0.042	0.015	−0.99	0.64	1241.90	−60.19	−60.49	0.009	0.65	−60.31
86	154	0.14	0.00	−0.03	0.00	0.150	0.000	0.045	0.006	−0.57	1.20	1252.03	−62.25	−62.61	0.005	1.21	−62.41
87	155	0.16	0.00	−0.02	0.01	0.172	0.000	0.036	−0.005	−0.35	1.51	1260.01	−62.15	−62.22	0.007	1.52	−62.36
88	156	0.19	0.00	−0.01	0.01	0.205	0.000	0.028	−0.006	−0.33	1.60	1270.16	−64.23	−64.21	0.024	1.61	−64.47
89	157	0.20	0.00	−0.01	0.01	0.216	0.000	0.030	−0.006	−0.40	1.70	1277.91	−63.92	−63.42	0.028	1.70	−64.20
90	158	0.21	0.00	−0.01	0.01	0.227	0.000	0.032	−0.006	−0.49	1.82	1287.58	−65.52	−65.30	0.025	1.83	−65.83
91	159	0.22	0.00	−0.01	0.01	0.238	0.000	0.034	−0.005	−0.75	1.74	1295.10	−64.96	−64.57	0.004	1.75	−65.31
92	160	0.23	0.00	−0.01	0.01	0.250	0.000	0.036	−0.005	−0.99	1.68	1304.52	−66.31	−66.06	0.024	1.71	−66.68
93	161	0.24	0.00	−0.01	0.01	0.261	0.000	0.038	−0.004	−1.43	1.43	1311.80	−65.51	−65.21	0.009	1.45	−65.92
94	162	0.25	0.00	0.00	0.01	0.273	0.000	0.028	−0.007	−1.65	1.30	1320.88	−66.52	−66.34	0.003	1.33	−66.95
95	163	0.25	0.00	0.00	0.01	0.273	0.000	0.028	−0.007	−2.03	0.97	1327.84	−65.42	−65.17	0.005	0.99	−65.88

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 68 (Er)																	
96	164	0.26	0.00	0.01	0.01	0.284	0.000	0.018	−0.010	−2.36	0.77	1336.59	−66.09	−65.95	0.003	0.80	−66.56
97	165	0.26	0.00	0.01	0.01	0.284	0.000	0.018	−0.010	−2.77	0.44	1343.18	−64.61	−64.53	0.003	0.46	−65.12
98	166	0.26	0.00	0.02	0.02	0.285	0.000	0.007	−0.023	−3.14	0.09	1351.68	−65.04	−64.93	0.003	0.15	−65.53
99	167	0.27	0.00	0.03	0.02	0.297	0.000	−0.002	−0.026	−3.82	−0.29	1357.95	−63.24	−63.30	0.003	−0.23	−63.75
100	168	0.27	0.00	0.03	0.02	0.297	0.000	−0.002	−0.026	−3.99	−0.42	1365.87	−63.08	−63.00	0.003	−0.35	−63.59
101	169	0.27	0.00	0.04	0.02	0.298	0.000	−0.014	−0.029	−4.54	−0.82	1371.80	−60.94	−60.93	0.003	−0.75	−61.46
102	170	0.27	0.00	0.04	0.02	0.298	0.000	−0.014	−0.029	−4.61	−0.90	1379.29	−60.37	−60.12	0.003	−0.81	−60.88
103	171	0.27	0.00	0.05	0.02	0.299	0.000	−0.026	−0.032	−5.16	−1.27	1384.85	−57.85	−57.72	0.003	−1.16	−58.36
104	172	0.27	0.00	0.06	0.01	0.300	0.000	−0.039	−0.026	−5.11	−1.19	1391.84	−56.77	−56.49	0.005	−1.08	−57.28
105	173	0.26	0.00	0.06	0.01	0.289	0.000	−0.042	−0.025	−5.31	−1.46	1396.96	−53.82			−1.36	−54.34
106	174	0.26	0.00	0.06	0.00	0.288	0.000	−0.043	−0.016	−5.11	−1.39	1403.61	−52.40			−1.29	−52.93
107	175	0.26	0.00	0.07	0.00	0.289	0.000	−0.055	−0.019	−5.69	−1.73	1408.48	−49.20			−1.62	−49.71
108	176	0.25	0.00	0.07	0.00	0.278	0.000	−0.057	−0.018	−5.34	−1.55	1414.69	−47.34			−1.42	−47.82
109	177	0.25	0.00	0.08	−0.01	0.278	0.000	−0.071	−0.011	−5.68	−1.68	1419.04	−43.61			−1.53	−44.07
110	178	0.25	0.00	0.08	−0.02	0.278	0.000	−0.072	−0.002	−5.25	−1.32	1424.75	−41.25			−1.15	−41.67
111	179	0.24	0.00	0.09	−0.02	0.267	0.000	−0.086	−0.004	−5.53	−1.41	1428.75	−37.19			−1.20	−37.55
112	180	0.24	0.00	0.09	−0.03	0.267	0.000	−0.087	0.006	−5.18	−1.03	1434.13	−34.49			−0.77	−34.78
113	181	0.23	0.00	0.09	−0.03	0.255	0.000	−0.089	0.007	−5.14	−1.12	1437.84	−30.13			−0.86	−30.41
114	182	0.22	0.00	0.09	−0.04	0.243	0.000	−0.092	0.018	−4.74	−0.85	1443.02	−27.24			−0.50	−27.41
115	183	0.21	0.00	0.09	−0.04	0.232	0.000	−0.094	0.019	−4.77	−0.95	1446.46	−22.61			−0.61	−22.74
116	184	0.20	0.00	0.09	−0.04	0.221	0.000	−0.095	0.020	−4.35	−0.73	1451.40	−19.48			−0.35	−19.54
117	185	0.18	0.00	0.08	−0.03	0.198	0.000	−0.085	0.014	−3.87	−0.82	1454.54	−14.55			−0.54	−14.68
118	186	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−3.08	−0.52	1459.13	−11.06			−0.26	−11.16
119	187	−0.19	0.00	0.04	−0.01	−0.197	0.000	−0.030	0.017	−3.04	−0.82	1462.21	−6.07			−0.73	−6.30
120	188	−0.18	0.00	0.03	−0.01	−0.187	0.000	−0.021	0.014	−3.11	−1.04	1467.04	−2.83			−0.98	−3.03
121	189	−0.15	0.00	0.02	−0.01	−0.156	0.000	−0.014	0.012	−3.07	−1.44	1469.96	2.32			−1.41	2.14
122	190	−0.13	0.00	0.02	0.00	−0.136	0.000	−0.016	0.003	−2.90	−1.62	1474.48	5.88			−1.60	5.73
123	191	−0.09	0.00	0.02	0.01	−0.094	0.000	−0.020	−0.007	−3.58	−2.69	1477.81	10.61			−2.66	10.54
124	192	−0.07	0.00	0.03	0.01	−0.073	0.000	−0.033	−0.007	−4.09	−3.12	1482.32	14.17			−3.07	14.19
125	193	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.79	−3.89	1485.11	19.45			−3.89	19.48
126	194	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.22	−4.25	1489.29	23.35			−4.25	23.45
127	195	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−4.27	−3.38	1490.21	30.50			−3.38	30.68
128	196	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.10	−2.28	1492.68	36.10			−2.28	36.36
129	197	0.03	0.04	−0.01	0.00	0.032	−0.054	0.013	0.002	−2.35	−1.26	1493.21	43.64			−1.23	44.01
130	198	0.06	0.05	−0.02	0.00	0.065	−0.069	0.027	0.003	−1.56	−0.22	1495.50	49.42			−0.15	49.92
131	199	0.07	0.08	−0.02	0.00	0.077	−0.110	0.028	0.007	−1.88	0.20	1496.41	56.58			0.34	57.25
132	200	0.11	0.04	−0.04	−0.01	0.119	−0.056	0.054	0.018	−0.90	0.86	1498.85	62.21			1.03	63.02
133	201	0.11	0.06	−0.04	0.00	0.119	−0.083	0.055	0.009	−1.02	1.09	1499.73	69.41			1.25	70.31
134	202	0.11	0.06	−0.04	0.00	0.119	−0.083	0.055	0.009	−0.37	1.69	1502.01	75.20			1.86	76.22
135	203	0.15	0.00	−0.06	−0.01	0.162	0.000	0.084	0.024	−0.86	1.68	1502.91	82.37			1.98	83.63
136	204	0.16	0.00	−0.06	−0.01	0.173	0.000	0.085	0.025	−0.80	1.68	1505.56	87.78			1.99	89.18
137	205	0.17	0.00	−0.06	−0.01	0.184	0.000	0.087	0.026	−1.25	1.43	1506.49	94.93			1.75	96.44
138	206	0.18	0.00	−0.06	0.00	0.194	0.000	0.089	0.016	−1.15	1.58	1508.79	100.70			1.85	102.30
139	207	0.19	0.00	−0.05	0.00	0.205	0.000	0.078	0.014	−1.29	1.26	1509.59	107.97			1.45	109.62
140	208	0.20	0.00	−0.05	0.01	0.216	0.000	0.080	0.005	−1.37	1.27	1511.80	113.83			1.46	115.61
141	209	0.20	0.00	−0.05	0.01	0.216	0.000	0.080	0.005	−1.80	0.81	1512.56	121.15			0.99	123.06
142	210	0.22	0.00	−0.04	0.02	0.237	0.000	0.072	−0.007	−1.99	0.68	1514.71	127.07			0.84	129.11
143	211	0.22	0.00	−0.03	0.02	0.238	0.000	0.059	−0.009	−2.30	0.25	1515.23	134.62			0.36	136.76
144	212	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−2.43	0.10	1517.21	140.71			0.33	143.12
145	213	0.23	0.00	−0.02	0.03	0.249	0.000	0.050	−0.022	−2.97	−0.38	1517.60	148.39			−0.20	150.93
146	214	0.23	0.00	−0.02	0.03	0.249	0.000	0.050	−0.022	−3.03	−0.44	1519.30	154.76			−0.25	157.48
147	215	0.24	0.00	−0.01	0.03	0.261	0.000	0.040	−0.024	−3.60	−0.95	1519.53	162.61			−0.77	165.47
148	216	0.24	0.00	0.00	0.03	0.261	0.000	0.028	−0.027	−3.61	−1.09	1521.12	169.08			−0.90	172.14
149	217	0.24	0.00	0.01	0.03	0.262	0.000	0.016	−0.030	−4.12	−1.60	1521.17	177.10			−1.39	180.36
150	218	0.24	0.00	0.02	0.03	0.263	0.000	0.004	−0.033	−4.19	−1.70	1522.54	183.81			−1.44	187.30
151	219	0.24	0.00	0.03	0.03	0.264	0.000	−0.008	−0.036	−4.72	−2.16	1522.38	192.04			−1.87	195.76
152	220	0.24	0.00	0.03	0.03	0.264	0.000	−0.008	−0.036	−4.63	−2.12	1523.42	199.07			−1.80	203.01

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 68 (Er)																	
153	221	0.24	0.00	0.04	0.03	0.265	0.000	−0.020	−0.038	−5.04	−2.48	1522.99	207.58			−2.11	211.77
154	222	0.24	0.00	0.04	0.03	0.265	0.000	−0.020	−0.038	−4.83	−2.29	1523.72	214.92			−1.91	219.34
155	223	0.24	0.00	0.05	0.02	0.265	0.000	−0.033	−0.031	−5.09	−2.46	1522.93	223.77			−2.19	228.29
156	224	0.24	0.00	0.06	0.02	0.266	0.000	−0.045	−0.034	−5.09	−2.39	1523.61	231.17			−2.02	236.02
157	225	0.24	0.00	0.06	0.01	0.266	0.000	−0.046	−0.024	−5.25	−2.55	1522.64	240.21			−2.33	245.12
158	226	0.24	0.00	0.07	0.01	0.267	0.000	−0.058	−0.027	−5.37	−2.55	1523.22	247.70			−2.21	252.96
159	227	0.23	0.00	0.07	0.00	0.255	0.000	−0.061	−0.017	−5.60	−2.84	1522.24	256.75			−2.59	262.16
Z = 69 (Tm)																	
72	141	0.27	0.00	0.10	−0.03	0.302	0.000	−0.093	0.000	−5.31	−0.97	1094.10	−10.03			−1.06	−9.49
73	142	0.25	0.00	0.09	−0.03	0.278	0.000	−0.085	0.005	−4.57	−0.69	1106.21	−14.06			−0.78	−13.58
74	143	0.24	0.00	0.08	−0.02	0.266	0.000	−0.074	−0.001	−3.74	−0.40	1119.82	−19.61			−0.46	−19.15
75	144	0.23	0.00	0.08	−0.02	0.255	0.000	−0.076	−0.000	−3.66	−0.38	1131.62	−23.34			−0.45	−22.94
76	145	0.21	0.00	0.07	−0.02	0.231	0.000	−0.068	0.004	−2.95	−0.23	1144.80	−28.44			−0.27	−28.08
77	146	0.20	0.00	0.07	−0.02	0.220	0.000	−0.069	0.005	−2.67	−0.00	1155.85	−31.42			−0.05	−31.11
78	147	−0.18	0.00	0.04	0.00	−0.187	0.000	−0.032	0.007	−1.80	−0.00	1168.64	−36.13			−0.03	−35.87
79	148	−0.17	0.00	0.04	0.00	−0.177	0.000	−0.034	0.007	−2.33	−0.52	1179.90	−39.33			−0.55	−39.11
80	149	−0.16	0.00	0.03	0.00	−0.166	0.000	−0.024	0.005	−2.67	−0.92	1192.55	−43.91			−0.94	−43.74
81	150	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−2.57	−1.40	1203.28	−46.56			−1.41	−46.44
82	151	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−3.03	−2.23	1215.84	−51.06	−50.78	0.020	−2.23	−50.97
83	152	−0.07	0.00	−0.01	0.00	−0.073	0.000	0.014	−0.001	−2.31	−1.54	1224.91	−52.05	−51.77	0.074	−1.55	−52.02
84	153	−0.10	0.00	−0.02	−0.01	−0.104	0.000	0.028	0.007	−1.57	−0.53	1235.14	−54.21	−54.01	0.018	−0.53	−54.22
85	154	0.12	0.00	−0.02	0.00	0.128	0.000	0.030	0.003	−1.03	0.41	1243.48	−54.48	−54.43	0.014	0.41	−54.55
86	155	0.14	0.00	−0.02	0.00	0.150	0.000	0.033	0.004	−0.61	1.00	1253.67	−56.60	−56.63	0.013	1.00	−56.70
87	156	0.16	0.00	−0.02	0.01	0.172	0.000	0.036	−0.005	−0.57	1.30	1262.19	−57.05	−56.84	0.016	1.29	−57.20
88	157	0.18	0.00	−0.01	0.01	0.194	0.000	0.027	−0.007	−0.40	1.37	1272.43	−59.22	−58.71	0.028	1.37	−59.41
89	158	0.19	0.00	−0.01	0.01	0.205	0.000	0.028	−0.006	−0.39	1.60	1280.58	−59.29	−58.70	0.025	1.59	−59.53
90	159	0.21	0.00	0.00	0.01	0.228	0.000	0.020	−0.008	−0.49	1.74	1290.30	−60.95	−60.57	0.028	1.74	−61.22
91	160	0.22	0.00	0.00	0.01	0.239	0.000	0.022	−0.008	−0.67	1.73	1298.27	−60.84	−60.30	0.034	1.72	−61.16
92	161	0.23	0.00	0.00	0.01	0.250	0.000	0.024	−0.008	−0.89	1.70	1307.73	−62.23	−61.90	0.028	1.70	−62.57
93	162	0.24	0.00	0.00	0.00	0.261	0.000	0.025	0.003	−1.25	1.53	1315.45	−61.88	−61.48	0.026	1.52	−62.26
94	163	0.24	0.00	0.01	0.01	0.262	0.000	0.014	−0.010	−1.41	1.35	1324.64	−62.99	−62.74	0.006	1.36	−63.40
95	164	0.25	0.00	0.01	0.01	0.273	0.000	0.016	−0.010	−1.93	1.03	1332.10	−62.39	−61.89	0.028	1.03	−62.83
96	165	0.25	0.00	0.02	0.01	0.274	0.000	0.004	−0.013	−2.20	0.81	1340.94	−63.15	−62.94	0.003	0.82	−63.61
97	166	0.26	0.00	0.02	0.01	0.285	0.000	0.006	−0.013	−2.78	0.44	1348.07	−62.21	−61.89	0.012	0.44	−62.70
98	167	0.26	0.00	0.03	0.01	0.286	0.000	−0.006	−0.016	−3.12	0.13	1356.59	−62.67	−62.55	0.003	0.15	−63.16
99	168	0.26	0.00	0.03	0.02	0.286	0.000	−0.004	−0.026	−3.70	−0.28	1363.39	−61.39	−61.32	0.003	−0.25	−61.90
100	169	0.27	0.00	0.04	0.02	0.298	0.000	−0.014	−0.029	−4.17	−0.48	1371.44	−61.36	−61.28	0.002	−0.42	−61.86
101	170	0.27	0.00	0.04	0.02	0.298	0.000	−0.014	−0.029	−4.65	−0.91	1377.88	−59.74	−59.80	0.002	−0.86	−60.27
102	171	0.27	0.00	0.05	0.02	0.299	0.000	−0.026	−0.032	−4.94	−1.05	1385.50	−59.28	−59.22	0.003	−0.96	−59.79
103	172	0.27	0.00	0.05	0.02	0.299	0.000	−0.026	−0.032	−5.32	−1.40	1391.53	−57.24	−57.38	0.006	−1.33	−57.77
104	173	0.26	0.00	0.06	0.01	0.289	0.000	−0.042	−0.025	−5.22	−1.41	1398.66	−56.30	−56.26	0.005	−1.32	−56.83
105	174	0.26	0.00	0.06	0.01	0.289	0.000	−0.042	−0.025	−5.59	−1.72	1404.30	−53.87	−53.87	0.045	−1.64	−54.42
106	175	0.26	0.00	0.07	0.00	0.289	0.000	−0.055	−0.019	−5.75	−1.75	1411.11	−52.61	−52.32	0.050	−1.66	−53.14
107	176	0.25	0.00	0.07	0.00	0.278	0.000	−0.057	−0.018	−5.95	−2.07	1416.44	−49.87	−49.37	0.100	−1.98	−50.40
108	177	0.25	0.00	0.08	−0.01	0.278	0.000	−0.071	−0.011	−6.06	−1.99	1422.80	−48.15			−1.86	−48.65
109	178	0.25	0.00	0.08	−0.01	0.278	0.000	−0.071	−0.011	−6.17	−2.11	1427.61	−44.89			−1.99	−45.39
110	179	0.25	0.00	0.09	−0.02	0.278	0.000	−0.084	−0.004	−6.14	−1.83	1433.44	−42.66			−1.64	−43.09
111	180	0.24	0.00	0.09	−0.02	0.267	0.000	−0.086	−0.004	−6.07	−1.81	1437.80	−38.95			−1.63	−39.37
112	181	0.24	0.00	0.10	−0.03	0.268	0.000	−0.099	0.003	−6.12	−1.54	1443.34	−36.42			−1.28	−36.74
113	182	0.23	0.00	0.10	−0.04	0.255	0.000	−0.102	0.014	−6.22	−1.71	1447.58	−32.59			−1.39	−32.84
114	183	0.23	0.00	0.10	−0.04	0.255	0.000	−0.102	0.014	−5.80	−1.37	1452.75	−29.68			−1.02	−29.88
115	184	0.21	0.00	0.09	−0.04	0.232	0.000	−0.094	0.019	−5.30	−1.41	1456.58	−25.44			−1.11	−25.66
116	185	0.20	0.00	0.09	−0.04	0.221	0.000	−0.095	0.020	−4.86	−1.16	1461.54	−22.33			−0.82	−22.48
117	186	0.18	0.00	0.08	−0.03	0.198	0.000	−0.085	0.014	−4.35	−1.23	1465.11	−17.82			−0.98	−18.04
118	187	0.15	0.00	0.06	−0.02	0.163	0.000	−0.064	0.010	−3.13	−0.81	1469.62	−14.27			−0.67	−14.54
119	188	−0.19	0.00	0.04	−0.01	−0.197	0.000	−0.030	0.017	−3.39	−1.16	1473.19	−9.77			−1.08	−10.08
120	189	−0.18	0.00	0.03	−0.02	−0.187	0.000	−0.020	0.024	−3.56	−1.45	1478.12	−6.63			−1.34	−6.86

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 69 (Tm)																	
121	190	−0.15	0.00	0.02	−0.01	−0.156	0.000	−0.014	0.012	−3.40	−1.76	1481.40	−1.83			−1.73	−2.10
122	191	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	−3.13	−1.96	1485.98	1.66			−1.95	1.43
123	192	−0.11	0.00	0.02	0.00	−0.115	0.000	−0.018	0.002	−3.98	−2.93	1489.65	6.06			−2.92	5.88
124	193	−0.07	0.00	0.03	0.01	−0.073	0.000	−0.033	−0.007	−4.36	−3.40	1494.23	9.55			−3.36	9.46
125	194	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.99	−4.11	1497.39	14.46			−4.11	14.39
126	195	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.48	−4.52	1501.66	18.27			−4.52	18.26
127	196	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−4.44	−3.59	1502.94	25.05			−3.60	25.12
128	197	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.28	−2.47	1505.43	30.64			−2.47	30.78
129	198	0.02	0.02	0.00	0.00	0.021	−0.027	0.000	0.000	−2.26	−1.55	1506.48	37.65			−1.55	37.88
130	199	0.06	0.05	−0.02	0.00	0.065	−0.069	0.027	0.003	−1.69	−0.34	1508.63	43.58			−0.27	43.94
131	200	0.10	0.02	−0.04	−0.01	0.108	−0.028	0.053	0.016	−1.46	0.04	1510.00	50.28			0.17	50.80
132	201	0.11	0.03	−0.04	−0.01	0.119	−0.042	0.054	0.017	−0.93	0.73	1512.44	55.91			0.87	56.54
133	202	0.11	0.05	−0.04	0.00	0.119	−0.069	0.055	0.008	−0.91	1.01	1513.68	62.74			1.14	63.46
134	203	0.13	0.02	−0.05	0.00	0.140	−0.028	0.069	0.010	−0.34	1.62	1515.97	68.52			1.78	69.37
135	204	0.14	0.00	−0.06	−0.01	0.152	0.000	0.083	0.023	−0.82	1.61	1517.28	75.28			1.88	76.34
136	205	0.16	0.00	−0.06	−0.01	0.173	0.000	0.085	0.025	−0.88	1.85	1519.72	80.91			2.14	82.10
137	206	0.17	0.00	−0.06	0.00	0.184	0.000	0.087	0.015	−1.16	1.45	1521.21	87.50			1.68	88.75
138	207	0.18	0.00	−0.05	0.00	0.194	0.000	0.076	0.014	−0.83	1.61	1523.51	93.27			1.79	94.58
139	208	0.18	0.00	−0.05	0.00	0.194	0.000	0.076	0.014	−1.18	1.29	1524.71	100.14			1.46	101.57
140	209	0.19	0.00	−0.05	0.01	0.205	0.000	0.078	0.004	−1.27	1.23	1527.03	105.90			1.40	107.45
141	210	0.20	0.00	−0.04	0.01	0.216	0.000	0.067	0.002	−1.54	0.91	1528.03	112.96			1.01	114.59
142	211	0.22	0.00	−0.03	0.02	0.238	0.000	0.059	−0.009	−1.74	0.79	1530.20	118.87			0.90	120.64
143	212	0.22	0.00	−0.03	0.02	0.238	0.000	0.059	−0.009	−2.27	0.29	1531.18	125.95			0.39	127.85
144	213	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−2.42	0.14	1533.19	132.02			0.34	134.18
145	214	0.22	0.00	−0.02	0.03	0.238	0.000	0.048	−0.022	−2.77	−0.31	1533.93	139.35			−0.14	141.63
146	215	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−2.88	−0.39	1535.66	145.69			−0.21	148.13
147	216	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−3.41	−0.88	1536.26	153.16			−0.72	155.75
148	217	0.23	0.00	0.00	0.03	0.250	0.000	0.026	−0.027	−3.44	−1.00	1537.84	159.65			−0.81	162.43
149	218	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−3.96	−1.54	1538.31	167.26			−1.34	170.22
150	219	0.24	0.00	0.02	0.03	0.263	0.000	0.004	−0.033	−4.21	−1.65	1539.71	173.93			−1.42	177.11
151	220	0.24	0.00	0.03	0.03	0.264	0.000	−0.008	−0.036	−4.80	−2.18	1539.98	181.72			−1.91	185.13
152	221	0.24	0.00	0.04	0.03	0.265	0.000	−0.020	−0.038	−4.86	−2.22	1541.12	188.65			−1.87	192.33
153	222	0.24	0.00	0.04	0.03	0.265	0.000	−0.020	−0.038	−5.16	−2.54	1541.02	196.83			−2.19	200.69
154	223	0.24	0.00	0.05	0.02	0.265	0.000	−0.033	−0.031	−5.00	−2.31	1541.71	204.21			−2.05	208.18
155	224	0.24	0.00	0.06	0.02	0.266	0.000	−0.045	−0.034	−5.48	−2.67	1541.48	212.51			−2.33	216.76
156	225	0.24	0.00	0.06	0.01	0.266	0.000	−0.046	−0.024	−5.16	−2.41	1541.98	220.09			−2.19	224.42
157	226	0.24	0.00	0.07	0.01	0.267	0.000	−0.058	−0.027	−5.76	−2.82	1541.64	228.50			−2.52	233.14
158	227	0.23	0.00	0.07	0.01	0.255	0.000	−0.060	−0.026	−5.55	−2.77	1542.18	236.03			−2.44	240.92
159	228	0.23	0.00	0.08	0.00	0.256	0.000	−0.073	−0.019	−6.23	−3.22	1541.71	244.56			−2.88	249.69
160	229	0.23	0.00	0.08	0.00	0.256	0.000	−0.073	−0.019	−6.22	−3.26	1542.18	252.17			−2.91	257.54
161	230	0.23	0.00	0.09	−0.01	0.256	0.000	−0.086	−0.012	−7.02	−3.86	1541.71	260.71			−3.43	266.40
Z = 70 (Yb)																	
73	143	0.26	0.00	0.11	−0.04	0.291	0.000	−0.109	0.008	−5.53	−0.89	1105.29	−5.86			−0.98	−5.24
74	144	0.24	0.00	0.09	−0.03	0.267	0.000	−0.087	0.006	−4.20	−0.54	1119.41	−11.90			−0.58	−11.32
75	145	0.23	0.00	0.09	−0.03	0.255	0.000	−0.089	0.007	−4.15	−0.58	1131.36	−15.78			−0.64	−15.27
76	146	0.21	0.00	0.08	−0.03	0.232	0.000	−0.081	0.011	−3.44	−0.37	1145.05	−21.40			−0.39	−20.91
77	147	0.20	0.00	0.08	−0.03	0.220	0.000	−0.082	0.012	−3.17	−0.25	1156.29	−24.57			−0.29	−24.15
78	148	−0.18	0.00	0.04	0.00	−0.187	0.000	−0.032	0.007	−2.13	−0.34	1169.73	−29.94			−0.37	−29.56
79	149	−0.16	0.00	0.04	0.00	−0.167	0.000	−0.035	0.007	−2.62	−0.95	1181.16	−33.30			−0.97	−32.98
80	150	−0.16	0.00	0.04	0.00	−0.167	0.000	−0.035	0.007	−3.19	−1.37	1194.38	−38.45			−1.38	−38.18
81	151	−0.12	0.00	0.01	0.00	−0.125	0.000	−0.006	0.001	−2.98	−1.82	1205.17	−41.16	−41.54	0.300	−1.83	−40.94
82	152	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.54	−2.75	1218.39	−46.31	−46.31	0.208	−2.76	−46.14
83	153	−0.05	0.00	−0.01	0.00	−0.052	0.000	0.013	−0.001	−2.67	−1.99	1227.45	−47.30			−1.99	−47.18
84	154	−0.10	0.00	−0.02	−0.01	−0.104	0.000	0.028	0.007	−1.98	−0.93	1238.19	−49.97	−49.93	0.017	−0.93	−49.90
85	155	0.11	0.00	−0.02	0.00	0.118	0.000	0.029	0.003	−1.29	0.06	1246.55	−50.26	−50.50	0.017	0.06	−50.24
86	156	0.13	0.00	−0.03	0.00	0.139	0.000	0.044	0.006	−0.95	0.73	1257.18	−52.82	−53.26	0.011	0.74	−52.84
87	157	0.15	0.00	−0.02	0.00	0.161	0.000	0.034	0.004	−0.62	1.11	1265.70	−53.27	−53.44	0.010	1.11	−53.34

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 70 (Yb)																	
88	158	0.17	0.00	−0.01	0.01	0.183	0.000	0.025	−0.007	−0.34	1.32	1276.33	−55.82	−56.01	0.008	1.33	−55.94
89	159	0.18	0.00	0.00	0.01	0.194	0.000	0.014	−0.009	−0.14	1.56	1284.55	−55.97	−55.84	0.018	1.55	−56.14
90	160	0.19	0.00	0.00	0.01	0.206	0.000	0.016	−0.009	−0.11	1.79	1294.70	−58.06	−58.17	0.017	1.79	−58.26
91	161	0.20	0.00	0.00	0.01	0.217	0.000	0.018	−0.009	−0.17	1.88	1302.64	−57.92	−57.84	0.016	1.88	−58.17
92	162	0.22	0.00	0.00	0.01	0.239	0.000	0.022	−0.008	−0.43	1.91	1312.56	−59.77	−59.83	0.016	1.92	−60.05
93	163	0.23	0.00	0.00	0.00	0.250	0.000	0.023	0.002	−0.73	1.79	1320.29	−59.43	−59.30	0.016	1.79	−59.75
94	164	0.24	0.00	0.01	0.00	0.262	0.000	0.013	−0.001	−0.98	1.67	1329.93	−61.00	−61.02	0.016	1.68	−61.35
95	165	0.24	0.00	0.01	0.01	0.262	0.000	0.014	−0.010	−1.34	1.39	1337.43	−60.42	−60.29	0.028	1.40	−60.81
96	166	0.25	0.00	0.02	0.01	0.274	0.000	0.004	−0.013	−1.77	1.14	1346.79	−61.72	−61.59	0.008	1.17	−62.12
97	167	0.25	0.00	0.02	0.01	0.274	0.000	0.004	−0.013	−2.19	0.78	1353.97	−60.83	−60.59	0.005	0.80	−61.27
98	168	0.26	0.00	0.03	0.01	0.286	0.000	−0.006	−0.016	−2.70	0.49	1362.99	−61.77	−61.58	0.004	0.52	−62.22
99	169	0.26	0.00	0.03	0.01	0.286	0.000	−0.006	−0.016	−3.15	0.10	1369.82	−60.54	−60.37	0.004	0.12	−61.02
100	170	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−3.46	−0.10	1378.36	−61.00	−60.77	0.002	−0.05	−61.49
101	171	0.27	0.00	0.05	0.01	0.299	0.000	−0.027	−0.023	−4.25	−0.54	1384.89	−59.46	−59.31	0.002	−0.49	−59.96
102	172	0.27	0.00	0.06	0.01	0.300	0.000	−0.039	−0.026	−4.63	−0.71	1393.02	−59.52	−59.26	0.002	−0.62	−60.00
103	173	0.27	0.00	0.06	0.01	0.300	0.000	−0.039	−0.026	−5.06	−1.12	1399.17	−57.60	−57.56	0.002	−1.05	−58.11
104	174	0.26	0.00	0.06	0.01	0.289	0.000	−0.042	−0.025	−4.96	−1.15	1406.80	−57.16	−56.95	0.002	−1.06	−57.66
105	175	0.26	0.00	0.07	0.00	0.289	0.000	−0.055	−0.019	−5.57	−1.59	1412.63	−54.91	−54.70	0.002	−1.50	−55.44
106	176	0.26	0.00	0.08	−0.01	0.289	0.000	−0.068	−0.012	−5.86	−1.66	1419.96	−54.17	−53.49	0.003	−1.54	−54.66
107	177	0.25	0.00	0.08	−0.01	0.278	0.000	−0.071	−0.011	−6.17	−2.08	1425.43	−51.57	−50.99	0.003	−1.96	−52.08
108	178	0.25	0.00	0.08	−0.01	0.278	0.000	−0.071	−0.011	−6.08	−2.03	1432.30	−50.37	−49.70	0.010	−1.89	−50.86
109	179	0.25	0.00	0.09	−0.02	0.278	0.000	−0.084	−0.004	−6.59	−2.24	1437.26	−47.26			−2.08	−47.72
110	180	0.25	0.00	0.09	−0.02	0.278	0.000	−0.084	−0.004	−6.25	−1.93	1443.54	−45.46			−1.75	−45.90
111	181	0.24	0.00	0.10	−0.03	0.268	0.000	−0.099	0.003	−6.73	−2.11	1448.14	−42.00			−1.87	−42.37
112	182	0.24	0.00	0.10	−0.04	0.267	0.000	−0.101	0.013	−6.48	−1.82	1454.12	−39.90			−1.51	−40.19
113	183	0.23	0.00	0.10	−0.04	0.255	0.000	−0.102	0.014	−6.55	−1.99	1458.42	−36.13			−1.68	−36.41
114	184	0.23	0.00	0.10	−0.05	0.255	0.000	−0.104	0.024	−6.30	−1.73	1464.11	−33.76			−1.32	−33.92
115	185	0.21	0.00	0.10	−0.04	0.233	0.000	−0.106	0.016	−6.08	−1.81	1468.03	−29.60			−1.46	−29.81
116	186	0.20	0.00	0.09	−0.04	0.221	0.000	−0.095	0.020	−5.22	−1.51	1473.39	−26.89			−1.17	−27.08
117	187	0.18	0.00	0.08	−0.03	0.198	0.000	−0.085	0.014	−4.71	−1.58	1477.01	−22.44			−1.34	−22.70
118	188	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−3.97	−1.34	1482.14	−19.49			−1.11	−19.73
119	189	−0.19	0.00	0.04	−0.01	−0.197	0.000	−0.030	0.017	−3.78	−1.54	1485.61	−14.90			−1.47	−15.26
120	190	−0.18	0.00	0.03	−0.02	−0.187	0.000	−0.020	0.024	−3.96	−1.84	1491.00	−12.21			−1.73	−12.51
121	191	−0.15	0.00	0.03	−0.01	−0.156	0.000	−0.025	0.014	−3.92	−2.21	1494.37	−7.51			−2.15	−7.82
122	192	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	−3.60	−2.43	1499.40	−4.47			−2.41	−4.77
123	193	−0.09	0.00	0.02	0.00	−0.094	0.000	−0.020	0.002	−4.35	−3.48	1503.19	−0.19			−3.46	−0.44
124	194	−0.07	0.00	0.03	0.01	−0.073	0.000	−0.033	−0.007	−4.86	−3.89	1508.15	2.92			−3.84	2.76
125	195	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.49	−4.57	1511.32	7.82			−4.57	7.66
126	196	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.96	−4.98	1516.01	11.20			−4.98	11.10
127	197	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.93	−4.05	1517.33	17.96			−4.05	17.92
128	198	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−3.74	−2.88	1520.19	23.16			−2.88	23.20
129	199	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−2.60	−1.94	1521.26	30.17			−1.94	30.28
130	200	0.06	0.02	−0.02	−0.01	0.064	−0.027	0.026	0.012	−1.64	−0.64	1523.74	35.76			−0.59	35.99
131	201	0.09	0.00	−0.04	−0.01	0.097	0.000	0.052	0.015	−1.51	−0.14	1525.01	42.56			−0.02	42.94
132	202	0.10	0.02	−0.04	−0.01	0.108	−0.028	0.053	0.016	−0.88	0.60	1527.82	47.82			0.73	48.30
133	203	0.11	0.05	−0.04	0.00	0.119	−0.069	0.055	0.008	−1.02	0.92	1529.06	54.66			1.05	55.23
134	204	0.11	0.04	−0.04	0.00	0.119	−0.056	0.054	0.007	−0.23	1.50	1531.79	60.00			1.62	60.66
135	205	0.14	0.02	−0.05	0.00	0.151	−0.028	0.070	0.010	−0.43	1.69	1532.92	66.93			1.85	67.73
136	206	0.15	0.00	−0.06	−0.01	0.162	0.000	0.084	0.024	−0.65	1.92	1535.78	72.15			2.21	73.18
137	207	0.16	0.00	−0.06	−0.01	0.173	0.000	0.085	0.025	−1.00	1.54	1537.28	78.72			1.83	79.86
138	208	0.17	0.00	−0.05	0.00	0.183	0.000	0.074	0.013	−0.51	1.77	1539.91	84.16			1.95	85.29
139	209	0.18	0.00	−0.05	0.00	0.194	0.000	0.076	0.014	−0.98	1.47	1541.11	91.03			1.65	92.28
140	210	0.19	0.00	−0.04	0.01	0.205	0.000	0.065	0.001	−0.73	1.51	1543.72	96.49			1.63	97.80
141	211	0.19	0.00	−0.04	0.01	0.205	0.000	0.065	0.001	−1.12	1.16	1544.78	103.50			1.27	104.94
142	212	0.20	0.00	−0.04	0.02	0.215	0.000	0.068	−0.008	−1.32	1.09	1547.29	109.06			1.25	110.68
143	213	0.22	0.00	−0.03	0.02	0.238	0.000	0.059	−0.009	−1.91	0.61	1548.28	116.15			0.72	117.85
144	214	0.22	0.00	−0.02	0.02	0.238	0.000	0.047	−0.012	−1.80	0.57	1550.56	121.94			0.67	123.76

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 70 (Yb)																	
145	215	0.22	0.00	−0.02	0.03	0.238	0.000	0.048	−0.022	−2.42	0.02	1551.42	129.15			0.20	131.21
146	216	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−2.50	−0.03	1553.51	135.13			0.16	137.34
147	217	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−3.04	−0.53	1554.14	142.57			−0.35	144.93
148	218	0.23	0.00	0.00	0.03	0.250	0.000	0.026	−0.027	−3.08	−0.65	1556.11	148.67			−0.46	151.21
149	219	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−3.62	−1.17	1556.57	156.28			−0.96	158.99
150	220	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−3.75	−1.32	1558.38	162.54			−1.07	165.47
151	221	0.24	0.00	0.03	0.02	0.263	0.000	−0.009	−0.026	−4.29	−1.71	1558.54	170.46			−1.58	173.44
152	222	0.24	0.00	0.04	0.02	0.264	0.000	−0.021	−0.029	−4.38	−1.76	1560.06	177.01			−1.56	180.23
153	223	0.24	0.00	0.05	0.02	0.265	0.000	−0.033	−0.031	−4.86	−2.13	1560.02	185.12			−1.87	188.59
154	224	0.24	0.00	0.05	0.02	0.265	0.000	−0.033	−0.031	−4.71	−2.02	1561.22	191.99			−1.75	195.67
155	225	0.24	0.00	0.06	0.01	0.266	0.000	−0.046	−0.024	−5.07	−2.27	1560.88	200.40			−2.06	204.21
156	226	0.23	0.00	0.06	0.01	0.254	0.000	−0.048	−0.024	−4.82	−2.14	1561.88	207.48			−1.90	211.52
157	227	0.23	0.00	0.07	0.01	0.255	0.000	−0.060	−0.026	−5.48	−2.62	1561.61	215.81			−2.30	220.14
158	228	0.23	0.00	0.07	0.00	0.255	0.000	−0.061	−0.017	−5.32	−2.49	1562.44	223.05			−2.24	227.52
159	229	0.23	0.00	0.08	0.00	0.256	0.000	−0.073	−0.019	−6.16	−3.14	1562.18	231.38			−2.79	236.17
160	230	0.23	0.00	0.09	−0.01	0.256	0.000	−0.086	−0.012	−6.50	−3.31	1563.14	238.50			−2.86	243.60
161	231	0.22	0.00	0.09	−0.01	0.245	0.000	−0.088	−0.011	−6.97	−3.85	1562.61	247.10			−3.39	252.43
162	232	0.22	0.00	0.09	−0.02	0.244	0.000	−0.090	−0.002	−6.97	−3.93	1563.32	254.46			−3.44	260.06
163	233	0.22	0.00	0.10	−0.02	0.245	0.000	−0.101	−0.004	−7.43	−4.16	1562.34	263.51			−3.55	269.48
164	234	0.22	0.00	0.10	−0.03	0.245	0.000	−0.103	0.006	−7.05	−3.88	1562.52	271.40			−3.16	277.71
Z = 71 (Lu)																	
75	146	0.22	0.00	0.10	−0.04	0.244	0.000	−0.104	0.015	−4.92	−1.01	1128.98	−6.11			−1.09	−5.49
76	147	0.21	0.00	0.09	−0.03	0.232	0.000	−0.093	0.009	−4.23	−0.88	1142.83	−11.90			−0.93	−11.31
77	148	0.19	0.00	0.08	−0.03	0.209	0.000	−0.084	0.013	−3.64	−0.82	1154.69	−15.68			−0.87	−15.16
78	149	−0.18	0.00	0.05	0.00	−0.187	0.000	−0.043	0.010	−2.84	−0.92	1168.21	−21.13			−0.95	−20.66
79	150	−0.17	0.00	0.05	0.01	−0.176	0.000	−0.045	0.000	−3.38	−1.48	1180.16	−25.01			−1.52	−24.60
80	151	−0.16	0.00	0.04	0.00	−0.167	0.000	−0.035	0.007	−3.68	−1.82	1193.39	−30.16			−1.84	−29.80
81	152	−0.10	0.00	0.01	0.00	−0.105	0.000	−0.008	0.001	−3.29	−2.37	1204.80	−33.51			−2.38	−33.19
82	153	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−3.87	−3.14	1217.94	−38.58	−38.41	0.209	−3.14	−38.30
83	154	−0.08	0.00	−0.01	0.00	−0.084	0.000	0.014	−0.001	−3.21	−2.40	1227.57	−40.14			−2.41	−39.93
84	155	0.09	0.00	−0.01	0.00	0.096	0.000	0.015	0.001	−2.28	−1.16	1238.20	−42.70	−42.55	0.020	−1.17	−42.54
85	156	0.11	0.00	−0.02	0.00	0.118	0.000	0.029	0.003	−1.76	−0.36	1247.30	−43.72	−43.75	0.074	−0.37	−43.61
86	157	0.13	0.00	−0.02	0.00	0.139	0.000	0.032	0.004	−1.20	0.35	1257.96	−46.31	−46.48	0.019	0.34	−46.26
87	158	0.15	0.00	−0.01	0.00	0.161	0.000	0.022	0.002	−0.92	0.72	1267.02	−47.30	−47.21	0.015	0.70	−47.31
88	159	0.16	0.00	−0.01	0.01	0.172	0.000	0.024	−0.007	−0.61	1.14	1277.51	−49.71	−49.72	0.038	1.14	−49.76
89	160	0.17	0.00	0.00	0.01	0.183	0.000	0.013	−0.009	−0.38	1.25	1286.38	−50.51	−50.27	0.057	1.24	−50.62
90	161	0.19	0.00	0.00	0.01	0.206	0.000	0.016	−0.009	−0.38	1.52	1296.57	−52.63	−52.56	0.028	1.51	−52.77
91	162	0.19	0.00	0.00	0.01	0.206	0.000	0.016	−0.009	−0.27	1.63	1305.00	−52.99	−52.84	0.075	1.62	−53.18
92	163	0.21	0.00	0.01	0.01	0.228	0.000	0.008	−0.011	−0.41	1.75	1314.90	−54.83	−54.79	0.028	1.74	−55.05
93	164	0.22	0.00	0.01	0.00	0.239	0.000	0.009	−0.001	−0.60	1.68	1323.09	−54.94	−54.64	0.028	1.67	−55.22
94	165	0.22	0.00	0.01	0.01	0.239	0.000	0.010	−0.011	−0.72	1.64	1332.72	−56.50	−56.44	0.027	1.64	−56.81
95	166	0.23	0.00	0.01	0.00	0.250	0.000	0.011	−0.001	−1.09	1.42	1340.66	−56.37	−56.02	0.030	1.41	−56.72
96	167	0.24	0.00	0.02	0.01	0.262	0.000	0.002	−0.013	−1.49	1.21	1350.06	−57.69	−57.50	0.032	1.21	−58.06
97	168	0.24	0.00	0.02	0.01	0.262	0.000	0.002	−0.013	−1.86	0.89	1357.69	−57.26	−57.06	0.047	0.89	−57.67
98	169	0.25	0.00	0.04	0.00	0.275	0.000	−0.022	−0.009	−2.37	0.71	1366.66	−58.16	−58.08	0.005	0.72	−58.58
99	170	0.26	0.00	0.04	0.00	0.286	0.000	−0.019	−0.010	−2.95	0.34	1373.98	−57.40	−57.31	0.017	0.33	−57.87
100	171	0.26	0.00	0.05	0.01	0.287	0.000	−0.030	−0.022	−3.43	0.08	1382.63	−57.98	−57.83	0.003	0.12	−58.44
101	172	0.26	0.00	0.05	0.01	0.287	0.000	−0.030	−0.022	−3.89	−0.31	1389.60	−56.88	−56.74	0.003	−0.28	−57.37
102	173	0.26	0.00	0.06	0.01	0.289	0.000	−0.042	−0.025	−4.31	−0.53	1397.84	−57.05	−56.89	0.002	−0.47	−57.53
103	174	0.26	0.00	0.06	0.01	0.289	0.000	−0.042	−0.025	−4.77	−0.96	1404.48	−55.62	−55.58	0.002	−0.91	−56.13
104	175	0.26	0.00	0.07	0.00	0.289	0.000	−0.055	−0.019	−5.06	−1.11	1412.30	−55.37	−55.17	0.002	−1.04	−55.87
105	176	0.25	0.00	0.07	0.00	0.278	0.000	−0.057	−0.018	−5.41	−1.56	1418.62	−53.62	−53.39	0.002	−1.50	−54.15
106	177	0.25	0.00	0.08	−0.01	0.278	0.000	−0.071	−0.011	−5.83	−1.76	1426.13	−53.06	−52.39	0.002	−1.67	−53.56
107	178	0.25	0.00	0.08	−0.01	0.278	0.000	−0.071	−0.011	−6.29	−2.21	1432.11	−50.96	−50.34	0.003	−2.12	−51.49
108	179	0.25	0.00	0.09	−0.02	0.278	0.000	−0.084	−0.004	−6.62	−2.25	1439.12	−49.90	−49.06	0.005	−2.11	−50.38
109	180	0.24	0.00	0.09	−0.02	0.267	0.000	−0.086	−0.004	−6.69	−2.43	1444.51	−47.22	−46.69	0.071	−2.29	−47.70
110	181	0.24	0.00	0.10	−0.03	0.268	0.000	−0.099	0.003	−6.90	−2.28	1451.00	−45.64			−2.07	−46.05

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 71 (Lu)																	
111	182	0.24	0.00	0.10	−0.03	0.268	0.000	−0.099	0.003	−7.05	−2.35	1455.95	−42.52			−2.14	−42.94
112	183	0.23	0.00	0.10	−0.04	0.255	0.000	−0.102	0.014	−6.76	−2.17	1462.10	−40.60			−1.90	−40.94
113	184	0.23	0.00	0.11	−0.05	0.256	0.000	−0.116	0.021	−7.57	−2.46	1466.98	−37.40			−2.10	−37.64
114	185	0.22	0.00	0.11	−0.05	0.244	0.000	−0.117	0.023	−7.18	−2.17	1472.69	−35.04			−1.76	−35.23
115	186	0.21	0.00	0.10	−0.05	0.232	0.000	−0.107	0.026	−6.78	−2.31	1477.12	−31.40			−1.94	−31.60
116	187	0.20	0.00	0.10	−0.04	0.221	0.000	−0.107	0.018	−6.19	−2.01	1482.53	−28.74			−1.67	−28.95
117	188	0.18	0.00	0.09	−0.04	0.198	0.000	−0.098	0.022	−5.81	−2.21	1486.72	−24.86			−1.90	−25.09
118	189	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−4.55	−1.86	1491.78	−21.85			−1.65	−22.15
119	190	−0.18	0.00	0.04	−0.01	−0.187	0.000	−0.032	0.017	−4.05	−1.93	1495.57	−17.56			−1.87	−17.98
120	191	−0.17	0.00	0.03	−0.02	−0.177	0.000	−0.022	0.024	−4.26	−2.25	1501.01	−14.94			−2.15	−15.30
121	192	−0.15	0.00	0.03	−0.01	−0.156	0.000	−0.025	0.014	−4.33	−2.62	1504.82	−10.68			−2.57	−11.05
122	193	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	−4.04	−2.86	1509.92	−7.70			−2.85	−8.07
123	194	−0.09	0.00	0.03	0.01	−0.094	0.000	−0.032	−0.006	−4.86	−3.88	1514.11	−3.82			−3.84	−4.12
124	195	−0.07	0.00	0.03	0.01	−0.073	0.000	−0.033	−0.007	−5.25	−4.28	1519.10	−0.74			−4.24	−0.99
125	196	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−5.79	−4.92	1522.66	3.77			−4.92	3.53
126	197	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.21	−5.24	1527.30	7.21			−5.24	7.02
127	198	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−5.32	−4.42	1529.15	13.43			−4.42	13.31
128	199	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.14	−3.31	1532.11	18.54			−3.31	18.48
129	200	0.01	0.00	−0.01	0.00	0.011	0.000	0.012	0.000	−2.96	−2.18	1533.40	25.31			−2.18	25.32
130	201	0.06	0.00	−0.02	0.00	0.064	0.000	0.025	0.002	−1.88	−0.95	1535.98	30.80			−0.93	30.90
131	202	0.09	0.00	−0.03	−0.01	0.096	0.000	0.040	0.014	−1.63	−0.43	1537.65	37.21			−0.36	37.43
132	203	0.10	0.00	−0.04	−0.01	0.107	0.000	0.053	0.016	−1.13	0.31	1540.50	42.43			0.42	42.78
133	204	0.11	0.00	−0.04	−0.01	0.118	0.000	0.054	0.016	−0.87	0.65	1542.11	48.89			0.77	49.32
134	205	0.11	0.04	−0.04	0.00	0.119	−0.056	0.054	0.007	−0.53	1.24	1544.87	54.20			1.35	54.72
135	206	0.14	0.01	−0.04	0.00	0.150	−0.014	0.057	0.008	−0.32	1.50	1546.34	60.81			1.60	61.39
136	207	0.15	0.00	−0.05	0.00	0.161	0.000	0.071	0.011	−0.37	1.83	1549.13	66.09			1.99	66.83
137	208	0.16	0.00	−0.05	−0.01	0.173	0.000	0.072	0.022	−0.78	1.41	1551.06	72.22			1.61	73.11
138	209	0.17	0.00	−0.05	0.00	0.183	0.000	0.074	0.013	−0.64	1.62	1553.74	77.61			1.79	78.57
139	210	0.17	0.00	−0.05	0.00	0.183	0.000	0.074	0.013	−0.93	1.39	1555.28	84.15			1.55	85.21
140	211	0.19	0.00	−0.04	0.01	0.205	0.000	0.065	0.001	−0.81	1.50	1557.85	89.65			1.61	90.78
141	212	0.19	0.00	−0.04	0.01	0.205	0.000	0.065	0.001	−1.21	1.10	1559.35	96.22			1.20	97.46
142	213	0.20	0.00	−0.03	0.01	0.216	0.000	0.055	−0.001	−1.14	1.14	1561.77	101.88			1.21	103.20
143	214	0.22	0.00	−0.03	0.02	0.238	0.000	0.059	−0.009	−1.90	0.69	1563.12	108.59			0.78	110.08
144	215	0.22	0.00	−0.02	0.02	0.238	0.000	0.047	−0.012	−1.82	0.58	1565.49	114.30			0.66	115.90
145	216	0.22	0.00	−0.02	0.02	0.238	0.000	0.047	−0.012	−2.32	0.14	1566.63	121.22			0.20	122.95
146	217	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−2.40	−0.04	1568.87	127.06			0.13	129.03
147	218	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−2.91	−0.52	1569.86	134.14			−0.36	136.26
148	219	0.22	0.00	0.00	0.03	0.239	0.000	0.024	−0.028	−2.96	−0.63	1571.84	140.23			−0.45	142.52
149	220	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−3.65	−1.18	1572.70	147.44			−0.99	149.88
150	221	0.23	0.00	0.02	0.02	0.251	0.000	0.001	−0.023	−3.64	−1.21	1574.41	153.80			−1.12	156.31
151	222	0.23	0.00	0.03	0.02	0.252	0.000	−0.011	−0.026	−4.24	−1.73	1575.07	161.21			−1.61	163.92
152	223	0.23	0.00	0.04	0.02	0.253	0.000	−0.023	−0.029	−4.32	−1.77	1576.60	167.75			−1.58	170.70
153	224	0.23	0.00	0.04	0.02	0.253	0.000	−0.023	−0.029	−4.63	−2.08	1576.88	175.54			−1.91	178.65
154	225	0.23	0.00	0.05	0.02	0.254	0.000	−0.035	−0.031	−4.70	−2.09	1578.20	182.30			−1.83	185.67
155	226	0.23	0.00	0.06	0.01	0.254	0.000	−0.048	−0.024	−5.09	−2.33	1578.23	190.34			−2.12	193.85
156	227	0.23	0.00	0.06	0.01	0.254	0.000	−0.048	−0.024	−4.96	−2.25	1579.29	197.35			−2.03	201.07
157	228	0.23	0.00	0.07	0.01	0.255	0.000	−0.060	−0.026	−5.63	−2.73	1579.40	205.32			−2.44	209.31
158	229	0.22	0.00	0.07	0.00	0.243	0.000	−0.063	−0.016	−5.42	−2.67	1580.29	212.49			−2.42	216.63
159	230	0.22	0.00	0.08	0.00	0.244	0.000	−0.075	−0.019	−6.30	−3.33	1580.41	220.44			−2.99	224.88
160	231	0.22	0.00	0.08	−0.01	0.244	0.000	−0.076	−0.009	−6.37	−3.45	1581.33	227.60			−3.13	232.24
161	232	0.22	0.00	0.09	−0.01	0.245	0.000	−0.088	−0.011	−7.29	−4.11	1581.29	235.71			−3.68	240.67
162	233	0.22	0.00	0.10	−0.02	0.245	0.000	−0.101	−0.004	−7.73	−4.34	1582.14	242.93			−3.74	248.27
163	234	0.22	0.00	0.10	−0.03	0.245	0.000	−0.103	0.006	−7.87	−4.54	1581.48	251.66			−3.88	257.29
164	235	0.22	0.00	0.10	−0.03	0.245	0.000	−0.103	0.006	−7.45	−4.19	1581.61	259.60			−3.51	265.49
165	236	0.21	0.00	0.10	−0.03	0.233	0.000	−0.105	0.007	−7.39	−4.26	1580.67	268.62			−3.56	274.77
166	237	0.20	0.00	0.10	−0.04	0.221	0.000	−0.107	0.018	−6.93	−4.03	1580.75	276.60			−3.13	283.19

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 72 (Hf)																	
77	149	0.18	0.00	0.08	−0.03	0.198	0.000	−0.085	0.014	−3.66	−0.92	1153.97	−7.67			−0.96	−7.00
78	150	−0.17	0.00	0.05	0.01	−0.176	0.000	−0.045	0.000	−3.05	−1.26	1168.29	−13.92			−1.29	−13.31
79	151	−0.16	0.00	0.05	0.01	−0.166	0.000	−0.047	−0.000	−3.62	−1.63	1180.13	−17.69			−1.66	−17.14
80	152	−0.15	0.00	0.04	0.01	−0.156	0.000	−0.037	−0.003	−3.97	−2.26	1194.19	−23.67			−2.28	−23.19
81	153	−0.09	0.00	0.02	0.00	−0.094	0.000	−0.020	0.002	−3.85	−2.94	1205.82	−27.24			−2.95	−26.80
82	154	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−4.53	−3.66	1219.45	−32.79			−3.66	−32.41
83	155	−0.06	0.00	0.00	0.00	−0.063	0.000	0.001	0.000	−3.64	−2.97	1229.20	−34.48			−2.97	−34.16
84	156	−0.08	0.00	−0.01	0.00	−0.084	0.000	0.014	−0.001	−2.75	−1.99	1240.63	−37.83	−37.85	0.208	−1.99	−37.57
85	157	0.11	0.00	−0.02	0.00	0.118	0.000	0.029	0.003	−2.20	−0.78	1249.39	−38.52			−0.79	−38.31
86	158	0.12	0.00	−0.02	0.00	0.128	0.000	0.030	0.003	−1.48	−0.01	1260.53	−41.59	−42.10	0.018	−0.01	−41.44
87	159	0.14	0.00	−0.01	0.00	0.150	0.000	0.020	0.002	−1.14	0.41	1269.61	−42.60	−42.85	0.017	0.40	−42.51
88	160	0.15	0.00	−0.01	0.01	0.161	0.000	0.022	−0.007	−0.73	0.91	1280.55	−45.47	−45.94	0.012	0.90	−45.42
89	161	0.16	0.00	0.00	0.01	0.172	0.000	0.012	−0.009	−0.43	1.03	1289.47	−46.32	−46.32	0.023	1.02	−46.33
90	162	0.17	0.00	0.00	0.01	0.183	0.000	0.013	−0.009	−0.24	1.38	1300.10	−48.88	−49.17	0.010	1.38	−48.93
91	163	0.18	0.00	0.00	0.01	0.194	0.000	0.014	−0.009	−0.15	1.60	1308.50	−49.21	−49.29	0.028	1.59	−49.31
92	164	0.19	0.00	0.00	0.01	0.206	0.000	0.016	−0.009	−0.08	1.76	1318.87	−51.50	−51.82	0.020	1.76	−51.65
93	165	0.20	0.00	0.00	0.01	0.217	0.000	0.018	−0.009	−0.20	1.79	1327.03	−51.59	−51.64	0.028	1.79	−51.78
94	166	0.21	0.00	0.01	0.01	0.228	0.000	0.008	−0.011	−0.34	1.80	1337.12	−53.61	−53.86	0.028	1.81	−53.84
95	167	0.22	0.00	0.01	0.00	0.239	0.000	0.009	−0.001	−0.62	1.64	1345.06	−53.48	−53.47	0.028	1.64	−53.76
96	168	0.23	0.00	0.02	0.00	0.251	0.000	−0.002	−0.004	−0.94	1.52	1354.87	−55.22	−55.36	0.028	1.52	−55.53
97	169	0.24	0.00	0.02	0.00	0.262	0.000	0.001	−0.004	−1.40	1.23	1362.55	−54.83	−54.72	0.028	1.22	−55.18
98	170	0.25	0.00	0.03	0.00	0.274	0.000	−0.009	−0.006	−1.82	1.02	1372.04	−56.24	−56.25	0.028	1.04	−56.61
99	171	0.25	0.00	0.03	0.01	0.274	0.000	−0.008	−0.016	−2.28	0.71	1379.35	−55.49	−55.43	0.029	0.72	−55.89
100	172	0.25	0.00	0.04	0.01	0.275	0.000	−0.020	−0.019	−2.60	0.51	1388.44	−56.50	−56.40	0.024	0.55	−56.92
101	173	0.26	0.00	0.05	0.00	0.287	0.000	−0.031	−0.013	−3.25	0.13	1395.46	−55.45	−55.41	0.028	0.15	−55.91
102	174	0.26	0.00	0.06	0.00	0.288	0.000	−0.043	−0.016	−3.64	−0.06	1404.16	−56.08	−55.85	0.003	−0.01	−56.53
103	175	0.26	0.00	0.06	0.00	0.288	0.000	−0.043	−0.016	−4.11	−0.50	1410.87	−54.72	−54.48	0.003	−0.46	−55.20
104	176	0.25	0.00	0.07	0.00	0.278	0.000	−0.057	−0.018	−4.43	−0.71	1419.23	−55.01	−54.58	0.002	−0.63	−55.47
105	177	0.25	0.00	0.07	−0.01	0.277	0.000	−0.059	−0.009	−4.89	−1.19	1425.63	−53.34	−52.89	0.002	−1.13	−53.84
106	178	0.25	0.00	0.08	−0.01	0.278	0.000	−0.071	−0.011	−5.39	−1.42	1433.65	−53.28	−52.44	0.002	−1.32	−53.76
107	179	0.24	0.00	0.08	−0.01	0.267	0.000	−0.073	−0.010	−5.77	−1.89	1439.71	−51.27	−50.47	0.002	−1.79	−51.77
108	180	0.24	0.00	0.09	−0.02	0.267	0.000	−0.086	−0.004	−6.16	−1.92	1447.18	−50.67	−49.79	0.002	−1.77	−51.12
109	181	0.24	0.00	0.09	−0.02	0.267	0.000	−0.086	−0.004	−6.39	−2.16	1452.68	−48.10	−47.41	0.002	−2.02	−48.56
110	182	0.24	0.00	0.10	−0.03	0.268	0.000	−0.099	0.003	−6.64	−2.03	1459.65	−47.00	−46.06	0.006	−1.81	−47.40
111	183	0.23	0.00	0.10	−0.03	0.256	0.000	−0.101	0.004	−6.77	−2.23	1464.80	−44.07	−43.29	0.030	−2.02	−44.48
112	184	0.23	0.00	0.11	−0.04	0.256	0.000	−0.114	0.012	−7.10	−2.14	1471.48	−42.69	−41.50	0.040	−1.82	−42.99
113	185	0.22	0.00	0.11	−0.05	0.244	0.000	−0.117	0.023	−7.43	−2.40	1476.38	−39.51			−2.03	−39.75
114	186	0.21	0.00	0.11	−0.05	0.233	0.000	−0.119	0.024	−7.12	−2.23	1482.67	−37.73			−1.82	−37.92
115	187	0.20	0.00	0.10	−0.05	0.221	0.000	−0.109	0.027	−6.81	−2.45	1487.22	−34.22			−2.08	−34.44
116	188	0.19	0.00	0.10	−0.04	0.210	0.000	−0.109	0.019	−6.31	−2.24	1493.17	−32.09			−1.89	−32.32
117	189	0.18	0.00	0.09	−0.04	0.198	0.000	−0.098	0.022	−6.13	−2.54	1497.51	−28.36			−2.23	−28.61
118	190	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−5.07	−2.35	1503.18	−25.96			−2.14	−26.29
119	191	0.14	0.00	0.06	−0.02	0.152	0.000	−0.065	0.011	−4.65	−2.36	1506.95	−21.65			−2.23	−22.04
120	192	−0.17	0.00	0.03	−0.02	−0.177	0.000	−0.022	0.024	−4.66	−2.61	1512.76	−19.40			−2.51	−19.80
121	193	−0.14	0.00	0.02	−0.01	−0.146	0.000	−0.015	0.012	−4.60	−3.10	1516.74	−15.31			−3.07	−15.74
122	194	−0.11	0.00	0.02	0.00	−0.115	0.000	−0.018	0.002	−4.53	−3.47	1522.40	−12.89			−3.46	−13.31
123	195	−0.09	0.00	0.03	0.00	−0.094	0.000	−0.031	0.003	−5.43	−4.45	1526.59	−9.01			−4.41	−9.37
124	196	−0.07	0.00	0.03	0.01	−0.073	0.000	−0.033	−0.007	−5.89	−4.90	1532.06	−6.41			−4.85	−6.71
125	197	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.41	−5.49	1535.60	−1.88			−5.49	−2.19
126	198	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.84	−5.83	1540.70	1.09			−5.83	0.84
127	199	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−5.93	−5.03	1542.61	7.26			−5.04	7.05
128	200	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.80	−3.93	1545.99	11.95			−3.93	11.80
129	201	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−3.61	−2.91	1547.43	18.57			−2.91	18.49
130	202	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−2.29	−1.60	1550.35	23.72			−1.60	23.70
131	203	0.08	0.00	−0.03	−0.01	0.086	0.000	0.039	0.014	−1.93	−0.76	1551.74	30.41			−0.69	30.53
132	204	0.10	0.01	−0.03	−0.01	0.107	−0.014	0.041	0.014	−1.22	0.05	1554.92	35.30			0.13	35.50
133	205	0.11	0.04	−0.03	−0.01	0.119	−0.056	0.042	0.016	−1.21	0.45	1556.51	41.78			0.55	42.08

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 72 (Hf)																	
134	206	0.11	0.02	−0.04	0.00	0.118	−0.028	0.054	0.007	−0.50	1.04	1559.68	46.69			1.14	47.06
135	207	0.13	0.01	−0.04	0.00	0.140	−0.014	0.056	0.008	−0.30	1.39	1561.08	53.35			1.49	53.81
136	208	0.14	0.00	−0.04	0.00	0.150	0.000	0.057	0.008	0.01	1.80	1564.20	58.31			1.90	58.87
137	209	0.15	0.00	−0.05	−0.01	0.162	0.000	0.071	0.021	−0.58	1.73	1565.81	64.76			1.92	65.50
138	210	0.16	0.00	−0.04	0.00	0.172	0.000	0.060	0.009	−0.11	1.76	1569.07	69.57			1.87	70.33
139	211	0.17	0.00	−0.04	0.00	0.183	0.000	0.062	0.010	−0.50	1.56	1570.61	76.11			1.66	76.96
140	212	0.18	0.00	−0.04	0.00	0.194	0.000	0.063	0.011	−0.56	1.63	1573.61	81.18			1.75	82.16
141	213	0.19	0.00	−0.04	0.01	0.205	0.000	0.065	0.001	−1.00	1.33	1575.04	87.82			1.43	88.90
142	214	0.19	0.00	−0.03	0.01	0.205	0.000	0.053	−0.001	−0.76	1.34	1577.88	93.05			1.42	94.21
143	215	0.20	0.00	−0.03	0.02	0.216	0.000	0.056	−0.011	−1.31	0.96	1579.18	99.82			1.07	101.14
144	216	0.22	0.00	−0.02	0.02	0.238	0.000	0.047	−0.012	−1.49	0.90	1581.90	105.18			0.99	106.60
145	217	0.22	0.00	−0.02	0.02	0.238	0.000	0.047	−0.012	−1.99	0.42	1583.09	112.05			0.50	113.59
146	218	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−1.94	0.37	1585.60	117.62			0.44	119.29
147	219	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−2.57	−0.21	1586.70	124.59			−0.03	126.50
148	220	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.49	−0.22	1588.96	130.40			−0.15	132.35
149	221	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−3.04	−0.75	1589.83	137.60			−0.68	139.71
150	222	0.22	0.00	0.02	0.02	0.240	0.000	−0.001	−0.023	−3.19	−0.91	1592.05	143.46			−0.81	145.74
151	223	0.23	0.00	0.03	0.02	0.252	0.000	−0.011	−0.026	−3.90	−1.42	1592.71	150.86			−1.29	153.34
152	224	0.22	0.00	0.03	0.02	0.241	0.000	−0.013	−0.026	−3.73	−1.41	1594.57	157.08			−1.26	159.73
153	225	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−4.18	−1.77	1594.91	164.81			−1.58	167.67
154	226	0.22	0.00	0.05	0.02	0.243	0.000	−0.037	−0.031	−4.27	−1.76	1596.58	171.21			−1.49	174.32
155	227	0.22	0.00	0.05	0.01	0.242	0.000	−0.038	−0.021	−4.46	−1.99	1596.61	179.25			−1.84	182.42
156	228	0.22	0.00	0.06	0.01	0.243	0.000	−0.050	−0.023	−4.59	−2.01	1598.13	185.80			−1.77	189.24
157	229	0.22	0.00	0.07	0.00	0.243	0.000	−0.063	−0.016	−5.19	−2.43	1598.20	193.81			−2.19	197.44
158	230	0.22	0.00	0.07	0.00	0.243	0.000	−0.063	−0.016	−5.21	−2.47	1599.56	200.52			−2.21	204.36
159	231	0.22	0.00	0.08	−0.01	0.244	0.000	−0.076	−0.009	−6.07	−3.12	1599.68	208.47			−2.80	212.57
160	232	0.22	0.00	0.09	−0.01	0.245	0.000	−0.088	−0.011	−6.56	−3.36	1601.07	215.15			−2.91	219.58
161	233	0.22	0.00	0.09	−0.01	0.245	0.000	−0.088	−0.011	−7.16	−3.95	1600.97	223.32			−3.52	227.95
162	234	0.22	0.00	0.10	−0.02	0.245	0.000	−0.101	−0.004	−7.64	−4.22	1602.23	230.12			−3.63	235.13
163	235	0.21	0.00	0.10	−0.02	0.234	0.000	−0.103	−0.003	−7.70	−4.39	1601.55	238.88			−3.79	244.11
164	236	0.21	0.00	0.10	−0.03	0.233	0.000	−0.105	0.007	−7.39	−4.18	1602.17	246.34			−3.47	251.89
165	237	0.20	0.00	0.10	−0.03	0.222	0.000	−0.106	0.008	−7.39	−4.32	1601.30	255.27			−3.59	261.08
166	238	0.20	0.00	0.10	−0.04	0.221	0.000	−0.107	0.018	−7.02	−4.05	1601.70	262.95			−3.16	269.15
167	239	0.20	0.00	0.11	−0.05	0.222	0.000	−0.120	0.025	−7.69	−4.52	1601.02	271.70			−3.30	278.47
168	240	0.19	0.00	0.10	−0.05	0.209	0.000	−0.110	0.028	−6.82	−4.14	1601.14	279.64			−2.98	286.60
Z = 73 (Ta)																	
78	151	−0.17	0.00	0.05	0.01	−0.176	0.000	−0.045	0.000	−3.71	−1.89	1165.84	−4.19			−1.93	−3.45
79	152	−0.16	0.00	0.05	0.01	−0.166	0.000	−0.047	−0.000	−4.30	−2.32	1178.29	−8.56			−2.37	−7.90
80	153	−0.15	0.00	0.04	0.00	−0.156	0.000	−0.036	0.007	−4.64	−2.92	1192.41	−14.61			−2.95	−14.00
81	154	−0.08	0.00	0.01	0.00	−0.084	0.000	−0.009	0.001	−4.41	−3.68	1204.65	−18.78			−3.69	−18.22
82	155	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−5.18	−4.29	1218.25	−24.31			−4.29	−23.81
83	156	−0.07	0.00	0.00	0.00	−0.073	0.000	0.002	−0.000	−4.37	−3.67	1228.62	−26.60			−3.68	−26.17
84	157	0.08	0.00	0.00	0.01	0.085	0.000	0.003	−0.010	−3.52	−2.42	1239.85	−29.77	−29.63	0.209	−2.43	−29.39
85	158	0.10	0.00	−0.01	−0.01	0.107	0.000	0.016	0.012	−2.76	−1.47	1249.39	−31.24			−1.48	−30.92
86	159	0.12	0.00	−0.01	0.00	0.128	0.000	0.018	0.002	−2.01	−0.62	1260.53	−34.30	−34.45	0.021	−0.63	−34.05
87	160	0.14	0.00	−0.01	0.00	0.150	0.000	0.020	0.002	−1.70	−0.12	1270.05	−35.75	−35.88	0.089	−0.13	−35.56
88	161	0.15	0.00	−0.01	0.01	0.161	0.000	0.022	−0.007	−1.25	0.42	1281.03	−38.65			0.41	−38.52
89	162	0.16	0.00	0.00	0.01	0.172	0.000	0.012	−0.009	−0.95	0.79	1290.23	−39.78	−39.78	0.052	0.77	−39.71
90	163	0.17	0.00	0.01	0.01	0.184	0.000	0.001	−0.011	−0.71	0.89	1301.17	−42.65	−42.54	0.038	0.88	−42.63
91	164	0.17	0.00	0.01	0.01	0.184	0.000	0.001	−0.011	−0.47	1.19	1309.99	−43.41	−43.28	0.028	1.18	−43.44
92	165	0.18	0.00	0.01	0.01	0.195	0.000	0.002	−0.011	−0.37	1.41	1320.38	−45.72	−45.85	0.017	1.40	−45.80
93	166	0.19	0.00	0.01	0.01	0.206	0.000	0.004	−0.011	−0.42	1.44	1329.05	−46.32	−46.10	0.028	1.42	−46.45
94	167	0.20	0.00	0.02	0.00	0.217	0.000	−0.007	−0.004	−0.48	1.51	1339.15	−48.35	−48.35	0.028	1.50	−48.52
95	168	0.21	0.00	0.02	0.00	0.229	0.000	−0.005	−0.004	−0.67	1.47	1347.47	−48.60	−48.39	0.028	1.45	−48.82
96	169	0.22	0.00	0.02	0.00	0.240	0.000	−0.004	−0.004	−0.92	1.34	1357.35	−50.41	−50.29	0.028	1.33	−50.66
97	170	0.22	0.00	0.02	0.00	0.240	0.000	−0.004	−0.004	−1.16	1.15	1365.43	−50.42	−50.14	0.028	1.13	−50.72
98	171	0.23	0.00	0.03	0.00	0.252	0.000	−0.014	−0.006	−1.52	1.00	1374.92	−51.83	−51.72	0.028	1.00	−52.16

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 73 (Ta)																	
99	172	0.24	0.00	0.03	0.01	0.263	0.000	−0.010	−0.016	−2.03	0.76	1382.65	−51.50	−51.33	0.028	0.76	−51.86
100	173	0.24	0.00	0.04	0.01	0.264	0.000	−0.022	−0.019	−2.33	0.59	1391.78	−52.55	−52.40	0.028	0.61	−52.93
101	174	0.24	0.00	0.04	0.01	0.264	0.000	−0.022	−0.019	−2.73	0.22	1399.27	−51.97	−51.74	0.028	0.22	−52.39
102	175	0.24	0.00	0.05	0.00	0.264	0.000	−0.036	−0.012	−3.03	0.01	1408.05	−52.68	−52.41	0.028	0.03	−53.11
103	176	0.24	0.00	0.06	0.00	0.265	0.000	−0.047	−0.015	−3.71	−0.42	1415.23	−51.79	−51.37	0.031	−0.40	−52.25
104	177	0.24	0.00	0.06	0.00	0.265	0.000	−0.047	−0.015	−3.93	−0.63	1423.65	−52.13	−51.72	0.004	−0.60	−52.60
105	178	0.24	0.00	0.07	−0.01	0.266	0.000	−0.061	−0.008	−4.68	−1.12	1430.53	−50.95	−50.51	0.015	−1.08	−51.43
106	179	0.23	0.00	0.07	−0.01	0.254	0.000	−0.063	−0.007	−4.82	−1.40	1438.66	−51.00	−50.37	0.002	−1.34	−51.49
107	180	0.23	0.00	0.08	−0.01	0.255	0.000	−0.075	−0.010	−5.64	−1.87	1445.18	−49.46	−48.94	0.002	−1.80	−49.95
108	181	0.23	0.00	0.08	−0.02	0.255	0.000	−0.076	−0.000	−5.70	−1.95	1452.76	−48.96	−48.44	0.002	−1.86	−49.45
109	182	0.23	0.00	0.09	−0.02	0.256	0.000	−0.088	−0.003	−6.34	−2.26	1458.79	−46.92	−46.43	0.002	−2.14	−47.40
110	183	0.22	0.00	0.09	−0.03	0.244	0.000	−0.091	0.008	−6.14	−2.17	1465.86	−45.92	−45.30	0.002	−2.02	−46.37
111	184	0.22	0.00	0.10	−0.03	0.245	0.000	−0.103	0.006	−6.83	−2.40	1471.49	−43.48	−42.84	0.026	−2.22	−43.90
112	185	0.22	0.00	0.10	−0.04	0.244	0.000	−0.104	0.015	−6.78	−2.33	1478.25	−42.17	−41.40	0.014	−2.09	−42.54
113	186	0.21	0.00	0.10	−0.04	0.233	0.000	−0.106	0.016	−7.03	−2.60	1483.61	−39.46	−38.61	0.060	−2.36	−39.83
114	187	0.20	0.00	0.10	−0.04	0.221	0.000	−0.107	0.018	−6.82	−2.54	1490.06	−37.83			−2.26	−38.16
115	188	0.20	0.00	0.10	−0.05	0.221	0.000	−0.109	0.027	−7.31	−2.93	1495.24	−34.94			−2.61	−35.21
116	189	0.18	0.00	0.09	−0.04	0.198	0.000	−0.098	0.022	−6.39	−2.76	1501.27	−32.90			−2.48	−33.21
117	190	0.17	0.00	0.08	−0.04	0.186	0.000	−0.087	0.025	−6.30	−2.91	1505.91	−29.47			−2.67	−29.80
118	191	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−5.82	−3.02	1511.92	−27.41			−2.84	−27.79
119	192	0.14	0.00	0.06	−0.02	0.152	0.000	−0.065	0.011	−5.40	−3.05	1516.15	−23.56			−2.93	−24.00
120	193	−0.17	0.00	0.03	−0.02	−0.177	0.000	−0.022	0.024	−5.15	−3.09	1521.80	−21.14			−3.00	−21.58
121	194	−0.14	0.00	0.02	−0.01	−0.146	0.000	−0.015	0.012	−5.13	−3.62	1526.25	−17.53			−3.59	−18.00
122	195	−0.11	0.00	0.02	0.00	−0.115	0.000	−0.018	0.002	−5.10	−4.03	1531.99	−15.19			−4.01	−15.65
123	196	−0.09	0.00	0.03	0.01	−0.094	0.000	−0.032	−0.006	−5.99	−4.99	1536.60	−11.73			−4.95	−12.13
124	197	−0.07	0.00	0.03	0.01	−0.073	0.000	−0.033	−0.007	−6.44	−5.43	1542.10	−9.16			−5.39	−9.52
125	198	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−6.90	−5.98	1546.03	−5.02			−5.99	−5.39
126	199	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−7.28	−6.29	1551.13	−2.05			−6.30	−2.37
127	200	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−6.39	−5.50	1553.46	3.69			−5.50	3.42
128	201	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−5.24	−4.40	1556.89	8.34			−4.40	8.12
129	202	0.03	0.00	−0.01	0.00	0.032	0.000	0.012	0.000	−4.15	−3.41	1558.78	14.52			−3.41	14.36
130	203	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−2.80	−2.18	1561.82	19.55			−2.18	19.44
131	204	0.08	0.00	−0.03	−0.01	0.086	0.000	0.039	0.014	−2.43	−1.24	1563.51	25.93			−1.17	25.95
132	205	0.09	0.00	−0.03	−0.01	0.096	0.000	0.040	0.014	−1.61	−0.40	1566.70	30.81			−0.33	30.91
133	206	0.11	0.00	−0.03	−0.01	0.118	0.000	0.041	0.015	−1.32	0.03	1568.67	36.91			0.10	37.08
134	207	0.11	0.00	−0.03	−0.01	0.118	0.000	0.041	0.015	−0.72	0.61	1571.87	41.78			0.69	42.03
135	208	0.11	0.03	−0.03	0.00	0.118	−0.041	0.042	0.005	−0.52	0.95	1573.70	48.02			1.01	48.33
136	209	0.14	0.00	−0.03	0.00	0.150	0.000	0.045	0.006	−0.11	1.49	1576.71	53.08			1.54	53.47
137	210	0.15	0.00	−0.04	0.00	0.161	0.000	0.059	0.009	−0.47	1.51	1578.63	59.23			1.60	59.74
138	211	0.16	0.00	−0.04	0.00	0.172	0.000	0.060	0.009	−0.36	1.76	1581.71	64.22			1.86	64.83
139	212	0.17	0.00	−0.04	0.00	0.183	0.000	0.062	0.010	−0.70	1.37	1583.83	70.18			1.46	70.88
140	213	0.17	0.00	−0.03	0.00	0.183	0.000	0.049	0.008	−0.37	1.50	1586.80	75.28			1.56	76.04
141	214	0.18	0.00	−0.03	0.01	0.194	0.000	0.051	−0.002	−0.79	1.22	1588.59	81.56			1.28	82.42
142	215	0.19	0.00	−0.03	0.01	0.205	0.000	0.053	−0.001	−0.91	1.20	1591.50	86.72			1.26	87.71
143	216	0.20	0.00	−0.03	0.01	0.216	0.000	0.055	−0.001	−1.35	0.93	1593.08	93.21			0.98	94.30
144	217	0.22	0.00	−0.02	0.01	0.238	0.000	0.046	−0.002	−1.46	0.92	1595.76	98.60			0.95	99.79
145	218	0.22	0.00	−0.02	0.02	0.238	0.000	0.047	−0.012	−2.01	0.42	1597.37	105.07			0.49	106.41
146	219	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−1.92	0.38	1599.88	110.63			0.44	112.10
147	220	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.36	−0.09	1601.26	117.32			−0.03	118.91
148	221	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−2.50	−0.25	1603.69	122.96			−0.18	124.70
149	222	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−3.07	−0.78	1604.93	129.79			−0.71	131.66
150	223	0.22	0.00	0.02	0.02	0.240	0.000	−0.001	−0.023	−3.25	−0.96	1607.20	135.60			−0.87	137.65
151	224	0.22	0.00	0.03	0.02	0.241	0.000	−0.013	−0.026	−3.86	−1.49	1608.26	142.61			−1.37	144.84
152	225	0.22	0.00	0.03	0.02	0.241	0.000	−0.013	−0.026	−3.82	−1.49	1610.14	148.80			−1.36	151.20
153	226	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−4.27	−1.86	1610.85	156.15			−1.68	158.75
154	227	0.22	0.00	0.05	0.01	0.242	0.000	−0.038	−0.021	−4.24	−1.76	1612.45	162.62			−1.62	165.36
155	228	0.22	0.00	0.05	0.01	0.242	0.000	−0.038	−0.021	−4.58	−2.10	1612.97	170.18			−1.97	173.07

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 73 (Ta)																	
156	229	0.22	0.00	0.06	0.01	0.243	0.000	−0.050	−0.023	−4.72	−2.12	1614.50	176.72			−1.90	179.87
157	230	0.22	0.00	0.07	0.00	0.243	0.000	−0.063	−0.016	−5.33	−2.56	1614.94	184.35			−2.34	187.69
158	231	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−5.26	−2.57	1616.29	191.07			−2.33	194.61
159	232	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−5.88	−3.15	1616.70	198.73			−2.91	202.45
160	233	0.21	0.00	0.08	−0.01	0.233	0.000	−0.078	−0.008	−6.34	−3.43	1618.15	205.35			−3.11	209.36
161	234	0.21	0.00	0.09	−0.01	0.234	0.000	−0.090	−0.010	−7.30	−4.13	1618.52	213.06			−3.71	217.36
162	235	0.21	0.00	0.09	−0.02	0.233	0.000	−0.091	−0.001	−7.45	−4.34	1619.73	219.92			−3.88	224.47
163	236	0.20	0.00	0.09	−0.02	0.222	0.000	−0.093	0.000	−7.59	−4.61	1619.49	228.23			−4.13	232.99
164	237	0.20	0.00	0.10	−0.03	0.222	0.000	−0.106	0.008	−7.70	−4.51	1620.24	235.55			−3.82	240.76
165	238	0.19	0.00	0.09	−0.03	0.210	0.000	−0.096	0.011	−7.33	−4.51	1619.58	244.28			−3.92	249.60
166	239	0.19	0.00	0.09	−0.03	0.210	0.000	−0.096	0.011	−6.89	−4.16	1619.91	252.03			−3.55	257.59
167	240	0.18	0.00	0.10	−0.04	0.199	0.000	−0.110	0.020	−7.47	−4.61	1619.55	260.45			−3.71	266.54
168	241	0.18	0.00	0.10	−0.04	0.199	0.000	−0.110	0.020	−7.13	−4.38	1619.83	268.24			−3.46	274.59
169	242	0.17	0.00	0.10	−0.04	0.187	0.000	−0.111	0.021	−7.28	−4.41	1618.91	277.24			−3.46	283.85
170	243	0.17	0.00	0.10	−0.05	0.187	0.000	−0.112	0.031	−7.16	−4.41	1619.27	284.95			−3.21	292.05
Z = 74 (W)																	
80	154	−0.13	0.00	0.04	0.01	−0.135	0.000	−0.039	−0.003	−5.01	−3.50	1192.35	−7.26			−3.52	−6.50
81	155	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−5.15	−4.37	1204.78	−11.62			−4.38	−10.93
82	156	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−5.87	−5.07	1219.01	−17.78			−5.07	−17.15
83	157	−0.06	0.00	0.00	0.00	−0.063	0.000	0.001	0.000	−5.03	−4.34	1229.34	−20.04			−4.34	−19.47
84	158	0.08	0.00	0.00	0.00	0.085	0.000	0.003	0.000	−4.15	−3.03	1241.05	−23.67			−3.04	−23.17
85	159	0.10	0.00	0.00	−0.01	0.107	0.000	0.004	0.010	−3.26	−2.01	1250.59	−25.15			−2.01	−24.72
86	160	0.12	0.00	−0.01	0.00	0.128	0.000	0.018	0.002	−2.47	−1.07	1262.17	−28.65	−29.36	0.209	−1.08	−28.28
87	161	0.13	0.00	−0.01	0.00	0.139	0.000	0.019	0.002	−2.01	−0.52	1271.72	−30.13			−0.53	−29.83
88	162	0.14	0.00	−0.01	0.00	0.150	0.000	0.020	0.002	−1.50	0.05	1283.18	−33.52	−34.00	0.018	0.04	−33.27
89	163	0.15	0.00	0.01	0.00	0.162	0.000	−0.003	−0.001	−1.12	0.48	1292.39	−34.66	−34.91	0.053	0.46	−34.48
90	164	0.16	0.00	0.01	0.00	0.173	0.000	−0.001	−0.001	−0.82	0.86	1303.57	−37.77	−38.23	0.012	0.85	−37.64
91	165	0.16	0.00	0.01	0.01	0.173	0.000	−0.001	−0.011	−0.56	0.94	1312.69	−38.81	−38.86	0.025	0.93	−38.74
92	166	0.17	0.00	0.01	0.01	0.184	0.000	0.001	−0.011	−0.38	1.22	1323.52	−41.58	−41.89	0.010	1.21	−41.55
93	167	0.18	0.00	0.01	0.00	0.195	0.000	0.002	−0.001	−0.31	1.37	1332.14	−42.12	−42.09	0.019	1.36	−42.15
94	168	0.19	0.00	0.02	0.00	0.206	0.000	−0.009	−0.003	−0.33	1.44	1342.73	−44.65	−44.89	0.016	1.44	−44.72
95	169	0.20	0.00	0.02	0.00	0.217	0.000	−0.007	−0.004	−0.45	1.46	1351.07	−44.91	−44.92	0.015	1.45	−45.04
96	170	0.20	0.00	0.02	0.00	0.217	0.000	−0.007	−0.004	−0.50	1.44	1361.33	−47.10	−47.29	0.015	1.44	−47.27
97	171	0.21	0.00	0.02	0.00	0.229	0.000	−0.005	−0.004	−0.79	1.32	1369.41	−47.10	−47.09	0.028	1.31	−47.32
98	172	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−1.06	1.20	1379.36	−48.99	−49.10	0.028	1.21	−49.23
99	173	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−1.40	1.00	1387.12	−48.68	−48.73	0.028	1.00	−48.97
100	174	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−1.54	0.87	1396.69	−50.17	−50.23	0.028	0.89	−50.49
101	175	0.23	0.00	0.04	0.01	0.253	0.000	−0.024	−0.019	−2.15	0.56	1404.19	−49.60	−49.63	0.028	0.57	−49.95
102	176	0.23	0.00	0.05	0.00	0.253	0.000	−0.038	−0.012	−2.45	0.36	1413.44	−50.78	−50.64	0.028	0.38	−51.15
103	177	0.23	0.00	0.05	0.00	0.253	0.000	−0.038	−0.012	−2.88	−0.04	1420.65	−49.92	−49.70	0.028	−0.02	−50.32
104	178	0.23	0.00	0.06	0.00	0.254	0.000	−0.049	−0.014	−3.37	−0.31	1429.60	−50.80	−50.42	0.015	−0.27	−51.21
105	179	0.23	0.00	0.06	0.00	0.254	0.000	−0.049	−0.014	−3.86	−0.77	1436.51	−49.64	−49.30	0.016	−0.73	−50.09
106	180	0.22	0.00	0.07	−0.01	0.243	0.000	−0.065	−0.007	−4.31	−1.11	1445.18	−50.23	−49.64	0.004	−1.05	−50.67
107	181	0.22	0.00	0.07	−0.01	0.243	0.000	−0.065	−0.007	−4.80	−1.56	1451.74	−48.72	−48.25	0.005	−1.50	−49.19
108	182	0.21	0.00	0.07	−0.01	0.232	0.000	−0.066	−0.006	−4.79	−1.68	1459.82	−48.73	−48.25	0.001	−1.60	−49.20
109	183	0.22	0.00	0.08	−0.02	0.243	0.000	−0.078	0.001	−5.48	−1.89	1465.80	−46.65	−46.37	0.001	−1.79	−47.11
110	184	0.21	0.00	0.09	−0.03	0.232	0.000	−0.093	0.009	−5.74	−1.88	1473.42	−46.19	−45.71	0.001	−1.72	−46.60
111	185	0.20	0.00	0.09	−0.03	0.221	0.000	−0.094	0.010	−5.96	−2.20	1479.19	−43.89	−43.39	0.001	−2.04	−44.31
112	186	0.20	0.00	0.09	−0.04	0.221	0.000	−0.095	0.020	−6.01	−2.21	1486.49	−43.12	−42.51	0.002	−1.99	−43.49
113	187	0.20	0.00	0.10	−0.04	0.221	0.000	−0.107	0.018	−6.83	−2.62	1492.03	−40.59	−39.90	0.002	−2.37	−40.94
114	188	0.19	0.00	0.10	−0.04	0.210	0.000	−0.109	0.019	−6.68	−2.55	1498.93	−39.41	−38.67	0.003	−2.27	−39.73
115	189	0.19	0.00	0.10	−0.05	0.209	0.000	−0.110	0.028	−7.27	−3.01	1504.22	−36.64	−35.48	0.200	−2.68	−36.90
116	190	0.17	0.00	0.09	−0.04	0.187	0.000	−0.099	0.023	−6.54	−2.78	1510.64	−34.99	−34.30	0.165	−2.50	−35.30
117	191	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−6.13	−3.28	1515.68	−31.95			−3.12	−32.37
118	192	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−6.30	−3.48	1522.22	−30.43			−3.30	−30.82
119	193	0.14	0.00	0.07	−0.03	0.153	0.000	−0.078	0.019	−6.34	−3.62	1526.61	−26.74			−3.44	−27.12
120	194	−0.15	0.00	0.02	−0.02	−0.156	0.000	−0.013	0.022	−5.26	−3.55	1532.59	−24.65			−3.49	−25.13

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 74 (W)																	
121	195	−0.12	0.00	0.02	−0.01	−0.125	0.000	−0.017	0.012	−5.49	−4.25	1537.25	−21.24			−4.22	−21.74
122	196	−0.11	0.00	0.02	0.00	−0.115	0.000	−0.018	0.002	−5.71	−4.64	1543.40	−19.32			−4.62	−19.80
123	197	−0.08	0.00	0.03	0.01	−0.084	0.000	−0.032	−0.007	−6.62	−5.64	1548.10	−15.94			−5.61	−16.38
124	198	−0.06	0.00	0.03	0.01	−0.063	0.000	−0.033	−0.007	−7.12	−6.11	1554.05	−13.82			−6.07	−14.22
125	199	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.73	−6.75	1558.11	−9.81			−6.75	−10.22
126	200	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.12	−7.08	1563.65	−7.28			−7.08	−7.65
127	201	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−7.20	−6.22	1565.96	−1.52			−6.22	−1.85
128	202	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.06	−5.15	1569.83	2.68			−5.15	2.40
129	203	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.86	−4.11	1571.72	8.87			−4.12	8.64
130	204	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.59	−2.86	1575.15	13.51			−2.86	13.32
131	205	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−2.50	−1.80	1576.77	19.96			−1.81	19.84
132	206	0.07	0.00	−0.02	−0.01	0.075	0.000	0.026	0.012	−1.80	−0.83	1580.23	24.57			−0.79	24.55
133	207	0.10	0.00	−0.03	−0.01	0.107	0.000	0.041	0.014	−1.61	−0.33	1582.16	30.71			−0.26	30.78
134	208	0.11	0.00	−0.03	−0.01	0.118	0.000	0.041	0.015	−1.03	0.31	1585.71	35.23			0.38	35.38
135	209	0.11	0.04	−0.03	0.00	0.118	−0.055	0.042	0.006	−0.96	0.65	1587.57	41.44			0.73	41.66
136	210	0.11	0.01	−0.03	0.00	0.118	−0.014	0.042	0.005	−0.04	1.24	1590.94	46.14			1.29	46.42
137	211	0.14	0.00	−0.04	−0.01	0.151	0.000	0.057	0.018	−0.52	1.38	1592.78	52.38			1.50	52.81
138	212	0.15	0.00	−0.03	0.00	0.161	0.000	0.046	0.007	−0.02	1.71	1596.17	57.06			1.77	57.51
139	213	0.16	0.00	−0.04	0.00	0.172	0.000	0.060	0.009	−0.53	1.61	1598.03	63.27			1.70	63.85
140	214	0.17	0.00	−0.03	0.00	0.183	0.000	0.049	0.008	−0.28	1.56	1601.57	67.80			1.62	68.43
141	215	0.18	0.00	−0.03	0.00	0.194	0.000	0.051	0.008	−0.67	1.33	1603.34	74.10			1.39	74.83
142	216	0.18	0.00	−0.03	0.01	0.194	0.000	0.051	−0.002	−0.60	1.39	1606.56	78.96			1.46	79.80
143	217	0.19	0.00	−0.03	0.01	0.205	0.000	0.053	−0.001	−1.03	1.09	1608.19	85.39			1.15	86.33
144	218	0.20	0.00	−0.02	0.01	0.216	0.000	0.043	−0.003	−0.96	1.13	1611.21	90.44			1.17	91.47
145	219	0.22	0.00	−0.02	0.02	0.238	0.000	0.047	−0.012	−1.73	0.66	1612.82	96.91			0.74	98.09
146	220	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−1.65	0.62	1615.71	102.09			0.69	103.39
147	221	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−2.14	0.16	1617.10	108.76			0.22	110.18
148	222	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.19	0.03	1619.88	114.06			0.11	115.61
149	223	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−2.72	−0.48	1621.13	120.88			−0.40	122.57
150	224	0.22	0.00	0.02	0.02	0.240	0.000	−0.001	−0.023	−2.90	−0.66	1623.76	126.32			−0.56	128.18
151	225	0.22	0.00	0.02	0.02	0.240	0.000	−0.001	−0.023	−3.39	−1.13	1624.78	133.37			−1.04	135.36
152	226	0.22	0.00	0.03	0.02	0.241	0.000	−0.013	−0.026	−3.45	−1.16	1627.07	139.15			−1.02	141.34
153	227	0.22	0.00	0.04	0.01	0.241	0.000	−0.026	−0.019	−3.76	−1.43	1627.70	146.59			−1.34	148.87
154	228	0.22	0.00	0.05	0.01	0.242	0.000	−0.038	−0.021	−3.87	−1.44	1629.79	152.58			−1.29	155.08
155	229	0.22	0.00	0.05	0.01	0.242	0.000	−0.038	−0.021	−4.20	−1.76	1630.29	160.14			−1.62	162.80
156	230	0.22	0.00	0.06	0.00	0.243	0.000	−0.052	−0.014	−4.25	−1.71	1632.13	166.38			−1.55	169.22
157	231	0.21	0.00	0.06	0.00	0.231	0.000	−0.053	−0.013	−4.60	−2.11	1632.54	174.04			−1.95	177.05
158	232	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−4.96	−2.30	1634.43	180.22			−2.04	183.50
159	233	0.20	0.00	0.07	0.00	0.221	0.000	−0.067	−0.015	−5.52	−2.92	1634.90	187.82			−2.67	191.28
160	234	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−6.04	−3.25	1636.76	194.04			−2.91	197.77
161	235	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−6.66	−3.86	1637.04	201.82			−3.53	205.74
162	236	0.20	0.00	0.09	−0.02	0.222	0.000	−0.093	0.000	−7.24	−4.22	1638.76	208.18			−3.74	212.44
163	237	0.19	0.00	0.09	−0.02	0.210	0.000	−0.094	0.001	−7.40	−4.48	1638.54	216.47			−3.99	220.95
164	238	0.19	0.00	0.09	−0.02	0.210	0.000	−0.094	0.001	−7.11	−4.21	1639.45	223.63			−3.70	228.32
165	239	0.19	0.00	0.09	−0.03	0.210	0.000	−0.096	0.011	−7.29	−4.47	1639.06	232.09			−3.88	237.08
166	240	0.18	0.00	0.09	−0.03	0.199	0.000	−0.097	0.012	−6.84	−4.17	1639.79	239.43			−3.54	244.68
167	241	0.18	0.00	0.10	−0.04	0.199	0.000	−0.110	0.020	−7.54	−4.66	1639.48	247.81			−3.77	253.54
168	242	0.17	0.00	0.09	−0.04	0.187	0.000	−0.099	0.023	−6.79	−4.12	1639.81	255.55			−3.31	261.43
169	243	0.17	0.00	0.10	−0.05	0.187	0.000	−0.112	0.031	−7.62	−4.71	1639.45	263.99			−3.56	270.43
170	244	0.17	0.00	0.10	−0.05	0.187	0.000	−0.112	0.031	−7.31	−4.49	1639.93	271.58			−3.31	278.28
171	245	0.14	0.00	0.09	−0.04	0.153	0.000	−0.102	0.026	−7.03	−4.68	1639.03	280.55			−3.77	287.23
172	246	0.14	0.00	0.09	−0.04	0.153	0.000	−0.102	0.026	−7.03	−4.72	1639.62	288.02			−3.79	294.98
173	247	0.13	0.00	0.08	−0.04	0.142	0.000	−0.091	0.028	−7.09	−5.10	1638.76	296.96			−4.26	304.07
Z = 75 (Re)																	
81	156	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−6.08	−5.26	1202.80	−2.35			−5.27	−1.51
82	157	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−6.81	−5.76	1216.91	−8.39			−5.77	−7.61
83	158	0.06	0.00	−0.01	0.00	0.064	0.000	0.014	0.001	−5.97	−4.86	1227.59	−11.00			−4.86	−10.30

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 75 (Re)																	
84	159	0.06	0.00	0.00	0.01	0.064	0.000	0.002	−0.010	−5.08	−4.04	1239.87	−15.20			−4.05	−14.57
85	160	0.10	0.00	0.01	−0.01	0.107	0.000	−0.008	0.009	−4.15	−2.85	1249.78	−17.04			−2.87	−16.49
86	161	0.11	0.00	0.00	−0.01	0.118	0.000	0.005	0.010	−3.23	−1.90	1261.41	−20.60	−20.88	0.209	−1.91	−20.11
87	162	0.12	0.00	0.00	−0.01	0.129	0.000	0.006	0.010	−2.67	−1.26	1271.38	−22.51			−1.27	−22.08
88	163	0.14	0.00	0.00	0.00	0.150	0.000	0.008	0.001	−2.14	−0.61	1282.84	−25.89	−26.01	0.020	−0.63	−25.54
89	164	0.14	0.00	0.01	0.00	0.151	0.000	−0.004	−0.001	−1.69	−0.15	1292.53	−27.51			−0.17	−27.22
90	165	0.15	0.00	0.01	0.00	0.162	0.000	−0.003	−0.001	−1.33	0.29	1303.73	−30.64	−30.66	0.028	0.27	−30.40
91	166	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−1.14	0.63	1313.09	−31.93			0.60	−31.76
92	167	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−0.81	0.67	1324.23	−35.00			0.65	−34.88
93	168	0.17	0.00	0.02	0.00	0.184	0.000	−0.012	−0.003	−0.70	0.87	1333.30	−35.99	−35.79	0.031	0.85	−35.94
94	169	0.18	0.00	0.03	0.00	0.196	0.000	−0.023	−0.005	−0.71	1.05	1343.86	−38.49	−38.39	0.028	1.03	−38.47
95	170	0.19	0.00	0.02	0.00	0.206	0.000	−0.009	−0.003	−0.68	1.05	1352.71	−39.26	−38.92	0.026	1.03	−39.31
96	171	0.19	0.00	0.02	0.00	0.206	0.000	−0.009	−0.003	−0.66	1.11	1362.96	−41.44	−41.25	0.028	1.10	−41.53
97	172	0.20	0.00	0.02	0.00	0.217	0.000	−0.007	−0.004	−0.88	1.04	1371.47	−41.88	−41.52	0.054	1.02	−42.02
98	173	0.21	0.00	0.03	0.00	0.229	0.000	−0.018	−0.006	−1.14	1.00	1381.42	−43.76	−43.55	0.028	0.98	−43.94
99	174	0.21	0.00	0.03	0.00	0.229	0.000	−0.018	−0.006	−1.33	0.83	1389.63	−43.90	−43.67	0.028	0.82	−44.12
100	175	0.21	0.00	0.03	0.00	0.229	0.000	−0.018	−0.006	−1.48	0.71	1399.25	−45.44	−45.29	0.028	0.71	−45.70
101	176	0.21	0.00	0.04	0.00	0.230	0.000	−0.030	−0.009	−1.92	0.41	1407.22	−45.34	−45.06	0.028	0.40	−45.64
102	177	0.21	0.00	0.04	0.00	0.230	0.000	−0.030	−0.009	−2.13	0.23	1416.51	−46.56	−46.27	0.028	0.23	−46.89
103	178	0.22	0.00	0.05	0.00	0.242	0.000	−0.040	−0.011	−2.83	−0.17	1424.20	−46.18	−45.65	0.028	−0.17	−46.54
104	179	0.21	0.00	0.06	−0.01	0.231	0.000	−0.054	−0.004	−3.25	−0.46	1433.23	−47.14	−46.59	0.024	−0.44	−47.51
105	180	0.21	0.00	0.06	−0.01	0.231	0.000	−0.054	−0.004	−3.71	−0.94	1440.64	−46.47	−45.84	0.021	−0.92	−46.88
106	181	0.21	0.00	0.06	−0.01	0.231	0.000	−0.054	−0.004	−4.04	−1.20	1449.27	−47.04	−46.51	0.013	−1.17	−47.46
107	182	0.21	0.00	0.07	−0.01	0.232	0.000	−0.066	−0.006	−4.84	−1.70	1456.35	−46.05	−45.45	0.102	−1.66	−46.49
108	183	0.21	0.00	0.07	−0.01	0.232	0.000	−0.066	−0.006	−4.95	−1.84	1464.51	−46.13	−45.81	0.008	−1.78	−46.58
109	184	0.20	0.00	0.08	−0.02	0.221	0.000	−0.081	0.002	−5.48	−2.13	1471.04	−44.59	−44.23	0.004	−2.06	−45.04
110	185	0.20	0.00	0.08	−0.02	0.221	0.000	−0.081	0.002	−5.45	−2.15	1478.73	−44.21	−43.82	0.001	−2.06	−44.65
111	186	0.20	0.00	0.09	−0.03	0.221	0.000	−0.094	0.010	−6.20	−2.47	1484.96	−42.38	−41.93	0.001	−2.34	−42.80
112	187	0.20	0.00	0.09	−0.04	0.221	0.000	−0.095	0.020	−6.26	−2.50	1492.33	−41.67	−41.22	0.001	−2.31	−42.05
113	188	0.19	0.00	0.09	−0.04	0.209	0.000	−0.097	0.021	−6.62	−2.84	1498.26	−39.53	−39.02	0.001	−2.65	−39.91
114	189	0.18	0.00	0.09	−0.04	0.198	0.000	−0.098	0.022	−6.55	−2.89	1505.33	−38.52	−37.98	0.008	−2.68	−38.89
115	190	0.18	0.00	0.09	−0.04	0.198	0.000	−0.098	0.022	−7.04	−3.38	1511.10	−36.22	−35.57	0.149	−3.17	−36.59
116	191	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−6.13	−3.27	1517.68	−34.73	−34.35	0.010	−3.12	−35.17
117	192	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−6.82	−3.93	1523.32	−32.30			−3.78	−32.74
118	193	0.14	0.00	0.07	−0.03	0.153	0.000	−0.078	0.019	−6.95	−4.14	1529.93	−30.84			−3.98	−31.25
119	194	0.14	0.00	0.07	−0.03	0.153	0.000	−0.078	0.019	−7.09	−4.31	1534.78	−27.62			−4.15	−28.02
120	195	0.11	0.00	0.05	−0.02	0.119	0.000	−0.056	0.014	−6.05	−4.15	1540.71	−25.48			−4.06	−25.95
121	196	−0.12	0.00	0.02	−0.01	−0.125	0.000	−0.017	0.012	−6.18	−4.92	1545.88	−22.57			−4.90	−23.09
122	197	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−6.37	−5.37	1552.14	−20.77			−5.36	−21.27
123	198	−0.08	0.00	0.03	0.01	−0.084	0.000	−0.032	−0.007	−7.35	−6.35	1557.23	−17.79			−6.32	−18.25
124	199	−0.07	0.00	0.03	0.01	−0.073	0.000	−0.033	−0.007	−7.89	−6.83	1563.24	−15.73			−6.80	−16.16
125	200	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−8.29	−7.25	1567.51	−11.92			−7.25	−12.36
126	201	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−8.62	−7.55	1573.06	−9.40			−7.55	−9.81
127	202	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−7.71	−6.77	1575.86	−4.14			−6.77	−4.51
128	203	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−6.59	−5.61	1579.69	0.11			−5.61	−0.22
129	204	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−5.47	−4.58	1581.99	5.88			−4.59	5.59
130	205	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−4.20	−3.35	1585.49	10.46			−3.35	10.22
131	206	0.06	0.00	−0.01	0.00	0.064	0.000	0.014	0.001	−3.36	−2.45	1587.67	16.35			−2.45	16.16
132	207	0.07	0.00	−0.02	−0.01	0.075	0.000	0.026	0.012	−2.47	−1.48	1591.17	20.92			−1.44	20.82
133	208	0.09	0.00	−0.03	−0.01	0.096	0.000	0.040	0.014	−2.12	−0.89	1593.42	26.74			−0.83	26.73
134	209	0.10	0.02	−0.03	−0.01	0.107	−0.028	0.041	0.015	−1.57	−0.21	1596.97	31.26			−0.14	31.32
135	210	0.11	0.03	−0.03	0.00	0.118	−0.041	0.042	0.005	−1.34	0.16	1599.20	37.10			0.22	37.21
136	211	0.11	0.00	−0.03	0.00	0.118	0.000	0.042	0.005	−0.56	0.73	1602.61	41.76			0.78	41.93
137	212	0.13	0.00	−0.03	0.00	0.139	0.000	0.044	0.006	−0.51	1.01	1604.72	47.73			1.05	47.97
138	213	0.14	0.00	−0.03	0.00	0.150	0.000	0.045	0.006	−0.30	1.33	1608.15	52.37			1.38	52.69
139	214	0.15	0.00	−0.04	0.00	0.161	0.000	0.059	0.009	−0.70	1.31	1610.31	58.27			1.40	58.72
140	215	0.16	0.00	−0.03	0.00	0.172	0.000	0.048	0.007	−0.43	1.49	1613.66	62.99			1.54	63.50

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 75 (Re)																	
141	216	0.17	0.00	−0.03	0.00	0.183	0.000	0.049	0.008	−0.77	1.12	1615.97	68.76			1.16	69.35
142	217	0.18	0.00	−0.03	0.01	0.194	0.000	0.051	−0.002	−0.79	1.20	1619.19	73.61			1.26	74.31
143	218	0.19	0.00	−0.03	0.01	0.205	0.000	0.053	−0.001	−1.19	0.96	1621.15	79.72			1.01	80.51
144	219	0.19	0.00	−0.02	0.01	0.205	0.000	0.041	−0.004	−0.98	0.98	1624.22	84.72			1.01	85.60
145	220	0.20	0.00	−0.02	0.01	0.216	0.000	0.043	−0.003	−1.47	0.65	1626.06	90.95			0.68	91.92
146	221	0.22	0.00	−0.01	0.01	0.238	0.000	0.034	−0.005	−1.64	0.61	1628.98	96.10			0.62	97.17
147	222	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−2.20	0.09	1630.82	102.34			0.14	103.57
148	223	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.24	−0.02	1633.60	107.63			0.04	108.99
149	224	0.22	0.00	0.01	0.01	0.239	0.000	0.010	−0.011	−2.65	−0.46	1635.15	114.15			−0.46	115.57
150	225	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−2.77	−0.59	1637.76	119.62			−0.57	121.19
151	226	0.22	0.00	0.02	0.02	0.240	0.000	−0.001	−0.023	−3.38	−1.13	1639.23	126.22			−1.05	127.99
152	227	0.22	0.00	0.03	0.02	0.241	0.000	−0.013	−0.026	−3.44	−1.17	1641.54	131.98			−1.04	133.94
153	228	0.22	0.00	0.04	0.01	0.241	0.000	−0.026	−0.019	−3.74	−1.43	1642.53	139.05			−1.35	141.10
154	229	0.22	0.00	0.04	0.01	0.241	0.000	−0.026	−0.019	−3.63	−1.36	1644.55	145.10			−1.28	147.31
155	230	0.22	0.00	0.05	0.01	0.242	0.000	−0.038	−0.021	−4.14	−1.69	1645.44	152.29			−1.56	154.70
156	231	0.20	0.00	0.05	0.01	0.220	0.000	−0.042	−0.020	−3.94	−1.72	1647.36	158.43			−1.57	161.02
157	232	0.20	0.00	0.06	0.00	0.220	0.000	−0.055	−0.013	−4.58	−2.20	1648.23	165.64			−2.05	168.40
158	233	0.20	0.00	0.06	0.00	0.220	0.000	−0.055	−0.013	−4.67	−2.32	1650.07	171.87			−2.16	174.81
159	234	0.20	0.00	0.07	−0.01	0.220	0.000	−0.068	−0.005	−5.57	−3.01	1650.95	179.06			−2.79	182.22
160	235	0.19	0.00	0.07	−0.01	0.209	0.000	−0.070	−0.004	−5.73	−3.26	1652.75	185.34			−3.02	188.70
161	236	0.19	0.00	0.08	−0.01	0.210	0.000	−0.082	−0.006	−6.69	−3.96	1653.49	192.67			−3.64	196.30
162	237	0.19	0.00	0.08	−0.01	0.210	0.000	−0.082	−0.006	−6.89	−4.19	1655.08	199.14			−3.86	202.97
163	238	0.19	0.00	0.09	−0.02	0.210	0.000	−0.094	0.001	−7.58	−4.57	1655.33	206.97			−4.11	211.12
164	239	0.19	0.00	0.09	−0.03	0.210	0.000	−0.096	0.011	−7.36	−4.44	1656.40	213.97			−3.88	218.42
165	240	0.18	0.00	0.09	−0.03	0.199	0.000	−0.097	0.012	−7.47	−4.67	1656.33	222.11			−4.09	226.77
166	241	0.17	0.00	0.09	−0.03	0.187	0.000	−0.098	0.013	−7.07	−4.43	1657.13	229.39			−3.81	234.29
167	242	0.17	0.00	0.09	−0.04	0.187	0.000	−0.099	0.023	−7.41	−4.60	1656.85	237.74			−3.84	243.00
168	243	0.17	0.00	0.09	−0.04	0.187	0.000	−0.099	0.023	−7.12	−4.38	1657.50	245.15			−3.61	250.65
169	244	0.16	0.00	0.09	−0.04	0.176	0.000	−0.101	0.024	−7.32	−4.68	1657.20	253.53			−3.88	259.28
170	245	0.15	0.00	0.09	−0.04	0.164	0.000	−0.101	0.025	−7.11	−4.59	1657.82	260.97			−3.75	266.99
171	246	0.14	0.00	0.08	−0.04	0.153	0.000	−0.091	0.027	−7.21	−5.03	1657.50	269.36			−4.27	275.53
172	247	0.14	0.00	0.08	−0.04	0.153	0.000	−0.091	0.027	−7.20	−5.07	1658.10	276.84			−4.29	283.26
173	248	0.13	0.00	0.08	−0.04	0.142	0.000	−0.091	0.028	−7.68	−5.60	1657.73	285.28			−4.80	291.97
174	249	0.12	0.00	0.07	−0.04	0.130	0.000	−0.080	0.030	−7.34	−5.60	1658.14	292.94			−4.86	299.82
175	250	0.12	0.00	0.07	−0.04	0.130	0.000	−0.080	0.030	−7.66	−5.93	1657.43	301.73			−5.19	308.86
Z = 76 (Os)																	
83	159	−0.05	0.00	0.00	0.00	−0.052	0.000	0.001	0.000	−6.79	−6.01	1227.82	−3.94			−6.01	−3.09
84	160	0.06	0.00	0.01	0.00	0.064	0.000	−0.010	−0.001	−5.96	−4.87	1240.30	−8.34			−4.87	−7.57
85	161	0.08	0.00	0.03	0.00	0.086	0.000	−0.033	−0.003	−4.90	−3.61	1250.21	−10.19			−3.62	−9.48
86	162	0.10	0.00	0.01	−0.01	0.107	0.000	−0.008	0.009	−3.75	−2.50	1262.21	−14.11			−2.51	−13.48
87	163	0.11	0.00	0.01	−0.01	0.118	0.000	−0.007	0.009	−3.08	−1.76	1272.16	−15.99			−1.78	−15.44
88	164	0.12	0.00	0.00	0.00	0.129	0.000	0.006	0.000	−2.38	−1.04	1284.06	−19.82	−20.46	0.209	−1.05	−19.33
89	165	0.13	0.00	0.01	0.00	0.140	0.000	−0.005	−0.001	−1.93	−0.51	1293.75	−21.44			−0.52	−21.02
90	166	0.14	0.00	0.01	0.00	0.151	0.000	−0.004	−0.001	−1.51	−0.03	1305.41	−25.03	−25.44	0.018	−0.04	−24.67
91	167	0.15	0.00	0.02	0.00	0.162	0.000	−0.015	−0.003	−1.25	0.37	1314.79	−26.33	−26.50	0.073	0.35	−26.04
92	168	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−0.96	0.73	1326.11	−29.59	−29.99	0.012	0.71	−29.36
93	169	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−0.69	0.67	1335.51	−30.92	−30.72	0.025	0.66	−30.74
94	170	0.17	0.00	0.02	0.00	0.184	0.000	−0.012	−0.003	−0.57	0.90	1346.52	−33.85	−33.93	0.011	0.89	−33.73
95	171	0.17	0.00	0.02	0.00	0.184	0.000	−0.012	−0.003	−0.44	1.06	1355.28	−34.54	−34.29	0.019	1.04	−34.48
96	172	0.18	0.00	0.02	0.00	0.195	0.000	−0.010	−0.003	−0.46	1.14	1366.01	−37.20	−37.24	0.015	1.13	−37.18
97	173	0.19	0.00	0.02	0.00	0.206	0.000	−0.009	−0.003	−0.58	1.16	1374.50	−37.62	−37.44	0.015	1.14	−37.66
98	174	0.20	0.00	0.02	0.00	0.217	0.000	−0.007	−0.004	−0.71	1.11	1384.94	−39.99	−40.00	0.011	1.10	−40.07
99	175	0.20	0.00	0.02	0.00	0.217	0.000	−0.007	−0.004	−0.83	1.01	1393.14	−40.12	−40.10	0.014	1.00	−40.25
100	176	0.20	0.00	0.03	0.00	0.218	0.000	−0.019	−0.006	−1.05	0.90	1403.24	−42.15	−42.10	0.028	0.90	−42.31
101	177	0.20	0.00	0.03	0.00	0.218	0.000	−0.019	−0.006	−1.29	0.68	1411.18	−42.01	−41.95	0.016	0.68	−42.23
102	178	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−1.63	0.48	1420.97	−43.74	−43.55	0.016	0.49	−43.98
103	179	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−1.99	0.16	1428.65	−43.34	−43.02	0.018	0.16	−43.63

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 76 (Os)																	
104	180	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	−2.50	−0.15	1438.17	−44.79	−44.36	0.020	−0.13	−45.10
105	181	0.21	0.00	0.05	0.00	0.230	0.000	−0.041	−0.011	−3.03	−0.54	1445.54	−44.09	−43.55	0.032	−0.52	−44.44
106	182	0.20	0.00	0.06	−0.01	0.220	0.000	−0.056	−0.003	−3.50	−0.90	1454.74	−45.22	−44.61	0.022	−0.86	−45.58
107	183	0.20	0.00	0.06	−0.01	0.220	0.000	−0.056	−0.003	−3.97	−1.34	1461.82	−44.23	−43.66	0.050	−1.31	−44.62
108	184	0.20	0.00	0.07	−0.01	0.220	0.000	−0.068	−0.005	−4.40	−1.50	1470.47	−44.81	−44.26	0.001	−1.45	−45.19
109	185	0.20	0.00	0.07	−0.02	0.220	0.000	−0.069	0.005	−4.68	−1.78	1477.04	−43.30	−42.81	0.001	−1.72	−43.71
110	186	0.19	0.00	0.08	−0.02	0.209	0.000	−0.083	0.003	−4.92	−1.82	1485.21	−43.40	−43.00	0.001	−1.72	−43.80
111	187	0.19	0.00	0.08	−0.03	0.209	0.000	−0.084	0.013	−5.31	−2.07	1491.42	−41.55	−41.22	0.001	−1.96	−41.94
112	188	0.18	0.00	0.08	−0.03	0.198	0.000	−0.085	0.014	−5.22	−2.11	1499.26	−41.31	−41.14	0.001	−1.98	−41.70
113	189	0.18	0.00	0.08	−0.03	0.198	0.000	−0.085	0.014	−5.67	−2.54	1505.33	−39.31	−38.99	0.001	−2.41	−39.72
114	190	0.17	0.00	0.08	−0.03	0.187	0.000	−0.086	0.015	−5.71	−2.41	1512.67	−38.58	−38.71	0.001	−2.26	−38.98
115	191	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−5.79	−2.94	1518.52	−36.36	−36.39	0.001	−2.81	−36.79
116	192	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−6.24	−3.40	1526.12	−35.89	−35.88	0.003	−3.25	−36.31
117	193	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−6.92	−4.05	1531.80	−33.49	−33.39	0.003	−3.91	−33.92
118	194	0.14	0.00	0.07	−0.03	0.153	0.000	−0.078	0.019	−7.17	−4.38	1538.96	−32.58	−32.43	0.003	−4.22	−32.99
119	195	0.11	0.00	0.06	−0.02	0.119	0.000	−0.068	0.013	−6.87	−4.66	1543.97	−29.53	−29.69	0.500	−4.55	−29.98
120	196	0.11	0.00	0.05	−0.02	0.119	0.000	−0.056	0.014	−6.64	−4.72	1550.57	−28.05	−28.28	0.040	−4.63	−28.51
121	197	−0.11	0.00	0.02	−0.01	−0.115	0.000	−0.018	0.012	−6.74	−5.59	1555.88	−25.29			−5.57	−25.81
122	198	−0.09	0.00	0.02	0.00	−0.094	0.000	−0.020	0.002	−7.06	−6.12	1562.65	−23.99			−6.11	−24.50
123	199	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−7.93	−7.04	1567.73	−20.99			−7.03	−21.49
124	200	−0.06	0.00	0.03	0.01	−0.063	0.000	−0.033	−0.007	−8.65	−7.57	1574.20	−19.40			−7.53	−19.85
125	201	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.26	−8.22	1578.74	−15.87			−8.22	−16.33
126	202	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.62	−8.52	1584.73	−13.78			−8.53	−14.22
127	203	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−8.65	−7.66	1587.49	−8.47			−7.66	−8.88
128	204	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.55	−6.57	1591.80	−4.71			−6.57	−5.08
129	205	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.31	−5.50	1594.11	1.06			−5.51	0.72
130	206	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.04	−4.24	1597.98	5.25			−4.24	4.96
131	207	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−3.96	−3.16	1600.02	11.29			−3.16	11.04
132	208	0.05	0.00	−0.01	0.00	0.053	0.000	0.013	0.001	−2.92	−2.07	1603.81	15.56			−2.07	15.37
133	209	0.08	0.00	−0.02	−0.01	0.086	0.000	0.027	0.012	−2.41	−1.37	1605.99	21.46			−1.34	21.35
134	210	0.09	0.02	−0.02	−0.01	0.096	−0.028	0.027	0.013	−1.79	−0.64	1609.89	25.62			−0.60	25.58
135	211	0.11	0.04	−0.02	0.00	0.118	−0.055	0.030	0.004	−1.71	−0.21	1612.10	31.49			−0.17	31.51
136	212	0.11	0.03	−0.02	0.00	0.118	−0.041	0.030	0.004	−0.94	0.39	1615.89	35.77			0.42	35.85
137	213	0.11	0.00	−0.03	0.00	0.118	0.000	0.042	0.005	−0.58	0.68	1618.00	41.73			0.73	41.89
138	214	0.13	0.00	−0.02	0.00	0.139	0.000	0.032	0.004	−0.16	1.15	1621.68	46.12			1.18	46.33
139	215	0.14	0.00	−0.03	0.00	0.150	0.000	0.045	0.006	−0.40	1.22	1623.79	52.08			1.27	52.39
140	216	0.15	0.00	−0.03	0.00	0.161	0.000	0.046	0.007	−0.28	1.46	1627.47	56.47			1.52	56.87
141	217	0.16	0.00	−0.03	0.00	0.172	0.000	0.048	0.007	−0.57	1.16	1629.74	62.28			1.22	62.76
142	218	0.17	0.00	−0.03	0.00	0.183	0.000	0.049	0.008	−0.56	1.27	1633.32	66.77			1.34	67.35
143	219	0.18	0.00	−0.03	0.01	0.194	0.000	0.051	−0.002	−0.90	1.07	1635.27	72.89			1.13	73.56
144	220	0.19	0.00	−0.03	0.01	0.205	0.000	0.053	−0.001	−0.96	1.12	1638.70	77.53			1.18	78.30
145	221	0.20	0.00	−0.02	0.01	0.216	0.000	0.043	−0.003	−1.26	0.82	1640.54	83.77			0.86	84.61
146	222	0.22	0.00	−0.01	0.01	0.238	0.000	0.034	−0.005	−1.37	0.81	1643.81	88.56			0.83	89.50
147	223	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−1.92	0.32	1645.64	94.81			0.38	95.90
148	224	0.22	0.00	0.00	0.01	0.239	0.000	0.022	−0.008	−1.85	0.28	1648.72	99.79			0.30	100.94
149	225	0.22	0.00	0.01	0.01	0.239	0.000	0.010	−0.011	−2.33	−0.19	1650.33	106.25			−0.18	107.52
150	226	0.22	0.00	0.01	0.01	0.239	0.000	0.010	−0.011	−2.41	−0.30	1653.29	111.37			−0.28	112.76
151	227	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−2.92	−0.77	1654.71	118.02			−0.76	119.54
152	228	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−2.93	−0.75	1657.34	123.46			−0.70	125.16
153	229	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−3.19	−1.02	1658.37	130.50			−0.98	132.33
154	230	0.22	0.00	0.04	0.01	0.241	0.000	−0.026	−0.019	−3.20	−0.98	1660.78	136.16			−0.89	138.18
155	231	0.20	0.00	0.04	0.01	0.219	0.000	−0.030	−0.018	−3.29	−1.25	1661.63	143.39			−1.16	145.55
156	232	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	−3.39	−1.27	1663.91	149.18			−1.16	151.50
157	233	0.19	0.00	0.05	0.00	0.208	0.000	−0.045	−0.010	−3.76	−1.71	1664.75	156.41			−1.61	158.89
158	234	0.19	0.00	0.06	0.00	0.209	0.000	−0.057	−0.012	−4.12	−1.92	1667.04	162.20			−1.74	164.90
159	235	0.19	0.00	0.06	−0.01	0.208	0.000	−0.058	−0.002	−4.69	−2.48	1667.82	169.49			−2.32	172.35
160	236	0.19	0.00	0.07	−0.01	0.209	0.000	−0.070	−0.004	−5.25	−2.82	1670.06	175.32			−2.58	178.43

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 76 (Os)																	
161	237	0.19	0.00	0.08	−0.01	0.210	0.000	−0.082	−0.006	−6.18	−3.49	1670.77	182.67			−3.16	186.04
162	238	0.19	0.00	0.08	−0.01	0.210	0.000	−0.082	−0.006	−6.39	−3.66	1672.67	188.84			−3.32	192.41
163	239	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−6.63	−4.01	1672.89	196.69			−3.63	200.48
164	240	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−6.38	−3.83	1674.27	203.39			−3.44	207.38
165	241	0.17	0.00	0.08	−0.03	0.187	0.000	−0.086	0.015	−6.59	−4.16	1674.32	211.41			−3.67	215.69
166	242	0.17	0.00	0.09	−0.03	0.187	0.000	−0.098	0.013	−6.68	−3.83	1675.37	218.43			−3.22	223.03
167	243	0.17	0.00	0.09	−0.04	0.187	0.000	−0.099	0.023	−7.01	−4.19	1675.29	226.58			−3.44	231.52
168	244	0.15	0.00	0.08	−0.03	0.164	0.000	−0.089	0.017	−6.19	−3.87	1676.19	233.76			−3.31	238.71
169	245	0.15	0.00	0.08	−0.03	0.164	0.000	−0.089	0.017	−6.52	−4.20	1675.92	242.09			−3.65	247.26
170	246	0.14	0.00	0.08	−0.04	0.153	0.000	−0.091	0.027	−6.56	−4.36	1677.14	248.95			−3.61	254.53
171	247	0.14	0.00	0.08	−0.04	0.153	0.000	−0.091	0.027	−7.07	−4.87	1676.91	257.25			−4.12	263.06
172	248	0.12	0.00	0.07	−0.03	0.130	0.000	−0.080	0.021	−6.61	−4.78	1677.71	264.52			−4.25	270.33
173	249	0.12	0.00	0.07	−0.03	0.130	0.000	−0.080	0.021	−7.20	−5.37	1677.40	272.90			−4.84	278.95
174	250	0.12	0.00	0.07	−0.04	0.130	0.000	−0.080	0.030	−7.41	−5.63	1678.42	279.95			−4.90	286.44
175	251	−0.12	0.00	0.02	−0.01	−0.125	0.000	−0.017	0.012	−6.47	−5.49	1677.23	289.21			−5.44	295.26
176	252	−0.12	0.00	0.03	0.00	−0.125	0.000	−0.029	0.004	−6.75	−5.72	1678.06	296.45			−5.67	302.75
177	253	−0.11	0.00	0.04	0.00	−0.115	0.000	−0.041	0.005	−7.56	−6.51	1677.66	304.92			−6.39	311.54
Z = 77 (Ir)																	
85	162	−0.07	0.00	0.00	0.00	−0.073	0.000	0.002	−0.000	−5.85	−5.05	1249.03	−1.72			−5.06	−0.86
86	163	−0.08	0.00	−0.01	0.00	−0.084	0.000	0.014	−0.001	−4.76	−3.92	1261.07	−5.69			−3.93	−4.91
87	164	0.10	0.00	0.00	−0.01	0.107	0.000	0.004	0.010	−3.92	−2.68	1271.04	−7.59			−2.70	−6.89
88	165	0.11	0.00	0.00	−0.01	0.118	0.000	0.005	0.010	−3.17	−1.90	1282.95	−11.42			−1.91	−10.80
89	166	0.12	0.00	0.00	0.00	0.129	0.000	0.006	0.000	−2.57	−1.25	1293.04	−13.44			−1.27	−12.89
90	167	0.13	0.00	0.00	0.00	0.140	0.000	0.007	0.000	−2.04	−0.68	1304.68	−17.01	−17.08	0.019	−0.70	−16.53
91	168	0.13	0.00	0.01	0.00	0.140	0.000	−0.005	−0.001	−1.59	−0.22	1314.50	−18.76			−0.24	−18.34
92	169	0.14	0.00	0.01	0.01	0.151	0.000	−0.003	−0.011	−1.23	0.23	1325.80	−21.99	−22.08	0.026	0.22	−21.63
93	170	0.15	0.00	0.01	0.00	0.162	0.000	−0.003	−0.001	−0.88	0.61	1335.26	−23.38			0.59	−23.09
94	171	0.15	0.00	0.02	0.00	0.162	0.000	−0.015	−0.003	−0.65	0.88	1346.30	−26.34	−26.43	0.040	0.86	−26.11
95	172	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−0.52	1.10	1355.49	−27.46			1.07	−27.30
96	173	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−0.36	1.23	1366.23	−30.14	−30.27	0.014	1.21	−30.02
97	174	0.17	0.00	0.01	0.00	0.184	0.000	0.000	−0.001	−0.33	0.98	1375.47	−31.31	−30.87	0.028	0.96	−31.25
98	175	0.18	0.00	0.02	0.00	0.195	0.000	−0.010	−0.003	−0.44	1.03	1385.88	−33.63	−33.43	0.020	1.02	−33.63
99	176	0.22	0.00	0.01	0.00	0.239	0.000	0.009	−0.001	−0.93	0.98	1394.52	−34.21	−33.86	0.020	0.95	−34.27
100	177	0.22	0.00	0.02	0.00	0.240	0.000	−0.004	−0.004	−0.99	0.96	1404.59	−36.21	−36.05	0.020	0.94	−36.30
101	178	0.22	0.00	0.02	0.00	0.240	0.000	−0.004	−0.004	−1.23	0.81	1412.94	−36.49	−36.25	0.020	0.78	−36.64
102	179	0.19	0.00	0.03	0.00	0.207	0.000	−0.021	−0.006	−1.14	0.60	1422.80	−38.28	−38.08	0.011	0.59	−38.45
103	180	0.22	0.00	0.03	0.00	0.240	0.000	−0.016	−0.006	−1.78	0.36	1430.87	−38.27	−37.98	0.022	0.34	−38.50
104	181	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−1.91	0.03	1440.47	−39.80	−39.47	0.026	0.03	−40.05
105	182	0.22	0.00	0.05	−0.01	0.241	0.000	−0.041	−0.002	−2.73	−0.27	1448.23	−39.49	−39.05	0.021	−0.28	−39.78
106	183	0.19	0.00	0.05	−0.01	0.208	0.000	−0.046	−0.000	−2.84	−0.68	1457.53	−40.72	−40.20	0.025	−0.66	−41.03
107	184	0.19	0.00	0.06	−0.01	0.208	0.000	−0.058	−0.002	−3.53	−1.10	1465.06	−40.17	−39.61	0.028	−1.09	−40.51
108	185	0.19	0.00	0.06	−0.01	0.208	0.000	−0.058	−0.002	−3.67	−1.26	1473.75	−40.80	−40.34	0.028	−1.24	−41.16
109	186	0.19	0.00	0.07	−0.02	0.209	0.000	−0.071	0.005	−4.24	−1.48	1480.72	−39.70	−39.17	0.017	−1.44	−40.07
110	187	0.18	0.00	0.07	−0.02	0.198	0.000	−0.072	0.006	−4.22	−1.60	1489.03	−39.93	−39.72	0.006	−1.53	−40.31
111	188	0.18	0.00	0.07	−0.02	0.198	0.000	−0.072	0.006	−4.54	−1.94	1495.79	−38.62	−38.33	0.007	−1.89	−39.03
112	189	0.17	0.00	0.07	−0.02	0.186	0.000	−0.074	0.007	−4.53	−1.69	1503.38	−38.14	−38.45	0.013	−1.62	−38.55
113	190	0.15	0.00	0.06	−0.02	0.163	0.000	−0.064	0.010	−4.57	−2.14	1509.93	−36.62	−36.75	0.002	−2.09	−37.06
114	191	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−5.32	−2.52	1517.82	−36.44	−36.71	0.002	−2.41	−36.84
115	192	0.15	0.00	0.07	−0.03	0.164	0.000	−0.077	0.018	−5.99	−3.15	1524.23	−34.78	−34.83	0.002	−3.04	−35.19
116	193	0.13	0.00	0.06	−0.02	0.141	0.000	−0.066	0.011	−5.94	−3.60	1531.87	−34.34	−34.53	0.002	−3.52	−34.80
117	194	0.14	0.00	0.07	−0.03	0.153	0.000	−0.078	0.019	−7.12	−4.31	1538.04	−32.45	−32.53	0.002	−4.18	−32.86
118	195	0.13	0.00	0.06	−0.03	0.141	0.000	−0.067	0.021	−7.21	−4.76	1545.38	−31.71	−31.69	0.002	−4.64	−32.13
119	196	0.11	0.00	0.05	−0.02	0.119	0.000	−0.056	0.014	−7.23	−5.26	1551.04	−29.30	−29.44	0.038	−5.19	−29.77
120	197	−0.12	0.00	0.02	−0.01	−0.125	0.000	−0.017	0.012	−6.89	−5.59	1557.95	−28.14	−28.27	0.020	−5.57	−28.66
121	198	−0.11	0.00	0.02	0.00	−0.115	0.000	−0.018	0.002	−7.59	−6.43	1563.66	−25.78			−6.42	−26.31
122	199	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−7.93	−7.01	1570.52	−24.57	−24.40	0.041	−7.00	−25.09
123	200	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−8.85	−7.90	1576.00	−21.98			−7.89	−22.48

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 77 (Ir)																	
124	201	−0.06	0.00	0.03	0.01	−0.063	0.000	−0.033	−0.007	−9.56	−8.44	1582.53	−20.44			−8.41	−20.90
125	202	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.15	−9.08	1587.49	−17.32			−9.08	−17.80
126	203	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.49	−9.38	1593.50	−15.26			−9.38	−15.72
127	204	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−9.50	−8.47	1596.63	−10.33			−8.47	−10.76
128	205	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.43	−7.42	1601.03	−6.65			−7.42	−7.05
129	206	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−7.17	−6.33	1603.72	−1.27			−6.33	−1.64
130	207	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.92	−5.08	1607.65	2.87			−5.08	2.54
131	208	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−4.78	−3.99	1610.09	8.50			−4.00	8.21
132	209	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−3.70	−3.09	1614.11	12.56			−3.09	12.31
133	210	−0.06	0.00	−0.01	0.00	−0.063	0.000	0.013	−0.001	−2.86	−2.23	1616.53	18.20			−2.23	18.01
134	211	0.09	0.02	−0.02	−0.01	0.096	−0.028	0.027	0.013	−2.45	−1.29	1620.26	22.55			−1.25	22.44
135	212	0.10	0.03	−0.02	−0.01	0.108	−0.042	0.029	0.014	−2.16	−0.83	1622.84	28.04			−0.78	28.00
136	213	0.11	0.03	−0.02	0.00	0.118	−0.041	0.030	0.004	−1.53	−0.19	1626.62	32.33			−0.16	32.33
137	214	0.11	0.01	−0.02	0.00	0.118	−0.014	0.029	0.003	−1.02	0.14	1629.10	37.92			0.15	37.97
138	215	0.11	0.00	−0.02	0.00	0.118	0.000	0.029	0.003	−0.50	0.60	1632.82	42.28			0.62	42.39
139	216	0.13	0.00	−0.03	0.00	0.139	0.000	0.044	0.006	−0.70	0.80	1635.20	47.97			0.84	48.17
140	217	0.14	0.00	−0.03	0.00	0.150	0.000	0.045	0.006	−0.52	1.09	1638.86	52.38			1.14	52.67
141	218	0.16	0.00	−0.03	0.00	0.172	0.000	0.048	0.007	−0.82	1.07	1641.23	58.08			1.12	58.45
142	219	0.16	0.00	−0.03	0.00	0.172	0.000	0.048	0.007	−0.67	1.05	1644.96	62.41			1.11	62.87
143	220	0.18	0.00	−0.03	0.00	0.194	0.000	0.051	0.008	−1.11	0.86	1647.30	68.15			0.90	68.69
144	221	0.19	0.00	−0.03	0.01	0.205	0.000	0.053	−0.001	−1.12	0.94	1650.72	72.80			1.00	73.44
145	222	0.19	0.00	−0.02	0.01	0.205	0.000	0.041	−0.004	−1.26	0.67	1652.91	78.68			0.69	79.38
146	223	0.19	0.00	−0.01	0.01	0.205	0.000	0.028	−0.006	−1.09	0.72	1656.15	83.52			0.74	84.31
147	224	0.22	0.00	−0.01	0.01	0.238	0.000	0.034	−0.005	−1.88	0.31	1658.28	89.46			0.31	90.34
148	225	0.22	0.00	0.00	0.01	0.239	0.000	0.022	−0.008	−1.87	0.23	1661.43	94.38			0.24	95.37
149	226	0.22	0.00	0.00	0.01	0.239	0.000	0.022	−0.008	−2.38	−0.23	1663.41	100.47			−0.24	101.56
150	227	0.22	0.00	0.01	0.01	0.239	0.000	0.010	−0.011	−2.42	−0.34	1666.39	105.56			−0.34	106.78
151	228	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−2.92	−0.79	1668.16	111.86			−0.78	113.21
152	229	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−2.82	−0.73	1670.77	117.32			−0.71	118.80
153	230	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−3.17	−1.03	1672.20	123.97			−1.00	125.59
154	231	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−2.98	−0.89	1674.53	129.70			−0.85	131.47
155	232	0.22	0.00	0.04	0.00	0.241	0.000	−0.028	−0.009	−3.30	−1.12	1675.69	136.61			−1.09	138.50
156	233	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−3.04	−1.10	1677.96	142.42			−1.05	144.48
157	234	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	−3.66	−1.56	1679.18	149.26			−1.48	151.51
158	235	0.19	0.00	0.05	0.00	0.208	0.000	−0.045	−0.010	−3.63	−1.63	1681.35	155.17			−1.54	157.58
159	236	0.19	0.00	0.06	−0.01	0.208	0.000	−0.058	−0.002	−4.42	−2.19	1682.49	162.10			−2.05	164.72
160	237	0.18	0.00	0.06	−0.01	0.197	0.000	−0.059	−0.002	−4.57	−2.43	1684.64	168.02			−2.26	170.82
161	238	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−5.44	−3.07	1685.68	175.05			−2.84	178.08
162	239	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−5.64	−3.26	1687.61	181.20			−3.02	184.40
163	240	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−6.33	−3.71	1688.30	188.57			−3.36	192.07
164	241	0.17	0.00	0.08	−0.02	0.187	0.000	−0.085	0.005	−6.10	−3.63	1689.78	195.16			−3.25	198.87
165	242	0.17	0.00	0.08	−0.02	0.187	0.000	−0.085	0.005	−6.29	−3.65	1689.87	203.15			−3.27	207.04
166	243	0.16	0.00	0.08	−0.03	0.175	0.000	−0.088	0.016	−6.08	−3.59	1691.21	209.88			−3.10	214.08
167	244	0.15	0.00	0.08	−0.03	0.164	0.000	−0.089	0.017	−6.34	−3.94	1691.46	217.70			−3.42	222.11
168	245	0.15	0.00	0.08	−0.03	0.164	0.000	−0.089	0.017	−6.17	−3.82	1692.57	224.66			−3.30	229.29
169	246	0.14	0.00	0.07	−0.03	0.153	0.000	−0.078	0.019	−6.15	−4.13	1692.62	232.68			−3.67	237.43
170	247	0.12	0.00	0.06	−0.02	0.130	0.000	−0.067	0.012	−5.74	−4.09	1693.65	239.72			−3.79	244.53
171	248	0.12	0.00	0.07	−0.03	0.130	0.000	−0.080	0.021	−6.76	−4.87	1694.03	247.42			−4.37	252.64
172	249	0.12	0.00	0.07	−0.03	0.130	0.000	−0.080	0.021	−6.93	−5.06	1695.13	254.39			−4.55	259.85
173	250	0.12	0.00	0.07	−0.03	0.130	0.000	−0.080	0.021	−7.52	−5.65	1695.15	262.44			−5.14	268.12
174	251	−0.12	0.00	0.02	−0.01	−0.125	0.000	−0.017	0.012	−6.43	−5.42	1695.68	269.98			−5.38	275.43
175	252	−0.12	0.00	0.02	−0.01	−0.125	0.000	−0.017	0.012	−7.16	−6.15	1695.71	278.02			−6.11	283.71
176	253	−0.11	0.00	0.03	0.00	−0.115	0.000	−0.030	0.004	−7.36	−6.39	1696.55	285.25			−6.34	291.18
177	254	−0.10	0.00	0.03	0.00	−0.105	0.000	−0.031	0.004	−8.07	−7.15	1696.45	293.42			−7.10	299.60
178	255	−0.10	0.00	0.04	0.00	−0.105	0.000	−0.042	0.005	−8.38	−7.35	1697.11	300.84			−7.23	307.32
179	256	−0.09	0.00	0.03	0.00	−0.094	0.000	−0.031	0.003	−8.54	−7.65	1696.42	309.60			−7.59	316.28

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 78 (Pt)																	
87	165	−0.09	0.00	0.01	0.00	−0.094	0.000	−0.008	0.001	−4.50	−3.57	1271.23	−0.49			−3.58	0.37
88	166	−0.10	0.00	0.00	0.00	−0.105	0.000	0.004	−0.000	−3.57	−2.63	1283.50	−4.68			−2.64	−3.90
89	167	0.10	0.00	0.00	0.00	0.107	0.000	0.004	0.000	−2.70	−1.60	1293.27	−6.38			−1.61	−5.68
90	168	0.11	0.00	0.00	0.00	0.118	0.000	0.005	0.000	−2.09	−0.95	1305.34	−10.38	−11.04	0.209	−0.96	−9.75
91	169	0.12	0.00	0.00	0.01	0.129	0.000	0.007	−0.010	−1.64	−0.42	1315.16	−12.13			−0.43	−11.57
92	170	0.12	0.00	0.01	0.00	0.129	0.000	−0.006	−0.001	−1.07	0.10	1326.89	−15.79	−16.31	0.019	0.09	−15.30
93	171	0.13	0.00	0.00	0.00	0.140	0.000	0.007	0.000	−0.67	0.54	1336.36	−17.19	−17.47	0.088	0.52	−16.76
94	172	0.13	0.00	0.01	0.00	0.140	0.000	−0.005	−0.001	−0.31	0.88	1347.82	−20.57	−21.10	0.013	0.87	−20.21
95	173	0.14	0.00	0.01	0.00	0.151	0.000	−0.004	−0.001	−0.14	1.15	1357.03	−21.72	−21.94	0.056	1.13	−21.42
96	174	0.15	0.00	0.01	0.00	0.162	0.000	−0.003	−0.001	0.01	1.34	1368.20	−24.81	−25.32	0.012	1.33	−24.57
97	175	0.16	0.00	0.01	0.00	0.173	0.000	−0.001	−0.001	0.10	1.50	1377.10	−25.64	−25.69	0.019	1.48	−25.47
98	176	0.22	0.00	0.00	0.00	0.239	0.000	0.021	0.002	−0.46	1.39	1388.15	−28.62	−28.93	0.014	1.37	−28.50
99	177	0.23	0.00	0.00	0.00	0.250	0.000	0.023	0.002	−0.73	1.29	1396.90	−29.30	−29.37	0.015	1.27	−29.25
100	178	0.23	0.00	0.01	0.00	0.250	0.000	0.011	−0.001	−0.71	1.27	1407.46	−31.79	−32.00	0.011	1.25	−31.77
101	179	0.23	0.00	0.01	0.00	0.250	0.000	0.011	−0.001	−0.94	1.07	1415.92	−32.17	−32.26	0.009	1.05	−32.22
102	180	0.23	0.00	0.02	0.00	0.251	0.000	−0.002	−0.004	−0.98	1.03	1426.08	−34.27	−34.44	0.011	1.02	−34.35
103	181	0.22	0.00	0.03	0.00	0.240	0.000	−0.016	−0.006	−1.27	0.75	1434.25	−34.36	−34.38	0.015	0.74	−34.49
104	182	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−1.39	0.52	1444.23	−36.27	−36.17	0.016	0.52	−36.43
105	183	0.21	0.00	0.04	0.00	0.230	0.000	−0.030	−0.009	−1.89	0.19	1452.07	−36.04	−35.77	0.016	0.18	−36.25
106	184	0.20	0.00	0.05	−0.01	0.219	0.000	−0.044	−0.001	−2.28	−0.14	1461.76	−37.66	−37.33	0.018	−0.12	−37.89
107	185	0.20	0.00	0.05	−0.01	0.219	0.000	−0.044	−0.001	−2.70	−0.54	1469.32	−37.15	−36.68	0.041	−0.54	−37.42
108	186	0.19	0.00	0.06	−0.01	0.208	0.000	−0.058	−0.002	−2.96	−0.67	1478.45	−38.21	−37.86	0.022	−0.64	−38.49
109	187	0.19	0.00	0.06	−0.01	0.208	0.000	−0.058	−0.002	−3.18	−0.85	1485.43	−37.12	−36.71	0.028	−0.82	−37.44
110	188	0.17	0.00	0.06	−0.01	0.186	0.000	−0.061	−0.001	−3.09	−0.92	1494.15	−37.77	−37.82	0.005	−0.88	−38.10
111	189	0.16	0.00	0.06	−0.01	0.175	0.000	−0.062	−0.001	−3.34	−1.21	1500.91	−36.45	−36.48	0.011	−1.17	−36.81
112	190	0.15	0.00	0.05	−0.01	0.163	0.000	−0.051	0.002	−3.37	−1.30	1509.30	−36.78	−37.32	0.006	−1.27	−37.17
113	191	0.14	0.00	0.05	−0.01	0.152	0.000	−0.052	0.002	−3.89	−1.85	1515.99	−35.39	−35.70	0.004	−1.81	−35.80
114	192	0.13	0.00	0.05	−0.01	0.141	0.000	−0.054	0.003	−4.31	−2.34	1524.44	−35.77	−36.29	0.002	−2.30	−36.20
115	193	0.13	0.00	0.05	−0.01	0.141	0.000	−0.054	0.003	−4.93	−2.93	1530.86	−34.12	−34.48	0.002	−2.89	−34.56
116	194	0.12	0.00	0.05	−0.02	0.130	0.000	−0.055	0.013	−5.43	−3.46	1539.03	−34.22	−34.76	0.001	−3.40	−34.65
117	195	0.12	0.00	0.05	−0.02	0.130	0.000	−0.055	0.013	−6.10	−4.10	1545.18	−32.30	−32.80	0.001	−4.04	−32.74
118	196	0.11	0.00	0.05	−0.02	0.119	0.000	−0.056	0.014	−6.63	−4.69	1553.09	−32.14	−32.65	0.001	−4.62	−32.58
119	197	−0.12	0.00	0.02	−0.01	−0.125	0.000	−0.017	0.012	−6.86	−5.56	1559.17	−30.14	−30.42	0.001	−5.54	−30.64
120	198	−0.11	0.00	0.02	−0.01	−0.115	0.000	−0.018	0.012	−7.46	−6.25	1566.87	−29.77	−29.91	0.003	−6.23	−30.27
121	199	−0.11	0.00	0.02	0.00	−0.115	0.000	−0.018	0.002	−8.28	−7.09	1572.62	−27.46	−27.39	0.003	−7.08	−27.97
122	200	−0.08	0.00	0.03	0.01	−0.084	0.000	−0.032	−0.007	−8.85	−7.75	1580.00	−26.76	−26.60	0.020	−7.72	−27.25
123	201	−0.07	0.00	0.03	0.01	−0.073	0.000	−0.033	−0.007	−9.77	−8.64	1585.53	−24.21	−23.74	0.050	−8.61	−24.69
124	202	−0.06	0.00	0.03	0.01	−0.063	0.000	−0.033	−0.007	−10.34	−9.16	1592.46	−23.08			−9.13	−23.54
125	203	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.90	−9.77	1597.43	−19.98			−9.77	−20.46
126	204	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−11.23	−10.06	1603.85	−18.33			−10.06	−18.79
127	205	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−10.23	−9.16	1607.04	−13.44			−9.16	−13.88
128	206	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.15	−8.08	1611.82	−10.15			−8.09	−10.57
129	207	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−7.88	−6.98	1614.54	−4.80			−6.98	−5.19
130	208	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.63	−5.72	1618.87	−1.06			−5.72	−1.42
131	209	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−5.48	−4.63	1621.34	4.54			−4.63	4.21
132	210	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−4.41	−3.72	1625.76	8.19			−3.72	7.91
133	211	−0.05	0.00	0.00	0.00	−0.052	0.000	0.001	0.000	−3.51	−2.85	1628.21	13.81			−2.85	13.57
134	212	−0.06	0.00	0.00	0.00	−0.063	0.000	0.001	0.000	−2.61	−1.98	1632.41	17.69			−1.98	17.49
135	213	0.09	0.04	−0.02	0.00	0.097	−0.055	0.028	0.004	−2.59	−1.22	1634.73	23.44			−1.18	23.33
136	214	0.09	0.03	−0.02	0.00	0.096	−0.041	0.028	0.003	−1.73	−0.55	1638.88	27.35			−0.52	27.29
137	215	0.11	0.03	−0.03	0.00	0.118	−0.041	0.042	0.005	−1.60	−0.13	1641.30	33.01			−0.08	33.02
138	216	0.11	0.00	−0.02	0.00	0.118	0.000	0.029	0.003	−0.72	0.37	1645.38	37.01			0.40	37.05
139	217	0.11	0.00	−0.03	0.00	0.118	0.000	0.042	0.005	−0.59	0.64	1647.71	42.74			0.68	42.87
140	218	0.13	0.00	−0.03	0.00	0.139	0.000	0.044	0.006	−0.42	1.03	1651.67	46.85			1.08	47.06
141	219	0.16	0.00	−0.04	0.00	0.172	0.000	0.060	0.009	−1.01	1.08	1654.01	52.59			1.16	52.90
142	220	0.17	0.00	−0.04	0.00	0.183	0.000	0.062	0.010	−0.94	1.09	1658.11	56.56			1.19	56.96
143	221	0.18	0.00	−0.04	0.00	0.194	0.000	0.063	0.011	−1.24	0.94	1660.42	62.32			1.03	62.79

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 78 (Pt)																	
144	222	0.19	0.00	−0.03	0.01	0.205	0.000	0.053	−0.001	−0.96	1.05	1664.20	66.61			1.12	67.15
145	223	0.19	0.00	−0.03	0.01	0.205	0.000	0.053	−0.001	−1.26	0.79	1666.41	72.47			0.84	73.09
146	224	0.20	0.00	−0.02	0.01	0.216	0.000	0.043	−0.003	−1.12	0.87	1670.00	76.95			0.91	77.64
147	225	0.22	0.00	−0.02	0.02	0.238	0.000	0.047	−0.012	−1.84	0.44	1672.17	82.86			0.51	83.68
148	226	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−1.75	0.39	1675.68	87.42			0.46	88.34
149	227	0.22	0.00	0.00	0.01	0.239	0.000	0.022	−0.008	−2.09	−0.02	1677.62	93.55			−0.01	94.51
150	228	0.22	0.00	0.01	0.01	0.239	0.000	0.010	−0.011	−2.10	−0.08	1680.93	98.31			−0.06	99.39
151	229	0.22	0.00	0.01	0.01	0.239	0.000	0.010	−0.011	−2.54	−0.50	1682.69	104.62			−0.49	105.81
152	230	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−2.46	−0.43	1685.67	109.71			−0.41	111.04
153	231	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−2.66	−0.65	1687.04	116.42			−0.64	117.86
154	232	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−2.56	−0.53	1689.76	121.77			−0.48	123.37
155	233	0.22	0.00	0.04	0.00	0.241	0.000	−0.028	−0.009	−2.83	−0.75	1690.93	128.66			−0.71	130.38
156	234	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−2.44	−0.66	1693.49	134.17			−0.60	136.05
157	235	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−2.85	−1.07	1694.68	141.06			−1.02	143.07
158	236	0.19	0.00	0.05	0.00	0.208	0.000	−0.045	−0.010	−3.12	−1.17	1697.24	146.57			−1.06	148.78
159	237	0.19	0.00	0.06	−0.01	0.208	0.000	−0.058	−0.002	−3.89	−1.72	1698.38	153.50			−1.57	155.90
160	238	0.18	0.00	0.06	−0.01	0.197	0.000	−0.059	−0.002	−4.01	−1.93	1700.86	159.09			−1.76	161.66
161	239	0.19	0.00	0.07	−0.01	0.209	0.000	−0.070	−0.004	−4.94	−2.54	1701.90	166.12			−2.32	168.92
162	240	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−5.05	−2.71	1704.17	171.93			−2.47	174.90
163	241	0.17	0.00	0.07	−0.01	0.187	0.000	−0.072	−0.003	−5.29	−3.05	1704.75	179.42			−2.80	182.57
164	242	0.17	0.00	0.07	−0.02	0.186	0.000	−0.074	0.007	−5.13	−2.96	1706.57	185.66			−2.66	189.03
165	243	0.16	0.00	0.07	−0.02	0.175	0.000	−0.075	0.008	−5.27	−3.03	1706.72	193.59			−2.72	197.14
166	244	0.15	0.00	0.08	−0.02	0.165	0.000	−0.088	0.007	−5.35	−2.96	1708.40	199.98			−2.55	203.82
167	245	0.15	0.00	0.08	−0.03	0.164	0.000	−0.089	0.017	−5.75	−3.37	1708.73	207.72			−2.86	211.85
168	246	0.13	0.00	0.06	−0.02	0.141	0.000	−0.066	0.011	−4.80	−3.09	1710.02	214.50			−2.81	218.59
169	247	0.12	0.00	0.06	−0.02	0.130	0.000	−0.067	0.012	−5.30	−3.64	1710.33	222.26			−3.36	226.55
170	248	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−4.77	−3.67	1711.78	228.89			−3.65	233.12
171	249	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−5.50	−4.39	1712.09	236.64			−4.37	241.08
172	250	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−5.80	−4.70	1713.66	243.15			−4.68	247.80
173	251	−0.12	0.00	0.02	−0.01	−0.125	0.000	−0.017	0.012	−6.54	−5.50	1713.90	250.98			−5.45	255.87
174	252	−0.12	0.00	0.02	−0.01	−0.125	0.000	−0.017	0.012	−6.77	−5.76	1715.25	257.70			−5.71	262.81
175	253	−0.12	0.00	0.03	0.00	−0.125	0.000	−0.029	0.004	−7.55	−6.47	1715.27	265.75			−6.43	271.09
176	254	−0.10	0.00	0.03	0.00	−0.105	0.000	−0.031	0.004	−7.76	−6.84	1716.57	272.52			−6.78	278.10
177	255	−0.10	0.00	0.04	0.00	−0.105	0.000	−0.042	0.005	−8.68	−7.62	1716.50	280.66			−7.51	286.53
178	256	−0.10	0.00	0.04	0.00	−0.105	0.000	−0.042	0.005	−8.83	−7.77	1717.44	287.80			−7.65	293.91
179	257	−0.09	0.00	0.04	0.00	−0.094	0.000	−0.043	0.004	−9.14	−8.11	1716.79	296.51			−8.00	302.87
180	258	−0.07	0.00	0.04	0.01	−0.073	0.000	−0.044	−0.006	−9.11	−8.11	1717.43	303.95			−7.96	310.59
181	259	−0.07	0.00	0.03	0.01	−0.073	0.000	−0.033	−0.007	−9.48	−8.56	1716.75	312.70			−8.47	319.54
182	260	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.24	−8.31	1717.00	320.52			−8.31	327.53
Z = 79 (Au)																	
88	167	−0.08	0.00	0.01	0.00	−0.084	0.000	−0.009	0.001	−4.81	−3.89	1281.85	4.26			−3.90	5.20
89	168	−0.10	0.00	0.01	0.00	−0.105	0.000	−0.008	0.001	−3.98	−2.95	1292.22	1.96			−2.96	2.82
90	169	−0.10	0.00	0.01	0.00	−0.105	0.000	−0.008	0.001	−3.14	−2.15	1304.21	−1.96			−2.16	−1.18
91	170	−0.10	0.00	0.01	0.00	−0.105	0.000	−0.008	0.001	−2.32	−1.27	1314.18	−3.86			−1.29	−3.15
92	171	−0.11	0.00	0.02	0.00	−0.115	0.000	−0.018	0.002	−1.79	−0.70	1325.93	−7.54	−7.57	0.026	−0.71	−6.90
93	172	0.11	0.00	0.01	0.00	0.118	0.000	−0.007	−0.001	−1.28	−0.22	1335.84	−9.38			−0.23	−8.82
94	173	0.12	0.00	0.01	0.00	0.129	0.000	−0.006	−0.001	−0.91	0.18	1347.31	−12.78	−12.82	0.026	0.17	−12.29
95	174	0.12	0.00	0.01	0.00	0.129	0.000	−0.006	−0.001	−0.54	0.54	1356.93	−14.32			0.52	−13.90
96	175	0.12	0.00	0.01	0.00	0.129	0.000	−0.006	−0.001	−0.23	0.81	1368.08	−17.41	−17.44	0.042	0.80	−17.04
97	176	0.13	0.00	0.01	0.00	0.140	0.000	−0.005	−0.001	−0.12	1.02	1377.42	−18.67			1.00	−18.37
98	177	0.13	0.00	0.01	0.00	0.140	0.000	−0.005	−0.001	0.03	1.15	1388.29	−21.47	−21.55	0.013	1.14	−21.23
99	178	0.22	0.00	0.00	0.00	0.239	0.000	0.021	0.002	−0.69	1.24	1397.34	−22.45	−22.33	0.057	1.20	−22.29
100	179	0.22	0.00	0.00	0.00	0.239	0.000	0.021	0.002	−0.67	1.25	1407.92	−24.96	−24.95	0.017	1.22	−24.84
101	180	0.24	0.00	0.02	0.00	0.262	0.000	0.001	−0.004	−0.89	1.25	1416.66	−25.63	−25.60	0.021	1.20	−25.58
102	181	0.24	0.00	0.02	0.00	0.262	0.000	0.001	−0.004	−0.97	1.17	1426.93	−27.82	−27.87	0.020	1.14	−27.82
103	182	0.24	0.00	0.03	0.00	0.263	0.000	−0.012	−0.006	−1.22	0.89	1435.56	−28.38	−28.30	0.020	0.86	−28.43
104	183	0.20	0.00	0.03	−0.01	0.218	0.000	−0.020	0.004	−0.99	0.81	1445.44	−30.20	−30.19	0.010	0.79	−30.27

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 79 (Au)																	
105	184	0.23	0.00	0.04	0.00	0.252	0.000	−0.026	−0.009	−1.75	0.39	1453.84	−30.52	−30.32	0.022	0.37	−30.66
106	185	0.20	0.00	0.04	−0.01	0.218	0.000	−0.032	0.002	−1.72	0.20	1463.45	−32.06	−31.87	0.026	0.20	−32.22
107	186	0.20	0.00	0.04	−0.01	0.218	0.000	−0.032	0.002	−2.08	−0.19	1471.46	−32.00	−31.72	0.021	−0.20	−32.21
108	187	−0.15	0.00	0.02	0.00	−0.156	0.000	−0.014	0.003	−1.59	−0.22	1480.54	−33.01	−33.01	0.025	−0.22	−33.25
109	188	−0.15	0.00	0.01	0.00	−0.156	0.000	−0.003	0.001	−1.92	−0.47	1488.06	−32.46	−32.30	0.020	−0.48	−32.74
110	189	−0.15	0.00	0.02	0.00	−0.156	0.000	−0.014	0.003	−2.35	−0.81	1497.10	−33.43	−33.58	0.020	−0.82	−33.74
111	190	−0.14	0.00	0.02	0.00	−0.146	0.000	−0.015	0.003	−2.78	−1.27	1504.48	−32.74	−32.88	0.016	−1.28	−33.08
112	191	−0.14	0.00	0.02	0.00	−0.146	0.000	−0.015	0.003	−3.26	−1.82	1513.38	−33.56	−33.81	0.037	−1.82	−33.92
113	192	−0.14	0.00	0.03	0.00	−0.146	0.000	−0.026	0.004	−3.97	−2.39	1520.54	−32.66	−32.78	0.016	−2.39	−33.04
114	193	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	−4.30	−2.93	1529.10	−33.14	−33.39	0.011	−2.93	−33.55
115	194	−0.12	0.00	0.03	0.00	−0.125	0.000	−0.029	0.004	−5.04	−3.54	1535.97	−31.94	−32.26	0.010	−3.54	−32.37
116	195	−0.12	0.00	0.03	0.00	−0.125	0.000	−0.029	0.004	−5.55	−4.04	1544.16	−32.06	−32.57	0.001	−4.03	−32.49
117	196	−0.12	0.00	0.03	0.00	−0.125	0.000	−0.029	0.004	−6.30	−4.93	1551.00	−30.83	−31.14	0.003	−4.93	−31.28
118	197	−0.12	0.00	0.02	−0.01	−0.125	0.000	−0.017	0.012	−6.94	−5.63	1559.07	−30.83	−31.14	0.001	−5.62	−31.29
119	198	−0.11	0.00	0.02	0.00	−0.115	0.000	−0.018	0.002	−7.61	−6.41	1565.49	−29.17	−29.58	0.001	−6.41	−29.66
120	199	−0.11	0.00	0.02	−0.01	−0.115	0.000	−0.018	0.012	−8.33	−7.09	1573.23	−28.84	−29.09	0.001	−7.07	−29.31
121	200	−0.09	0.00	0.02	0.00	−0.094	0.000	−0.020	0.002	−9.07	−8.02	1579.51	−27.05	−27.27	0.050	−8.01	−27.53
122	201	−0.08	0.00	0.03	0.01	−0.084	0.000	−0.032	−0.007	−9.78	−8.64	1586.88	−26.35	−26.40	0.003	−8.61	−26.82
123	202	−0.07	0.00	0.03	0.01	−0.073	0.000	−0.033	−0.007	−10.67	−9.49	1592.79	−24.19	−24.40	0.166	−9.47	−24.66
124	203	−0.06	0.00	0.03	0.01	−0.063	0.000	−0.033	−0.007	−11.26	−10.03	1599.79	−23.12	−23.14	0.003	−10.00	−23.58
125	204	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−11.88	−10.70	1605.25	−20.50			−10.71	−20.98
126	205	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−12.19	−10.98	1611.70	−18.88			−10.98	−19.34
127	206	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−11.19	−10.07	1615.30	−14.41			−10.07	−14.85
128	207	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.10	−8.99	1620.11	−11.15			−8.99	−11.58
129	208	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−8.82	−7.76	1623.12	−6.09			−7.76	−6.49
130	209	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−7.59	−6.59	1627.58	−2.48			−6.59	−2.85
131	210	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−6.45	−5.51	1630.47	2.70			−5.51	2.35
132	211	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−5.32	−4.45	1634.77	6.47			−4.45	6.16
133	212	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−4.38	−3.69	1637.74	11.57			−3.70	11.30
134	213	−0.05	0.00	0.00	0.00	−0.052	0.000	0.001	0.000	−3.45	−2.79	1641.94	15.44			−2.79	15.21
135	214	0.07	0.04	−0.02	0.00	0.075	−0.055	0.027	0.003	−3.24	−1.95	1644.58	20.87			−1.92	20.71
136	215	0.08	0.04	−0.02	0.00	0.086	−0.055	0.027	0.003	−2.54	−1.25	1648.74	24.79			−1.22	24.68
137	216	0.09	0.04	−0.02	0.00	0.097	−0.055	0.028	0.004	−2.05	−0.74	1651.46	30.14			−0.71	30.08
138	217	0.10	0.03	−0.02	0.00	0.107	−0.041	0.029	0.004	−1.38	−0.19	1655.53	34.14			−0.17	34.13
139	218	0.11	0.00	−0.03	0.00	0.118	0.000	0.042	0.005	−1.07	0.16	1658.18	39.57			0.20	39.62
140	219	0.11	0.00	−0.03	0.00	0.118	0.000	0.042	0.005	−0.63	0.57	1662.14	43.67			0.61	43.80
141	220	0.15	0.00	−0.05	0.00	0.161	0.000	0.071	0.011	−1.47	0.77	1664.72	49.17			0.88	49.43
142	221	0.16	0.00	−0.04	0.00	0.172	0.000	0.060	0.009	−1.04	1.01	1668.62	53.34			1.09	53.64
143	222	0.17	0.00	−0.04	0.00	0.183	0.000	0.062	0.010	−1.30	0.73	1671.45	58.58			0.80	58.95
144	223	0.18	0.00	−0.04	0.01	0.194	0.000	0.064	0.001	−1.23	0.88	1675.22	62.88			0.96	63.34
145	224	0.19	0.00	−0.03	0.01	0.205	0.000	0.053	−0.001	−1.38	0.63	1677.80	68.37			0.68	68.88
146	225	0.19	0.00	−0.03	0.01	0.205	0.000	0.053	−0.001	−1.26	0.73	1681.39	72.85			0.79	73.45
147	226	0.20	0.00	−0.02	0.01	0.216	0.000	0.043	−0.003	−1.54	0.44	1683.81	78.51			0.46	79.16
148	227	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−1.74	0.37	1687.36	83.03			0.43	83.82
149	228	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.15	−0.07	1689.70	88.75			−0.02	89.63
150	229	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.18	−0.13	1693.03	93.49			−0.07	94.48
151	230	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−2.62	−0.55	1695.18	99.42			−0.50	100.52
152	231	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−2.40	−0.41	1698.09	104.57			−0.39	105.74
153	232	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−2.60	−0.63	1699.83	110.91			−0.62	112.19
154	233	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−2.47	−0.47	1702.54	116.28			−0.43	117.71
155	234	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−2.65	−0.67	1704.06	122.83			−0.63	124.37
156	235	0.19	0.00	0.03	0.00	0.207	0.000	−0.021	−0.006	−2.11	−0.50	1706.56	128.40			−0.48	130.06
157	236	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−2.63	−0.90	1708.10	134.93			−0.86	136.74
158	237	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−2.59	−0.95	1710.63	140.47			−0.90	142.43
159	238	0.19	0.00	0.05	−0.01	0.208	0.000	−0.046	−0.000	−3.39	−1.50	1712.12	147.04			−1.41	149.18
160	239	0.19	0.00	0.06	−0.01	0.208	0.000	−0.058	−0.002	−3.80	−1.68	1714.60	152.64			−1.53	154.99
161	240	0.18	0.00	0.06	−0.01	0.197	0.000	−0.059	−0.002	−4.24	−2.20	1715.90	159.42			−2.05	161.92

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 79 (Au)																	
162	241	0.19	0.00	0.07	−0.01	0.209	0.000	−0.070	−0.004	−4.77	−2.40	1718.21	165.18			−2.19	167.90
163	242	0.18	0.00	0.07	−0.02	0.198	0.000	−0.072	0.006	−5.03	−2.76	1719.16	172.29			−2.50	175.22
164	243	0.17	0.00	0.07	−0.02	0.186	0.000	−0.074	0.007	−4.75	−2.63	1720.97	178.55			−2.36	181.67
165	244	0.16	0.00	0.07	−0.02	0.175	0.000	−0.075	0.008	−4.91	−2.68	1721.45	186.15			−2.39	189.44
166	245	0.13	0.00	0.05	−0.01	0.141	0.000	−0.054	0.003	−3.92	−2.41	1722.93	192.73			−2.27	196.05
167	246	0.12	0.00	0.05	−0.01	0.130	0.000	−0.054	0.003	−4.41	−2.90	1723.69	200.05			−2.76	203.55
168	247	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−4.29	−3.16	1725.54	206.27			−3.14	209.84
169	248	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−4.98	−3.88	1726.36	213.52			−3.87	217.27
170	249	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−5.38	−4.29	1728.19	219.77			−4.27	223.71
171	250	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−6.10	−4.99	1728.83	227.20			−4.97	231.34
172	251	−0.12	0.00	0.01	−0.02	−0.125	0.000	−0.005	0.020	−6.42	−5.41	1730.51	233.59			−5.30	238.02
173	252	−0.12	0.00	0.02	−0.01	−0.125	0.000	−0.017	0.012	−7.14	−6.09	1730.98	241.19			−6.05	245.77
174	253	−0.12	0.00	0.02	−0.01	−0.125	0.000	−0.017	0.012	−7.36	−6.33	1732.32	247.92			−6.29	252.71
175	254	−0.10	0.00	0.02	−0.01	−0.105	0.000	−0.019	0.012	−8.01	−7.14	1732.76	255.55			−7.09	260.57
176	255	−0.10	0.00	0.03	0.00	−0.105	0.000	−0.031	0.004	−8.40	−7.44	1734.01	262.37			−7.39	267.61
177	256	−0.10	0.00	0.04	0.00	−0.105	0.000	−0.042	0.005	−9.30	−8.21	1734.26	270.19			−8.10	275.71
178	257	−0.10	0.00	0.04	0.00	−0.105	0.000	−0.042	0.005	−9.43	−8.34	1735.18	277.34			−8.23	283.10
179	258	−0.08	0.00	0.03	0.00	−0.084	0.000	−0.032	0.003	−9.60	−8.67	1734.85	285.74			−8.61	291.68
180	259	−0.07	0.00	0.04	0.01	−0.073	0.000	−0.044	−0.006	−9.76	−8.72	1735.55	293.12			−8.58	299.38
181	260	−0.07	0.00	0.03	0.01	−0.073	0.000	−0.033	−0.007	−10.11	−9.16	1735.18	301.55			−9.08	308.01
182	261	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.97	−9.02	1735.54	309.27			−9.02	315.89
183	262	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−10.72	−9.73	1735.31	317.57			−9.73	324.45
184	263	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.73	−9.73	1735.66	325.29			−9.73	332.43
Z = 80 (Hg)																	
90	170	−0.09	0.00	0.02	0.00	−0.094	0.000	−0.020	0.002	−3.71	−2.67	1304.17	5.37			−2.68	6.32
91	171	−0.10	0.00	0.02	0.01	−0.105	0.000	−0.019	−0.007	−2.97	−1.88	1314.29	3.32			−1.89	4.19
92	172	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−2.26	−1.21	1326.44	−0.76	−1.09	0.209	−1.22	0.04
93	173	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−1.59	−0.55	1336.25	−2.50			−0.56	−1.78
94	174	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−1.10	−0.08	1348.14	−6.32	−6.65	0.020	−0.09	−5.67
95	175	−0.11	0.00	0.03	0.00	−0.115	0.000	−0.030	0.004	−0.77	0.41	1357.69	−7.79	−7.99	0.101	0.39	−7.22
96	176	−0.11	0.00	0.03	0.00	−0.115	0.000	−0.030	0.004	−0.42	0.72	1369.28	−11.32	−11.78	0.014	0.71	−10.81
97	177	−0.11	0.00	0.02	0.01	−0.115	0.000	−0.019	−0.007	−0.06	0.97	1378.64	−12.61	−12.78	0.075	0.96	−12.16
98	178	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	0.09	1.16	1389.95	−15.84	−16.32	0.013	1.15	−15.46
99	179	−0.13	0.00	0.02	0.01	−0.135	0.000	−0.017	−0.007	0.15	1.29	1399.01	−16.83	−16.92	0.027	1.28	−16.52
100	180	−0.13	0.00	0.01	0.01	−0.135	0.000	−0.005	−0.008	0.23	1.32	1410.05	−19.80	−20.25	0.014	1.31	−19.54
101	181	−0.14	0.00	0.01	0.01	−0.146	0.000	−0.004	−0.008	0.15	1.33	1418.84	−20.52	−20.66	0.015	1.31	−20.33
102	182	−0.14	0.00	0.01	0.00	−0.146	0.000	−0.004	0.001	0.00	1.16	1429.67	−23.28	−23.58	0.010	1.15	−23.14
103	183	−0.14	0.00	0.01	0.01	−0.146	0.000	−0.004	−0.008	−0.11	1.08	1438.17	−23.70	−23.80	0.008	1.06	−23.62
104	184	−0.14	0.00	0.01	0.00	−0.146	0.000	−0.004	0.001	−0.39	0.78	1448.73	−26.20	−26.35	0.010	0.77	−26.16
105	185	−0.14	0.00	0.01	0.00	−0.146	0.000	−0.004	0.001	−0.62	0.56	1456.98	−26.38	−26.18	0.016	0.55	−26.40
106	186	−0.14	0.00	0.01	0.00	−0.146	0.000	−0.004	0.001	−0.93	0.26	1467.18	−28.50	−28.54	0.011	0.25	−28.56
107	187	−0.14	0.00	0.02	0.00	−0.146	0.000	−0.015	0.003	−1.24	−0.00	1475.11	−28.36	−28.12	0.014	−0.01	−28.47
108	188	−0.14	0.00	0.02	0.00	−0.146	0.000	−0.015	0.003	−1.62	−0.38	1485.00	−30.18	−30.20	0.012	−0.38	−30.33
109	189	−0.14	0.00	0.02	0.00	−0.146	0.000	−0.015	0.003	−1.94	−0.70	1492.64	−29.75	−29.63	0.033	−0.70	−29.93
110	190	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	−2.25	−1.18	1502.28	−31.31	−31.37	0.016	−1.18	−31.53
111	191	−0.12	0.00	0.03	0.00	−0.125	0.000	−0.029	0.004	−2.79	−1.58	1509.65	−30.62	−30.59	0.023	−1.58	−30.87
112	192	−0.12	0.00	0.03	0.00	−0.125	0.000	−0.029	0.004	−3.35	−2.12	1518.99	−31.89	−32.01	0.016	−2.12	−32.17
113	193	−0.12	0.00	0.03	0.00	−0.125	0.000	−0.029	0.004	−3.89	−2.64	1526.15	−30.98	−31.05	0.015	−2.64	−31.29
114	194	−0.12	0.00	0.03	0.00	−0.125	0.000	−0.029	0.004	−4.52	−3.24	1535.21	−31.97	−32.19	0.013	−3.23	−32.30
115	195	−0.12	0.00	0.03	0.00	−0.125	0.000	−0.029	0.004	−5.18	−3.88	1542.16	−30.84	−31.00	0.023	−3.87	−31.20
116	196	−0.11	0.00	0.03	0.00	−0.115	0.000	−0.030	0.004	−5.82	−4.58	1550.99	−31.60	−31.83	0.003	−4.57	−31.98
117	197	−0.12	0.00	0.03	0.00	−0.125	0.000	−0.029	0.004	−6.64	−5.28	1557.69	−30.23	−30.54	0.003	−5.27	−30.63
118	198	−0.11	0.00	0.02	0.00	−0.115	0.000	−0.018	0.002	−7.20	−6.01	1566.23	−30.70	−30.95	0.000	−6.01	−31.12
119	199	−0.11	0.00	0.03	0.00	−0.115	0.000	−0.030	0.004	−8.09	−6.77	1572.68	−29.08	−29.55	0.000	−6.76	−29.50
120	200	−0.09	0.00	0.02	0.00	−0.094	0.000	−0.020	0.002	−8.56	−7.51	1580.91	−29.23	−29.50	0.000	−7.50	−29.67
121	201	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−9.50	−8.48	1587.27	−27.52	−27.66	0.001	−8.47	−27.97
122	202	−0.07	0.00	0.03	0.01	−0.073	0.000	−0.033	−0.007	−10.31	−9.14	1595.12	−27.31	−27.35	0.001	−9.12	−27.74

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 80 (Hg)																	
123	203	−0.07	0.00	0.03	0.01	−0.073	0.000	−0.033	−0.007	−11.24	−10.01	1601.09	−25.20	−25.27	0.002	−9.98	−25.64
124	204	−0.05	0.00	0.02	0.01	−0.052	0.000	−0.022	−0.008	−11.69	−10.51	1608.48	−24.52	−24.69	0.000	−10.49	−24.96
125	205	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−12.56	−11.33	1614.12	−22.09	−22.29	0.004	−11.33	−22.54
126	206	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−12.87	−11.60	1620.99	−20.88	−20.95	0.020	−11.60	−21.33
127	207	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−11.85	−10.66	1624.59	−16.41	−16.22	0.150	−10.66	−16.85
128	208	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.80	−9.63	1629.88	−13.63			−9.63	−14.05
129	209	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−9.48	−8.37	1632.89	−8.57			−8.37	−8.97
130	210	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.27	−7.24	1637.79	−5.40			−7.24	−5.79
131	211	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.09	−6.14	1640.71	−0.25			−6.14	−0.60
132	212	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.97	−5.07	1645.41	3.12			−5.07	2.79
133	213	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.90	−4.08	1648.18	8.42			−4.08	8.12
134	214	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−3.97	−3.24	1652.85	11.82			−3.24	11.56
135	215	0.05	0.06	−0.01	0.00	0.055	−0.082	0.014	0.003	−3.88	−2.32	1655.44	17.30			−2.28	17.12
136	216	0.06	0.05	−0.01	0.00	0.065	−0.068	0.014	0.002	−2.90	−1.58	1659.96	20.85			−1.55	20.71
137	217	0.07	0.06	−0.02	0.00	0.076	−0.082	0.027	0.004	−2.66	−1.05	1662.70	26.19			−1.00	26.10
138	218	0.08	0.05	−0.02	0.00	0.086	−0.069	0.028	0.004	−1.81	−0.44	1667.10	29.86			−0.39	29.82
139	219	0.09	0.05	−0.02	0.00	0.097	−0.069	0.028	0.004	−1.37	0.01	1669.68	35.35			0.06	35.37
140	220	0.10	0.03	−0.03	0.00	0.107	−0.042	0.041	0.005	−0.70	0.54	1673.92	39.18			0.59	39.26
141	221	0.15	0.00	−0.05	0.00	0.161	0.000	0.071	0.011	−1.43	0.76	1676.51	44.67			0.87	44.87
142	222	0.16	0.00	−0.05	0.00	0.172	0.000	0.073	0.012	−1.30	0.83	1680.97	48.28			0.96	48.56
143	223	0.17	0.00	−0.04	0.00	0.183	0.000	0.062	0.010	−1.22	0.76	1683.62	53.70			0.84	54.00
144	224	0.18	0.00	−0.04	0.01	0.194	0.000	0.064	0.001	−1.12	0.94	1687.74	57.65			1.03	58.03
145	225	0.19	0.00	−0.04	0.01	0.205	0.000	0.065	0.001	−1.47	0.74	1690.30	63.16			0.82	63.61
146	226	0.19	0.00	−0.03	0.01	0.205	0.000	0.053	−0.001	−1.08	0.86	1694.25	67.28			0.92	67.79
147	227	0.20	0.00	−0.03	0.02	0.216	0.000	0.056	−0.011	−1.57	0.54	1696.72	72.88			0.63	73.51
148	228	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−1.51	0.54	1700.58	77.09			0.60	77.78
149	229	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−1.99	0.11	1702.95	82.79			0.17	83.57
150	230	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.92	0.08	1706.63	87.19			0.14	88.07
151	231	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−2.31	−0.31	1708.75	93.14			−0.24	94.12
152	232	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−2.14	−0.18	1712.06	97.90			−0.11	98.99
153	233	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−2.23	−0.32	1713.73	104.30			−0.30	105.44
154	234	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−1.97	−0.12	1716.76	109.34			−0.09	110.60
155	235	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−2.23	−0.31	1718.31	115.87			−0.27	117.27
156	236	0.20	0.00	0.03	0.00	0.218	0.000	−0.019	−0.006	−1.75	−0.12	1721.14	121.10			−0.10	122.60
157	237	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−2.13	−0.47	1722.65	127.67			−0.42	129.32
158	238	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−2.15	−0.51	1725.54	132.85			−0.46	134.64
159	239	0.19	0.00	0.05	0.00	0.208	0.000	−0.045	−0.010	−2.83	−1.01	1727.00	139.46			−0.91	141.42
160	240	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−2.87	−1.10	1729.75	144.78			−1.00	146.90
161	241	0.19	0.00	0.06	−0.01	0.208	0.000	−0.058	−0.002	−3.70	−1.64	1731.08	151.52			−1.50	153.82
162	242	0.18	0.00	0.06	−0.01	0.197	0.000	−0.059	−0.002	−3.76	−1.75	1733.66	157.01			−1.60	159.48
163	243	0.17	0.00	0.07	−0.01	0.187	0.000	−0.072	−0.003	−4.31	−2.15	1734.67	164.07			−1.92	166.76
164	244	0.16	0.00	0.06	−0.01	0.175	0.000	−0.062	−0.001	−3.76	−2.01	1736.81	170.00			−1.83	172.80
165	245	0.16	0.00	0.06	−0.02	0.175	0.000	−0.063	0.009	−4.02	−2.10	1737.34	177.54			−1.88	180.54
166	246	−0.13	0.00	0.02	0.00	−0.136	0.000	−0.016	0.003	−3.39	−2.27	1739.62	183.34			−2.26	186.29
167	247	−0.13	0.00	0.02	0.00	−0.136	0.000	−0.016	0.003	−4.03	−2.91	1740.54	190.49			−2.90	193.61
168	248	−0.13	0.00	0.01	0.00	−0.135	0.000	−0.005	0.001	−4.34	−3.28	1742.84	196.26			−3.29	199.54
169	249	−0.13	0.00	0.01	0.00	−0.135	0.000	−0.005	0.001	−5.05	−3.99	1743.66	203.51			−4.00	206.97
170	250	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−5.46	−4.38	1745.82	209.42			−4.36	213.10
171	251	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−6.17	−5.07	1746.46	216.85			−5.05	220.72
172	252	−0.12	0.00	0.02	−0.01	−0.125	0.000	−0.017	0.012	−6.49	−5.45	1748.44	222.95			−5.40	227.04
173	253	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	−7.19	−6.15	1748.94	230.52			−6.14	234.77
174	254	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−7.31	−6.43	1750.66	236.87			−6.42	241.33
175	255	−0.10	0.00	0.03	0.00	−0.105	0.000	−0.031	0.004	−8.22	−7.25	1751.11	244.48			−7.20	249.19
176	256	−0.10	0.00	0.03	0.00	−0.105	0.000	−0.031	0.004	−8.54	−7.57	1752.72	250.95			−7.52	255.88
177	257	−0.10	0.00	0.04	0.00	−0.105	0.000	−0.042	0.005	−9.45	−8.34	1752.98	258.77			−8.23	263.96
178	258	−0.10	0.00	0.04	0.00	−0.105	0.000	−0.042	0.005	−9.56	−8.45	1754.21	265.60			−8.34	271.02
179	259	−0.08	0.00	0.03	0.00	−0.084	0.000	−0.032	0.003	−9.76	−8.80	1753.91	273.97			−8.74	279.57

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 80 (Hg)																	
180	260	−0.07	0.00	0.04	0.01	−0.073	0.000	−0.044	−0.006	−9.94	−8.85	1754.94	281.02			−8.72	286.93
181	261	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.04	−9.09	1754.37	289.65			−9.09	295.66
182	262	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.36	−9.38	1755.49	296.61			−9.38	302.86
183	263	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−11.07	−10.05	1755.21	304.95			−10.05	311.45
184	264	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−11.06	−10.03	1755.88	312.36			−10.03	319.11
185	265	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−10.18	−9.19	1753.96	322.35			−9.19	329.36
186	266	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.39	−8.42	1753.73	330.65			−8.42	337.93
Z = 81 (Tl)																	
92	173	0.06	0.00	−0.01	0.00	0.064	0.000	0.014	0.001	−2.62	−1.79	1324.33	8.64			−1.80	9.60
93	174	0.07	0.01	0.00	0.00	0.075	−0.014	0.002	0.000	−1.96	−1.17	1334.67	6.37			−1.18	7.26
94	175	0.07	0.02	0.00	0.00	0.075	−0.027	0.002	0.000	−1.48	−0.69	1346.61	2.50			−0.70	3.31
95	176	0.07	0.02	0.01	0.00	0.075	−0.027	−0.010	−0.001	−0.97	−0.21	1356.65	0.53			−0.22	1.27
96	177	0.07	0.01	0.01	0.00	0.075	−0.014	−0.010	−0.001	−0.52	0.12	1368.30	−3.05	−3.33	0.025	0.12	−2.39
97	178	0.07	0.00	0.01	0.00	0.075	0.000	−0.010	−0.001	−0.10	0.45	1378.06	−4.73			0.45	−4.14
98	179	0.08	0.00	0.01	0.00	0.086	0.000	−0.009	−0.001	0.10	0.61	1389.46	−8.06	−8.30	0.043	0.60	−7.54
99	180	0.03	0.03	0.00	0.00	0.032	−0.041	0.001	0.001	0.33	0.79	1398.94	−9.48			0.79	−9.02
100	181	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.54	0.89	1409.98	−12.44	−12.80	0.009	0.89	−12.04
101	182	−0.05	0.00	0.00	0.00	−0.052	0.000	0.001	0.000	0.58	0.94	1419.19	−13.58	−13.35	0.076	0.94	−13.25
102	183	−0.08	0.00	0.00	0.00	−0.084	0.000	0.002	−0.000	0.36	0.92	1429.94	−16.26	−16.59	0.010	0.91	−15.99
103	184	−0.09	0.00	0.00	0.00	−0.094	0.000	0.003	−0.000	0.25	0.85	1438.89	−17.14	−16.89	0.049	0.84	−16.93
104	185	−0.09	0.00	0.00	0.00	−0.094	0.000	0.003	−0.000	−0.00	0.61	1449.46	−19.63	−19.76	0.054	0.60	−19.48
105	186	−0.09	0.00	0.00	0.00	−0.094	0.000	0.003	−0.000	−0.17	0.43	1458.14	−20.24	−20.19	0.184	0.42	−20.14
106	187	−0.09	0.00	0.00	0.00	−0.094	0.000	0.003	−0.000	−0.49	0.11	1468.40	−22.43	−22.44	0.008	0.10	−22.38
107	188	−0.09	0.00	0.01	0.00	−0.094	0.000	−0.008	0.001	−0.75	−0.04	1476.68	−22.64	−22.35	0.033	−0.04	−22.64
108	189	−0.09	0.00	0.01	0.00	−0.094	0.000	−0.008	0.001	−1.18	−0.55	1486.76	−24.65	−24.60	0.011	−0.55	−24.69
109	190	−0.09	0.00	0.01	0.00	−0.094	0.000	−0.008	0.001	−1.50	−0.87	1494.85	−24.67	−24.33	0.049	−0.88	−24.76
110	191	−0.08	0.00	0.01	0.00	−0.084	0.000	−0.009	0.001	−1.99	−1.41	1504.60	−26.34	−26.28	0.008	−1.41	−26.47
111	192	−0.08	0.00	0.01	0.00	−0.084	0.000	−0.009	0.001	−2.43	−1.82	1512.44	−26.12	−25.87	0.032	−1.83	−26.28
112	193	−0.07	0.00	0.01	0.00	−0.073	0.000	−0.010	0.001	−3.04	−2.45	1521.92	−27.52	−27.32	0.111	−2.45	−27.73
113	194	−0.07	0.00	0.01	0.00	−0.073	0.000	−0.010	0.001	−3.57	−2.97	1529.53	−27.06	−26.83	0.135	−2.97	−27.30
114	195	−0.07	0.00	0.01	0.00	−0.073	0.000	−0.010	0.001	−4.30	−3.64	1538.71	−28.17	−28.16	0.014	−3.64	−28.44
115	196	−0.06	0.00	0.01	0.00	−0.063	0.000	−0.010	0.001	−4.89	−4.27	1546.10	−27.49	−27.50	0.012	−4.28	−27.78
116	197	−0.06	0.00	0.01	0.00	−0.063	0.000	−0.010	0.001	−5.69	−5.02	1555.02	−28.34	−28.34	0.016	−5.02	−28.66
117	198	−0.06	0.00	0.01	0.00	−0.063	0.000	−0.010	0.001	−6.39	−5.69	1562.13	−27.38	−27.49	0.080	−5.70	−27.72
118	199	−0.06	0.00	0.01	0.00	−0.063	0.000	−0.010	0.001	−7.24	−6.50	1570.79	−27.97	−28.06	0.028	−6.50	−28.33
119	200	−0.06	0.00	0.01	0.00	−0.063	0.000	−0.010	0.001	−8.10	−7.32	1577.73	−26.84	−27.05	0.006	−7.32	−27.23
120	201	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	−8.86	−8.06	1586.01	−27.04	−27.18	0.015	−8.06	−27.44
121	202	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	−9.85	−8.98	1592.74	−25.71	−25.98	0.015	−8.98	−26.12
122	203	−0.05	0.00	0.02	0.01	−0.052	0.000	−0.022	−0.008	−10.76	−9.71	1600.71	−25.60	−25.76	0.001	−9.70	−26.00
123	204	−0.04	0.00	0.02	0.01	−0.042	0.000	−0.023	−0.009	−11.69	−10.56	1607.09	−23.91	−24.35	0.001	−10.55	−24.32
124	205	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−12.42	−11.20	1614.66	−23.41	−23.82	0.001	−11.21	−23.84
125	206	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−13.50	−12.22	1620.91	−21.59	−22.25	0.001	−12.22	−22.02
126	207	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−13.79	−12.47	1627.80	−20.41	−21.03	0.005	−12.47	−20.83
127	208	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−12.75	−11.51	1631.80	−16.34	−16.75	0.002	−11.51	−16.75
128	209	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−11.71	−10.49	1637.14	−13.60	−13.64	0.008	−10.49	−14.01
129	210	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.38	−9.23	1640.57	−8.96	−9.25	0.012	−9.23	−9.36
130	211	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.16	−8.07	1645.48	−5.81			−8.07	−6.18
131	212	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.98	−6.96	1648.79	−1.04			−6.96	−1.40
132	213	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.85	−5.89	1653.53	2.29			−5.89	1.95
133	214	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.78	−4.89	1656.70	7.20			−4.89	6.89
134	215	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.77	−3.93	1661.28	10.68			−3.93	10.40
135	216	0.02	0.05	−0.01	0.00	0.022	−0.068	0.013	0.002	−4.38	−3.07	1664.33	15.70			−3.04	15.48
136	217	0.03	0.06	0.00	0.00	0.033	−0.081	0.002	0.002	−3.74	−2.27	1668.82	19.28			−2.23	19.11
137	218	0.05	0.06	−0.01	0.00	0.055	−0.082	0.014	0.003	−3.13	−1.64	1671.86	24.32			−1.60	24.19
138	219	0.06	0.05	−0.01	0.00	0.065	−0.068	0.014	0.002	−2.22	−0.98	1676.24	28.01			−0.95	27.92
139	220	0.07	0.06	−0.01	0.01	0.076	−0.082	0.016	−0.007	−1.94	−0.50	1679.19	33.13			−0.46	33.10
140	221	0.07	0.05	−0.01	0.00	0.076	−0.068	0.015	0.003	−1.11	0.04	1683.44	36.95			0.07	36.95

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 81 (Tl)																	
141	222	0.15	0.00	−0.06	0.00	0.162	0.000	0.084	0.013	−2.07	0.47	1686.21	42.25			0.61	42.42
142	223	0.16	0.00	−0.05	0.00	0.172	0.000	0.073	0.012	−1.51	0.76	1690.48	46.05			0.87	46.26
143	224	0.16	0.00	−0.05	0.00	0.172	0.000	0.073	0.012	−1.60	0.53	1693.68	50.93			0.64	51.19
144	225	0.17	0.00	−0.05	0.01	0.183	0.000	0.075	0.002	−1.41	0.74	1697.80	54.88			0.85	55.21
145	226	0.17	0.00	−0.04	0.01	0.183	0.000	0.062	−0.000	−1.28	0.61	1700.67	60.08			0.69	60.44
146	227	0.19	0.00	−0.03	0.01	0.205	0.000	0.053	−0.001	−1.09	0.80	1704.59	64.23			0.85	64.65
147	228	0.20	0.00	−0.03	0.02	0.216	0.000	0.056	−0.011	−1.60	0.47	1707.44	69.46			0.55	69.97
148	229	0.20	0.00	−0.02	0.02	0.216	0.000	0.043	−0.013	−1.39	0.51	1711.29	73.68			0.58	74.27
149	230	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−1.97	0.09	1714.02	79.01			0.13	79.67
150	231	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.88	0.08	1717.70	83.40			0.13	84.16
151	232	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.27	−0.30	1720.19	88.99			−0.25	89.83
152	233	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−2.09	−0.17	1723.51	93.73			−0.10	94.69
153	234	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−2.13	−0.26	1725.52	99.80			−0.25	100.81
154	235	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−1.87	−0.06	1728.57	104.82			−0.04	105.94
155	236	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−2.08	−0.22	1730.44	111.03			−0.19	112.27
156	237	0.19	0.00	0.02	0.01	0.206	0.000	−0.008	−0.013	−1.48	−0.05	1733.32	116.21			−0.03	117.56
157	238	0.19	0.00	0.03	0.00	0.207	0.000	−0.021	−0.006	−1.84	−0.37	1735.17	122.44			−0.37	123.90
158	239	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−1.88	−0.30	1737.95	127.72			−0.25	129.35
159	240	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−2.41	−0.81	1739.79	133.96			−0.77	135.70
160	241	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−2.67	−0.98	1742.63	139.19			−0.89	141.12
161	242	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−3.14	−1.40	1744.20	145.69			−1.31	147.75
162	243	0.18	0.00	0.06	−0.01	0.197	0.000	−0.059	−0.002	−3.52	−1.56	1746.84	151.12			−1.41	153.38
163	244	0.17	0.00	0.06	−0.01	0.186	0.000	−0.061	−0.001	−3.75	−1.88	1748.13	157.90			−1.73	160.31
164	245	0.16	0.00	0.06	−0.01	0.175	0.000	−0.062	−0.001	−3.51	−1.61	1750.16	163.95			−1.45	166.52
165	246	−0.13	0.00	0.01	0.00	−0.135	0.000	−0.005	0.001	−3.10	−2.05	1751.40	170.78			−2.06	173.34
166	247	−0.13	0.00	0.01	0.00	−0.135	0.000	−0.005	0.001	−3.46	−2.48	1753.94	176.31			−2.48	179.02
167	248	−0.13	0.00	0.01	0.00	−0.135	0.000	−0.005	0.001	−4.11	−3.08	1755.17	183.15			−3.09	186.03
168	249	−0.13	0.00	0.01	0.00	−0.135	0.000	−0.005	0.001	−4.53	−3.50	1757.53	188.86			−3.50	191.91
169	250	−0.13	0.00	0.01	0.00	−0.135	0.000	−0.005	0.001	−5.25	−4.20	1758.69	195.77			−4.21	198.99
170	251	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−5.66	−4.59	1760.86	201.67			−4.58	205.10
171	252	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−6.37	−5.29	1761.85	208.76			−5.27	212.36
172	253	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−6.63	−5.56	1763.72	214.95			−5.54	218.74
173	254	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	−7.30	−6.27	1764.57	222.18			−6.26	226.15
174	255	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	−7.50	−6.49	1766.23	228.58			−6.48	232.76
175	256	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−8.12	−7.24	1766.97	235.92			−7.23	240.30
176	257	−0.10	0.00	0.03	0.00	−0.105	0.000	−0.031	0.004	−8.51	−7.54	1768.56	242.40			−7.49	247.02
177	258	−0.10	0.00	0.03	0.00	−0.105	0.000	−0.031	0.004	−9.23	−8.25	1769.08	249.95			−8.20	254.77
178	259	−0.08	0.00	0.03	0.00	−0.084	0.000	−0.032	0.003	−9.32	−8.37	1770.34	256.77			−8.31	261.82
179	260	−0.07	0.01	0.03	0.01	−0.073	−0.013	−0.033	−0.007	−9.90	−8.92	1770.57	264.61			−8.85	269.90
180	261	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.80	−8.88	1771.50	271.75			−8.88	277.19
181	262	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.64	−9.67	1771.82	279.50			−9.67	285.17
182	263	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.93	−9.93	1772.91	286.48			−9.93	292.38
183	264	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−11.61	−10.57	1772.93	294.52			−10.57	300.67
184	265	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−11.58	−10.53	1773.58	301.95			−10.53	308.34
185	266	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−10.67	−9.66	1771.96	311.64			−9.67	318.27
186	267	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.89	−8.90	1771.74	319.93			−8.90	326.82
187	268	0.01	0.03	0.00	0.00	0.011	−0.040	0.000	0.001	−8.92	−7.84	1769.78	329.96			−7.82	337.12
188	269	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.77	−6.87	1769.21	338.60			−6.87	346.01
Z = 82 (Pb)																	
93	175	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.13	−1.38	1334.01	14.32			−1.38	15.39
94	176	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.59	−0.87	1346.42	9.98			−0.87	10.97
95	177	0.00	0.02	0.00	0.00	0.000	−0.027	0.000	0.000	−1.09	−0.34	1356.47	8.00			−0.34	8.91
96	178	0.01	0.02	0.00	0.00	0.011	−0.027	0.000	0.000	−0.76	−0.03	1368.62	3.92	3.57	0.024	−0.03	4.75
97	179	0.01	0.04	0.00	0.00	0.011	−0.054	0.001	0.001	−0.58	0.35	1378.40	2.22			0.34	2.97
98	180	0.00	0.03	0.00	0.00	0.000	−0.040	0.000	0.001	−0.32	0.44	1390.33	−1.64	−1.94	0.021	0.44	−0.96
99	181	0.02	0.03	0.00	0.00	0.022	−0.040	0.001	0.001	−0.02	0.72	1399.78	−3.03	−3.14	0.090	0.72	−2.42
100	182	0.01	0.02	0.00	0.00	0.011	−0.027	0.000	0.000	0.05	0.68	1411.43	−6.60	−6.83	0.014	0.68	−6.06

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 82 (Pb)																	
101	183	−0.01	0.04	−0.01	0.00	−0.010	−0.054	0.013	0.001	0.01	0.87	1420.58	−7.68	−7.57	0.028	0.87	−7.20
102	184	0.00	0.02	−0.01	0.00	0.000	−0.027	0.012	0.000	0.12	0.73	1431.91	−10.94	−11.05	0.014	0.73	−10.52
103	185	−0.01	0.01	0.00	0.00	−0.010	−0.013	0.000	0.000	0.28	0.74	1440.83	−11.79	−11.54	0.016	0.74	−11.44
104	186	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.09	0.55	1451.82	−14.70	−14.68	0.011	0.55	−14.42
105	187	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−0.00	0.45	1460.48	−15.29	−14.98	0.008	0.45	−15.06
106	188	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.30	0.16	1471.17	−17.92	−17.82	0.011	0.16	−17.74
107	189	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.53	−0.08	1479.60	−18.27	−17.88	0.034	−0.09	−18.15
108	190	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−0.95	−0.47	1490.01	−20.61	−20.42	0.012	−0.47	−20.54
109	191	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.28	−0.79	1498.15	−20.68	−20.25	0.039	−0.79	−20.66
110	192	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.87	−1.32	1508.35	−22.81	−22.56	0.013	−1.32	−22.83
111	193	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−2.26	−1.64	1516.14	−22.53	−22.19	0.050	−1.64	−22.60
112	194	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.99	−2.37	1526.18	−24.49	−24.21	0.017	−2.37	−24.60
113	195	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−3.48	−2.73	1533.68	−23.92	−23.71	0.023	−2.74	−24.07
114	196	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.28	−3.59	1543.48	−25.66	−25.36	0.014	−3.59	−25.83
115	197	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−4.88	−4.14	1550.84	−24.94	−24.75	0.006	−4.14	−25.15
116	198	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.69	−4.94	1560.26	−26.29	−26.05	0.015	−4.94	−26.53
117	199	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−6.39	−5.57	1567.38	−25.34	−25.23	0.026	−5.57	−25.61
118	200	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.22	−6.40	1576.49	−26.38	−26.24	0.011	−6.40	−26.68
119	201	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.04	−7.18	1583.45	−25.26	−25.26	0.022	−7.19	−25.58
120	202	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.91	−7.98	1592.21	−25.96	−25.93	0.008	−7.98	−26.29
121	203	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.82	−8.82	1598.92	−24.59	−24.79	0.007	−8.82	−24.94
122	204	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.74	−9.65	1607.40	−25.00	−25.11	0.001	−9.65	−25.37
123	205	−0.01	0.00	0.01	0.00	−0.010	0.000	−0.012	0.000	−11.73	−10.57	1613.90	−23.43	−23.77	0.001	−10.57	−23.80
124	206	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−12.66	−11.41	1622.08	−23.54	−23.78	0.001	−11.41	−23.92
125	207	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−13.66	−12.34	1628.30	−21.69	−22.45	0.001	−12.34	−22.08
126	208	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−13.93	−12.58	1635.60	−20.92	−21.75	0.001	−12.59	−21.31
127	209	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−12.88	−11.60	1639.62	−16.87	−17.61	0.002	−11.61	−17.25
128	210	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−11.85	−10.60	1645.39	−14.56	−14.73	0.002	−10.60	−14.95
129	211	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.51	−9.33	1648.84	−9.94	−10.49	0.003	−9.33	−10.32
130	212	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.30	−8.18	1654.18	−7.21	−7.55	0.002	−8.18	−7.57
131	213	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.10	−7.04	1657.50	−2.46	−3.18	0.008	−7.04	−2.81
132	214	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.98	−5.98	1662.65	0.46	−0.18	0.002	−5.98	0.13
133	215	0.00	0.02	0.00	0.00	0.000	−0.027	0.000	0.000	−5.98	−4.97	1665.85	5.33			−4.97	5.03
134	216	0.01	0.04	0.00	0.00	0.011	−0.054	0.001	0.001	−5.22	−4.01	1670.84	8.41			−4.00	8.14
135	217	0.02	0.07	−0.01	0.01	0.023	−0.094	0.014	−0.006	−5.07	−3.26	1674.03	13.29			−3.21	13.09
136	218	0.01	0.06	0.00	0.00	0.012	−0.081	0.002	0.002	−3.91	−2.44	1678.91	16.49			−2.41	16.30
137	219	0.03	0.07	−0.01	0.00	0.034	−0.095	0.014	0.004	−3.47	−1.74	1681.90	21.57			−1.69	21.43
138	220	0.01	0.07	−0.01	0.00	0.013	−0.095	0.014	0.003	−2.73	−1.10	1686.70	24.84			−1.05	24.74
139	221	0.03	0.07	−0.01	0.01	0.034	−0.094	0.014	−0.006	−2.11	−0.50	1689.56	30.05			−0.44	30.00
140	222	0.01	0.07	0.00	0.01	0.013	−0.094	0.002	−0.007	−1.44	0.05	1694.20	33.48			0.11	33.48
141	223	0.15	0.00	−0.06	0.00	0.162	0.000	0.084	0.013	−2.01	0.50	1696.97	38.78			0.65	38.92
142	224	0.16	0.00	−0.06	0.00	0.173	0.000	0.085	0.014	−1.82	0.80	1701.62	42.20			0.96	42.41
143	225	0.16	0.00	−0.05	0.00	0.172	0.000	0.073	0.012	−1.51	0.75	1704.67	47.23			0.86	47.44
144	226	0.17	0.00	−0.05	0.01	0.183	0.000	0.075	0.002	−1.34	0.79	1709.33	50.63			0.91	50.91
145	227	0.18	0.00	−0.04	0.01	0.194	0.000	0.064	0.001	−1.30	0.69	1712.21	55.83			0.77	56.13
146	228	0.19	0.00	−0.04	0.02	0.204	0.000	0.066	−0.009	−1.28	0.81	1716.57	59.54			0.93	59.95
147	229	0.20	0.00	−0.03	0.02	0.216	0.000	0.056	−0.011	−1.47	0.55	1719.39	64.79			0.64	65.24
148	230	0.22	0.00	−0.02	0.02	0.238	0.000	0.047	−0.012	−1.46	0.62	1723.58	68.67			0.69	69.18
149	231	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−1.78	0.22	1726.32	74.00			0.28	74.58
150	232	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−1.73	0.25	1730.34	78.06			0.31	78.73
151	233	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.06	−0.14	1732.86	83.61			−0.08	84.36
152	234	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−1.85	0.03	1736.52	88.02			0.10	88.88
153	235	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−1.96	−0.09	1738.57	94.04			−0.03	94.98
154	236	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−1.56	0.20	1741.90	98.78			0.23	99.79
155	237	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−1.64	0.15	1743.68	105.07			0.17	106.17
156	238	0.19	0.00	0.02	0.01	0.206	0.000	−0.008	−0.013	−1.11	0.35	1746.90	109.92			0.38	111.15
157	239	0.19	0.00	0.03	0.00	0.207	0.000	−0.021	−0.006	−1.42	0.09	1748.70	116.19			0.10	117.52

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 82 (Pb)																	
158	240	0.18	0.00	0.03	0.00	0.196	0.000	−0.023	−0.005	−1.33	0.13	1751.88	121.09			0.16	122.54
159	241	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−1.96	−0.33	1753.69	127.35			−0.28	128.94
160	242	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−1.96	−0.43	1756.81	132.29			−0.37	134.02
161	243	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−2.63	−0.91	1758.46	138.72			−0.82	140.61
162	244	0.18	0.00	0.06	−0.01	0.197	0.000	−0.059	−0.002	−2.97	−1.05	1761.44	143.81			−0.90	145.90
163	245	0.17	0.00	0.06	−0.01	0.186	0.000	−0.061	−0.001	−3.19	−1.37	1762.74	150.58			−1.22	152.81
164	246	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.66	−1.36	1765.39	156.00			−1.36	158.22
165	247	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−2.23	−1.93	1766.76	162.70			−1.93	165.07
166	248	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.58	−2.21	1769.51	168.02			−2.21	170.54
167	249	0.02	0.00	−0.01	0.00	0.021	0.000	0.012	0.000	−3.18	−2.66	1770.60	175.01			−2.65	177.69
168	250	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−3.53	−2.98	1773.22	180.46			−2.98	183.30
169	251	−0.13	0.00	0.01	0.00	−0.135	0.000	−0.005	0.001	−4.80	−3.78	1774.48	187.27			−3.79	190.26
170	252	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−5.18	−4.15	1776.98	192.84			−4.13	196.04
171	253	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−5.90	−4.85	1777.98	199.91			−4.83	203.28
172	254	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−6.14	−5.11	1780.18	205.78			−5.09	209.33
173	255	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	−6.73	−5.73	1780.95	213.08			−5.72	216.80
174	256	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.45	−5.91	1782.91	219.19			−5.91	223.09
175	257	−0.12	0.00	0.02	0.00	−0.125	0.000	−0.017	0.003	−7.64	−6.69	1783.68	226.50			−6.68	230.60
176	258	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.47	−6.93	1785.54	232.71			−6.93	237.00
177	259	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−8.20	−7.58	1786.02	240.30			−7.58	244.79
178	260	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.55	−7.70	1787.61	246.78			−7.71	251.47
179	261	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.35	−8.45	1788.04	254.42			−8.45	259.33
180	262	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.69	−8.76	1789.65	260.88			−8.76	266.00
181	263	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.50	−9.52	1789.95	268.65			−9.52	273.99
182	264	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.76	−9.76	1791.34	275.33			−9.76	280.90
183	265	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−11.41	−10.37	1791.35	283.40			−10.37	289.20
184	266	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−11.35	−10.30	1792.29	290.53			−10.31	296.57
185	267	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−10.42	−9.42	1790.65	300.24			−9.42	306.51
186	268	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.66	−8.67	1790.77	308.19			−8.67	314.71
187	269	0.01	0.04	0.00	0.00	0.011	−0.054	0.001	0.001	−8.83	−7.64	1788.85	318.18			−7.61	324.98
188	270	0.01	0.05	0.00	0.00	0.012	−0.067	0.001	0.002	−7.98	−6.70	1788.63	326.47			−6.65	333.55
189	271	0.02	0.08	−0.01	0.00	0.024	−0.109	0.015	0.005	−8.15	−6.28	1787.18	335.99			−6.14	343.41
190	272	0.03	0.09	−0.01	0.00	0.035	−0.123	0.016	0.006	−7.70	−5.61	1787.10	344.15			−5.44	351.87
191	273	0.03	0.09	−0.01	0.00	0.035	−0.123	0.016	0.006	−7.42	−5.36	1785.69	353.63			−5.19	361.61
Z = 83 (Bi)																	
95	178	0.07	0.07	−0.01	0.00	0.077	−0.096	0.016	0.004	−1.23	0.28	1353.29	18.48			0.26	19.55
96	179	0.07	0.07	−0.01	0.00	0.077	−0.096	0.016	0.004	−0.73	0.72	1365.37	14.46			0.71	15.46
97	180	0.05	0.07	−0.01	0.00	0.055	−0.095	0.015	0.004	−0.30	1.09	1375.62	12.28			1.08	13.19
98	181	0.05	0.07	−0.01	0.00	0.055	−0.095	0.015	0.004	0.03	1.38	1387.43	8.55			1.38	9.39
99	182	0.27	0.00	−0.01	0.01	0.294	0.000	0.045	−0.003	−0.77	1.35	1397.67	6.38			1.27	7.07
100	183	0.28	0.00	0.00	0.01	0.306	0.000	0.036	−0.006	−0.79	1.40	1409.28	2.84			1.33	3.46
101	184	0.28	0.00	0.01	0.01	0.307	0.000	0.023	−0.009	−0.92	1.30	1419.19	1.00			1.21	1.54
102	185	0.28	0.00	0.01	0.01	0.307	0.000	0.023	−0.009	−0.81	1.44	1430.29	−2.04			1.37	−1.54
103	186	0.27	0.00	0.02	0.01	0.296	0.000	0.009	−0.013	−0.85	1.28	1439.86	−3.53	−3.17	0.077	1.20	−3.11
104	187	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−0.68	1.45	1450.53	−6.13	−6.37	0.015	1.39	−5.76
105	188	−0.19	0.00	0.00	0.00	−0.196	0.000	0.014	−0.001	−0.27	1.19	1459.82	−7.35	−7.20	0.050	1.15	−7.02
106	189	−0.19	0.00	0.00	0.00	−0.196	0.000	0.014	−0.001	−0.58	0.93	1470.54	−9.99	−10.06	0.054	0.90	−9.71
107	190	−0.19	0.00	0.00	0.00	−0.196	0.000	0.014	−0.001	−0.88	0.66	1479.45	−10.84	−10.90	0.185	0.62	−10.62
108	191	−0.19	0.00	0.00	0.00	−0.196	0.000	0.014	−0.001	−1.13	0.40	1489.79	−13.11	−13.24	0.007	0.37	−12.94
109	192	0.08	0.00	−0.01	0.00	0.085	0.000	0.015	0.001	−0.66	0.05	1498.42	−13.66	−13.55	0.033	0.04	−13.52
110	193	0.07	0.00	−0.01	0.00	0.075	0.000	0.014	0.001	−1.14	−0.41	1508.59	−15.76	−15.87	0.010	−0.41	−15.67
111	194	0.06	0.00	−0.01	0.00	0.064	0.000	0.014	0.001	−1.56	−0.82	1516.93	−16.02	−15.99	0.049	−0.82	−15.98
112	195	−0.05	0.00	−0.01	0.00	−0.052	0.000	0.013	−0.001	−2.17	−1.77	1527.23	−18.26	−18.02	0.006	−1.77	−18.26
113	196	0.05	0.00	−0.01	0.00	0.053	0.000	0.013	0.001	−2.68	−1.89	1534.93	−17.88	−18.01	0.024	−1.89	−17.93
114	197	−0.05	0.00	−0.01	0.00	−0.052	0.000	0.013	−0.001	−3.45	−2.94	1544.98	−19.87	−19.69	0.008	−2.94	−19.95
115	198	−0.05	0.00	−0.01	0.00	−0.052	0.000	0.013	−0.001	−4.08	−3.54	1552.83	−19.65	−19.37	0.028	−3.55	−19.76
116	199	−0.05	0.00	−0.01	0.00	−0.052	0.000	0.013	−0.001	−4.88	−4.26	1562.21	−20.96	−20.80	0.012	−4.26	−21.11

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 83 (Bi)																	
117	200	−0.04	0.00	−0.01	0.00	−0.042	0.000	0.012	−0.001	−5.56	−4.92	1569.79	−20.47	−20.37	0.024	−4.92	−20.65
118	201	−0.05	0.00	−0.01	0.00	−0.052	0.000	0.013	−0.001	−6.41	−5.70	1578.91	−21.51	−21.42	0.015	−5.70	−21.72
119	202	−0.05	0.00	0.00	0.00	−0.052	0.000	0.001	0.000	−7.21	−6.54	1586.35	−20.88	−20.73	0.020	−6.54	−21.12
120	203	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−7.98	−7.24	1595.07	−21.52	−21.54	0.022	−7.25	−21.79
121	204	−0.05	0.00	0.00	0.00	−0.052	0.000	0.001	0.000	−9.00	−8.18	1602.30	−20.68	−20.67	0.026	−8.19	−20.97
122	205	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−9.77	−8.85	1610.67	−20.98	−21.06	0.007	−8.85	−21.28
123	206	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−10.69	−9.65	1617.46	−19.70	−20.03	0.008	−9.65	−20.02
124	207	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−11.59	−10.43	1625.63	−19.80	−20.05	0.002	−10.43	−20.13
125	208	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−12.58	−11.33	1632.23	−18.33	−18.87	0.002	−11.33	−18.67
126	209	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−12.83	−11.56	1639.56	−17.59	−18.26	0.001	−11.56	−17.93
127	210	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−11.92	−10.69	1644.11	−14.06	−14.79	0.001	−10.69	−14.41
128	211	−0.01	0.00	−0.01	0.00	−0.010	0.000	0.012	−0.000	−10.82	−9.62	1649.84	−11.73	−11.86	0.005	−9.62	−12.08
129	212	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−9.50	−8.46	1653.82	−7.64	−8.12	0.002	−8.46	−7.98
130	213	−0.01	0.00	−0.01	0.00	−0.010	0.000	0.012	−0.000	−8.31	−7.24	1659.14	−4.88	−5.23	0.005	−7.24	−5.22
131	214	−0.01	0.00	−0.01	0.00	−0.010	0.000	0.012	−0.000	−7.12	−6.12	1662.88	−0.56	−1.20	0.011	−6.12	−0.88
132	215	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−6.05	−5.14	1668.16	2.24	1.65	0.015	−5.14	1.93
133	216	0.04	0.09	−0.02	0.00	0.046	−0.123	0.028	0.007	−6.91	−4.24	1671.86	6.61	5.87	0.011	−4.17	6.39
134	217	0.04	0.08	−0.02	0.00	0.045	−0.109	0.027	0.006	−5.65	−3.39	1676.99	9.55			−3.33	9.34
135	218	0.05	0.08	−0.02	0.00	0.056	−0.110	0.027	0.006	−4.95	−2.70	1680.65	13.96			−2.64	13.77
136	219	0.05	0.08	−0.02	0.00	0.056	−0.110	0.027	0.006	−4.11	−1.93	1685.60	17.08			−1.86	16.92
137	220	0.07	0.08	−0.03	0.00	0.077	−0.111	0.041	0.008	−3.82	−1.47	1689.24	21.52			−1.39	21.40
138	221	0.08	0.08	−0.03	0.00	0.088	−0.111	0.041	0.008	−3.13	−0.80	1694.04	24.79			−0.71	24.72
139	222	0.09	0.07	−0.03	0.00	0.098	−0.097	0.041	0.007	−2.33	−0.31	1697.40	29.50			−0.24	29.45
140	223	0.13	0.00	−0.06	−0.01	0.141	0.000	0.081	0.022	−2.13	0.25	1702.06	32.91			0.41	32.98
141	224	0.14	0.00	−0.06	0.00	0.151	0.000	0.083	0.012	−2.11	0.31	1705.61	37.43			0.44	37.51
142	225	0.15	0.00	−0.06	0.00	0.162	0.000	0.084	0.013	−1.89	0.64	1710.27	40.85			0.78	40.99
143	226	0.16	0.00	−0.06	0.01	0.172	0.000	0.086	0.004	−1.96	0.64	1713.64	45.54			0.77	45.73
144	227	0.17	0.00	−0.05	0.01	0.183	0.000	0.075	0.002	−1.44	0.66	1718.37	48.88			0.76	49.10
145	228	0.18	0.00	−0.05	0.02	0.193	0.000	0.077	−0.007	−1.74	0.52	1721.66	53.66			0.64	53.96
146	229	0.19	0.00	−0.04	0.02	0.204	0.000	0.066	−0.009	−1.36	0.70	1725.99	57.40			0.80	57.74
147	230	0.20	0.01	−0.03	0.02	0.216	−0.013	0.056	−0.011	−1.53	0.50	1729.13	62.34			0.57	62.71
148	231	0.22	0.00	−0.02	0.02	0.238	0.000	0.047	−0.012	−1.50	0.53	1733.38	66.16			0.59	66.59
149	232	0.22	0.00	−0.02	0.02	0.238	0.000	0.047	−0.012	−1.92	0.15	1736.48	71.13			0.20	71.63
150	233	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−1.71	0.24	1740.46	75.23			0.29	75.80
151	234	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.01	−0.11	1743.31	80.44			−0.06	81.09
152	235	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.79	0.06	1747.00	84.83			0.11	85.57
153	236	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−1.88	−0.03	1749.39	90.51			0.02	91.35
154	237	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−1.52	0.25	1752.74	95.22			0.31	96.16
155	238	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−1.50	0.23	1754.87	101.17			0.24	102.16
156	239	0.18	0.00	0.01	0.01	0.195	0.000	0.002	−0.011	−0.91	0.49	1758.05	106.06			0.50	107.15
157	240	0.18	0.00	0.02	0.00	0.195	0.000	−0.010	−0.003	−1.20	0.21	1760.22	111.96			0.21	113.14
158	241	0.18	0.00	0.03	0.00	0.196	0.000	−0.023	−0.005	−1.28	0.21	1763.47	116.79			0.23	118.10
159	242	0.17	0.00	0.03	0.00	0.185	0.000	−0.024	−0.005	−1.54	−0.13	1765.51	122.81			−0.11	124.24
160	243	0.17	0.00	0.04	0.00	0.185	0.000	−0.036	−0.007	−1.75	−0.29	1768.72	127.68			−0.24	129.26
161	244	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−2.46	−0.74	1770.70	133.77			−0.66	135.50
162	245	0.17	0.00	0.05	−0.01	0.185	0.000	−0.049	0.001	−2.45	−0.83	1773.63	138.91			−0.73	140.78
163	246	0.17	0.00	0.05	−0.01	0.185	0.000	−0.049	0.001	−2.76	−1.15	1775.30	145.31			−1.07	147.31
164	247	0.16	0.00	0.05	−0.01	0.174	0.000	−0.050	0.001	−2.54	−0.99	1777.80	150.88			−0.89	153.03
165	248	−0.03	0.00	−0.01	0.00	−0.032	0.000	0.012	−0.000	−1.99	−1.46	1779.42	157.33			−1.45	159.52
166	249	−0.03	0.00	−0.01	0.00	−0.032	0.000	0.012	−0.000	−2.28	−1.88	1782.33	162.49			−1.88	164.83
167	250	−0.03	0.00	−0.01	0.00	−0.032	0.000	0.012	−0.000	−2.89	−2.36	1783.80	169.10			−2.35	171.59
168	251	−0.10	0.00	−0.01	0.00	−0.104	0.000	0.015	−0.001	−3.62	−2.79	1786.53	174.44			−2.78	177.07
169	252	−0.10	0.00	−0.01	0.00	−0.104	0.000	0.015	−0.001	−4.37	−3.51	1788.06	180.97			−3.51	183.77
170	253	−0.10	0.00	−0.01	0.00	−0.104	0.000	0.015	−0.001	−4.72	−3.85	1790.54	186.57			−3.85	189.52
171	254	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−5.56	−4.57	1791.90	193.28			−4.55	196.42
172	255	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−5.84	−4.86	1794.15	199.10			−4.84	202.41
173	256	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	−6.34	−5.55	1795.33	205.99			−5.54	209.48

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 83 (Bi)																	
174	257	−0.05	0.00	−0.01	0.00	−0.052	0.000	0.013	−0.001	−6.34	−5.76	1797.33	212.07			−5.75	215.72
175	258	−0.10	0.00	0.01	0.00	−0.105	0.000	−0.008	0.001	−7.25	−6.46	1798.35	219.11			−6.47	222.94
176	259	−0.08	0.00	0.01	−0.01	−0.084	0.000	−0.009	0.010	−7.45	−6.72	1800.24	225.29			−6.69	229.35
177	260	−0.05	0.00	0.00	0.00	−0.052	0.000	0.001	0.000	−7.97	−7.32	1801.01	232.60			−7.32	236.82
178	261	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−8.13	−7.49	1802.65	239.03			−7.49	243.44
179	262	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−8.87	−8.03	1803.20	246.55			−8.03	251.17
180	263	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−9.11	−8.23	1804.71	253.11			−8.23	257.94
181	264	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−9.88	−8.94	1805.28	260.61			−8.94	265.65
182	265	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−10.10	−9.13	1806.64	267.33			−9.13	272.59
183	266	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−10.74	−9.74	1806.97	275.07			−9.74	280.55
184	267	0.00	0.00	0.01	0.00	0.000	0.000	−0.012	0.000	−10.65	−9.61	1807.85	282.26			−9.61	287.97
185	268	−0.01	0.00	−0.01	0.00	−0.010	0.000	0.012	−0.000	−9.80	−8.81	1806.61	291.57			−8.80	297.51
186	269	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−8.95	−8.01	1806.69	299.57			−8.01	305.74
187	270	0.01	0.03	−0.01	−0.01	0.011	−0.041	0.012	0.011	−8.08	−7.01	1805.11	309.21			−6.95	315.68
188	271	0.00	0.05	−0.01	0.00	0.001	−0.068	0.013	0.002	−7.32	−6.05	1804.88	317.51			−6.00	324.23
189	272	0.03	0.08	−0.01	0.00	0.035	−0.109	0.015	0.005	−7.52	−5.66	1803.78	326.68			−5.54	333.72
190	273	0.04	0.09	−0.02	0.00	0.046	−0.123	0.028	0.007	−7.24	−5.08	1803.78	334.75			−4.90	342.10
191	274	0.04	0.10	−0.02	0.00	0.047	−0.137	0.028	0.008	−7.40	−4.96	1802.82	343.79			−4.75	351.43
192	275	0.04	0.11	−0.01	0.01	0.048	−0.149	0.017	−0.001	−6.97	−4.38	1802.68	352.00			−4.15	359.92
193	276	0.04	0.11	−0.01	0.01	0.048	−0.149	0.017	−0.001	−6.70	−4.14	1801.47	361.28			−3.91	369.47
Z = 84 (Po)																	
97	181	0.27	0.00	−0.03	0.01	0.294	0.000	0.070	0.005	−1.05	1.51	1374.52	20.67			1.43	21.70
98	182	0.27	0.00	−0.02	0.01	0.294	0.000	0.058	0.001	−0.84	1.42	1387.17	16.09			1.36	17.06
99	183	0.28	0.00	−0.01	0.02	0.306	0.000	0.049	−0.012	−1.07	1.21	1397.65	13.69			1.13	14.55
100	184	0.29	0.00	0.00	0.02	0.318	0.000	0.039	−0.015	−1.09	1.25	1409.74	9.66			1.19	10.46
101	185	0.29	0.00	0.01	0.02	0.318	0.000	0.027	−0.019	−1.24	1.17	1419.69	7.79			1.09	8.50
102	186	0.30	0.00	0.02	0.01	0.330	0.000	0.016	−0.012	−1.14	1.30	1431.27	4.28			1.23	4.93
103	187	0.29	0.00	0.02	0.01	0.319	0.000	0.014	−0.013	−1.08	1.28	1440.76	2.86			1.20	3.43
104	188	0.28	0.00	0.03	0.00	0.308	0.000	−0.002	−0.006	−0.72	1.44	1451.91	−0.22	−0.54	0.019	1.38	0.30
105	189	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−0.75	1.28	1461.14	−1.37	−1.41	0.022	1.22	−0.93
106	190	−0.21	0.00	0.00	0.00	−0.217	0.000	0.017	−0.001	−0.34	1.33	1472.01	−4.17	−4.56	0.013	1.30	−3.76
107	191	−0.21	0.00	0.00	0.00	−0.217	0.000	0.017	−0.001	−0.66	1.08	1480.96	−5.06	−5.05	0.011	1.04	−4.70
108	192	−0.21	0.00	0.00	0.00	−0.217	0.000	0.017	−0.001	−0.89	0.84	1491.73	−7.75	−8.07	0.012	0.81	−7.45
109	193	−0.21	0.00	0.00	0.00	−0.217	0.000	0.017	−0.001	−1.17	0.56	1500.35	−8.30	−8.36	0.035	0.52	−8.06
110	194	−0.20	0.00	0.00	0.00	−0.207	0.000	0.015	−0.001	−1.29	0.29	1510.77	−10.65	−11.01	0.013	0.27	−10.45
111	195	−0.20	0.00	0.00	0.00	−0.207	0.000	0.015	−0.001	−1.60	−0.03	1519.07	−10.89	−11.07	0.039	−0.06	−10.74
112	196	0.08	0.00	0.00	0.00	0.085	0.000	0.003	0.000	−1.21	−0.41	1529.25	−12.99	−13.47	0.013	−0.41	−12.88
113	197	0.08	0.00	0.00	0.00	0.085	0.000	0.003	0.000	−1.77	−0.91	1537.39	−13.05	−13.36	0.050	−0.92	−12.99
114	198	0.07	0.00	0.00	0.00	0.075	0.000	0.002	0.000	−2.37	−1.51	1547.43	−15.03	−15.47	0.017	−1.51	−15.00
115	199	0.07	0.00	0.00	0.00	0.075	0.000	0.002	0.000	−3.01	−2.11	1555.33	−14.85	−15.22	0.023	−2.12	−14.87
116	200	−0.06	0.00	−0.01	0.00	−0.063	0.000	0.013	−0.001	−3.75	−3.20	1565.52	−16.97	−16.95	0.014	−3.20	−17.02
117	201	0.05	0.00	0.00	0.00	0.053	0.000	0.001	0.000	−4.40	−3.52	1572.80	−16.18	−16.52	0.006	−3.52	−16.27
118	202	−0.06	0.00	0.00	0.00	−0.063	0.000	0.001	0.000	−5.25	−4.66	1582.71	−18.02	−17.92	0.015	−4.67	−18.15
119	203	−0.06	0.00	0.00	0.00	−0.063	0.000	0.001	0.000	−6.08	−5.46	1590.16	−17.40	−17.31	0.026	−5.46	−17.55
120	204	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−6.82	−6.15	1599.29	−18.46	−18.33	0.011	−6.15	−18.64
121	205	−0.05	0.00	0.00	0.00	−0.052	0.000	0.001	0.000	−7.81	−7.05	1606.53	−17.63	−17.51	0.020	−7.06	−17.84
122	206	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.57	−7.59	1615.19	−18.22	−18.18	0.008	−7.59	−18.45
123	207	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−9.54	−8.43	1622.08	−17.03	−17.15	0.007	−8.44	−17.28
124	208	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.51	−9.35	1630.81	−17.69	−17.47	0.002	−9.35	−17.95
125	209	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−11.53	−10.30	1637.50	−16.31	−16.37	0.002	−10.30	−16.59
126	210	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−11.79	−10.53	1645.24	−15.98	−15.95	0.001	−10.53	−16.27
127	211	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−10.74	−9.56	1649.74	−12.40	−12.43	0.001	−9.56	−12.70
128	212	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.74	−8.58	1655.98	−10.58	−10.37	0.001	−8.59	−10.88
129	213	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.40	−7.31	1659.89	−6.41	−6.65	0.003	−7.32	−6.72
130	214	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.22	−6.20	1665.71	−4.16	−4.47	0.002	−6.20	−4.46
131	215	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.03	−5.08	1669.49	0.12	−0.54	0.003	−5.08	−0.17
132	216	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.94	−4.05	1675.12	2.57	1.78	0.002	−4.05	2.28

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 84 (Po)																	
133	217	0.04	0.09	−0.02	0.00	0.046	−0.123	0.028	0.007	−6.05	−3.44	1679.15	6.61	5.90	0.007	−3.37	6.41
134	218	0.05	0.09	−0.02	0.00	0.056	−0.123	0.028	0.007	−5.19	−2.61	1684.71	9.12	8.36	0.002	−2.53	8.94
135	219	0.08	0.08	−0.04	0.00	0.088	−0.111	0.054	0.009	−4.78	−2.09	1688.57	13.33			−1.99	13.19
136	220	0.09	0.09	−0.04	0.00	0.099	−0.125	0.055	0.011	−4.45	−1.39	1694.00	15.97			−1.27	15.88
137	221	0.09	0.09	−0.04	0.00	0.099	−0.125	0.055	0.011	−4.03	−1.00	1697.74	20.30			−0.89	20.23
138	222	0.10	0.08	−0.04	0.00	0.110	−0.111	0.055	0.011	−3.02	−0.33	1702.93	23.18			−0.21	23.14
139	223	0.13	0.00	−0.07	−0.01	0.141	0.000	0.094	0.024	−2.87	0.02	1706.46	27.73			0.21	27.78
140	224	0.13	0.00	−0.07	−0.01	0.141	0.000	0.094	0.024	−2.46	0.40	1711.69	30.56			0.61	30.67
141	225	0.14	0.00	−0.07	0.00	0.151	0.000	0.095	0.015	−2.44	0.44	1715.31	35.02			0.61	35.14
142	226	0.15	0.00	−0.06	0.00	0.162	0.000	0.084	0.013	−1.76	0.78	1720.33	38.07			0.93	38.20
143	227	0.17	0.00	−0.06	0.01	0.183	0.000	0.087	0.005	−1.98	0.77	1723.74	42.73			0.91	42.89
144	228	0.18	0.00	−0.05	0.01	0.194	0.000	0.076	0.003	−1.48	0.76	1728.88	45.66			0.87	45.85
145	229	0.19	0.00	−0.05	0.02	0.204	0.000	0.079	−0.006	−1.82	0.58	1732.24	50.37			0.71	50.63
146	230	0.19	0.00	−0.04	0.02	0.204	0.000	0.066	−0.009	−1.30	0.79	1736.93	53.76			0.90	54.05
147	231	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−1.87	0.39	1740.29	58.46			0.52	58.84
148	232	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−1.79	0.48	1744.87	61.96			0.62	62.42
149	233	0.22	0.00	−0.02	0.03	0.238	0.000	0.048	−0.022	−2.03	0.12	1747.97	66.93			0.24	67.44
150	234	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−1.65	0.28	1752.25	70.72			0.34	71.24
151	235	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−2.15	−0.12	1755.17	75.87			0.01	76.52
152	236	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.71	0.12	1759.16	79.96			0.19	80.63
153	237	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−1.75	0.06	1761.55	85.64			0.12	86.39
154	238	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−1.40	0.34	1765.28	89.97			0.40	90.83
155	239	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−1.32	0.41	1767.32	96.00			0.43	96.90
156	240	0.19	0.00	0.01	0.01	0.206	0.000	0.004	−0.011	−0.73	0.66	1770.88	100.52			0.68	101.51
157	241	0.19	0.00	0.02	0.01	0.206	0.000	−0.008	−0.013	−1.08	0.46	1773.00	106.47			0.48	107.56
158	242	0.18	0.00	0.02	0.00	0.195	0.000	−0.010	−0.003	−0.83	0.58	1776.48	111.06			0.59	112.24
159	243	0.18	0.00	0.03	0.00	0.196	0.000	−0.023	−0.005	−1.27	0.17	1778.62	116.99			0.19	118.30
160	244	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−1.46	0.01	1782.18	121.50			0.07	122.95
161	245	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−2.09	−0.38	1784.11	127.64			−0.29	129.24
162	246	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−2.13	−0.48	1787.42	132.40			−0.39	134.13
163	247	0.17	0.00	0.05	−0.01	0.185	0.000	−0.049	0.001	−2.33	−0.75	1789.04	138.85			−0.65	140.71
164	248	0.16	0.00	0.05	−0.01	0.174	0.000	−0.050	0.001	−2.10	−0.55	1791.86	144.11			−0.44	146.10
165	249	0.08	0.00	0.00	0.00	0.085	0.000	0.003	0.000	−1.65	−1.01	1793.50	150.54			−1.02	152.56
166	250	0.07	0.00	−0.01	0.00	0.075	0.000	0.014	0.001	−1.91	−1.28	1796.61	155.50			−1.28	157.67
167	251	−0.10	0.00	−0.01	0.00	−0.104	0.000	0.015	−0.001	−2.70	−1.92	1798.25	161.94			−1.92	164.24
168	252	−0.10	0.00	−0.01	0.00	−0.104	0.000	0.015	−0.001	−3.01	−2.19	1801.17	167.08			−2.19	169.54
169	253	−0.10	0.00	−0.01	0.00	−0.104	0.000	0.015	−0.001	−3.77	−2.92	1802.72	173.60			−2.92	176.21
170	254	−0.10	0.00	−0.01	−0.01	−0.104	0.000	0.016	0.008	−4.13	−3.27	1805.55	178.85			−3.25	181.62
171	255	−0.10	0.00	−0.01	−0.01	−0.104	0.000	0.016	0.008	−4.83	−3.96	1806.89	185.58			−3.93	188.51
172	256	−0.10	0.00	−0.01	−0.01	−0.104	0.000	0.016	0.008	−5.04	−4.18	1809.42	191.12			−4.16	194.23
173	257	−0.10	0.00	−0.01	−0.01	−0.104	0.000	0.016	0.008	−5.67	−4.87	1810.60	198.01			−4.85	201.28
174	258	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	−5.82	−5.07	1812.94	203.75			−5.06	207.18
175	259	−0.10	0.00	0.01	0.00	−0.105	0.000	−0.008	0.001	−6.48	−5.73	1813.92	210.83			−5.73	214.43
176	260	−0.05	0.00	0.00	0.00	−0.052	0.000	0.001	0.000	−6.53	−5.96	1816.12	216.71			−5.96	220.49
177	261	−0.08	0.00	0.01	0.00	−0.084	0.000	−0.009	0.001	−7.28	−6.58	1816.92	223.98			−6.59	227.95
178	262	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−7.32	−6.72	1818.86	230.11			−6.72	234.26
179	263	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−8.02	−7.15	1819.30	237.74			−7.15	242.09
180	264	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−8.29	−7.39	1821.19	243.92			−7.39	248.47
181	265	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.10	−8.17	1821.84	251.34			−8.17	256.10
182	266	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.30	−8.34	1823.50	257.75			−8.34	262.72
183	267	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.94	−8.95	1823.82	265.50			−8.95	270.68
184	268	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.84	−8.85	1825.06	272.33			−8.85	277.73
185	269	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−8.91	−7.96	1823.75	281.72			−7.96	287.34
186	270	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.16	−7.23	1824.20	289.34			−7.23	295.18
187	271	0.01	0.04	0.00	0.00	0.011	−0.054	0.001	0.001	−7.37	−6.23	1822.64	298.97			−6.20	305.08
188	272	0.01	0.06	0.00	0.00	0.012	−0.081	0.002	0.002	−6.75	−5.34	1822.80	306.89			−5.28	313.27
189	273	0.03	0.08	−0.01	0.00	0.035	−0.109	0.015	0.005	−6.89	−5.05	1821.80	315.96			−4.93	322.64

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 84 (Po)																	
190	274	0.03	0.09	−0.01	0.00	0.035	−0.123	0.016	0.006	−6.53	−4.46	1822.11	323.72			−4.30	330.69
191	275	0.04	0.10	−0.01	0.01	0.047	−0.135	0.016	−0.003	−6.66	−4.35	1821.15	332.74			−4.16	340.00
192	276	0.04	0.11	−0.01	0.01	0.048	−0.149	0.017	−0.001	−6.42	−3.84	1821.40	340.57			−3.60	348.12
193	277	0.04	0.12	−0.01	0.01	0.049	−0.163	0.018	0.000	−6.55	−3.65	1820.23	349.80			−3.38	357.65
194	278	0.04	0.12	−0.01	0.02	0.048	−0.162	0.018	−0.010	−5.86	−3.07	1820.27	357.84			−2.73	366.01
195	279	0.03	0.12	−0.01	0.02	0.038	−0.162	0.018	−0.010	−5.45	−2.72	1818.82	367.36			−2.39	375.80
Z = 85 (At)																	
99	184	0.29	0.00	−0.01	0.01	0.317	0.000	0.051	−0.001	−1.38	0.88	1395.58	23.04			0.77	24.05
100	185	0.29	0.00	0.00	0.01	0.318	0.000	0.038	−0.005	−1.27	0.94	1407.72	18.97			0.84	19.92
101	186	0.30	0.00	0.01	0.02	0.330	0.000	0.030	−0.018	−1.56	0.88	1418.10	16.66			0.77	17.51
102	187	0.30	0.00	0.01	0.02	0.330	0.000	0.030	−0.018	−1.45	1.03	1429.73	13.10			0.94	13.90
103	188	0.32	0.00	0.01	0.01	0.353	0.000	0.034	−0.008	−1.64	1.05	1439.64	11.27			0.93	11.96
104	189	0.33	0.00	0.01	0.01	0.364	0.000	0.038	−0.007	−1.55	1.24	1450.81	8.17			1.14	8.80
105	190	0.33	0.00	0.01	0.00	0.364	0.000	0.036	0.003	−1.50	1.30	1460.28	6.77			1.19	7.32
106	191	−0.22	0.00	0.00	0.00	−0.227	0.000	0.019	−0.002	−0.49	1.32	1471.24	3.88			1.27	4.43
107	192	−0.22	0.00	0.00	0.00	−0.227	0.000	0.019	−0.002	−0.82	1.03	1480.68	2.52			0.98	3.00
108	193	−0.22	0.00	0.00	0.00	−0.227	0.000	0.019	−0.002	−1.02	0.83	1491.47	−0.20	−0.15	0.054	0.79	0.22
109	194	−0.22	0.00	0.00	0.00	−0.227	0.000	0.019	−0.002	−1.31	0.56	1500.52	−1.19	−1.19	0.186	0.51	−0.83
110	195	−0.21	0.00	0.00	0.00	−0.217	0.000	0.017	−0.001	−1.38	0.35	1510.95	−3.54	−3.48	0.009	0.31	−3.22
111	196	−0.21	0.00	0.00	0.00	−0.217	0.000	0.017	−0.001	−1.68	0.04	1519.68	−4.20	−3.92	0.060	−0.01	−3.95
112	197	−0.20	0.00	0.00	0.00	−0.207	0.000	0.015	−0.001	−1.80	−0.22	1529.78	−6.23	−6.34	0.051	−0.25	−6.02
113	198	−0.20	0.00	0.00	0.00	−0.207	0.000	0.015	−0.001	−2.19	−0.62	1538.26	−6.64	−6.67	0.049	−0.65	−6.48
114	199	0.09	0.00	0.00	0.00	0.096	0.000	0.003	0.000	−1.72	−0.88	1548.02	−8.33	−8.82	0.050	−0.89	−8.19
115	200	0.09	0.00	0.00	0.00	0.096	0.000	0.003	0.000	−2.33	−1.36	1556.23	−8.47	−8.99	0.024	−1.37	−8.37
116	201	0.08	0.00	0.01	0.00	0.086	0.000	−0.009	−0.001	−2.98	−2.26	1566.28	−10.45	−10.79	0.008	−2.27	−10.39
117	202	0.08	0.00	0.01	0.00	0.086	0.000	−0.009	−0.001	−3.64	−2.63	1574.05	−10.15	−10.59	0.028	−2.64	−10.13
118	203	−0.08	0.00	−0.01	−0.01	−0.083	0.000	0.014	0.009	−4.52	−3.89	1584.13	−12.15	−12.16	0.012	−3.89	−12.17
119	204	−0.08	0.00	0.00	0.00	−0.084	0.000	0.002	−0.000	−5.29	−4.67	1591.98	−11.93	−11.88	0.024	−4.67	−11.99
120	205	−0.07	0.00	0.00	0.00	−0.073	0.000	0.002	−0.000	−5.99	−5.34	1601.14	−13.02	−12.97	0.015	−5.34	−13.11
121	206	−0.07	0.00	0.00	0.00	−0.073	0.000	0.002	−0.000	−6.93	−6.22	1608.79	−12.60	−12.42	0.020	−6.23	−12.72
122	207	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	−7.63	−6.84	1617.57	−13.31	−13.24	0.021	−6.84	−13.45
123	208	−0.04	0.00	0.02	0.00	−0.042	0.000	−0.023	0.001	−8.59	−7.67	1624.86	−12.52	−12.49	0.026	−7.67	−12.69
124	209	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−9.26	−8.24	1633.29	−12.89	−12.88	0.007	−8.25	−13.08
125	210	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−10.20	−9.02	1640.23	−11.76	−11.97	0.008	−9.03	−11.96
126	211	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−10.45	−9.27	1648.03	−11.48	−11.65	0.003	−9.27	−11.70
127	212	0.01	0.00	−0.01	0.00	0.011	0.000	0.012	0.000	−9.50	−8.42	1653.06	−8.44	−8.62	0.007	−8.42	−8.67
128	213	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−8.44	−7.38	1659.28	−6.59	−6.58	0.005	−7.38	−6.83
129	214	−0.01	0.00	0.00	−0.01	−0.010	0.000	0.000	0.010	−7.24	−6.30	1663.79	−3.03	−3.38	0.004	−6.30	−3.27
130	215	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−5.96	−5.11	1669.57	−0.74	−1.25	0.007	−5.11	−0.99
131	216	0.05	0.09	−0.03	0.00	0.057	−0.124	0.040	0.008	−7.14	−4.27	1674.04	2.87	2.26	0.004	−4.20	2.68
132	217	0.06	0.10	−0.03	0.00	0.068	−0.138	0.041	0.010	−6.73	−3.48	1679.95	5.03	4.40	0.005	−3.39	4.87
133	218	0.08	0.10	−0.04	0.00	0.090	−0.139	0.055	0.012	−6.59	−3.01	1684.52	8.53	8.10	0.012	−2.91	8.39
134	219	0.09	0.09	−0.05	−0.01	0.100	−0.127	0.067	0.023	−5.95	−2.33	1690.26	10.86	10.40	0.004	−2.18	10.77
135	220	0.10	0.09	−0.05	0.00	0.110	−0.125	0.068	0.014	−5.51	−1.99	1694.70	14.49	14.35	0.051	−1.87	14.39
136	221	0.10	0.09	−0.05	0.00	0.110	−0.125	0.068	0.014	−4.81	−1.34	1700.21	17.05			−1.21	16.98
137	222	0.10	0.09	−0.05	0.00	0.110	−0.125	0.068	0.014	−4.39	−0.95	1704.34	20.99			−0.82	20.93
138	223	0.11	0.08	−0.05	0.01	0.120	−0.111	0.068	0.003	−3.33	−0.29	1709.58	23.82			−0.17	23.79
139	224	0.13	0.04	−0.07	−0.01	0.142	−0.056	0.094	0.025	−3.35	−0.06	1713.63	27.85			0.12	27.90
140	225	0.14	0.02	−0.07	−0.01	0.152	−0.028	0.095	0.026	−2.78	0.35	1718.86	30.68			0.54	30.77
141	226	0.15	0.02	−0.07	0.00	0.162	−0.028	0.097	0.016	−2.81	0.34	1722.91	34.71			0.49	34.80
142	227	0.16	0.00	−0.07	0.01	0.172	0.000	0.098	0.006	−2.40	0.68	1727.96	37.72			0.84	37.86
143	228	0.17	0.00	−0.06	0.01	0.183	0.000	0.087	0.005	−2.15	0.44	1732.00	41.76			0.56	41.89
144	229	0.18	0.00	−0.06	0.02	0.193	0.000	0.089	−0.004	−2.03	0.58	1737.02	44.81			0.72	45.01
145	230	0.19	0.00	−0.05	0.02	0.204	0.000	0.079	−0.006	−1.99	0.41	1740.75	49.15			0.51	49.36
146	231	0.20	0.00	−0.05	0.03	0.215	0.000	0.081	−0.016	−1.99	0.52	1745.56	52.41			0.68	52.73
147	232	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−2.30	0.20	1749.22	56.83			0.33	57.17
148	233	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−1.95	0.32	1753.79	60.33			0.45	60.72

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 85 (At)																	
149	234	0.22	0.00	−0.02	0.03	0.238	0.000	0.048	−0.022	−2.15	0.00	1757.22	64.96			0.11	65.40
150	235	0.22	0.00	−0.02	0.03	0.238	0.000	0.048	−0.022	−2.03	0.10	1761.60	68.66			0.22	69.18
151	236	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−2.24	−0.22	1764.81	73.52			−0.11	74.10
152	237	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.75	0.07	1768.78	77.62			0.11	78.22
153	238	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.80	−0.03	1771.56	82.91			0.01	83.57
154	239	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−1.39	0.35	1775.22	87.32			0.40	88.08
155	240	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−1.37	0.42	1777.63	92.99			0.47	93.83
156	241	0.18	0.00	0.01	0.01	0.195	0.000	0.002	−0.011	−0.59	0.79	1781.09	97.60			0.80	98.49
157	242	0.18	0.00	0.01	0.01	0.195	0.000	0.002	−0.011	−0.90	0.52	1783.64	103.12			0.52	104.09
158	243	0.17	0.00	0.02	0.00	0.184	0.000	−0.012	−0.003	−0.73	0.61	1787.18	107.66			0.61	108.73
159	244	0.17	0.00	0.03	0.00	0.185	0.000	−0.024	−0.005	−1.11	0.33	1789.54	113.36			0.34	114.55
160	245	0.17	0.00	0.03	0.00	0.185	0.000	−0.024	−0.005	−1.11	0.12	1793.17	117.80			0.14	119.10
161	246	0.17	0.00	0.04	0.00	0.185	0.000	−0.036	−0.007	−1.69	−0.28	1795.46	123.58			−0.24	125.01
162	247	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−1.97	−0.29	1798.70	128.41			−0.21	130.00
163	248	0.17	0.00	0.05	−0.01	0.185	0.000	−0.049	0.001	−2.21	−0.62	1800.74	134.45			−0.54	136.15
164	249	0.16	0.00	0.05	−0.01	0.174	0.000	−0.050	0.001	−1.98	−0.42	1803.57	139.69			−0.32	141.52
165	250	0.12	0.00	0.01	0.00	0.129	0.000	−0.006	−0.001	−1.70	−0.79	1805.47	145.86			−0.80	147.72
166	251	0.08	0.00	0.00	0.00	0.085	0.000	0.003	0.000	−1.74	−1.06	1808.59	150.81			−1.07	152.81
167	252	−0.13	0.00	−0.01	0.00	−0.135	0.000	0.018	−0.002	−2.71	−1.70	1810.57	156.90			−1.70	159.04
168	253	−0.13	0.00	0.00	0.00	−0.135	0.000	0.007	−0.000	−2.94	−2.04	1813.58	161.97			−2.04	164.23
169	254	−0.13	0.00	0.00	−0.01	−0.135	0.000	0.007	0.009	−3.71	−2.75	1815.46	168.15			−2.74	170.58
170	255	−0.10	0.00	−0.01	−0.01	−0.104	0.000	0.016	0.008	−3.88	−2.98	1818.18	173.50			−2.96	176.09
171	256	−0.13	0.00	0.00	−0.01	−0.135	0.000	0.007	0.009	−4.72	−3.67	1819.87	179.89			−3.66	182.62
172	257	−0.13	0.00	0.00	−0.01	−0.135	0.000	0.007	0.009	−4.91	−3.88	1822.40	185.43			−3.87	188.32
173	258	−0.10	0.00	−0.01	−0.01	−0.104	0.000	0.016	0.008	−5.32	−4.55	1823.89	192.01			−4.53	195.06
174	259	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	−5.47	−4.75	1826.23	197.74			−4.73	200.96
175	260	−0.10	0.00	0.01	−0.01	−0.105	0.000	−0.007	0.011	−6.15	−5.42	1827.57	204.47			−5.40	207.86
176	261	−0.09	0.00	0.01	−0.01	−0.094	0.000	−0.008	0.010	−6.31	−5.64	1829.77	210.35			−5.61	213.92
177	262	−0.09	0.00	0.02	0.00	−0.094	0.000	−0.020	0.002	−6.96	−6.22	1830.85	217.33			−6.21	221.07
178	263	−0.08	0.00	0.02	−0.01	−0.084	0.000	−0.020	0.011	−7.14	−6.37	1832.81	223.44			−6.32	227.40
179	264	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	−7.44	−6.70	1833.50	230.83			−6.70	234.93
180	265	−0.03	0.00	0.01	0.00	−0.032	0.000	−0.011	0.000	−7.61	−6.78	1835.22	237.18			−6.77	241.47
181	266	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−8.30	−7.45	1836.09	244.38			−7.45	248.86
182	267	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.46	−7.53	1837.68	250.87			−7.54	255.55
183	268	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−9.08	−8.10	1838.29	258.32			−8.11	263.22
184	269	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.96	−8.00	1839.53	265.16			−8.00	270.26
185	270	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−8.05	−7.14	1838.56	274.20			−7.14	279.51
186	271	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.29	−6.39	1839.01	281.82			−6.40	287.36
187	272	0.01	0.04	0.00	0.00	0.011	−0.054	0.001	0.001	−6.51	−5.40	1837.77	291.13			−5.37	296.92
188	273	0.02	0.06	−0.01	0.00	0.023	−0.081	0.013	0.003	−5.95	−4.55	1837.97	299.00			−4.48	305.07
189	274	0.04	0.09	−0.02	0.00	0.046	−0.123	0.028	0.007	−6.57	−4.40	1837.42	307.62			−4.23	314.01
190	275	0.04	0.10	−0.02	0.00	0.047	−0.137	0.028	0.008	−6.34	−3.90	1837.82	315.29			−3.69	321.96
191	276	0.05	0.11	−0.02	0.01	0.058	−0.150	0.030	−0.000	−6.61	−3.88	1837.28	323.90			−3.65	330.84
192	277	0.05	0.12	−0.02	0.01	0.059	−0.164	0.030	0.001	−6.42	−3.38	1837.54	331.71			−3.11	338.94
193	278	0.05	0.12	−0.01	0.02	0.059	−0.162	0.018	−0.010	−6.10	−3.22	1836.72	340.61			−2.92	348.11
194	279	0.05	0.12	−0.01	0.02	0.059	−0.162	0.018	−0.010	−5.41	−2.76	1836.88	348.52			−2.45	356.29
195	280	0.09	0.12	−0.05	0.00	0.102	−0.168	0.069	0.018	−5.74	−2.23	1835.56	357.91			−1.84	366.04
196	281	0.10	0.12	−0.05	0.00	0.113	−0.168	0.070	0.019	−5.26	−1.63	1835.44	366.10			−1.23	374.49
197	282	0.10	0.11	−0.05	0.00	0.112	−0.154	0.069	0.017	−4.74	−1.53	1834.42	375.19			−1.18	383.82
Z = 86 (Rn)																	
100	186	0.30	0.00	0.00	0.02	0.329	0.000	0.042	−0.014	−1.65	0.69	1407.37	26.61			0.60	27.76
101	187	0.30	0.00	0.00	0.02	0.329	0.000	0.042	−0.014	−1.82	0.61	1417.83	24.22			0.50	25.26
102	188	0.30	0.00	0.01	0.02	0.330	0.000	0.030	−0.018	−1.64	0.77	1429.91	20.21			0.69	21.20
103	189	0.32	0.00	0.01	0.01	0.353	0.000	0.034	−0.008	−1.75	0.80	1439.86	18.33			0.69	19.21
104	190	0.33	0.00	0.01	0.01	0.364	0.000	0.038	−0.007	−1.63	1.02	1451.47	14.80			0.93	15.62
105	191	0.28	0.00	0.03	0.00	0.308	0.000	−0.002	−0.006	−1.01	1.15	1460.93	13.41			1.07	14.16
106	192	0.33	0.00	0.01	0.00	0.364	0.000	0.036	0.003	−1.26	1.35	1472.16	10.25			1.27	10.93

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 86 (Rn)																	
107	193	0.25	0.00	0.03	0.00	0.274	0.000	−0.009	−0.006	−0.56	1.32	1481.40	9.08			1.26	9.72
108	194	−0.23	0.00	0.00	0.00	−0.237	0.000	0.020	−0.002	−0.70	1.21	1492.55	6.01			1.17	6.59
109	195	−0.23	0.00	0.00	0.00	−0.237	0.000	0.020	−0.002	−0.98	0.93	1501.66	4.97	5.07	0.051	0.88	5.48
110	196	−0.22	0.00	0.00	0.00	−0.227	0.000	0.019	−0.002	−1.03	0.76	1512.49	2.20	1.97	0.015	0.72	2.67
111	197	−0.22	0.00	0.00	0.00	−0.227	0.000	0.019	−0.002	−1.32	0.48	1521.25	1.52	1.48	0.061	0.44	1.92
112	198	−0.22	0.00	0.00	0.00	−0.227	0.000	0.019	−0.002	−1.51	0.27	1531.75	−0.91	−1.23	0.013	0.24	−0.56
113	199	−0.21	0.00	0.00	0.00	−0.217	0.000	0.017	−0.001	−1.75	−0.12	1540.26	−1.35	−1.52	0.064	−0.15	−1.05
114	200	−0.20	0.00	0.01	0.00	−0.207	0.000	0.004	0.001	−1.90	−0.39	1550.46	−3.48	−4.01	0.013	−0.41	−3.23
115	201	−0.20	0.00	0.01	0.00	−0.207	0.000	0.004	0.001	−2.40	−0.85	1558.71	−3.66	−4.07	0.071	−0.88	−3.46
116	202	−0.11	0.00	−0.01	−0.01	−0.115	0.000	0.017	0.008	−2.24	−1.43	1568.87	−5.75	−6.28	0.018	−1.43	−5.57
117	203	−0.11	0.00	−0.01	−0.01	−0.115	0.000	0.017	0.008	−2.92	−2.06	1576.95	−5.76	−6.16	0.024	−2.07	−5.63
118	204	−0.11	0.00	−0.01	−0.01	−0.115	0.000	0.017	0.008	−3.73	−2.81	1586.94	−7.68	−7.98	0.015	−2.81	−7.58
119	205	−0.10	0.00	−0.01	−0.01	−0.104	0.000	0.016	0.008	−4.43	−3.58	1594.83	−7.50	−7.71	0.050	−3.58	−7.45
120	206	−0.09	0.00	−0.01	−0.01	−0.094	0.000	0.015	0.009	−5.07	−4.26	1604.44	−9.03	−9.12	0.015	−4.26	−9.01
121	207	−0.08	0.00	0.00	0.00	−0.084	0.000	0.002	−0.000	−5.86	−5.18	1612.16	−8.68	−8.63	0.026	−5.18	−8.70
122	208	−0.06	0.00	0.01	0.00	−0.063	0.000	−0.010	0.001	−6.48	−5.76	1621.33	−9.78	−9.65	0.011	−5.76	−9.83
123	209	−0.06	0.00	0.01	0.00	−0.063	0.000	−0.010	0.001	−7.35	−6.55	1628.63	−9.00	−8.93	0.020	−6.55	−9.08
124	210	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.04	−7.01	1637.37	−9.67	−9.60	0.009	−7.01	−9.77
125	211	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.05	−7.94	1644.50	−8.74	−8.76	0.007	−7.95	−8.86
126	212	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.30	−8.16	1652.69	−8.85	−8.66	0.003	−8.16	−9.00
127	213	−0.01	0.00	−0.01	0.00	−0.010	0.000	0.012	−0.000	−8.30	−7.21	1657.65	−5.74	−5.70	0.006	−7.21	−5.90
128	214	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.29	−6.25	1664.37	−4.39	−4.32	0.009	−6.25	−4.56
129	215	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−5.95	−5.03	1668.78	−0.72	−1.17	0.008	−5.03	−0.91
130	216	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.80	−3.91	1675.04	1.09	0.26	0.007	−3.91	0.89
131	217	0.06	0.10	−0.03	0.00	0.068	−0.138	0.041	0.010	−6.69	−3.44	1679.92	4.28	3.66	0.004	−3.36	4.16
132	218	0.07	0.10	−0.04	0.00	0.079	−0.139	0.054	0.012	−6.21	−2.73	1686.31	5.96	5.22	0.002	−2.62	5.87
133	219	0.09	0.09	−0.05	−0.01	0.100	−0.127	0.067	0.023	−6.10	−2.46	1691.12	9.22	8.83	0.003	−2.33	9.16
134	220	0.10	0.09	−0.05	0.00	0.110	−0.125	0.068	0.014	−5.32	−1.82	1697.30	11.11	10.61	0.002	−1.69	11.05
135	221	0.10	0.09	−0.05	0.00	0.110	−0.125	0.068	0.014	−5.05	−1.56	1701.86	14.62	14.47	0.006	−1.44	14.56
136	222	0.10	0.09	−0.05	0.00	0.110	−0.125	0.068	0.014	−4.37	−0.93	1707.78	16.77	16.37	0.002	−0.79	16.74
137	223	0.13	0.09	−0.06	0.00	0.143	−0.126	0.084	0.018	−4.74	−0.61	1712.02	20.60			−0.45	20.61
138	224	0.13	0.08	−0.06	0.00	0.142	−0.112	0.083	0.017	−3.79	−0.06	1717.76	22.93			0.11	22.96
139	225	0.15	0.05	−0.07	0.00	0.163	−0.070	0.097	0.018	−3.49	0.12	1721.89	26.88			0.29	26.93
140	226	0.15	0.04	−0.07	0.00	0.163	−0.056	0.097	0.017	−2.92	0.47	1727.57	29.26			0.65	29.35
141	227	0.16	0.02	−0.07	0.00	0.173	−0.028	0.098	0.017	−2.85	0.45	1731.66	33.25			0.61	33.35
142	228	0.17	0.00	−0.07	0.01	0.183	0.000	0.100	0.007	−2.53	0.46	1737.43	35.55			0.63	35.68
143	229	0.18	0.01	−0.06	0.01	0.194	−0.014	0.089	0.006	−2.32	0.41	1741.31	39.74			0.53	39.87
144	230	0.19	0.00	−0.06	0.02	0.204	0.000	0.091	−0.004	−2.22	0.54	1746.71	42.41			0.70	42.60
145	231	0.20	0.00	−0.05	0.02	0.215	0.000	0.080	−0.005	−2.20	0.29	1750.56	46.63			0.40	46.83
146	232	0.21	0.02	−0.05	0.03	0.226	−0.027	0.083	−0.014	−2.31	0.39	1755.76	49.51			0.56	49.81
147	233	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−2.43	0.07	1759.44	53.89			0.21	54.21
148	234	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−2.04	0.24	1764.34	57.06			0.37	57.43
149	235	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−2.40	−0.09	1767.81	61.67			0.04	62.08
150	236	0.22	0.00	−0.02	0.03	0.238	0.000	0.048	−0.022	−2.09	0.02	1772.55	65.00			0.15	65.48
151	237	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−2.27	−0.25	1775.74	69.88			−0.13	70.42
152	238	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−2.00	−0.03	1780.14	73.55			0.10	74.17
153	239	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.77	0.02	1782.81	78.95			0.06	79.56
154	240	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.36	0.42	1786.81	83.03			0.48	83.72
155	241	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−1.31	0.47	1789.26	88.64			0.53	89.42
156	242	0.20	0.00	0.01	0.01	0.217	0.000	0.006	−0.011	−0.64	0.87	1793.06	92.92			0.88	93.73
157	243	0.19	0.00	0.01	0.01	0.206	0.000	0.004	−0.011	−0.81	0.64	1795.59	98.46			0.65	99.36
158	244	0.18	0.00	0.02	0.00	0.195	0.000	−0.010	−0.003	−0.62	0.76	1799.45	102.67			0.77	103.65
159	245	0.18	0.00	0.03	0.00	0.196	0.000	−0.023	−0.005	−1.01	0.49	1801.83	108.36			0.50	109.45
160	246	0.18	0.00	0.03	0.00	0.196	0.000	−0.023	−0.005	−0.94	0.47	1805.63	112.63			0.49	113.82
161	247	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−1.51	−0.00	1808.01	118.32			0.04	119.64
162	248	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−1.71	−0.03	1811.62	122.79			0.06	124.26
163	249	0.17	0.00	0.05	−0.01	0.185	0.000	−0.049	0.001	−1.93	−0.32	1813.64	128.83			−0.24	130.41

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 86 (Rn)																	
164	250	0.16	0.00	0.04	−0.01	0.174	0.000	−0.038	0.003	−1.43	−0.16	1816.87	133.68			−0.10	135.35
165	251	0.16	0.00	0.04	−0.01	0.174	0.000	−0.038	0.003	−1.77	−0.35	1818.60	140.02			−0.30	141.81
166	252	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−1.43	−0.51	1821.95	144.74			−0.49	146.61
167	253	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−2.05	−1.17	1823.98	150.78			−1.15	152.79
168	254	−0.13	0.00	−0.01	0.00	−0.135	0.000	0.018	−0.002	−2.39	−1.44	1827.26	155.57			−1.44	157.69
169	255	−0.13	0.00	−0.01	−0.01	−0.135	0.000	0.019	0.008	−3.15	−2.17	1829.17	161.73			−2.15	164.00
170	256	−0.13	0.00	−0.01	−0.01	−0.135	0.000	0.019	0.008	−3.45	−2.39	1832.22	166.75			−2.37	169.17
171	257	−0.13	0.00	−0.01	−0.01	−0.135	0.000	0.019	0.008	−4.11	−2.98	1833.83	173.21			−2.97	175.77
172	258	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−4.22	−3.13	1836.63	178.49			−3.11	181.20
173	259	−0.10	0.00	−0.01	−0.01	−0.104	0.000	0.016	0.008	−4.64	−3.89	1838.24	184.95			−3.87	187.82
174	260	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	−4.76	−4.07	1840.89	190.37			−4.05	193.39
175	261	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	−5.41	−4.72	1842.22	197.11			−4.70	200.29
176	262	−0.09	0.00	0.01	−0.01	−0.094	0.000	−0.008	0.010	−5.55	−4.92	1844.73	202.67			−4.89	206.03
177	263	−0.09	0.00	0.01	−0.01	−0.094	0.000	−0.008	0.010	−6.15	−5.50	1845.83	209.64			−5.48	213.17
178	264	−0.08	0.00	0.01	−0.01	−0.084	0.000	−0.009	0.010	−6.24	−5.56	1848.03	215.51			−5.53	219.22
179	265	−0.07	0.00	0.01	0.00	−0.073	0.000	−0.010	0.001	−6.66	−6.00	1848.83	222.78			−6.00	226.64
180	266	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−6.65	−5.90	1850.71	228.98			−5.89	233.03
181	267	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.28	−6.41	1851.43	236.33			−6.41	240.57
182	268	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.45	−6.55	1853.39	242.44			−6.56	246.86
183	269	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.05	−7.12	1854.02	249.89			−7.13	254.51
184	270	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.91	−6.99	1855.55	256.43			−6.99	261.26
185	271	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.99	−6.12	1854.58	265.47			−6.12	270.51
186	272	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.26	−5.39	1855.37	272.75			−5.40	277.99
187	273	0.01	0.05	0.00	0.00	0.012	−0.067	0.001	0.002	−5.67	−4.46	1854.19	281.99			−4.42	287.50
188	274	0.02	0.07	−0.01	0.00	0.023	−0.095	0.014	0.004	−5.24	−3.67	1854.77	289.49			−3.58	295.27
189	275	0.04	0.09	−0.02	0.00	0.046	−0.123	0.028	0.007	−5.71	−3.56	1854.27	298.06			−3.39	304.14
190	276	0.04	0.10	−0.02	0.00	0.047	−0.137	0.028	0.008	−5.50	−3.09	1855.01	305.39			−2.88	311.74
191	277	0.05	0.11	−0.02	0.01	0.058	−0.150	0.030	−0.000	−5.83	−3.12	1854.52	313.95			−2.89	320.56
192	278	0.05	0.12	−0.02	0.02	0.059	−0.163	0.031	−0.009	−5.67	−2.87	1855.34	321.20			−2.54	328.14
193	279	0.05	0.12	−0.01	0.02	0.059	−0.162	0.018	−0.010	−5.36	−2.67	1854.48	330.13			−2.36	337.29
194	280	0.05	0.13	−0.01	0.02	0.060	−0.176	0.019	−0.008	−5.10	−2.08	1854.83	337.86			−1.73	345.31
195	281	0.10	0.12	−0.05	0.00	0.113	−0.168	0.070	0.019	−5.32	−1.76	1853.71	347.04			−1.36	354.80
196	282	0.10	0.12	−0.05	0.00	0.113	−0.168	0.070	0.019	−4.83	−1.33	1854.08	354.75			−0.92	362.78
197	283	0.11	0.07	−0.06	−0.01	0.121	−0.099	0.080	0.024	−3.34	−0.98	1852.80	364.10			−0.57	372.39
198	284	0.10	0.11	−0.05	0.00	0.112	−0.154	0.069	0.017	−3.77	−0.67	1853.15	371.82			−0.29	380.35
199	285	0.11	0.02	−0.08	−0.02	0.121	−0.029	0.105	0.035	−3.20	−0.89	1852.32	380.72			−0.18	389.85
200	286	0.14	0.00	−0.08	−0.01	0.153	0.000	0.108	0.028	−2.93	−0.38	1852.34	388.77			0.20	398.05
Z = 87 (Fr)																	
102	189	0.31	0.00	0.01	0.02	0.341	0.000	0.033	−0.018	−2.04	0.40	1427.59	29.83			0.27	30.97
103	190	0.32	0.00	0.00	0.02	0.352	0.000	0.048	−0.013	−2.22	0.40	1438.02	27.46			0.26	28.50
104	191	0.33	0.00	0.00	0.02	0.363	0.000	0.051	−0.013	−2.09	0.61	1449.70	23.86			0.49	24.83
105	192	0.33	0.00	0.01	0.01	0.364	0.000	0.038	−0.007	−1.88	0.71	1459.64	21.99			0.57	22.87
106	193	0.33	0.00	0.01	0.00	0.364	0.000	0.036	0.003	−1.57	0.95	1470.88	18.82			0.84	19.65
107	194	0.27	0.00	0.03	−0.01	0.297	0.000	−0.006	0.003	−0.85	1.10	1480.39	17.38			1.00	18.15
108	195	0.32	0.00	0.02	−0.01	0.353	0.000	0.019	0.008	−1.04	1.30	1491.28	14.56			1.20	15.26
109	196	−0.24	0.00	0.00	−0.01	−0.247	0.000	0.023	0.007	−0.93	1.07	1500.80	13.12			1.00	13.77
110	197	−0.24	0.00	0.00	−0.01	−0.247	0.000	0.023	0.007	−1.08	0.91	1511.67	10.32			0.86	10.92
111	198	−0.23	0.00	0.00	0.00	−0.237	0.000	0.020	−0.002	−1.21	0.66	1520.83	9.23			0.60	9.76
112	199	−0.23	0.00	0.00	0.00	−0.237	0.000	0.020	−0.002	−1.38	0.49	1531.35	6.78	6.76	0.042	0.44	7.26
113	200	−0.22	0.00	0.00	0.00	−0.227	0.000	0.019	−0.002	−1.58	0.16	1540.23	5.96	6.12	0.078	0.11	6.39
114	201	−0.21	0.00	0.01	0.00	−0.217	0.000	0.006	0.001	−1.68	−0.07	1550.45	3.82	3.60	0.071	−0.10	4.20
115	202	−0.21	0.00	0.01	0.00	−0.217	0.000	0.006	0.001	−2.15	−0.52	1559.12	3.22	3.14	0.049	−0.57	3.54
116	203	−0.20	0.00	0.02	0.00	−0.207	0.000	−0.007	0.003	−2.47	−0.90	1569.13	1.28	0.86	0.016	−0.93	1.56
117	204	−0.19	0.00	0.02	0.00	−0.197	0.000	−0.009	0.003	−2.99	−1.33	1577.44	1.04	0.61	0.025	−1.36	1.27
118	205	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−3.25	−2.23	1587.64	−1.08	−1.31	0.008	−2.24	−0.87
119	206	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−3.97	−2.91	1595.87	−1.24	−1.24	0.028	−2.92	−1.08
120	207	−0.11	0.00	−0.01	−0.01	−0.115	0.000	0.017	0.008	−4.53	−3.57	1605.48	−2.79	−2.84	0.051	−3.57	−2.66

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 87 (Fr)																	
121	208	−0.09	0.00	0.00	0.00	−0.094	0.000	0.003	−0.000	−5.10	−4.40	1613.55	−2.78	−2.66	0.047	−4.41	−2.69
122	209	−0.08	0.00	0.00	0.00	−0.084	0.000	0.002	−0.000	−5.60	−4.93	1622.71	−3.87	−3.77	0.015	−4.93	−3.82
123	210	−0.06	0.00	0.01	0.00	−0.063	0.000	−0.010	0.001	−6.39	−5.69	1630.40	−3.48	−3.35	0.022	−5.69	−3.46
124	211	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−6.97	−6.06	1639.09	−4.11	−4.16	0.021	−6.06	−4.11
125	212	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.95	−6.90	1646.55	−3.49	−3.54	0.026	−6.90	−3.52
126	213	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.20	−7.12	1654.78	−3.65	−3.55	0.008	−7.12	−3.70
127	214	−0.01	0.00	−0.01	0.00	−0.010	0.000	0.012	−0.000	−7.19	−6.17	1660.15	−0.95	−0.96	0.009	−6.17	−1.02
128	215	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.21	−5.23	1666.93	0.34	0.32	0.007	−5.24	0.25
129	216	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−4.93	−4.13	1671.86	3.48	2.98	0.014	−4.13	3.37
130	217	0.07	0.09	−0.04	−0.01	0.079	−0.126	0.054	0.021	−6.58	−3.34	1678.50	4.91	4.32	0.007	−3.26	4.88
131	218	0.08	0.10	−0.04	0.00	0.090	−0.139	0.055	0.012	−6.65	−3.07	1683.97	7.51	7.06	0.005	−2.99	7.46
132	219	0.09	0.10	−0.05	0.00	0.100	−0.140	0.068	0.014	−6.40	−2.49	1690.53	9.02	8.62	0.007	−2.37	9.00
133	220	0.10	0.09	−0.06	−0.01	0.111	−0.127	0.081	0.026	−6.50	−2.36	1695.89	11.74	11.48	0.004	−2.23	11.74
134	221	0.10	0.10	−0.06	0.00	0.111	−0.140	0.081	0.017	−6.12	−1.80	1702.18	13.52	13.28	0.005	−1.65	13.52
135	222	0.11	0.10	−0.06	0.00	0.122	−0.141	0.082	0.018	−6.01	−1.59	1707.19	16.58	16.35	0.021	−1.45	16.58
136	223	0.12	0.10	−0.06	0.01	0.132	−0.139	0.083	0.008	−5.34	−1.03	1713.22	18.62	18.38	0.002	−0.88	18.65
137	224	0.13	0.10	−0.06	0.01	0.143	−0.139	0.084	0.009	−5.26	−0.84	1717.98	21.93	21.66	0.050	−0.70	21.96
138	225	0.14	0.09	−0.06	0.01	0.153	−0.125	0.085	0.008	−4.38	−0.26	1723.73	24.25	23.81	0.030	−0.11	24.30
139	226	0.15	0.06	−0.07	0.00	0.163	−0.084	0.097	0.019	−4.01	−0.13	1728.29	27.76	27.37	0.100	0.02	27.82
140	227	0.15	0.05	−0.07	0.00	0.163	−0.070	0.097	0.018	−3.38	0.25	1733.98	30.14	29.66	0.100	0.41	30.24
141	228	0.16	0.03	−0.07	0.00	0.173	−0.042	0.098	0.018	−3.22	−0.05	1738.73	33.47			0.10	33.57
142	229	0.18	0.00	−0.07	0.01	0.194	0.000	0.102	0.009	−2.92	0.21	1744.29	35.98	35.82	0.037	0.36	36.11
143	230	0.19	0.00	−0.07	0.02	0.205	0.000	0.104	−0.001	−3.16	0.08	1748.63	39.71			0.23	39.87
144	231	0.20	0.00	−0.06	0.02	0.215	0.000	0.093	−0.002	−2.64	0.28	1754.00	42.41			0.41	42.59
145	232	0.21	0.00	−0.06	0.03	0.226	0.000	0.095	−0.012	−3.08	−0.06	1758.31	46.17			0.09	46.41
146	233	0.21	0.02	−0.05	0.03	0.226	−0.027	0.083	−0.014	−2.62	0.13	1763.45	49.11			0.28	49.38
147	234	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−2.71	−0.16	1767.48	53.14			−0.05	53.43
148	235	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−2.54	−0.02	1772.44	56.26			0.11	56.60
149	236	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−2.65	−0.32	1776.25	60.52			−0.21	60.89
150	237	0.22	0.00	−0.02	0.03	0.238	0.000	0.048	−0.022	−2.29	−0.17	1780.97	63.87			−0.06	64.30
151	238	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−2.57	−0.44	1784.53	68.38			−0.34	68.85
152	239	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−2.17	−0.19	1788.93	72.05			−0.09	72.60
153	240	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.90	−0.11	1791.93	77.13			−0.07	77.67
154	241	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.48	0.30	1795.94	81.18			0.35	81.81
155	242	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−1.39	0.46	1798.66	86.54			0.50	87.23
156	243	0.20	0.00	0.01	0.01	0.217	0.000	0.006	−0.011	−0.74	0.80	1802.53	90.73			0.80	91.47
157	244	0.19	0.00	0.01	0.01	0.206	0.000	0.004	−0.011	−0.87	0.58	1805.42	95.92			0.58	96.74
158	245	0.18	0.00	0.01	0.00	0.195	0.000	0.002	−0.001	−0.58	0.77	1809.23	100.18			0.76	101.07
159	246	0.18	0.01	0.02	0.00	0.195	−0.014	−0.010	−0.003	−0.92	0.48	1811.99	105.49			0.47	106.48
160	247	0.18	0.00	0.03	0.00	0.196	0.000	−0.023	−0.005	−0.89	0.52	1815.74	109.81			0.53	110.90
161	248	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−1.44	0.09	1818.45	115.18			0.12	116.39
162	249	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−1.64	0.09	1822.04	119.66			0.17	121.01
163	250	0.17	0.00	0.05	−0.01	0.185	0.000	−0.049	0.001	−1.85	−0.20	1824.41	125.36			−0.13	126.82
164	251	0.16	0.00	0.04	0.00	0.174	0.000	−0.037	−0.007	−1.36	−0.04	1827.65	130.18			0.01	131.73
165	252	0.16	0.00	0.04	−0.01	0.174	0.000	−0.038	0.003	−1.57	−0.19	1829.69	136.22			−0.14	137.88
166	253	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−1.17	−0.26	1832.98	140.99			−0.25	142.74
167	254	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−1.76	−0.87	1835.30	146.75			−0.86	148.62
168	255	−0.17	0.00	0.01	0.00	−0.176	0.000	−0.000	0.001	−2.37	−1.16	1838.61	151.51			−1.17	153.47
169	256	−0.17	0.00	0.01	0.00	−0.176	0.000	−0.000	0.001	−3.11	−1.86	1840.85	157.35			−1.88	159.44
170	257	−0.13	0.00	−0.01	−0.01	−0.135	0.000	0.019	0.008	−3.14	−2.09	1843.92	162.35			−2.07	164.60
171	258	−0.13	0.00	−0.01	−0.01	−0.135	0.000	0.019	0.008	−3.79	−2.68	1845.86	168.48			−2.66	170.87
172	259	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−3.90	−2.95	1848.80	173.60			−2.94	176.14
173	260	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−4.44	−3.50	1850.53	179.95			−3.49	182.63
174	261	−0.10	0.00	−0.01	−0.01	−0.104	0.000	0.016	0.008	−4.36	−3.66	1853.18	185.37			−3.64	188.21
175	262	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	−4.94	−4.28	1854.82	191.80			−4.27	194.79
176	263	−0.10	0.00	0.01	−0.01	−0.105	0.000	−0.007	0.011	−5.11	−4.44	1857.30	197.39			−4.42	200.55
177	264	−0.09	0.00	0.02	0.00	−0.094	0.000	−0.020	0.002	−5.71	−5.05	1858.75	204.01			−5.03	207.33

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 87 (Fr)																	
178	265	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−5.78	−5.09	1860.95	209.88			−5.08	213.37
179	266	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−6.23	−5.55	1862.09	216.81			−5.53	220.47
180	267	−0.04	0.00	0.02	0.01	−0.042	0.000	−0.023	−0.009	−6.14	−5.40	1863.93	223.04			−5.35	226.90
181	268	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.64	−5.80	1864.87	230.18			−5.80	234.18
182	269	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.78	−5.92	1866.82	236.30			−5.93	240.48
183	270	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.36	−6.47	1867.75	243.45			−6.47	247.82
184	271	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.22	−6.32	1869.27	249.99			−6.32	254.56
185	272	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.28	−5.44	1868.61	258.72			−5.44	263.49
186	273	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.57	−4.74	1869.43	265.98			−4.74	270.95
187	274	0.01	0.05	0.00	0.00	0.012	−0.067	0.001	0.002	−4.95	−3.77	1868.54	274.93			−3.73	280.16
188	275	0.03	0.07	−0.01	0.00	0.034	−0.095	0.014	0.004	−4.58	−3.04	1869.18	282.37			−2.95	287.86
189	276	0.05	0.09	−0.02	0.00	0.056	−0.123	0.028	0.007	−5.18	−3.04	1869.11	290.51			−2.89	296.27
190	277	0.05	0.11	−0.02	0.01	0.058	−0.150	0.030	−0.000	−5.40	−2.66	1869.95	297.74			−2.44	303.80
191	278	0.06	0.12	−0.02	0.01	0.069	−0.164	0.031	0.002	−5.86	−2.91	1869.99	305.77			−2.67	312.08
192	279	0.06	0.12	−0.02	0.02	0.069	−0.163	0.031	−0.009	−5.34	−2.49	1870.65	313.19			−2.19	319.78
193	280	0.06	0.13	−0.01	0.02	0.070	−0.176	0.020	−0.008	−5.47	−2.34	1870.15	321.76			−2.03	328.59
194	281	0.05	0.13	−0.01	0.02	0.060	−0.176	0.019	−0.008	−4.79	−1.72	1870.47	329.51			−1.40	336.60
195	282	0.10	0.11	−0.06	0.00	0.112	−0.154	0.082	0.019	−5.22	−1.72	1869.98	338.07			−1.31	345.49
196	283	0.10	0.11	−0.06	0.00	0.112	−0.154	0.082	0.019	−4.75	−1.30	1870.36	345.76			−0.88	353.45
197	284	0.12	0.11	−0.06	0.01	0.133	−0.154	0.084	0.010	−4.57	−1.09	1869.53	354.67			−0.71	362.56
198	285	0.12	0.11	−0.06	0.01	0.133	−0.154	0.084	0.010	−4.18	−0.72	1869.82	362.45			−0.33	370.61
199	286	0.13	0.03	−0.08	−0.01	0.142	−0.042	0.107	0.027	−3.28	−0.58	1868.93	371.40			−0.03	379.99
200	287	0.14	0.00	−0.08	−0.01	0.153	0.000	0.108	0.028	−3.06	−0.44	1869.32	379.09			0.11	387.95
201	288	0.15	0.00	−0.08	0.00	0.163	0.000	0.109	0.018	−3.21	−0.58	1868.57	387.90			−0.11	396.95
202	289	0.15	0.00	−0.08	0.00	0.163	0.000	0.109	0.018	−3.09	−0.48	1868.88	395.67			−0.01	405.01
Z = 88 (Ra)																	
104	192	0.33	0.00	0.00	0.02	0.363	0.000	0.051	−0.013	−2.02	0.52	1449.33	31.52			0.41	32.70
105	193	0.33	0.00	0.01	0.01	0.364	0.000	0.038	−0.007	−1.78	0.65	1459.30	29.62			0.51	30.70
106	194	0.33	0.00	0.01	0.01	0.364	0.000	0.038	−0.007	−1.48	0.91	1470.97	26.02			0.80	27.04
107	195	0.26	0.00	0.02	0.00	0.285	0.000	0.005	−0.003	−0.66	1.14	1480.45	24.61			1.06	25.58
108	196	0.32	0.00	0.02	−0.01	0.353	0.000	0.019	0.008	−0.92	1.29	1491.84	21.29			1.20	22.17
109	197	0.31	0.00	0.02	−0.01	0.342	0.000	0.016	0.008	−0.81	1.50	1500.96	20.24			1.40	21.04
110	198	−0.24	0.00	0.00	−0.01	−0.247	0.000	0.023	0.007	−0.52	1.45	1512.17	17.10			1.40	17.88
111	199	−0.24	0.00	0.00	0.00	−0.247	0.000	0.022	−0.002	−0.79	1.21	1521.38	15.96			1.15	16.66
112	200	−0.23	0.00	0.00	0.00	−0.237	0.000	0.020	−0.002	−0.82	1.04	1532.33	13.08			0.99	13.73
113	201	−0.23	0.00	0.01	0.00	−0.237	0.000	0.009	0.001	−1.15	0.75	1541.24	12.25			0.70	12.83
114	202	−0.22	0.00	0.01	0.00	−0.227	0.000	0.007	0.001	−1.23	0.53	1551.88	9.68	9.21	0.063	0.49	10.21
115	203	−0.21	0.00	0.01	0.00	−0.217	0.000	0.006	0.001	−1.59	0.12	1560.56	9.07	8.64	0.081	0.07	9.55
116	204	−0.20	0.00	0.02	0.00	−0.207	0.000	−0.007	0.003	−1.88	−0.30	1571.04	6.66	6.05	0.015	−0.33	7.09
117	205	−0.19	0.00	0.02	0.00	−0.197	0.000	−0.009	0.003	−2.39	−0.86	1579.53	6.25	5.84	0.086	−0.89	6.62
118	206	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−2.49	−1.50	1589.89	3.96	3.57	0.018	−1.51	4.30
119	207	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−3.21	−2.18	1598.17	3.75	3.54	0.055	−2.19	4.05
120	208	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−3.79	−2.75	1608.11	1.87	1.71	0.015	−2.75	2.13
121	209	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	−4.35	−3.56	1616.21	1.85	1.86	0.050	−3.57	2.06
122	210	−0.08	0.00	0.01	0.00	−0.084	0.000	−0.009	0.001	−4.75	−4.10	1625.80	0.33	0.46	0.015	−4.10	0.50
123	211	−0.07	0.00	0.01	0.00	−0.073	0.000	−0.010	0.001	−5.54	−4.84	1633.51	0.70	0.84	0.026	−4.84	0.83
124	212	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	−6.08	−5.25	1642.66	−0.39	−0.19	0.011	−5.26	−0.28
125	213	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.94	−5.94	1650.01	0.34	0.36	0.020	−5.94	0.41
126	214	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.18	−6.14	1658.64	−0.22	0.10	0.009	−6.15	−0.18
127	215	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−6.20	−5.24	1664.10	2.39	2.53	0.008	−5.24	2.41
128	216	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.20	−4.27	1671.25	3.30	3.29	0.009	−4.28	3.30
129	217	0.05	0.08	−0.03	0.00	0.056	−0.110	0.039	0.007	−5.66	−3.23	1676.29	6.34	5.89	0.009	−3.19	6.36
130	218	0.07	0.09	−0.04	0.00	0.078	−0.125	0.054	0.010	−5.67	−2.61	1683.49	7.21	6.65	0.011	−2.53	7.24
131	219	0.08	0.10	−0.04	0.00	0.090	−0.139	0.055	0.012	−5.96	−2.42	1689.10	9.67	9.39	0.008	−2.34	9.70
132	220	0.10	0.09	−0.06	−0.01	0.111	−0.127	0.081	0.026	−6.02	−1.93	1696.15	10.70	10.27	0.009	−1.78	10.78
133	221	0.10	0.10	−0.06	0.00	0.111	−0.140	0.081	0.017	−6.19	−1.86	1701.59	13.32	12.96	0.005	−1.72	13.39
134	222	0.11	0.10	−0.06	0.00	0.122	−0.141	0.082	0.018	−5.75	−1.36	1708.36	14.63	14.32	0.005	−1.21	14.71

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 88 (Ra)																	
135	223	0.12	0.10	−0.06	0.01	0.132	−0.139	0.083	0.008	−5.58	−1.26	1713.50	17.56	17.24	0.003	−1.12	17.62
136	224	0.13	0.10	−0.06	0.01	0.143	−0.139	0.084	0.009	−5.16	−0.77	1720.00	19.13	18.83	0.002	−0.61	19.21
137	225	0.14	0.10	−0.06	0.01	0.154	−0.139	0.085	0.010	−5.13	−0.63	1724.85	22.35	21.99	0.003	−0.48	22.43
138	226	0.15	0.08	−0.07	0.01	0.164	−0.112	0.098	0.010	−4.46	−0.15	1731.08	24.19	23.67	0.002	0.03	24.31
139	227	0.16	0.07	−0.07	0.01	0.174	−0.097	0.099	0.010	−4.17	−0.03	1735.70	27.64	27.18	0.002	0.13	27.75
140	228	0.16	0.06	−0.07	0.01	0.174	−0.083	0.099	0.009	−3.57	0.07	1742.06	29.36	28.94	0.002	0.23	29.49
141	229	0.17	0.02	−0.08	0.01	0.184	−0.028	0.113	0.011	−3.72	−0.07	1746.67	32.81	32.56	0.019	0.11	32.97
142	230	0.18	0.00	−0.07	0.01	0.194	0.000	0.102	0.009	−3.07	0.10	1752.71	34.85	34.52	0.012	0.25	35.01
143	231	0.19	0.00	−0.07	0.02	0.205	0.000	0.104	−0.001	−3.34	−0.13	1757.18	38.45			0.02	38.64
144	232	0.20	0.00	−0.06	0.02	0.215	0.000	0.093	−0.002	−2.84	0.05	1762.95	40.75			0.19	40.95
145	233	0.21	0.00	−0.06	0.03	0.226	0.000	0.095	−0.012	−3.31	−0.25	1767.24	44.53			−0.08	44.78
146	234	0.22	0.00	−0.05	0.03	0.237	0.000	0.085	−0.014	−2.89	−0.06	1772.77	47.08			0.09	47.35
147	235	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−2.90	−0.35	1776.83	51.08			−0.23	51.37
148	236	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−2.73	−0.21	1782.16	53.83			−0.07	54.17
149	237	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−2.82	−0.49	1785.98	58.08			−0.38	58.44
150	238	0.23	0.00	−0.02	0.03	0.249	0.000	0.050	−0.022	−2.56	−0.33	1791.06	61.06			−0.22	61.48
151	239	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−2.72	−0.59	1794.65	65.55			−0.49	66.01
152	240	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−2.42	−0.34	1799.41	68.86			−0.23	69.39
153	241	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−2.24	−0.27	1802.45	73.89			−0.17	74.48
154	242	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.56	0.19	1806.78	77.63			0.24	78.23
155	243	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−1.44	0.33	1809.53	82.96			0.38	83.61
156	244	0.22	0.00	0.01	0.01	0.239	0.000	0.010	−0.011	−0.93	0.75	1813.68	86.87			0.77	87.57
157	245	0.20	0.00	0.01	0.01	0.217	0.000	0.006	−0.011	−0.96	0.56	1816.56	92.07			0.57	92.83
158	246	0.19	0.00	0.01	0.01	0.206	0.000	0.004	−0.011	−0.65	0.79	1820.70	96.00			0.80	96.85
159	247	0.18	0.00	0.02	0.00	0.195	0.000	−0.010	−0.003	−0.81	0.57	1823.41	101.36			0.57	102.28
160	248	0.19	0.00	0.03	0.00	0.207	0.000	−0.021	−0.006	−0.85	0.57	1827.56	105.28			0.59	106.31
161	249	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−1.31	0.22	1830.19	110.72			0.26	111.86
162	250	0.19	0.00	0.05	0.00	0.208	0.000	−0.045	−0.010	−1.55	0.25	1834.12	114.86			0.33	116.13
163	251	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−1.70	0.00	1836.47	120.59			0.07	121.95
164	252	0.16	0.00	0.04	0.00	0.174	0.000	−0.037	−0.007	−1.15	0.18	1840.05	125.08			0.23	126.53
165	253	0.16	0.00	0.04	−0.01	0.174	0.000	−0.038	0.003	−1.35	0.06	1842.07	131.12			0.11	132.68
166	254	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−0.76	0.14	1845.56	135.71			0.16	137.34
167	255	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−1.34	−0.46	1847.88	141.46			−0.44	143.21
168	256	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−1.52	−0.66	1851.45	145.96			−0.64	147.83
169	257	−0.13	0.00	−0.01	−0.01	−0.135	0.000	0.019	0.008	−2.35	−1.41	1853.74	151.74			−1.39	153.72
170	258	−0.13	0.00	−0.01	−0.01	−0.135	0.000	0.019	0.008	−2.62	−1.60	1857.12	156.43			−1.58	158.55
171	259	−0.13	0.00	−0.01	−0.01	−0.135	0.000	0.019	0.008	−3.26	−2.16	1859.05	162.57			−2.14	164.82
172	260	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−3.75	−2.35	1862.24	167.45			−2.33	169.83
173	261	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−3.81	−2.89	1863.98	173.79			−2.87	176.31
174	262	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	−3.68	−3.03	1866.95	178.89			−3.01	181.56
175	263	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	−4.30	−3.66	1868.61	185.30			−3.65	188.11
176	264	−0.10	0.00	0.01	−0.01	−0.105	0.000	−0.007	0.011	−4.46	−3.83	1871.43	190.55			−3.81	193.52
177	265	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−5.05	−4.37	1872.84	197.22			−4.36	200.34
178	266	−0.09	0.00	0.02	−0.01	−0.094	0.000	−0.020	0.012	−5.10	−4.44	1875.38	202.74			−4.39	206.05
179	267	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−5.44	−4.79	1876.43	209.76			−4.77	213.21
180	268	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−5.21	−4.51	1878.48	215.79			−4.51	219.40
181	269	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.78	−4.98	1879.48	222.85			−4.98	226.63
182	270	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.91	−5.08	1881.74	228.67			−5.08	232.62
183	271	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.47	−5.61	1882.66	235.82			−5.61	239.97
184	272	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.30	−5.44	1884.48	242.07			−5.45	246.40
185	273	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−5.36	−4.55	1883.83	250.79			−4.56	255.32
186	274	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.66	−3.86	1884.98	257.72			−3.87	262.43
187	275	0.02	0.06	−0.01	0.00	0.023	−0.081	0.013	0.003	−4.34	−3.00	1884.19	266.57			−2.93	271.55
188	276	0.03	0.08	−0.01	0.00	0.035	−0.109	0.015	0.005	−4.07	−2.31	1885.20	273.64			−2.20	278.88
189	277	0.05	0.10	−0.02	0.00	0.057	−0.137	0.029	0.009	−4.83	−2.38	1885.20	281.71			−2.19	287.23
190	278	0.06	0.11	−0.03	0.01	0.069	−0.151	0.042	0.001	−4.92	−2.20	1886.56	288.42			−1.94	294.22
191	279	0.06	0.12	−0.02	0.02	0.069	−0.163	0.031	−0.009	−5.22	−2.32	1886.48	296.58			−2.03	302.64

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 88 (Ra)																	
192	280	0.06	0.12	−0.02	0.02	0.069	−0.163	0.031	−0.009	−4.72	−1.87	1887.41	303.71			−1.56	310.01
193	281	0.06	0.13	−0.02	0.02	0.070	−0.177	0.032	−0.007	−4.99	−1.75	1886.95	312.25			−1.42	318.79
194	282	0.10	0.12	−0.05	0.00	0.113	−0.168	0.070	0.019	−4.85	−1.19	1887.64	319.63			−0.80	326.46
195	283	0.10	0.11	−0.06	0.00	0.112	−0.154	0.082	0.019	−4.74	−1.23	1887.19	328.14			−0.81	335.24
196	284	0.10	0.11	−0.06	0.00	0.112	−0.154	0.082	0.019	−4.28	−0.79	1887.85	335.55			−0.35	342.91
197	285	0.12	0.11	−0.06	0.01	0.133	−0.154	0.084	0.010	−4.24	−0.75	1887.20	344.28			−0.36	351.84
198	286	0.13	0.11	−0.06	0.01	0.144	−0.153	0.084	0.010	−3.93	−0.43	1887.85	351.70			−0.04	359.52
199	287	0.38	0.00	0.11	−0.03	0.433	0.000	−0.073	−0.014	−3.98	0.03	1886.64	360.98			0.18	368.81
200	288	0.14	0.01	−0.08	−0.01	0.153	−0.014	0.108	0.028	−2.84	−0.17	1887.67	368.03			0.39	376.52
201	289	0.15	0.01	−0.08	0.00	0.163	−0.014	0.109	0.018	−3.06	−0.37	1886.99	376.77			0.10	385.44
202	290	0.15	0.00	−0.08	0.00	0.163	0.000	0.109	0.018	−2.91	−0.28	1887.60	384.24			0.20	393.19
203	291	0.16	0.01	−0.08	0.01	0.173	−0.014	0.111	0.009	−3.23	−0.72	1887.04	392.87			−0.28	402.06
204	292	0.16	0.02	−0.07	0.01	0.172	−0.028	0.098	0.007	−2.72	−0.54	1887.42	400.56			−0.19	409.93
Z = 89 (Ac)																	
106	195	0.32	0.00	0.00	0.01	0.352	0.000	0.047	−0.003	−1.63	0.64	1468.68	35.60			0.51	36.79
107	196	0.31	0.00	0.01	0.00	0.341	0.000	0.030	0.002	−1.37	0.85	1478.63	33.72			0.71	34.83
108	197	0.31	0.00	0.01	0.00	0.341	0.000	0.030	0.002	−1.08	1.12	1489.95	30.47			1.01	31.51
109	198	0.30	0.00	0.01	−0.01	0.330	0.000	0.026	0.011	−0.91	1.30	1499.55	28.94			1.18	29.91
110	199	0.31	0.00	0.02	−0.01	0.342	0.000	0.016	0.008	−0.64	1.51	1510.55	26.01			1.41	26.92
111	200	−0.24	0.00	0.00	0.00	−0.247	0.000	0.022	−0.002	−0.67	1.28	1520.19	24.45			1.20	25.31
112	201	−0.24	0.00	0.00	0.00	−0.247	0.000	0.022	−0.002	−0.76	1.24	1531.06	21.64			1.18	22.44
113	202	−0.24	0.00	0.00	0.00	−0.247	0.000	0.022	−0.002	−1.15	0.91	1540.44	20.34			0.84	21.06
114	203	−0.23	0.00	0.02	0.00	−0.237	0.000	−0.002	0.003	−1.17	0.75	1551.07	17.78			0.70	18.45
115	204	−0.21	0.00	0.02	0.00	−0.217	0.000	−0.005	0.003	−1.33	0.42	1560.10	16.82			0.37	17.44
116	205	−0.21	0.00	0.03	0.00	−0.217	0.000	−0.016	0.006	−1.69	0.10	1570.53	14.46			0.05	15.02
117	206	−0.20	0.00	0.03	0.00	−0.207	0.000	−0.018	0.006	−2.19	−0.50	1579.48	13.58	13.51	0.070	−0.54	14.08
118	207	−0.19	0.00	0.03	0.00	−0.197	0.000	−0.020	0.005	−2.64	−0.98	1589.73	11.40	11.13	0.052	−1.01	11.87
119	208	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−2.66	−1.66	1598.43	10.77	10.76	0.056	−1.67	11.20
120	209	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−3.24	−2.21	1608.42	8.85	8.84	0.051	−2.22	9.24
121	210	−0.11	0.00	0.00	−0.01	−0.115	0.000	0.005	0.009	−3.79	−2.93	1616.83	8.52	8.79	0.057	−2.94	8.85
122	211	−0.09	0.00	0.00	−0.01	−0.094	0.000	0.004	0.009	−4.04	−3.35	1626.36	7.06	7.20	0.071	−3.36	7.36
123	212	−0.08	0.00	0.01	0.00	−0.084	0.000	−0.009	0.001	−4.74	−4.08	1634.47	7.02	7.28	0.068	−4.09	7.28
124	213	−0.06	0.00	0.01	0.01	−0.063	0.000	−0.010	−0.009	−5.23	−4.41	1643.58	5.99	6.16	0.052	−4.40	6.21
125	214	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.99	−5.05	1651.29	6.34	6.43	0.022	−5.05	6.53
126	215	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.23	−5.25	1659.96	5.74	6.01	0.021	−5.25	5.89
127	216	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−5.24	−4.34	1665.82	7.95	8.12	0.027	−4.34	8.08
128	217	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.27	−3.40	1673.05	8.79	8.71	0.013	−3.40	8.89
129	218	0.07	0.09	−0.04	0.00	0.078	−0.125	0.054	0.010	−5.85	−2.79	1678.92	11.00	10.84	0.051	−2.74	11.12
130	219	0.08	0.10	−0.04	0.00	0.090	−0.139	0.055	0.012	−5.79	−2.29	1686.29	11.70	11.57	0.050	−2.22	11.82
131	220	0.09	0.10	−0.05	0.00	0.100	−0.140	0.068	0.014	−6.08	−2.18	1692.38	13.69	13.75	0.015	−2.10	13.80
132	221	0.10	0.10	−0.05	0.00	0.111	−0.140	0.069	0.015	−5.72	−1.77	1699.55	14.59	14.52	0.050	−1.67	14.70
133	222	0.11	0.10	−0.06	0.00	0.122	−0.141	0.082	0.018	−6.18	−1.75	1705.44	16.77	16.62	0.005	−1.63	16.89
134	223	0.12	0.10	−0.06	0.00	0.133	−0.140	0.083	0.019	−5.82	−1.35	1712.34	17.94	17.83	0.007	−1.22	18.07
135	224	0.13	0.11	−0.06	0.01	0.144	−0.153	0.084	0.010	−6.17	−1.31	1717.94	20.40	20.24	0.004	−1.19	20.52
136	225	0.13	0.10	−0.06	0.01	0.143	−0.139	0.084	0.009	−5.26	−0.86	1724.51	21.90	21.64	0.005	−0.73	22.03
137	226	0.14	0.10	−0.06	0.01	0.154	−0.139	0.085	0.010	−5.29	−0.76	1729.80	24.69	24.31	0.003	−0.64	24.81
138	227	0.15	0.08	−0.07	0.01	0.164	−0.112	0.098	0.010	−4.68	−0.34	1736.12	26.44	25.85	0.002	−0.19	26.58
139	228	0.16	0.07	−0.07	0.01	0.174	−0.097	0.099	0.010	−4.45	−0.47	1741.37	29.26	28.90	0.003	−0.33	29.40
140	229	0.17	0.02	−0.08	0.00	0.185	−0.028	0.113	0.021	−4.03	−0.20	1747.60	31.11	30.75	0.033	−0.03	31.29
141	230	0.18	0.02	−0.08	0.01	0.195	−0.028	0.115	0.012	−4.26	−0.40	1752.67	34.11	33.81	0.300	−0.25	34.28
142	231	0.19	0.00	−0.07	0.01	0.205	0.000	0.103	0.010	−3.62	−0.26	1758.76	36.09	35.92	0.100	−0.13	36.26
143	232	0.20	0.00	−0.07	0.02	0.215	0.000	0.106	0.001	−3.90	−0.50	1763.62	39.30	39.15	0.100	−0.37	39.49
144	233	0.21	0.00	−0.06	0.02	0.226	0.000	0.095	−0.001	−3.37	−0.31	1769.41	41.58			−0.19	41.78
145	234	0.21	0.00	−0.06	0.03	0.226	0.000	0.095	−0.012	−3.72	−0.60	1774.08	44.98			−0.46	45.23
146	235	0.22	0.00	−0.05	0.03	0.237	0.000	0.085	−0.014	−3.29	−0.45	1779.67	47.46			−0.32	47.73
147	236	0.22	0.00	−0.05	0.03	0.237	0.000	0.085	−0.014	−3.59	−0.73	1784.09	51.11			−0.61	51.40
148	237	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−3.09	−0.54	1789.41	53.87			−0.43	54.19

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E^{FL}_{mic} (MeV)	M^{FL}_{th} (MeV)
Z = 89 (Ac)																	
149	238	0.23	0.00	−0.03	0.03	0.249	0.000	0.062	−0.019	−3.27	−0.82	1793.60	57.75			−0.73	58.09
150	239	0.23	0.00	−0.02	0.03	0.249	0.000	0.050	−0.022	−2.88	−0.63	1798.68	60.74			−0.54	61.13
151	240	0.23	0.00	−0.02	0.03	0.249	0.000	0.050	−0.022	−3.15	−0.90	1802.63	64.86			−0.81	65.29
152	241	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−2.71	−0.62	1807.39	68.17			−0.52	68.66
153	242	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−2.50	−0.54	1810.79	72.84			−0.45	73.38
154	243	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.79	−0.06	1815.12	76.58			−0.02	77.13
155	244	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.65	0.15	1818.18	81.60			0.18	82.20
156	245	0.22	0.00	0.01	0.01	0.239	0.000	0.010	−0.011	−1.09	0.59	1822.33	85.51			0.59	86.15
157	246	0.20	0.00	0.01	0.01	0.217	0.000	0.006	−0.011	−1.13	0.40	1825.56	90.35			0.40	91.06
158	247	0.19	0.00	0.01	0.01	0.206	0.000	0.004	−0.011	−0.82	0.62	1829.73	94.26			0.63	95.05
159	248	0.19	0.00	0.02	0.00	0.206	0.000	−0.009	−0.003	−0.98	0.49	1832.71	99.35			0.48	100.20
160	249	0.19	0.00	0.03	0.00	0.207	0.000	−0.021	−0.006	−0.90	0.61	1836.77	103.36			0.62	104.31
161	250	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−1.41	0.17	1839.85	108.35			0.19	109.40
162	251	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−1.34	0.27	1843.72	112.55			0.31	113.70
163	252	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−1.67	0.05	1846.39	117.95			0.11	119.22
164	253	0.16	0.01	0.04	0.00	0.174	−0.014	−0.037	−0.007	−1.08	0.27	1849.95	122.47			0.31	123.82
165	254	0.16	0.01	0.04	0.00	0.174	−0.014	−0.037	−0.007	−1.30	0.13	1852.34	128.15			0.17	129.59
166	255	0.12	0.01	0.00	0.01	0.129	−0.014	0.007	−0.010	−0.58	0.35	1855.70	132.85			0.36	134.38
167	256	0.12	0.01	0.00	0.01	0.129	−0.014	0.007	−0.010	−1.12	−0.23	1858.35	138.27			−0.22	139.90
168	257	−0.18	0.00	0.01	0.00	−0.186	0.000	0.001	0.001	−1.70	−0.39	1861.90	142.80			−0.40	144.52
169	258	−0.17	0.00	0.01	0.00	−0.176	0.000	−0.000	0.001	−2.37	−1.20	1864.59	148.18			−1.21	150.01
170	259	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−2.67	−1.39	1867.99	152.85			−1.38	154.83
171	260	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−3.34	−1.99	1870.29	158.62			−1.98	160.72
172	261	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−3.44	−2.05	1873.38	163.60			−2.04	165.84
173	262	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−3.46	−2.55	1875.41	169.65			−2.54	172.02
174	263	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−3.44	−2.58	1878.28	174.85			−2.56	177.36
175	264	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	−3.88	−3.27	1880.33	180.86			−3.26	183.51
176	265	−0.10	0.00	0.01	0.00	−0.105	0.000	−0.008	0.001	−4.00	−3.41	1883.14	186.13			−3.41	188.91
177	266	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−4.61	−3.96	1884.88	192.46			−3.95	195.40
178	267	−0.09	0.00	0.02	−0.01	−0.094	0.000	−0.020	0.012	−4.60	−3.97	1887.39	198.03			−3.93	201.16
179	268	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−4.97	−4.32	1888.76	204.72			−4.30	207.98
180	269	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−4.65	−3.98	1890.75	210.80			−3.97	214.22
181	270	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−5.23	−4.43	1892.07	217.55			−4.43	221.13
182	271	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−5.33	−4.51	1894.32	223.38			−4.51	227.13
183	272	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−5.87	−5.02	1895.54	230.23			−5.03	234.15
184	273	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.68	−4.85	1897.37	236.47			−4.85	240.57
185	274	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.76	−3.98	1897.06	244.85			−3.98	249.14
186	275	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.04	−3.28	1898.20	251.78			−3.28	256.26
187	276	0.01	0.05	0.00	0.00	0.012	−0.067	0.001	0.002	−3.51	−2.40	1897.73	260.33			−2.37	265.04
188	277	0.04	0.09	−0.02	0.00	0.046	−0.123	0.028	0.007	−4.03	−1.90	1898.92	267.21			−1.75	272.23
189	278	0.06	0.10	−0.03	0.00	0.068	−0.138	0.041	0.010	−4.66	−2.18	1899.45	274.75			−1.98	280.02
190	279	0.06	0.11	−0.03	0.01	0.069	−0.151	0.042	0.001	−4.63	−1.89	1900.70	281.57			−1.65	287.08
191	280	0.06	0.12	−0.02	0.02	0.069	−0.163	0.031	−0.009	−4.92	−2.00	1900.92	289.42			−1.73	295.18
192	281	0.06	0.12	−0.02	0.02	0.069	−0.163	0.031	−0.009	−4.43	−1.55	1901.87	296.54			−1.27	302.53
193	282	0.06	0.13	−0.02	0.02	0.070	−0.177	0.032	−0.007	−4.70	−1.43	1901.71	304.77			−1.12	311.00
194	283	0.10	0.12	−0.05	0.01	0.112	−0.167	0.070	0.008	−4.63	−1.04	1902.58	311.98			−0.70	318.47
195	284	0.10	0.12	−0.05	0.01	0.112	−0.167	0.070	0.008	−4.60	−1.01	1902.38	320.25			−0.69	326.96
196	285	0.38	0.00	0.10	−0.02	0.432	0.000	−0.059	−0.018	−4.01	−0.39	1902.86	327.84			−0.34	334.50
197	286	0.37	0.00	0.10	−0.02	0.420	0.000	−0.063	−0.018	−4.08	−0.51	1902.67	336.10			−0.46	342.99
198	287	0.37	0.00	0.10	−0.02	0.420	0.000	−0.063	−0.018	−3.77	−0.28	1903.40	343.44			−0.20	350.60
199	288	0.38	0.00	0.11	−0.03	0.433	0.000	−0.073	−0.014	−4.22	−0.18	1902.86	352.05			−0.06	359.51
200	289	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.32	−0.05	1903.57	359.41			0.18	367.24
201	290	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.62	−0.35	1903.29	367.77			−0.14	375.82
202	291	0.16	0.01	−0.08	0.01	0.173	−0.014	0.111	0.009	−3.12	−0.67	1904.31	374.82			−0.25	383.35
203	292	0.16	0.01	−0.08	0.01	0.173	−0.014	0.111	0.009	−3.48	−1.06	1903.99	383.20			−0.64	391.99
204	293	0.17	0.01	−0.07	0.01	0.183	−0.014	0.100	0.008	−3.02	−0.75	1904.24	391.02			−0.43	399.98
205	294	0.18	0.01	−0.07	0.02	0.193	−0.014	0.102	−0.002	−3.45	−1.16	1903.82	399.51			−0.82	408.77

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 89 (Ac)																	
206	295	0.18	0.00	−0.07	0.02	0.193	0.000	0.102	−0.002	−3.39	−1.04	1904.15	407.26			−0.69	416.81
Z = 90 (Th)																	
108	198	0.26	0.00	0.02	0.00	0.285	0.000	0.005	−0.003	−0.79	0.94	1489.80	37.92			0.86	39.20
109	199	0.30	0.00	0.01	0.00	0.330	0.000	0.027	0.001	−0.92	1.15	1499.41	36.37			1.04	37.54
110	200	0.31	0.00	0.02	−0.01	0.342	0.000	0.016	0.008	−0.56	1.52	1510.69	33.16			1.42	34.26
111	201	0.17	0.00	−0.01	0.01	0.183	0.000	0.025	−0.007	0.31	1.47	1520.21	31.72			1.43	32.81
112	202	0.16	0.00	−0.02	0.01	0.172	0.000	0.036	−0.005	0.28	1.52	1531.42	28.57			1.50	29.60
113	203	0.15	0.00	−0.01	0.01	0.161	0.000	0.022	−0.007	0.05	1.19	1540.85	27.21			1.16	28.17
114	204	−0.23	0.00	0.02	0.00	−0.237	0.000	−0.002	0.003	−0.80	1.08	1551.86	24.27			1.03	25.13
115	205	0.14	0.00	0.00	0.00	0.150	0.000	0.008	0.001	−0.32	0.73	1560.96	23.25			0.71	24.07
116	206	−0.21	0.00	0.03	0.00	−0.217	0.000	−0.016	0.006	−1.20	0.57	1571.66	20.62			0.53	21.35
117	207	−0.20	0.00	0.04	0.00	−0.207	0.000	−0.029	0.008	−1.80	−0.01	1580.65	19.70			−0.05	20.38
118	208	−0.19	0.00	0.03	0.00	−0.197	0.000	−0.020	0.005	−2.08	−0.39	1591.22	17.20			−0.42	17.82
119	209	−0.14	0.00	0.00	−0.01	−0.146	0.000	0.008	0.009	−2.24	−1.10	1600.00	16.50	16.50	0.100	−1.12	17.08
120	210	−0.13	0.00	0.00	−0.01	−0.135	0.000	0.007	0.009	−2.67	−1.62	1610.37	14.19	14.04	0.025	−1.63	14.72
121	211	−0.11	0.00	0.00	−0.01	−0.115	0.000	0.005	0.009	−3.15	−2.31	1618.80	13.83	13.91	0.075	−2.32	14.32
122	212	−0.09	0.00	0.01	0.00	−0.094	0.000	−0.008	0.001	−3.37	−2.73	1628.74	11.96	12.09	0.018	−2.74	12.40
123	213	−0.08	0.00	0.01	0.00	−0.084	0.000	−0.009	0.001	−4.06	−3.43	1636.87	11.91	12.12	0.071	−3.44	12.30
124	214	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−4.58	−3.75	1646.39	10.47	10.71	0.017	−3.74	10.82
125	215	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.20	−4.29	1654.05	10.88	10.93	0.027	−4.29	11.19
126	216	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.43	−4.48	1663.12	9.88	10.30	0.013	−4.48	10.15
127	217	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−4.45	−3.58	1669.03	12.03	12.22	0.021	−3.58	12.28
128	218	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.47	−2.64	1676.67	12.47	12.37	0.013	−2.64	12.68
129	219	0.07	0.09	−0.03	0.00	0.078	−0.124	0.041	0.009	−4.93	−2.17	1682.71	14.50	14.47	0.051	−2.12	14.72
130	220	0.08	0.10	−0.04	0.00	0.090	−0.139	0.055	0.012	−5.12	−1.68	1690.50	14.78	14.67	0.022	−1.61	15.01
131	221	0.10	0.09	−0.05	0.00	0.110	−0.125	0.068	0.014	−5.09	−1.61	1696.66	16.69	16.94	0.009	−1.54	16.90
132	222	0.10	0.10	−0.05	0.00	0.111	−0.140	0.069	0.015	−5.11	−1.22	1704.25	17.17	17.20	0.012	−1.11	17.39
133	223	0.12	0.10	−0.06	0.00	0.133	−0.140	0.083	0.019	−5.69	−1.25	1710.23	19.26	19.39	0.009	−1.13	19.47
134	224	0.13	0.11	−0.06	0.01	0.144	−0.153	0.084	0.010	−5.69	−0.91	1717.59	19.97	20.00	0.011	−0.77	20.20
135	225	0.13	0.10	−0.06	0.01	0.143	−0.139	0.084	0.009	−5.31	−0.93	1723.29	22.34	22.31	0.005	−0.81	22.54
136	226	0.14	0.10	−0.06	0.01	0.154	−0.139	0.085	0.010	−4.98	−0.52	1730.30	23.41	23.20	0.005	−0.38	23.62
137	227	0.15	0.10	−0.06	0.02	0.164	−0.138	0.087	0.000	−5.01	−0.51	1735.70	26.08	25.81	0.003	−0.38	26.28
138	228	0.16	0.08	−0.07	0.01	0.174	−0.111	0.100	0.011	−4.52	−0.23	1742.56	27.29	26.77	0.002	−0.07	27.51
139	229	0.17	0.00	−0.08	0.00	0.184	0.000	0.113	0.021	−4.18	−0.37	1747.86	30.06	29.59	0.003	−0.22	30.28
140	230	0.18	0.00	−0.08	0.00	0.195	0.000	0.114	0.022	−4.18	−0.27	1754.63	31.36	30.86	0.002	−0.09	31.60
141	231	0.18	0.00	−0.08	0.01	0.195	0.000	0.115	0.012	−4.34	−0.53	1759.79	34.27	33.82	0.002	−0.38	34.50
142	232	0.19	0.00	−0.07	0.01	0.205	0.000	0.103	0.010	−3.84	−0.50	1766.38	35.75	35.45	0.002	−0.36	35.98
143	233	0.20	0.00	−0.07	0.02	0.215	0.000	0.106	0.001	−4.16	−0.73	1771.26	38.95	38.73	0.002	−0.59	39.19
144	234	0.21	0.00	−0.06	0.02	0.226	0.000	0.095	−0.001	−3.63	−0.53	1777.43	40.85	40.61	0.004	−0.41	41.09
145	235	0.21	0.00	−0.06	0.03	0.226	0.000	0.095	−0.012	−3.98	−0.83	1782.14	44.21	44.26	0.050	−0.69	44.50
146	236	0.22	0.00	−0.05	0.03	0.237	0.000	0.085	−0.014	−3.53	−0.63	1788.06	46.36			−0.50	46.67
147	237	0.22	0.00	−0.05	0.03	0.237	0.000	0.085	−0.014	−3.82	−0.95	1792.55	49.94			−0.83	50.26
148	238	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−3.31	−0.75	1798.22	52.34			−0.63	52.69
149	239	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−3.59	−1.02	1802.44	56.20			−0.91	56.58
150	240	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−3.15	−0.84	1807.89	58.81			−0.73	59.23
151	241	0.23	0.00	−0.02	0.03	0.249	0.000	0.050	−0.022	−3.35	−1.10	1811.87	62.91			−1.01	63.35
152	242	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−2.91	−0.82	1817.00	65.85			−0.72	66.35
153	243	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−2.69	−0.73	1820.41	70.51			−0.63	71.05
154	244	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−2.20	−0.26	1825.11	73.88			−0.15	74.48
155	245	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.81	−0.05	1828.19	78.88			−0.01	79.47
156	246	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.33	0.40	1832.70	82.43			0.45	83.10
157	247	0.21	0.00	0.01	0.01	0.228	0.000	0.008	−0.011	−1.27	0.33	1835.84	87.37			0.34	88.05
158	248	0.20	0.00	0.01	0.01	0.217	0.000	0.006	−0.011	−0.96	0.53	1840.38	90.89			0.55	91.65
159	249	0.20	0.00	0.02	0.01	0.218	0.000	−0.006	−0.013	−1.18	0.38	1843.40	95.94			0.39	96.77
160	250	0.20	0.00	0.03	0.00	0.218	0.000	−0.019	−0.006	−1.02	0.57	1847.74	99.67			0.58	100.58
161	251	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−1.43	0.12	1850.85	104.64			0.16	105.64
162	252	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−1.35	0.18	1855.12	108.44			0.22	109.53

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 90 (Th)																	
163	253	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−1.45	0.10	1857.67	113.96			0.14	115.14
164	254	0.17	0.00	0.04	0.00	0.185	0.000	−0.036	−0.007	−1.06	0.36	1861.54	118.17			0.41	119.44
165	255	0.16	0.00	0.04	0.00	0.174	0.000	−0.037	−0.007	−1.19	0.10	1864.07	123.70			0.14	125.07
166	256	0.13	0.00	0.01	0.01	0.140	0.000	−0.004	−0.011	−0.36	0.56	1867.54	128.31			0.58	129.75
167	257	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−0.77	0.14	1870.05	133.87			0.15	135.41
168	258	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−0.93	−0.12	1874.04	137.95			−0.10	139.60
169	259	−0.17	0.00	0.01	0.00	−0.176	0.000	−0.000	0.001	−1.89	−0.77	1876.59	143.47			−0.78	145.20
170	260	−0.17	0.00	0.00	−0.01	−0.176	0.000	0.012	0.009	−2.21	−0.98	1880.34	147.79			−0.97	149.65
171	261	−0.17	0.00	0.00	−0.01	−0.176	0.000	0.012	0.009	−2.85	−1.53	1882.63	153.58			−1.53	155.56
172	262	−0.13	0.00	−0.01	−0.01	−0.135	0.000	0.019	0.008	−2.62	−1.55	1886.01	158.27			−1.54	160.39
173	263	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−2.98	−2.09	1888.08	164.26			−2.07	166.51
174	264	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−2.95	−2.10	1891.28	169.14			−2.08	171.52
175	265	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	−3.33	−2.74	1893.29	175.20			−2.72	177.71
176	266	−0.10	0.00	0.01	−0.01	−0.105	0.000	−0.007	0.011	−3.47	−2.89	1896.44	180.12			−2.87	182.77
177	267	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−4.04	−3.41	1898.17	186.46			−3.40	189.25
178	268	−0.09	0.00	0.02	−0.01	−0.094	0.000	−0.020	0.012	−4.03	−3.41	1900.99	191.71			−3.37	194.67
179	269	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−4.32	−3.68	1902.30	198.47			−3.66	201.56
180	270	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	−4.01	−3.39	1904.67	204.18			−3.39	207.41
181	271	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.54	−3.79	1905.94	210.97			−3.79	214.36
182	272	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.63	−3.86	1908.50	216.48			−3.86	220.04
183	273	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.14	−4.34	1909.70	223.36			−4.34	227.08
184	274	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.94	−4.14	1911.83	229.30			−4.14	233.19
185	275	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−3.99	−3.24	1911.50	237.70			−3.24	241.77
186	276	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.30	−2.57	1913.00	244.28			−2.57	248.53
187	277	0.02	0.07	−0.01	0.00	0.023	−0.095	0.014	0.004	−3.34	−1.85	1912.68	252.66			−1.76	257.19
188	278	0.04	0.09	−0.02	0.00	0.046	−0.123	0.028	0.007	−3.44	−1.33	1914.18	259.23			−1.18	264.02
189	279	0.06	0.10	−0.03	0.00	0.068	−0.138	0.041	0.010	−4.10	−1.63	1914.73	266.75			−1.42	271.78
190	280	0.06	0.11	−0.03	0.01	0.069	−0.151	0.042	0.001	−4.08	−1.35	1916.31	273.24			−1.11	278.51
191	281	0.06	0.12	−0.02	0.02	0.069	−0.163	0.031	−0.009	−4.42	−1.50	1916.58	281.05			−1.23	286.55
192	282	0.06	0.13	−0.02	0.02	0.070	−0.177	0.032	−0.007	−4.38	−1.08	1917.87	287.83			−0.76	293.58
193	283	0.06	0.13	−0.02	0.02	0.070	−0.177	0.032	−0.007	−4.23	−0.96	1917.71	296.06			−0.65	302.01
194	284	0.37	0.00	0.09	−0.01	0.419	0.000	−0.049	−0.022	−3.59	−0.28	1918.59	303.25			−0.22	309.17
195	285	0.37	0.00	0.09	−0.01	0.419	0.000	−0.049	−0.022	−3.79	−0.47	1918.62	311.30			−0.44	317.41
196	286	0.37	0.00	0.10	−0.02	0.420	0.000	−0.063	−0.018	−3.81	−0.30	1919.87	318.12			−0.19	324.54
197	287	0.37	0.00	0.10	−0.02	0.420	0.000	−0.063	−0.018	−3.90	−0.41	1919.67	326.39			−0.33	333.01
198	288	0.37	0.00	0.10	−0.02	0.420	0.000	−0.063	−0.018	−3.59	−0.16	1920.69	333.43			−0.06	340.31
199	289	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.46	−0.26	1920.35	341.85			−0.01	349.11
200	290	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.12	0.15	1921.07	349.20			0.42	356.72
201	291	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.35	−0.32	1920.97	357.37			−0.08	365.12
202	292	0.17	0.00	−0.08	0.01	0.184	0.000	0.113	0.010	−3.09	−0.55	1922.20	364.21			−0.13	372.39
203	293	0.17	0.00	−0.08	0.01	0.184	0.000	0.113	0.010	−3.46	−0.79	1921.73	372.75			−0.37	381.18
204	294	0.18	0.00	−0.07	0.02	0.193	0.000	0.102	−0.002	−3.00	−0.68	1922.49	380.06			−0.33	388.69
205	295	0.18	0.00	−0.07	0.02	0.193	0.000	0.102	−0.002	−3.39	−1.10	1922.08	388.55			−0.75	397.43
206	296	0.18	0.00	−0.07	0.02	0.193	0.000	0.102	−0.002	−3.35	−1.08	1922.79	395.90			−0.72	405.07
207	297	0.19	0.00	−0.06	0.03	0.204	0.000	0.091	−0.014	−3.50	−1.35	1922.11	404.66			−0.99	414.11
208	298	0.19	0.00	−0.06	0.03	0.204	0.000	0.091	−0.014	−3.42	−1.32	1922.69	412.15			−0.95	421.89
209	299	0.19	0.00	−0.05	0.03	0.204	0.000	0.079	−0.016	−3.47	−1.61	1921.90	421.01			−1.32	430.96
Z = 91 (Pa)																	
109	200	0.30	0.00	0.02	0.00	0.330	0.000	0.015	−0.002	−1.16	0.76	1497.32	45.75			0.62	47.10
110	201	0.30	0.00	0.02	−0.01	0.330	0.000	0.014	0.007	−0.79	1.06	1508.72	42.42			0.94	43.71
111	202	0.18	0.00	−0.01	0.01	0.194	0.000	0.027	−0.007	0.04	1.22	1518.46	40.75			1.17	42.03
112	203	0.17	0.00	−0.02	0.01	0.183	0.000	0.037	−0.005	0.13	1.41	1529.59	37.70			1.38	38.91
113	204	0.16	0.00	−0.02	0.01	0.172	0.000	0.036	−0.005	−0.11	1.18	1539.35	36.01			1.15	37.14
114	205	0.15	0.00	−0.01	0.00	0.161	0.000	0.022	0.002	−0.04	1.09	1550.39	33.03			1.07	34.10
115	206	0.15	0.00	0.00	0.00	0.162	0.000	0.009	0.001	−0.35	0.78	1559.88	31.62			0.75	32.61
116	207	0.14	0.02	0.01	0.00	0.151	−0.027	−0.004	−0.001	−0.46	0.65	1570.60	28.97			0.63	29.90
117	208	−0.21	0.00	0.05	0.01	−0.217	0.000	−0.039	0.002	−1.78	0.25	1579.83	27.81			0.19	28.64

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 91 (Pa)																	
118	209	−0.20	0.00	0.04	0.00	−0.207	0.000	−0.029	0.008	−1.96	−0.20	1590.52	25.19			−0.24	25.97
119	210	−0.15	0.00	0.00	−0.01	−0.156	0.000	0.009	0.009	−1.92	−0.70	1599.51	24.27			−0.73	25.00
120	211	−0.14	0.00	0.00	−0.02	−0.146	0.000	0.009	0.019	−2.41	−1.20	1609.91	21.95			−1.21	22.64
121	212	−0.12	0.00	0.00	−0.02	−0.125	0.000	0.007	0.019	−2.77	−1.76	1618.63	21.30	21.61	0.075	−1.76	21.94
122	213	−0.10	0.00	0.01	0.00	−0.105	0.000	−0.008	0.001	−2.84	−2.15	1628.59	19.41	19.66	0.071	−2.16	19.99
123	214	−0.09	0.00	0.01	0.00	−0.094	0.000	−0.008	0.001	−3.44	−2.82	1637.09	18.98	19.49	0.076	−2.83	19.51
124	215	−0.06	0.00	0.02	0.01	−0.063	0.000	−0.022	−0.008	−3.82	−3.03	1646.54	17.60	17.87	0.087	−3.02	18.09
125	216	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.39	−3.55	1654.59	17.62	17.80	0.070	−3.55	18.07
126	217	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.62	−3.73	1663.70	16.58	17.07	0.052	−3.73	16.99
127	218	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−3.65	−2.84	1670.03	18.33	18.67	0.025	−2.84	18.69
128	219	0.05	0.07	−0.02	0.00	0.055	−0.096	0.027	0.005	−3.85	−1.99	1677.79	18.64	18.52	0.054	−1.97	18.99
129	220	0.08	0.09	−0.04	0.00	0.089	−0.125	0.054	0.011	−4.86	−1.83	1684.56	19.94	20.38	0.057	−1.79	20.28
130	221	0.09	0.10	−0.04	0.00	0.100	−0.139	0.056	0.013	−4.89	−1.41	1692.45	20.12	20.38	0.052	−1.35	20.45
131	222	0.10	0.09	−0.05	0.00	0.110	−0.125	0.068	0.014	−4.86	−1.40	1699.07	21.57			−1.34	21.87
132	223	0.11	0.10	−0.05	0.00	0.122	−0.140	0.069	0.016	−4.98	−1.05	1706.74	21.97	22.32	0.071	−0.97	22.27
133	224	0.12	0.10	−0.06	0.01	0.132	−0.139	0.083	0.008	−5.45	−1.15	1713.20	23.58	23.87	0.016	−1.07	23.87
134	225	0.13	0.11	−0.06	0.01	0.144	−0.153	0.084	0.010	−5.65	−0.88	1720.66	24.20	24.34	0.071	−0.76	24.49
135	226	0.14	0.11	−0.06	0.02	0.154	−0.152	0.086	0.001	−5.72	−0.92	1726.77	26.15	26.03	0.011	−0.81	26.43
136	227	0.14	0.10	−0.06	0.02	0.153	−0.138	0.085	−0.001	−4.95	−0.57	1733.87	27.12	26.83	0.007	−0.45	27.40
137	228	0.15	0.10	−0.06	0.02	0.164	−0.138	0.087	0.000	−5.11	−0.66	1739.77	29.30	28.92	0.004	−0.55	29.55
138	229	0.17	0.00	−0.09	0.00	0.185	0.000	0.126	0.024	−4.90	−0.48	1746.76	30.38	29.90	0.003	−0.31	30.68
139	230	0.17	0.00	−0.09	0.00	0.185	0.000	0.126	0.024	−5.18	−0.73	1752.55	32.66	32.17	0.003	−0.57	32.95
140	231	0.18	0.00	−0.08	0.01	0.195	0.000	0.115	0.012	−4.43	−0.61	1759.34	33.94	33.43	0.002	−0.47	34.21
141	232	0.19	0.00	−0.08	0.01	0.206	0.000	0.116	0.013	−4.86	−0.89	1764.91	36.44	35.95	0.008	−0.76	36.71
142	233	0.19	0.00	−0.08	0.02	0.205	0.000	0.116	0.002	−4.72	−0.90	1771.57	37.86	37.49	0.002	−0.75	38.15
143	234	0.20	0.00	−0.07	0.02	0.215	0.000	0.106	0.001	−4.58	−1.12	1776.82	40.68	40.34	0.005	−1.00	40.94
144	235	0.21	0.00	−0.07	0.03	0.226	0.000	0.108	−0.009	−4.60	−1.02	1783.12	42.45	42.33	0.050	−0.87	42.77
145	236	0.21	0.00	−0.06	0.03	0.226	0.000	0.095	−0.012	−4.43	−1.24	1788.13	45.51	45.35	0.200	−1.12	45.81
146	237	0.22	0.00	−0.05	0.03	0.237	0.000	0.085	−0.014	−3.98	−1.11	1794.14	47.57	47.64	0.100	−1.00	47.89
147	238	0.22	0.00	−0.05	0.03	0.237	0.000	0.085	−0.014	−4.27	−1.37	1798.95	50.83	50.77	0.060	−1.26	51.17
148	239	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−3.74	−1.16	1804.64	53.21			−1.05	53.57
149	240	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−4.01	−1.42	1809.22	56.71			−1.33	57.09
150	241	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−3.56	−1.23	1814.69	59.30			−1.13	59.72
151	242	0.23	0.00	−0.02	0.03	0.249	0.000	0.050	−0.022	−3.73	−1.47	1819.02	63.05			−1.39	63.48
152	243	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−3.28	−1.17	1824.16	65.98			−1.09	66.46
153	244	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−3.05	−1.07	1827.92	70.29			−0.99	70.81
154	245	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−2.55	−0.65	1832.70	73.57			−0.56	74.16
155	246	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.13	−0.35	1836.05	78.30			−0.33	78.87
156	247	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.66	0.09	1840.59	81.83			0.13	82.46
157	248	0.21	0.00	0.01	0.01	0.228	0.000	0.008	−0.011	−1.51	0.08	1844.04	86.46			0.07	87.11
158	249	0.20	0.00	0.01	0.01	0.217	0.000	0.006	−0.011	−1.18	0.32	1848.56	90.00			0.32	90.72
159	250	0.20	0.00	0.02	0.00	0.217	0.000	−0.007	−0.004	−1.32	0.17	1851.93	94.71			0.16	95.47
160	251	0.20	0.00	0.03	0.00	0.218	0.000	−0.019	−0.006	−1.20	0.37	1856.29	98.42			0.38	99.28
161	252	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−1.67	−0.02	1859.70	103.08			−0.00	104.03
162	253	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−1.54	0.08	1863.95	106.90			0.10	107.93
163	254	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−1.55	0.02	1866.82	112.10			0.04	113.21
164	255	0.17	0.00	0.04	0.00	0.185	0.000	−0.036	−0.007	−1.12	0.32	1870.67	116.33			0.35	117.53
165	256	0.16	0.00	0.03	0.00	0.174	0.000	−0.025	−0.005	−1.05	0.10	1873.50	121.56			0.12	122.83
166	257	0.16	0.00	0.03	0.00	0.174	0.000	−0.025	−0.005	−0.78	0.41	1877.15	125.99			0.42	127.36
167	258	0.13	0.00	0.01	0.01	0.140	0.000	−0.004	−0.011	−0.71	0.24	1879.75	131.46			0.25	132.92
168	259	0.12	0.00	0.00	0.01	0.129	0.000	0.007	−0.010	−0.75	0.07	1883.67	135.61			0.08	137.17
169	260	−0.17	0.00	0.01	0.00	−0.176	0.000	−0.000	0.001	−1.66	−0.51	1886.50	140.85			−0.53	142.49
170	261	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−1.97	−0.77	1890.31	145.11			−0.76	146.88
171	262	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−2.63	−1.34	1892.94	150.55			−1.33	152.43
172	263	−0.13	0.00	−0.01	−0.01	−0.135	0.000	0.019	0.008	−2.35	−1.30	1896.28	155.28			−1.29	157.29
173	264	−0.13	0.00	0.00	−0.01	−0.135	0.000	0.007	0.009	−2.69	−1.75	1898.62	161.02			−1.75	163.13
174	265	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−2.64	−1.80	1901.85	165.85			−1.78	168.10

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 91 (Pa)																	
175	266	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	−2.99	−2.42	1904.18	171.59			−2.41	173.97
176	267	−0.10	0.00	0.01	0.00	−0.105	0.000	−0.008	0.001	−3.04	−2.49	1907.27	176.58			−2.50	179.07
177	268	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−3.68	−3.08	1909.39	182.52			−3.07	185.17
178	269	−0.09	0.00	0.02	−0.01	−0.094	0.000	−0.020	0.012	−3.62	−3.04	1912.20	187.79			−3.01	190.60
179	270	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−3.85	−3.24	1913.76	194.30			−3.22	197.24
180	271	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−3.52	−2.88	1916.08	200.06			−2.88	203.13
181	272	−0.03	0.00	0.01	0.00	−0.032	0.000	−0.011	0.000	−4.08	−3.37	1917.76	206.44			−3.37	209.66
182	273	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−4.07	−3.32	1920.22	212.06			−3.33	215.43
183	274	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−4.58	−3.80	1921.73	218.62			−3.80	222.15
184	275	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.34	−3.58	1923.85	224.57			−3.58	228.27
185	276	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−3.41	−2.70	1923.85	232.64			−2.70	236.51
186	277	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.71	−2.02	1925.35	239.21			−2.02	243.25
187	278	0.03	0.08	−0.01	0.00	0.035	−0.109	0.015	0.005	−3.22	−1.47	1925.54	247.10			−1.38	251.42
188	279	0.05	0.09	−0.02	0.00	0.056	−0.123	0.028	0.007	−3.14	−1.02	1927.10	253.60			−0.88	258.15
189	280	0.06	0.10	−0.03	0.00	0.068	−0.138	0.041	0.010	−3.85	−1.36	1928.02	260.76			−1.18	265.54
190	281	0.06	0.11	−0.03	0.01	0.069	−0.151	0.042	0.001	−3.86	−1.11	1929.63	267.22			−0.89	272.23
191	282	0.06	0.12	−0.02	0.02	0.069	−0.163	0.031	−0.009	−4.21	−1.25	1930.21	274.71			−1.00	279.95
192	283	0.06	0.13	−0.02	0.02	0.070	−0.177	0.032	−0.007	−4.17	−0.85	1931.51	281.48			−0.56	286.95
193	284	0.37	0.00	0.09	−0.01	0.419	0.000	−0.049	−0.022	−4.00	−0.61	1931.56	289.50			−0.61	294.90
194	285	0.37	0.00	0.09	−0.01	0.419	0.000	−0.049	−0.022	−3.80	−0.48	1932.99	296.14			−0.46	301.76
195	286	0.37	0.00	0.09	−0.01	0.419	0.000	−0.049	−0.022	−3.99	−0.68	1933.33	303.88			−0.68	309.69
196	287	0.37	0.00	0.10	−0.02	0.420	0.000	−0.063	−0.018	−4.02	−0.51	1934.58	310.69			−0.43	316.80
197	288	0.37	0.00	0.10	−0.02	0.420	0.000	−0.063	−0.018	−4.10	−0.60	1934.68	318.67			−0.55	324.98
198	289	0.37	0.00	0.10	−0.02	0.420	0.000	−0.063	−0.018	−3.78	−0.24	1935.59	325.83			−0.16	332.38
199	290	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.67	−0.42	1935.63	333.86			−0.22	340.77
200	291	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.42	−0.35	1936.70	340.86			−0.12	348.04
201	292	0.28	0.00	0.02	0.02	0.308	0.000	0.013	−0.023	−2.13	−0.35	1936.43	349.20			−0.36	356.38
202	293	0.28	0.00	0.02	0.02	0.308	0.000	0.013	−0.023	−1.98	−0.23	1937.30	356.40			−0.23	363.83
203	294	0.17	0.00	−0.08	0.01	0.184	0.000	0.113	0.010	−3.68	−0.95	1937.62	364.15			−0.56	372.22
204	295	0.18	0.01	−0.07	0.02	0.193	−0.014	0.102	−0.002	−3.28	−0.89	1938.43	371.42			−0.56	379.68
205	296	0.18	0.01	−0.07	0.02	0.193	−0.014	0.102	−0.002	−3.66	−1.30	1938.31	379.61			−0.98	388.12
206	297	0.18	0.00	−0.07	0.02	0.193	0.000	0.102	−0.002	−3.61	−1.29	1939.03	386.96			−0.95	395.75
207	298	0.19	0.01	−0.06	0.03	0.204	−0.014	0.091	−0.014	−3.79	−1.58	1938.66	395.40			−1.24	404.46
208	299	0.19	0.00	−0.06	0.03	0.204	0.000	0.091	−0.014	−3.71	−1.56	1939.24	402.89			−1.21	412.23
209	300	0.19	0.00	−0.05	0.03	0.204	0.000	0.079	−0.016	−3.75	−1.85	1938.75	411.46			−1.57	421.00
210	301	0.20	0.00	−0.05	0.04	0.215	0.000	0.082	−0.026	−3.85	−2.01	1939.38	418.89			−1.55	428.89
211	302	0.20	0.00	−0.04	0.04	0.215	0.000	0.069	−0.028	−3.82	−2.12	1938.59	427.76			−1.71	438.00
Z = 92 (U)																	
111	203	0.19	0.00	−0.01	0.01	0.205	0.000	0.028	−0.006	−0.16	1.06	1517.95	48.55			1.01	50.04
112	204	0.17	0.00	−0.02	0.01	0.183	0.000	0.037	−0.005	0.20	1.38	1529.38	45.19			1.35	46.61
113	205	0.17	0.00	−0.01	0.01	0.183	0.000	0.025	−0.007	0.05	1.24	1539.11	43.54			1.20	44.87
114	206	0.16	0.00	−0.01	0.01	0.172	0.000	0.024	−0.007	0.06	1.25	1550.48	40.24			1.22	41.51
115	207	0.15	0.00	0.00	0.00	0.162	0.000	0.009	0.001	−0.16	0.94	1560.00	38.78			0.92	39.97
116	208	0.15	0.00	0.01	−0.01	0.162	0.000	−0.003	0.009	−0.23	0.87	1571.09	35.76			0.85	36.88
117	209	0.14	0.02	0.02	−0.01	0.151	−0.027	−0.016	0.007	−0.59	0.55	1580.29	34.64			0.53	35.69
118	210	−0.20	0.00	0.05	0.00	−0.207	0.000	−0.040	0.010	−1.71	0.15	1591.36	31.65			0.11	32.61
119	211	−0.15	0.00	0.01	−0.01	−0.156	0.000	−0.002	0.011	−1.52	−0.42	1600.46	30.61			−0.44	31.52
120	212	−0.14	0.00	0.01	−0.01	−0.146	0.000	−0.003	0.011	−1.91	−0.79	1611.16	27.99			−0.81	28.84
121	213	−0.12	0.00	0.01	−0.01	−0.125	0.000	−0.005	0.011	−2.24	−1.34	1619.91	27.31			−1.35	28.11
122	214	−0.11	0.00	0.01	0.00	−0.115	0.000	−0.007	0.001	−2.41	−1.67	1630.22	25.06			−1.68	25.81
123	215	−0.09	0.00	0.02	0.00	−0.094	0.000	−0.020	0.002	−3.01	−2.35	1638.78	24.58			−2.36	25.27
124	216	−0.07	0.00	0.02	0.01	−0.073	0.000	−0.021	−0.008	−3.35	−2.60	1648.69	22.74			−2.60	23.39
125	217	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.82	−3.01	1656.66	22.84	22.70	0.087	−3.01	23.43
126	218	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.04	−3.18	1666.17	21.40	21.92	0.031	−3.18	21.95
127	219	0.02	0.04	−0.01	0.00	0.022	−0.054	0.013	0.001	−3.41	−2.29	1672.54	23.10	23.21	0.057	−2.29	23.61
128	220	0.05	0.08	−0.02	0.00	0.056	−0.110	0.027	0.006	−3.63	−1.51	1680.79	22.93			−1.49	23.42
129	221	0.08	0.09	−0.03	0.00	0.089	−0.124	0.042	0.009	−4.02	−1.31	1687.55	24.24			−1.28	24.70

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 92 (U)																	
130	222	0.09	0.10	−0.04	0.01	0.100	−0.138	0.056	0.002	−4.18	−0.87	1695.82	24.03			−0.81	24.49
131	223	0.10	0.10	−0.04	0.01	0.110	−0.138	0.056	0.003	−4.25	−0.87	1702.49	25.44	25.84	0.071	−0.81	25.85
132	224	0.12	0.10	−0.05	0.01	0.132	−0.139	0.070	0.006	−4.33	−0.52	1710.56	25.43	25.71	0.025	−0.43	25.86
133	225	0.13	0.10	−0.06	0.01	0.143	−0.139	0.084	0.009	−4.93	−0.63	1717.06	27.01	27.38	0.012	−0.54	27.41
134	226	0.13	0.10	−0.06	0.01	0.143	−0.139	0.084	0.009	−4.67	−0.38	1724.94	27.20	27.33	0.013	−0.27	27.60
135	227	0.14	0.10	−0.06	0.02	0.153	−0.138	0.085	−0.001	−4.81	−0.48	1731.15	29.06	29.02	0.017	−0.37	29.44
136	228	0.17	0.00	−0.09	−0.01	0.186	0.000	0.126	0.035	−4.90	−0.25	1738.76	29.52	29.23	0.015	−0.06	29.96
137	229	0.17	0.00	−0.09	0.00	0.185	0.000	0.126	0.024	−5.00	−0.54	1744.90	31.46	31.21	0.006	−0.39	31.85
138	230	0.17	0.00	−0.09	0.00	0.185	0.000	0.126	0.024	−4.95	−0.50	1752.42	32.00	31.61	0.005	−0.33	32.40
139	231	0.18	0.00	−0.08	0.00	0.195	0.000	0.114	0.022	−4.77	−0.78	1758.28	34.22	33.81	0.003	−0.64	34.58
140	232	0.19	0.00	−0.08	0.01	0.206	0.000	0.116	0.013	−4.74	−0.78	1765.57	35.00	34.61	0.002	−0.63	35.35
141	233	0.19	0.00	−0.08	0.01	0.206	0.000	0.116	0.013	−5.09	−1.10	1771.21	37.43	36.92	0.003	−0.96	37.78
142	234	0.20	0.00	−0.07	0.02	0.215	0.000	0.106	0.001	−4.58	−1.12	1778.27	38.45	38.15	0.002	−1.00	38.79
143	235	0.20	0.00	−0.07	0.02	0.215	0.000	0.106	0.001	−4.84	−1.37	1783.57	41.21	40.92	0.002	−1.25	41.55
144	236	0.21	0.00	−0.07	0.03	0.226	0.000	0.108	−0.009	−4.83	−1.24	1790.23	42.63	42.45	0.002	−1.08	43.02
145	237	0.21	0.00	−0.06	0.03	0.226	0.000	0.095	−0.012	−4.65	−1.45	1795.25	45.67	45.39	0.002	−1.33	46.04
146	238	0.22	0.00	−0.06	0.04	0.236	0.000	0.098	−0.021	−4.70	−1.31	1801.64	47.36	47.31	0.002	−1.13	47.80
147	239	0.22	0.00	−0.05	0.04	0.237	0.000	0.086	−0.024	−4.65	−1.64	1806.54	50.53	50.57	0.002	−1.48	50.96
148	240	0.22	0.00	−0.05	0.04	0.237	0.000	0.086	−0.024	−4.42	−1.44	1812.62	52.52	52.72	0.005	−1.26	52.99
149	241	0.22	0.00	−0.04	0.04	0.237	0.000	0.073	−0.027	−4.42	−1.70	1817.23	55.99			−1.55	56.46
150	242	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−3.77	−1.45	1823.01	58.27			−1.35	58.72
151	243	0.23	0.00	−0.02	0.03	0.249	0.000	0.050	−0.022	−3.95	−1.70	1827.38	61.98			−1.62	62.44
152	244	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−3.52	−1.43	1832.90	64.53			−1.34	65.03
153	245	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−3.30	−1.32	1836.68	68.82			−1.23	69.36
154	246	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−2.79	−0.89	1841.82	71.75			−0.79	72.35
155	247	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.36	−0.65	1845.26	76.39			−0.62	76.96
156	248	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−1.89	−0.19	1850.14	79.58			−0.14	80.21
157	249	0.22	0.00	0.01	0.01	0.239	0.000	0.010	−0.011	−1.75	−0.15	1853.55	84.23			−0.15	84.88
158	250	0.21	0.00	0.01	0.01	0.228	0.000	0.008	−0.011	−1.40	0.13	1858.39	87.46			0.14	88.17
159	251	0.20	0.00	0.02	0.01	0.218	0.000	−0.006	−0.013	−1.52	0.00	1861.77	92.15			0.01	92.93
160	252	0.20	0.00	0.03	0.00	0.218	0.000	−0.019	−0.006	−1.40	0.03	1866.65	95.34			0.04	96.18
161	253	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−1.85	−0.22	1869.94	100.12			−0.20	101.05
162	254	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−1.72	−0.09	1874.51	103.62			−0.06	104.62
163	255	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−1.72	−0.18	1877.44	108.77			−0.15	109.84
164	256	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−1.26	0.25	1881.50	112.78			0.29	113.94
165	257	0.16	0.00	0.03	0.00	0.174	0.000	−0.025	−0.005	−1.05	0.13	1884.27	118.08			0.14	119.30
166	258	0.16	0.00	0.03	0.00	0.174	0.000	−0.025	−0.005	−0.79	0.41	1888.28	122.14			0.43	123.46
167	259	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−0.84	0.22	1890.92	127.57			0.21	128.95
168	260	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−0.60	0.22	1895.01	131.55			0.24	133.05
169	261	0.12	0.00	0.00	0.01	0.129	0.000	0.007	−0.010	−1.07	−0.26	1897.76	136.88			−0.25	138.46
170	262	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−1.61	−0.46	1901.86	140.85			−0.45	142.54
171	263	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−2.26	−1.01	1904.49	146.29			−1.00	148.08
172	264	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−2.33	−1.04	1908.23	150.62			−1.03	152.52
173	265	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−2.36	−1.49	1910.58	156.34			−1.48	158.36
174	266	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−2.29	−1.46	1914.08	160.91			−1.45	163.05
175	267	−0.10	0.00	0.00	−0.01	−0.104	0.000	0.004	0.009	−2.61	−2.04	1916.38	166.68			−2.03	168.94
176	268	−0.10	0.00	0.01	0.00	−0.105	0.000	−0.008	0.001	−2.69	−2.16	1919.85	171.29			−2.16	173.66
177	269	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−3.27	−2.68	1921.92	177.29			−2.67	179.80
178	270	−0.09	0.00	0.02	−0.01	−0.094	0.000	−0.020	0.012	−3.21	−2.63	1925.04	182.24			−2.59	184.92
179	271	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−3.41	−2.81	1926.60	188.75			−2.80	191.54
180	272	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−3.06	−2.44	1929.23	194.20			−2.44	197.12
181	273	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.54	−2.84	1930.84	200.65			−2.85	203.71
182	274	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.59	−2.87	1933.70	205.87			−2.87	209.08
183	275	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.06	−3.32	1935.19	212.44			−3.32	215.81
184	276	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.83	−3.09	1937.62	218.08			−3.09	221.61
185	277	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−2.85	−2.16	1937.59	226.19			−2.16	229.88
186	278	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−2.19	−1.51	1939.44	232.41			−1.51	236.27

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 92 (U)																	
187	279	0.03	0.08	−0.01	0.00	0.035	−0.109	0.015	0.005	−2.77	−1.04	1939.71	240.21			−0.95	244.34
188	280	0.05	0.09	−0.02	0.00	0.056	−0.123	0.028	0.007	−2.71	−0.74	1941.74	246.25			−0.60	250.60
189	281	0.06	0.10	−0.03	0.01	0.068	−0.137	0.041	−0.000	−3.34	−0.94	1942.53	253.54			−0.75	258.11
190	282	0.06	0.11	−0.02	0.01	0.068	−0.150	0.030	0.000	−3.25	−0.66	1944.43	259.71			−0.46	264.48
191	283	0.06	0.12	−0.02	0.02	0.069	−0.163	0.031	−0.009	−3.79	−0.82	1945.02	267.18			−0.56	272.20
192	284	0.38	0.00	0.09	0.00	0.431	0.000	−0.043	−0.032	−3.68	−0.26	1946.49	273.79			−0.15	278.85
193	285	0.37	0.00	0.09	0.00	0.419	0.000	−0.047	−0.032	−3.88	−0.51	1947.03	281.33			−0.41	286.57
194	286	0.37	0.00	0.09	−0.01	0.419	0.000	−0.049	−0.022	−3.51	−0.27	1948.67	287.75			−0.22	293.16
195	287	0.37	0.00	0.10	−0.01	0.420	0.000	−0.060	−0.027	−4.09	−0.56	1949.09	295.40			−0.44	301.07
196	288	0.37	0.00	0.10	−0.01	0.420	0.000	−0.060	−0.027	−3.80	−0.34	1950.60	301.96			−0.20	307.86
197	289	0.37	0.00	0.10	−0.02	0.420	0.000	−0.063	−0.018	−3.80	−0.24	1950.51	310.12			−0.16	316.19
198	290	0.37	0.00	0.11	−0.02	0.421	0.000	−0.075	−0.022	−3.95	−0.17	1952.02	316.69			0.03	323.08
199	291	0.37	0.00	0.11	−0.02	0.421	0.000	−0.075	−0.022	−4.17	−0.41	1952.12	324.65			−0.24	331.24
200	292	0.27	0.00	0.01	0.02	0.296	0.000	0.022	−0.019	−1.79	−0.09	1953.25	331.60			−0.09	338.25
201	293	0.27	0.00	0.01	0.02	0.296	0.000	0.022	−0.019	−2.09	−0.40	1953.29	339.63			−0.41	346.50
202	294	0.27	0.00	0.01	0.02	0.296	0.000	0.022	−0.019	−1.92	−0.31	1954.50	346.49			−0.31	353.61
203	295	0.19	0.00	−0.07	0.02	0.205	0.000	0.104	−0.001	−3.36	−0.86	1954.65	354.42			−0.54	362.09
204	296	0.19	0.00	−0.07	0.02	0.205	0.000	0.104	−0.001	−3.35	−0.92	1955.87	361.26			−0.59	369.20
205	297	0.18	0.00	−0.07	0.02	0.193	0.000	0.102	−0.002	−3.64	−1.27	1955.69	369.52			−0.94	377.70
206	298	0.19	0.00	−0.07	0.03	0.204	0.000	0.104	−0.011	−3.76	−1.34	1956.80	376.48			−0.92	385.01
207	299	0.19	0.00	−0.06	0.03	0.204	0.000	0.091	−0.014	−3.82	−1.68	1956.47	384.88			−1.34	393.59
208	300	0.19	0.00	−0.06	0.03	0.204	0.000	0.091	−0.014	−3.76	−1.58	1957.27	392.15			−1.22	401.14
209	301	0.20	0.00	−0.05	0.04	0.215	0.000	0.082	−0.026	−4.05	−2.15	1957.05	400.44			−1.70	409.78
210	302	0.20	0.00	−0.05	0.04	0.215	0.000	0.082	−0.026	−3.92	−2.05	1957.72	407.84			−1.59	417.47
211	303	0.20	0.00	−0.04	0.04	0.215	0.000	0.069	−0.028	−3.88	−2.18	1956.94	416.69			−1.76	426.55
212	304	0.20	0.00	−0.04	0.04	0.215	0.000	0.069	−0.028	−3.61	−1.96	1957.37	424.34			−1.53	434.49
213	305	0.20	0.00	−0.03	0.04	0.215	0.000	0.057	−0.031	−3.57	−2.08	1956.46	433.32			−1.68	443.73
Z = 93 (Np)																	
113	206	0.17	0.00	−0.01	0.01	0.183	0.000	0.025	−0.007	−0.07	1.10	1536.87	53.06			1.06	54.60
114	207	0.17	0.00	−0.01	0.01	0.183	0.000	0.025	−0.007	−0.04	1.14	1548.26	49.74			1.11	51.21
115	208	0.16	0.00	0.00	0.00	0.172	0.000	0.011	0.001	−0.24	0.90	1558.16	47.92			0.86	49.30
116	209	0.15	0.00	0.00	0.00	0.162	0.000	0.009	0.001	−0.20	0.87	1569.26	44.89			0.83	46.20
117	210	0.15	0.00	0.01	−0.01	0.162	0.000	−0.003	0.009	−0.50	0.60	1578.83	43.39			0.56	44.63
118	211	0.14	0.00	0.02	−0.01	0.151	0.000	−0.016	0.007	−0.66	0.30	1589.84	40.45			0.27	41.62
119	212	−0.17	0.00	0.02	−0.01	−0.177	0.000	−0.011	0.012	−1.43	−0.18	1599.27	39.09			−0.22	40.18
120	213	−0.15	0.00	0.01	−0.02	−0.156	0.000	−0.002	0.020	−1.76	−0.47	1609.92	36.51			−0.49	37.55
121	214	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−1.94	−0.94	1619.02	35.48			−0.97	36.45
122	215	−0.11	0.00	0.01	0.00	−0.115	0.000	−0.007	0.001	−2.01	−1.28	1629.38	33.19			−1.30	34.11
123	216	−0.09	0.00	0.02	0.00	−0.094	0.000	−0.020	0.002	−2.54	−1.90	1638.30	32.35			−1.91	33.21
124	217	−0.07	0.00	0.02	0.01	−0.073	0.000	−0.021	−0.008	−2.78	−2.06	1648.16	30.56			−2.06	31.37
125	218	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−3.14	−2.36	1656.43	30.35			−2.36	31.11
126	219	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−3.35	−2.53	1665.98	28.88			−2.53	29.59
127	220	0.03	0.06	−0.01	0.00	0.033	−0.082	0.014	0.003	−3.28	−1.83	1672.95	29.99			−1.83	30.65
128	221	0.05	0.08	−0.02	0.00	0.056	−0.110	0.027	0.006	−3.24	−1.17	1681.35	29.65			−1.16	30.28
129	222	0.08	0.09	−0.03	0.00	0.089	−0.124	0.042	0.009	−3.68	−1.02	1688.56	30.51			−1.00	31.11
130	223	0.09	0.10	−0.03	0.01	0.100	−0.138	0.043	0.001	−3.63	−0.61	1696.91	30.24			−0.57	30.81
131	224	0.10	0.11	−0.03	0.01	0.112	−0.152	0.045	0.003	−4.10	−0.57	1703.94	31.27			−0.54	31.81
132	225	0.12	0.10	−0.05	0.01	0.132	−0.139	0.070	0.006	−4.00	−0.22	1712.05	31.24	31.59	0.072	−0.16	31.77
133	226	0.13	0.09	−0.06	0.01	0.142	−0.125	0.084	0.007	−4.23	−0.38	1718.99	32.37			−0.32	32.86
134	227	0.14	0.10	−0.06	0.02	0.153	−0.138	0.085	−0.001	−4.45	−0.19	1726.97	32.46	32.56	0.073	−0.10	32.96
135	228	0.15	0.10	−0.06	0.02	0.164	−0.138	0.087	0.000	−4.73	−0.35	1733.63	33.88			−0.26	34.34
136	229	0.17	0.00	−0.09	0.00	0.185	0.000	0.126	0.024	−4.86	−0.42	1741.58	33.99	33.78	0.087	−0.29	34.48
137	230	0.17	0.00	−0.09	0.00	0.185	0.000	0.126	0.024	−5.24	−0.75	1748.14	35.50	35.24	0.051	−0.63	35.97
138	231	0.18	0.00	−0.09	0.00	0.196	0.000	0.127	0.025	−5.36	−0.77	1755.76	35.96	35.62	0.051	−0.62	36.43
139	232	0.19	0.00	−0.08	0.01	0.206	0.000	0.116	0.013	−5.10	−1.10	1762.06	37.73			−1.01	38.14
140	233	0.19	0.00	−0.08	0.01	0.206	0.000	0.116	0.013	−5.14	−1.16	1769.44	38.42	37.95	0.051	−1.04	38.84
141	234	0.20	0.00	−0.08	0.02	0.216	0.000	0.119	0.004	−5.56	−1.57	1775.56	40.38	39.96	0.009	−1.46	40.78

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 93 (Np)																	
142	235	0.20	0.00	−0.08	0.02	0.216	0.000	0.119	0.004	−5.56	−1.59	1782.64	41.36	41.04	0.002	−1.46	41.79
143	236	0.21	0.00	−0.07	0.03	0.226	0.000	0.108	−0.009	−5.44	−1.81	1788.30	43.77	43.38	0.050	−1.70	44.18
144	237	0.21	0.00	−0.07	0.03	0.226	0.000	0.108	−0.009	−5.31	−1.71	1795.01	45.14	44.87	0.002	−1.58	45.57
145	238	0.21	0.00	−0.06	0.03	0.226	0.000	0.095	−0.012	−5.14	−1.92	1800.41	47.80	47.46	0.002	−1.82	48.21
146	239	0.22	0.00	−0.06	0.04	0.236	0.000	0.098	−0.021	−5.20	−1.79	1806.84	49.45	49.31	0.002	−1.63	49.92
147	240	0.22	0.00	−0.05	0.04	0.237	0.000	0.086	−0.024	−5.12	−2.09	1812.09	52.27	52.31	0.015	−1.96	52.73
148	241	0.22	0.00	−0.05	0.04	0.237	0.000	0.086	−0.024	−4.89	−1.89	1818.20	54.23	54.26	0.071	−1.74	54.73
149	242	0.22	0.00	−0.04	0.04	0.237	0.000	0.073	−0.027	−4.89	−2.15	1823.17	57.33	57.42	0.200	−2.02	57.83
150	243	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−4.24	−1.90	1828.99	59.58			−1.83	60.06
151	244	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−4.64	−2.21	1833.77	62.88			−2.08	63.42
152	245	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−3.98	−1.87	1839.26	65.45			−1.80	65.97
153	246	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−3.84	−1.76	1843.41	69.38			−1.70	69.93
154	247	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−3.23	−1.31	1848.54	72.31			−1.23	72.91
155	248	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.76	−1.08	1852.35	76.58			−1.06	77.16
156	249	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.29	−0.62	1857.26	79.74			−0.59	80.38
157	250	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−2.24	−0.52	1860.98	84.10			−0.50	84.77
158	251	0.21	0.00	0.01	0.01	0.228	0.000	0.008	−0.011	−1.72	−0.18	1865.78	87.36			−0.18	88.07
159	252	0.21	0.00	0.02	0.01	0.229	0.000	−0.004	−0.013	−1.89	−0.25	1869.45	91.76			−0.25	92.52
160	253	0.21	0.00	0.03	0.00	0.229	0.000	−0.018	−0.006	−1.76	−0.15	1874.28	95.00			−0.15	95.82
161	254	0.21	0.00	0.04	0.00	0.230	0.000	−0.030	−0.009	−2.18	−0.47	1877.99	99.37			−0.46	100.25
162	255	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−1.96	−0.32	1882.57	102.86			−0.30	103.82
163	256	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−1.94	−0.39	1885.82	107.68			−0.37	108.71
164	257	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−1.44	0.09	1889.86	111.71			0.11	112.82
165	258	0.17	0.00	0.03	0.00	0.185	0.000	−0.024	−0.005	−1.26	−0.00	1892.94	116.70			0.00	117.87
166	259	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−0.79	0.22	1897.04	120.68			0.21	121.92
167	260	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−0.97	0.11	1899.94	125.85			0.10	127.17
168	261	0.13	0.00	0.01	0.01	0.140	0.000	−0.004	−0.011	−0.65	0.21	1903.95	129.91			0.22	131.34
169	262	0.12	0.00	0.00	0.01	0.129	0.000	0.007	−0.010	−1.03	−0.23	1907.00	134.93			−0.23	136.45
170	263	−0.17	0.00	0.00	−0.01	−0.176	0.000	0.012	0.009	−1.45	−0.29	1910.98	139.02			−0.29	140.63
171	264	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−2.10	−0.87	1913.97	144.10			−0.87	145.81
172	265	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−2.16	−0.89	1917.72	148.42			−0.88	150.24
173	266	−0.13	0.00	0.00	−0.01	−0.135	0.000	0.007	0.009	−2.20	−1.27	1920.34	153.87			−1.27	155.80
174	267	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−2.09	−1.27	1923.88	158.41			−1.25	160.45
175	268	−0.11	0.00	0.00	−0.01	−0.115	0.000	0.005	0.009	−2.43	−1.78	1926.44	163.91			−1.77	166.07
176	269	−0.10	0.00	0.01	−0.01	−0.105	0.000	−0.007	0.011	−2.48	−1.94	1929.97	168.46			−1.93	170.74
177	270	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−3.01	−2.43	1932.33	174.16			−2.42	176.56
178	271	−0.10	0.00	0.02	−0.01	−0.105	0.000	−0.019	0.012	−2.97	−2.38	1935.47	179.10			−2.35	181.65
179	272	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−3.07	−2.49	1937.29	185.35			−2.48	188.01
180	273	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−2.80	−2.22	1940.03	190.68			−2.20	193.48
181	274	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−3.10	−2.46	1941.81	196.98			−2.46	199.90
182	275	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−3.01	−2.32	1944.50	202.35			−2.32	205.42
183	276	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−3.47	−2.75	1946.31	208.62			−2.75	211.83
184	277	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−3.22	−2.51	1948.74	214.26			−2.51	217.62
185	278	0.01	0.04	0.00	−0.01	0.011	−0.054	0.001	0.011	−2.67	−1.73	1949.18	221.89			−1.69	225.46
186	279	0.01	0.04	0.00	0.00	0.011	−0.054	0.001	0.001	−1.90	−1.01	1950.97	228.17			−0.99	231.88
187	280	0.04	0.08	−0.01	0.00	0.045	−0.109	0.015	0.005	−2.50	−0.77	1951.78	235.44			−0.68	239.37
188	281	0.05	0.09	−0.02	0.00	0.056	−0.123	0.028	0.007	−2.51	−0.53	1953.88	241.40			−0.40	245.54
189	282	0.06	0.11	−0.02	0.01	0.068	−0.150	0.030	0.000	−3.41	−0.77	1955.02	248.33			−0.60	252.70
190	283	0.38	0.00	0.09	0.00	0.431	0.000	−0.043	−0.032	−3.77	−0.33	1956.77	254.65			−0.25	259.10
191	284	0.38	0.00	0.09	0.00	0.431	0.000	−0.043	−0.032	−4.01	−0.53	1957.72	261.78			−0.48	266.37
192	285	0.37	0.00	0.09	0.00	0.419	0.000	−0.047	−0.032	−3.79	−0.43	1959.65	267.92			−0.33	272.74
193	286	0.37	0.00	0.09	0.00	0.419	0.000	−0.047	−0.032	−4.03	−0.67	1960.49	275.15			−0.60	280.14
194	287	0.37	0.00	0.09	−0.01	0.419	0.000	−0.049	−0.022	−3.64	−0.42	1962.12	281.58			−0.39	286.73
195	288	0.37	0.00	0.10	−0.01	0.420	0.000	−0.060	−0.027	−4.24	−0.71	1962.87	288.91			−0.63	294.31
196	289	0.37	0.00	0.10	−0.01	0.420	0.000	−0.060	−0.027	−3.94	−0.33	1964.22	295.63			−0.23	301.26
197	290	0.37	0.00	0.10	−0.01	0.420	0.000	−0.060	−0.027	−4.07	−0.49	1964.69	303.24			−0.41	309.04
198	291	0.36	0.00	0.10	−0.01	0.408	0.000	−0.064	−0.026	−3.94	−0.47	1966.26	309.74			−0.35	315.80

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 93 (Np)																	
199	292	0.27	0.00	0.00	0.02	0.295	0.000	0.034	−0.016	−2.27	−0.50	1966.46	317.61			−0.53	323.73
200	293	0.27	0.00	0.01	0.02	0.296	0.000	0.022	−0.019	−2.17	−0.49	1967.89	324.25			−0.49	330.62
201	294	0.27	0.00	0.01	0.02	0.296	0.000	0.022	−0.019	−2.44	−0.75	1968.19	332.02			−0.77	338.60
202	295	0.27	0.00	0.01	0.02	0.296	0.000	0.022	−0.019	−2.31	−0.71	1969.44	338.84			−0.72	345.65
203	296	0.19	0.00	−0.07	0.02	0.205	0.000	0.104	−0.001	−3.70	−1.14	1969.78	346.57			−0.85	353.92
204	297	0.19	0.00	−0.07	0.02	0.205	0.000	0.104	−0.001	−3.68	−1.22	1971.02	353.40			−0.92	361.00
205	298	0.20	0.00	−0.06	0.03	0.215	0.000	0.093	−0.013	−3.79	−1.56	1971.12	361.37			−1.25	369.21
206	299	0.19	0.00	−0.06	0.03	0.204	0.000	0.091	−0.014	−3.73	−1.58	1972.18	368.38			−1.25	376.50
207	300	0.19	0.00	−0.06	0.03	0.204	0.000	0.091	−0.014	−4.16	−2.00	1972.23	376.41			−1.67	384.77
208	301	0.20	0.00	−0.05	0.03	0.215	0.000	0.081	−0.016	−3.86	−1.93	1973.06	383.64			−1.67	392.20
209	302	0.20	0.00	−0.05	0.04	0.215	0.000	0.082	−0.026	−4.42	−2.46	1973.10	391.68			−2.04	400.65
210	303	0.20	0.00	−0.05	0.04	0.215	0.000	0.082	−0.026	−4.29	−2.37	1973.78	399.07			−1.93	408.32
211	304	0.20	0.00	−0.04	0.04	0.215	0.000	0.069	−0.028	−4.26	−2.54	1973.33	407.59			−2.15	417.07
212	305	0.20	0.00	−0.04	0.04	0.215	0.000	0.069	−0.028	−3.98	−2.29	1973.72	415.27			−1.88	425.04
213	306	0.20	0.00	−0.03	0.04	0.215	0.000	0.057	−0.031	−3.93	−2.39	1973.09	423.98			−2.02	433.99
214	307	0.20	0.00	−0.03	0.04	0.215	0.000	0.057	−0.031	−3.64	−2.14	1973.35	431.78			−1.76	442.09
215	308	0.20	0.00	−0.02	0.04	0.216	0.000	0.045	−0.034	−3.73	−2.35	1972.70	440.51			−1.98	451.09
Z = 94 (Pu)																	
115	209	0.17	0.00	0.00	0.00	0.183	0.000	0.012	0.001	−0.22	0.75	1557.73	55.63			0.70	57.23
116	210	0.16	0.00	0.01	0.00	0.173	0.000	−0.001	−0.001	−0.14	0.90	1569.07	52.36			0.87	53.89
117	211	0.15	0.00	0.01	0.00	0.162	0.000	−0.003	−0.001	−0.49	0.56	1578.75	50.75			0.53	52.20
118	212	0.15	0.00	0.02	−0.01	0.162	0.000	−0.015	0.007	−0.67	0.44	1590.01	47.57			0.42	48.95
119	213	0.13	0.01	0.02	−0.01	0.140	−0.014	−0.018	0.007	−0.92	0.16	1599.30	46.35			0.13	47.65
120	214	−0.15	0.00	0.02	−0.01	−0.156	0.000	−0.014	0.012	−1.45	−0.23	1610.47	43.25			−0.26	44.48
121	215	−0.13	0.00	0.01	−0.01	−0.135	0.000	−0.004	0.011	−1.65	−0.69	1619.59	42.21			−0.70	43.37
122	216	−0.11	0.00	0.01	0.00	−0.115	0.000	−0.007	0.001	−1.70	−1.00	1630.34	39.52			−1.01	40.62
123	217	−0.09	0.00	0.02	0.01	−0.094	0.000	−0.020	−0.007	−2.24	−1.60	1639.28	38.66			−1.61	39.70
124	218	−0.07	0.00	0.02	0.01	−0.073	0.000	−0.021	−0.008	−2.47	−1.76	1649.55	36.46			−1.76	37.44
125	219	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.81	−2.07	1657.88	36.19			−2.08	37.13
126	220	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.00	−2.22	1667.81	34.33			−2.23	35.21
127	221	0.03	0.06	−0.01	0.00	0.033	−0.082	0.014	0.003	−2.94	−1.52	1674.83	35.40			−1.52	36.22
128	222	0.05	0.08	−0.02	0.00	0.056	−0.110	0.027	0.006	−2.87	−0.84	1683.60	34.69			−0.82	35.48
129	223	0.07	0.09	−0.02	0.00	0.078	−0.124	0.029	0.008	−2.99	−0.60	1690.78	35.58			−0.59	36.33
130	224	0.09	0.10	−0.03	0.01	0.100	−0.138	0.043	0.001	−3.13	−0.18	1699.51	34.92			−0.14	35.65
131	225	0.10	0.11	−0.03	0.01	0.112	−0.152	0.045	0.003	−3.57	−0.11	1706.55	35.95			−0.07	36.63
132	226	0.12	0.10	−0.05	0.01	0.132	−0.139	0.070	0.006	−3.49	0.21	1715.08	35.49			0.28	36.17
133	227	0.13	0.10	−0.05	0.01	0.143	−0.139	0.072	0.007	−3.75	0.03	1722.08	36.56			0.10	37.20
134	228	0.14	0.10	−0.05	0.01	0.154	−0.139	0.073	0.008	−3.62	0.27	1730.41	36.31	36.09	0.032	0.35	36.94
135	229	0.18	0.00	−0.08	0.00	0.195	0.000	0.114	0.022	−3.86	0.01	1737.21	37.58	37.40	0.051	0.10	38.19
136	230	0.18	0.00	−0.08	0.00	0.195	0.000	0.114	0.022	−4.03	−0.13	1745.62	37.24	36.93	0.015	−0.02	37.84
137	231	0.18	0.00	−0.08	0.00	0.195	0.000	0.114	0.022	−4.43	−0.50	1752.25	38.69	38.28	0.026	−0.39	39.25
138	232	0.19	0.00	−0.08	0.01	0.206	0.000	0.116	0.013	−4.46	−0.56	1760.30	38.71	38.37	0.018	−0.44	39.26
139	233	0.19	0.00	−0.08	0.01	0.206	0.000	0.116	0.013	−4.90	−0.96	1766.70	40.38	40.05	0.050	−0.86	40.90
140	234	0.20	0.00	−0.08	0.02	0.216	0.000	0.119	0.004	−5.01	−1.12	1774.57	40.58	40.35	0.007	−1.00	41.11
141	235	0.20	0.00	−0.07	0.02	0.215	0.000	0.106	0.001	−4.89	−1.46	1780.64	42.58	42.18	0.021	−1.37	43.06
142	236	0.20	0.00	−0.07	0.02	0.215	0.000	0.106	0.001	−4.97	−1.54	1788.18	43.12	42.90	0.002	−1.44	43.61
143	237	0.21	0.00	−0.07	0.03	0.226	0.000	0.108	−0.009	−5.43	−1.85	1793.95	45.41	45.09	0.002	−1.73	45.91
144	238	0.21	0.00	−0.06	0.03	0.226	0.000	0.095	−0.012	−4.90	−1.75	1801.04	46.39	46.17	0.002	−1.63	46.89
145	239	0.22	0.00	−0.06	0.04	0.236	0.000	0.098	−0.021	−5.44	−2.06	1806.57	48.93	48.59	0.002	−1.91	49.46
146	240	0.22	0.00	−0.05	0.04	0.237	0.000	0.086	−0.024	−4.95	−1.97	1813.42	50.15	50.13	0.002	−1.83	50.69
147	241	0.22	0.00	−0.05	0.04	0.237	0.000	0.086	−0.024	−5.26	−2.26	1818.69	52.96	52.96	0.002	−2.12	53.50
148	242	0.22	0.00	−0.04	0.04	0.237	0.000	0.073	−0.027	−4.78	−2.07	1825.17	54.54	54.72	0.002	−1.93	55.10
149	243	0.22	0.00	−0.04	0.04	0.237	0.000	0.073	−0.027	−5.07	−2.35	1830.20	57.59	57.76	0.003	−2.22	58.15
150	244	0.22	0.00	−0.03	0.04	0.237	0.000	0.061	−0.030	−4.67	−2.19	1836.47	59.39	59.81	0.005	−2.05	59.98
151	245	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−4.88	−2.47	1841.26	62.67	63.11	0.014	−2.34	63.27
152	246	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−4.23	−2.15	1847.13	64.87	65.39	0.015	−2.07	65.44
153	247	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−4.02	−2.04	1851.30	68.78			−1.97	69.37

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 94 (Pu)																	
154	248	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−3.51	−1.59	1856.81	71.34			−1.50	71.98
155	249	0.22	0.00	0.00	0.03	0.239	0.000	0.024	−0.028	−3.24	−1.42	1860.69	75.52			−1.34	76.19
156	250	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.58	−0.96	1865.97	78.32			−0.92	78.99
157	251	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−2.54	−0.87	1869.72	82.64			−0.84	83.35
158	252	0.21	0.00	0.01	0.01	0.228	0.000	0.008	−0.011	−1.98	−0.49	1874.84	85.59			−0.48	86.32
159	253	0.21	0.00	0.02	0.01	0.229	0.000	−0.004	−0.013	−2.20	−0.69	1878.67	89.84			−0.69	90.61
160	254	0.21	0.00	0.03	0.01	0.229	0.000	−0.016	−0.016	−2.13	−0.54	1883.80	92.77			−0.51	93.61
161	255	0.21	0.00	0.04	0.00	0.230	0.000	−0.030	−0.009	−2.47	−0.76	1887.43	97.21			−0.74	98.10
162	256	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−2.25	−0.60	1892.35	100.36			−0.58	101.33
163	257	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−2.26	−0.63	1895.59	105.20			−0.61	106.22
164	258	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−1.72	−0.21	1900.03	108.83			−0.18	109.93
165	259	0.17	0.00	0.03	0.00	0.185	0.000	−0.024	−0.005	−1.41	−0.15	1902.98	113.95			−0.14	115.10
166	260	0.16	0.00	0.03	0.00	0.174	0.000	−0.025	−0.005	−1.02	0.11	1907.38	117.62			0.13	118.85
167	261	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−1.08	−0.00	1910.31	122.77			−0.01	124.06
168	262	0.14	0.00	0.01	0.01	0.151	0.000	−0.003	−0.011	−0.69	0.21	1914.55	126.60			0.22	127.98
169	263	0.12	0.00	0.00	0.01	0.129	0.000	0.007	−0.010	−0.97	−0.18	1917.57	131.65			−0.17	133.12
170	264	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−0.97	−0.17	1921.81	135.47			−0.16	137.04
171	265	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−1.85	−0.67	1924.74	140.62			−0.66	142.27
172	266	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−1.91	−0.68	1928.82	144.61			−0.67	146.36
173	267	−0.13	0.00	0.00	−0.01	−0.135	0.000	0.007	0.009	−1.97	−1.07	1931.46	150.04			−1.06	151.89
174	268	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−1.86	−1.05	1935.32	154.25			−1.03	156.22
175	269	−0.11	0.00	0.00	−0.01	−0.115	0.000	0.005	0.009	−2.19	−1.56	1937.90	159.74			−1.55	161.81
176	270	−0.10	0.00	0.01	−0.01	−0.105	0.000	−0.007	0.011	−2.25	−1.72	1941.76	163.96			−1.70	166.15
177	271	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−2.78	−2.22	1944.15	169.63			−2.21	171.93
178	272	−0.10	0.00	0.02	−0.01	−0.105	0.000	−0.019	0.012	−2.74	−2.17	1947.61	174.24			−2.13	176.69
179	273	−0.08	0.00	0.02	−0.01	−0.084	0.000	−0.020	0.011	−2.84	−2.24	1949.41	180.52			−2.20	183.09
180	274	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	−2.36	−1.80	1952.30	185.70			−1.80	188.36
181	275	−0.03	0.00	0.01	0.00	−0.032	0.000	−0.011	0.000	−2.81	−2.16	1954.22	191.85			−2.16	194.65
182	276	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.76	−2.10	1957.32	196.82			−2.10	199.76
183	277	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.20	−2.52	1959.12	203.09			−2.52	206.17
184	278	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.93	−2.25	1961.85	208.43			−2.25	211.65
185	279	0.01	0.04	0.00	0.00	0.011	−0.054	0.001	0.001	−2.33	−1.42	1962.24	216.12			−1.40	219.51
186	280	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.31	−0.70	1964.35	222.07			−0.71	225.60
187	281	0.03	0.08	−0.01	0.00	0.035	−0.109	0.015	0.005	−2.20	−0.49	1965.21	229.29			−0.40	233.06
188	282	0.05	0.09	−0.02	0.00	0.056	−0.123	0.028	0.007	−2.19	−0.23	1967.61	234.96			−0.10	238.93
189	283	0.06	0.11	−0.02	0.01	0.068	−0.150	0.030	0.000	−3.08	−0.46	1968.74	241.90			−0.28	246.09
190	284	0.37	0.00	0.08	0.01	0.419	0.000	−0.033	−0.036	−3.23	−0.09	1970.88	247.83			0.05	252.16
191	285	0.37	0.00	0.08	0.01	0.419	0.000	−0.033	−0.036	−3.46	−0.33	1971.88	254.91			−0.21	259.39
192	286	0.37	0.00	0.09	0.00	0.419	0.000	−0.047	−0.032	−3.43	−0.15	1974.04	260.81			−0.03	265.47
193	287	0.37	0.00	0.09	0.00	0.419	0.000	−0.047	−0.032	−3.66	−0.39	1974.89	268.04			−0.30	272.85
194	288	0.36	0.00	0.09	0.00	0.408	0.000	−0.050	−0.031	−3.38	−0.20	1976.89	274.11			−0.06	279.15
195	289	0.36	0.00	0.09	−0.01	0.407	0.000	−0.052	−0.022	−3.46	−0.22	1977.38	281.69			−0.17	286.84
196	290	0.36	0.00	0.09	−0.01	0.407	0.000	−0.052	−0.022	−3.33	−0.16	1979.35	287.79			−0.09	293.15
197	291	0.36	0.00	0.10	−0.01	0.408	0.000	−0.064	−0.026	−4.04	−0.57	1980.07	295.14			−0.44	300.76
198	292	0.24	0.00	−0.03	0.02	0.260	0.000	0.064	−0.008	−2.25	−0.39	1981.79	301.49			−0.32	307.25
199	293	0.26	0.00	−0.01	0.02	0.283	0.000	0.044	−0.013	−2.32	−0.61	1982.18	309.17			−0.61	315.07
200	294	0.27	0.00	0.01	0.02	0.296	0.000	0.022	−0.019	−2.17	−0.52	1983.85	315.58			−0.51	321.70
201	295	0.27	0.00	0.01	0.02	0.296	0.000	0.022	−0.019	−2.45	−0.80	1984.16	323.34			−0.80	329.67
202	296	0.27	0.00	0.01	0.03	0.296	0.000	0.023	−0.029	−2.55	−0.89	1985.86	329.71			−0.75	336.41
203	297	0.27	0.00	0.01	0.03	0.296	0.000	0.023	−0.029	−2.81	−1.14	1986.00	337.64			−1.01	344.55
204	298	0.20	0.00	−0.06	0.03	0.215	0.000	0.093	−0.013	−3.36	−1.15	1987.48	344.23			−0.83	351.56
205	299	0.20	0.00	−0.06	0.03	0.215	0.000	0.093	−0.013	−3.77	−1.53	1987.62	352.16			−1.22	359.71
206	300	0.20	0.00	−0.05	0.03	0.215	0.000	0.081	−0.016	−3.45	−1.49	1988.92	358.94			−1.22	366.69
207	301	0.20	0.00	−0.05	0.03	0.215	0.000	0.081	−0.016	−3.86	−1.89	1988.95	366.97			−1.63	374.96
208	302	0.20	0.00	−0.05	0.03	0.215	0.000	0.081	−0.016	−3.87	−1.94	1990.19	373.80			−1.67	382.05
209	303	0.20	0.00	−0.05	0.04	0.215	0.000	0.082	−0.026	−4.44	−2.47	1990.23	381.83			−2.05	390.48
210	304	0.20	0.00	−0.04	0.04	0.215	0.000	0.069	−0.028	−4.09	−2.36	1991.18	388.96			−1.96	397.84

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 94 (Pu)																	
211	305	0.20	0.00	−0.04	0.04	0.215	0.000	0.069	−0.028	−4.32	−2.58	1990.79	397.42			−2.19	406.56
212	306	0.20	0.00	−0.03	0.04	0.215	0.000	0.057	−0.031	−3.88	−2.34	1991.47	404.81			−1.95	414.20
213	307	0.20	0.00	−0.03	0.04	0.215	0.000	0.057	−0.031	−4.05	−2.51	1990.91	413.44			−2.13	423.10
214	308	0.20	0.00	−0.03	0.04	0.215	0.000	0.057	−0.031	−3.77	−2.27	1991.47	420.96			−1.87	430.90
215	309	0.20	0.00	−0.02	0.04	0.216	0.000	0.045	−0.034	−3.87	−2.49	1990.83	429.67			−2.11	439.87
216	310	0.20	0.00	−0.01	0.04	0.216	0.000	0.033	−0.036	−3.57	−2.31	1991.33	437.24			−1.92	447.74
217	311	0.20	0.00	−0.01	0.04	0.216	0.000	0.033	−0.036	−3.88	−2.64	1990.68	445.96			−2.26	456.74
218	312	0.20	0.00	0.00	0.04	0.217	0.000	0.021	−0.038	−3.72	−2.61	1991.20	453.51			−2.20	464.61
Z = 95 (Am)																	
117	212	0.16	0.00	0.01	0.00	0.173	0.000	−0.001	−0.001	−0.68	0.40	1576.65	60.15			0.36	61.80
118	213	0.15	0.00	0.02	−0.01	0.162	0.000	−0.015	0.007	−0.79	0.32	1587.91	56.96			0.28	58.54
119	214	0.14	0.00	0.02	−0.01	0.151	0.000	−0.016	0.007	−0.98	0.10	1597.54	55.40			0.07	56.90
120	215	−0.15	0.00	0.02	−0.01	−0.156	0.000	−0.014	0.012	−1.19	0.01	1608.47	52.54			−0.03	53.97
121	216	−0.14	0.00	0.02	−0.01	−0.146	0.000	−0.015	0.012	−1.44	−0.34	1617.90	51.19			−0.37	52.54
122	217	−0.11	0.00	0.02	0.00	−0.115	0.000	−0.018	0.002	−1.43	−0.69	1628.73	48.42			−0.71	49.71
123	218	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−1.93	−1.29	1638.08	47.14			−1.31	48.37
124	219	−0.08	0.00	0.02	0.01	−0.084	0.000	−0.021	−0.008	−2.11	−1.46	1648.40	44.89			−1.47	46.06
125	220	0.01	0.03	0.00	0.00	0.011	−0.040	0.000	0.001	−2.47	−1.62	1656.99	44.38			−1.62	45.49
126	221	0.01	0.04	0.00	0.00	0.011	−0.054	0.001	0.001	−2.79	−1.76	1666.96	42.48			−1.77	43.54
127	222	0.04	0.07	−0.01	0.00	0.045	−0.095	0.015	0.004	−2.87	−1.23	1674.54	42.97			−1.24	43.97
128	223	0.05	0.08	−0.01	0.00	0.056	−0.109	0.015	0.005	−2.47	−0.59	1683.40	42.18			−0.58	43.13
129	224	0.07	0.10	−0.02	0.01	0.079	−0.137	0.030	−0.001	−3.05	−0.37	1690.99	42.67			−0.36	43.57
130	225	0.09	0.10	−0.03	0.01	0.100	−0.138	0.043	0.001	−2.85	0.06	1699.76	41.97			0.08	42.84
131	226	0.10	0.11	−0.03	0.01	0.112	−0.152	0.045	0.003	−3.28	0.07	1707.25	42.54			0.09	43.36
132	227	0.12	0.10	−0.04	0.01	0.132	−0.138	0.058	0.004	−2.90	0.36	1715.85	42.01			0.40	42.81
133	228	0.14	0.09	−0.05	0.01	0.153	−0.125	0.073	0.006	−3.19	0.26	1723.17	42.77			0.30	43.53
134	229	0.19	0.00	−0.07	0.00	0.206	0.000	0.103	0.020	−3.08	0.26	1731.77	42.24			0.31	42.98
135	230	0.18	0.00	−0.08	0.00	0.195	0.000	0.114	0.022	−3.97	−0.12	1739.08	43.00			−0.06	43.71
136	231	0.18	0.00	−0.08	0.00	0.195	0.000	0.114	0.022	−4.14	−0.27	1747.54	42.62			−0.18	43.32
137	232	0.19	0.00	−0.08	0.01	0.206	0.000	0.116	0.013	−4.53	−0.64	1754.55	43.67			−0.57	44.33
138	233	0.19	0.00	−0.08	0.01	0.206	0.000	0.116	0.013	−4.64	−0.86	1762.80	43.49			−0.77	44.14
139	234	0.19	0.00	−0.07	0.01	0.205	0.000	0.103	0.010	−4.54	−1.22	1769.55	44.82			−1.17	45.42
140	235	0.20	0.00	−0.07	0.02	0.215	0.000	0.106	0.001	−4.79	−1.40	1777.48	44.96			−1.33	45.56
141	236	0.20	0.00	−0.07	0.02	0.215	0.000	0.106	0.001	−5.21	−1.78	1783.96	46.54			−1.71	47.12
142	237	0.20	0.00	−0.07	0.02	0.215	0.000	0.106	0.001	−5.29	−1.87	1791.54	47.04			−1.79	47.62
143	238	0.21	0.00	−0.06	0.03	0.226	0.000	0.095	−0.012	−5.39	−2.22	1797.74	48.91	48.42	0.051	−2.15	49.47
144	239	0.21	0.00	−0.06	0.03	0.226	0.000	0.095	−0.012	−5.32	−2.17	1804.91	49.81	49.39	0.002	−2.08	50.38
145	240	0.22	0.00	−0.06	0.04	0.236	0.000	0.098	−0.021	−5.86	−2.53	1810.87	51.92	51.51	0.014	−2.42	52.52
146	241	0.22	0.00	−0.05	0.04	0.237	0.000	0.086	−0.024	−5.42	−2.43	1817.73	53.14	52.94	0.002	−2.31	53.73
147	242	0.22	0.00	−0.05	0.04	0.237	0.000	0.086	−0.024	−5.72	−2.71	1823.36	55.58	55.47	0.002	−2.60	56.17
148	243	0.22	0.00	−0.04	0.04	0.237	0.000	0.073	−0.027	−5.26	−2.57	1829.92	57.09	57.18	0.002	−2.45	57.69
149	244	0.23	0.00	−0.03	0.04	0.249	0.000	0.063	−0.029	−5.41	−2.83	1835.30	59.78	59.88	0.002	−2.73	60.38
150	245	0.22	0.00	−0.03	0.04	0.237	0.000	0.061	−0.030	−5.16	−2.67	1841.60	61.55	61.90	0.003	−2.56	62.18
151	246	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−5.35	−2.94	1846.74	64.48	65.00	0.018	−2.84	65.11
152	247	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−4.94	−2.67	1852.70	66.60			−2.55	67.27
153	248	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−4.54	−2.49	1857.16	70.20			−2.44	70.83
154	249	0.23	0.00	0.00	0.03	0.250	0.000	0.026	−0.027	−4.00	−2.07	1862.72	72.72			−2.00	73.39
155	250	0.23	0.00	0.00	0.03	0.250	0.000	0.026	−0.027	−3.76	−1.87	1866.94	76.57			−1.81	77.26
156	251	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.98	−1.34	1872.17	79.41			−1.32	80.10
157	252	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−2.96	−1.32	1876.34	83.31			−1.30	84.03
158	253	0.21	0.00	0.01	0.01	0.228	0.000	0.008	−0.011	−2.36	−0.91	1881.45	86.26			−0.91	87.00
159	254	0.21	0.00	0.02	0.01	0.229	0.000	−0.004	−0.013	−2.59	−1.07	1885.59	90.20			−1.07	90.98
160	255	0.21	0.00	0.03	0.01	0.229	0.000	−0.016	−0.016	−2.50	−0.90	1890.73	93.13			−0.88	93.98
161	256	0.21	0.00	0.04	0.00	0.230	0.000	−0.030	−0.009	−2.82	−1.11	1894.71	97.23			−1.10	98.11
162	257	0.21	0.00	0.04	0.00	0.230	0.000	−0.030	−0.009	−2.64	−0.93	1899.62	100.38			−0.91	101.33
163	258	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−2.60	−0.96	1903.22	104.86			−0.95	105.87
164	259	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−2.04	−0.51	1907.65	108.49			−0.49	109.57

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 95 (Am)																	
165	260	0.18	0.00	0.03	0.00	0.196	0.000	−0.023	−0.005	−1.74	−0.41	1910.91	113.31			−0.41	114.44
166	261	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−1.12	−0.09	1915.26	117.03			−0.09	118.22
167	262	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−1.30	−0.21	1918.54	121.82			−0.22	123.08
168	263	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−1.00	0.04	1922.77	125.66			0.04	127.00
169	264	0.13	0.00	0.00	0.01	0.140	0.000	0.008	−0.010	−1.11	−0.28	1926.05	130.46			−0.27	131.89
170	265	0.12	0.00	0.00	0.01	0.129	0.000	0.007	−0.010	−0.99	−0.23	1930.28	134.30			−0.22	135.82
171	266	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−1.43	−0.63	1933.45	139.20			−0.62	140.80
172	267	−0.17	0.00	0.01	−0.01	−0.176	0.000	0.001	0.010	−1.83	−0.62	1937.53	143.19			−0.62	144.88
173	268	−0.13	0.00	0.00	−0.01	−0.135	0.000	0.007	0.009	−1.87	−0.97	1940.46	148.33			−0.97	150.11
174	269	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−1.73	−0.93	1944.31	152.55			−0.92	154.44
175	270	−0.11	0.00	0.00	−0.01	−0.115	0.000	0.005	0.009	−2.05	−1.42	1947.21	157.72			−1.42	159.71
176	271	−0.10	0.00	0.01	−0.01	−0.105	0.000	−0.007	0.011	−2.08	−1.56	1951.06	161.94			−1.55	164.05
177	272	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−2.61	−2.06	1953.78	167.30			−2.05	169.51
178	273	−0.10	0.00	0.02	−0.01	−0.105	0.000	−0.019	0.012	−2.56	−2.00	1957.25	171.90			−1.97	174.25
179	274	−0.08	0.00	0.01	0.00	−0.084	0.000	−0.009	0.001	−2.47	−2.01	1959.31	177.91			−2.01	180.34
180	275	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−2.26	−1.70	1962.35	182.94			−1.69	185.51
181	276	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−2.46	−1.85	1964.38	188.98			−1.85	191.67
182	277	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−2.28	−1.65	1967.36	194.07			−1.65	196.89
183	278	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−2.70	−2.06	1969.47	200.03			−2.06	202.98
184	279	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−2.44	−1.78	1972.20	205.38			−1.78	208.47
185	280	0.01	0.05	0.00	0.00	0.012	−0.067	0.001	0.002	−2.17	−1.14	1973.11	212.54			−1.12	215.80
186	281	0.01	0.05	0.00	0.00	0.012	−0.067	0.001	0.002	−1.48	−0.48	1975.28	218.43			−0.46	221.85
187	282	0.03	0.09	−0.01	0.00	0.035	−0.123	0.016	0.006	−2.34	−0.45	1976.63	225.16			−0.35	228.79
188	283	0.05	0.10	−0.02	0.01	0.057	−0.136	0.029	−0.002	−2.38	−0.12	1978.98	230.88			0.03	234.72
189	284	0.37	0.00	0.08	0.01	0.419	0.000	−0.033	−0.036	−3.38	−0.25	1980.33	237.60			−0.17	241.53
190	285	0.37	0.00	0.08	0.01	0.419	0.000	−0.033	−0.036	−3.18	−0.10	1982.69	243.31			0.01	247.43
191	286	0.37	0.00	0.09	0.00	0.419	0.000	−0.047	−0.032	−3.58	−0.28	1983.94	250.13			−0.22	254.37
192	287	0.37	0.00	0.09	0.00	0.419	0.000	−0.047	−0.032	−3.42	−0.20	1986.21	255.93			−0.11	260.37
193	288	0.37	0.00	0.09	0.00	0.419	0.000	−0.047	−0.032	−3.64	−0.40	1987.33	262.88			−0.34	267.47
194	289	0.36	0.00	0.09	0.00	0.408	0.000	−0.050	−0.031	−3.47	−0.22	1989.35	268.94			−0.12	273.75
195	290	0.36	0.00	0.09	−0.01	0.407	0.000	−0.052	−0.022	−3.61	−0.44	1990.33	276.02			−0.41	280.94
196	291	0.24	0.00	−0.03	0.01	0.260	0.000	0.063	0.002	−2.28	−0.42	1992.37	282.06			−0.41	287.15
197	292	0.24	0.00	−0.02	0.01	0.261	0.000	0.051	−0.001	−2.40	−0.69	1993.25	289.25			−0.72	294.49
198	293	0.25	0.00	−0.02	0.02	0.271	0.000	0.054	−0.010	−2.47	−0.72	1995.18	295.39			−0.69	300.88
199	294	0.25	0.00	−0.01	0.02	0.272	0.000	0.041	−0.014	−2.60	−0.96	1995.90	302.74			−0.96	308.41
200	295	0.27	0.00	0.01	0.02	0.296	0.000	0.022	−0.019	−2.55	−0.90	1997.60	309.12			−0.90	314.99
201	296	0.27	0.00	0.01	0.02	0.296	0.000	0.022	−0.019	−2.81	−1.16	1998.19	316.59			−1.17	322.66
202	297	0.27	0.00	0.01	0.03	0.296	0.000	0.023	−0.029	−2.95	−1.29	1999.93	322.93			−1.16	329.35
203	298	0.26	0.00	0.00	0.03	0.284	0.000	0.033	−0.026	−3.17	−1.59	2000.43	330.50			−1.49	337.11
204	299	0.25	0.00	0.00	0.03	0.273	0.000	0.030	−0.027	−2.97	−1.46	2001.77	337.23			−1.33	344.10
205	300	0.23	0.00	−0.02	0.03	0.249	0.000	0.050	−0.022	−3.30	−1.70	2002.07	345.00			−1.57	352.09
206	301	0.20	0.00	−0.05	0.03	0.215	0.000	0.081	−0.016	−3.74	−1.77	2003.48	351.67			−1.52	359.11
207	302	0.20	0.00	−0.05	0.03	0.215	0.000	0.081	−0.016	−4.16	−2.18	2003.81	359.40			−1.93	367.07
208	303	0.20	0.00	−0.05	0.04	0.215	0.000	0.082	−0.026	−4.34	−2.35	2005.18	366.11			−1.94	374.18
209	304	0.20	0.00	−0.05	0.04	0.215	0.000	0.082	−0.026	−4.73	−2.72	2005.35	374.00			−2.32	382.32
210	305	0.20	0.00	−0.04	0.04	0.215	0.000	0.069	−0.028	−4.41	−2.64	2006.33	381.10			−2.26	389.64
211	306	0.20	0.00	−0.04	0.04	0.215	0.000	0.069	−0.028	−4.64	−2.86	2006.23	389.27			−2.49	398.06
212	307	0.20	0.00	−0.03	0.04	0.215	0.000	0.057	−0.031	−4.18	−2.60	2006.90	396.67			−2.23	405.71
213	308	0.20	0.00	−0.03	0.04	0.215	0.000	0.057	−0.031	−4.35	−2.78	2006.62	405.02			−2.42	414.31
214	309	0.20	0.00	−0.02	0.04	0.216	0.000	0.045	−0.034	−3.94	−2.53	2007.18	412.54			−2.16	422.10
215	310	0.20	0.00	−0.02	0.04	0.216	0.000	0.045	−0.034	−4.18	−2.78	2006.85	420.93			−2.42	430.76
216	311	0.20	0.00	−0.01	0.04	0.216	0.000	0.033	−0.036	−3.89	−2.61	2007.36	428.50			−2.23	438.61
217	312	0.20	0.00	−0.01	0.04	0.216	0.000	0.033	−0.036	−4.20	−2.94	2006.99	436.93			−2.57	447.32
218	313	0.21	0.00	0.00	0.04	0.228	0.000	0.023	−0.038	−4.11	−2.92	2007.53	444.47			−2.54	455.15
219	314	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−4.44	−3.26	2007.05	453.02			−2.85	464.02
220	315	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−4.30	−3.14	2007.37	460.78			−2.72	472.08

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 96 (Cm)																	
119	215	0.14	0.00	0.02	−0.01	0.151	0.000	−0.016	0.007	−1.06	−0.00	1597.16	63.07			−0.03	64.80
120	216	−0.15	0.00	0.02	−0.01	−0.156	0.000	−0.014	0.012	−1.08	0.08	1608.32	59.98			0.05	61.63
121	217	−0.14	0.00	0.02	−0.01	−0.146	0.000	−0.015	0.012	−1.33	−0.26	1617.79	58.58			−0.29	60.16
122	218	−0.11	0.00	0.02	0.00	−0.115	0.000	−0.018	0.002	−1.32	−0.60	1629.02	55.42			−0.62	56.93
123	219	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−1.81	−1.18	1638.39	54.12			−1.20	55.56
124	220	−0.08	0.00	0.02	0.01	−0.084	0.000	−0.021	−0.008	−1.98	−1.34	1649.11	51.47			−1.35	52.84
125	221	0.02	0.03	0.00	0.00	0.022	−0.040	0.001	0.001	−2.36	−1.53	1657.77	50.89			−1.53	52.20
126	222	0.00	0.03	0.00	0.00	0.000	−0.040	0.000	0.001	−2.53	−1.64	1668.11	48.61			−1.64	49.86
127	223	0.03	0.07	−0.01	0.00	0.034	−0.095	0.014	0.004	−2.68	−1.08	1675.70	49.10			−1.08	50.28
128	224	0.04	0.08	−0.01	0.00	0.045	−0.109	0.015	0.005	−2.24	−0.38	1684.92	47.95			−0.37	49.09
129	225	0.06	0.09	−0.02	0.01	0.067	−0.123	0.029	−0.003	−2.32	−0.09	1692.47	48.47			−0.08	49.55
130	226	0.08	0.10	−0.03	0.01	0.089	−0.138	0.043	0.001	−2.41	0.38	1701.60	47.41			0.41	48.46
131	227	0.09	0.11	−0.03	0.01	0.101	−0.152	0.044	0.002	−2.79	0.46	1709.06	48.02			0.49	49.02
132	228	0.14	0.08	−0.05	0.01	0.152	−0.111	0.072	0.005	−2.10	0.80	1718.01	47.15			0.85	48.11
133	229	0.20	0.00	−0.06	0.00	0.216	0.000	0.092	0.018	−2.12	0.61	1725.46	47.77			0.63	48.67
134	230	0.19	0.00	−0.07	0.00	0.206	0.000	0.103	0.020	−2.76	0.40	1734.66	46.64			0.46	47.54
135	231	0.19	0.00	−0.07	0.00	0.206	0.000	0.103	0.020	−3.18	0.02	1742.00	47.37			0.08	48.22
136	232	0.19	0.00	−0.07	0.01	0.205	0.000	0.103	0.010	−3.23	−0.11	1750.82	46.62			−0.04	47.44
137	233	0.19	0.00	−0.07	0.01	0.205	0.000	0.103	0.010	−3.65	−0.48	1757.89	47.63	47.29	0.072	−0.43	48.41
138	234	0.19	0.00	−0.07	0.01	0.205	0.000	0.103	0.010	−3.80	−0.61	1766.43	47.16	46.72	0.018	−0.54	47.93
139	235	0.20	0.00	−0.07	0.02	0.215	0.000	0.106	0.001	−4.32	−1.03	1773.26	48.39			−0.97	49.13
140	236	0.20	0.00	−0.07	0.02	0.215	0.000	0.106	0.001	−4.51	−1.21	1781.57	48.15			−1.13	48.88
141	237	0.20	0.00	−0.07	0.02	0.215	0.000	0.106	0.001	−4.93	−1.58	1788.09	49.71			−1.50	50.41
142	238	0.21	0.00	−0.06	0.03	0.226	0.000	0.095	−0.012	−4.84	−1.78	1796.15	49.72	49.40	0.037	−1.69	50.42
143	239	0.21	0.00	−0.06	0.03	0.226	0.000	0.095	−0.012	−5.23	−2.14	1802.40	51.54			−2.06	52.22
144	240	0.22	0.00	−0.05	0.03	0.237	0.000	0.085	−0.014	−4.93	−2.12	1809.97	52.04	51.72	0.002	−2.04	52.71
145	241	0.22	0.00	−0.05	0.04	0.237	0.000	0.086	−0.024	−5.48	−2.55	1816.03	54.05	53.70	0.002	−2.44	54.74
146	242	0.22	0.00	−0.05	0.04	0.237	0.000	0.086	−0.024	−5.39	−2.47	1823.28	54.87	54.81	0.002	−2.35	55.57
147	243	0.23	0.00	−0.04	0.04	0.248	0.000	0.076	−0.026	−5.54	−2.79	1828.99	57.23	57.18	0.002	−2.69	57.91
148	244	0.23	0.00	−0.03	0.04	0.249	0.000	0.063	−0.029	−5.20	−2.67	1835.95	58.35	58.45	0.002	−2.56	59.03
149	245	0.23	0.00	−0.03	0.04	0.249	0.000	0.063	−0.029	−5.55	−3.01	1841.42	60.94	61.01	0.002	−2.90	61.63
150	246	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−5.28	−2.92	1848.16	62.28	62.62	0.002	−2.80	62.99
151	247	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−5.49	−3.20	1853.34	65.17	65.53	0.004	−3.09	65.88
152	248	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−5.24	−2.99	1859.72	66.86	67.39	0.005	−2.86	67.60
153	249	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−4.77	−2.80	1864.20	70.45	70.75	0.005	−2.74	71.15
154	250	0.23	0.00	0.00	0.03	0.250	0.000	0.026	−0.027	−4.30	−2.37	1870.12	72.60	72.99	0.011	−2.30	73.33
155	251	0.22	0.00	0.00	0.03	0.239	0.000	0.024	−0.028	−4.01	−2.19	1874.38	76.41	76.65	0.023	−2.12	77.16
156	252	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−3.32	−1.71	1880.01	78.85			−1.67	79.60
157	253	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−3.30	−1.70	1884.23	82.71			−1.68	83.48
158	254	0.21	0.00	0.01	0.02	0.228	0.000	0.009	−0.021	−2.84	−1.37	1889.78	85.23			−1.33	86.04
159	255	0.21	0.00	0.02	0.01	0.229	0.000	−0.004	−0.013	−2.94	−1.43	1893.84	89.24			−1.42	90.06
160	256	0.21	0.00	0.03	0.01	0.229	0.000	−0.016	−0.016	−2.88	−1.28	1899.36	91.79			−1.26	92.67
161	257	0.21	0.00	0.04	0.00	0.230	0.000	−0.030	−0.009	−3.19	−1.48	1903.35	95.88			−1.47	96.79
162	258	0.21	0.00	0.04	0.00	0.230	0.000	−0.030	−0.009	−3.02	−1.30	1908.61	98.68			−1.28	99.65
163	259	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−2.95	−1.30	1912.20	103.17			−1.29	104.19
164	260	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−2.36	−0.82	1916.94	106.49			−0.79	107.58
165	261	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−2.18	−0.69	1920.19	111.32			−0.67	112.46
166	262	0.17	0.00	0.03	0.00	0.185	0.000	−0.024	−0.005	−1.51	−0.31	1924.83	114.75			−0.29	115.95
167	263	0.16	0.00	0.02	0.01	0.173	0.000	−0.013	−0.013	−1.54	−0.52	1928.22	119.43			−0.50	120.70
168	264	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−1.18	−0.14	1932.66	123.06			−0.14	124.39
169	265	0.13	0.00	0.01	0.01	0.140	0.000	−0.004	−0.011	−1.22	−0.37	1935.87	127.92			−0.36	129.33
170	266	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−1.07	−0.29	1940.41	131.45			−0.28	132.95
171	267	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−1.49	−0.70	1943.61	136.32			−0.69	137.89
172	268	0.12	0.00	0.01	0.00	0.129	0.000	−0.006	−0.001	−1.34	−0.56	1947.90	140.11			−0.57	141.75
173	269	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−1.83	−0.98	1950.91	145.17			−0.97	146.91
174	270	0.12	0.00	0.03	−0.01	0.129	0.000	−0.031	0.006	−1.79	−0.84	1955.01	149.14			−0.81	151.01
175	271	−0.11	0.00	0.00	−0.01	−0.115	0.000	0.005	0.009	−1.94	−1.33	1957.91	154.31			−1.32	156.25

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 96 (Cm)																	
176	272	−0.10	0.00	0.01	−0.01	−0.105	0.000	−0.007	0.011	−1.97	−1.45	1962.08	158.21			−1.44	160.26
177	273	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−2.49	−1.94	1964.81	163.55			−1.94	165.70
178	274	−0.10	0.00	0.02	−0.01	−0.105	0.000	−0.019	0.012	−2.43	−1.87	1968.60	167.84			−1.84	170.11
179	275	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−2.42	−1.89	1970.67	173.83			−1.88	176.20
180	276	−0.07	0.00	0.02	0.01	−0.073	0.000	−0.021	−0.008	−2.14	−1.57	1974.03	178.55			−1.54	181.05
181	277	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−2.35	−1.75	1976.10	184.55			−1.75	187.14
182	278	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.21	−1.60	1979.45	189.27			−1.60	191.99
183	279	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.61	−1.97	1981.55	195.24			−1.97	198.09
184	280	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.31	−1.68	1984.58	200.28			−1.68	203.26
185	281	0.01	0.05	0.00	0.00	0.012	−0.067	0.001	0.002	−1.99	−0.98	1985.44	207.50			−0.95	210.64
186	282	0.01	0.06	0.00	0.00	0.012	−0.081	0.002	0.002	−1.52	−0.34	1987.96	213.05			−0.30	216.35
187	283	0.03	0.09	−0.01	0.00	0.035	−0.123	0.016	0.006	−2.21	−0.20	1989.21	219.87			−0.10	223.37
188	284	0.05	0.10	−0.02	0.01	0.057	−0.136	0.029	−0.002	−2.20	0.06	1991.94	225.21			0.21	228.90
189	285	0.06	0.11	−0.02	0.01	0.068	−0.150	0.030	0.000	−2.76	−0.09	1993.32	231.90			0.07	235.76
190	286	0.37	0.00	0.08	0.01	0.419	0.000	−0.033	−0.036	−2.74	0.25	1995.81	237.48			0.38	241.47
191	287	0.37	0.00	0.08	0.01	0.419	0.000	−0.033	−0.036	−3.00	−0.03	1997.17	244.20			0.08	248.32
192	288	0.36	0.00	0.08	0.00	0.406	0.000	−0.038	−0.027	−2.67	0.19	1999.61	249.82			0.25	254.06
193	289	0.23	0.00	−0.03	0.00	0.249	0.000	0.060	0.012	−1.80	−0.00	2000.73	256.78			0.03	261.15
194	290	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−1.74	0.01	2003.23	262.35			0.04	266.90
195	291	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−2.13	−0.37	2004.38	269.27			−0.35	273.99
196	292	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−2.14	−0.39	2006.76	274.96			−0.36	279.87
197	293	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−2.46	−0.70	2007.70	282.09			−0.69	287.18
198	294	0.24	0.00	−0.02	0.02	0.260	0.000	0.051	−0.011	−2.33	−0.68	2009.88	287.98			−0.64	293.28
199	295	0.25	0.00	−0.01	0.02	0.272	0.000	0.041	−0.014	−2.57	−0.96	2010.65	295.29			−0.95	300.75
200	296	0.26	0.00	0.00	0.02	0.284	0.000	0.032	−0.016	−2.47	−0.90	2012.64	301.36			−0.89	307.03
201	297	0.26	0.00	0.01	0.02	0.284	0.000	0.020	−0.020	−2.76	−1.21	2013.29	308.78			−1.20	314.64
202	298	0.26	0.00	0.01	0.03	0.285	0.000	0.021	−0.030	−2.93	−1.34	2015.33	314.82			−1.19	321.02
203	299	0.25	0.00	0.00	0.03	0.273	0.000	0.030	−0.027	−3.19	−1.69	2015.88	322.34			−1.56	328.73
204	300	0.24	0.00	−0.01	0.03	0.261	0.000	0.040	−0.024	−3.05	−1.54	2017.50	328.79			−1.40	335.41
205	301	0.23	0.00	−0.02	0.03	0.249	0.000	0.050	−0.022	−3.39	−1.81	2017.84	336.52			−1.67	343.36
206	302	0.22	0.00	−0.03	0.04	0.237	0.000	0.061	−0.030	−3.65	−1.92	2019.58	342.85			−1.59	350.11
207	303	0.21	0.00	−0.04	0.04	0.226	0.000	0.071	−0.028	−4.19	−2.33	2019.92	350.58			−1.98	358.09
208	304	0.21	0.00	−0.04	0.04	0.226	0.000	0.071	−0.028	−4.19	−2.36	2021.43	357.14			−1.99	364.89
209	305	0.21	0.00	−0.04	0.04	0.226	0.000	0.071	−0.028	−4.55	−2.71	2021.59	365.06			−2.35	373.04
210	306	0.20	0.00	−0.04	0.04	0.215	0.000	0.069	−0.028	−4.44	−2.68	2022.91	371.80			−2.29	380.05
211	307	0.20	0.00	−0.04	0.04	0.215	0.000	0.069	−0.028	−4.66	−2.89	2022.80	379.98			−2.52	388.47
212	308	0.20	0.00	−0.03	0.04	0.215	0.000	0.057	−0.031	−4.25	−2.67	2023.80	387.06			−2.30	395.78
213	309	0.20	0.00	−0.03	0.04	0.215	0.000	0.057	−0.031	−4.42	−2.85	2023.53	395.40			−2.49	404.37
214	310	0.20	0.00	−0.02	0.04	0.216	0.000	0.045	−0.034	−4.05	−2.64	2024.41	402.60			−2.27	411.83
215	311	0.20	0.00	−0.02	0.04	0.216	0.000	0.045	−0.034	−4.29	−2.89	2024.08	410.99			−2.53	420.48
216	312	0.20	0.00	−0.01	0.04	0.216	0.000	0.033	−0.036	−4.04	−2.76	2024.91	418.23			−2.38	428.00
217	313	0.20	0.00	−0.01	0.04	0.216	0.000	0.033	−0.036	−4.35	−3.10	2024.56	426.65			−2.73	436.69
218	314	0.21	0.00	0.00	0.04	0.228	0.000	0.023	−0.038	−4.26	−3.05	2025.35	433.94			−2.67	444.26
219	315	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−4.60	−3.39	2024.87	442.49			−2.98	453.11
220	316	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−4.45	−3.27	2025.47	449.96			−2.85	460.89
221	317	0.20	0.00	0.01	0.04	0.218	0.000	0.009	−0.041	−4.59	−3.45	2024.71	458.79			−3.03	470.01
222	318	0.20	0.00	0.02	0.03	0.218	0.000	−0.004	−0.033	−4.06	−2.98	2024.83	466.74			−2.73	478.08
Z = 97 (Bk)																	
121	218	−0.13	0.00	0.02	−0.01	−0.136	0.000	−0.016	0.012	−1.15	−0.19	1615.53	68.13			−0.22	69.93
122	219	−0.11	0.00	0.02	0.00	−0.115	0.000	−0.018	0.002	−1.16	−0.47	1626.75	64.99			−0.49	66.71
123	220	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−1.62	−1.01	1636.50	63.31			−1.03	64.96
124	221	−0.09	0.00	0.03	0.01	−0.094	0.000	−0.032	−0.006	−1.90	−1.16	1647.25	60.63			−1.18	62.21
125	222	0.03	0.04	0.00	0.00	0.033	−0.054	0.001	0.001	−2.20	−1.31	1656.27	59.67			−1.32	61.19
126	223	0.01	0.05	0.00	0.00	0.012	−0.067	0.001	0.002	−2.55	−1.41	1666.64	57.38			−1.41	58.82
127	224	0.03	0.07	−0.01	0.00	0.034	−0.095	0.014	0.004	−2.50	−0.93	1674.71	57.38			−0.93	58.76
128	225	0.04	0.08	−0.01	0.00	0.045	−0.109	0.015	0.005	−2.08	−0.27	1684.00	56.15			−0.27	57.48
129	226	0.06	0.10	−0.02	0.01	0.068	−0.137	0.029	−0.001	−2.51	0.05	1691.93	56.30			0.05	57.56

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 97 (Bk)																	
130	227	0.08	0.10	−0.02	0.01	0.089	−0.137	0.030	−0.001	−2.04	0.64	1700.97	55.33			0.65	56.54
131	228	0.09	0.11	−0.03	0.01	0.101	−0.152	0.044	0.002	−2.89	0.41	1709.15	55.22			0.42	56.38
132	229	0.21	0.00	−0.05	0.00	0.227	0.000	0.081	0.016	−1.87	0.39	1718.49	53.95			0.40	55.05
133	230	0.21	0.00	−0.05	0.00	0.227	0.000	0.081	0.016	−2.13	0.14	1726.39	54.13			0.13	55.17
134	231	0.20	0.00	−0.06	0.01	0.216	0.000	0.093	0.008	−2.40	0.20	1735.35	53.24			0.22	54.25
135	232	0.20	0.00	−0.06	0.01	0.216	0.000	0.093	0.008	−2.78	−0.09	1743.00	53.66			−0.08	54.63
136	233	0.20	0.00	−0.06	0.01	0.216	0.000	0.093	0.008	−2.97	−0.25	1751.90	52.83			−0.23	53.77
137	234	0.20	0.00	−0.06	0.01	0.216	0.000	0.093	0.008	−3.39	−0.63	1759.34	53.46			−0.61	54.36
138	235	0.20	0.00	−0.06	0.02	0.215	0.000	0.093	−0.002	−3.58	−0.80	1767.96	52.91			−0.76	53.79
139	236	0.20	0.00	−0.06	0.02	0.215	0.000	0.093	−0.002	−4.05	−1.23	1775.19	53.76			−1.20	54.60
140	237	0.21	0.00	−0.06	0.02	0.226	0.000	0.095	−0.001	−4.38	−1.46	1783.59	53.43			−1.42	54.26
141	238	0.22	0.00	−0.05	0.03	0.237	0.000	0.085	−0.014	−4.58	−1.83	1790.49	54.60			−1.80	55.39
142	239	0.21	0.00	−0.06	0.03	0.226	0.000	0.095	−0.012	−5.12	−2.09	1798.63	54.52			−2.03	55.33
143	240	0.22	0.00	−0.05	0.03	0.237	0.000	0.085	−0.014	−5.26	−2.55	1805.36	55.87			−2.51	56.63
144	241	0.22	0.00	−0.05	0.04	0.237	0.000	0.086	−0.024	−5.48	−2.60	1813.04	56.26			−2.52	57.06
145	242	0.22	0.00	−0.05	0.04	0.237	0.000	0.086	−0.024	−5.85	−2.94	1819.38	57.99			−2.86	58.76
146	243	0.22	0.00	−0.04	0.04	0.237	0.000	0.073	−0.027	−5.53	−2.90	1826.70	58.74	58.69	0.005	−2.81	59.51
147	244	0.22	0.00	−0.04	0.04	0.237	0.000	0.073	−0.027	−5.89	−3.22	1832.78	60.73	60.72	0.014	−3.14	61.49
148	245	0.23	0.00	−0.03	0.04	0.249	0.000	0.063	−0.029	−5.69	−3.18	1839.85	61.73	61.81	0.002	−3.10	62.50
149	246	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−5.89	−3.51	1845.68	63.97	63.97	0.060	−3.43	64.73
150	247	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−5.83	−3.47	1852.51	65.22	65.49	0.006	−3.38	66.00
151	248	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−6.05	−3.77	1858.06	67.74			−3.68	68.51
152	249	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−5.81	−3.56	1864.47	69.40	69.85	0.003	−3.46	70.20
153	250	0.23	0.00	0.00	0.03	0.250	0.000	0.026	−0.027	−5.36	−3.38	1869.32	72.62	72.95	0.004	−3.34	73.37
154	251	0.23	0.00	0.00	0.03	0.250	0.000	0.026	−0.027	−4.87	−2.94	1875.26	74.76	75.23	0.011	−2.88	75.54
155	252	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−4.66	−2.75	1879.87	78.21			−2.70	79.01
156	253	0.22	0.00	0.01	0.03	0.240	0.000	0.012	−0.031	−4.09	−2.30	1885.56	80.59			−2.24	81.43
157	254	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−3.85	−2.26	1890.09	84.13			−2.25	84.94
158	255	0.22	0.00	0.02	0.02	0.240	0.000	−0.001	−0.023	−3.52	−1.93	1895.68	86.62			−1.90	87.48
159	256	0.21	0.00	0.02	0.01	0.229	0.000	−0.004	−0.013	−3.45	−1.93	1900.03	90.34			−1.94	91.19
160	257	0.21	0.00	0.03	0.01	0.229	0.000	−0.016	−0.016	−3.40	−1.79	1905.58	92.86			−1.78	93.77
161	258	0.21	0.00	0.04	0.01	0.230	0.000	−0.028	−0.018	−3.77	−1.97	1909.90	96.61			−1.95	97.57
162	259	0.21	0.00	0.04	0.00	0.230	0.000	−0.030	−0.009	−3.49	−1.76	1915.16	99.42			−1.76	100.41
163	260	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−3.42	−1.76	1919.08	103.57			−1.75	104.61
164	261	0.20	0.00	0.04	0.00	0.219	0.000	−0.031	−0.008	−2.85	−1.24	1923.82	106.90			−1.23	108.00
165	262	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−2.59	−1.07	1927.37	111.42			−1.06	112.57
166	263	0.17	0.00	0.03	0.00	0.185	0.000	−0.024	−0.005	−1.86	−0.64	1931.99	114.88			−0.64	116.08
167	264	0.16	0.00	0.02	0.01	0.173	0.000	−0.013	−0.013	−1.86	−0.81	1935.68	119.26			−0.81	120.53
168	265	0.16	0.00	0.02	0.01	0.173	0.000	−0.013	−0.013	−1.55	−0.45	1940.16	122.86			−0.44	124.19
169	266	0.14	0.00	0.01	0.01	0.151	0.000	−0.003	−0.011	−1.47	−0.57	1943.59	127.49			−0.57	128.88
170	267	0.13	0.00	0.01	0.01	0.140	0.000	−0.004	−0.011	−1.30	−0.47	1948.14	131.02			−0.47	132.49
171	268	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−1.62	−0.84	1951.63	135.59			−0.84	137.14
172	269	0.12	0.00	0.01	0.00	0.129	0.000	−0.006	−0.001	−1.45	−0.69	1955.92	139.38			−0.69	140.99
173	270	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−1.93	−1.08	1959.25	144.12			−1.08	145.82
174	271	0.12	0.00	0.03	−0.01	0.129	0.000	−0.031	0.006	−1.88	−0.97	1963.38	148.06			−0.94	149.88
175	272	0.12	0.00	0.03	−0.01	0.129	0.000	−0.031	0.006	−2.15	−1.24	1966.41	153.10			−1.22	155.01
176	273	−0.10	0.00	0.01	0.00	−0.105	0.000	−0.008	0.001	−1.87	−1.38	1970.61	156.97			−1.39	158.95
177	274	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−2.43	−1.90	1973.69	161.96			−1.89	164.04
178	275	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−2.31	−1.78	1977.45	166.27			−1.78	168.46
179	276	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−2.30	−1.78	1979.83	171.96			−1.77	174.26
180	277	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−1.99	−1.44	1983.19	176.68			−1.43	179.09
181	278	−0.05	0.00	0.02	0.01	−0.052	0.000	−0.022	−0.008	−2.25	−1.61	1985.56	182.37			−1.58	184.91
182	279	−0.02	0.00	0.01	0.00	−0.021	0.000	−0.012	0.000	−1.93	−1.31	1988.79	187.23			−1.31	189.85
183	280	0.01	0.01	0.00	0.00	0.011	−0.013	0.000	0.000	−2.29	−1.67	1991.19	192.89			−1.67	195.64
184	281	0.00	0.02	0.00	0.00	0.000	−0.027	0.000	0.000	−2.03	−1.37	1994.23	197.92			−1.37	200.80
185	282	0.02	0.06	−0.01	0.00	0.023	−0.081	0.013	0.003	−2.09	−0.88	1995.61	204.62			−0.83	207.66
186	283	0.02	0.07	−0.01	0.00	0.023	−0.095	0.014	0.004	−1.72	−0.30	1998.20	210.09			−0.24	213.29

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 97 (Bk)																	
187	284	0.03	0.09	−0.01	0.00	0.035	−0.123	0.016	0.006	−2.17	−0.19	1999.80	216.57			−0.10	219.94
188	285	0.05	0.10	−0.02	0.01	0.057	−0.136	0.029	−0.002	−2.18	0.20	2002.41	222.02			0.34	225.58
189	286	0.05	0.10	−0.02	0.01	0.057	−0.136	0.029	−0.002	−2.38	0.07	2004.09	228.42			0.20	232.12
190	287	0.23	0.00	−0.03	0.00	0.249	0.000	0.060	0.012	−1.54	0.21	2006.79	233.79			0.24	237.54
191	288	0.23	0.00	−0.03	0.00	0.249	0.000	0.060	0.012	−1.82	−0.04	2008.43	240.23			−0.02	244.11
192	289	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−1.74	−0.01	2011.07	245.65			0.01	249.70
193	290	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−2.03	−0.27	2012.57	252.23			−0.26	256.43
194	291	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−2.06	−0.33	2015.14	257.72			−0.31	262.10
195	292	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−2.41	−0.65	2016.55	264.39			−0.64	268.92
196	293	0.24	0.00	−0.02	0.01	0.261	0.000	0.051	−0.001	−2.27	−0.64	2018.90	270.11			−0.65	274.80
197	294	0.24	0.00	−0.02	0.02	0.260	0.000	0.051	−0.011	−2.66	−0.98	2020.17	276.91			−0.96	281.81
198	295	0.24	0.00	−0.02	0.02	0.260	0.000	0.051	−0.011	−2.59	−0.93	2022.33	282.82			−0.90	287.91
199	296	0.25	0.00	−0.01	0.02	0.272	0.000	0.041	−0.014	−2.87	−1.28	2023.47	289.75			−1.28	295.00
200	297	0.26	0.00	0.01	0.02	0.284	0.000	0.020	−0.020	−2.76	−1.23	2025.48	295.82			−1.21	301.27
201	298	0.26	0.00	0.01	0.02	0.284	0.000	0.020	−0.020	−3.19	−1.64	2026.54	302.82			−1.64	308.46
202	299	0.26	0.00	0.01	0.03	0.285	0.000	0.021	−0.030	−3.38	−1.79	2028.60	308.84			−1.65	314.80
203	300	0.25	0.00	0.00	0.03	0.273	0.000	0.030	−0.027	−3.65	−2.07	2029.39	316.12			−1.96	322.27
204	301	0.24	0.00	−0.01	0.03	0.261	0.000	0.040	−0.024	−3.49	−1.98	2031.06	322.51			−1.86	328.88
205	302	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−4.06	−2.37	2031.82	329.83			−2.09	336.57
206	303	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−3.96	−2.32	2033.40	336.32			−2.02	343.29
207	304	0.22	0.00	−0.02	0.04	0.238	0.000	0.049	−0.032	−4.26	−2.63	2033.93	343.86			−2.33	351.05
208	305	0.21	0.00	−0.03	0.04	0.226	0.000	0.059	−0.030	−4.31	−2.62	2035.42	350.45			−2.29	357.89
209	306	0.21	0.00	−0.03	0.04	0.226	0.000	0.059	−0.030	−4.69	−2.99	2035.88	358.05			−2.67	365.72
210	307	0.21	0.00	−0.03	0.04	0.226	0.000	0.059	−0.030	−4.56	−2.89	2037.14	364.86			−2.56	372.77
211	308	0.20	0.00	−0.03	0.04	0.215	0.000	0.057	−0.031	−4.77	−3.14	2037.35	372.73			−2.80	380.88
212	309	0.20	0.00	−0.03	0.04	0.215	0.000	0.057	−0.031	−4.55	−2.95	2038.39	379.76			−2.60	388.17
213	310	0.20	0.00	−0.02	0.04	0.216	0.000	0.045	−0.034	−4.61	−3.14	2038.42	387.80			−2.81	396.44
214	311	0.20	0.00	−0.02	0.04	0.216	0.000	0.045	−0.034	−4.39	−2.95	2039.32	394.97			−2.61	403.87
215	312	0.21	0.00	−0.01	0.04	0.227	0.000	0.035	−0.036	−4.61	−3.21	2039.29	403.07			−2.88	412.21
216	313	0.20	0.00	−0.01	0.04	0.216	0.000	0.033	−0.036	−4.41	−3.10	2040.14	410.29			−2.74	419.72
217	314	0.21	0.00	0.00	0.04	0.228	0.000	0.023	−0.038	−4.76	−3.49	2040.12	418.39			−3.14	428.07
218	315	0.21	0.00	0.00	0.04	0.228	0.000	0.023	−0.038	−4.66	−3.43	2040.89	425.69			−3.06	435.65
219	316	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−5.01	−3.78	2040.71	433.94			−3.39	444.20
220	317	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−4.86	−3.66	2041.30	441.42			−3.26	451.97
221	318	0.21	0.00	0.02	0.03	0.229	0.000	−0.002	−0.033	−4.83	−3.64	2040.63	450.16			−3.43	460.80
222	319	0.20	0.00	0.02	0.03	0.218	0.000	−0.004	−0.033	−4.47	−3.36	2040.94	457.93			−3.12	468.87
223	320	0.20	0.00	0.02	0.03	0.218	0.000	−0.004	−0.033	−4.60	−3.50	2040.31	466.62			−3.27	477.85
224	321	0.19	0.00	0.02	0.02	0.207	0.000	−0.007	−0.023	−3.98	−2.96	2040.24	474.76			−2.88	486.13
Z = 98 (Cf)																	
123	221	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−1.66	−1.07	1636.12	70.97			−1.08	72.85
124	222	−0.08	0.00	0.02	0.01	−0.084	0.000	−0.021	−0.008	−1.82	−1.21	1647.28	67.89			−1.22	69.70
125	223	0.03	0.04	0.00	0.00	0.033	−0.054	0.001	0.001	−2.26	−1.37	1656.36	66.88			−1.38	68.61
126	224	0.00	0.05	0.00	0.00	0.001	−0.067	0.001	0.002	−2.61	−1.46	1667.12	64.18			−1.47	65.85
127	225	0.03	0.07	−0.01	0.00	0.034	−0.095	0.014	0.004	−2.47	−0.92	1675.17	64.20			−0.92	65.80
128	226	0.03	0.08	−0.01	0.01	0.035	−0.108	0.015	−0.005	−1.99	−0.19	1684.80	62.65			−0.19	64.18
129	227	0.05	0.09	−0.01	0.01	0.056	−0.122	0.016	−0.004	−1.83	0.19	1692.70	62.82			0.19	64.28
130	228	0.07	0.10	−0.02	0.01	0.079	−0.137	0.030	−0.001	−1.94	0.66	1702.26	61.33			0.68	62.75
131	229	0.26	0.00	−0.02	0.00	0.283	0.000	0.054	0.010	−1.24	0.49	1710.41	61.25			0.44	62.54
132	230	0.24	0.00	−0.03	0.01	0.260	0.000	0.063	0.002	−1.34	0.40	1720.22	59.51			0.38	60.77
133	231	0.24	0.00	−0.03	0.01	0.260	0.000	0.063	0.002	−1.60	0.15	1728.16	59.65			0.12	60.85
134	232	0.21	0.00	−0.05	0.01	0.227	0.000	0.082	0.006	−2.01	0.11	1737.61	58.26			0.12	59.45
135	233	0.21	0.00	−0.05	0.01	0.227	0.000	0.082	0.006	−2.20	−0.05	1745.17	58.78			−0.05	59.91
136	234	0.21	0.00	−0.05	0.01	0.227	0.000	0.082	0.006	−2.34	−0.05	1754.29	57.73			−0.04	58.83
137	235	0.20	0.00	−0.06	0.01	0.216	0.000	0.093	0.008	−3.07	−0.41	1761.76	58.33			−0.39	59.40
138	236	0.21	0.00	−0.05	0.02	0.226	0.000	0.082	−0.004	−3.01	−0.60	1770.78	57.38			−0.58	58.42
139	237	0.21	0.00	−0.05	0.02	0.226	0.000	0.082	−0.004	−3.48	−1.04	1778.05	58.18			−1.02	59.17
140	238	0.21	0.00	−0.05	0.02	0.226	0.000	0.082	−0.004	−3.75	−1.29	1786.85	57.46			−1.26	58.43

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 98 (Cf)																	
141	239	0.22	0.00	−0.05	0.03	0.237	0.000	0.085	−0.014	−4.40	−1.82	1793.94	58.44			−1.78	59.38
142	240	0.22	0.00	−0.05	0.03	0.237	0.000	0.085	−0.014	−4.63	−2.06	1802.44	58.00			−2.00	58.94
143	241	0.22	0.00	−0.05	0.04	0.237	0.000	0.086	−0.024	−5.26	−2.47	1809.15	59.37			−2.40	60.30
144	242	0.22	0.00	−0.04	0.04	0.237	0.000	0.073	−0.027	−5.05	−2.51	1817.20	59.39	59.34	0.037	−2.43	60.31
145	243	0.22	0.00	−0.04	0.04	0.237	0.000	0.073	−0.027	−5.46	−2.89	1823.61	61.05			−2.82	61.94
146	244	0.23	0.00	−0.03	0.04	0.249	0.000	0.063	−0.029	−5.31	−2.89	1831.34	61.39	61.48	0.003	−2.81	62.28
147	245	0.23	0.00	−0.03	0.04	0.249	0.000	0.063	−0.029	−5.73	−3.27	1837.51	63.29	63.39	0.003	−3.19	64.16
148	246	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−5.51	−3.22	1844.94	63.93	64.09	0.002	−3.13	64.81
149	247	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−5.94	−3.63	1850.88	66.06	66.14	0.008	−3.55	66.93
150	248	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−5.81	−3.59	1858.07	66.95	67.24	0.005	−3.49	67.83
151	249	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−6.17	−3.93	1863.71	69.38	69.73	0.002	−3.84	70.25
152	250	0.23	0.00	0.00	0.04	0.250	0.000	0.027	−0.037	−5.93	−3.75	1870.50	70.66	71.17	0.002	−3.64	71.55
153	251	0.23	0.00	0.00	0.04	0.250	0.000	0.027	−0.037	−5.80	−3.64	1875.46	73.77	74.14	0.004	−3.54	74.67
154	252	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−5.05	−3.15	1881.69	75.61	76.03	0.005	−3.08	76.48
155	253	0.22	0.00	0.01	0.03	0.240	0.000	0.012	−0.031	−4.81	−2.99	1886.36	79.01	79.30	0.006	−2.93	79.89
156	254	0.22	0.00	0.01	0.03	0.240	0.000	0.012	−0.031	−4.31	−2.55	1892.42	81.02	81.34	0.012	−2.48	81.93
157	255	0.22	0.00	0.02	0.02	0.240	0.000	−0.001	−0.023	−4.15	−2.53	1897.00	84.52			−2.50	85.41
158	256	0.22	0.00	0.02	0.02	0.240	0.000	−0.001	−0.023	−3.77	−2.20	1902.94	86.65			−2.17	87.57
159	257	0.21	0.00	0.03	0.01	0.229	0.000	−0.016	−0.016	−3.84	−2.31	1907.43	90.23			−2.30	91.15
160	258	0.21	0.00	0.03	0.01	0.229	0.000	−0.016	−0.016	−3.69	−2.19	1913.35	92.38			−2.17	93.35
161	259	0.21	0.00	0.04	0.01	0.230	0.000	−0.028	−0.018	−4.10	−2.33	1917.65	96.15			−2.30	97.16
162	260	0.21	0.00	0.05	0.00	0.230	0.000	−0.041	−0.011	−4.06	−2.14	1923.28	98.60			−2.10	99.65
163	261	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	−4.01	−2.14	1927.23	102.71			−2.11	103.81
164	262	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	−3.44	−1.62	1932.32	105.70			−1.59	106.85
165	263	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−2.90	−1.39	1935.83	110.25			−1.38	111.43
166	264	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−2.37	−0.93	1940.76	113.40			−0.91	114.64
167	265	0.16	0.00	0.03	0.00	0.174	0.000	−0.025	−0.005	−2.16	−1.07	1944.43	117.80			−1.06	119.07
168	266	0.16	0.00	0.02	0.01	0.173	0.000	−0.013	−0.013	−1.79	−0.69	1949.24	121.06			−0.67	122.41
169	267	0.14	0.00	0.02	0.01	0.151	0.000	−0.015	−0.013	−1.75	−0.78	1952.67	125.70			−0.77	127.11
170	268	0.13	0.00	0.01	0.01	0.140	0.000	−0.004	−0.011	−1.48	−0.66	1957.52	128.92			−0.65	130.39
171	269	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−1.80	−1.03	1961.04	133.48			−1.02	135.02
172	270	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−1.71	−0.92	1965.70	136.88			−0.91	138.49
173	271	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−2.09	−1.29	1969.03	141.62			−1.29	143.31
174	272	0.12	0.00	0.03	−0.01	0.129	0.000	−0.031	0.006	−2.07	−1.16	1973.48	145.25			−1.13	147.04
175	273	0.10	0.00	0.04	−0.01	0.108	0.000	−0.044	0.005	−2.32	−1.32	1976.41	150.39			−1.27	152.29
176	274	−0.10	0.00	0.01	−0.01	−0.105	0.000	−0.007	0.011	−1.94	−1.44	1980.92	153.96			−1.42	155.91
177	275	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−2.45	−1.92	1983.98	158.96			−1.91	161.00
178	276	−0.10	0.00	0.02	−0.01	−0.105	0.000	−0.019	0.012	−2.38	−1.83	1988.09	162.92			−1.80	165.08
179	277	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−2.33	−1.80	1990.47	168.61			−1.79	170.85
180	278	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−2.00	−1.45	1994.13	173.02			−1.44	175.37
181	279	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−2.17	−1.59	1996.50	178.73			−1.59	181.17
182	280	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.98	−1.41	2000.16	183.14			−1.41	185.69
183	281	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.31	−1.71	2002.52	188.85			−1.71	191.52
184	282	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.96	−1.38	2005.85	193.59			−1.39	196.38
185	283	0.01	0.06	0.00	0.00	0.012	−0.081	0.002	0.002	−2.01	−0.83	2007.19	200.33			−0.79	203.28
186	284	0.02	0.07	0.00	0.00	0.023	−0.094	0.002	0.003	−1.63	−0.24	2010.08	205.50			−0.18	208.60
187	285	0.03	0.09	−0.01	0.00	0.035	−0.123	0.016	0.006	−2.10	−0.12	2011.69	211.97			−0.03	215.24
188	286	0.04	0.10	−0.01	0.01	0.047	−0.135	0.016	−0.003	−1.92	0.35	2014.54	217.19			0.47	220.63
189	287	0.05	0.10	−0.02	0.01	0.057	−0.136	0.029	−0.002	−2.25	0.19	2016.25	223.54			0.32	227.13
190	288	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−1.33	0.33	2019.26	228.61			0.37	232.23
191	289	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−1.61	0.07	2020.92	235.02			0.10	238.78
192	290	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−1.59	0.08	2023.90	240.11			0.11	244.03
193	291	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−1.92	−0.25	2025.47	246.61			−0.22	250.68
194	292	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−1.89	−0.21	2028.26	251.90			−0.17	256.13
195	293	0.24	0.00	−0.02	0.01	0.261	0.000	0.051	−0.001	−2.09	−0.50	2029.65	258.58			−0.51	262.94
196	294	0.24	0.00	−0.02	0.02	0.260	0.000	0.051	−0.011	−2.17	−0.58	2032.39	263.91			−0.53	268.49
197	295	0.24	0.00	−0.02	0.02	0.260	0.000	0.051	−0.011	−2.51	−0.91	2033.67	270.70			−0.88	275.44

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 98 (Cf)																	
198	296	0.25	0.00	−0.01	0.02	0.272	0.000	0.041	−0.014	−2.44	−0.91	2036.18	276.26			−0.88	281.17
199	297	0.25	0.00	0.00	0.02	0.273	0.000	0.029	−0.017	−2.71	−1.24	2037.31	283.20			−1.23	288.28
200	298	0.26	0.00	0.01	0.02	0.284	0.000	0.020	−0.020	−2.77	−1.28	2039.71	288.88			−1.25	294.15
201	299	0.26	0.00	0.01	0.03	0.285	0.000	0.021	−0.030	−3.43	−1.83	2040.91	295.75			−1.70	301.31
202	300	0.26	0.00	0.01	0.03	0.285	0.000	0.021	−0.030	−3.42	−1.88	2043.17	301.55			−1.74	307.33
203	301	0.25	0.00	0.00	0.03	0.273	0.000	0.030	−0.027	−3.67	−2.14	2043.94	308.86			−2.01	314.81
204	302	0.25	0.00	0.00	0.03	0.273	0.000	0.030	−0.027	−3.50	−1.99	2045.86	315.01			−1.85	321.17
205	303	0.24	0.00	−0.01	0.04	0.261	0.000	0.041	−0.034	−4.03	−2.39	2046.62	322.31			−2.10	328.83
206	304	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−3.85	−2.30	2048.46	328.55			−1.99	335.29
207	305	0.22	0.00	−0.02	0.04	0.238	0.000	0.049	−0.032	−4.21	−2.63	2049.03	336.06			−2.33	343.01
208	306	0.21	0.00	−0.03	0.04	0.226	0.000	0.059	−0.030	−4.21	−2.54	2050.72	342.43			−2.20	349.63
209	307	0.21	0.00	−0.03	0.04	0.226	0.000	0.059	−0.030	−4.57	−2.90	2051.18	350.05			−2.57	357.46
210	308	0.21	0.00	−0.03	0.04	0.226	0.000	0.059	−0.030	−4.44	−2.79	2052.72	356.58			−2.45	364.23
211	309	0.20	0.00	−0.03	0.04	0.215	0.000	0.057	−0.031	−4.66	−3.04	2052.94	364.43			−2.70	372.31
212	310	0.20	0.00	−0.03	0.04	0.215	0.000	0.057	−0.031	−4.44	−2.85	2054.26	371.18			−2.50	379.31
213	311	0.20	0.00	−0.02	0.04	0.216	0.000	0.045	−0.034	−4.55	−3.09	2054.33	379.18			−2.74	387.54
214	312	0.20	0.00	−0.02	0.04	0.216	0.000	0.045	−0.034	−4.32	−2.90	2055.52	386.06			−2.55	394.67
215	313	0.20	0.00	−0.01	0.04	0.216	0.000	0.033	−0.036	−4.56	−3.22	2055.55	394.10			−2.87	402.95
216	314	0.21	0.00	0.00	0.04	0.228	0.000	0.023	−0.038	−4.43	−3.12	2056.71	401.02			−2.76	410.14
217	315	0.21	0.00	0.00	0.04	0.228	0.000	0.023	−0.038	−4.78	−3.52	2056.69	409.11			−3.16	418.48
218	316	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−4.73	−3.51	2057.80	416.06			−3.12	425.73
219	317	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−5.08	−3.85	2057.61	424.33			−3.46	434.26
220	318	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−4.93	−3.73	2058.48	431.53			−3.32	441.74
221	319	0.21	0.00	0.02	0.04	0.230	0.000	−0.001	−0.043	−5.22	−3.97	2058.06	440.02			−3.53	450.53
222	320	0.20	0.00	0.02	0.03	0.218	0.000	−0.004	−0.033	−4.59	−3.49	2058.45	447.70			−3.25	458.29
223	321	0.20	0.00	0.02	0.03	0.218	0.000	−0.004	−0.033	−4.72	−3.64	2057.83	456.39			−3.40	467.26
224	322	0.19	0.00	0.03	0.02	0.207	0.000	−0.019	−0.025	−4.24	−3.19	2058.13	464.16			−3.06	475.21
225	323	0.18	0.00	0.03	0.01	0.196	0.000	−0.022	−0.015	−4.26	−3.23	2057.29	473.08			−3.21	484.31
226	324	0.18	0.00	0.03	0.01	0.196	0.000	−0.022	−0.015	−3.98	−3.00	2057.68	480.75			−2.98	492.28
227	325	0.18	0.00	0.04	0.01	0.197	0.000	−0.034	−0.017	−4.28	−3.20	2056.88	489.63			−3.13	501.50
Z = 99 (Es)																	
125	224	0.01	0.05	0.00	0.00	0.012	−0.067	0.001	0.002	−2.33	−1.26	1654.14	76.38			−1.27	78.35
126	225	0.00	0.06	0.00	0.00	0.002	−0.081	0.002	0.002	−2.74	−1.42	1665.01	73.59			−1.42	75.48
127	226	0.02	0.07	−0.01	0.00	0.023	−0.095	0.014	0.004	−2.42	−0.88	1673.46	73.20			−0.88	75.01
128	227	−0.55	0.00	0.01	−0.02	−0.548	0.000	0.100	−0.002	−2.75	4.66	1678.32	76.42			4.21	77.72
129	228	−0.56	0.00	0.01	−0.02	−0.557	0.000	0.104	−0.004	−3.15	4.70	1686.96	75.85			4.20	77.03
130	229	0.25	0.00	−0.02	0.00	0.272	0.000	0.052	0.010	−0.97	0.52	1701.21	69.67			0.46	71.22
131	230	0.26	0.00	−0.02	0.01	0.283	0.000	0.055	0.000	−1.21	0.40	1709.70	69.25			0.32	70.72
132	231	0.25	0.00	−0.02	0.01	0.272	0.000	0.053	−0.001	−1.18	0.36	1719.50	67.52			0.31	68.95
133	232	0.27	0.00	−0.01	0.01	0.294	0.000	0.045	−0.003	−1.40	0.13	1727.80	67.29			0.05	68.64
134	233	0.27	0.00	−0.01	0.02	0.294	0.000	0.046	−0.013	−1.55	0.05	1737.34	65.83			−0.01	67.14
135	234	0.24	0.00	−0.03	0.02	0.260	0.000	0.064	−0.008	−2.01	−0.19	1745.36	65.88			−0.23	67.16
136	235	0.24	0.00	−0.03	0.02	0.260	0.000	0.064	−0.008	−2.19	−0.31	1754.63	64.68			−0.33	65.92
137	236	0.22	0.00	−0.04	0.02	0.237	0.000	0.072	−0.007	−2.70	−0.62	1762.43	64.95			−0.63	66.15
138	237	0.22	0.00	−0.04	0.02	0.237	0.000	0.072	−0.007	−2.97	−0.87	1771.55	63.90			−0.88	65.07
139	238	0.21	0.00	−0.05	0.02	0.226	0.000	0.082	−0.004	−3.65	−1.26	1779.15	64.37			−1.26	65.50
140	239	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−3.85	−1.62	1788.10	63.49			−1.61	64.60
141	240	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−4.33	−2.09	1795.51	64.16			−2.09	65.23
142	241	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−4.58	−2.34	1804.06	63.68			−2.32	64.73
143	242	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−5.03	−2.73	1811.12	64.68			−2.72	65.71
144	243	0.22	0.00	−0.04	0.04	0.237	0.000	0.073	−0.027	−5.34	−2.84	1819.27	64.61			−2.79	65.65
145	244	0.23	0.00	−0.03	0.04	0.249	0.000	0.063	−0.029	−5.60	−3.21	1826.05	65.90			−3.17	66.90
146	245	0.23	0.00	−0.03	0.04	0.249	0.000	0.063	−0.029	−5.66	−3.28	1833.88	66.14			−3.22	67.14
147	246	0.23	0.00	−0.03	0.05	0.248	0.000	0.064	−0.039	−6.39	−3.70	1840.46	67.63			−3.61	68.66
148	247	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−5.93	−3.67	1847.93	68.23			−3.60	69.21
149	248	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−6.35	−4.06	1854.22	70.01			−4.00	70.97
150	249	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−6.27	−4.07	1861.49	70.81			−4.00	71.78

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 99 (Es)																	
151	250	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−6.63	−4.41	1867.49	72.89			−4.34	73.85
152	251	0.23	0.00	0.00	0.04	0.250	0.000	0.027	−0.037	−6.42	−4.26	1874.34	74.11	74.51	0.006	−4.17	75.09
153	252	0.23	0.00	0.00	0.04	0.250	0.000	0.027	−0.037	−6.28	−4.14	1879.64	76.88	77.29	0.050	−4.06	77.85
154	253	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−5.54	−3.65	1885.92	78.68	79.01	0.003	−3.60	79.62
155	254	0.22	0.00	0.01	0.03	0.240	0.000	0.012	−0.031	−5.30	−3.49	1890.94	81.72	81.99	0.004	−3.45	82.68
156	255	0.22	0.00	0.01	0.03	0.240	0.000	0.012	−0.031	−4.80	−3.04	1897.02	83.71	84.09	0.011	−2.99	84.70
157	256	0.22	0.00	0.02	0.02	0.240	0.000	−0.001	−0.023	−4.65	−3.02	1901.95	86.85			−3.01	87.80
158	257	0.22	0.00	0.02	0.02	0.240	0.000	−0.001	−0.023	−4.27	−2.69	1907.92	88.96			−2.67	89.94
159	258	0.21	0.00	0.03	0.01	0.229	0.000	−0.016	−0.016	−4.35	−2.82	1912.77	92.18			−2.82	93.16
160	259	0.21	0.00	0.03	0.01	0.229	0.000	−0.016	−0.016	−4.20	−2.69	1918.71	94.31			−2.69	95.32
161	260	0.21	0.00	0.04	0.01	0.230	0.000	−0.028	−0.018	−4.61	−2.84	1923.37	97.72			−2.83	98.78
162	261	0.21	0.00	0.05	0.00	0.230	0.000	−0.041	−0.011	−4.58	−2.65	1929.03	100.14			−2.63	101.23
163	262	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	−4.52	−2.64	1933.31	103.92			−2.63	105.05
164	263	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	−3.93	−2.11	1938.41	106.90			−2.09	108.07
165	264	0.19	0.00	0.04	0.00	0.207	0.000	−0.033	−0.008	−3.41	−1.91	1942.29	111.08			−1.91	112.28
166	265	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−2.83	−1.39	1947.18	114.26			−1.38	115.52
167	266	0.16	0.00	0.03	0.01	0.174	0.000	−0.024	−0.015	−2.63	−1.47	1951.15	118.37			−1.46	119.68
168	267	0.16	0.00	0.02	0.01	0.173	0.000	−0.013	−0.013	−2.18	−1.23	1956.10	121.49			−1.22	122.85
169	268	0.16	0.00	0.02	0.00	0.173	0.000	−0.013	−0.003	−2.14	−1.10	1959.66	126.00			−1.11	127.40
170	269	0.13	0.00	0.01	0.01	0.140	0.000	−0.004	−0.011	−1.75	−0.93	1964.48	129.25			−0.92	130.73
171	270	0.12	0.00	0.01	0.01	0.129	0.000	−0.005	−0.011	−2.03	−1.26	1968.29	133.51			−1.25	135.05
172	271	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−1.93	−1.14	1972.97	136.90			−1.14	138.51
173	272	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−2.31	−1.52	1976.63	141.31			−1.52	142.99
174	273	0.12	0.00	0.03	−0.01	0.129	0.000	−0.031	0.006	−2.29	−1.38	1981.09	144.93			−1.35	146.70
175	274	0.12	0.00	0.03	−0.01	0.129	0.000	−0.031	0.006	−2.54	−1.64	1984.45	149.63			−1.62	151.49
176	275	−0.11	0.00	0.01	−0.01	−0.115	0.000	−0.006	0.011	−2.03	−1.45	1988.68	153.48			−1.44	155.41
177	276	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−2.48	−1.95	1992.09	158.14			−1.95	160.15
178	277	−0.10	0.00	0.02	−0.01	−0.105	0.000	−0.019	0.012	−2.39	−1.85	1996.21	162.10			−1.83	164.22
179	278	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−2.31	−1.80	1998.88	167.49			−1.79	169.69
180	279	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−1.96	−1.42	2002.54	171.91			−1.41	174.21
181	280	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−2.08	−1.51	2005.18	177.34			−1.51	179.73
182	281	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.83	−1.29	2008.81	181.78			−1.29	184.27
183	282	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−2.19	−1.61	2011.51	187.15			−1.61	189.76
184	283	0.00	0.04	0.00	0.00	0.001	−0.054	0.001	0.001	−2.10	−1.27	2014.84	191.89			−1.25	194.62
185	284	0.01	0.07	0.00	0.00	0.013	−0.094	0.002	0.003	−2.23	−0.81	2016.59	198.21			−0.77	201.09
186	285	0.02	0.08	−0.01	0.00	0.024	−0.109	0.015	0.005	−1.97	−0.27	2019.55	203.33			−0.20	206.36
187	286	0.03	0.09	−0.01	0.00	0.035	−0.123	0.016	0.006	−2.13	−0.16	2021.48	209.47			−0.08	212.64
188	287	0.04	0.10	−0.01	0.01	0.047	−0.135	0.016	−0.003	−2.00	0.31	2024.33	214.68			0.43	218.01
189	288	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−1.51	0.14	2026.38	220.71			0.16	224.07
190	289	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−1.48	0.14	2029.54	225.62			0.17	229.12
191	290	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−1.82	−0.19	2031.58	231.65			−0.18	235.28
192	291	0.23	0.00	−0.02	0.00	0.250	0.000	0.048	0.008	−1.63	−0.18	2034.57	236.73			−0.19	240.49
193	292	0.23	0.00	−0.02	0.01	0.249	0.000	0.048	−0.002	−1.95	−0.46	2036.40	242.97			−0.47	246.87
194	293	0.23	0.00	−0.02	0.01	0.249	0.000	0.048	−0.002	−1.94	−0.45	2039.23	248.21			−0.46	252.27
195	294	0.24	0.00	−0.02	0.01	0.261	0.000	0.051	−0.001	−2.32	−0.76	2040.94	254.58			−0.77	258.79
196	295	0.24	0.00	−0.02	0.02	0.260	0.000	0.051	−0.011	−2.41	−0.83	2043.69	259.90			−0.80	264.32
197	296	0.24	0.00	−0.01	0.02	0.261	0.000	0.039	−0.014	−2.63	−1.15	2045.26	266.40			−1.14	270.97
198	297	0.24	0.00	−0.01	0.02	0.261	0.000	0.039	−0.014	−2.61	−1.11	2047.74	271.99			−1.09	276.73
199	298	0.25	0.00	0.00	0.02	0.273	0.000	0.029	−0.017	−3.04	−1.56	2049.28	278.52			−1.55	283.42
200	299	0.25	0.00	0.00	0.03	0.273	0.000	0.030	−0.027	−3.27	−1.71	2051.81	284.07			−1.59	289.26
201	300	0.26	0.00	0.01	0.03	0.285	0.000	0.021	−0.030	−3.79	−2.18	2053.23	290.71			−2.07	296.08
202	301	0.26	0.00	0.01	0.03	0.285	0.000	0.021	−0.030	−3.77	−2.21	2055.48	296.54			−2.09	302.10
203	302	0.25	0.00	0.01	0.03	0.273	0.000	0.018	−0.030	−4.05	−2.51	2056.58	303.50			−2.39	309.25
204	303	0.24	0.00	0.00	0.03	0.261	0.000	0.028	−0.027	−3.84	−2.35	2058.50	309.66			−2.22	315.61
205	304	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−4.34	−2.72	2059.53	316.70			−2.45	322.99
206	305	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−4.21	−2.66	2061.40	322.90			−2.37	329.40
207	306	0.22	0.00	−0.02	0.04	0.238	0.000	0.049	−0.032	−4.51	−2.93	2062.20	330.17			−2.64	336.89

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 99 (Es)																	
208	307	0.22	0.00	−0.02	0.04	0.238	0.000	0.049	−0.032	−4.37	−2.79	2063.84	336.60			−2.49	343.53
209	308	0.21	0.00	−0.02	0.04	0.227	0.000	0.047	−0.033	−4.66	−3.10	2064.55	343.96			−2.80	351.11
210	309	0.21	0.00	−0.02	0.04	0.227	0.000	0.047	−0.033	−4.53	−3.00	2066.10	350.49			−2.69	357.86
211	310	0.21	0.00	−0.02	0.04	0.227	0.000	0.047	−0.033	−4.80	−3.26	2066.61	358.04			−2.95	365.64
212	311	0.20	0.00	−0.02	0.04	0.216	0.000	0.045	−0.034	−4.56	−3.09	2067.96	364.77			−2.76	372.61
213	312	0.20	0.00	−0.02	0.04	0.216	0.000	0.045	−0.034	−4.82	−3.36	2068.36	372.44			−3.04	380.51
214	313	0.21	0.00	−0.01	0.04	0.227	0.000	0.035	−0.036	−4.60	−3.19	2069.57	379.30			−2.86	387.61
215	314	0.20	0.00	−0.01	0.04	0.216	0.000	0.033	−0.036	−4.88	−3.53	2069.90	387.04			−3.19	395.59
216	315	0.21	0.00	0.00	0.04	0.228	0.000	0.023	−0.038	−4.78	−3.48	2071.11	393.90			−3.14	402.71
217	316	0.21	0.00	0.00	0.04	0.228	0.000	0.023	−0.038	−5.14	−3.85	2071.35	401.74			−3.51	410.79
218	317	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−5.11	−3.87	2072.48	408.67			−3.49	418.01
219	318	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−5.45	−4.20	2072.56	416.66			−3.83	426.25
220	319	0.21	0.00	0.02	0.04	0.230	0.000	−0.001	−0.043	−5.40	−4.12	2073.48	423.82			−3.70	433.72
221	320	0.21	0.00	0.02	0.04	0.230	0.000	−0.001	−0.043	−5.64	−4.36	2073.34	432.03			−3.94	442.20
222	321	0.20	0.00	0.02	0.03	0.218	0.000	−0.004	−0.033	−5.00	−3.88	2073.73	439.71			−3.65	449.95
223	322	0.20	0.00	0.02	0.03	0.218	0.000	−0.004	−0.033	−5.14	−4.03	2073.38	448.13			−3.81	458.64
224	323	0.19	0.00	0.03	0.02	0.207	0.000	−0.019	−0.025	−4.68	−3.60	2073.71	455.88			−3.49	466.56
225	324	0.19	0.00	0.03	0.02	0.207	0.000	−0.019	−0.025	−4.85	−3.80	2073.29	464.37			−3.68	475.33
226	325	0.18	0.00	0.03	0.01	0.196	0.000	−0.022	−0.015	−4.40	−3.41	2073.52	472.20			−3.39	483.35
227	326	0.18	0.00	0.04	0.01	0.197	0.000	−0.034	−0.017	−4.70	−3.60	2072.99	480.80			−3.54	492.29
228	327	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−4.29	−3.26	2073.16	488.71			−3.25	500.44
229	328	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−4.62	−3.44	2072.50	497.44			−3.38	509.52
Z = 100 (Fm)																	
126	226	0.00	0.06	0.00	0.00	0.002	−0.081	0.002	0.002	−2.96	−1.63	1664.81	81.07			−1.63	83.20
127	227	0.01	0.07	−0.01	0.00	0.013	−0.095	0.014	0.003	−2.55	−1.00	1673.22	80.74			−1.00	82.79
128	228	−0.56	0.00	0.01	−0.02	−0.557	0.000	0.104	−0.004	−2.69	4.70	1678.31	83.72			4.26	85.25
129	229	−0.56	0.00	0.01	−0.02	−0.557	0.000	0.104	−0.004	−2.81	4.70	1687.03	83.07			4.23	84.50
130	230	0.26	0.00	−0.01	0.01	0.283	0.000	0.043	−0.003	−0.73	0.50	1701.69	76.48			0.44	78.25
131	231	0.27	0.00	−0.01	0.01	0.294	0.000	0.045	−0.003	−1.02	0.31	1710.30	75.94			0.24	77.63
132	232	0.28	0.00	0.00	0.01	0.306	0.000	0.036	−0.006	−1.01	0.27	1720.49	73.82			0.19	75.44
133	233	0.28	0.00	0.00	0.01	0.306	0.000	0.036	−0.006	−1.30	0.01	1728.86	73.52			−0.07	75.07
134	234	0.28	0.00	0.00	0.02	0.306	0.000	0.037	−0.016	−1.49	−0.09	1738.80	71.65			−0.14	73.17
135	235	0.28	0.00	0.00	0.02	0.306	0.000	0.037	−0.016	−1.81	−0.38	1746.91	71.61			−0.45	73.06
136	236	0.26	0.00	−0.01	0.02	0.283	0.000	0.044	−0.013	−1.86	−0.32	1756.40	70.20			−0.36	71.62
137	237	0.26	0.00	−0.01	0.02	0.283	0.000	0.044	−0.013	−2.18	−0.55	1764.15	70.51			−0.60	71.88
138	238	0.24	0.00	−0.03	0.03	0.260	0.000	0.065	−0.018	−2.72	−0.74	1773.59	69.15			−0.74	70.51
139	239	0.24	0.00	−0.03	0.03	0.260	0.000	0.065	−0.018	−3.14	−1.12	1781.21	69.60			−1.13	70.90
140	240	0.23	0.00	−0.03	0.03	0.249	0.000	0.062	−0.019	−3.40	−1.41	1790.47	68.41			−1.40	69.69
141	241	0.23	0.00	−0.03	0.03	0.249	0.000	0.062	−0.019	−3.88	−1.91	1797.95	69.01			−1.91	70.24
142	242	0.22	0.00	−0.04	0.03	0.237	0.000	0.073	−0.017	−4.29	−2.14	1806.85	68.17			−2.12	69.40
143	243	0.22	0.00	−0.04	0.04	0.237	0.000	0.073	−0.027	−4.97	−2.57	1813.99	69.11			−2.53	70.32
144	244	0.23	0.00	−0.03	0.04	0.249	0.000	0.063	−0.029	−4.94	−2.69	1822.51	68.66			−2.63	69.85
145	245	0.23	0.00	−0.03	0.04	0.249	0.000	0.063	−0.029	−5.39	−3.09	1829.35	69.88			−3.05	71.04
146	246	0.23	0.00	−0.03	0.05	0.248	0.000	0.064	−0.039	−5.76	−3.20	1837.60	69.71	70.14	0.039	−3.09	70.90
147	247	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−5.75	−3.57	1844.15	71.23			−3.51	72.35
148	248	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−5.79	−3.60	1852.06	71.39	71.91	0.012	−3.53	72.51
149	249	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−6.16	−4.03	1858.42	73.10			−3.96	74.20
150	250	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−6.21	−4.08	1866.09	73.50	74.07	0.012	−4.00	74.60
151	251	0.23	0.00	0.00	0.04	0.250	0.000	0.027	−0.037	−6.60	−4.48	1872.18	75.49	75.99	0.008	−4.41	76.57
152	252	0.23	0.00	0.00	0.04	0.250	0.000	0.027	−0.037	−6.45	−4.35	1879.42	76.32	76.82	0.006	−4.26	77.41
153	253	0.23	0.00	0.01	0.04	0.251	0.000	0.015	−0.040	−6.37	−4.24	1884.76	79.05	79.35	0.004	−4.16	80.14
154	254	0.23	0.00	0.01	0.04	0.251	0.000	0.015	−0.040	−5.95	−3.86	1891.50	80.38	80.90	0.003	−3.76	81.49
155	255	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−5.56	−3.69	1896.54	83.41	83.80	0.005	−3.64	84.48
156	256	0.22	0.00	0.02	0.03	0.240	0.000	−0.000	−0.033	−5.03	−3.24	1902.98	85.05	85.49	0.007	−3.18	86.14
157	257	0.22	0.00	0.03	0.02	0.241	0.000	−0.013	−0.026	−4.95	−3.24	1907.95	88.14	88.59	0.006	−3.21	89.20
158	258	0.22	0.00	0.03	0.02	0.241	0.000	−0.013	−0.026	−4.64	−2.96	1914.32	89.84			−2.93	90.93
159	259	0.21	0.00	0.03	0.02	0.230	0.000	−0.015	−0.026	−4.77	−3.13	1919.24	92.99			−3.09	94.09

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E^{FL}_{mic} (MeV)	M^{FL}_{th} (MeV)
Z = 100 (Fm)																	
160	260	0.21	0.00	0.04	0.01	0.230	0.000	−0.028	−0.018	−4.69	−3.03	1925.56	94.75			−3.00	95.86
161	261	0.21	0.00	0.04	0.01	0.230	0.000	−0.028	−0.018	−4.93	−3.18	1930.25	98.12			−3.17	99.25
162	262	0.21	0.00	0.05	0.01	0.231	0.000	−0.040	−0.021	−5.06	−3.08	1936.34	100.11			−3.04	101.30
163	263	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	−4.91	−3.06	1940.64	103.89			−3.04	105.08
164	264	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	−4.33	−2.53	1946.08	106.51			−2.50	107.75
165	265	0.19	0.00	0.05	0.00	0.208	0.000	−0.045	−0.010	−4.03	−2.32	1949.98	110.69			−2.29	111.96
166	266	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−3.18	−1.75	1955.16	113.58			−1.73	114.89
167	267	0.16	0.00	0.03	0.01	0.174	0.000	−0.024	−0.015	−2.95	−1.79	1959.10	117.70			−1.77	119.06
168	268	0.16	0.00	0.03	0.01	0.174	0.000	−0.024	−0.015	−2.60	−1.52	1964.37	120.50			−1.49	121.92
169	269	0.16	0.00	0.03	0.00	0.174	0.000	−0.025	−0.005	−2.56	−1.41	1967.97	124.98			−1.41	126.42
170	270	0.14	0.00	0.02	0.01	0.151	0.000	−0.015	−0.013	−2.14	−1.21	1973.10	127.92			−1.19	129.43
171	271	0.13	0.00	0.02	0.00	0.140	0.000	−0.017	−0.003	−2.37	−1.53	1976.92	132.17			−1.53	133.73
172	272	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−2.20	−1.42	1981.94	135.22			−1.41	136.84
173	273	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−2.57	−1.78	1985.61	139.62			−1.78	141.31
174	274	0.12	0.00	0.03	−0.01	0.129	0.000	−0.031	0.006	−2.56	−1.65	1990.41	142.89			−1.63	144.67
175	275	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	−3.00	−1.90	1993.78	147.60			−1.86	149.47
176	276	−0.10	0.00	0.01	−0.01	−0.105	0.000	−0.007	0.011	−2.13	−1.63	1998.24	151.21			−1.61	153.13
177	277	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−2.64	−2.11	2001.65	155.87			−2.10	157.86
178	278	−0.10	0.00	0.02	−0.01	−0.105	0.000	−0.019	0.012	−2.55	−2.00	2006.09	159.50			−1.97	161.60
179	279	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−2.49	−1.96	2008.80	164.86			−1.95	167.03
180	280	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−2.13	−1.59	2012.78	168.95			−1.58	171.22
181	281	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−2.28	−1.71	2015.48	174.33			−1.71	176.68
182	282	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.01	−1.46	2019.40	178.48			−1.47	180.92
183	283	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.33	−1.76	2022.09	183.85			−1.77	186.40
184	284	0.00	0.02	0.00	0.00	0.000	−0.027	0.000	0.000	−2.04	−1.42	2025.74	188.28			−1.42	190.94
185	285	0.01	0.06	0.00	0.00	0.012	−0.081	0.002	0.002	−2.07	−0.90	2027.44	194.65			−0.86	197.46
186	286	0.01	0.07	0.00	0.00	0.013	−0.094	0.002	0.003	−1.68	−0.30	2030.66	199.50			−0.25	202.44
187	287	0.03	0.09	−0.01	0.00	0.035	−0.123	0.016	0.006	−2.11	−0.16	2032.57	205.66			−0.07	208.76
188	288	0.03	0.09	−0.01	0.00	0.035	−0.123	0.016	0.006	−1.57	0.33	2035.73	210.57			0.42	213.80
189	289	0.23	0.00	−0.03	0.01	0.249	0.000	0.061	0.001	−1.29	0.27	2037.68	216.70			0.29	219.98
190	290	0.23	0.00	−0.02	0.00	0.250	0.000	0.048	0.008	−1.10	0.23	2041.19	221.26			0.24	224.65
191	291	0.23	0.00	−0.02	0.00	0.250	0.000	0.048	0.008	−1.46	−0.13	2043.27	227.24			−0.13	230.77
192	292	0.23	0.00	−0.02	0.00	0.250	0.000	0.048	0.008	−1.48	−0.14	2046.59	232.00			−0.13	235.67
193	293	0.23	0.00	−0.02	0.01	0.249	0.000	0.048	−0.002	−1.79	−0.43	2048.44	238.22			−0.43	242.02
194	294	0.23	0.00	−0.02	0.01	0.249	0.000	0.048	−0.002	−1.78	−0.35	2051.51	243.22			−0.35	247.18
195	295	0.24	0.00	−0.01	0.01	0.261	0.000	0.038	−0.004	−2.03	−0.64	2053.21	249.59			−0.67	253.67
196	296	0.24	0.00	−0.01	0.01	0.261	0.000	0.038	−0.004	−2.03	−0.65	2056.20	254.67			−0.67	258.91
197	297	0.24	0.00	−0.01	0.02	0.261	0.000	0.039	−0.014	−2.49	−1.04	2057.84	261.10			−1.01	265.54
198	298	0.25	0.00	0.00	0.02	0.273	0.000	0.029	−0.017	−2.52	−1.11	2060.74	266.28			−1.08	270.88
199	299	0.25	0.00	0.00	0.02	0.273	0.000	0.029	−0.017	−2.96	−1.53	2062.27	272.82			−1.51	277.58
200	300	0.26	0.00	0.01	0.03	0.285	0.000	0.021	−0.030	−3.30	−1.76	2065.18	277.98			−1.63	283.03
201	301	0.26	0.00	0.01	0.03	0.285	0.000	0.021	−0.030	−3.76	−2.31	2066.68	284.56			−2.18	289.77
202	302	0.26	0.00	0.01	0.03	0.285	0.000	0.021	−0.030	−3.75	−2.33	2069.22	290.08			−2.19	295.49
203	303	0.25	0.00	0.01	0.03	0.273	0.000	0.018	−0.030	−4.06	−2.67	2070.37	297.00			−2.53	302.59
204	304	0.25	0.00	0.01	0.03	0.273	0.000	0.018	−0.030	−3.86	−2.54	2072.61	302.83			−2.39	308.61
205	305	0.24	0.00	0.00	0.04	0.262	0.000	0.029	−0.037	−4.30	−2.72	2073.47	310.05			−2.44	316.16
206	306	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−4.11	−2.67	2075.64	315.95			−2.38	322.26
207	307	0.22	0.00	−0.01	0.04	0.238	0.000	0.037	−0.035	−4.28	−2.85	2076.35	323.31			−2.56	329.82
208	308	0.22	0.00	−0.01	0.04	0.238	0.000	0.037	−0.035	−4.15	−2.74	2078.33	329.40			−2.44	336.12
209	309	0.21	0.00	−0.02	0.04	0.227	0.000	0.047	−0.033	−4.48	−2.96	2078.94	336.86			−2.65	343.79
210	310	0.21	0.00	−0.02	0.04	0.227	0.000	0.047	−0.033	−4.35	−2.85	2080.77	343.10			−2.53	350.26
211	311	0.21	0.00	−0.02	0.04	0.227	0.000	0.047	−0.033	−4.60	−3.09	2081.28	350.67			−2.78	358.03
212	312	0.21	0.00	−0.01	0.04	0.227	0.000	0.035	−0.036	−4.36	−2.95	2082.94	357.08			−2.62	364.67
213	313	0.21	0.00	−0.01	0.04	0.227	0.000	0.035	−0.036	−4.64	−3.25	2083.36	364.73			−2.93	372.54
214	314	0.20	0.00	−0.01	0.04	0.216	0.000	0.033	−0.036	−4.46	−3.11	2084.90	371.26			−2.78	379.32
215	315	0.21	0.00	0.00	0.04	0.228	0.000	0.023	−0.038	−4.82	−3.51	2085.29	378.93			−3.17	387.23
216	316	0.21	0.00	0.00	0.04	0.228	0.000	0.023	−0.038	−4.73	−3.45	2086.77	385.53			−3.10	394.07

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 100 (Fm)																	
217	317	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−5.17	−3.92	2087.12	393.26			−3.56	402.05
218	318	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−5.13	−3.90	2088.50	399.95			−3.52	409.00
219	319	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−5.47	−4.24	2088.58	407.94			−3.86	417.24
220	320	0.21	0.00	0.02	0.04	0.230	0.000	−0.001	−0.043	−5.47	−4.20	2089.82	414.77			−3.78	424.37
221	321	0.20	0.00	0.02	0.03	0.218	0.000	−0.004	−0.033	−5.40	−4.25	2089.49	423.16			−4.03	432.82
222	322	0.20	0.00	0.03	0.03	0.219	0.000	−0.016	−0.035	−5.24	−4.05	2090.44	430.29			−3.77	440.26
223	323	0.20	0.00	0.03	0.03	0.219	0.000	−0.016	−0.035	−5.43	−4.24	2090.14	438.67			−3.97	448.90
224	324	0.19	0.00	0.03	0.02	0.207	0.000	−0.019	−0.025	−4.84	−3.78	2090.70	446.17			−3.65	456.53
225	325	0.19	0.00	0.03	0.02	0.207	0.000	−0.019	−0.025	−5.02	−3.97	2090.28	454.67			−3.85	465.29
226	326	0.18	0.00	0.04	0.01	0.197	0.000	−0.034	−0.017	−4.76	−3.63	2090.84	462.17			−3.56	473.03
227	327	0.18	0.00	0.04	0.01	0.197	0.000	−0.034	−0.017	−4.94	−3.84	2090.32	470.77			−3.77	481.90
228	328	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−4.52	−3.49	2090.75	478.41			−3.47	489.78
229	329	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−4.88	−3.70	2090.12	487.11			−3.64	498.82
230	330	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−4.48	−3.32	2090.41	494.89			−3.25	506.91
231	331	0.18	0.00	0.06	−0.01	0.197	0.000	−0.059	−0.002	−4.92	−3.47	2089.59	503.78			−3.34	516.15
Z = 101 (Md)																	
128	229	−0.56	0.00	0.01	−0.02	−0.557	0.000	0.104	−0.004	−2.77	4.40	1676.17	93.14			3.86	94.83
129	230	−0.57	0.00	0.01	−0.02	−0.566	0.000	0.107	−0.005	−3.13	4.48	1685.20	92.18			3.89	93.74
130	231	0.27	0.00	0.00	0.01	0.295	0.000	0.033	−0.006	−0.74	0.36	1699.83	85.63			0.26	87.60
131	232	0.27	0.00	0.00	0.01	0.295	0.000	0.033	−0.006	−1.01	0.16	1708.83	84.69			0.05	86.58
132	233	0.28	0.00	0.01	0.01	0.307	0.000	0.023	−0.009	−1.08	0.08	1719.10	82.50			−0.02	84.32
133	234	0.28	0.00	0.01	0.01	0.307	0.000	0.023	−0.009	−1.37	−0.17	1727.84	81.83			−0.28	83.57
134	235	0.28	0.00	0.01	0.02	0.307	0.000	0.025	−0.019	−1.62	−0.28	1737.83	79.91			−0.36	81.61
135	236	0.28	0.00	0.01	0.02	0.307	0.000	0.025	−0.019	−1.93	−0.59	1746.35	79.47			−0.69	81.10
136	237	0.27	0.00	0.00	0.02	0.295	0.000	0.034	−0.016	−1.94	−0.48	1755.81	78.07			−0.55	79.67
137	238	0.26	0.00	−0.01	0.03	0.283	0.000	0.045	−0.023	−2.42	−0.69	1763.94	78.02			−0.75	79.57
138	239	0.26	0.00	−0.01	0.03	0.283	0.000	0.045	−0.023	−2.54	−0.79	1773.32	76.71			−0.83	78.23
139	240	0.24	0.00	−0.02	0.03	0.260	0.000	0.052	−0.021	−2.95	−1.11	1781.26	76.83			−1.14	78.31
140	241	0.23	0.00	−0.03	0.03	0.249	0.000	0.062	−0.019	−3.35	−1.43	1790.58	75.59			−1.44	77.04
141	242	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−3.79	−1.90	1798.40	75.84			−1.91	77.24
142	243	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−4.03	−2.18	1807.40	74.92			−2.18	76.29
143	244	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−4.49	−2.57	1814.86	75.52			−2.58	76.85
144	245	0.22	0.00	−0.03	0.04	0.237	0.000	0.061	−0.030	−4.84	−2.69	1823.42	75.03			−2.66	76.37
145	246	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−5.18	−3.10	1830.64	75.88			−3.08	77.18
146	247	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−5.31	−3.22	1838.93	75.67			−3.18	76.95
147	248	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−5.77	−3.64	1845.91	76.76			−3.61	78.01
148	249	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−5.77	−3.72	1853.90	76.85			−3.68	78.09
149	250	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−6.27	−4.18	1860.65	78.16			−4.14	79.38
150	251	0.23	0.00	0.00	0.04	0.250	0.000	0.027	−0.037	−6.36	−4.30	1868.42	78.46			−4.24	79.68
151	252	0.23	0.00	0.00	0.04	0.250	0.000	0.027	−0.037	−6.79	−4.70	1874.87	80.08			−4.65	81.28
152	253	0.23	0.00	0.01	0.04	0.251	0.000	0.015	−0.040	−6.74	−4.63	1882.19	80.83			−4.56	82.04
153	254	0.23	0.00	0.01	0.04	0.251	0.000	0.015	−0.040	−6.65	−4.55	1887.92	83.18			−4.49	84.37
154	255	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−6.06	−4.18	1894.71	84.46	84.84	0.007	−4.15	85.63
155	256	0.22	0.00	0.02	0.03	0.240	0.000	−0.000	−0.033	−5.91	−4.09	1900.18	87.06	87.61	0.053	−4.06	88.22
156	257	0.22	0.00	0.02	0.03	0.240	0.000	−0.000	−0.033	−5.46	−3.70	1906.70	88.62	89.00	0.003	−3.65	89.80
157	258	0.22	0.00	0.03	0.02	0.241	0.000	−0.013	−0.026	−5.44	−3.74	1912.07	91.31	91.69	0.005	−3.73	92.46
158	259	0.22	0.00	0.03	0.02	0.241	0.000	−0.013	−0.026	−5.14	−3.47	1918.48	92.97			−3.45	94.14
159	260	0.21	0.00	0.04	0.01	0.230	0.000	−0.028	−0.018	−5.35	−3.66	1923.78	95.75			−3.67	96.91
160	261	0.21	0.00	0.04	0.01	0.230	0.000	−0.028	−0.018	−5.28	−3.54	1930.10	97.50			−3.54	98.68
161	262	0.21	0.00	0.05	0.01	0.231	0.000	−0.040	−0.021	−5.78	−3.80	1935.24	100.43			−3.78	101.64
162	263	0.21	0.00	0.05	0.01	0.231	0.000	−0.040	−0.021	−5.67	−3.68	1941.34	102.40			−3.65	103.65
163	264	0.21	0.00	0.06	0.00	0.231	0.000	−0.053	−0.013	−5.86	−3.68	1946.01	105.81			−3.66	107.07
164	265	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	−4.94	−3.13	1951.44	108.44			−3.11	109.74
165	266	0.19	0.00	0.05	0.00	0.208	0.000	−0.045	−0.010	−4.60	−2.88	1955.65	112.30			−2.87	113.63
166	267	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−3.71	−2.26	1960.80	115.22			−2.25	116.58
167	268	0.17	0.00	0.04	0.01	0.185	0.000	−0.035	−0.017	−3.64	−2.23	1965.01	119.08			−2.20	120.50
168	269	0.16	0.00	0.03	0.01	0.174	0.000	−0.024	−0.015	−3.03	−1.92	1970.27	121.89			−1.91	123.35

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 101 (Md)																	
169	270	0.16	0.00	0.03	0.01	0.174	0.000	−0.024	−0.015	−3.04	−1.82	1974.20	126.04			−1.80	127.53
170	271	0.14	0.00	0.02	0.01	0.151	0.000	−0.015	−0.013	−2.49	−1.54	1979.28	129.03			−1.53	130.57
171	272	0.13	0.00	0.02	0.00	0.140	0.000	−0.017	−0.003	−2.69	−1.84	1983.42	132.96			−1.85	134.54
172	273	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−2.50	−1.72	1988.44	136.01			−1.72	137.65
173	274	0.12	0.00	0.02	0.00	0.129	0.000	−0.018	−0.002	−2.87	−2.08	1992.44	140.08			−2.08	141.78
174	275	0.12	0.00	0.03	−0.01	0.129	0.000	−0.031	0.006	−2.86	−1.95	1997.27	143.33			−1.93	145.12
175	276	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	−3.29	−2.19	2000.95	147.71			−2.16	149.59
176	277	0.12	0.00	0.04	−0.02	0.130	0.000	−0.043	0.014	−2.96	−1.85	2005.36	151.37			−1.77	153.36
177	278	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−2.78	−2.25	2009.03	155.78			−2.25	157.77
178	279	−0.10	0.00	0.02	−0.01	−0.105	0.000	−0.019	0.012	−2.67	−2.13	2013.47	159.41			−2.11	161.50
179	280	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−2.59	−2.07	2016.48	164.47			−2.07	166.62
180	281	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−2.21	−1.67	2020.46	168.56			−1.67	170.81
181	282	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−2.33	−1.77	2023.45	173.65			−1.77	175.97
182	283	0.00	0.03	0.00	0.00	0.000	−0.040	0.000	0.001	−2.18	−1.49	2027.36	177.80			−1.49	180.23
183	284	0.01	0.03	0.00	0.00	0.011	−0.040	0.000	0.001	−2.50	−1.79	2030.37	182.86			−1.79	185.39
184	285	0.00	0.04	0.00	0.00	0.001	−0.054	0.001	0.001	−2.28	−1.46	2034.05	187.26			−1.45	189.89
185	286	0.01	0.07	0.00	0.00	0.013	−0.094	0.002	0.003	−2.43	−1.02	2036.15	193.23			−0.98	196.00
186	287	0.01	0.08	0.00	0.00	0.014	−0.108	0.003	0.004	−2.10	−0.44	2039.40	198.05			−0.38	200.95
187	288	0.02	0.09	−0.01	0.00	0.025	−0.122	0.015	0.006	−2.24	−0.32	2041.65	203.87			−0.25	206.90
188	289	0.03	0.10	−0.01	0.01	0.036	−0.135	0.016	−0.003	−2.02	0.20	2044.78	208.81			0.31	211.99
189	290	0.23	0.00	−0.02	0.01	0.249	0.000	0.048	−0.002	−1.23	0.12	2047.07	214.60			0.11	217.78
190	291	0.23	0.00	−0.02	0.00	0.250	0.000	0.048	0.008	−1.31	0.01	2050.66	219.07			0.00	222.38
191	292	0.23	0.00	−0.02	0.00	0.250	0.000	0.048	0.008	−1.63	−0.33	2053.03	224.78			−0.34	228.20
192	293	0.23	0.00	−0.01	0.00	0.250	0.000	0.035	0.005	−1.49	−0.33	2056.35	229.53			−0.35	233.07
193	294	0.23	0.00	−0.01	0.00	0.250	0.000	0.035	0.005	−1.83	−0.62	2058.52	235.43			−0.66	239.10
194	295	0.23	0.00	−0.01	0.01	0.250	0.000	0.036	−0.005	−1.83	−0.62	2061.67	240.36			−0.63	244.18
195	296	0.24	0.00	−0.01	0.01	0.261	0.000	0.038	−0.004	−2.23	−0.86	2063.63	246.46			−0.90	250.42
196	297	0.24	0.00	0.00	0.01	0.261	0.000	0.026	−0.007	−2.15	−0.86	2066.62	251.54			−0.89	255.65
197	298	0.24	0.00	0.00	0.01	0.261	0.000	0.026	−0.007	−2.54	−1.34	2068.66	257.58			−1.38	261.82
198	299	0.25	0.00	0.00	0.02	0.273	0.000	0.029	−0.017	−2.76	−1.36	2071.52	262.79			−1.35	267.25
199	300	0.25	0.00	0.01	0.02	0.273	0.000	0.017	−0.020	−3.20	−1.91	2073.47	268.91			−1.89	273.53
200	301	0.25	0.00	0.01	0.02	0.273	0.000	0.017	−0.020	−3.32	−2.02	2076.26	274.19			−1.99	278.98
201	302	0.26	0.00	0.02	0.02	0.285	0.000	0.007	−0.023	−3.88	−2.50	2078.00	280.52			−2.48	285.48
202	303	0.26	0.00	0.02	0.03	0.285	0.000	0.009	−0.033	−4.12	−2.65	2080.67	285.92			−2.50	291.17
203	304	0.25	0.00	0.01	0.03	0.273	0.000	0.018	−0.030	−4.34	−2.95	2082.09	292.57			−2.83	297.98
204	305	0.24	0.00	0.01	0.03	0.262	0.000	0.016	−0.030	−4.10	−2.80	2084.31	298.42			−2.66	304.02
205	306	0.24	0.00	0.01	0.03	0.262	0.000	0.016	−0.030	−4.28	−3.03	2085.52	305.29			−2.90	311.07
206	307	0.23	0.00	0.00	0.03	0.250	0.000	0.026	−0.027	−4.06	−2.79	2087.50	311.37			−2.66	317.34
207	308	0.22	0.00	−0.01	0.04	0.238	0.000	0.037	−0.035	−4.51	−3.08	2088.62	318.33			−2.80	324.63
208	309	0.22	0.00	−0.01	0.04	0.238	0.000	0.037	−0.035	−4.37	−2.97	2090.59	324.42			−2.68	330.93
209	310	0.21	0.00	−0.02	0.04	0.227	0.000	0.047	−0.033	−4.64	−3.20	2091.51	331.58			−2.91	338.29
210	311	0.21	0.00	−0.01	0.04	0.227	0.000	0.035	−0.036	−4.45	−3.05	2093.31	337.85			−2.75	344.77
211	312	0.21	0.00	−0.01	0.04	0.227	0.000	0.035	−0.036	−4.73	−3.30	2094.11	345.13			−3.00	352.25
212	313	0.21	0.00	−0.01	0.04	0.227	0.000	0.035	−0.036	−4.59	−3.17	2095.79	351.51			−2.87	358.86
213	314	0.20	0.00	−0.01	0.04	0.216	0.000	0.033	−0.036	−4.85	−3.47	2096.50	358.88			−3.16	366.44
214	315	0.21	0.00	0.00	0.04	0.228	0.000	0.023	−0.038	−4.76	−3.40	2098.11	365.34			−3.08	373.14
215	316	0.20	0.00	0.00	0.04	0.217	0.000	0.021	−0.038	−5.09	−3.80	2098.79	372.73			−3.47	380.76
216	317	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−5.10	−3.80	2100.32	379.27			−3.44	387.55
217	318	0.21	0.00	0.01	0.04	0.229	0.000	0.011	−0.041	−5.52	−4.25	2100.94	386.72			−3.91	395.24
218	319	0.21	0.00	0.02	0.04	0.230	0.000	−0.001	−0.043	−5.57	−4.26	2102.35	393.38			−3.87	402.18
219	320	0.21	0.00	0.02	0.04	0.230	0.000	−0.001	−0.043	−5.96	−4.64	2102.76	401.04			−4.25	410.08
220	321	0.21	0.00	0.02	0.04	0.230	0.000	−0.001	−0.043	−5.87	−4.58	2103.97	407.90			−4.18	417.20
221	322	0.21	0.00	0.03	0.03	0.230	0.000	−0.014	−0.035	−5.97	−4.69	2103.99	415.96			−4.45	425.34
222	323	0.20	0.00	0.03	0.03	0.219	0.000	−0.016	−0.035	−5.70	−4.47	2104.92	423.10			−4.22	432.75
223	324	0.20	0.00	0.03	0.03	0.219	0.000	−0.016	−0.035	−5.89	−4.67	2104.90	431.19			−4.41	441.10
224	325	0.20	0.00	0.03	0.02	0.219	0.000	−0.017	−0.025	−5.29	−4.19	2105.44	438.72			−4.08	448.74
225	326	0.19	0.00	0.04	0.02	0.208	0.000	−0.031	−0.027	−5.64	−4.43	2105.35	446.89			−4.27	457.23

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E^{FL}_{mic} (MeV)	M^{FL}_{th} (MeV)
Z = 101 (Md)																	
226	327	0.18	0.00	0.04	0.01	0.197	0.000	−0.034	−0.017	−5.18	−4.03	2105.85	454.45			−3.97	464.97
227	328	0.18	0.00	0.04	0.01	0.197	0.000	−0.034	−0.017	−5.36	−4.24	2105.60	462.78			−4.18	473.56
228	329	0.18	0.00	0.04	0.00	0.196	0.000	−0.034	−0.007	−4.93	−3.89	2106.03	470.41			−3.88	481.43
229	330	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−5.31	−4.11	2105.68	478.84			−4.05	490.19
230	331	0.18	0.00	0.05	−0.01	0.197	0.000	−0.047	0.000	−4.89	−3.63	2105.86	486.73			−3.56	498.37
231	332	0.18	0.00	0.06	−0.01	0.197	0.000	−0.059	−0.002	−5.33	−3.85	2105.40	495.26			−3.73	507.25
232	333	0.17	0.00	0.06	−0.01	0.186	0.000	−0.061	−0.001	−4.97	−3.50	2105.60	503.14			−3.36	515.44
233	334	0.17	0.00	0.07	−0.02	0.186	0.000	−0.074	0.007	−5.48	−3.75	2105.04	511.76			−3.48	524.49
Z = 102 (No)																	
130	232	−0.57	0.00	0.01	−0.02	−0.566	0.000	0.107	−0.005	−2.52	4.72	1695.11	97.63			4.21	99.44
131	233	0.28	0.00	0.01	0.00	0.307	0.000	0.022	0.001	−0.64	0.34	1708.33	92.49			0.23	94.61
132	234	0.28	0.00	0.01	0.01	0.307	0.000	0.023	−0.009	−0.77	0.27	1718.98	89.91			0.17	91.97
133	235	0.28	0.00	0.01	0.01	0.307	0.000	0.023	−0.009	−1.07	0.03	1727.76	89.20			−0.08	91.18
134	236	0.29	0.00	0.02	0.01	0.319	0.000	0.014	−0.013	−1.21	−0.08	1738.13	86.90			−0.17	88.82
135	237	0.28	0.00	0.01	0.02	0.307	0.000	0.025	−0.019	−1.60	−0.35	1746.64	86.46			−0.44	88.32
136	238	0.28	0.00	0.01	0.02	0.307	0.000	0.025	−0.019	−1.62	−0.38	1756.64	84.54			−0.46	86.35
137	239	0.28	0.00	0.01	0.02	0.307	0.000	0.025	−0.019	−1.87	−0.52	1764.72	84.52			−0.60	86.27
138	240	0.26	0.00	0.00	0.02	0.284	0.000	0.032	−0.016	−1.92	−0.56	1774.43	82.89			−0.61	84.61
139	241	0.25	0.00	−0.01	0.03	0.272	0.000	0.043	−0.024	−2.50	−0.85	1782.38	83.01			−0.89	84.69
140	242	0.23	0.00	−0.02	0.03	0.249	0.000	0.050	−0.022	−2.79	−1.14	1792.04	81.42			−1.15	83.07
141	243	0.23	0.00	−0.02	0.03	0.249	0.000	0.050	−0.022	−3.24	−1.59	1799.88	81.65			−1.61	83.25
142	244	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−3.60	−1.86	1809.23	80.37			−1.86	81.94
143	245	0.22	0.00	−0.03	0.03	0.237	0.000	0.060	−0.020	−4.06	−2.25	1816.73	80.94			−2.25	82.47
144	246	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−4.32	−2.39	1825.69	80.06			−2.36	81.58
145	247	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−4.79	−2.81	1832.95	80.87			−2.78	82.34
146	248	0.23	0.00	−0.02	0.04	0.249	0.000	0.051	−0.032	−4.92	−2.93	1841.60	80.29			−2.88	81.74
147	249	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−5.32	−3.36	1848.62	81.34			−3.33	82.75
148	250	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−5.44	−3.48	1857.01	81.02			−3.43	82.43
149	251	0.23	0.00	0.00	0.04	0.250	0.000	0.027	−0.037	−5.93	−3.96	1863.82	82.28			−3.92	83.65
150	252	0.23	0.00	0.00	0.04	0.250	0.000	0.027	−0.037	−6.10	−4.12	1871.99	82.18	82.88	0.013	−4.06	83.55
151	253	0.23	0.00	0.01	0.04	0.251	0.000	0.015	−0.040	−6.61	−4.55	1878.51	83.74			−4.50	85.09
152	254	0.23	0.00	0.01	0.04	0.251	0.000	0.015	−0.040	−6.55	−4.52	1886.23	84.09	84.72	0.018	−4.45	85.44
153	255	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−6.28	−4.44	1891.98	86.40	86.85	0.010	−4.41	87.70
154	256	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−5.94	−4.14	1899.19	87.27	87.82	0.008	−4.09	88.57
155	257	0.22	0.00	0.02	0.03	0.240	0.000	−0.000	−0.033	−5.82	−4.07	1904.72	89.81	90.24	0.022	−4.03	91.10
156	258	0.22	0.00	0.03	0.02	0.241	0.000	−0.013	−0.026	−5.34	−3.68	1911.59	91.01			−3.66	92.28
157	259	0.22	0.00	0.03	0.02	0.241	0.000	−0.013	−0.026	−5.44	−3.80	1917.07	93.60			−3.78	94.87
158	260	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−5.39	−3.59	1923.89	94.85			−3.56	96.15
159	261	0.21	0.00	0.04	0.01	0.230	0.000	−0.028	−0.018	−5.50	−3.79	1929.22	97.59			−3.79	98.86
160	262	0.21	0.00	0.05	0.01	0.231	0.000	−0.040	−0.021	−5.71	−3.79	1936.02	98.87			−3.77	100.18
161	263	0.21	0.00	0.05	0.01	0.231	0.000	−0.040	−0.021	−6.01	−4.06	1941.19	101.76			−4.04	103.08
162	264	0.21	0.00	0.06	0.00	0.231	0.000	−0.053	−0.013	−6.15	−4.00	1947.70	103.33			−3.97	104.68
163	265	0.20	0.00	0.06	0.00	0.220	0.000	−0.055	−0.013	−6.17	−4.05	1952.44	106.66			−4.03	108.03
164	266	0.20	0.00	0.06	0.00	0.220	0.000	−0.055	−0.013	−5.60	−3.54	1958.26	108.91			−3.50	110.31
165	267	0.19	0.00	0.06	0.00	0.209	0.000	−0.057	−0.012	−5.25	−3.27	1962.46	112.78			−3.23	114.21
166	268	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−4.34	−2.73	1968.05	115.27			−2.70	116.72
167	269	0.17	0.00	0.04	0.00	0.185	0.000	−0.036	−0.007	−3.93	−2.61	1972.18	119.20			−2.60	120.67
168	270	0.16	0.00	0.04	0.00	0.174	0.000	−0.037	−0.007	−3.50	−2.29	1977.77	121.69			−2.27	123.20
169	271	0.16	0.00	0.04	0.00	0.174	0.000	−0.037	−0.007	−3.53	−2.20	1981.74	125.79			−2.18	127.34
170	272	0.14	0.00	0.03	0.00	0.152	0.000	−0.028	−0.004	−2.92	−1.90	1987.13	128.47			−1.89	130.06
171	273	0.13	0.00	0.03	0.00	0.141	0.000	−0.029	−0.004	−3.19	−2.21	1991.30	132.37			−2.20	134.01
172	274	0.12	0.00	0.03	0.00	0.130	0.000	−0.030	−0.004	−2.99	−2.06	1996.64	135.11			−2.05	136.80
173	275	0.12	0.00	0.03	0.00	0.130	0.000	−0.030	−0.004	−3.38	−2.44	2000.67	139.14			−2.43	140.89
174	276	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	−3.41	−2.30	2005.81	142.07			−2.26	143.91
175	277	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	−3.68	−2.57	2009.55	146.41			−2.53	148.31
176	278	0.12	0.00	0.04	−0.02	0.130	0.000	−0.043	0.014	−3.33	−2.20	2014.26	149.76			−2.13	151.76
177	279	−0.10	0.00	0.02	−0.01	−0.105	0.000	−0.019	0.012	−3.07	−2.51	2017.85	154.25			−2.49	156.27

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 102 (No)																	
178	280	−0.10	0.00	0.02	−0.01	−0.105	0.000	−0.019	0.012	−2.91	−2.36	2022.59	157.58			−2.34	159.67
179	281	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−2.87	−2.34	2025.66	162.58			−2.33	164.74
180	282	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	−2.36	−1.85	2029.87	166.44			−1.85	168.67
181	283	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−2.65	−2.09	2033.01	171.37			−2.09	173.69
182	284	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.32	−1.78	2037.22	175.24			−1.79	177.64
183	285	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.62	−2.07	2040.23	180.29			−2.07	182.79
184	286	0.00	0.03	0.00	0.00	0.000	−0.040	0.000	0.001	−2.39	−1.70	2044.19	184.41			−1.69	187.00
185	287	0.01	0.06	0.00	0.00	0.012	−0.081	0.002	0.002	−2.38	−1.21	2046.25	190.42			−1.17	193.14
186	288	0.01	0.07	0.00	0.00	0.013	−0.094	0.002	0.003	−1.99	−0.60	2049.79	194.95			−0.55	197.79
187	289	0.02	0.09	−0.01	0.00	0.025	−0.122	0.015	0.006	−2.33	−0.32	2051.89	200.92			−0.24	203.90
188	290	0.02	0.09	−0.01	0.01	0.025	−0.122	0.015	−0.004	−1.71	0.16	2055.39	205.49			0.25	208.60
189	291	0.03	0.10	−0.01	0.01	0.036	−0.135	0.016	−0.003	−2.05	0.15	2057.61	211.35			0.26	214.58
190	292	0.23	0.00	−0.01	0.00	0.250	0.000	0.035	0.005	−0.91	0.18	2061.38	215.64			0.16	218.88
191	293	0.23	0.00	−0.01	0.00	0.250	0.000	0.035	0.005	−1.23	−0.15	2063.75	221.34			−0.17	224.69
192	294	0.23	0.00	−0.01	0.00	0.250	0.000	0.035	0.005	−1.28	−0.19	2067.43	225.74			−0.21	229.22
193	295	0.23	0.00	−0.01	0.00	0.250	0.000	0.035	0.005	−1.62	−0.49	2069.61	231.63			−0.51	235.23
194	296	0.23	0.00	−0.01	0.00	0.250	0.000	0.035	0.005	−1.61	−0.44	2073.02	236.29			−0.45	240.03
195	297	0.24	0.00	0.00	0.01	0.261	0.000	0.026	−0.007	−1.91	−0.74	2075.05	242.34			−0.77	246.20
196	298	0.24	0.00	0.00	0.01	0.261	0.000	0.026	−0.007	−1.96	−0.80	2078.41	247.04			−0.82	251.06
197	299	0.24	0.00	0.00	0.01	0.261	0.000	0.026	−0.007	−2.35	−1.16	2080.34	253.19			−1.19	257.34
198	300	0.25	0.00	0.01	0.02	0.273	0.000	0.017	−0.020	−2.58	−1.34	2083.66	257.94			−1.31	262.30
199	301	0.25	0.00	0.01	0.02	0.273	0.000	0.017	−0.020	−3.05	−1.80	2085.53	264.14			−1.77	268.65
200	302	0.26	0.00	0.02	0.02	0.285	0.000	0.007	−0.023	−3.27	−1.96	2088.67	269.07			−1.91	273.75
201	303	0.26	0.00	0.02	0.02	0.285	0.000	0.007	−0.023	−3.74	−2.42	2090.40	275.41			−2.39	280.25
202	304	0.26	0.00	0.02	0.03	0.285	0.000	0.009	−0.033	−3.98	−2.56	2093.37	280.51			−2.41	285.64
203	305	0.25	0.00	0.02	0.03	0.274	0.000	0.006	−0.033	−4.26	−2.86	2094.78	287.17			−2.70	292.46
204	306	0.25	0.00	0.02	0.03	0.274	0.000	0.006	−0.033	−4.06	−2.72	2097.32	292.70			−2.55	298.18
205	307	0.24	0.00	0.01	0.03	0.262	0.000	0.016	−0.030	−4.13	−2.91	2098.48	299.61			−2.77	305.24
206	308	0.24	0.00	0.01	0.03	0.262	0.000	0.016	−0.030	−3.92	−2.64	2100.75	305.42			−2.49	311.24
207	309	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−4.04	−2.78	2101.71	312.52			−2.64	318.52
208	310	0.22	0.00	0.00	0.03	0.239	0.000	0.024	−0.028	−3.86	−2.66	2103.97	318.34			−2.51	324.53
209	311	0.22	0.00	0.00	0.03	0.239	0.000	0.024	−0.028	−4.06	−2.83	2104.83	325.55			−2.69	331.92
210	312	0.21	0.00	−0.01	0.04	0.227	0.000	0.035	−0.036	−4.21	−2.87	2107.11	331.34			−2.57	338.07
211	313	0.21	0.00	−0.01	0.04	0.227	0.000	0.035	−0.036	−4.49	−3.12	2107.92	338.61			−2.82	345.53
212	314	0.21	0.00	0.00	0.03	0.228	0.000	0.022	−0.028	−4.08	−2.88	2109.77	344.82			−2.72	351.81
213	315	0.20	0.00	0.00	0.03	0.217	0.000	0.020	−0.028	−4.37	−3.19	2110.51	352.16			−3.04	359.36
214	316	0.21	0.00	0.01	0.03	0.228	0.000	0.010	−0.031	−4.37	−3.19	2112.46	358.28			−3.01	365.71
215	317	0.21	0.00	0.01	0.03	0.228	0.000	0.010	−0.031	−4.73	−3.55	2113.11	365.70			−3.38	373.34
216	318	0.20	0.00	0.01	0.03	0.217	0.000	0.008	−0.031	−4.71	−3.62	2115.00	371.88			−3.43	379.76
217	319	0.20	0.00	0.01	0.03	0.217	0.000	0.008	−0.031	−5.14	−4.05	2115.59	379.36			−3.87	387.46
218	320	0.21	0.00	0.02	0.03	0.229	0.000	−0.002	−0.033	−5.21	−4.06	2117.29	385.73			−3.85	394.09
219	321	0.20	0.00	0.02	0.03	0.218	0.000	−0.004	−0.033	−5.61	−4.46	2117.72	393.38			−4.25	401.97
220	322	0.21	0.00	0.03	0.03	0.230	0.000	−0.014	−0.035	−5.66	−4.41	2119.23	399.93			−4.16	408.81
221	323	0.20	0.00	0.03	0.03	0.219	0.000	−0.016	−0.035	−6.00	−4.78	2119.50	407.74			−4.52	416.86
222	324	0.20	0.00	0.03	0.03	0.219	0.000	−0.016	−0.035	−5.77	−4.56	2120.71	414.60			−4.30	423.97
223	325	0.20	0.00	0.04	0.02	0.219	0.000	−0.029	−0.028	−5.92	−4.67	2120.60	422.77			−4.52	432.29
224	326	0.19	0.00	0.04	0.02	0.208	0.000	−0.031	−0.027	−5.62	−4.41	2121.64	429.81			−4.24	439.60
225	327	0.19	0.00	0.04	0.01	0.208	0.000	−0.032	−0.018	−5.70	−4.56	2121.46	438.06			−4.50	448.00
226	328	0.18	0.00	0.04	0.01	0.197	0.000	−0.034	−0.017	−5.44	−4.30	2122.38	445.22			−4.23	455.43
227	329	0.18	0.00	0.04	0.01	0.197	0.000	−0.034	−0.017	−5.61	−4.50	2122.11	453.55			−4.43	464.02
228	330	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−5.45	−4.23	2122.90	460.83			−4.16	471.58
229	331	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−5.61	−4.28	2122.38	469.43			−4.22	480.45
230	332	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−5.51	−3.98	2123.02	476.86			−3.85	488.23
231	333	0.18	0.00	0.06	−0.01	0.197	0.000	−0.059	−0.002	−5.67	−4.18	2122.52	485.43			−4.05	497.07
232	334	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−5.64	−3.90	2123.06	492.96			−3.69	504.98
233	335	0.17	0.00	0.07	−0.01	0.187	0.000	−0.072	−0.003	−5.81	−4.04	2122.39	501.70			−3.82	514.01
234	336	0.09	0.00	−0.02	0.01	0.096	0.000	0.028	−0.008	−4.03	−3.47	2122.53	509.64			−3.43	522.07

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 102 (No)																	
235	337	0.10	0.00	−0.01	0.01	0.107	0.000	0.017	−0.009	−4.33	−3.81	2121.96	518.28			−3.80	530.98
236	338	0.10	0.00	−0.01	0.02	0.107	0.000	0.017	−0.019	−4.25	−3.72	2122.45	525.86			−3.61	538.96
Z = 103 (Lr)																	
132	235	0.28	0.00	0.02	0.01	0.308	0.000	0.011	−0.013	−0.87	0.12	1716.75	99.43			−0.01	101.72
133	236	0.28	0.00	0.02	0.01	0.308	0.000	0.011	−0.013	−1.17	−0.14	1725.92	98.33			−0.27	100.53
134	237	0.28	0.00	0.02	0.01	0.308	0.000	0.011	−0.013	−1.29	−0.25	1736.34	95.98			−0.36	98.13
135	238	0.28	0.00	0.02	0.01	0.308	0.000	0.011	−0.013	−1.57	−0.49	1745.20	95.19			−0.62	97.25
136	239	0.28	0.00	0.02	0.02	0.308	0.000	0.013	−0.023	−1.74	−0.54	1755.25	93.22			−0.64	95.24
137	240	0.28	0.00	0.02	0.02	0.308	0.000	0.013	−0.023	−1.99	−0.69	1763.72	92.81			−0.80	94.75
138	241	0.26	0.00	0.01	0.02	0.284	0.000	0.020	−0.020	−1.95	−0.68	1773.41	91.19			−0.75	93.11
139	242	0.25	0.00	0.00	0.02	0.273	0.000	0.029	−0.017	−2.26	−0.94	1781.72	90.96			−1.02	92.82
140	243	0.23	0.00	−0.01	0.02	0.250	0.000	0.037	−0.015	−2.48	−1.13	1791.31	89.43			−1.18	91.26
141	244	0.23	0.00	−0.02	0.03	0.249	0.000	0.050	−0.022	−3.20	−1.54	1799.48	89.34			−1.58	91.12
142	245	0.22	0.00	−0.02	0.03	0.238	0.000	0.048	−0.022	−3.41	−1.90	1808.96	87.93			−1.92	89.68
143	246	0.22	0.00	−0.02	0.03	0.238	0.000	0.048	−0.022	−3.86	−2.27	1816.82	88.14			−2.30	89.84
144	247	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−3.96	−2.43	1825.82	87.22			−2.45	88.88
145	248	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−4.41	−2.83	1833.43	87.68			−2.85	89.29
146	249	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−4.86	−3.01	1842.18	86.99			−3.00	88.61
147	250	0.23	0.00	−0.01	0.04	0.250	0.000	0.039	−0.035	−5.36	−3.46	1849.58	87.67			−3.45	89.24
148	251	0.23	0.00	0.00	0.04	0.250	0.000	0.027	−0.037	−5.53	−3.64	1858.06	87.25			−3.61	88.81
149	252	0.23	0.00	0.00	0.04	0.250	0.000	0.027	−0.037	−6.06	−4.14	1865.26	88.13			−4.12	89.65
150	253	0.23	0.00	0.01	0.04	0.251	0.000	0.015	−0.040	−6.33	−4.36	1873.52	87.95			−4.32	89.46
151	254	0.23	0.00	0.01	0.04	0.251	0.000	0.015	−0.040	−6.82	−4.81	1880.40	89.13			−4.77	90.62
152	255	0.23	0.00	0.02	0.04	0.252	0.000	0.003	−0.043	−6.92	−4.83	1888.22	89.39			−4.78	90.88
153	256	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−6.59	−4.78	1894.36	91.32			−4.78	92.74
154	257	0.23	0.00	0.03	0.03	0.252	0.000	−0.010	−0.036	−6.45	−4.54	1901.66	92.09			−4.51	93.53
155	258	0.22	0.00	0.03	0.03	0.241	0.000	−0.012	−0.036	−6.39	−4.51	1907.57	94.25			−4.48	95.67
156	259	0.22	0.00	0.03	0.02	0.241	0.000	−0.013	−0.026	−5.79	−4.15	1914.51	95.38			−4.15	96.78
157	260	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−6.13	−4.32	1920.39	97.57			−4.32	98.96
158	261	0.21	0.00	0.04	0.02	0.230	0.000	−0.027	−0.028	−5.90	−4.15	1927.27	98.76			−4.13	100.17
159	262	0.21	0.00	0.05	0.01	0.231	0.000	−0.040	−0.021	−6.31	−4.39	1932.99	101.12			−4.39	102.50
160	263	0.21	0.00	0.05	0.01	0.231	0.000	−0.040	−0.021	−6.33	−4.42	1939.84	102.33			−4.41	103.74
161	264	0.21	0.00	0.05	0.01	0.231	0.000	−0.040	−0.021	−6.62	−4.68	1945.36	104.89			−4.68	106.30
162	265	0.21	0.00	0.06	0.00	0.231	0.000	−0.053	−0.013	−6.81	−4.66	1951.92	106.39			−4.65	107.83
163	266	0.20	0.00	0.06	0.00	0.220	0.000	−0.055	−0.013	−6.83	−4.71	1957.01	109.38			−4.70	110.83
164	267	0.20	0.00	0.06	0.00	0.220	0.000	−0.055	−0.013	−6.27	−4.20	1962.86	111.60			−4.18	113.08
165	268	0.19	0.00	0.06	0.00	0.209	0.000	−0.057	−0.012	−5.90	−3.91	1967.38	115.15			−3.88	116.65
166	269	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−4.95	−3.33	1972.94	117.66			−3.31	119.18
167	270	0.17	0.00	0.05	0.00	0.186	0.000	−0.048	−0.009	−4.75	−3.18	1977.39	121.28			−3.16	122.83
168	271	0.16	0.00	0.04	0.00	0.174	0.000	−0.037	−0.007	−4.04	−2.82	1982.96	123.79			−2.81	125.36
169	272	0.16	0.00	0.04	0.00	0.174	0.000	−0.037	−0.007	−4.06	−2.72	1987.26	127.56			−2.71	129.17
170	273	0.15	0.00	0.04	0.00	0.163	0.000	−0.039	−0.006	−3.61	−2.36	1992.61	130.28			−2.34	131.94
171	274	0.13	0.00	0.03	0.00	0.141	0.000	−0.029	−0.004	−3.62	−2.63	1997.07	133.88			−2.63	135.58
172	275	0.12	0.00	0.03	0.00	0.130	0.000	−0.030	−0.004	−3.41	−2.47	2002.42	136.61			−2.46	138.36
173	276	0.12	0.00	0.03	0.00	0.130	0.000	−0.030	−0.004	−3.79	−2.85	2006.79	140.32			−2.84	142.11
174	277	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	−3.83	−2.70	2011.94	143.23			−2.67	145.10
175	278	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	−4.08	−2.97	2016.00	147.24			−2.94	149.17
176	279	0.12	0.00	0.04	−0.02	0.130	0.000	−0.043	0.014	−3.73	−2.59	2020.73	150.59			−2.53	152.61
177	280	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−3.27	−2.73	2024.47	154.92			−2.73	156.94
178	281	−0.10	0.00	0.02	−0.01	−0.105	0.000	−0.019	0.012	−3.14	−2.59	2029.23	158.23			−2.57	160.34
179	282	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−3.12	−2.58	2032.64	162.89			−2.58	165.06
180	283	−0.07	0.00	0.02	0.00	−0.073	0.000	−0.021	0.002	−2.72	−2.16	2036.94	166.66			−2.16	168.90
181	284	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−2.84	−2.28	2040.29	171.38			−2.28	173.70
182	285	−0.03	0.01	0.01	0.00	−0.032	−0.013	−0.011	0.000	−2.54	−1.96	2044.49	175.26			−1.95	177.66
183	286	0.00	0.02	0.00	0.00	0.000	−0.027	0.000	0.000	−2.84	−2.23	2047.81	180.01			−2.23	182.49
184	287	0.00	0.05	0.00	0.00	0.001	−0.067	0.001	0.002	−2.86	−1.88	2051.80	184.08			−1.86	186.68
185	288	0.00	0.07	0.00	0.00	0.002	−0.094	0.002	0.003	−2.84	−1.42	2054.21	189.74			−1.38	192.45

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 103 (Lr)																	
186	289	0.00	0.07	0.00	0.00	0.002	−0.094	0.002	0.003	−2.23	−0.84	2057.80	194.23			−0.80	197.04
187	290	0.01	0.09	−0.01	0.00	0.014	−0.122	0.015	0.006	−2.58	−0.56	2060.22	199.89			−0.49	202.83
188	291	0.02	0.10	−0.01	0.01	0.026	−0.135	0.016	−0.003	−2.30	−0.07	2063.71	204.47			0.03	207.54
189	292	0.03	0.10	−0.01	0.01	0.036	−0.135	0.016	−0.003	−2.25	−0.02	2066.18	210.06			0.07	213.24
190	293	0.23	0.00	−0.01	0.00	0.250	0.000	0.035	0.005	−0.99	0.06	2069.92	214.39			0.04	217.57
191	294	0.23	0.00	−0.01	0.00	0.250	0.000	0.035	0.005	−1.36	−0.32	2072.65	219.73			−0.35	223.01
192	295	0.23	0.00	−0.01	0.00	0.250	0.000	0.035	0.005	−1.39	−0.31	2076.29	224.17			−0.34	227.58
193	296	0.23	0.00	0.00	0.00	0.250	0.000	0.023	0.002	−1.64	−0.59	2078.76	229.77			−0.64	233.28
194	297	0.23	0.00	0.00	0.00	0.250	0.000	0.023	0.002	−1.67	−0.62	2082.26	234.34			−0.65	237.99
195	298	0.23	0.00	0.00	0.00	0.250	0.000	0.023	0.002	−2.00	−0.92	2084.59	240.08			−0.96	243.85
196	299	0.24	0.00	0.00	0.01	0.261	0.000	0.026	−0.007	−2.12	−0.99	2087.98	244.77			−1.02	248.69
197	300	0.24	0.00	0.01	0.01	0.262	0.000	0.014	−0.010	−2.53	−1.42	2090.27	250.54			−1.46	254.59
198	301	0.24	0.00	0.01	0.01	0.262	0.000	0.014	−0.010	−2.62	−1.51	2093.51	255.37			−1.54	259.57
199	302	0.25	0.00	0.01	0.02	0.273	0.000	0.017	−0.020	−3.26	−2.02	2095.75	261.21			−2.01	265.60
200	303	0.25	0.00	0.02	0.02	0.274	0.000	0.005	−0.023	−3.52	−2.23	2098.95	266.08			−2.20	270.64
201	304	0.25	0.00	0.02	0.02	0.274	0.000	0.005	−0.023	−4.00	−2.70	2100.98	272.11			−2.68	276.82
202	305	0.26	0.00	0.03	0.02	0.286	0.000	−0.004	−0.026	−4.17	−2.80	2103.91	277.26			−2.74	282.15
203	306	0.25	0.00	0.02	0.03	0.274	0.000	0.006	−0.033	−4.55	−3.15	2105.69	283.56			−3.02	288.69
204	307	0.25	0.00	0.02	0.03	0.274	0.000	0.006	−0.033	−4.34	−3.01	2108.22	289.09			−2.86	294.41
205	308	0.24	0.00	0.01	0.03	0.262	0.000	0.016	−0.030	−4.36	−3.08	2109.57	295.82			−2.96	301.28
206	309	0.24	0.00	0.02	0.03	0.263	0.000	0.004	−0.033	−4.26	−2.99	2112.01	301.45			−2.84	307.12
207	310	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−4.30	−3.08	2113.23	308.30			−2.95	314.12
208	311	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−4.13	−2.91	2115.44	314.16			−2.77	320.17
209	312	0.22	0.00	0.01	0.03	0.240	0.000	0.012	−0.031	−4.32	−3.12	2116.63	321.04			−2.98	327.24
210	313	0.22	0.00	0.01	0.03	0.240	0.000	0.012	−0.031	−4.18	−2.98	2118.73	327.01			−2.83	333.41
211	314	0.21	0.00	0.00	0.03	0.228	0.000	0.022	−0.028	−4.39	−3.21	2119.81	334.00			−3.08	340.58
212	315	0.21	0.00	0.01	0.03	0.228	0.000	0.010	−0.031	−4.36	−3.19	2121.89	339.99			−3.03	346.79
213	316	0.21	0.00	0.01	0.03	0.228	0.000	0.010	−0.031	−4.70	−3.53	2122.94	347.02			−3.37	354.02
214	317	0.21	0.00	0.01	0.03	0.228	0.000	0.010	−0.031	−4.65	−3.51	2124.88	353.15			−3.35	360.36
215	318	0.21	0.00	0.02	0.03	0.229	0.000	−0.002	−0.033	−5.14	−3.93	2125.87	360.23			−3.75	367.67
216	319	0.21	0.00	0.02	0.03	0.229	0.000	−0.002	−0.033	−5.15	−4.00	2127.77	366.40			−3.81	374.07
217	320	0.20	0.00	0.02	0.03	0.218	0.000	−0.004	−0.033	−5.56	−4.41	2128.62	373.62			−4.22	381.51
218	321	0.21	0.00	0.03	0.03	0.230	0.000	−0.014	−0.035	−5.70	−4.45	2130.35	379.96			−4.21	388.11
219	322	0.20	0.00	0.02	0.03	0.218	0.000	−0.004	−0.033	−5.96	−4.80	2131.02	387.37			−4.61	395.70
220	323	0.21	0.00	0.03	0.03	0.230	0.000	−0.014	−0.035	−6.06	−4.82	2132.60	393.86			−4.59	402.47
221	324	0.20	0.00	0.03	0.03	0.219	0.000	−0.016	−0.035	−6.41	−5.18	2133.13	401.39			−4.94	410.24
222	325	0.20	0.00	0.03	0.03	0.219	0.000	−0.016	−0.035	−6.18	−4.97	2134.35	408.24			−4.72	417.34
223	326	0.20	0.00	0.04	0.02	0.219	0.000	−0.029	−0.028	−6.39	−5.13	2134.58	416.09			−4.99	425.32
224	327	0.19	0.00	0.04	0.02	0.208	0.000	−0.031	−0.027	−6.09	−4.87	2135.62	423.12			−4.71	432.62
225	328	0.19	0.00	0.04	0.01	0.208	0.000	−0.032	−0.018	−6.17	−5.03	2135.71	431.10			−4.98	440.74
226	329	0.18	0.00	0.04	0.01	0.197	0.000	−0.034	−0.017	−5.91	−4.77	2136.63	438.25			−4.70	448.16
227	330	0.18	0.00	0.05	0.01	0.197	0.000	−0.045	−0.019	−6.34	−5.03	2136.71	446.24			−4.92	456.46
228	331	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−5.95	−4.58	2137.32	453.71			−4.52	464.14
229	332	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−6.11	−4.76	2137.19	461.90			−4.70	472.60
230	333	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−6.03	−4.48	2137.85	469.32			−4.36	480.36
231	334	0.18	0.00	0.06	−0.01	0.197	0.000	−0.059	−0.002	−6.19	−4.66	2137.61	477.63			−4.55	488.93
232	335	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−6.17	−4.40	2138.16	485.15			−4.20	496.81
233	336	0.17	0.00	0.07	−0.01	0.187	0.000	−0.072	−0.003	−6.31	−4.50	2137.73	493.65			−4.30	505.61
234	337	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−6.23	−4.18	2138.10	501.35			−3.86	513.71
235	338	0.10	0.00	−0.01	0.01	0.107	0.000	0.017	−0.009	−4.66	−4.13	2137.41	510.11			−4.12	522.46
236	339	0.10	0.00	0.00	0.01	0.107	0.000	0.005	−0.010	−4.44	−3.93	2137.80	517.80			−3.93	530.43
Z = 104 (Rf)																	
134	238	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−1.02	−0.05	1735.82	103.79			−0.17	106.18
135	239	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−1.30	−0.26	1744.69	102.99			−0.39	105.29
136	240	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−1.30	−0.30	1755.11	100.64			−0.41	102.89
137	241	0.28	0.00	0.02	0.02	0.308	0.000	0.013	−0.023	−1.61	−0.53	1763.70	100.12			−0.63	102.31
138	242	0.26	0.00	0.01	0.02	0.284	0.000	0.020	−0.020	−1.55	−0.42	1773.67	98.23			−0.49	100.38

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 104 (Rf)																	
139	243	0.25	0.00	0.00	0.02	0.273	0.000	0.029	−0.017	−1.85	−0.68	1782.00	97.97			−0.74	100.06
140	244	0.23	0.00	−0.01	0.02	0.250	0.000	0.037	−0.015	−2.06	−0.82	1791.93	96.11			−0.86	98.17
141	245	0.23	0.00	−0.01	0.02	0.250	0.000	0.037	−0.015	−2.47	−1.19	1800.09	96.02			−1.24	98.01
142	246	0.23	0.00	−0.01	0.03	0.250	0.000	0.038	−0.025	−2.87	−1.55	1809.95	94.23			−1.57	96.19
143	247	0.22	0.00	−0.02	0.03	0.238	0.000	0.048	−0.022	−3.39	−1.92	1817.83	94.42			−1.94	96.33
144	248	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−3.49	−2.08	1827.20	93.12			−2.09	94.99
145	249	0.22	0.00	−0.01	0.03	0.238	0.000	0.036	−0.025	−3.94	−2.48	1834.85	93.55			−2.49	95.37
146	250	0.23	0.00	0.00	0.03	0.250	0.000	0.026	−0.027	−4.13	−2.66	1843.96	92.50			−2.66	94.29
147	251	0.23	0.00	0.00	0.03	0.250	0.000	0.026	−0.027	−4.65	−3.13	1851.42	93.12			−3.14	94.86
148	252	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−4.89	−3.34	1860.29	92.32			−3.34	94.03
149	253	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−5.44	−3.85	1867.52	93.16			−3.85	94.83
150	254	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−5.80	−4.10	1876.18	92.57			−4.09	94.23
151	255	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−6.33	−4.59	1883.14	93.68			−4.59	95.31
152	256	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−6.36	−4.63	1891.32	93.57	94.24	0.024	−4.61	95.19
153	257	0.23	0.00	0.03	0.03	0.252	0.000	−0.010	−0.036	−6.54	−4.68	1897.60	95.37			−4.66	96.97
154	258	0.23	0.00	0.03	0.03	0.252	0.000	−0.010	−0.036	−6.29	−4.44	1905.25	95.79			−4.41	97.38
155	259	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−6.22	−4.43	1911.22	97.89			−4.42	99.44
156	260	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−5.93	−4.18	1918.61	98.57			−4.16	100.12
157	261	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−6.10	−4.35	1924.53	100.72	101.32	0.029	−4.34	102.26
158	262	0.21	0.00	0.05	0.01	0.231	0.000	−0.040	−0.021	−6.03	−4.21	1931.79	101.53			−4.20	103.07
159	263	0.21	0.00	0.05	0.01	0.231	0.000	−0.040	−0.021	−6.42	−4.58	1937.67	103.73			−4.57	105.25
160	264	0.21	0.00	0.06	0.01	0.232	0.000	−0.052	−0.023	−6.76	−4.59	1944.84	104.62			−4.56	106.18
161	265	0.21	0.00	0.06	0.00	0.231	0.000	−0.053	−0.013	−7.01	−4.92	1950.45	107.08			−4.92	108.61
162	266	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−7.39	−4.95	1957.41	108.19			−4.91	109.77
163	267	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−7.46	−5.02	1962.55	111.13			−4.99	112.71
164	268	0.20	0.00	0.07	0.00	0.221	0.000	−0.067	−0.015	−6.90	−4.52	1968.75	113.00			−4.47	114.61
165	269	0.19	0.00	0.06	0.00	0.209	0.000	−0.057	−0.012	−6.17	−4.20	1973.27	116.55			−4.18	118.15
166	270	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−5.54	−3.60	1979.15	118.74			−3.56	120.38
167	271	0.17	0.00	0.05	0.00	0.186	0.000	−0.048	−0.009	−5.01	−3.45	1983.63	122.33			−3.43	123.98
168	272	0.16	0.00	0.05	0.00	0.175	0.000	−0.049	−0.009	−4.53	−3.09	1989.54	124.50			−3.07	126.18
169	273	0.16	0.00	0.05	0.00	0.175	0.000	−0.049	−0.009	−4.54	−2.98	1993.84	128.27			−2.95	129.98
170	274	0.14	0.00	0.04	0.00	0.152	0.000	−0.040	−0.006	−3.88	−2.68	1999.59	130.59			−2.66	132.33
171	275	0.13	0.00	0.03	0.00	0.141	0.000	−0.029	−0.004	−3.94	−2.96	2004.08	134.17			−2.95	135.94
172	276	0.12	0.00	0.03	0.00	0.130	0.000	−0.030	−0.004	−3.76	−2.82	2009.78	136.54			−2.81	138.35
173	277	0.12	0.00	0.03	0.00	0.130	0.000	−0.030	−0.004	−4.14	−3.20	2014.17	140.22			−3.19	142.08
174	278	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	−4.22	−3.09	2019.69	142.77			−3.06	144.70
175	279	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	−4.46	−3.35	2023.76	146.77			−3.32	148.75
176	280	0.12	0.00	0.05	−0.02	0.130	0.000	−0.055	0.013	−4.37	−2.97	2028.82	149.79			−2.89	151.87
177	281	−0.10	0.00	0.02	0.00	−0.105	0.000	−0.019	0.002	−3.60	−3.06	2032.52	154.15			−3.06	156.22
178	282	−0.09	0.00	0.02	−0.01	−0.094	0.000	−0.020	0.012	−3.47	−2.92	2037.62	157.13			−2.90	159.28
179	283	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−3.49	−2.93	2041.06	161.76			−2.92	163.96
180	284	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	−3.01	−2.50	2045.67	165.22			−2.50	167.48
181	285	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−3.28	−2.71	2049.13	169.83			−2.71	172.17
182	286	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.93	−2.38	2053.65	173.38			−2.39	175.79
183	287	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.22	−2.65	2056.98	178.12			−2.65	180.61
184	288	0.00	0.02	0.00	0.00	0.000	−0.027	0.000	0.000	−2.85	−2.24	2061.23	181.95			−2.24	184.52
185	289	0.00	0.07	0.00	0.00	0.002	−0.094	0.002	0.003	−3.12	−1.69	2063.57	187.68			−1.65	190.38
186	290	0.00	0.07	0.00	0.00	0.002	−0.094	0.002	0.003	−2.50	−1.11	2067.47	191.85			−1.07	194.65
187	291	0.01	0.08	−0.01	0.00	0.013	−0.108	0.014	0.004	−2.41	−0.72	2069.78	197.60			−0.66	200.51
188	292	0.01	0.09	−0.01	0.01	0.014	−0.121	0.015	−0.004	−2.08	−0.20	2073.57	201.90			−0.11	204.93
189	293	0.02	0.10	−0.01	0.01	0.026	−0.135	0.016	−0.003	−2.32	−0.10	2076.00	207.53			−0.00	210.68
190	294	0.22	0.00	−0.01	−0.01	0.239	0.000	0.032	0.015	−0.76	0.22	2079.81	211.79			0.23	214.96
191	295	0.23	0.00	−0.01	0.00	0.250	0.000	0.035	0.005	−1.08	−0.08	2082.48	217.20			−0.10	220.45
192	296	0.23	0.00	0.00	0.00	0.250	0.000	0.023	0.002	−1.04	−0.11	2086.46	221.29			−0.13	224.65
193	297	0.23	0.00	0.00	0.00	0.250	0.000	0.023	0.002	−1.40	−0.42	2088.97	226.84			−0.45	230.31
194	298	0.23	0.00	0.00	0.00	0.250	0.000	0.023	0.002	−1.42	−0.43	2092.77	231.12			−0.46	234.71
195	299	0.23	0.00	0.00	0.00	0.250	0.000	0.023	0.002	−1.76	−0.74	2095.12	236.84			−0.77	240.55

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 104 (Rf)																	
196	300	0.24	0.00	0.01	0.01	0.262	0.000	0.014	−0.010	−1.88	−0.83	2098.82	241.21			−0.85	245.07
197	301	0.24	0.00	0.01	0.01	0.262	0.000	0.014	−0.010	−2.31	−1.26	2101.14	246.96			−1.29	250.94
198	302	0.25	0.00	0.02	0.01	0.274	0.000	0.004	−0.013	−2.50	−1.39	2104.72	251.45			−1.41	255.58
199	303	0.25	0.00	0.02	0.01	0.274	0.000	0.004	−0.013	−2.98	−1.85	2106.91	257.34			−1.87	261.60
200	304	0.25	0.00	0.02	0.02	0.274	0.000	0.005	−0.023	−3.33	−2.11	2110.46	261.86			−2.06	266.34
201	305	0.26	0.00	0.03	0.02	0.286	0.000	−0.004	−0.026	−3.96	−2.62	2112.54	267.85			−2.56	272.48
202	306	0.26	0.00	0.03	0.02	0.286	0.000	−0.004	−0.026	−4.02	−2.71	2115.77	272.69			−2.64	277.49
203	307	0.25	0.00	0.03	0.02	0.275	0.000	−0.007	−0.026	−4.26	−2.94	2117.43	279.10			−2.88	284.05
204	308	0.25	0.00	0.03	0.02	0.275	0.000	−0.007	−0.026	−4.07	−2.79	2120.25	284.35			−2.71	289.47
205	309	0.25	0.00	0.03	0.02	0.275	0.000	−0.007	−0.026	−4.19	−2.92	2121.66	291.01			−2.86	296.28
206	310	0.24	0.00	0.03	0.02	0.263	0.000	−0.009	−0.026	−3.96	−2.75	2124.32	296.42			−2.67	301.88
207	311	0.24	0.00	0.03	0.02	0.263	0.000	−0.009	−0.026	−4.13	−2.95	2125.65	303.17			−2.88	308.79
208	312	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−4.04	−2.84	2128.22	308.66			−2.67	314.56
209	313	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−4.24	−3.01	2129.38	315.58			−2.85	321.65
210	314	0.22	0.00	0.02	0.03	0.240	0.000	−0.000	−0.033	−4.09	−2.97	2131.88	321.15			−2.79	327.42
211	315	0.22	0.00	0.02	0.03	0.240	0.000	−0.000	−0.033	−4.35	−3.16	2132.91	328.19			−2.98	334.64
212	316	0.22	0.00	0.03	0.02	0.241	0.000	−0.013	−0.026	−4.17	−3.02	2135.16	334.01			−2.93	340.57
213	317	0.21	0.00	0.02	0.03	0.229	0.000	−0.002	−0.033	−4.60	−3.40	2136.25	340.99			−3.22	347.83
214	318	0.21	0.00	0.02	0.03	0.229	0.000	−0.002	−0.033	−4.59	−3.46	2138.56	346.75			−3.26	353.81
215	319	0.21	0.00	0.02	0.03	0.229	0.000	−0.002	−0.033	−5.00	−3.86	2139.54	353.85			−3.67	361.10
216	320	0.21	0.00	0.03	0.03	0.230	0.000	−0.014	−0.035	−5.15	−3.92	2141.72	359.74			−3.69	367.25
217	321	0.21	0.00	0.03	0.03	0.230	0.000	−0.014	−0.035	−5.60	−4.37	2142.60	366.93			−4.14	374.64
218	322	0.21	0.00	0.03	0.03	0.230	0.000	−0.014	−0.035	−5.61	−4.40	2144.61	372.99			−4.17	380.92
219	323	0.20	0.00	0.03	0.03	0.219	0.000	−0.016	−0.035	−6.01	−4.80	2145.32	380.35			−4.56	388.51
220	324	0.20	0.00	0.03	0.03	0.219	0.000	−0.016	−0.035	−5.97	−4.76	2147.13	386.61			−4.52	395.00
221	325	0.20	0.00	0.03	0.03	0.219	0.000	−0.016	−0.035	−6.33	−5.12	2147.67	394.14			−4.88	402.75
222	326	0.20	0.00	0.04	0.03	0.220	0.000	−0.028	−0.038	−6.35	−5.01	2149.27	400.62			−4.71	409.52
223	327	0.20	0.00	0.04	0.02	0.219	0.000	−0.029	−0.028	−6.38	−5.15	2149.47	408.49			−5.00	417.47
224	328	0.19	0.00	0.04	0.02	0.208	0.000	−0.031	−0.027	−6.11	−4.90	2150.80	415.22			−4.74	424.46
225	329	0.19	0.00	0.05	0.01	0.208	0.000	−0.044	−0.020	−6.43	−5.12	2150.96	423.14			−5.01	432.57
226	330	0.18	0.00	0.05	0.01	0.197	0.000	−0.045	−0.019	−6.20	−4.88	2152.17	430.00			−4.76	439.69
227	331	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−6.35	−4.94	2152.05	438.19			−4.88	448.08
228	332	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−6.05	−4.69	2153.13	445.19			−4.62	455.34
229	333	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−6.53	−4.94	2153.07	453.31			−4.81	463.78
230	334	0.18	0.00	0.06	−0.01	0.197	0.000	−0.059	−0.002	−6.15	−4.62	2153.96	460.50			−4.49	471.23
231	335	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−6.69	−4.88	2153.80	468.73			−4.69	479.79
232	336	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−6.35	−4.58	2154.58	476.02			−4.38	487.36
233	337	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−6.93	−4.82	2154.29	484.38			−4.50	496.12
234	338	0.17	0.00	0.08	−0.02	0.187	0.000	−0.085	0.005	−6.50	−4.39	2154.82	491.92			−4.05	503.96
235	339	0.09	0.00	−0.01	0.01	0.096	0.000	0.016	−0.009	−4.92	−4.38	2154.16	500.65			−4.36	512.66
Z = 105 (Db)																	
136	241	0.28	0.00	0.03	0.01	0.308	0.000	−0.001	−0.016	−1.45	−0.48	1752.95	110.09			−0.61	112.58
137	242	0.28	0.00	0.03	0.01	0.308	0.000	−0.001	−0.016	−1.68	−0.67	1761.88	109.24			−0.81	111.64
138	243	0.27	0.00	0.03	0.02	0.297	0.000	−0.002	−0.026	−1.83	−0.63	1771.95	107.24			−0.73	109.60
139	244	0.26	0.00	0.02	0.02	0.285	0.000	0.007	−0.023	−1.98	−0.81	1780.59	106.67			−0.92	108.97
140	245	0.23	0.00	0.00	0.02	0.250	0.000	0.025	−0.018	−2.08	−1.03	1790.62	104.70			−1.09	106.98
141	246	0.23	0.00	0.00	0.02	0.250	0.000	0.025	−0.018	−2.46	−1.44	1799.19	104.20			−1.51	106.41
142	247	0.23	0.00	0.00	0.02	0.250	0.000	0.025	−0.018	−2.69	−1.65	1808.94	102.53			−1.71	104.69
143	248	0.22	0.00	−0.01	0.02	0.238	0.000	0.035	−0.015	−3.15	−2.00	1817.17	102.37			−2.05	104.47
144	249	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−3.31	−2.17	1826.58	101.03			−2.21	103.09
145	250	0.22	0.00	0.00	0.03	0.239	0.000	0.024	−0.028	−3.97	−2.59	1834.61	101.07			−2.62	103.08
146	251	0.22	0.00	0.00	0.03	0.239	0.000	0.024	−0.028	−4.21	−2.82	1843.81	99.94			−2.84	101.92
147	252	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−4.79	−3.31	1851.65	100.17			−3.35	102.10
148	253	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−5.06	−3.55	1860.59	99.31			−3.57	101.20
149	254	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−5.69	−4.06	1868.18	99.79			−4.08	101.64
150	255	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−6.06	−4.40	1876.96	99.08			−4.41	100.91
151	256	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−6.58	−4.88	1884.27	99.84			−4.90	101.64

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 105 (Db)																	
152	257	0.23	0.00	0.03	0.03	0.252	0.000	−0.010	−0.036	−6.82	−4.99	1892.55	99.63			−4.99	101.41
153	258	0.23	0.00	0.03	0.03	0.252	0.000	−0.010	−0.036	−6.88	−5.05	1899.19	101.07			−5.05	102.82
154	259	0.23	0.00	0.04	0.03	0.253	0.000	−0.022	−0.038	−6.87	−4.86	1906.93	101.40			−4.85	103.15
155	260	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−6.70	−4.93	1913.32	103.08			−4.94	104.78
156	261	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−6.41	−4.68	1920.75	103.72			−4.68	105.42
157	262	0.22	0.00	0.05	0.01	0.242	0.000	−0.038	−0.021	−6.70	−4.86	1927.02	105.52			−4.89	107.18
158	263	0.21	0.00	0.05	0.01	0.231	0.000	−0.040	−0.021	−6.61	−4.81	1934.40	106.21			−4.82	107.88
159	264	0.21	0.00	0.06	0.01	0.232	0.000	−0.052	−0.023	−7.31	−5.18	1940.63	108.05			−5.18	109.72
160	265	0.21	0.00	0.06	0.01	0.232	0.000	−0.052	−0.023	−7.40	−5.23	1947.87	108.88			−5.22	110.56
161	266	0.21	0.00	0.06	0.00	0.231	0.000	−0.053	−0.013	−7.65	−5.57	1953.83	110.99			−5.58	112.64
162	267	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−8.08	−5.64	1960.86	112.03			−5.62	113.72
163	268	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−8.15	−5.71	1966.34	114.63			−5.70	116.31
164	269	0.20	0.00	0.07	0.00	0.221	0.000	−0.067	−0.015	−7.59	−5.21	1972.56	116.48			−5.18	118.19
165	270	0.19	0.00	0.07	−0.01	0.209	0.000	−0.070	−0.004	−7.15	−4.86	1977.39	119.72			−4.84	121.44
166	271	0.19	0.00	0.07	−0.01	0.209	0.000	−0.070	−0.004	−6.52	−4.24	1983.28	121.90			−4.20	123.65
167	272	0.17	0.00	0.06	0.00	0.186	0.000	−0.060	−0.011	−5.89	−4.03	1988.03	125.22			−4.01	126.97
168	273	0.16	0.00	0.05	0.00	0.175	0.000	−0.049	−0.009	−5.08	−3.62	1993.91	127.41			−3.60	129.19
169	274	0.16	0.00	0.05	0.00	0.175	0.000	−0.049	−0.009	−5.08	−3.51	1998.55	130.85			−3.49	132.64
170	275	0.14	0.00	0.04	0.00	0.152	0.000	−0.040	−0.006	−4.39	−3.18	2004.29	133.18			−3.17	135.00
171	276	0.13	0.00	0.04	0.00	0.141	0.000	−0.041	−0.006	−4.65	−3.47	2009.13	136.41			−3.46	138.27
172	277	0.12	0.00	0.04	0.00	0.130	0.000	−0.042	−0.005	−4.47	−3.34	2014.85	138.76			−3.32	140.66
173	278	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	−4.86	−3.71	2019.57	142.11			−3.69	144.05
174	279	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	−4.73	−3.60	2025.11	144.64			−3.58	146.63
175	280	0.12	0.00	0.05	−0.01	0.130	0.000	−0.054	0.003	−5.23	−3.85	2029.51	148.32			−3.81	150.37
176	281	0.12	0.00	0.05	−0.02	0.130	0.000	−0.055	0.013	−4.89	−3.48	2034.59	151.31			−3.41	153.44
177	282	0.09	0.00	0.04	−0.01	0.097	0.000	−0.045	0.006	−4.34	−3.29	2038.34	155.62			−3.26	157.77
178	283	−0.09	0.01	0.02	−0.01	−0.094	−0.013	−0.020	0.012	−3.82	−3.24	2043.54	158.50			−3.22	160.68
179	284	−0.07	0.00	0.01	0.00	−0.073	0.000	−0.010	0.001	−3.73	−3.26	2047.32	162.79			−3.27	165.02
180	285	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	−3.37	−2.85	2051.97	166.21			−2.86	168.51
181	286	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−3.62	−3.05	2055.73	170.52			−3.05	172.88
182	287	−0.02	0.00	0.01	0.00	−0.021	0.000	−0.012	0.000	−3.27	−2.68	2060.23	174.10			−2.68	176.53
183	288	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−3.46	−2.90	2063.82	178.57			−2.90	181.08
184	289	0.00	0.03	0.00	0.00	0.000	−0.040	0.000	0.001	−3.18	−2.49	2068.09	182.37			−2.48	184.96
185	290	0.00	0.07	0.00	0.00	0.002	−0.094	0.002	0.003	−3.40	−1.97	2070.78	187.76			−1.94	190.46
186	291	0.00	0.08	0.00	0.00	0.003	−0.108	0.003	0.004	−3.08	−1.40	2074.70	191.91			−1.35	194.72
187	292	−0.62	0.00	−0.02	−0.02	−0.610	0.000	0.156	−0.028	−3.39	6.88	2069.45	205.23			6.57	207.77
188	293	0.01	0.09	−0.01	0.01	0.014	−0.121	0.015	−0.004	−2.37	−0.53	2081.17	201.58			−0.45	204.60
189	294	0.02	0.10	−0.01	0.01	0.026	−0.135	0.016	−0.003	−2.58	−0.38	2083.87	206.95			−0.29	210.07
190	295	0.22	0.00	0.00	−0.01	0.239	0.000	0.020	0.012	−0.76	0.07	2087.56	211.33			0.05	214.46
191	296	0.23	0.00	0.00	−0.01	0.250	0.000	0.022	0.012	−1.14	−0.22	2090.53	216.43			−0.24	219.66
192	297	0.22	0.00	0.00	−0.01	0.239	0.000	0.020	0.012	−1.18	−0.27	2094.54	220.49			−0.28	223.83
193	298	0.23	0.00	0.00	0.00	0.250	0.000	0.023	0.002	−1.51	−0.56	2097.34	225.76			−0.60	229.18
194	299	0.23	0.00	0.01	0.00	0.250	0.000	0.011	−0.001	−1.52	−0.58	2101.16	230.02			−0.62	233.55
195	300	0.23	0.00	0.01	0.00	0.250	0.000	0.011	−0.001	−1.89	−0.92	2103.84	235.40			−0.96	239.05
196	301	0.24	0.00	0.01	0.01	0.262	0.000	0.014	−0.010	−2.02	−1.04	2107.60	239.72			−1.07	243.51
197	302	0.24	0.00	0.02	0.01	0.262	0.000	0.002	−0.013	−2.53	−1.46	2110.20	245.19			−1.49	249.10
198	303	0.24	0.00	0.02	0.01	0.262	0.000	0.002	−0.013	−2.67	−1.60	2113.80	249.66			−1.62	253.71
199	304	0.25	0.00	0.03	0.01	0.274	0.000	−0.008	−0.016	−3.28	−2.08	2116.31	255.22			−2.10	259.41
200	305	0.25	0.00	0.03	0.01	0.274	0.000	−0.008	−0.016	−3.50	−2.28	2119.82	259.79			−2.30	264.12
201	306	0.25	0.00	0.03	0.02	0.275	0.000	−0.007	−0.026	−4.16	−2.82	2122.23	265.45			−2.77	269.98
202	307	0.25	0.00	0.03	0.02	0.275	0.000	−0.007	−0.026	−4.23	−2.91	2125.46	270.29			−2.85	274.98
203	308	0.25	0.00	0.03	0.02	0.275	0.000	−0.007	−0.026	−4.49	−3.18	2127.46	276.36			−3.14	281.20
204	309	0.25	0.00	0.03	0.02	0.275	0.000	−0.007	−0.026	−4.30	−3.03	2130.29	281.60			−2.97	286.59
205	310	0.25	0.00	0.04	0.02	0.276	0.000	−0.019	−0.029	−4.62	−3.21	2132.05	287.92			−3.13	293.09
206	311	0.24	0.00	0.03	0.02	0.263	0.000	−0.009	−0.026	−4.22	−3.02	2134.69	293.34			−2.96	298.66
207	312	0.24	0.00	0.03	0.02	0.263	0.000	−0.009	−0.026	−4.39	−3.21	2136.31	299.80			−3.16	305.27
208	313	0.24	0.00	0.04	0.02	0.264	0.000	−0.021	−0.029	−4.40	−3.07	2138.85	305.32			−2.97	311.02

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 105 (Db)																	
209	314	0.24	0.00	0.04	0.02	0.264	0.000	−0.021	−0.029	−4.62	−3.31	2140.37	311.88			−3.21	317.73
210	315	0.23	0.00	0.04	0.02	0.253	0.000	−0.023	−0.029	−4.49	−3.23	2142.83	317.49			−3.12	323.54
211	316	0.24	0.00	0.05	0.02	0.265	0.000	−0.033	−0.031	−5.03	−3.59	2144.33	324.06			−3.45	330.32
212	317	0.23	0.00	0.04	0.02	0.253	0.000	−0.023	−0.029	−4.71	−3.41	2146.54	329.92			−3.30	336.33
213	318	0.23	0.00	0.05	0.02	0.254	0.000	−0.035	−0.031	−5.30	−3.79	2147.93	336.61			−3.64	343.25
214	319	0.23	0.00	0.05	0.02	0.254	0.000	−0.035	−0.031	−5.26	−3.79	2150.18	342.43			−3.63	349.28
215	320	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−5.40	−4.11	2151.36	349.31			−4.00	356.31
216	321	0.21	0.00	0.03	0.03	0.230	0.000	−0.014	−0.035	−5.45	−4.21	2153.58	355.17			−4.00	362.47
217	322	0.21	0.00	0.03	0.03	0.230	0.000	−0.014	−0.035	−5.88	−4.68	2154.77	362.05			−4.47	369.55
218	323	0.21	0.00	0.04	0.03	0.231	0.000	−0.026	−0.038	−6.09	−4.72	2156.79	368.09			−4.46	375.86
219	324	0.21	0.00	0.04	0.03	0.231	0.000	−0.026	−0.038	−6.51	−5.13	2157.80	375.16			−4.87	383.13
220	325	0.21	0.00	0.04	0.03	0.231	0.000	−0.026	−0.038	−6.48	−5.11	2159.62	381.41			−4.84	389.61
221	326	0.20	0.00	0.04	0.03	0.220	0.000	−0.028	−0.038	−6.88	−5.50	2160.48	388.62			−5.23	397.04
222	327	0.20	0.00	0.04	0.03	0.220	0.000	−0.028	−0.038	−6.70	−5.35	2162.03	395.14			−5.07	403.80
223	328	0.20	0.00	0.04	0.02	0.219	0.000	−0.029	−0.028	−6.73	−5.49	2162.52	402.73			−5.36	411.46
224	329	0.19	0.00	0.05	0.02	0.209	0.000	−0.043	−0.030	−6.71	−5.30	2163.91	409.41			−5.10	418.45
225	330	0.19	0.00	0.05	0.01	0.208	0.000	−0.044	−0.020	−6.84	−5.53	2164.35	417.03			−5.44	426.20
226	331	0.18	0.00	0.05	0.01	0.197	0.000	−0.045	−0.019	−6.60	−5.13	2165.40	424.06			−5.02	433.48
227	332	0.18	0.00	0.05	0.01	0.197	0.000	−0.045	−0.019	−6.83	−5.38	2165.74	431.79			−5.27	441.45
228	333	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−6.74	−5.12	2166.81	438.79			−5.00	448.72
229	334	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−6.96	−5.36	2167.02	446.65			−5.25	456.83
230	335	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−6.92	−5.09	2167.95	453.79			−4.91	464.29
231	336	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−7.17	−5.34	2168.05	461.76			−5.16	472.52
232	337	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−6.84	−5.03	2168.83	469.05			−4.85	480.08
233	338	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−7.45	−5.31	2168.84	477.12			−5.01	488.53
234	339	0.17	0.00	0.08	−0.02	0.187	0.000	−0.085	0.005	−7.01	−4.87	2169.36	484.67			−4.54	496.38
Z = 106 (Sg)																	
138	244	0.28	0.00	0.04	0.01	0.309	0.000	−0.013	−0.020	−1.47	−0.48	1771.51	114.96			−0.60	117.57
139	245	0.26	0.00	0.03	0.01	0.286	0.000	−0.006	−0.016	−1.59	−0.65	1780.16	114.38			−0.75	116.93
140	246	0.24	0.00	0.01	0.02	0.262	0.000	0.015	−0.020	−1.74	−0.79	1790.49	112.12			−0.85	114.64
141	247	0.23	0.00	0.00	0.02	0.250	0.000	0.025	−0.018	−2.08	−1.09	1799.00	111.69			−1.16	114.14
142	248	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.30	−1.37	1809.18	109.58			−1.42	111.98
143	249	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.71	−1.71	1817.43	109.39			−1.76	111.73
144	250	0.22	0.00	0.00	0.02	0.239	0.000	0.023	−0.018	−2.94	−1.90	1827.24	107.66			−1.94	109.95
145	251	0.22	0.00	0.00	0.03	0.239	0.000	0.024	−0.028	−3.59	−2.33	1835.31	107.66			−2.36	109.90
146	252	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−3.90	−2.57	1844.89	106.15			−2.59	108.35
147	253	0.23	0.00	0.01	0.03	0.251	0.000	0.014	−0.030	−4.44	−3.06	1852.76	106.36			−3.09	108.50
148	254	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−4.85	−3.35	1862.11	105.08			−3.37	107.19
149	255	0.23	0.00	0.02	0.03	0.252	0.000	0.002	−0.033	−5.40	−3.86	1869.73	105.52			−3.88	107.58
150	256	0.23	0.00	0.03	0.03	0.252	0.000	−0.010	−0.036	−5.94	−4.23	1878.90	104.43			−4.24	106.47
151	257	0.23	0.00	0.03	0.03	0.252	0.000	−0.010	−0.036	−6.50	−4.75	1886.28	105.12			−4.76	107.12
152	258	0.23	0.00	0.03	0.03	0.252	0.000	−0.010	−0.036	−6.61	−4.86	1894.91	104.56			−4.85	106.54
153	259	0.23	0.00	0.04	0.03	0.253	0.000	−0.022	−0.038	−6.92	−4.97	1901.64	105.90			−4.97	107.85
154	260	0.22	0.00	0.04	0.03	0.242	0.000	−0.024	−0.038	−6.72	−4.79	1909.73	105.88	106.58	0.039	−4.76	107.82
155	261	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−6.56	−4.87	1916.17	107.51			−4.88	109.39
156	262	0.22	0.00	0.05	0.02	0.243	0.000	−0.037	−0.031	−6.59	−4.66	1923.99	107.76			−4.65	109.64
157	263	0.22	0.00	0.05	0.01	0.242	0.000	−0.038	−0.021	−6.65	−4.88	1930.33	109.50			−4.90	111.33
158	264	0.21	0.00	0.06	0.01	0.232	0.000	−0.052	−0.023	−6.89	−4.84	1938.07	109.83			−4.83	111.68
159	265	0.21	0.00	0.06	0.01	0.232	0.000	−0.052	−0.023	−7.34	−5.27	1944.38	111.59	112.82	0.058	−5.27	113.42
160	266	0.21	0.00	0.06	0.01	0.232	0.000	−0.052	−0.023	−7.43	−5.32	1951.97	112.07			−5.31	113.90
161	267	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−8.11	−5.73	1958.03	114.08			−5.72	115.90
162	268	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−8.18	−5.79	1965.39	114.79			−5.77	116.62
163	269	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−8.25	−5.86	1970.89	117.36			−5.85	119.19
164	270	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−8.10	−5.39	1977.49	118.84			−5.34	120.70
165	271	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−7.73	−5.06	1982.37	122.03			−5.03	123.89
166	272	0.19	0.00	0.07	−0.01	0.209	0.000	−0.070	−0.004	−6.66	−4.42	1988.57	123.90			−4.38	125.77
167	273	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−6.37	−4.20	1993.34	127.20			−4.16	129.09

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 106 (Sg)																	
168	274	0.16	0.00	0.05	0.00	0.175	0.000	−0.049	−0.009	−5.18	−3.75	1999.51	129.10			−3.73	130.99
169	275	0.16	0.00	0.06	−0.01	0.175	0.000	−0.062	−0.001	−5.47	−3.66	2004.19	132.49			−3.62	134.41
170	276	0.14	0.00	0.05	0.00	0.153	0.000	−0.052	−0.007	−4.85	−3.41	2010.35	134.40			−3.38	136.35
171	277	0.13	0.00	0.04	0.00	0.141	0.000	−0.041	−0.006	−4.90	−3.74	2015.24	137.58			−3.72	139.54
172	278	0.12	0.00	0.04	0.00	0.130	0.000	−0.042	−0.005	−4.80	−3.67	2021.37	139.53			−3.65	141.52
173	279	0.12	0.00	0.05	−0.01	0.130	0.000	−0.054	0.003	−5.45	−4.07	2026.13	142.84			−4.03	144.89
174	280	0.12	0.00	0.05	−0.01	0.130	0.000	−0.054	0.003	−5.32	−3.95	2032.00	145.04			−3.91	147.13
175	281	0.12	0.00	0.05	−0.02	0.130	0.000	−0.055	0.013	−5.69	−4.26	2036.47	148.65			−4.19	150.80
176	282	0.10	0.00	0.05	−0.02	0.108	0.000	−0.057	0.014	−5.19	−3.79	2041.77	151.41			−3.71	153.62
177	283	0.09	0.00	0.04	−0.01	0.097	0.000	−0.045	0.006	−4.82	−3.76	2045.71	155.54			−3.73	157.76
178	284	−0.09	0.00	0.02	−0.01	−0.094	0.000	−0.020	0.012	−4.24	−3.67	2051.20	158.13			−3.66	160.38
179	285	−0.07	0.00	0.01	0.00	−0.073	0.000	−0.010	0.001	−4.22	−3.73	2055.03	162.37			−3.73	164.65
180	286	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	−3.91	−3.37	2060.05	165.42			−3.37	167.76
181	287	−0.03	0.00	0.01	0.00	−0.032	0.000	−0.011	0.000	−4.17	−3.57	2063.83	169.71			−3.57	172.12
182	288	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.83	−3.24	2068.69	172.92			−3.24	175.39
183	289	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.07	−3.48	2072.32	177.36			−3.48	179.90
184	290	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.58	−3.02	2076.86	180.89			−3.02	183.51
185	291	0.00	0.06	0.00	0.00	0.002	−0.081	0.002	0.002	−3.55	−2.35	2079.41	186.41			−2.33	189.13
186	292	0.00	0.07	0.00	0.00	0.002	−0.094	0.002	0.003	−3.14	−1.73	2083.61	190.29			−1.69	193.10
187	293	0.00	0.08	0.00	0.00	0.003	−0.108	0.003	0.004	−2.95	−1.29	2086.20	195.77			−1.24	198.67
188	294	0.01	0.09	0.00	0.01	0.014	−0.121	0.003	−0.005	−2.54	−0.62	2090.16	199.88			−0.55	202.90
189	295	0.01	0.10	−0.01	0.01	0.015	−0.135	0.016	−0.003	−2.70	−0.51	2092.92	205.19			−0.42	208.32
190	296	0.02	0.10	−0.01	0.01	0.026	−0.135	0.016	−0.003	−2.17	−0.01	2096.87	209.31			0.08	212.54
191	297	0.22	0.00	0.00	−0.01	0.239	0.000	0.020	0.012	−0.80	0.01	2099.53	214.72			0.00	217.94
192	298	0.22	0.00	0.00	−0.01	0.239	0.000	0.020	0.012	−0.87	−0.03	2103.85	218.47			−0.03	221.80
193	299	0.23	0.00	0.01	−0.01	0.250	0.000	0.010	0.009	−1.21	−0.33	2106.68	223.72			−0.35	227.13
194	300	0.23	0.00	0.01	0.00	0.250	0.000	0.011	−0.001	−1.21	−0.35	2110.80	227.66			−0.38	231.18
195	301	0.23	0.00	0.01	0.00	0.250	0.000	0.011	−0.001	−1.59	−0.67	2113.48	233.06			−0.71	236.68
196	302	0.24	0.00	0.02	0.00	0.262	0.000	0.001	−0.004	−1.74	−0.83	2117.57	237.04			−0.86	240.78
197	303	0.24	0.00	0.02	0.00	0.262	0.000	0.001	−0.004	−2.19	−1.24	2120.18	242.50			−1.28	246.35
198	304	0.25	0.00	0.03	0.01	0.274	0.000	−0.008	−0.016	−2.53	−1.43	2124.14	246.61			−1.43	250.64
199	305	0.25	0.00	0.03	0.01	0.274	0.000	−0.008	−0.016	−3.06	−1.91	2126.66	252.17			−1.92	256.31
200	306	0.25	0.00	0.03	0.01	0.274	0.000	−0.008	−0.016	−3.28	−2.13	2130.48	256.41			−2.13	260.70
201	307	0.25	0.00	0.03	0.01	0.274	0.000	−0.008	−0.016	−3.77	−2.60	2132.83	262.14			−2.61	266.54
202	308	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−4.01	−2.72	2136.39	266.64			−2.70	271.22
203	309	0.25	0.00	0.03	0.02	0.275	0.000	−0.007	−0.026	−4.26	−3.01	2138.42	272.69			−2.96	277.45
204	310	0.25	0.00	0.04	0.02	0.276	0.000	−0.019	−0.029	−4.28	−2.91	2141.60	277.58			−2.81	282.52
205	311	0.25	0.00	0.04	0.02	0.276	0.000	−0.019	−0.029	−4.45	−3.10	2143.36	283.89			−3.01	288.98
206	312	0.24	0.00	0.04	0.02	0.264	0.000	−0.021	−0.029	−4.19	−2.85	2146.25	289.08			−2.74	294.34
207	313	0.24	0.00	0.04	0.02	0.264	0.000	−0.021	−0.029	−4.41	−3.07	2147.90	295.49			−2.97	300.90
208	314	0.24	0.00	0.04	0.02	0.264	0.000	−0.021	−0.029	−4.22	−2.94	2150.75	300.72			−2.83	306.30
209	315	0.25	0.00	0.06	0.01	0.277	0.000	−0.044	−0.025	−4.84	−3.24	2152.34	307.20			−3.15	312.93
210	316	0.25	0.00	0.06	0.01	0.277	0.000	−0.044	−0.025	−4.72	−3.18	2155.11	312.50			−3.07	318.42
211	317	0.25	0.00	0.07	0.01	0.278	0.000	−0.056	−0.028	−5.41	−3.60	2156.67	319.01			−3.44	325.15
212	318	0.25	0.00	0.07	0.01	0.278	0.000	−0.056	−0.028	−5.32	−3.57	2159.32	324.43			−3.40	330.76
213	319	0.25	0.00	0.07	0.01	0.278	0.000	−0.056	−0.028	−5.64	−3.84	2160.60	331.22			−3.68	337.72
214	320	0.24	0.00	0.06	0.02	0.266	0.000	−0.045	−0.034	−5.45	−3.78	2163.08	336.81			−3.57	343.56
215	321	0.23	0.00	0.06	0.02	0.255	0.000	−0.047	−0.034	−5.80	−4.11	2164.27	343.69			−3.89	350.63
216	322	0.22	0.00	0.05	0.02	0.243	0.000	−0.037	−0.031	−5.45	−4.06	2166.63	349.41			−3.88	356.50
217	323	0.21	0.00	0.04	0.03	0.231	0.000	−0.026	−0.038	−5.86	−4.53	2167.83	356.28			−4.27	363.65
218	324	0.21	0.00	0.04	0.03	0.231	0.000	−0.026	−0.038	−5.88	−4.56	2170.12	362.05			−4.29	369.64
219	325	0.21	0.00	0.04	0.03	0.231	0.000	−0.026	−0.038	−6.30	−4.95	2171.11	369.14			−4.69	376.92
220	326	0.21	0.00	0.04	0.03	0.231	0.000	−0.026	−0.038	−6.26	−4.93	2173.21	375.11			−4.66	383.11
221	327	0.20	0.00	0.04	0.03	0.220	0.000	−0.028	−0.038	−6.66	−5.33	2174.08	382.32			−5.05	390.53
222	328	0.20	0.00	0.04	0.03	0.220	0.000	−0.028	−0.038	−6.49	−5.17	2175.91	388.55			−4.89	397.00
223	329	0.20	0.00	0.05	0.02	0.220	0.000	−0.041	−0.030	−6.81	−5.41	2176.49	396.04			−5.22	404.62
224	330	0.19	0.00	0.05	0.02	0.209	0.000	−0.043	−0.030	−6.58	−5.22	2178.16	402.45			−5.01	411.26

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 106 (Sg)																	
225	331	0.19	0.00	0.05	0.01	0.208	0.000	−0.044	−0.020	−6.72	−5.27	2178.43	410.25			−5.17	419.19
226	332	0.18	0.00	0.05	0.01	0.197	0.000	−0.045	−0.019	−6.51	−5.07	2179.95	416.80			−4.95	425.99
227	333	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−6.95	−5.32	2180.29	424.52			−5.20	433.95
228	334	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−6.70	−5.11	2181.69	431.21			−4.98	440.88
229	335	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−6.93	−5.34	2181.89	439.07			−5.23	448.99
230	336	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−6.93	−5.11	2183.13	445.90			−4.92	456.14
231	337	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−7.18	−5.36	2183.23	453.88			−5.18	464.36
232	338	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−7.30	−5.16	2184.39	460.79			−4.86	471.65
233	339	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−7.50	−5.36	2184.31	468.93			−5.06	480.05
Z = 107 (Bh)																	
140	247	0.24	0.00	0.02	0.01	0.262	0.000	0.002	−0.013	−1.73	−0.92	1788.32	121.58			−1.01	124.33
141	248	0.23	0.00	0.01	0.02	0.251	0.000	0.013	−0.021	−2.14	−1.21	1797.18	120.80			−1.29	123.49
142	249	0.23	0.00	0.01	0.02	0.251	0.000	0.013	−0.021	−2.38	−1.42	1807.33	118.72			−1.50	121.35
143	250	0.23	0.00	0.01	0.02	0.251	0.000	0.013	−0.021	−2.78	−1.85	1816.04	118.08			−1.93	120.64
144	251	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−3.03	−2.06	1825.90	116.29			−2.12	118.81
145	252	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−3.49	−2.45	1834.30	115.96			−2.52	118.41
146	253	0.23	0.00	0.02	0.02	0.251	0.000	0.001	−0.023	−3.85	−2.71	1843.93	114.40			−2.77	116.80
147	254	0.23	0.00	0.02	0.02	0.251	0.000	0.001	−0.023	−4.38	−3.19	1852.15	114.25			−3.26	116.59
148	255	0.23	0.00	0.03	0.02	0.252	0.000	−0.011	−0.026	−4.88	−3.52	1861.57	112.90			−3.58	115.20
149	256	0.23	0.00	0.03	0.03	0.252	0.000	−0.010	−0.036	−5.65	−4.05	1869.57	112.97			−4.09	115.24
150	257	0.23	0.00	0.03	0.03	0.252	0.000	−0.010	−0.036	−6.10	−4.46	1878.81	111.81			−4.48	114.04
151	258	0.23	0.00	0.03	0.03	0.252	0.000	−0.010	−0.036	−6.65	−4.95	1886.52	112.17			−4.99	114.35
152	259	0.23	0.00	0.04	0.03	0.253	0.000	−0.022	−0.038	−7.02	−5.13	1895.26	111.50			−5.14	113.67
153	260	0.23	0.00	0.04	0.02	0.253	0.000	−0.023	−0.029	−6.90	−5.23	1902.32	112.51			−5.27	114.61
154	261	0.23	0.00	0.05	0.02	0.254	0.000	−0.035	−0.031	−7.03	−5.13	1910.52	112.38			−5.15	114.47
155	262	0.22	0.00	0.05	0.02	0.243	0.000	−0.037	−0.031	−7.19	−5.26	1917.37	113.60			−5.29	115.66
156	263	0.22	0.00	0.05	0.01	0.242	0.000	−0.038	−0.021	−6.79	−5.07	1925.23	113.82			−5.10	115.85
157	264	0.22	0.00	0.06	0.01	0.243	0.000	−0.050	−0.023	−7.41	−5.38	1932.01	115.11			−5.41	117.11
158	265	0.21	0.00	0.06	0.01	0.232	0.000	−0.052	−0.023	−7.39	−5.37	1939.81	115.38			−5.38	117.39
159	266	0.21	0.00	0.06	0.01	0.232	0.000	−0.052	−0.023	−7.84	−5.79	1946.46	116.80			−5.81	118.78
160	267	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−8.23	−5.93	1954.16	117.18			−5.93	119.15
161	268	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−8.67	−6.36	1960.58	118.82			−6.37	120.78
162	269	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−8.74	−6.37	1967.93	119.54			−6.37	121.51
163	270	0.20	0.00	0.08	0.00	0.222	0.000	−0.079	−0.017	−9.27	−6.48	1973.81	121.74			−6.47	123.72
164	271	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−8.73	−6.03	1980.45	123.17			−6.00	125.15
165	272	0.20	0.00	0.08	−0.02	0.221	0.000	−0.081	0.002	−8.38	−5.70	1985.66	126.03			−5.67	128.01
166	273	0.19	0.00	0.08	−0.01	0.210	0.000	−0.082	−0.006	−7.67	−5.03	1991.87	127.89			−4.99	129.90
167	274	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−6.95	−4.78	1996.94	130.89			−4.76	132.89
168	275	0.16	0.00	0.06	−0.01	0.175	0.000	−0.062	−0.001	−5.99	−4.15	2002.96	132.95			−4.13	134.96
169	276	0.16	0.00	0.06	−0.01	0.175	0.000	−0.062	−0.001	−5.98	−4.17	2008.08	135.89			−4.15	137.92
170	277	0.14	0.00	0.05	−0.01	0.152	0.000	−0.052	0.002	−5.40	−3.97	2014.31	137.74			−3.95	139.79
171	278	0.12	0.00	0.04	0.00	0.130	0.000	−0.042	−0.005	−5.47	−4.32	2019.56	140.55			−4.31	142.62
172	279	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	−5.39	−4.25	2025.70	142.49			−4.23	144.58
173	280	0.12	0.00	0.05	−0.01	0.130	0.000	−0.054	0.003	−6.05	−4.65	2030.79	145.47			−4.62	147.60
174	281	0.12	0.00	0.05	−0.01	0.130	0.000	−0.054	0.003	−5.91	−4.53	2036.67	147.66			−4.49	149.83
175	282	0.12	0.00	0.05	−0.02	0.130	0.000	−0.055	0.013	−6.27	−4.83	2041.46	150.94			−4.77	153.17
176	283	0.12	0.00	0.05	−0.02	0.130	0.000	−0.055	0.013	−5.84	−4.44	2046.87	153.60			−4.38	155.88
177	284	0.09	0.00	0.04	−0.01	0.097	0.000	−0.045	0.006	−5.39	−4.32	2051.04	157.50			−4.29	159.79
178	285	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−4.66	−4.11	2056.43	160.18			−4.11	162.49
179	286	−0.07	0.00	0.01	0.00	−0.073	0.000	−0.010	0.001	−4.70	−4.22	2060.63	164.05			−4.22	166.41
180	287	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	−4.40	−3.87	2065.68	167.08			−3.87	169.49
181	288	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.62	−4.02	2069.74	171.09			−4.02	173.55
182	289	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.34	−3.74	2074.67	174.23			−3.75	176.76
183	290	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.56	−3.96	2078.60	178.37			−3.96	180.96
184	291	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.06	−3.49	2083.14	181.90			−3.49	184.56
185	292	0.00	0.06	0.00	0.00	0.002	−0.081	0.002	0.002	−4.00	−2.80	2085.99	187.13			−2.78	189.88
186	293	−0.01	0.07	0.00	0.00	−0.008	−0.094	0.002	0.003	−3.60	−2.19	2090.21	190.98			−2.16	193.82

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 107 (Bh)																	
187	294	0.00	0.08	0.00	0.00	0.003	−0.108	0.003	0.004	−3.38	−1.71	2093.07	196.18			−1.67	199.10
188	295	0.00	0.08	0.00	0.00	0.003	−0.108	0.003	0.004	−2.66	−1.02	2097.03	200.30			−0.98	203.31
189	296	−0.64	0.00	−0.01	−0.02	−0.630	0.000	0.154	−0.026	−3.13	6.96	2092.23	213.17			6.56	215.82
190	297	0.01	0.10	0.00	0.01	0.015	−0.134	0.004	−0.004	−2.44	−0.33	2103.98	209.49			−0.25	212.71
191	298	0.02	0.11	−0.01	0.02	0.026	−0.148	0.016	−0.012	−2.78	−0.20	2106.85	214.69			−0.08	218.04
192	299	0.23	0.00	0.01	−0.01	0.250	0.000	0.010	0.009	−0.89	−0.12	2111.06	218.56			−0.14	221.86
193	300	0.23	0.00	0.01	−0.01	0.250	0.000	0.010	0.009	−1.26	−0.43	2114.20	223.49			−0.46	226.88
194	301	0.23	0.00	0.02	−0.01	0.251	0.000	−0.003	0.006	−1.31	−0.43	2118.31	227.44			−0.46	230.95
195	302	0.24	0.00	0.02	0.00	0.262	0.000	0.001	−0.004	−1.67	−0.76	2121.31	232.52			−0.81	236.11
196	303	0.24	0.00	0.02	0.00	0.262	0.000	0.001	−0.004	−1.79	−0.87	2125.36	236.53			−0.91	240.24
197	304	0.24	0.00	0.02	0.00	0.262	0.000	0.001	−0.004	−2.24	−1.34	2128.34	241.63			−1.39	245.45
198	305	0.24	0.00	0.03	0.00	0.263	0.000	−0.012	−0.006	−2.50	−1.49	2132.26	245.78			−1.52	249.73
199	306	0.25	0.00	0.03	0.01	0.274	0.000	−0.008	−0.016	−3.11	−2.01	2135.12	250.99			−2.03	255.07
200	307	0.25	0.00	0.03	0.01	0.274	0.000	−0.008	−0.016	−3.33	−2.23	2138.95	255.23			−2.24	259.45
201	308	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−4.00	−2.73	2141.64	260.62			−2.74	264.97
202	309	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−4.08	−2.84	2145.20	265.13			−2.83	269.62
203	310	0.25	0.00	0.04	0.01	0.275	0.000	−0.020	−0.019	−4.29	−3.04	2147.42	270.98			−3.04	275.61
204	311	0.25	0.00	0.04	0.01	0.275	0.000	−0.020	−0.019	−4.17	−2.95	2150.64	275.83			−2.94	280.61
205	312	0.25	0.00	0.05	0.01	0.276	0.000	−0.032	−0.022	−4.60	−3.16	2152.71	281.83			−3.13	286.77
206	313	0.25	0.00	0.05	0.01	0.276	0.000	−0.032	−0.022	−4.38	−2.99	2155.68	286.93			−2.94	292.04
207	314	0.25	0.00	0.06	0.01	0.277	0.000	−0.044	−0.025	−4.89	−3.25	2157.67	293.01			−3.18	298.30
208	315	0.25	0.00	0.06	0.01	0.277	0.000	−0.044	−0.025	−4.76	−3.17	2160.57	298.18			−3.08	303.64
209	316	0.25	0.00	0.06	0.01	0.277	0.000	−0.044	−0.025	−5.05	−3.48	2162.46	304.37			−3.40	309.98
210	317	0.25	0.00	0.07	0.01	0.278	0.000	−0.056	−0.028	−5.32	−3.49	2165.31	309.58			−3.35	315.42
211	318	0.25	0.00	0.07	0.01	0.278	0.000	−0.056	−0.028	−5.69	−3.82	2167.07	315.89			−3.69	321.89
212	319	0.25	0.00	0.08	0.01	0.279	0.000	−0.068	−0.031	−5.99	−3.83	2169.77	321.27			−3.62	327.51
213	320	0.25	0.00	0.08	0.01	0.279	0.000	−0.068	−0.031	−6.35	−4.21	2171.44	327.67			−4.01	334.08
214	321	0.24	0.00	0.07	0.01	0.267	0.000	−0.058	−0.027	−5.85	−4.08	2173.86	333.32			−3.92	339.87
215	322	0.24	0.00	0.07	0.01	0.267	0.000	−0.058	−0.027	−6.16	−4.31	2175.25	340.01			−4.17	346.73
216	323	0.23	0.00	0.06	0.02	0.255	0.000	−0.047	−0.034	−5.95	−4.33	2177.67	345.66			−4.12	352.63
217	324	0.22	0.00	0.05	0.02	0.243	0.000	−0.037	−0.031	−6.03	−4.64	2178.99	352.40			−4.49	359.51
218	325	0.21	0.00	0.05	0.02	0.231	0.000	−0.039	−0.030	−5.98	−4.61	2181.22	358.24			−4.44	365.56
219	326	0.21	0.00	0.05	0.02	0.231	0.000	−0.039	−0.030	−6.42	−5.03	2182.52	365.02			−4.86	372.52
220	327	0.20	0.00	0.04	0.03	0.220	0.000	−0.028	−0.038	−6.40	−5.08	2184.71	370.90			−4.82	378.71
221	328	0.20	0.00	0.04	0.03	0.220	0.000	−0.028	−0.038	−6.81	−5.48	2185.85	377.83			−5.22	385.84
222	329	0.20	0.00	0.05	0.02	0.220	0.000	−0.041	−0.030	−6.70	−5.34	2187.70	384.05			−5.16	392.20
223	330	0.20	0.00	0.05	0.02	0.220	0.000	−0.041	−0.030	−7.03	−5.66	2188.65	391.18			−5.49	399.54
224	331	0.19	0.00	0.05	0.02	0.209	0.000	−0.043	−0.030	−6.83	−5.31	2190.15	397.74			−5.12	406.34
225	332	0.19	0.00	0.05	0.01	0.208	0.000	−0.044	−0.020	−6.98	−5.54	2190.88	405.09			−5.45	413.80
226	333	0.18	0.00	0.05	0.01	0.197	0.000	−0.045	−0.019	−6.81	−5.37	2192.44	411.60			−5.27	420.55
227	334	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−7.30	−5.66	2193.09	419.01			−5.56	428.20
228	335	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−7.05	−5.46	2194.49	425.69			−5.34	435.12
229	336	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−7.60	−5.73	2195.01	433.25			−5.57	442.96
230	337	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−7.34	−5.50	2196.25	440.07			−5.33	450.04
231	338	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−7.58	−5.75	2196.62	447.78			−5.58	457.98
232	339	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−7.76	−5.60	2197.82	454.65			−5.31	465.23
Z = 108 (Hs)																	
142	250	0.23	0.00	0.02	0.01	0.251	0.000	−0.001	−0.013	−1.79	−1.05	1806.69	126.65			−1.13	129.54
143	251	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−2.26	−1.36	1815.32	126.09			−1.43	128.92
144	252	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−2.53	−1.60	1825.57	123.91			−1.66	126.69
145	253	0.22	0.00	0.01	0.02	0.240	0.000	0.011	−0.021	−2.98	−2.06	1834.07	123.48			−2.12	126.18
146	254	0.22	0.00	0.02	0.02	0.240	0.000	−0.001	−0.023	−3.36	−2.33	1844.07	121.55			−2.38	124.20
147	255	0.22	0.00	0.02	0.02	0.240	0.000	−0.001	−0.023	−3.89	−2.81	1852.32	121.37			−2.86	123.96
148	256	0.22	0.00	0.03	0.02	0.241	0.000	−0.013	−0.026	−4.39	−3.16	1862.13	119.63			−3.21	122.18
149	257	0.23	0.00	0.04	0.02	0.253	0.000	−0.023	−0.029	−5.12	−3.67	1870.14	119.69			−3.72	122.17
150	258	0.23	0.00	0.04	0.02	0.253	0.000	−0.023	−0.029	−5.57	−4.07	1879.72	118.18			−4.11	120.63
151	259	0.23	0.00	0.04	0.02	0.253	0.000	−0.023	−0.029	−6.11	−4.56	1887.46	118.52			−4.61	120.91

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 108 (Hs)																	
152	260	0.23	0.00	0.04	0.02	0.253	0.000	−0.023	−0.029	−6.28	−4.73	1896.55	117.50			−4.76	119.86
153	261	0.23	0.00	0.05	0.02	0.254	0.000	−0.035	−0.031	−6.73	−4.92	1903.73	118.39			−4.95	120.71
154	262	0.22	0.00	0.05	0.02	0.243	0.000	−0.037	−0.031	−6.67	−4.85	1912.32	117.88			−4.86	120.18
155	263	0.22	0.00	0.05	0.01	0.242	0.000	−0.038	−0.021	−6.65	−4.99	1919.21	119.06			−5.03	121.30
156	264	0.22	0.00	0.06	0.01	0.243	0.000	−0.050	−0.023	−6.83	−4.90	1927.52	118.82	119.60	0.044	−4.92	121.05
157	265	0.22	0.00	0.06	0.01	0.243	0.000	−0.050	−0.023	−7.16	−5.22	1934.33	120.08			−5.24	122.28
158	266	0.21	0.00	0.06	0.01	0.232	0.000	−0.052	−0.023	−7.19	−5.25	1942.52	119.96			−5.26	122.15
159	267	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−7.94	−5.70	1949.22	121.32			−5.72	123.49
160	268	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−8.13	−5.90	1957.33	121.29			−5.90	123.44
161	269	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−8.57	−6.27	1963.73	122.96			−6.28	125.10
162	270	0.20	0.00	0.08	0.00	0.222	0.000	−0.079	−0.017	−9.07	−6.35	1971.48	123.28			−6.32	125.44
163	271	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−9.24	−6.56	1977.48	125.35			−6.55	127.49
164	272	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−8.76	−6.12	1984.48	126.43			−6.09	128.57
165	273	0.20	0.00	0.08	−0.02	0.221	0.000	−0.081	0.002	−8.42	−5.79	1989.72	129.26			−5.76	131.40
166	274	0.19	0.00	0.08	−0.02	0.209	0.000	−0.083	0.003	−7.75	−5.11	1996.24	130.80			−5.06	132.97
167	275	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−7.41	−4.84	2001.32	133.80			−4.79	135.97
168	276	0.16	0.00	0.06	−0.01	0.175	0.000	−0.062	−0.001	−6.01	−4.22	2007.68	135.51			−4.19	137.67
169	277	0.15	0.00	0.06	−0.01	0.164	0.000	−0.063	0.000	−6.05	−4.29	2012.89	138.38			−4.26	140.54
170	278	0.12	0.00	0.04	0.00	0.130	0.000	−0.042	−0.005	−5.32	−4.18	2019.54	139.79			−4.17	141.96
171	279	0.12	0.00	0.04	0.00	0.130	0.000	−0.042	−0.005	−5.74	−4.59	2024.87	142.53			−4.59	144.71
172	280	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	−5.68	−4.54	2031.37	144.11			−4.53	146.32
173	281	0.12	0.00	0.05	−0.01	0.130	0.000	−0.054	0.003	−6.35	−4.95	2036.49	147.06			−4.92	149.31
174	282	0.12	0.00	0.05	−0.02	0.130	0.000	−0.055	0.013	−6.31	−4.86	2042.73	148.89			−4.80	151.19
175	283	0.10	0.00	0.05	−0.02	0.108	0.000	−0.057	0.014	−6.59	−5.13	2047.51	152.18			−5.07	154.52
176	284	0.09	0.00	0.05	−0.02	0.097	0.000	−0.057	0.015	−6.28	−4.84	2053.34	154.42			−4.77	156.80
177	285	0.08	0.00	0.04	−0.02	0.086	0.000	−0.046	0.016	−6.04	−4.88	2057.69	158.14			−4.82	160.55
178	286	−0.08	0.00	0.01	−0.01	−0.084	0.000	−0.009	0.010	−5.13	−4.63	2063.36	160.54			−4.62	162.94
179	287	−0.05	0.00	0.01	0.00	−0.053	0.000	−0.011	0.001	−5.28	−4.74	2067.58	164.39			−4.74	166.83
180	288	−0.04	0.00	0.01	0.00	−0.042	0.000	−0.011	0.001	−5.04	−4.45	2073.01	167.03			−4.45	169.51
181	289	−0.03	0.00	0.01	0.00	−0.032	0.000	−0.011	0.000	−5.31	−4.67	2077.16	170.96			−4.67	173.50
182	290	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.95	−4.33	2082.34	173.85			−4.33	176.43
183	291	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.16	−4.53	2086.27	177.99			−4.53	180.64
184	292	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.64	−4.04	2091.11	181.22			−4.04	183.93
185	293	0.00	0.04	0.00	0.00	0.001	−0.054	0.001	0.001	−4.00	−3.16	2093.79	186.61			−3.16	189.40
186	294	0.00	0.04	0.00	0.00	0.001	−0.054	0.001	0.001	−3.31	−2.51	2098.28	190.20			−2.50	193.05
187	295	0.00	0.07	0.00	0.00	0.002	−0.094	0.002	0.003	−3.30	−1.91	2101.05	195.50			−1.88	198.45
188	296	0.00	0.08	0.00	0.00	0.003	−0.108	0.003	0.004	−2.81	−1.17	2105.27	199.35			−1.12	202.39
189	297	−0.64	0.00	−0.01	−0.02	−0.630	0.000	0.154	−0.026	−2.85	6.93	2100.36	212.33			6.58	215.06
190	298	−0.64	0.00	−0.01	−0.03	−0.629	0.000	0.156	−0.019	−2.23	7.33	2104.73	216.03			7.05	218.91
191	299	0.02	0.10	−0.01	0.01	0.026	−0.135	0.016	−0.003	−2.37	−0.18	2115.26	213.57			−0.10	216.90
192	300	0.23	0.00	0.01	−0.01	0.250	0.000	0.010	0.009	−0.51	0.17	2119.50	217.40			0.16	220.73
193	301	0.23	0.00	0.01	−0.01	0.250	0.000	0.010	0.009	−0.88	−0.14	2122.66	222.32			−0.16	225.73
194	302	0.23	0.00	0.01	−0.01	0.250	0.000	0.010	0.009	−0.92	−0.15	2127.09	225.96			−0.17	229.47
195	303	0.23	0.00	0.02	−0.01	0.251	0.000	−0.003	0.006	−1.31	−0.47	2130.09	231.02			−0.50	234.63
196	304	0.24	0.00	0.02	0.00	0.262	0.000	0.001	−0.004	−1.39	−0.62	2134.48	234.71			−0.65	238.41
197	305	0.24	0.00	0.02	0.00	0.262	0.000	0.001	−0.004	−1.85	−1.03	2137.41	239.85			−1.07	243.65
198	306	0.25	0.00	0.03	0.00	0.274	0.000	−0.009	−0.006	−2.10	−1.18	2141.64	243.69			−1.21	247.62
199	307	0.25	0.00	0.03	0.00	0.274	0.000	−0.009	−0.006	−2.61	−1.66	2144.47	248.93			−1.70	252.97
200	308	0.26	0.00	0.03	0.01	0.286	0.000	−0.006	−0.016	−2.91	−1.91	2148.64	252.84			−1.92	257.02
201	309	0.26	0.00	0.03	0.01	0.286	0.000	−0.006	−0.016	−3.42	−2.40	2151.31	258.23			−2.41	262.53
202	310	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−3.67	−2.51	2155.18	262.44			−2.50	266.90
203	311	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−3.87	−2.72	2157.43	268.26			−2.72	272.84
204	312	0.25	0.00	0.04	0.01	0.275	0.000	−0.020	−0.019	−3.74	−2.60	2160.89	272.87			−2.58	277.60
205	313	0.25	0.00	0.05	0.01	0.276	0.000	−0.032	−0.022	−4.16	−2.80	2162.98	278.85			−2.76	283.74
206	314	0.25	0.00	0.05	0.01	0.276	0.000	−0.032	−0.022	−3.95	−2.63	2166.24	283.66			−2.58	288.70
207	315	0.25	0.00	0.06	0.01	0.277	0.000	−0.044	−0.025	−4.48	−2.91	2168.25	289.72			−2.83	294.94
208	316	0.25	0.00	0.06	0.01	0.277	0.000	−0.044	−0.025	−4.34	−2.82	2171.44	294.60			−2.72	299.98

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 108 (Hs)																	
209	317	0.25	0.00	0.07	0.00	0.278	0.000	−0.057	−0.018	−4.88	−3.12	2173.32	300.79			−3.03	306.32
210	318	0.25	0.00	0.07	0.00	0.278	0.000	−0.057	−0.018	−4.80	−3.08	2176.41	305.77			−2.98	311.47
211	319	0.25	0.00	0.08	0.00	0.279	0.000	−0.069	−0.021	−5.57	−3.51	2178.28	311.98			−3.37	317.87
212	320	0.25	0.00	0.08	0.00	0.279	0.000	−0.069	−0.021	−5.49	−3.48	2181.23	317.09			−3.33	323.17
213	321	0.25	0.00	0.08	0.01	0.279	0.000	−0.068	−0.031	−5.99	−3.90	2182.95	323.45			−3.70	329.75
214	322	0.24	0.00	0.07	0.01	0.267	0.000	−0.058	−0.027	−5.47	−3.77	2185.65	328.82			−3.60	335.25
215	323	0.23	0.00	0.07	0.01	0.255	0.000	−0.060	−0.026	−5.81	−4.00	2187.04	335.50			−3.84	342.11
216	324	0.22	0.00	0.06	0.02	0.244	0.000	−0.049	−0.033	−5.57	−3.99	2189.72	340.90			−3.77	347.74
217	325	0.22	0.00	0.06	0.02	0.244	0.000	−0.049	−0.033	−5.95	−4.36	2191.11	347.58			−4.15	354.60
218	326	0.21	0.00	0.05	0.02	0.231	0.000	−0.039	−0.030	−5.60	−4.28	2193.57	353.18			−4.10	360.36
219	327	0.21	0.00	0.05	0.02	0.231	0.000	−0.039	−0.030	−6.02	−4.69	2194.87	359.96			−4.52	367.32
220	328	0.20	0.00	0.05	0.02	0.220	0.000	−0.041	−0.030	−6.00	−4.67	2197.25	365.64			−4.48	373.21
221	329	0.20	0.00	0.05	0.02	0.220	0.000	−0.041	−0.030	−6.43	−5.08	2198.42	372.55			−4.90	380.31
222	330	0.20	0.00	0.05	0.02	0.220	0.000	−0.041	−0.030	−6.35	−5.04	2200.66	378.39			−4.86	386.36
223	331	0.19	0.00	0.05	0.02	0.209	0.000	−0.043	−0.030	−6.70	−5.20	2201.43	385.68			−5.02	393.86
224	332	0.19	0.00	0.05	0.01	0.208	0.000	−0.044	−0.020	−6.38	−5.00	2203.37	391.82			−4.89	400.13
225	333	0.18	0.00	0.05	0.01	0.197	0.000	−0.045	−0.019	−6.77	−5.34	2204.20	399.06			−5.23	407.59
226	334	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−6.53	−5.18	2206.05	405.27			−5.12	413.98
227	335	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−7.14	−5.54	2206.77	412.62			−5.43	421.60
228	336	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.41	−5.87	2208.98	418.49			−5.87	427.58
229	337	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.56	−6.02	2209.37	426.17			−6.02	435.49
230	338	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.36	−5.85	2210.95	432.66			−5.85	442.22
231	339	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−6.39	−5.90	2211.12	440.57			−5.90	450.37
Z = 109 (Mt)																	
144	253	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−2.33	−1.55	1823.24	133.52			−1.64	136.54
145	254	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−2.78	−1.96	1832.05	132.79			−2.04	135.74
146	255	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−3.22	−2.35	1842.20	130.71			−2.42	133.60
147	256	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−3.72	−2.78	1850.77	130.21			−2.87	133.03
148	257	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−4.12	−3.13	1860.61	128.44			−3.21	131.21
149	258	0.22	0.00	0.04	0.01	0.241	0.000	−0.026	−0.019	−4.83	−3.62	1868.95	128.17			−3.69	130.87
150	259	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−5.48	−4.04	1878.60	126.60			−4.10	129.27
151	260	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−6.03	−4.54	1886.70	126.57			−4.60	129.18
152	261	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−6.22	−4.73	1895.83	125.51			−4.77	128.09
153	262	0.22	0.00	0.05	0.02	0.243	0.000	−0.037	−0.031	−6.70	−4.93	1903.38	126.03			−4.98	128.56
154	263	0.22	0.00	0.05	0.01	0.242	0.000	−0.038	−0.021	−6.48	−4.90	1912.04	125.44			−4.95	127.93
155	264	0.22	0.00	0.06	0.01	0.243	0.000	−0.050	−0.023	−7.01	−5.12	1919.34	126.21			−5.17	128.66
156	265	0.22	0.00	0.06	0.00	0.243	0.000	−0.052	−0.014	−6.81	−5.05	1927.70	125.92			−5.10	128.33
157	266	0.21	0.00	0.06	0.00	0.231	0.000	−0.053	−0.013	−7.21	−5.41	1934.92	126.78			−5.46	129.16
158	267	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−7.67	−5.48	1943.16	126.60			−5.51	128.98
159	268	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−8.22	−5.99	1950.28	127.56			−6.03	129.90
160	269	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−8.40	−6.16	1958.39	127.52			−6.18	129.85
161	270	0.21	0.00	0.07	−0.01	0.232	0.000	−0.066	−0.006	−8.81	−6.59	1965.19	128.79			−6.63	131.09
162	271	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−9.42	−6.77	1973.06	128.99			−6.77	131.30
163	272	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−9.66	−7.00	1979.43	130.70			−7.01	132.99
164	273	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−9.18	−6.57	1986.45	131.74			−6.56	134.04
165	274	0.20	0.00	0.09	−0.02	0.222	0.000	−0.093	0.000	−9.37	−6.30	1992.10	134.17			−6.28	136.47
166	275	0.19	0.00	0.08	−0.02	0.209	0.000	−0.083	0.003	−8.23	−5.61	1998.63	135.70			−5.58	138.01
167	276	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−7.90	−5.33	2004.03	138.38			−5.30	140.68
168	277	0.16	0.00	0.06	−0.01	0.175	0.000	−0.062	−0.001	−6.47	−4.69	2010.40	140.07			−4.68	142.37
169	278	0.14	0.00	0.05	0.00	0.153	0.000	−0.052	−0.007	−6.26	−4.82	2016.00	142.55			−4.82	144.84
170	279	0.12	0.00	0.04	0.00	0.130	0.000	−0.042	−0.005	−5.91	−4.77	2022.73	143.89			−4.76	146.19
171	280	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	−6.34	−5.20	2028.41	146.29			−5.19	148.60
172	281	0.12	0.00	0.05	−0.01	0.130	0.000	−0.054	0.003	−6.54	−5.14	2034.92	147.84			−5.12	150.19
173	282	0.12	0.00	0.05	−0.01	0.130	0.000	−0.054	0.003	−6.94	−5.53	2040.35	150.49			−5.51	152.85
174	283	0.12	0.00	0.05	−0.02	0.130	0.000	−0.055	0.013	−6.90	−5.45	2046.62	152.29			−5.40	154.70
175	284	0.10	0.00	0.05	−0.02	0.108	0.000	−0.057	0.014	−7.21	−5.72	2051.74	155.24			−5.67	157.69
176	285	0.10	0.00	0.05	−0.02	0.108	0.000	−0.057	0.014	−6.85	−5.40	2057.55	157.50			−5.34	159.98

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 109 (Mt)																	
177	286	0.08	0.00	0.04	−0.01	0.086	0.000	−0.045	0.007	−6.49	−5.39	2062.18	160.95			−5.36	163.43
178	287	−0.08	0.00	0.02	0.00	−0.084	0.000	−0.021	0.002	−5.78	−5.21	2067.94	163.25			−5.21	165.74
179	288	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−5.89	−5.32	2072.49	166.77			−5.33	169.30
180	289	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−5.65	−5.05	2077.95	169.38			−5.05	171.96
181	290	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−5.95	−5.30	2082.45	172.96			−5.31	175.58
182	291	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.63	−4.99	2087.68	175.80			−4.99	178.47
183	292	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.81	−5.17	2091.91	179.64			−5.17	182.36
184	293	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.28	−4.66	2096.75	182.87			−4.67	185.65
185	294	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−4.34	−3.76	2099.71	187.98			−3.76	190.82
186	295	0.00	0.03	0.00	0.00	0.000	−0.040	0.000	0.001	−3.79	−3.10	2104.21	191.56			−3.09	194.46
187	296	0.00	0.06	0.00	0.00	0.002	−0.081	0.002	0.002	−3.57	−2.41	2107.20	196.63			−2.39	199.62
188	297	0.00	0.07	0.00	0.00	0.002	−0.094	0.002	0.003	−3.02	−1.65	2111.42	200.49			−1.62	203.56
189	298	0.01	0.08	0.00	0.01	0.014	−0.107	0.003	−0.006	−2.84	−1.23	2114.50	205.48			−1.19	208.64
190	299	0.01	0.09	0.00	0.01	0.014	−0.121	0.003	−0.005	−2.50	−0.62	2118.67	209.38			−0.56	212.63
191	300	0.02	0.09	0.00	0.01	0.025	−0.121	0.003	−0.005	−2.23	−0.47	2121.85	214.27			−0.41	217.61
192	301	0.02	0.10	0.00	0.02	0.025	−0.133	0.004	−0.013	−2.12	0.02	2125.97	218.22			0.13	221.69
193	302	0.23	0.00	0.01	−0.01	0.250	0.000	0.010	0.009	−0.83	−0.15	2129.29	222.97			−0.19	226.38
194	303	0.23	0.00	0.01	−0.01	0.250	0.000	0.010	0.009	−0.87	−0.17	2133.75	226.59			−0.20	230.10
195	304	0.24	0.00	0.02	−0.01	0.262	0.000	−0.001	0.006	−1.27	−0.56	2137.12	231.29			−0.60	234.88
196	305	0.24	0.00	0.02	−0.01	0.262	0.000	−0.001	0.006	−1.35	−0.63	2141.45	235.02			−0.67	238.73
197	306	0.25	0.00	0.02	0.00	0.273	0.000	0.003	−0.003	−1.78	−1.03	2144.67	239.88			−1.09	243.66
198	307	0.26	0.00	0.03	0.00	0.285	0.000	−0.007	−0.007	−2.03	−1.20	2148.93	243.69			−1.25	247.59
199	308	0.25	0.00	0.03	0.00	0.274	0.000	−0.009	−0.006	−2.54	−1.65	2152.03	248.66			−1.71	252.66
200	309	0.26	0.00	0.03	0.00	0.285	0.000	−0.007	−0.007	−2.75	−1.89	2156.19	252.57			−1.93	256.70
201	310	0.26	0.00	0.03	0.01	0.286	0.000	−0.006	−0.016	−3.34	−2.39	2159.18	257.65			−2.42	261.91
202	311	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−3.56	−2.46	2163.02	261.89			−2.46	266.30
203	312	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−3.77	−2.69	2165.57	267.40			−2.70	271.92
204	313	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−3.57	−2.52	2169.01	272.04			−2.52	276.70
205	314	0.25	0.00	0.05	0.00	0.276	0.000	−0.033	−0.012	−3.89	−2.67	2171.33	277.79			−2.68	282.57
206	315	0.25	0.00	0.06	0.00	0.277	0.000	−0.045	−0.015	−3.99	−2.56	2174.66	282.53			−2.53	287.49
207	316	0.25	0.00	0.06	0.00	0.277	0.000	−0.045	−0.015	−4.28	−2.84	2176.97	288.29			−2.82	293.38
208	317	0.25	0.00	0.07	0.00	0.278	0.000	−0.057	−0.018	−4.49	−2.80	2180.22	293.11			−2.73	298.40
209	318	0.25	0.00	0.07	0.00	0.278	0.000	−0.057	−0.018	−4.84	−3.11	2182.40	299.00			−3.04	304.43
210	319	0.25	0.00	0.08	0.00	0.279	0.000	−0.069	−0.021	−5.16	−3.12	2185.55	303.92			−3.00	309.56
211	320	0.25	0.00	0.08	0.00	0.279	0.000	−0.069	−0.021	−5.56	−3.53	2187.69	309.86			−3.41	315.64
212	321	0.25	0.00	0.08	0.00	0.279	0.000	−0.069	−0.021	−5.47	−3.50	2190.64	314.98			−3.37	320.94
213	322	0.25	0.00	0.08	0.00	0.279	0.000	−0.069	−0.021	−5.81	−3.86	2192.58	321.10			−3.74	327.21
214	323	0.24	0.00	0.08	0.00	0.267	0.000	−0.071	−0.020	−5.69	−3.69	2195.25	326.51			−3.54	332.81
215	324	0.23	0.00	0.07	0.01	0.255	0.000	−0.060	−0.026	−5.80	−4.02	2197.03	332.80			−3.88	339.27
216	325	0.22	0.00	0.06	0.01	0.243	0.000	−0.050	−0.023	−5.37	−3.92	2199.62	338.28			−3.81	344.90
217	326	0.22	0.00	0.06	0.01	0.243	0.000	−0.050	−0.023	−5.70	−4.23	2201.24	344.74			−4.13	351.52
218	327	0.20	0.00	0.04	0.02	0.219	0.000	−0.029	−0.028	−5.34	−4.25	2203.81	350.23			−4.13	357.22
219	328	0.20	0.00	0.05	0.02	0.220	0.000	−0.041	−0.030	−6.04	−4.72	2205.45	356.67			−4.57	363.88
220	329	0.20	0.00	0.05	0.02	0.220	0.000	−0.041	−0.030	−6.05	−4.77	2207.91	362.28			−4.60	369.69
221	330	0.20	0.00	0.05	0.02	0.220	0.000	−0.041	−0.030	−6.47	−5.19	2209.35	368.91			−5.02	376.50
222	331	0.19	0.00	0.05	0.02	0.209	0.000	−0.043	−0.030	−6.45	−4.99	2211.43	374.90			−4.81	382.71
223	332	0.19	0.00	0.05	0.01	0.208	0.000	−0.044	−0.020	−6.67	−5.30	2212.64	381.76			−5.22	389.67
224	333	0.18	0.00	0.05	0.01	0.197	0.000	−0.045	−0.019	−6.61	−5.20	2214.68	387.79			−5.10	395.92
225	334	0.18	0.00	0.05	0.01	0.197	0.000	−0.045	−0.019	−7.01	−5.60	2215.85	394.70			−5.51	403.03
226	335	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−7.10	−5.51	2217.77	400.85			−5.41	409.41
227	336	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−7.42	−5.84	2218.73	407.95			−5.74	416.73
228	337	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.21	−6.65	2221.42	413.33			−6.65	422.23
229	338	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−7.33	−6.77	2222.06	420.77			−6.78	429.89
230	339	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.12	−6.59	2223.62	427.28			−6.59	436.62
Z = 110 (Ds)																	
146	256	0.21	0.00	0.02	0.01	0.229	0.000	−0.004	−0.013	−2.51	−1.72	1841.32	138.88			−1.79	142.05
147	257	0.21	0.00	0.02	0.01	0.229	0.000	−0.004	−0.013	−2.98	−2.15	1849.91	138.36			−2.22	141.46

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 110 (Ds)																	
148	258	0.22	0.00	0.03	0.01	0.241	0.000	−0.014	−0.016	−3.47	−2.62	1860.22	136.12			−2.68	139.15
149	259	0.21	0.00	0.03	0.01	0.229	0.000	−0.016	−0.016	−4.03	−3.10	1868.60	135.81			−3.17	138.78
150	260	0.22	0.00	0.04	0.01	0.241	0.000	−0.026	−0.019	−4.62	−3.47	1878.54	133.94			−3.53	136.86
151	261	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−5.33	−3.97	1886.67	133.88			−4.03	136.75
152	262	0.22	0.00	0.04	0.02	0.242	0.000	−0.025	−0.028	−5.53	−4.15	1896.16	132.47			−4.19	135.30
153	263	0.22	0.00	0.05	0.01	0.242	0.000	−0.038	−0.021	−5.84	−4.36	1903.74	132.96			−4.42	135.72
154	264	0.22	0.00	0.05	0.01	0.242	0.000	−0.038	−0.021	−5.82	−4.36	1912.77	132.00			−4.40	134.72
155	265	0.22	0.00	0.06	0.00	0.243	0.000	−0.052	−0.014	−6.26	−4.59	1920.13	132.71			−4.65	135.38
156	266	0.21	0.00	0.06	0.00	0.231	0.000	−0.053	−0.013	−6.27	−4.59	1928.91	132.01			−4.63	134.65
157	267	0.21	0.00	0.06	0.00	0.231	0.000	−0.053	−0.013	−6.67	−4.92	1936.12	132.87			−4.97	135.47
158	268	0.21	0.00	0.07	0.00	0.232	0.000	−0.065	−0.015	−7.17	−5.07	1944.79	132.26			−5.10	134.85
159	269	0.21	0.00	0.07	−0.01	0.232	0.000	−0.066	−0.006	−7.67	−5.58	1951.94	133.19			−5.62	135.74
160	270	0.21	0.00	0.07	−0.01	0.232	0.000	−0.066	−0.006	−7.88	−5.77	1960.40	132.79			−5.79	135.33
161	271	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−8.86	−6.30	1967.33	133.94			−6.32	136.46
162	272	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−9.07	−6.50	1975.56	133.77			−6.50	136.29
163	273	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−9.31	−6.73	1981.96	135.45			−6.74	137.94
164	274	0.20	0.00	0.09	−0.02	0.222	0.000	−0.093	0.000	−9.40	−6.38	1989.40	136.08			−6.35	138.59
165	275	0.20	0.00	0.09	−0.02	0.222	0.000	−0.093	0.000	−9.09	−6.05	1995.01	138.55			−6.03	141.03
166	276	0.19	0.00	0.09	−0.02	0.210	0.000	−0.094	0.001	−8.47	−5.46	2001.98	139.64			−5.41	142.14
167	277	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−7.72	−5.21	2007.44	142.25			−5.18	144.73
168	278	0.16	0.00	0.06	−0.01	0.175	0.000	−0.062	−0.001	−6.39	−4.66	2014.24	143.53			−4.65	145.99
169	279	0.12	0.00	0.04	0.00	0.130	0.000	−0.042	−0.005	−6.11	−4.98	2020.04	145.80			−4.97	148.25
170	280	0.12	0.00	0.04	0.00	0.130	0.000	−0.042	−0.005	−6.11	−4.98	2027.16	146.76			−4.97	149.21
171	281	0.12	0.00	0.04	0.00	0.130	0.000	−0.042	−0.005	−6.52	−5.38	2032.83	149.15			−5.38	151.61
172	282	0.12	0.00	0.04	−0.01	0.130	0.000	−0.043	0.005	−6.46	−5.33	2039.68	150.37			−5.32	152.86
173	283	0.10	0.00	0.04	−0.01	0.108	0.000	−0.044	0.005	−6.91	−5.75	2045.17	152.96			−5.74	155.46
174	284	0.09	0.00	0.04	−0.01	0.097	0.000	−0.045	0.006	−6.89	−5.74	2051.83	154.37			−5.72	156.89
175	285	0.09	0.00	0.05	−0.01	0.097	0.000	−0.057	0.005	−7.54	−6.11	2057.05	157.21			−6.07	159.77
176	286	0.09	0.00	0.05	−0.02	0.097	0.000	−0.057	0.015	−7.34	−5.85	2063.27	159.06			−5.79	161.67
177	287	0.07	0.00	0.04	−0.01	0.075	0.000	−0.046	0.007	−7.06	−5.92	2068.00	162.41			−5.89	165.01
178	288	−0.07	0.00	0.01	0.00	−0.073	0.000	−0.010	0.001	−6.28	−5.77	2074.10	164.38			−5.77	166.98
179	289	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−6.61	−5.99	2078.78	167.77			−5.99	170.41
180	290	−0.03	0.00	0.01	0.00	−0.032	0.000	−0.011	0.000	−6.41	−5.76	2084.61	170.01			−5.76	172.69
181	291	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.66	−5.98	2089.09	173.60			−5.98	176.32
182	292	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.32	−5.65	2094.62	176.14			−5.66	178.90
183	293	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.49	−5.81	2098.85	179.98			−5.81	182.79
184	294	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.94	−5.29	2104.00	182.91			−5.30	185.77
185	295	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−4.98	−4.37	2106.96	188.02			−4.37	190.94
186	296	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.23	−3.66	2111.73	191.33			−3.67	194.30
187	297	0.00	0.05	0.00	0.00	0.001	−0.067	0.001	0.002	−3.70	−2.74	2114.50	196.63			−2.72	199.68
188	298	0.00	0.05	0.00	0.00	0.001	−0.067	0.001	0.002	−2.85	−1.93	2118.97	200.22			−1.91	203.34
189	299	0.01	0.07	0.00	0.01	0.013	−0.094	0.002	−0.007	−2.70	−1.36	2121.92	205.35			−1.32	208.55
190	300	0.01	0.08	0.00	0.01	0.014	−0.107	0.003	−0.006	−2.26	−0.68	2126.34	208.99			−0.63	212.29
191	301	0.03	0.09	−0.01	0.01	0.035	−0.122	0.015	−0.004	−2.34	−0.51	2129.51	213.90			−0.45	217.28
192	302	0.03	0.10	−0.01	0.02	0.036	−0.134	0.016	−0.013	−2.16	0.02	2133.90	217.58			0.13	221.09
193	303	0.34	0.00	0.07	−0.01	0.381	0.000	−0.035	−0.013	−0.97	0.04	2137.05	222.50			−0.02	225.93
194	304	0.23	0.00	0.01	−0.01	0.250	0.000	0.010	0.009	−0.48	0.05	2141.78	225.85			0.03	229.40
195	305	0.24	0.00	0.01	−0.01	0.262	0.000	0.012	0.009	−0.86	−0.28	2145.10	230.60			−0.31	234.22
196	306	0.24	0.00	0.02	−0.01	0.262	0.000	−0.001	0.006	−0.93	−0.31	2149.69	234.07			−0.33	237.80
197	307	0.24	0.00	0.02	−0.01	0.262	0.000	−0.001	0.006	−1.37	−0.70	2152.91	238.93			−0.73	242.74
198	308	0.26	0.00	0.03	0.00	0.285	0.000	−0.007	−0.007	−1.58	−0.87	2157.47	242.44			−0.90	246.35
199	309	0.26	0.00	0.03	0.00	0.285	0.000	−0.007	−0.007	−2.08	−1.37	2160.64	247.34			−1.41	251.35
200	310	0.26	0.00	0.03	0.00	0.285	0.000	−0.007	−0.007	−2.31	−1.55	2165.05	251.00			−1.59	255.13
201	311	0.26	0.00	0.03	0.00	0.285	0.000	−0.007	−0.007	−2.80	−2.01	2168.01	256.11			−2.06	260.34
202	312	0.26	0.00	0.04	0.00	0.286	0.000	−0.019	−0.010	−2.97	−2.05	2172.10	260.09			−2.07	264.46
203	313	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−3.29	−2.30	2174.70	265.57			−2.30	270.07
204	314	0.26	0.00	0.04	0.01	0.287	0.000	−0.018	−0.019	−3.09	−2.13	2178.43	269.91			−2.12	274.55

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 110 (Ds)																	
205	315	0.26	0.00	0.05	0.00	0.287	0.000	−0.031	−0.013	−3.39	−2.32	2180.80	275.61			−2.33	280.36
206	316	0.25	0.00	0.05	0.00	0.276	0.000	−0.033	−0.012	−3.18	−2.09	2184.30	280.17			−2.08	285.07
207	317	0.25	0.00	0.06	0.00	0.277	0.000	−0.045	−0.015	−3.73	−2.39	2186.64	285.91			−2.36	290.96
208	318	0.25	0.00	0.07	0.00	0.278	0.000	−0.057	−0.018	−3.93	−2.33	2190.16	290.46			−2.25	295.70
209	319	0.25	0.00	0.07	0.00	0.278	0.000	−0.057	−0.018	−4.28	−2.63	2192.35	296.35			−2.56	301.72
210	320	0.25	0.00	0.08	0.00	0.279	0.000	−0.069	−0.021	−4.59	−2.63	2195.77	301.00			−2.49	306.58
211	321	0.25	0.00	0.08	0.00	0.279	0.000	−0.069	−0.021	−4.99	−3.03	2197.91	306.93			−2.91	312.65
212	322	0.25	0.00	0.08	0.00	0.279	0.000	−0.069	−0.021	−4.89	−2.99	2201.14	311.76			−2.85	317.65
213	323	0.25	0.00	0.08	0.00	0.279	0.000	−0.069	−0.021	−5.23	−3.35	2203.09	317.89			−3.22	323.92
214	324	0.24	0.00	0.08	0.00	0.267	0.000	−0.071	−0.020	−5.17	−3.21	2206.08	322.97			−3.06	329.19
215	325	0.23	0.00	0.07	0.01	0.255	0.000	−0.060	−0.026	−5.32	−3.62	2207.93	329.19			−3.47	335.57
216	326	0.19	0.00	0.03	0.02	0.207	0.000	−0.019	−0.025	−4.35	−3.45	2210.74	334.45			−3.36	340.94
217	327	0.19	0.00	0.03	0.02	0.207	0.000	−0.019	−0.025	−4.75	−3.82	2212.42	340.84			−3.74	347.50
218	328	0.18	0.00	0.03	0.02	0.196	0.000	−0.021	−0.025	−4.76	−3.90	2215.33	346.00			−3.80	352.84
219	329	0.19	0.00	0.04	0.02	0.208	0.000	−0.031	−0.027	−5.40	−4.35	2216.96	352.45			−4.23	359.50
220	330	0.19	0.00	0.04	0.02	0.208	0.000	−0.031	−0.027	−5.40	−4.36	2219.66	357.82			−4.23	365.06
221	331	0.19	0.00	0.04	0.02	0.208	0.000	−0.031	−0.027	−5.83	−4.64	2220.97	364.58			−4.51	372.00
222	332	0.18	0.00	0.04	0.02	0.197	0.000	−0.032	−0.027	−5.82	−4.58	2223.47	370.15			−4.44	377.77
223	333	0.18	0.00	0.05	0.01	0.197	0.000	−0.045	−0.019	−6.36	−5.00	2224.79	376.90			−4.91	384.67
224	334	0.18	0.00	0.05	0.01	0.197	0.000	−0.045	−0.019	−6.34	−4.99	2227.19	382.57			−4.89	390.55
225	335	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−6.64	−5.34	2228.32	389.52			−5.29	397.65
226	336	0.17	0.00	0.05	0.00	0.186	0.000	−0.048	−0.009	−6.58	−5.27	2230.52	395.38			−5.20	403.73
227	337	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−6.98	−6.45	2232.35	401.63			−6.44	410.13
228	338	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.88	−7.28	2235.33	406.71			−7.29	415.42
229	339	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−7.98	−7.39	2235.95	414.17			−7.39	423.09
Z = 111 (Rg)																	
148	259	0.20	0.00	0.02	0.01	0.218	0.000	−0.006	−0.013	−3.21	−2.43	1857.78	145.85			−2.50	149.16
149	260	0.20	0.00	0.02	0.02	0.218	0.000	−0.005	−0.023	−3.87	−2.91	1866.50	145.20			−2.97	148.45
150	261	0.20	0.00	0.03	0.02	0.219	0.000	−0.017	−0.025	−4.32	−3.20	1876.40	143.38			−3.26	146.57
151	262	0.21	0.00	0.03	0.02	0.230	0.000	−0.015	−0.026	−4.81	−3.73	1884.91	142.94			−3.79	146.05
152	263	0.21	0.00	0.04	0.02	0.230	0.000	−0.027	−0.028	−5.16	−3.81	1894.32	141.59			−3.86	144.66
153	264	0.20	0.00	0.04	0.01	0.219	0.000	−0.030	−0.018	−5.24	−4.02	1902.26	141.73			−4.08	144.74
154	265	0.20	0.00	0.04	0.01	0.219	0.000	−0.030	−0.018	−5.29	−4.09	1911.40	140.66			−4.14	143.63
155	266	0.20	0.00	0.05	0.01	0.220	0.000	−0.042	−0.020	−5.85	−4.39	1919.16	140.97			−4.44	143.88
156	267	0.20	0.00	0.05	0.00	0.219	0.000	−0.043	−0.010	−5.77	−4.41	1927.99	140.21			−4.46	143.08
157	268	0.20	0.00	0.06	0.00	0.220	0.000	−0.055	−0.013	−6.49	−4.81	1935.61	140.66			−4.86	143.48
158	269	0.20	0.00	0.06	0.00	0.220	0.000	−0.055	−0.013	−6.63	−4.96	1944.33	140.02			−5.01	142.82
159	270	0.20	0.00	0.07	−0.01	0.220	0.000	−0.068	−0.005	−7.53	−5.50	1951.83	140.58			−5.55	143.34
160	271	0.20	0.00	0.07	−0.01	0.220	0.000	−0.068	−0.005	−7.75	−5.71	1960.35	140.13			−5.74	142.87
161	272	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−8.68	−6.20	1967.58	140.98			−6.24	143.68
162	273	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−8.89	−6.40	1975.85	140.78			−6.42	143.48
163	274	0.20	0.00	0.09	−0.02	0.222	0.000	−0.093	0.000	−9.71	−6.71	1982.66	142.04			−6.73	144.72
164	275	0.20	0.00	0.09	−0.02	0.222	0.000	−0.093	0.000	−9.32	−6.30	1990.07	142.71			−6.29	145.38
165	276	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−8.68	−6.12	1996.16	144.68			−6.12	147.34
166	277	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−8.14	−5.63	2003.26	145.65			−5.61	148.31
167	278	0.16	0.00	0.06	−0.01	0.175	0.000	−0.062	−0.001	−7.17	−5.46	2009.13	147.85			−5.47	150.48
168	279	0.15	0.00	0.06	−0.01	0.164	0.000	−0.063	0.000	−6.79	−5.11	2016.14	148.91			−5.10	151.54
169	280	0.12	0.00	0.03	0.00	0.130	0.000	−0.030	−0.004	−6.42	−5.49	2022.35	150.77			−5.51	153.38
170	281	0.12	0.00	0.04	0.00	0.130	0.000	−0.042	−0.005	−6.62	−5.49	2029.49	151.71			−5.49	154.33
171	282	0.10	0.00	0.03	0.00	0.108	0.000	−0.032	−0.003	−6.85	−5.91	2035.51	153.76			−5.91	156.38
172	283	0.09	0.00	0.03	0.00	0.097	0.000	−0.032	−0.003	−6.87	−5.93	2042.45	154.89			−5.93	157.52
173	284	0.09	0.00	0.03	0.00	0.097	0.000	−0.032	−0.003	−7.34	−6.38	2048.29	157.12			−6.38	159.76
174	285	0.08	0.00	0.04	−0.01	0.086	0.000	−0.045	0.007	−7.57	−6.39	2055.00	158.48			−6.37	161.15
175	286	0.08	0.00	0.04	−0.01	0.086	0.000	−0.045	0.007	−7.96	−6.76	2060.56	161.00			−6.74	163.68
176	287	0.08	0.00	0.04	−0.01	0.086	0.000	−0.045	0.007	−7.66	−6.48	2066.77	162.86			−6.46	165.57
177	288	0.07	0.00	0.04	−0.01	0.075	0.000	−0.046	0.007	−7.85	−6.67	2071.94	165.76			−6.65	168.49
178	289	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−7.08	−6.50	2078.05	167.72			−6.50	170.45

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 111 (Rg)																	
179	290	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−7.47	−6.82	2083.15	170.70			−6.82	173.45
180	291	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−7.24	−6.57	2088.97	172.94			−6.57	175.74
181	292	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−7.50	−6.80	2093.78	176.21			−6.80	179.03
182	293	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.14	−6.45	2099.31	178.74			−6.45	181.61
183	294	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.25	−6.56	2103.81	182.32			−6.56	185.23
184	295	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.70	−6.03	2108.96	185.23			−6.04	188.19
185	296	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−5.78	−5.14	2112.27	190.00			−5.14	193.01
186	297	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.01	−4.42	2117.03	193.31			−4.42	196.36
187	298	0.00	0.04	0.00	0.00	0.001	−0.054	0.001	0.001	−4.26	−3.44	2120.07	198.35			−3.44	201.47
188	299	0.00	0.03	0.00	0.00	0.000	−0.040	0.000	0.001	−3.27	−2.62	2124.55	201.93			−2.62	205.11
189	300	0.01	0.06	0.00	0.00	0.012	−0.081	0.002	0.002	−3.05	−1.93	2127.68	206.87			−1.91	210.13
190	301	0.01	0.06	0.00	0.00	0.012	−0.081	0.002	0.002	−2.27	−1.19	2132.06	210.57			−1.17	213.89
191	302	0.03	0.08	−0.01	0.01	0.035	−0.108	0.015	−0.005	−2.44	−0.82	2135.33	215.36			−0.77	218.78
192	303	0.03	0.08	−0.01	0.01	0.035	−0.108	0.015	−0.005	−1.82	−0.25	2139.70	219.07			−0.20	222.57
193	304	0.03	0.10	0.00	0.02	0.036	−0.134	0.004	−0.013	−2.36	−0.30	2143.22	223.62			−0.21	227.24
194	305	0.34	0.00	0.07	−0.01	0.381	0.000	−0.035	−0.013	−0.79	−0.04	2147.72	227.19			−0.11	230.74
195	306	0.24	0.00	0.01	−0.01	0.262	0.000	0.012	0.009	−0.80	−0.35	2151.33	231.65			−0.39	235.31
196	307	0.24	0.00	0.02	−0.01	0.262	0.000	−0.001	0.006	−0.85	−0.36	2155.92	235.14			−0.40	238.89
197	308	0.25	0.00	0.02	−0.01	0.273	0.000	0.002	0.007	−1.29	−0.72	2159.40	239.72			−0.77	243.55
198	309	0.26	0.00	0.03	−0.01	0.285	0.000	−0.008	0.003	−1.49	−0.85	2163.94	243.26			−0.89	247.18
199	310	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−1.95	−1.36	2167.41	247.86			−1.42	251.86
200	311	0.26	0.00	0.03	0.00	0.285	0.000	−0.007	−0.007	−2.18	−1.54	2171.83	251.51			−1.59	255.63
201	312	0.26	0.00	0.03	0.00	0.285	0.000	−0.007	−0.007	−2.68	−2.00	2175.09	256.32			−2.06	260.54
202	313	0.26	0.00	0.04	0.00	0.286	0.000	−0.019	−0.010	−2.84	−2.02	2179.17	260.31			−2.05	264.66
203	314	0.26	0.00	0.04	0.00	0.286	0.000	−0.019	−0.010	−3.05	−2.20	2182.00	265.55			−2.25	270.01
204	315	0.26	0.00	0.04	0.00	0.286	0.000	−0.019	−0.010	−2.85	−2.04	2185.74	269.88			−2.08	274.46
205	316	0.26	0.00	0.05	0.00	0.287	0.000	−0.031	−0.013	−3.25	−2.24	2188.43	275.27			−2.27	279.98
206	317	0.25	0.00	0.05	0.00	0.276	0.000	−0.033	−0.012	−3.00	−1.97	2191.90	279.86			−1.98	284.72
207	318	0.26	0.00	0.06	0.00	0.288	0.000	−0.043	−0.016	−3.50	−2.26	2194.52	285.32			−2.26	290.31
208	319	0.26	0.00	0.07	−0.01	0.289	0.000	−0.056	−0.009	−3.61	−2.16	2198.00	289.91			−2.12	295.06
209	320	0.26	0.00	0.07	−0.01	0.289	0.000	−0.056	−0.009	−3.95	−2.51	2200.53	295.45			−2.49	300.73
210	321	0.26	0.00	0.08	−0.01	0.289	0.000	−0.068	−0.012	−4.21	−2.41	2203.86	300.19			−2.33	305.67
211	322	0.26	0.00	0.08	−0.01	0.289	0.000	−0.068	−0.012	−4.58	−2.79	2206.26	305.86			−2.72	311.47
212	323	0.26	0.00	0.08	−0.01	0.289	0.000	−0.068	−0.012	−4.49	−2.72	2209.48	310.71			−2.64	316.48
213	324	0.25	0.00	0.08	0.00	0.279	0.000	−0.069	−0.021	−4.95	−3.12	2211.75	316.52			−3.01	322.46
214	325	0.19	0.00	0.03	0.01	0.207	0.000	−0.020	−0.015	−3.75	−2.94	2214.70	321.64			−2.93	327.64
215	326	0.19	0.00	0.03	0.01	0.207	0.000	−0.020	−0.015	−4.11	−3.30	2216.79	327.62			−3.29	333.77
216	327	0.18	0.00	0.02	0.02	0.196	0.000	−0.009	−0.023	−4.19	−3.41	2219.89	332.59			−3.35	338.96
217	328	0.18	0.00	0.03	0.02	0.196	0.000	−0.021	−0.025	−4.76	−3.85	2221.92	338.64			−3.76	345.19
218	329	0.18	0.00	0.03	0.02	0.196	0.000	−0.021	−0.025	−4.80	−3.88	2224.79	343.83			−3.79	350.56
219	330	0.18	0.00	0.03	0.02	0.196	0.000	−0.021	−0.025	−5.22	−4.29	2226.65	350.05			−4.20	356.94
220	331	0.18	0.00	0.04	0.01	0.197	0.000	−0.034	−0.017	−5.24	−4.16	2229.22	355.55			−4.11	362.58
221	332	0.18	0.00	0.04	0.01	0.197	0.000	−0.034	−0.017	−5.69	−4.58	2230.96	361.88			−4.54	369.10
222	333	0.18	0.00	0.05	0.01	0.197	0.000	−0.045	−0.019	−5.96	−4.66	2233.59	367.32			−4.57	374.76
223	334	0.18	0.00	0.05	0.01	0.197	0.000	−0.045	−0.019	−6.45	−5.13	2235.24	373.74			−5.05	381.37
224	335	0.05	0.00	0.02	0.00	0.054	0.000	−0.023	−0.001	−4.97	−4.54	2237.07	379.98			−4.53	387.73
225	336	0.05	0.00	0.02	−0.01	0.053	0.000	−0.023	0.009	−5.86	−5.36	2238.94	386.18			−5.33	394.15
226	337	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.72	−6.16	2242.03	391.17			−6.16	399.30
227	338	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−7.83	−7.26	2244.05	397.22			−7.27	405.55
228	339	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.78	−8.16	2247.09	402.25			−8.16	410.79
Z = 112 (Cn)																	
150	262	0.20	0.00	0.02	0.02	0.218	0.000	−0.005	−0.023	−3.53	−2.66	1875.59	151.47			−2.71	154.94
151	263	0.20	0.00	0.03	0.02	0.219	0.000	−0.017	−0.025	−4.14	−3.15	1884.10	151.04			−3.20	154.44
152	264	0.22	0.00	0.04	0.01	0.241	0.000	−0.026	−0.019	−4.22	−3.23	1893.86	149.34			−3.30	152.67
153	265	0.20	0.00	0.04	0.01	0.219	0.000	−0.030	−0.018	−4.54	−3.44	1901.83	149.45			−3.50	152.72
154	266	0.20	0.00	0.04	0.01	0.219	0.000	−0.030	−0.018	−4.61	−3.52	1911.32	148.02			−3.57	151.25
155	267	0.19	0.00	0.04	0.01	0.208	0.000	−0.032	−0.018	−4.93	−3.82	1919.13	148.29			−3.87	151.46

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E^{FL}_{mic} (MeV)	M^{FL}_{th} (MeV)
Z = 112 (Cn)																	
156	268	0.19	0.00	0.05	0.00	0.208	0.000	−0.045	−0.010	−5.13	−3.86	1928.33	147.16			−3.91	150.29
157	269	0.19	0.00	0.05	0.00	0.208	0.000	−0.045	−0.010	−5.55	−4.27	1935.98	147.58			−4.32	150.66
158	270	0.19	0.00	0.06	0.00	0.209	0.000	−0.057	−0.012	−6.01	−4.44	1945.05	146.58			−4.47	149.63
159	271	0.19	0.00	0.06	0.00	0.209	0.000	−0.057	−0.012	−6.56	−4.89	1952.51	147.20			−4.93	150.20
160	272	0.19	0.00	0.07	−0.01	0.209	0.000	−0.070	−0.004	−7.13	−5.15	1961.42	146.35			−5.18	149.33
161	273	0.20	0.00	0.08	−0.01	0.221	0.000	−0.080	−0.007	−8.03	−5.64	1968.67	147.18			−5.68	150.11
162	274	0.20	0.00	0.09	−0.02	0.222	0.000	−0.093	0.000	−8.75	−5.85	1977.29	146.63			−5.86	149.56
163	275	0.20	0.00	0.09	−0.02	0.222	0.000	−0.093	0.000	−9.07	−6.11	1984.07	147.92			−6.12	150.82
164	276	0.19	0.00	0.09	−0.02	0.210	0.000	−0.094	0.001	−8.80	−5.84	1991.96	148.10			−5.82	151.00
165	277	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−8.18	−5.71	1998.13	150.00			−5.71	152.87
166	278	0.17	0.00	0.07	−0.01	0.187	0.000	−0.072	−0.003	−7.22	−5.19	2005.54	150.67			−5.18	153.51
167	279	0.16	0.00	0.06	−0.01	0.175	0.000	−0.062	−0.001	−6.86	−5.24	2011.65	152.62			−5.24	155.45
168	280	0.13	0.00	0.04	0.00	0.141	0.000	−0.041	−0.006	−6.16	−5.09	2019.20	153.15			−5.09	155.96
169	281	0.08	0.00	0.00	0.01	0.085	0.000	0.003	−0.010	−6.26	−5.54	2025.50	154.92			−5.55	157.72
170	282	0.08	0.00	0.01	0.01	0.086	0.000	−0.009	−0.011	−6.43	−5.68	2033.11	155.38			−5.68	158.18
171	283	0.08	0.00	0.01	0.01	0.086	0.000	−0.009	−0.011	−6.93	−6.15	2039.21	157.35			−6.16	160.15
172	284	0.08	0.00	0.02	0.00	0.086	0.000	−0.021	−0.002	−7.00	−6.19	2046.49	158.14			−6.20	160.93
173	285	0.08	0.00	0.03	0.00	0.086	0.000	−0.033	−0.003	−7.61	−6.63	2052.34	160.36			−6.63	163.16
174	286	0.07	0.00	0.03	−0.01	0.075	0.000	−0.034	0.008	−7.61	−6.62	2059.36	161.41			−6.61	164.23
175	287	0.07	0.00	0.04	−0.01	0.075	0.000	−0.046	0.007	−8.20	−6.99	2064.93	163.91			−6.97	166.75
176	288	0.06	0.00	0.03	−0.01	0.064	0.000	−0.034	0.008	−7.75	−6.78	2071.54	165.38			−6.76	168.23
177	289	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−7.82	−7.10	2076.86	168.12			−7.11	170.97
178	290	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.83	−7.14	2083.50	169.55			−7.14	172.42
179	291	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−8.21	−7.49	2088.66	172.48			−7.50	175.37
180	292	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.00	−7.27	2094.83	174.37			−7.27	177.29
181	293	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.29	−7.55	2099.70	177.57			−7.55	180.52
182	294	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.92	−7.19	2105.55	179.80			−7.20	182.78
183	295	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.01	−7.28	2110.04	183.37			−7.29	186.40
184	296	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.45	−6.74	2115.50	185.99			−6.75	189.05
185	297	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−6.50	−5.82	2118.80	190.76			−5.83	193.87
186	298	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.74	−5.11	2123.89	193.74			−5.12	196.90
187	299	0.01	0.02	0.00	0.00	0.011	−0.027	0.000	0.000	−4.63	−3.98	2126.78	198.92			−3.98	202.13
188	300	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.78	−3.25	2131.67	202.11			−3.25	205.37
189	301	0.01	0.03	0.00	0.00	0.011	−0.040	0.000	0.001	−2.95	−2.30	2134.56	207.28			−2.30	210.61
190	302	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−2.02	−1.57	2139.25	210.66			−1.58	214.04
191	303	0.03	0.07	−0.01	0.01	0.034	−0.094	0.014	−0.006	−2.34	−0.98	2142.33	215.66			−0.95	219.14
192	304	0.03	0.07	−0.01	0.01	0.034	−0.094	0.014	−0.006	−1.70	−0.39	2146.97	219.09			−0.34	222.65
193	305	0.04	0.09	−0.01	0.02	0.046	−0.121	0.016	−0.014	−2.00	−0.08	2150.15	223.98			0.01	227.65
194	306	0.08	0.00	−0.04	−0.02	0.086	0.000	0.051	0.025	−0.53	0.40	2154.73	227.47			0.50	231.24
195	307	0.49	0.00	0.00	0.02	0.551	0.000	0.116	0.007	−1.91	−2.53	2160.97	229.30			−2.68	232.89
196	308	0.26	0.00	0.01	−0.01	0.284	0.000	0.016	0.010	−0.54	−0.23	2163.56	234.79			−0.26	238.58
197	309	0.26	0.00	0.02	−0.01	0.285	0.000	0.004	0.007	−0.98	−0.61	2167.07	239.34			−0.65	243.21
198	310	0.26	0.00	0.02	−0.01	0.285	0.000	0.004	0.007	−1.10	−0.71	2171.88	242.61			−0.74	246.57
199	311	0.28	0.00	0.03	0.00	0.308	0.000	−0.002	−0.006	−1.58	−1.17	2175.32	247.23			−1.23	251.27
200	312	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−1.81	−1.32	2180.01	250.62			−1.37	254.77
201	313	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−2.29	−1.76	2183.26	255.44			−1.82	259.68
202	314	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−2.30	−1.78	2187.65	259.13			−1.83	263.48
203	315	0.27	0.00	0.04	0.00	0.298	0.000	−0.017	−0.010	−2.60	−1.92	2190.44	264.40			−1.97	268.86
204	316	0.26	0.00	0.04	0.00	0.286	0.000	−0.019	−0.010	−2.42	−1.73	2194.44	268.48			−1.75	273.06
205	317	0.26	0.00	0.05	0.00	0.287	0.000	−0.031	−0.013	−2.75	−1.84	2197.04	273.94			−1.86	278.65
206	318	0.26	0.00	0.05	0.00	0.287	0.000	−0.031	−0.013	−2.48	−1.63	2200.87	278.18			−1.63	283.03
207	319	0.26	0.00	0.06	−0.01	0.288	0.000	−0.045	−0.006	−2.95	−1.84	2203.42	283.71			−1.84	288.68
208	320	0.26	0.00	0.07	−0.01	0.289	0.000	−0.056	−0.009	−3.07	−1.72	2207.18	288.02			−1.67	293.17
209	321	0.26	0.00	0.07	−0.01	0.289	0.000	−0.056	−0.009	−3.42	−2.07	2209.71	293.56			−2.03	298.82
210	322	0.26	0.00	0.08	−0.01	0.289	0.000	−0.068	−0.012	−3.67	−1.96	2213.32	298.02			−1.87	303.47
211	323	0.26	0.00	0.08	−0.01	0.289	0.000	−0.068	−0.012	−4.04	−2.34	2215.73	303.68			−2.26	309.25
212	324	0.26	0.00	0.08	−0.01	0.289	0.000	−0.068	−0.012	−3.96	−2.22	2219.19	308.29			−2.13	314.02

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 112 (Cn)																	
213	325	0.19	0.00	0.03	0.01	0.207	0.000	−0.020	−0.015	−3.29	−2.50	2221.35	314.21			−2.48	320.00
214	326	0.18	0.00	0.02	0.01	0.195	0.000	−0.010	−0.013	−3.16	−2.50	2224.76	318.86			−2.49	324.79
215	327	0.18	0.00	0.03	0.01	0.196	0.000	−0.022	−0.015	−3.69	−2.90	2226.91	324.79			−2.88	330.89
216	328	0.17	0.00	0.02	0.01	0.184	0.000	−0.011	−0.013	−3.70	−3.05	2230.33	329.44			−3.05	335.68
217	329	0.17	0.00	0.02	0.01	0.184	0.000	−0.011	−0.013	−4.10	−3.43	2232.31	335.53			−3.43	341.93
218	330	0.17	0.00	0.03	0.01	0.185	0.000	−0.023	−0.015	−4.28	−3.53	2235.52	340.39			−3.50	346.97
219	331	0.17	0.00	0.03	0.01	0.185	0.000	−0.023	−0.015	−4.69	−3.78	2237.23	346.76			−3.75	353.50
220	332	0.17	0.00	0.03	0.01	0.185	0.000	−0.023	−0.015	−4.68	−3.78	2240.21	351.84			−3.76	358.76
221	333	0.17	0.00	0.04	0.01	0.185	0.000	−0.035	−0.017	−5.33	−4.24	2241.99	358.14			−4.18	365.26
222	334	0.17	0.00	0.04	0.01	0.185	0.000	−0.035	−0.017	−5.36	−4.28	2244.87	363.33			−4.22	370.63
223	335	0.05	0.00	0.02	0.00	0.054	0.000	−0.023	−0.001	−4.93	−4.49	2246.26	370.01			−4.48	377.44
224	336	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−5.45	−5.01	2249.48	374.86			−5.01	382.47
225	337	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−6.38	−5.87	2251.39	381.02			−5.88	388.82
226	338	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.42	−6.84	2254.92	385.57			−6.84	393.56
227	339	0.01	0.00	0.01	0.00	0.011	0.000	−0.012	−0.000	−8.56	−7.95	2256.95	391.61			−7.95	399.80
Z = 113																	
153	266	0.19	0.00	0.03	0.02	0.207	0.000	−0.019	−0.025	−4.08	−3.10	1899.59	158.98			−3.16	162.53
154	267	0.18	0.00	0.03	0.01	0.196	0.000	−0.022	−0.015	−4.03	−3.19	1909.13	157.51			−3.25	161.01
155	268	0.19	0.00	0.05	0.00	0.208	0.000	−0.045	−0.010	−4.65	−3.47	1917.26	157.45			−3.54	160.88
156	269	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−4.80	−3.61	1926.58	156.20			−3.66	159.58
157	270	0.18	0.00	0.05	0.00	0.197	0.000	−0.046	−0.009	−5.24	−4.04	1934.60	156.25			−4.10	159.58
158	271	0.18	0.00	0.06	0.00	0.198	0.000	−0.058	−0.012	−5.76	−4.20	1943.69	155.23			−4.25	158.52
159	272	0.18	0.00	0.06	−0.01	0.197	0.000	−0.059	−0.002	−6.29	−4.72	1951.56	155.44			−4.77	158.68
160	273	0.19	0.00	0.07	−0.01	0.209	0.000	−0.070	−0.004	−6.87	−4.96	1960.47	154.59			−5.00	157.80
161	274	0.19	0.00	0.08	−0.01	0.210	0.000	−0.082	−0.006	−7.82	−5.45	1968.06	155.07			−5.49	158.24
162	275	0.19	0.00	0.08	−0.02	0.209	0.000	−0.083	0.003	−8.10	−5.66	1976.71	154.50			−5.69	157.64
163	276	0.19	0.00	0.09	−0.02	0.210	0.000	−0.094	0.001	−8.95	−6.01	1983.92	155.36			−6.04	158.47
164	277	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−8.26	−5.81	1991.91	155.44			−5.82	158.53
165	278	0.18	0.00	0.09	−0.03	0.199	0.000	−0.097	0.012	−8.71	−5.71	1998.44	156.98			−5.71	160.07
166	279	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−6.30	−5.81	2006.50	156.99			−5.82	160.05
167	280	0.05	0.00	−0.01	0.00	0.053	0.000	0.013	0.001	−6.61	−5.93	2013.01	158.55			−5.93	161.58
168	281	0.06	0.00	−0.01	0.00	0.064	0.000	0.014	0.001	−6.71	−6.00	2020.81	158.83			−6.01	161.84
169	282	0.06	0.00	−0.01	0.01	0.064	0.000	0.014	−0.009	−7.20	−6.44	2027.42	160.29			−6.44	163.29
170	283	0.07	0.00	0.00	0.01	0.075	0.000	0.002	−0.010	−7.26	−6.51	2034.99	160.79			−6.52	163.78
171	284	0.07	0.00	0.01	0.01	0.075	0.000	−0.010	−0.011	−7.75	−6.96	2041.39	162.46			−6.96	165.45
172	285	0.07	0.00	0.01	0.00	0.075	0.000	−0.010	−0.001	−7.71	−6.97	2048.67	163.26			−6.97	166.23
173	286	0.07	0.00	0.02	0.00	0.075	0.000	−0.022	−0.002	−8.25	−7.40	2054.84	165.15			−7.40	168.13
174	287	0.06	0.00	0.02	0.00	0.064	0.000	−0.022	−0.001	−8.21	−7.37	2061.86	166.20			−7.37	169.18
175	288	0.05	0.00	0.02	0.00	0.054	0.000	−0.023	−0.001	−8.58	−7.74	2067.75	168.38			−7.74	171.37
176	289	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−8.39	−7.64	2074.49	169.71			−7.64	172.71
177	290	0.03	0.00	0.01	0.00	0.032	0.000	−0.012	−0.000	−8.84	−8.08	2080.25	172.02			−8.08	175.03
178	291	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−8.75	−8.05	2086.85	173.50			−8.06	176.52
179	292	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−9.16	−8.36	2092.28	176.14			−8.36	179.18
180	293	0.02	0.00	0.01	0.00	0.021	0.000	−0.012	−0.000	−8.88	−8.08	2098.42	178.08			−8.08	181.14
181	294	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−9.05	−8.27	2103.53	181.04			−8.28	184.12
182	295	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−8.65	−7.88	2109.35	183.28			−7.89	186.40
183	296	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−8.71	−7.95	2114.14	186.57			−7.95	189.72
184	297	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.11	−7.39	2119.60	189.18			−7.40	192.37
185	298	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−7.17	−6.47	2123.20	193.64			−6.48	196.87
186	299	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.42	−5.77	2128.32	196.60			−5.77	199.87
187	300	0.01	0.01	0.00	0.00	0.011	−0.013	0.000	0.000	−5.26	−4.64	2131.52	201.46			−4.64	204.78
188	301	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−4.48	−3.90	2136.42	204.64			−3.91	208.00
189	302	0.02	0.01	0.00	−0.01	0.021	−0.014	0.000	0.010	−3.49	−2.94	2139.61	209.52			−2.93	212.95
190	303	0.01	0.00	0.01	0.00	0.011	0.000	−0.012	−0.000	−2.73	−2.23	2144.34	212.87			−2.23	216.34
191	304	0.03	0.03	−0.01	0.00	0.032	−0.041	0.013	0.001	−2.09	−1.48	2147.56	217.71			−1.48	221.25
192	305	0.04	0.05	−0.02	0.00	0.044	−0.068	0.026	0.003	−1.84	−0.87	2152.20	221.15			−0.84	224.76
193	306	0.07	0.01	−0.04	−0.02	0.076	−0.014	0.051	0.025	−1.56	−0.56	2155.69	225.73			−0.47	229.48

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E^{FL}_{mic} (MeV)	M^{FL}_{th} (MeV)
Z = 113																	
194	307	0.08	0.00	−0.04	−0.02	0.086	0.000	0.051	0.025	−1.17	−0.19	2160.40	229.09			−0.10	232.92
195	308	0.09	0.00	−0.04	−0.02	0.097	0.000	0.052	0.026	−1.09	−0.08	2163.90	233.67			0.02	237.57
196	309	0.10	0.00	−0.04	−0.01	0.107	0.000	0.053	0.016	−0.75	0.15	2168.57	237.07			0.21	241.01
197	310	0.48	0.00	0.02	0.01	0.541	0.000	0.085	0.001	−2.14	−3.17	2175.32	238.38			−3.42	242.09
198	311	0.27	0.00	0.02	−0.01	0.296	0.000	0.006	0.007	−1.04	−0.78	2177.65	244.12			−0.83	248.12
199	312	0.28	0.00	0.03	0.00	0.308	0.000	−0.002	−0.006	−1.55	−1.24	2181.39	248.46			−1.31	252.52
200	313	0.27	0.00	0.02	0.00	0.296	0.000	0.007	−0.003	−1.66	−1.36	2186.06	251.86			−1.42	256.02
201	314	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−2.21	−1.77	2189.58	256.41			−1.84	260.66
202	315	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−2.23	−1.80	2193.98	260.08			−1.85	264.44
203	316	0.27	0.00	0.04	0.00	0.298	0.000	−0.017	−0.010	−2.52	−1.92	2197.05	265.08			−1.98	269.55
204	317	0.27	0.00	0.04	0.00	0.298	0.000	−0.017	−0.010	−2.26	−1.71	2201.05	269.15			−1.75	273.73
205	318	0.26	0.00	0.04	0.00	0.286	0.000	−0.019	−0.010	−2.41	−1.81	2203.94	274.34			−1.86	279.02
206	319	0.26	0.00	0.05	0.00	0.287	0.000	−0.031	−0.013	−2.33	−1.55	2207.73	278.61			−1.57	283.44
207	320	0.26	0.00	0.06	−0.01	0.288	0.000	−0.045	−0.006	−2.77	−1.74	2210.54	283.87			−1.75	288.82
208	321	0.26	0.00	0.06	−0.01	0.288	0.000	−0.045	−0.006	−2.57	−1.59	2214.28	288.21			−1.59	293.29
209	322	0.26	0.00	0.07	−0.01	0.289	0.000	−0.056	−0.009	−3.21	−1.91	2217.08	293.48			−1.90	298.70
210	323	0.26	0.00	0.07	−0.01	0.289	0.000	−0.056	−0.009	−3.06	−1.72	2220.62	298.01			−1.69	303.38
211	324	0.26	0.00	0.08	−0.01	0.289	0.000	−0.068	−0.012	−3.82	−2.12	2223.34	303.37			−2.06	308.89
212	325	0.26	0.00	0.08	−0.01	0.289	0.000	−0.068	−0.012	−3.85	−2.14	2226.94	307.84			−2.07	313.51
213	326	0.17	0.00	0.01	0.02	0.184	0.000	0.002	−0.021	−3.14	−2.44	2229.40	313.44			−2.40	319.22
214	327	0.16	0.00	0.01	0.02	0.173	0.000	0.000	−0.021	−3.10	−2.44	2232.83	318.09			−2.39	324.02
215	328	0.16	0.00	0.02	0.01	0.173	0.000	−0.013	−0.013	−3.44	−2.79	2235.20	323.78			−2.79	329.81
216	329	0.16	0.00	0.02	0.01	0.173	0.000	−0.013	−0.013	−3.57	−2.88	2238.57	328.49			−2.87	334.67
217	330	0.16	0.00	0.02	0.01	0.173	0.000	−0.013	−0.013	−3.98	−3.28	2240.84	334.29			−3.28	340.61
218	331	0.16	0.00	0.02	0.01	0.173	0.000	−0.013	−0.013	−4.00	−3.33	2244.03	339.17			−3.33	345.66
219	332	0.16	0.00	0.02	0.01	0.173	0.000	−0.013	−0.013	−4.35	−3.68	2246.12	345.16			−3.68	351.80
220	333	0.16	0.00	0.03	0.01	0.174	0.000	−0.024	−0.015	−4.52	−3.75	2249.17	350.18			−3.72	357.01
221	334	0.16	0.00	0.03	0.01	0.174	0.000	−0.024	−0.015	−4.94	−4.17	2251.19	356.23			−4.15	363.23
222	335	0.07	0.00	0.03	−0.01	0.075	0.000	−0.034	0.008	−5.01	−4.38	2254.23	361.26			−4.33	368.45
223	336	0.05	0.00	0.02	0.00	0.054	0.000	−0.023	−0.001	−5.70	−5.22	2256.53	367.02			−5.21	374.36
224	337	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−6.23	−5.76	2259.78	371.85			−5.76	379.35
225	338	0.02	0.00	0.00	0.00	0.021	0.000	0.000	0.000	−7.18	−6.63	2261.97	377.73			−6.64	385.41
226	339	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−8.18	−7.58	2265.49	382.29			−7.58	390.15
Z = 114 (Fl)																	
155	269	0.18	0.00	0.03	0.01	0.196	0.000	−0.022	−0.015	−3.79	−3.04	1916.58	165.42			−3.09	169.14
156	270	0.17	0.00	0.04	0.00	0.185	0.000	−0.036	−0.007	−4.04	−3.15	1926.23	163.84			−3.20	167.51
157	271	0.17	0.00	0.04	0.00	0.185	0.000	−0.036	−0.007	−4.44	−3.55	1934.24	163.90			−3.60	167.50
158	272	0.17	0.00	0.05	0.00	0.186	0.000	−0.048	−0.009	−4.87	−3.70	1943.67	162.54			−3.74	166.10
159	273	0.18	0.00	0.06	−0.01	0.197	0.000	−0.059	−0.002	−5.66	−4.18	1951.52	162.76			−4.23	166.27
160	274	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−6.23	−4.38	1960.74	161.61			−4.42	165.08
161	275	0.18	0.00	0.07	−0.01	0.198	0.000	−0.071	−0.004	−6.76	−4.88	1968.37	162.05			−4.92	165.47
162	276	0.19	0.00	0.08	−0.02	0.209	0.000	−0.083	0.003	−7.39	−5.03	1977.30	161.20			−5.06	164.59
163	277	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−7.84	−5.44	1984.59	161.98			−5.46	165.33
164	278	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.68	−6.15	1993.83	160.81			−6.15	164.15
165	279	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.97	−6.44	2000.77	161.94			−6.44	165.25
166	280	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.12	−6.59	2009.21	161.57			−6.59	164.85
167	281	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.34	−6.81	2015.85	163.00			−6.81	166.25
168	282	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.28	−6.78	2023.88	163.05			−6.78	166.28
169	283	0.06	0.00	−0.01	0.01	0.064	0.000	0.014	−0.009	−7.61	−6.83	2030.13	164.87			−6.83	168.08
170	284	0.06	0.00	−0.01	0.01	0.064	0.000	0.014	−0.009	−7.64	−6.86	2037.98	165.09			−6.86	168.29
171	285	0.06	0.00	0.00	0.01	0.064	0.000	0.002	−0.010	−8.03	−7.26	2044.36	166.78			−7.26	169.96
172	286	0.06	0.00	0.01	0.00	0.064	0.000	−0.010	−0.001	−7.98	−7.24	2051.93	167.27			−7.24	170.45
173	287	0.06	0.00	0.01	0.00	0.064	0.000	−0.010	−0.001	−8.41	−7.64	2058.11	169.17			−7.65	172.34
174	288	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−8.39	−7.78	2065.62	169.73			−7.78	172.90
175	289	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−8.85	−8.19	2071.58	171.84			−8.19	175.01
176	290	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−8.95	−8.27	2078.82	172.67			−8.28	175.84
177	291	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−9.34	−8.58	2084.47	175.10			−8.59	178.27

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 114 (Fl)																	
178	292	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.45	−8.68	2091.52	176.12			−8.69	179.31
179	293	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.71	−8.93	2096.90	178.81			−8.93	182.01
180	294	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.44	−8.66	2103.36	180.41			−8.66	183.63
181	295	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.66	−8.87	2108.51	183.34			−8.87	186.58
182	296	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.26	−8.48	2114.66	185.26			−8.49	188.53
183	297	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.29	−8.51	2119.43	188.57			−8.52	191.86
184	298	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.69	−7.94	2125.19	190.88			−7.95	194.20
185	299	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−7.73	−7.01	2128.80	195.34			−7.01	198.69
186	300	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.99	−6.31	2134.23	197.98			−6.31	201.37
187	301	0.01	0.01	0.00	0.00	0.011	−0.013	0.000	0.000	−5.77	−5.11	2137.39	202.89			−5.11	206.32
188	302	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.03	−4.43	2142.65	205.70			−4.44	209.17
189	303	0.01	0.01	−0.01	−0.01	0.011	−0.014	0.012	0.010	−4.01	−3.40	2145.78	210.64			−3.38	214.18
190	304	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.23	−2.73	2150.87	213.63			−2.73	217.20
191	305	0.02	0.02	−0.01	0.00	0.021	−0.027	0.012	0.001	−2.40	−1.85	2153.98	218.59			−1.85	222.22
192	306	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−1.65	−1.25	2158.94	221.70			−1.25	225.38
193	307	−0.06	0.00	−0.02	0.00	−0.063	0.000	0.025	−0.001	−1.04	−0.62	2162.11	226.59			−0.62	230.35
194	308	0.07	0.02	−0.04	−0.01	0.075	−0.028	0.051	0.014	−1.28	−0.38	2167.25	229.52			−0.33	233.40
195	309	0.08	0.00	−0.05	−0.01	0.086	0.000	0.064	0.016	−1.38	−0.21	2170.72	234.13			−0.14	238.10
196	310	0.09	0.00	−0.05	−0.01	0.097	0.000	0.064	0.017	−1.16	0.03	2175.67	237.26			0.12	241.30
197	311	0.48	0.00	0.02	0.01	0.541	0.000	0.085	0.001	−1.85	−3.22	2182.37	238.62			−3.43	242.44
198	312	0.49	0.00	0.02	0.01	0.553	0.000	0.090	0.003	−1.62	−3.15	2187.33	241.73			−3.34	245.65
199	313	0.28	0.00	0.02	0.00	0.308	0.000	0.010	−0.003	−1.23	−1.12	2188.59	248.55			−1.19	252.67
200	314	0.27	0.00	0.02	0.00	0.296	0.000	0.007	−0.003	−1.40	−1.21	2193.52	251.69			−1.26	255.91
201	315	0.27	0.00	0.02	0.00	0.296	0.000	0.007	−0.003	−1.86	−1.62	2197.06	256.22			−1.68	260.53
202	316	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−1.95	−1.62	2201.73	259.62			−1.66	264.04
203	317	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−2.08	−1.74	2204.80	264.62			−1.79	269.12
204	318	0.27	0.00	0.04	0.00	0.298	0.000	−0.017	−0.010	−1.93	−1.47	2209.04	268.45			−1.50	273.07
205	319	0.27	0.00	0.04	0.00	0.298	0.000	−0.017	−0.010	−2.01	−1.56	2211.93	273.63			−1.61	278.34
206	320	0.27	0.00	0.05	−0.01	0.298	0.000	−0.030	−0.003	−1.84	−1.26	2215.97	277.66			−1.29	282.50
207	321	0.27	0.00	0.06	−0.01	0.299	0.000	−0.042	−0.007	−2.29	−1.43	2218.77	282.93			−1.44	287.89
208	322	0.26	0.00	0.06	−0.01	0.288	0.000	−0.045	−0.006	−2.13	−1.24	2222.77	287.01			−1.24	292.10
209	323	0.27	0.00	0.07	−0.01	0.300	0.000	−0.054	−0.010	−2.68	−1.49	2225.50	292.35			−1.48	297.57
210	324	0.27	0.00	0.07	−0.01	0.300	0.000	−0.054	−0.010	−2.53	−1.34	2229.37	296.55			−1.31	301.91
211	325	0.27	0.00	0.08	−0.01	0.301	0.000	−0.066	−0.013	−3.27	−1.70	2232.06	301.93			−1.65	307.44
212	326	0.14	0.00	0.00	0.02	0.151	0.000	0.009	−0.020	−2.32	−1.69	2235.91	306.15			−1.64	311.78
213	327	0.16	0.00	0.00	0.02	0.172	0.000	0.012	−0.019	−2.69	−2.06	2238.46	311.67			−2.02	317.43
214	328	0.14	0.00	0.01	0.02	0.151	0.000	−0.002	−0.021	−2.72	−2.04	2242.15	316.05			−1.99	321.96
215	329	0.14	0.00	0.01	0.01	0.151	0.000	−0.003	−0.011	−3.00	−2.41	2244.55	321.72			−2.41	327.71
216	330	0.16	0.00	0.01	0.01	0.173	0.000	−0.001	−0.011	−3.07	−2.53	2248.23	326.12			−2.53	332.24
217	331	0.16	0.00	0.02	0.01	0.173	0.000	−0.013	−0.013	−3.56	−2.93	2250.52	331.90			−2.92	338.18
218	332	0.16	0.00	0.02	0.01	0.173	0.000	−0.013	−0.013	−3.58	−2.98	2253.98	336.51			−2.97	342.95
219	333	0.16	0.00	0.02	0.01	0.173	0.000	−0.013	−0.013	−3.93	−3.33	2256.07	342.49			−3.33	349.08
220	334	0.11	0.00	0.03	−0.01	0.119	0.000	−0.032	0.006	−4.21	−3.52	2259.52	347.11			−3.48	353.89
221	335	0.09	0.00	0.03	−0.01	0.097	0.000	−0.033	0.007	−4.77	−4.09	2261.70	353.00			−4.06	359.94
222	336	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−4.90	−4.44	2265.16	357.61			−4.44	364.68
223	337	0.05	0.00	0.02	0.00	0.054	0.000	−0.023	−0.001	−5.91	−5.40	2267.59	363.26			−5.39	370.50
224	338	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.62	−6.07	2271.24	367.68			−6.08	375.08
225	339	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−7.61	−7.03	2273.53	373.46			−7.03	381.04
Z = 115																	
157	272	0.15	0.00	0.03	0.00	0.162	0.000	−0.027	−0.005	−4.14	−3.43	1932.22	173.21			−3.48	177.11
158	273	0.15	0.00	0.04	0.00	0.163	0.000	−0.039	−0.006	−4.47	−3.56	1941.65	171.85			−3.60	175.70
159	274	0.17	0.00	0.06	−0.01	0.186	0.000	−0.061	−0.001	−5.43	−3.99	1949.79	171.78			−4.05	175.55
160	275	0.18	0.00	0.07	−0.02	0.198	0.000	−0.072	0.006	−6.03	−4.20	1959.05	170.59			−4.25	174.32
161	276	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−6.99	−4.70	1967.02	170.70			−4.75	174.37
162	277	0.18	0.00	0.08	−0.02	0.198	0.000	−0.084	0.004	−7.25	−4.91	1976.03	169.76			−4.95	173.40
163	278	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−6.12	−5.58	1983.92	169.94			−5.58	173.57
164	279	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.72	−6.20	1993.09	168.83			−6.20	172.42

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 115																	
165	280	0.02	0.00	−0.01	0.00	0.021	0.000	0.012	0.000	−7.11	−6.48	2000.36	169.64			−6.48	173.19
166	281	0.03	0.00	−0.01	0.00	0.032	0.000	0.012	0.000	−7.21	−6.54	2008.73	169.34			−6.54	172.86
167	282	0.06	0.00	−0.02	0.00	0.064	0.000	0.025	0.002	−7.69	−6.84	2015.79	170.35			−6.84	173.84
168	283	0.06	0.00	−0.02	0.01	0.064	0.000	0.026	−0.008	−7.83	−6.94	2023.97	170.24			−6.94	173.71
169	284	0.06	0.00	−0.01	0.01	0.064	0.000	0.014	−0.009	−8.18	−7.38	2030.94	171.35			−7.38	174.78
170	285	0.06	0.00	−0.01	0.01	0.064	0.000	0.014	−0.009	−8.20	−7.40	2038.81	171.55			−7.40	174.97
171	286	0.07	0.00	0.00	0.01	0.075	0.000	0.002	−0.010	−8.58	−7.79	2045.51	172.92			−7.80	176.32
172	287	0.06	0.00	0.00	0.01	0.064	0.000	0.002	−0.010	−8.52	−7.74	2053.07	173.43			−7.74	176.81
173	288	0.06	0.00	0.01	0.00	0.064	0.000	−0.010	−0.001	−8.90	−8.12	2059.55	175.02			−8.13	178.40
174	289	0.06	0.00	0.01	0.00	0.064	0.000	−0.010	−0.001	−8.83	−8.05	2066.87	175.77			−8.06	179.13
175	290	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−9.19	−8.40	2073.10	177.61			−8.41	180.97
176	291	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−9.14	−8.55	2080.43	178.36			−8.56	181.72
177	292	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−9.55	−8.92	2086.46	180.40			−8.93	183.76
178	293	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−9.57	−8.85	2093.35	181.57			−8.85	184.94
179	294	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−9.90	−9.15	2099.11	183.89			−9.15	187.26
180	295	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−9.61	−8.85	2105.57	185.50			−8.85	188.89
181	296	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−9.80	−9.02	2110.99	188.15			−9.02	191.56
182	297	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−9.37	−8.60	2117.12	190.09			−8.61	193.51
183	298	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−9.41	−8.64	2122.22	193.06			−8.65	196.51
184	299	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.79	−8.04	2127.97	195.39			−8.04	198.86
185	300	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−7.83	−7.11	2131.90	199.53			−7.11	203.03
186	301	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.08	−6.41	2137.34	202.16			−6.41	205.69
187	302	0.01	0.01	0.00	0.00	0.011	−0.013	0.000	0.000	−5.91	−5.25	2140.85	206.71			−5.26	210.28
188	303	0.01	0.00	0.00	0.00	0.011	0.000	0.000	0.000	−5.14	−4.53	2146.09	209.55			−4.53	213.16
189	304	0.02	0.01	−0.01	0.00	0.021	−0.014	0.012	0.000	−4.16	−3.56	2149.59	214.12			−3.56	217.77
190	305	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−3.36	−2.87	2154.67	217.12			−2.87	220.81
191	306	0.04	0.05	−0.02	0.00	0.044	−0.068	0.026	0.003	−3.20	−2.14	2158.23	221.62			−2.12	225.38
192	307	0.05	0.05	−0.02	0.00	0.054	−0.068	0.026	0.003	−2.61	−1.60	2163.27	224.66			−1.58	228.48
193	308	0.06	0.06	−0.02	0.00	0.065	−0.082	0.027	0.004	−2.45	−1.26	2167.04	228.96			−1.23	232.83
194	309	0.07	0.05	−0.03	0.00	0.076	−0.069	0.039	0.005	−1.93	−0.85	2172.02	232.05			−0.81	235.99
195	310	0.08	0.00	−0.05	−0.01	0.086	0.000	0.064	0.016	−1.88	−0.68	2175.79	236.35			−0.62	240.39
196	311	0.09	0.00	−0.05	−0.01	0.097	0.000	0.064	0.017	−1.64	−0.41	2180.73	239.48			−0.34	243.59
197	312	0.49	0.00	0.01	0.01	0.552	0.000	0.102	0.009	−1.92	−3.56	2187.64	240.65			−3.81	244.50
198	313	0.49	0.00	0.01	0.01	0.552	0.000	0.102	0.009	−1.78	−3.46	2192.57	243.78			−3.67	247.75
199	314	0.29	0.00	0.02	0.00	0.319	0.000	0.012	−0.003	−1.26	−1.33	2194.03	250.39			−1.42	254.57
200	315	0.28	0.00	0.02	0.00	0.308	0.000	0.010	−0.003	−1.42	−1.39	2198.95	253.55			−1.46	257.82
201	316	0.27	0.00	0.02	0.00	0.296	0.000	0.007	−0.003	−1.87	−1.72	2202.70	257.87			−1.80	262.22
202	317	0.28	0.00	0.03	0.00	0.308	0.000	−0.002	−0.006	−1.88	−1.71	2207.37	261.26			−1.78	265.71
203	318	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−2.04	−1.78	2210.70	266.01			−1.86	270.54
204	319	0.27	0.00	0.03	0.00	0.297	0.000	−0.005	−0.007	−1.72	−1.52	2214.95	269.83			−1.58	274.47
205	320	0.27	0.00	0.04	0.00	0.298	0.000	−0.017	−0.010	−1.94	−1.57	2218.09	274.76			−1.63	279.49
206	321	0.27	0.00	0.05	−0.01	0.298	0.000	−0.030	−0.003	−1.75	−1.25	2222.12	278.80			−1.29	283.65
207	322	0.27	0.00	0.05	−0.01	0.298	0.000	−0.030	−0.003	−1.91	−1.43	2225.24	283.76			−1.48	288.71
208	323	0.27	0.00	0.06	−0.01	0.299	0.000	−0.042	−0.007	−1.91	−1.18	2229.18	287.89			−1.20	292.98
209	324	0.27	0.00	0.06	−0.01	0.299	0.000	−0.042	−0.007	−2.16	−1.35	2232.11	293.02			−1.38	298.21
210	325	0.14	0.00	−0.01	0.02	0.150	0.000	0.022	−0.018	−1.86	−1.23	2236.02	297.19			−1.19	302.56
211	326	0.14	0.00	−0.01	0.02	0.150	0.000	0.022	−0.018	−2.22	−1.57	2238.98	302.30			−1.53	307.79
212	327	0.14	0.00	0.00	0.02	0.151	0.000	0.009	−0.020	−2.26	−1.63	2242.92	306.43			−1.59	312.05
213	328	0.14	0.00	0.00	0.02	0.151	0.000	0.009	−0.020	−2.65	−2.00	2245.75	311.67			−1.96	317.42
214	329	0.14	0.00	0.01	0.02	0.151	0.000	−0.002	−0.021	−2.79	−2.15	2249.61	315.88			−2.10	321.77
215	330	0.14	0.00	0.01	0.02	0.151	0.000	−0.002	−0.021	−3.20	−2.54	2252.32	321.25			−2.49	327.26
216	331	0.11	0.00	0.02	0.01	0.119	0.000	−0.018	−0.012	−3.23	−2.66	2256.00	325.63			−2.64	331.75
217	332	0.11	0.00	0.02	0.01	0.119	0.000	−0.018	−0.012	−3.65	−3.06	2258.57	331.13			−3.05	337.39
218	333	0.11	0.00	0.03	0.00	0.119	0.000	−0.031	−0.004	−3.91	−3.25	2262.18	335.60			−3.24	342.00
219	334	0.11	0.00	0.03	0.00	0.119	0.000	−0.031	−0.004	−4.37	−3.69	2264.64	341.21			−3.67	347.76
220	335	0.09	0.00	0.03	−0.01	0.097	0.000	−0.033	0.007	−4.62	−3.96	2268.19	345.74			−3.93	352.46
221	336	0.09	0.00	0.03	−0.01	0.097	0.000	−0.033	0.007	−5.19	−4.51	2270.61	351.38			−4.47	358.26

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 115																	
222	337	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−5.41	−4.96	2274.19	355.88			−4.96	362.88
223	338	0.05	0.00	0.02	0.00	0.054	0.000	−0.023	−0.001	−6.34	−5.81	2276.78	361.36			−5.80	368.53
224	339	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.90	−6.34	2280.30	365.91			−6.35	373.24
Z = 116 (Lv)																	
159	275	0.16	0.00	0.05	−0.01	0.174	0.000	−0.050	0.001	−4.56	−3.44	1948.99	179.87			−3.49	183.94
160	276	0.17	0.00	0.06	−0.01	0.186	0.000	−0.061	−0.001	−5.02	−3.66	1958.60	178.33			−3.71	182.34
161	277	0.17	0.00	0.07	−0.02	0.186	0.000	−0.074	0.007	−5.97	−4.15	1966.58	178.42			−4.20	182.38
162	278	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.21	−4.74	1976.31	176.77			−4.75	180.71
163	279	0.03	0.00	0.00	0.00	0.032	0.000	0.000	0.000	−5.76	−5.22	1984.04	177.11			−5.23	181.00
164	280	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.35	−5.83	1993.53	175.68			−5.83	179.54
165	281	0.03	0.00	−0.01	0.00	0.032	0.000	0.012	0.000	−6.73	−6.08	2000.80	176.49			−6.08	180.30
166	282	0.05	0.00	−0.02	0.00	0.053	0.000	0.025	0.001	−6.97	−6.15	2009.51	175.85			−6.15	179.62
167	283	0.06	0.00	−0.02	0.01	0.064	0.000	0.026	−0.008	−7.51	−6.63	2016.78	176.65			−6.63	180.40
168	284	0.06	0.00	−0.02	0.01	0.064	0.000	0.026	−0.008	−7.61	−6.73	2025.29	176.21			−6.73	179.92
169	285	0.07	0.00	−0.01	0.01	0.075	0.000	0.014	−0.009	−7.98	−7.19	2032.30	177.27			−7.19	180.95
170	286	0.07	0.00	−0.01	0.02	0.075	0.000	0.014	−0.019	−8.13	−7.21	2040.50	177.15			−7.20	180.81
171	287	0.07	0.00	0.00	0.01	0.075	0.000	0.002	−0.010	−8.38	−7.60	2047.22	178.49			−7.61	182.12
172	288	0.07	0.00	0.00	0.01	0.075	0.000	0.002	−0.010	−8.29	−7.51	2055.08	178.71			−7.52	182.32
173	289	0.07	0.00	0.01	0.00	0.075	0.000	−0.010	−0.001	−8.65	−7.88	2061.56	180.30			−7.89	183.89
174	290	0.06	0.00	0.02	0.00	0.064	0.000	−0.022	−0.001	−8.63	−7.77	2069.17	180.76			−7.77	184.34
175	291	0.06	0.00	0.02	0.00	0.064	0.000	−0.022	−0.001	−8.97	−8.09	2075.39	182.61			−8.10	186.18
176	292	−0.07	0.00	0.00	0.00	−0.073	0.000	0.002	−0.000	−8.77	−8.30	2083.10	182.97			−8.31	186.53
177	293	−0.06	0.00	0.00	0.00	−0.063	0.000	0.001	0.000	−9.14	−8.62	2089.10	185.04			−8.63	188.60
178	294	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−9.08	−8.45	2096.22	186.00			−8.45	189.56
179	295	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−9.39	−8.65	2101.90	188.39			−8.66	191.95
180	296	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−9.08	−8.32	2108.64	189.72			−8.32	193.29
181	297	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.27	−8.48	2114.08	192.35			−8.49	195.94
182	298	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.84	−8.07	2120.53	193.97			−8.07	197.57
183	299	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.86	−8.10	2125.63	196.94			−8.10	200.56
184	300	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.24	−7.50	2131.70	198.94			−7.51	202.58
185	301	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−7.30	−6.59	2135.66	203.05			−6.59	206.71
186	302	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.53	−5.87	2141.41	205.38			−5.88	209.06
187	303	0.01	0.02	0.00	0.00	0.011	−0.027	0.000	0.000	−5.40	−4.70	2144.92	209.94			−4.70	213.65
188	304	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.59	−4.02	2150.50	212.43			−4.02	216.17
189	305	0.02	0.03	−0.01	0.00	0.022	−0.041	0.013	0.001	−3.73	−3.00	2153.98	217.02			−3.00	220.81
190	306	0.04	0.05	−0.02	0.00	0.044	−0.068	0.026	0.003	−3.42	−2.34	2159.39	219.68			−2.32	223.53
191	307	−0.04	0.00	−0.01	0.00	−0.042	0.000	0.012	−0.001	−2.01	−1.63	2163.00	224.15			−1.64	228.02
192	308	0.05	0.07	−0.02	0.01	0.055	−0.095	0.027	−0.005	−2.87	−1.39	2168.64	226.58			−1.35	230.54
193	309	0.06	0.07	−0.02	0.01	0.066	−0.095	0.027	−0.005	−2.59	−1.14	2172.51	230.77			−1.11	234.77
194	310	0.07	0.06	−0.03	0.00	0.076	−0.083	0.040	0.006	−2.03	−0.73	2177.80	233.56			−0.69	237.62
195	311	0.08	0.00	−0.05	−0.01	0.086	0.000	0.064	0.016	−1.61	−0.44	2181.46	237.97			−0.37	242.12
196	312	0.09	0.00	−0.05	−0.01	0.097	0.000	0.064	0.017	−1.40	−0.20	2186.73	240.77			−0.12	244.99
197	313	0.10	0.00	−0.05	−0.01	0.108	0.000	0.065	0.018	−1.50	−0.23	2190.54	245.03			−0.16	249.31
198	314	0.10	0.00	−0.05	0.00	0.107	0.000	0.065	0.007	−1.26	−0.10	2195.74	247.91			−0.04	252.24
199	315	0.49	0.00	0.02	0.01	0.553	0.000	0.090	0.003	−1.75	−3.85	2203.08	248.63			−4.08	252.74
200	316	0.28	0.00	0.02	0.00	0.308	0.000	0.010	−0.003	−1.27	−1.33	2205.73	254.06			−1.39	258.42
201	317	0.28	0.00	0.02	0.00	0.308	0.000	0.010	−0.003	−1.66	−1.68	2209.51	258.35			−1.75	262.77
202	318	0.28	0.00	0.02	0.00	0.308	0.000	0.010	−0.003	−1.64	−1.66	2214.47	261.46			−1.72	265.98
203	319	0.28	0.00	0.03	0.00	0.308	0.000	−0.002	−0.006	−1.82	−1.75	2217.82	266.18			−1.81	270.78
204	320	0.28	0.00	0.03	0.00	0.308	0.000	−0.002	−0.006	−1.46	−1.42	2222.30	269.77			−1.48	274.46
205	321	0.27	0.00	0.04	0.00	0.298	0.000	−0.017	−0.010	−1.68	−1.41	2225.39	274.75			−1.46	279.54
206	322	0.27	0.00	0.04	0.00	0.298	0.000	−0.017	−0.010	−1.29	−1.09	2229.72	278.49			−1.13	283.39
207	323	0.27	0.00	0.05	−0.01	0.298	0.000	−0.030	−0.003	−1.63	−1.24	2232.81	283.47			−1.28	288.47
208	324	0.27	0.00	0.06	−0.01	0.299	0.000	−0.042	−0.007	−1.61	−0.97	2237.02	287.34			−0.98	292.47
209	325	0.27	0.00	0.06	−0.01	0.299	0.000	−0.042	−0.007	−1.87	−1.15	2239.98	292.45			−1.17	297.67
210	326	0.22	0.00	0.02	0.01	0.240	0.000	−0.002	−0.013	−1.32	−0.98	2244.13	296.37			−1.00	301.71
211	327	0.13	0.00	−0.01	0.02	0.139	0.000	0.020	−0.018	−1.88	−1.32	2247.09	301.48			−1.28	306.99

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 116 (Lv)																	
212	328	0.13	0.00	0.00	0.02	0.140	0.000	0.008	−0.020	−1.88	−1.27	2251.20	305.44			−1.22	311.07
213	329	0.13	0.00	0.00	0.02	0.140	0.000	0.008	−0.020	−2.26	−1.62	2254.02	310.69			−1.57	316.44
214	330	0.11	0.00	0.01	0.01	0.118	0.000	−0.007	−0.011	−2.30	−1.83	2258.23	314.55			−1.82	320.39
215	331	0.11	0.00	0.02	0.01	0.119	0.000	−0.018	−0.012	−2.79	−2.24	2260.98	319.88			−2.23	325.85
216	332	0.11	0.00	0.02	0.01	0.119	0.000	−0.018	−0.012	−2.97	−2.42	2265.00	323.93			−2.40	330.04
217	333	0.11	0.00	0.02	0.01	0.119	0.000	−0.018	−0.012	−3.40	−2.83	2267.58	329.41			−2.81	335.65
218	334	0.11	0.00	0.03	0.00	0.119	0.000	−0.031	−0.004	−3.65	−3.01	2271.46	333.61			−2.99	339.98
219	335	0.11	0.00	0.03	0.00	0.119	0.000	−0.031	−0.004	−4.11	−3.45	2273.93	339.21			−3.43	345.73
220	336	0.09	0.00	0.03	−0.01	0.097	0.000	−0.033	0.007	−4.42	−3.77	2277.80	343.41			−3.73	350.09
221	337	0.09	0.00	0.03	−0.01	0.097	0.000	−0.033	0.007	−5.00	−4.32	2280.24	349.04			−4.29	355.87
222	338	0.05	0.00	0.01	0.00	0.053	0.000	−0.011	−0.001	−5.09	−4.65	2283.97	353.38			−4.65	360.33
223	339	0.05	0.00	0.02	0.00	0.054	0.000	−0.023	−0.001	−6.04	−5.51	2286.58	358.84			−5.50	365.96
Z = 117																	
161	278	0.07	0.00	0.00	0.00	0.075	0.000	0.002	0.000	−4.76	−4.25	1964.76	187.54			−4.26	191.82
162	279	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−5.24	−4.71	1974.38	185.98			−4.71	190.21
163	280	0.04	0.00	0.00	0.00	0.043	0.000	0.001	0.000	−5.83	−5.27	1982.53	185.90			−5.28	190.08
164	281	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.36	−5.84	1992.01	184.49			−5.84	188.62
165	282	0.04	0.00	−0.01	0.00	0.043	0.000	0.013	0.001	−6.79	−6.11	1999.63	184.95			−6.11	189.03
166	283	0.06	0.00	−0.01	0.00	0.064	0.000	0.014	0.001	−6.93	−6.24	2008.43	184.22			−6.24	188.26
167	284	0.07	0.00	−0.01	0.01	0.075	0.000	0.014	−0.009	−7.46	−6.70	2016.01	184.71			−6.71	188.70
168	285	0.07	0.00	−0.01	0.01	0.075	0.000	0.014	−0.009	−7.61	−6.84	2024.58	184.21			−6.84	188.17
169	286	0.07	0.00	−0.01	0.01	0.075	0.000	0.014	−0.009	−8.07	−7.29	2031.91	184.95			−7.30	188.88
170	287	0.07	0.00	0.00	0.01	0.075	0.000	0.002	−0.010	−8.09	−7.34	2040.16	184.77			−7.34	188.67
171	288	0.08	0.00	0.01	0.01	0.086	0.000	−0.009	−0.011	−8.54	−7.75	2047.23	185.78			−7.76	189.64
172	289	0.07	0.00	0.01	0.01	0.075	0.000	−0.010	−0.011	−8.49	−7.68	2055.13	185.95			−7.68	189.79
173	290	0.07	0.00	0.02	0.00	0.075	0.000	−0.022	−0.002	−8.94	−8.07	2061.96	187.19			−8.08	191.01
174	291	0.07	0.00	0.03	−0.01	0.075	0.000	−0.034	0.008	−9.03	−7.99	2069.62	187.60			−7.98	191.41
175	292	0.07	0.00	0.03	−0.01	0.075	0.000	−0.034	0.008	−9.34	−8.29	2076.14	189.15			−8.29	192.95
176	293	−0.07	0.00	0.00	0.00	−0.073	0.000	0.002	−0.000	−8.84	−8.40	2083.77	189.59			−8.41	193.37
177	294	−0.07	0.00	0.01	0.00	−0.073	0.000	−0.010	0.001	−9.23	−8.73	2090.11	191.33			−8.74	195.09
178	295	−0.05	0.00	0.00	0.00	−0.052	0.000	0.001	0.000	−9.07	−8.50	2097.18	192.32			−8.50	196.09
179	296	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−9.33	−8.64	2103.12	194.46			−8.65	198.22
180	297	−0.03	0.00	0.01	0.00	−0.032	0.000	−0.011	0.000	−9.04	−8.31	2109.89	195.76			−8.31	199.53
181	298	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−9.16	−8.38	2115.55	198.17			−8.39	201.95
182	299	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.72	−7.95	2122.01	199.78			−7.96	203.57
183	300	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.73	−7.97	2127.41	202.45			−7.97	206.25
184	301	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−8.10	−7.37	2133.49	204.45			−7.37	208.25
185	302	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−7.17	−6.47	2137.77	208.23			−6.47	212.06
186	303	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.40	−5.74	2143.53	210.54			−5.75	214.40
187	304	0.01	0.02	0.00	0.00	0.011	−0.027	0.000	0.000	−5.29	−4.60	2147.38	214.77			−4.60	218.64
188	305	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.45	−3.89	2152.95	217.27			−3.89	221.17
189	306	−0.03	0.00	−0.01	0.00	−0.032	0.000	0.012	−0.000	−3.41	−2.88	2156.75	221.54			−2.88	225.48
190	307	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.67	−2.20	2162.15	224.21			−2.20	228.18
191	308	−0.39	0.00	0.05	−0.01	−0.397	0.000	0.004	0.020	−3.99	−1.83	2166.40	228.03			−2.02	231.85
192	309	0.06	0.08	−0.01	0.01	0.066	−0.108	0.016	−0.005	−3.26	−1.70	2172.17	230.33			−1.67	234.42
193	310	−0.40	0.00	0.05	0.00	−0.407	0.000	0.006	0.011	−3.34	−1.26	2176.16	234.41			−1.48	238.29
194	311	−0.40	0.00	0.04	0.00	−0.406	0.000	0.016	0.007	−2.79	−0.81	2181.42	237.23			−1.01	241.16
195	312	−0.40	0.00	0.04	0.00	−0.406	0.000	0.016	0.007	−2.70	−0.69	2185.56	241.16			−0.92	245.13
196	313	−0.41	0.00	0.04	0.00	−0.416	0.000	0.020	0.007	−2.37	−0.38	2190.77	244.01			−0.60	248.05
197	314	0.48	0.00	0.00	0.01	0.539	0.000	0.109	0.014	−2.10	−4.07	2198.53	244.33			−4.29	248.42
198	315	0.49	0.00	0.01	0.01	0.552	0.000	0.102	0.009	−1.61	−3.95	2203.76	247.17			−4.17	251.32
199	316	0.49	0.00	0.01	0.01	0.552	0.000	0.102	0.009	−1.89	−4.17	2207.88	251.13			−4.43	255.30
200	317	0.29	0.00	0.02	0.00	0.319	0.000	0.012	−0.003	−1.35	−1.63	2210.51	256.56			−1.71	260.99
201	318	0.28	0.00	0.02	0.00	0.308	0.000	0.010	−0.003	−1.76	−1.86	2214.47	260.67			−1.95	265.17
202	319	0.28	0.00	0.02	0.00	0.308	0.000	0.010	−0.003	−1.74	−1.84	2219.44	263.77			−1.91	268.36
203	320	0.28	0.00	0.03	0.00	0.308	0.000	−0.002	−0.006	−1.87	−1.88	2223.04	268.24			−1.97	272.90
204	321	0.28	0.00	0.03	0.00	0.308	0.000	−0.002	−0.006	−1.51	−1.57	2227.56	271.80			−1.64	276.55

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 117																	
205	322	0.28	0.00	0.04	−0.01	0.309	0.000	−0.016	−0.000	−1.63	−1.53	2230.91	276.52			−1.61	281.35
206	323	−0.45	0.02	0.04	0.00	−0.454	−0.021	0.032	0.005	−2.25	0.10	2233.93	281.57			−0.16	286.30
207	324	0.28	0.01	0.05	−0.01	0.310	−0.013	−0.028	−0.004	−1.52	−1.28	2238.54	285.03			−1.35	290.05
208	325	0.28	0.00	0.06	−0.01	0.310	0.000	−0.040	−0.007	−1.47	−1.00	2242.76	288.89			−1.04	294.04
209	326	0.28	0.00	0.06	−0.01	0.310	0.000	−0.040	−0.007	−1.71	−1.19	2246.01	293.70			−1.24	298.94
210	327	0.28	0.00	0.07	−0.01	0.311	0.000	−0.052	−0.010	−1.86	−1.01	2250.17	297.62			−1.03	303.00
211	328	0.28	0.00	0.07	−0.01	0.311	0.000	−0.052	−0.010	−2.17	−1.30	2253.37	302.49			−1.33	307.96
212	329	0.11	0.00	0.01	0.02	0.118	0.000	−0.006	−0.021	−1.94	−1.41	2257.65	306.28			−1.36	311.94
213	330	0.11	0.00	0.01	0.01	0.118	0.000	−0.007	−0.011	−2.17	−1.72	2260.71	311.29			−1.72	317.02
214	331	0.37	0.00	−0.02	0.01	0.408	0.000	0.088	0.010	−1.71	−2.20	2265.20	314.87			−2.27	320.64
215	332	0.11	0.00	0.02	0.01	0.119	0.000	−0.018	−0.012	−2.90	−2.36	2267.97	320.17			−2.35	326.15
216	333	0.11	0.00	0.02	0.01	0.119	0.000	−0.018	−0.012	−3.07	−2.53	2272.00	324.22			−2.51	330.33
217	334	0.11	0.00	0.03	0.00	0.119	0.000	−0.031	−0.004	−3.62	−2.98	2274.91	329.38			−2.97	335.61
218	335	0.11	0.00	0.03	0.00	0.119	0.000	−0.031	−0.004	−3.81	−3.17	2278.80	333.56			−3.16	339.92
219	336	0.10	0.00	0.03	0.00	0.108	0.000	−0.032	−0.003	−4.30	−3.66	2281.59	338.83			−3.64	345.33
220	337	0.09	0.00	0.03	−0.01	0.097	0.000	−0.033	0.007	−4.68	−4.01	2285.51	342.99			−3.99	349.65
221	338	0.09	0.00	0.04	−0.01	0.097	0.000	−0.045	0.006	−5.48	−4.61	2288.27	348.30			−4.56	355.12
222	339	0.07	0.00	0.03	−0.01	0.075	0.000	−0.034	0.008	−5.54	−4.86	2291.93	352.71			−4.82	359.67
Z = 118																	
163	281	0.04	0.00	0.01	0.00	0.043	0.000	−0.011	−0.000	−5.28	−4.74	1981.73	194.00			−4.75	198.47
164	282	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.76	−5.26	1991.49	192.31			−5.26	196.73
165	283	0.04	0.00	−0.01	0.00	0.043	0.000	0.013	0.001	−6.18	−5.53	1999.14	192.73			−5.53	197.10
166	284	0.06	0.00	−0.01	0.00	0.064	0.000	0.014	0.001	−6.33	−5.66	2008.27	191.67			−5.67	195.98
167	285	0.07	0.00	−0.01	0.01	0.075	0.000	0.014	−0.009	−6.85	−6.12	2015.86	192.14			−6.12	196.41
168	286	0.07	0.00	−0.01	0.01	0.075	0.000	0.014	−0.009	−6.98	−6.25	2024.76	191.32			−6.25	195.55
169	287	0.07	0.00	0.00	0.01	0.075	0.000	0.002	−0.010	−7.43	−6.70	2032.12	192.03			−6.71	196.22
170	288	0.08	0.00	0.01	0.01	0.086	0.000	−0.009	−0.011	−7.54	−6.79	2040.73	191.49			−6.79	195.65
171	289	0.08	0.00	0.01	0.01	0.086	0.000	−0.009	−0.011	−7.99	−7.22	2047.84	192.45			−7.22	196.57
172	290	0.08	0.00	0.02	0.00	0.086	0.000	−0.021	−0.002	−8.01	−7.20	2056.12	192.24			−7.21	196.34
173	291	0.07	0.00	0.02	0.00	0.075	0.000	−0.022	−0.002	−8.44	−7.59	2062.97	193.46			−7.60	197.53
174	292	0.07	0.00	0.03	−0.01	0.075	0.000	−0.034	0.008	−8.57	−7.54	2070.99	193.52			−7.54	197.57
175	293	0.07	0.00	0.04	−0.01	0.075	0.000	−0.046	0.007	−9.10	−7.84	2077.52	195.06			−7.83	199.09
176	294	0.06	0.00	0.03	−0.01	0.064	0.000	−0.034	0.008	−8.60	−7.56	2085.10	195.55			−7.56	199.57
177	295	−0.08	0.00	0.01	−0.01	−0.084	0.000	−0.009	0.010	−8.66	−8.21	2091.77	196.96			−8.21	200.95
178	296	−0.06	0.00	0.00	−0.01	−0.063	0.000	0.002	0.010	−8.46	−7.93	2099.12	197.67			−7.93	201.66
179	297	−0.04	0.00	0.00	0.00	−0.042	0.000	0.001	0.000	−8.63	−8.01	2105.02	199.85			−8.02	203.83
180	298	−0.03	0.00	0.01	0.00	−0.032	0.000	−0.011	0.000	−8.32	−7.61	2112.03	200.91			−7.62	204.89
181	299	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−8.40	−7.66	2117.69	203.32			−7.67	207.30
182	300	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.94	−7.20	2124.43	204.65			−7.21	208.63
183	301	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.92	−7.19	2129.82	207.33			−7.19	211.32
184	302	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.29	−6.59	2136.21	209.01			−6.59	213.01
185	303	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−6.39	−5.72	2140.55	212.74			−5.72	216.76
186	304	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.61	−4.98	2146.61	214.76			−4.99	218.79
187	305	−0.02	0.00	−0.01	0.00	−0.021	0.000	0.012	−0.000	−4.44	−3.88	2150.51	218.92			−3.88	222.97
188	306	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.67	−3.13	2156.36	221.14			−3.14	225.22
189	307	−0.39	0.00	0.06	−0.01	−0.397	0.000	−0.006	0.024	−4.89	−2.64	2160.69	224.89			−2.82	228.82
190	308	−0.39	0.00	0.05	−0.01	−0.397	0.000	0.004	0.020	−4.30	−2.25	2166.70	226.95			−2.42	230.92
191	309	−0.40	0.00	0.05	−0.01	−0.407	0.000	0.007	0.020	−4.27	−2.13	2171.21	230.51			−2.33	234.48
192	310	−0.40	0.00	0.05	−0.01	−0.407	0.000	0.007	0.020	−3.75	−1.66	2176.95	232.85			−1.83	236.88
193	311	−0.40	0.00	0.05	−0.01	−0.407	0.000	0.007	0.020	−3.66	−1.59	2181.32	236.54			−1.78	240.60
194	312	−0.41	0.00	0.05	0.00	−0.416	0.000	0.009	0.011	−3.16	−1.15	2186.89	239.04			−1.35	243.13
195	313	−0.41	0.00	0.05	0.00	−0.416	0.000	0.009	0.011	−3.10	−1.08	2191.09	242.92			−1.30	247.03
196	314	−0.41	0.00	0.04	0.00	−0.416	0.000	0.020	0.007	−2.62	−0.72	2196.56	245.52			−0.92	249.70
197	315	0.49	0.00	0.00	0.01	0.551	0.000	0.114	0.016	−1.75	−4.28	2204.21	245.94			−4.48	250.18
198	316	0.49	0.00	0.01	0.01	0.552	0.000	0.102	0.009	−1.42	−4.14	2209.71	248.51			−4.33	252.81
199	317	0.49	0.00	0.01	0.01	0.552	0.000	0.102	0.009	−1.71	−4.37	2213.85	252.44			−4.59	256.77
200	318	0.29	0.00	0.02	0.00	0.319	0.000	0.012	−0.003	−1.26	−1.62	2216.57	257.79			−1.69	262.34

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 118																	
201	319	0.28	0.00	0.02	0.00	0.308	0.000	0.010	−0.003	−1.65	−1.84	2220.53	261.90			−1.91	266.51
202	320	0.28	0.00	0.02	0.00	0.308	0.000	0.010	−0.003	−1.63	−1.82	2225.80	264.70			−1.88	269.39
203	321	0.28	0.00	0.03	0.00	0.308	0.000	−0.002	−0.006	−1.75	−1.85	2229.40	269.18			−1.92	273.93
204	322	0.28	0.00	0.03	0.00	0.308	0.000	−0.002	−0.006	−1.39	−1.53	2234.21	272.44			−1.60	277.29
205	323	−0.45	0.00	0.05	0.00	−0.455	0.000	0.022	0.010	−2.32	−0.14	2236.22	278.50			−0.41	283.23
206	324	−0.46	0.00	0.05	0.00	−0.465	0.000	0.025	0.009	−2.19	0.04	2240.98	281.81			−0.21	286.63
207	325	−0.46	0.00	0.05	0.00	−0.465	0.000	0.025	0.009	−2.42	−0.16	2244.42	286.44			−0.43	291.33
208	326	−0.47	0.00	0.05	−0.01	−0.474	0.000	0.030	0.017	−2.32	0.05	2248.99	289.94			−0.18	294.96
209	327	0.28	0.00	0.06	−0.01	0.310	0.000	−0.040	−0.007	−1.50	−1.09	2253.22	293.79			−1.13	299.10
210	328	0.22	0.00	0.01	0.01	0.239	0.000	0.010	−0.011	−0.93	−0.78	2257.52	297.55			−0.81	302.97
211	329	0.16	0.00	−0.03	0.02	0.172	0.000	0.049	−0.013	−1.85	−1.14	2260.81	302.34			−1.10	307.93
212	330	0.28	0.01	0.08	−0.01	0.313	−0.014	−0.064	−0.013	−2.22	−1.14	2265.25	305.96			−1.11	311.64
213	331	0.37	0.00	−0.02	0.01	0.408	0.000	0.088	0.010	−1.90	−2.54	2269.42	309.87			−2.61	315.56
214	332	0.37	0.00	−0.02	0.01	0.408	0.000	0.088	0.010	−1.77	−2.43	2273.62	313.74			−2.48	319.57
215	333	0.37	0.00	−0.02	0.01	0.408	0.000	0.088	0.010	−1.96	−2.58	2276.38	319.05			−2.65	324.97
216	334	0.37	0.00	−0.02	0.01	0.408	0.000	0.088	0.010	−1.80	−2.44	2280.38	323.13			−2.49	329.18
217	335	0.11	0.00	0.03	0.00	0.119	0.000	−0.031	−0.004	−3.14	−2.53	2282.93	328.65			−2.52	334.89
218	336	0.11	0.00	0.03	0.00	0.119	0.000	−0.031	−0.004	−3.33	−2.71	2287.10	332.55			−2.69	338.92
219	337	0.09	0.00	0.04	−0.01	0.097	0.000	−0.045	0.006	−4.11	−3.30	2290.01	337.71			−3.25	344.25
220	338	0.09	0.00	0.04	−0.01	0.097	0.000	−0.045	0.006	−4.49	−3.66	2294.20	341.58			−3.61	348.26
221	339	0.09	0.00	0.04	−0.01	0.097	0.000	−0.045	0.006	−5.09	−4.24	2296.95	346.91			−4.18	353.72
Z = 119																	
165	284	0.03	0.00	−0.01	0.00	0.032	0.000	0.012	0.000	−6.11	−5.49	1997.16	201.99			−5.50	206.66
166	285	0.06	0.00	0.00	0.00	0.064	0.000	0.002	0.000	−6.17	−5.56	2006.26	200.97			−5.57	205.58
167	286	0.06	0.00	0.00	0.00	0.064	0.000	0.002	0.000	−6.64	−6.01	2014.18	201.12			−6.02	205.68
168	287	−0.08	0.00	−0.01	0.00	−0.084	0.000	0.014	−0.001	−6.82	−6.41	2023.36	200.01			−6.43	204.51
169	288	0.07	0.00	0.00	0.01	0.075	0.000	0.002	−0.010	−7.27	−6.56	2030.74	200.70			−6.57	205.16
170	289	0.08	0.00	0.01	0.01	0.086	0.000	−0.009	−0.011	−7.41	−6.67	2039.41	200.10			−6.68	204.53
171	290	0.08	0.00	0.02	0.00	0.086	0.000	−0.021	−0.002	−7.96	−7.16	2046.90	200.68			−7.17	205.07
172	291	0.08	0.00	0.03	0.00	0.086	0.000	−0.033	−0.003	−8.13	−7.16	2055.22	200.43			−7.17	204.79
173	292	0.08	0.00	0.03	−0.01	0.086	0.000	−0.034	0.007	−8.60	−7.60	2062.45	201.28			−7.61	205.61
174	293	0.07	0.00	0.04	−0.01	0.075	0.000	−0.046	0.007	−8.83	−7.57	2070.51	201.29			−7.57	205.60
175	294	0.07	0.00	0.04	−0.02	0.075	0.000	−0.046	0.017	−9.27	−7.91	2077.41	202.46			−7.90	206.75
176	295	0.07	0.00	0.04	−0.02	0.075	0.000	−0.046	0.017	−8.96	−7.62	2084.98	202.96			−7.60	207.23
177	296	0.06	0.00	0.03	−0.01	0.064	0.000	−0.034	0.008	−8.80	−7.75	2091.46	204.55			−7.75	208.79
178	297	−0.06	0.00	0.00	−0.01	−0.063	0.000	0.002	0.010	−8.32	−7.81	2099.17	204.91			−7.81	209.14
179	298	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−8.49	−7.83	2105.32	206.84			−7.83	211.05
180	299	−0.03	0.00	0.01	0.00	−0.032	0.000	−0.011	0.000	−8.17	−7.49	2112.41	207.82			−7.49	212.02
181	300	−0.02	0.00	0.01	0.00	−0.021	0.000	−0.012	0.000	−8.27	−7.54	2118.38	209.91			−7.54	214.11
182	301	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.76	−7.04	2125.10	211.26			−7.04	215.46
183	302	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.73	−7.01	2130.80	213.64			−7.01	217.84
184	303	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.08	−6.40	2137.20	215.31			−6.40	219.51
185	304	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−6.19	−5.54	2141.85	218.73			−5.54	222.94
186	305	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.40	−4.80	2147.93	220.73			−4.80	224.95
187	306	−0.01	0.00	−0.01	0.00	−0.010	0.000	0.012	−0.000	−4.25	−3.70	2152.15	224.58			−3.70	228.82
188	307	−0.39	0.00	0.05	−0.01	−0.397	0.000	0.004	0.020	−5.39	−3.39	2158.45	226.35			−3.60	230.40
189	308	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−5.59	−3.33	2163.51	229.35			−3.56	233.41
190	309	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−5.17	−2.95	2169.55	231.39			−3.15	235.49
191	310	−0.40	0.00	0.05	−0.01	−0.407	0.000	0.007	0.020	−4.92	−2.85	2174.38	234.63			−3.08	238.73
192	311	−0.40	0.00	0.05	−0.01	−0.407	0.000	0.007	0.020	−4.40	−2.38	2180.14	236.95			−2.58	241.10
193	312	−0.40	0.00	0.04	−0.01	−0.406	0.000	0.018	0.015	−4.20	−2.30	2184.80	240.35			−2.53	244.51
194	313	−0.41	0.00	0.05	0.00	−0.416	0.000	0.009	0.011	−3.83	−1.88	2190.41	242.81			−2.11	247.01
195	314	−0.41	0.00	0.04	−0.01	−0.416	0.000	0.021	0.015	−3.77	−1.81	2194.91	246.38			−2.05	250.62
196	315	−0.42	0.00	0.05	0.00	−0.426	0.000	0.012	0.011	−3.40	−1.41	2200.36	249.01			−1.65	253.29
197	316	−0.42	0.00	0.05	0.00	−0.426	0.000	0.012	0.011	−3.32	−1.32	2204.66	252.78			−1.59	257.08
198	317	−0.42	0.00	0.04	0.00	−0.426	0.000	0.023	0.006	−2.91	−1.02	2210.01	255.50			−1.26	259.87
199	318	−0.42	0.00	0.04	0.00	−0.426	0.000	0.023	0.006	−2.85	−0.93	2214.14	259.44			−1.20	263.85

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 119																	
200	319	−0.42	0.00	0.04	−0.01	−0.426	0.000	0.024	0.015	−2.57	−0.63	2219.32	262.33			−0.86	266.85
201	320	−0.43	0.00	0.04	−0.01	−0.435	0.000	0.027	0.014	−2.79	−0.87	2223.59	266.13			−1.13	270.67
202	321	−0.43	0.00	0.04	−0.01	−0.435	0.000	0.027	0.014	−2.47	−0.61	2228.64	269.15			−0.85	273.78
203	322	−0.43	0.00	0.04	−0.01	−0.435	0.000	0.027	0.014	−2.62	−0.72	2232.61	273.26			−0.97	277.93
204	323	−0.44	0.00	0.04	−0.01	−0.445	0.000	0.030	0.014	−2.43	−0.48	2237.50	276.43			−0.73	281.19
205	324	−0.44	0.00	0.04	−0.01	−0.445	0.000	0.030	0.014	−2.56	−0.59	2241.30	280.71			−0.86	285.52
206	325	−0.45	0.00	0.04	−0.01	−0.455	0.000	0.033	0.013	−2.45	−0.39	2246.07	284.01			−0.65	288.91
207	326	−0.45	0.00	0.04	−0.01	−0.455	0.000	0.033	0.013	−2.65	−0.57	2249.78	288.37			−0.86	293.33
208	327	−0.45	0.00	0.04	−0.01	−0.455	0.000	0.033	0.013	−2.39	−0.36	2254.36	291.86			−0.62	296.93
209	328	−0.47	0.01	0.05	0.00	−0.474	−0.009	0.028	0.009	−2.61	−0.36	2257.73	296.57			−0.69	301.65
210	329	0.29	0.00	0.07	−0.01	0.323	0.000	−0.049	−0.011	−1.44	−0.94	2262.94	299.43			−0.98	304.90
211	330	0.28	0.00	0.07	−0.01	0.311	0.000	−0.052	−0.010	−1.82	−1.18	2266.39	304.05			−1.22	309.62
212	331	0.37	0.00	−0.01	0.00	0.409	0.000	0.074	0.015	−1.69	−2.64	2272.30	306.20			−2.72	311.82
213	332	0.37	0.00	−0.02	0.01	0.408	0.000	0.088	0.010	−2.09	−2.84	2275.56	311.02			−2.94	316.73
214	333	0.37	0.00	−0.01	0.00	0.409	0.000	0.074	0.015	−1.80	−2.71	2279.74	314.91			−2.80	320.74
215	334	0.37	0.00	−0.01	0.00	0.409	0.000	0.074	0.015	−2.01	−2.89	2282.81	319.91			−3.00	325.82
216	335	0.37	0.00	−0.01	0.00	0.409	0.000	0.074	0.015	−1.88	−2.78	2286.85	323.94			−2.87	329.99
217	336	0.37	0.00	−0.01	0.00	0.409	0.000	0.074	0.015	−2.10	−2.96	2289.78	329.09			−3.08	335.23
218	337	0.38	0.00	0.00	0.00	0.421	0.000	0.065	0.011	−1.70	−2.88	2293.70	333.24			−3.02	339.49
219	338	0.09	0.00	0.04	−0.01	0.097	0.000	−0.045	0.006	−4.14	−3.33	2296.74	338.27			−3.29	344.81
220	339	0.09	0.00	0.04	−0.01	0.097	0.000	−0.045	0.006	−4.53	−3.69	2300.94	342.13			−3.65	348.81
Z = 120																	
167	287	−0.08	0.00	−0.01	0.00	−0.084	0.000	0.014	−0.001	−5.99	−5.61	2013.47	209.11			−5.63	213.97
168	288	−0.10	0.00	−0.01	−0.01	−0.104	0.000	0.016	0.008	−6.19	−5.74	2022.72	207.94			−5.76	212.74
169	289	−0.10	0.00	−0.01	−0.01	−0.104	0.000	0.016	0.008	−6.65	−6.19	2030.42	208.31			−6.20	213.06
170	290	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−6.69	−6.20	2039.31	207.49			−6.22	212.19
171	291	0.08	0.00	0.03	0.00	0.086	0.000	−0.033	−0.003	−7.34	−6.41	2046.55	208.32			−6.42	212.99
172	292	0.08	0.00	0.03	−0.01	0.086	0.000	−0.034	0.007	−7.42	−6.47	2055.26	207.69			−6.48	212.32
173	293	0.08	0.00	0.04	−0.01	0.086	0.000	−0.045	0.007	−8.10	−6.90	2062.49	208.52			−6.91	213.13
174	294	0.08	0.00	0.04	−0.02	0.086	0.000	−0.046	0.016	−8.22	−6.93	2070.93	208.15			−6.92	212.74
175	295	0.07	0.00	0.04	−0.02	0.075	0.000	−0.046	0.017	−8.57	−7.23	2077.82	209.34			−7.22	213.90
176	296	0.07	0.00	0.04	−0.02	0.075	0.000	−0.046	0.017	−8.24	−6.92	2085.70	209.53			−6.91	214.06
177	297	0.06	0.00	0.04	−0.02	0.064	0.000	−0.047	0.017	−8.37	−7.03	2092.17	211.13			−7.01	215.65
178	298	−0.06	0.00	0.00	−0.01	−0.063	0.000	0.002	0.010	−7.52	−7.05	2100.16	211.21			−7.05	215.69
179	299	−0.03	0.00	0.00	0.00	−0.032	0.000	0.000	0.000	−7.70	−7.07	2106.33	213.11			−7.08	217.56
180	300	−0.03	0.00	0.01	0.00	−0.032	0.000	−0.011	0.000	−7.38	−6.72	2113.73	213.79			−6.72	218.23
181	301	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−7.46	−6.74	2119.70	215.89			−6.75	220.32
182	302	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.98	−6.29	2126.77	216.88			−6.29	221.30
183	303	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.93	−6.25	2132.47	219.25			−6.25	223.68
184	304	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.28	−5.62	2139.18	220.62			−5.63	225.04
185	305	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−5.40	−4.78	2143.86	224.01			−4.78	228.43
186	306	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.59	−4.02	2150.24	225.71			−4.03	230.14
187	307	−0.39	0.00	0.05	−0.01	−0.397	0.000	0.004	0.020	−5.56	−3.68	2155.23	228.78			−3.90	233.00
188	308	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−5.57	−3.47	2161.94	230.14			−3.68	234.40
189	309	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−5.55	−3.43	2167.05	233.11			−3.65	237.36
190	310	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−5.12	−3.05	2173.38	234.85			−3.24	239.15
191	311	−0.40	0.00	0.05	−0.01	−0.407	0.000	0.007	0.020	−4.87	−2.94	2178.23	238.07			−3.16	242.36
192	312	−0.41	0.00	0.05	−0.01	−0.416	0.000	0.010	0.019	−4.43	−2.48	2184.29	240.08			−2.68	244.41
193	313	−0.41	0.00	0.05	−0.01	−0.416	0.000	0.010	0.019	−4.37	−2.43	2189.01	243.43			−2.66	247.78
194	314	−0.42	0.00	0.05	0.00	−0.426	0.000	0.012	0.011	−3.88	−2.00	2194.91	245.60			−2.24	249.96
195	315	−0.42	0.00	0.05	0.00	−0.426	0.000	0.012	0.011	−3.86	−1.97	2199.46	249.12			−2.22	253.51
196	316	−0.42	0.00	0.05	0.00	−0.426	0.000	0.012	0.011	−3.45	−1.62	2205.26	251.40			−1.85	255.85
197	317	−0.42	0.00	0.04	−0.01	−0.426	0.000	0.024	0.015	−3.39	−1.53	2209.56	255.16			−1.76	259.65
198	318	−0.43	0.00	0.05	0.00	−0.436	0.000	0.015	0.010	−3.10	−1.20	2215.20	257.60			−1.44	262.13
199	319	−0.43	0.00	0.05	0.00	−0.436	0.000	0.015	0.010	−3.05	−1.13	2219.35	261.51			−1.39	266.07
200	320	−0.43	0.00	0.04	−0.01	−0.435	0.000	0.027	0.014	−2.75	−0.86	2224.85	264.08			−1.08	268.74
201	321	−0.43	0.00	0.04	−0.01	−0.435	0.000	0.027	0.014	−2.76	−1.02	2229.07	267.94			−1.26	272.63

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 120																	
202	322	−0.44	0.00	0.04	0.00	−0.445	0.000	0.029	0.006	−2.47	−0.75	2234.40	270.69			−1.00	275.43
203	323	−0.44	0.00	0.04	−0.01	−0.445	0.000	0.030	0.014	−2.58	−0.77	2238.30	274.86			−1.02	279.66
204	324	−0.44	0.00	0.04	−0.01	−0.445	0.000	0.030	0.014	−2.30	−0.38	2243.32	277.90			−0.60	282.79
205	325	−0.45	0.00	0.04	−0.01	−0.455	0.000	0.033	0.013	−2.51	−0.64	2247.29	282.00			−0.90	286.92
206	326	−0.45	0.00	0.04	−0.01	−0.455	0.000	0.033	0.013	−2.32	−0.32	2252.23	285.14			−0.56	290.16
207	327	−0.46	0.00	0.05	0.00	−0.465	0.000	0.025	0.009	−2.55	−0.59	2256.04	289.40			−0.88	294.45
208	328	−0.46	0.00	0.04	−0.01	−0.464	0.000	0.036	0.013	−2.41	−0.34	2260.88	292.63			−0.60	297.80
209	329	−0.46	0.00	0.04	−0.01	−0.464	0.000	0.036	0.013	−2.62	−0.55	2264.46	297.12			−0.83	302.34
210	330	−0.46	0.00	0.04	−0.01	−0.464	0.000	0.036	0.013	−2.51	−0.47	2269.30	300.35			−0.72	305.69
211	331	0.37	0.00	−0.01	0.00	0.409	0.000	0.074	0.015	−1.47	−2.60	2274.64	303.08			−2.68	308.68
212	332	0.37	0.00	−0.01	0.00	0.409	0.000	0.074	0.015	−1.38	−2.53	2279.33	306.47			−2.59	312.18
213	333	0.37	0.00	−0.01	0.00	0.409	0.000	0.074	0.015	−1.62	−2.75	2282.60	311.26			−2.83	317.05
214	334	0.37	0.00	−0.01	0.00	0.409	0.000	0.074	0.015	−1.50	−2.64	2287.08	314.85			−2.70	320.76
215	335	0.37	0.00	−0.01	0.00	0.409	0.000	0.074	0.015	−1.72	−2.81	2290.17	319.85			−2.90	325.84
216	336	0.37	0.00	−0.01	0.00	0.409	0.000	0.074	0.015	−1.58	−2.69	2294.47	323.61			−2.76	329.73
217	337	0.38	0.00	0.00	0.00	0.421	0.000	0.065	0.011	−1.51	−2.90	2297.43	328.72			−3.02	334.89
218	338	0.38	0.00	0.00	0.00	0.421	0.000	0.065	0.011	−1.43	−2.83	2301.64	332.58			−2.93	338.89
219	339	0.38	0.00	0.00	0.00	0.421	0.000	0.065	0.011	−1.67	−3.04	2304.46	337.84			−3.17	344.24
Z = 121																	
169	290	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−6.50	−6.04	2028.31	217.71			−6.07	222.76
170	291	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−6.61	−6.14	2037.31	216.78			−6.17	221.77
171	292	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−6.97	−6.50	2045.03	217.13			−6.53	222.08
172	293	−0.12	0.00	−0.02	−0.01	−0.124	0.000	0.029	0.007	−7.01	−6.46	2053.65	216.58			−6.48	221.49
173	294	0.07	0.00	0.03	−0.01	0.075	0.000	−0.034	0.008	−7.45	−6.46	2060.78	217.52			−6.47	222.40
174	295	0.07	0.00	0.04	−0.02	0.075	0.000	−0.046	0.017	−7.77	−6.47	2069.22	217.15			−6.46	222.01
175	296	0.07	0.00	0.04	−0.02	0.075	0.000	−0.046	0.017	−8.11	−6.78	2076.44	218.00			−6.78	222.83
176	297	0.07	0.00	0.04	−0.02	0.075	0.000	−0.046	0.017	−7.78	−6.47	2084.34	218.18			−6.46	222.98
177	298	0.06	0.00	0.03	−0.01	0.064	0.000	−0.034	0.008	−7.64	−6.63	2091.19	219.40			−6.64	224.16
178	299	−0.02	0.00	0.00	0.00	−0.021	0.000	0.000	0.000	−7.20	−6.57	2099.12	219.54			−6.58	224.27
179	300	−0.02	0.00	0.01	0.00	−0.021	0.000	−0.012	0.000	−7.48	−6.80	2105.81	220.92			−6.81	225.63
180	301	−0.02	0.00	0.01	0.00	−0.021	0.000	−0.012	0.000	−7.12	−6.44	2113.22	221.58			−6.44	226.27
181	302	−0.02	0.00	0.01	0.00	−0.021	0.000	−0.012	0.000	−7.20	−6.51	2119.55	223.32			−6.52	228.00
182	303	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.67	−6.00	2126.59	224.35			−6.00	229.01
183	304	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.60	−5.94	2132.59	226.43			−5.95	231.09
184	305	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.94	−5.31	2139.30	227.79			−5.31	232.44
185	306	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−5.07	−4.48	2144.32	230.84			−4.48	235.49
186	307	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.26	−3.72	2150.70	232.54			−3.72	237.19
187	308	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−5.79	−3.79	2156.41	234.89			−4.06	239.28
188	309	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−5.58	−3.60	2163.16	236.21			−3.85	240.63
189	310	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−5.56	−3.57	2168.57	238.87			−3.82	243.29
190	311	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−5.14	−3.18	2174.93	240.59			−3.41	245.05
191	312	−0.41	0.00	0.06	−0.01	−0.417	0.000	−0.000	0.024	−5.11	−3.08	2180.08	243.51			−3.34	247.95
192	313	−0.41	0.00	0.05	−0.01	−0.416	0.000	0.010	0.019	−4.48	−2.65	2186.20	245.46			−2.90	249.94
193	314	−0.41	0.00	0.05	−0.01	−0.416	0.000	0.010	0.019	−4.42	−2.60	2191.22	248.51			−2.87	253.00
194	315	−0.42	0.00	0.05	0.00	−0.426	0.000	0.012	0.011	−3.96	−2.20	2197.16	250.64			−2.47	255.15
195	316	−0.42	0.00	0.05	0.00	−0.426	0.000	0.012	0.011	−3.95	−2.17	2202.02	253.85			−2.47	258.37
196	317	−0.43	0.00	0.05	0.00	−0.436	0.000	0.015	0.010	−3.63	−1.84	2207.85	256.10			−2.12	260.66
197	318	−0.43	0.00	0.05	0.00	−0.436	0.000	0.015	0.010	−3.59	−1.77	2212.48	259.54			−2.08	264.12
198	319	−0.43	0.00	0.05	0.00	−0.436	0.000	0.015	0.010	−3.26	−1.48	2218.17	261.92			−1.76	266.57
199	320	−0.43	0.00	0.04	0.00	−0.435	0.000	0.025	0.006	−3.17	−1.42	2222.62	265.54			−1.72	270.20
200	321	−0.43	0.00	0.04	−0.01	−0.435	0.000	0.027	0.014	−2.93	−1.16	2228.15	268.08			−1.42	272.84
201	322	−0.44	0.00	0.05	0.00	−0.445	0.000	0.018	0.010	−2.97	−1.12	2232.46	271.84			−1.43	276.60
202	323	−0.44	0.00	0.04	0.00	−0.445	0.000	0.029	0.006	−2.67	−0.91	2237.86	274.51			−1.20	279.35
203	324	−0.45	0.00	0.05	0.00	−0.455	0.000	0.022	0.010	−2.83	−0.90	2242.02	278.42			−1.23	283.28
204	325	−0.45	0.00	0.05	0.00	−0.455	0.000	0.022	0.010	−2.62	−0.75	2247.31	281.21			−1.05	286.15
205	326	−0.45	0.00	0.04	−0.01	−0.455	0.000	0.033	0.013	−2.78	−0.88	2251.43	285.15			−1.18	290.16
206	327	−0.46	0.00	0.05	0.00	−0.465	0.000	0.025	0.009	−2.67	−0.74	2256.56	288.09			−1.05	293.16

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 121																	
207	328	−0.46	0.00	0.04	−0.01	−0.464	0.000	0.036	0.013	−2.85	−0.85	2260.50	292.22			−1.17	297.35
208	329	−0.46	0.00	0.04	−0.01	−0.464	0.000	0.036	0.013	−2.75	−0.83	2265.57	295.23			−1.12	300.46
209	330	−0.47	0.00	0.05	−0.01	−0.474	0.000	0.030	0.017	−3.10	−1.01	2269.42	299.45			−1.33	304.73
210	331	0.39	0.01	0.00	0.00	0.433	−0.013	0.069	0.012	−0.87	−2.63	2275.97	300.97			−2.76	306.53
211	332	0.38	0.01	−0.01	0.00	0.421	−0.013	0.078	0.016	−1.39	−2.81	2279.66	305.36			−2.93	311.01
212	333	0.37	0.01	−0.01	0.00	0.409	−0.013	0.074	0.015	−1.43	−2.73	2284.33	308.75			−2.82	314.52
213	334	0.37	0.01	−0.01	0.00	0.409	−0.013	0.074	0.015	−1.66	−2.94	2287.89	313.27			−3.05	319.11
214	335	0.38	0.01	0.00	0.00	0.421	−0.013	0.065	0.011	−1.23	−2.84	2292.39	316.84			−2.96	322.76
215	336	0.38	0.01	0.00	0.00	0.421	−0.013	0.065	0.011	−1.46	−3.01	2295.75	321.55			−3.16	327.55
216	337	0.38	0.00	0.00	0.00	0.421	0.000	0.065	0.011	−1.35	−2.92	2300.10	325.27			−3.05	331.39
217	338	0.37	0.00	0.00	0.00	0.410	0.000	0.062	0.010	−1.72	−3.09	2303.30	330.14			−3.23	336.35
218	339	0.38	0.00	0.01	0.00	0.422	0.000	0.053	0.006	−1.42	−3.06	2307.55	333.96			−3.21	340.28
Z = 122																	
172	294	−0.12	0.00	−0.02	−0.01	−0.124	0.000	0.029	0.007	−6.44	−5.91	2053.09	224.43			−5.93	229.65
173	295	−0.12	0.00	−0.01	−0.01	−0.125	0.000	0.018	0.008	−6.44	−6.03	2060.36	225.23			−6.06	230.40
174	296	0.07	0.00	0.04	−0.01	0.075	0.000	−0.046	0.007	−6.70	−5.53	2068.61	225.05			−5.53	230.20
175	297	0.07	0.00	0.04	−0.02	0.075	0.000	−0.046	0.017	−7.14	−5.85	2075.86	225.87			−5.85	230.99
176	298	0.07	0.00	0.04	−0.02	0.075	0.000	−0.046	0.017	−6.80	−5.53	2084.07	225.73			−5.53	230.81
177	299	−0.08	0.00	0.00	−0.01	−0.084	0.000	0.003	0.010	−6.50	−6.25	2091.49	226.39			−6.26	231.42
178	300	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.36	−5.73	2099.28	226.67			−5.73	231.68
179	301	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.60	−5.96	2106.00	228.02			−5.97	233.00
180	302	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.22	−5.57	2113.69	228.40			−5.57	233.35
181	303	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−6.31	−5.66	2120.06	230.10			−5.66	235.04
182	304	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.80	−5.17	2127.44	230.79			−5.17	235.71
183	305	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.72	−5.10	2133.44	232.86			−5.10	237.77
184	306	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.04	−4.46	2140.46	233.92			−4.46	238.82
185	307	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−4.19	−3.64	2145.50	236.94			−3.64	241.83
186	308	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.36	−2.87	2152.19	238.33			−2.88	243.22
187	309	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−5.18	−3.38	2158.36	240.23			−3.64	244.86
188	310	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−4.98	−3.20	2165.42	241.24			−3.43	245.90
189	311	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−4.97	−3.16	2170.85	243.88			−3.41	248.53
190	312	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−4.54	−2.77	2177.50	245.30			−2.99	249.99
191	313	−0.41	0.00	0.06	−0.01	−0.417	0.000	−0.000	0.024	−4.50	−2.66	2182.67	248.20			−2.92	252.87
192	314	−0.41	0.00	0.05	−0.01	−0.416	0.000	0.010	0.019	−3.85	−2.25	2189.10	249.84			−2.49	254.54
193	315	−0.42	0.00	0.06	0.00	−0.426	0.000	0.002	0.015	−3.87	−2.16	2194.10	252.92			−2.44	257.59
194	316	−0.42	0.00	0.05	0.00	−0.426	0.000	0.012	0.011	−3.36	−1.81	2200.40	254.69			−2.07	259.40
195	317	−0.43	0.00	0.05	0.00	−0.436	0.000	0.015	0.010	−3.41	−1.77	2205.26	257.90			−2.07	262.60
196	318	−0.43	0.00	0.05	0.00	−0.436	0.000	0.015	0.010	−3.07	−1.48	2211.43	259.80			−1.75	264.56
197	319	−0.43	0.00	0.05	0.00	−0.436	0.000	0.015	0.010	−3.03	−1.43	2216.09	263.21			−1.72	267.99
198	320	−0.43	0.00	0.04	0.00	−0.435	0.000	0.025	0.006	−2.66	−1.15	2222.09	265.29			−1.41	270.12
199	321	−0.44	0.00	0.05	0.00	−0.445	0.000	0.018	0.010	−2.78	−1.12	2226.60	268.85			−1.43	273.69
200	322	−0.44	0.00	0.04	0.00	−0.445	0.000	0.029	0.006	−2.46	−1.06	2232.62	270.90			−1.33	275.81
201	323	−0.44	0.00	0.04	0.00	−0.445	0.000	0.029	0.006	−2.71	−1.28	2237.19	274.40			−1.57	279.33
202	324	−0.44	0.00	0.04	0.00	−0.445	0.000	0.029	0.006	−2.43	−0.99	2242.81	276.85			−1.26	281.85
203	325	0.29	0.00	0.02	0.01	0.319	0.000	0.014	−0.013	−1.91	−2.47	2248.48	279.26			−2.55	284.51
204	326	−0.46	0.00	0.05	0.00	−0.465	0.000	0.025	0.009	−2.45	−0.84	2252.57	283.23			−1.13	288.32
205	327	−0.46	0.00	0.05	0.00	−0.465	0.000	0.025	0.009	−2.52	−0.88	2256.63	287.24			−1.20	292.37
206	328	−0.46	0.00	0.05	0.00	−0.465	0.000	0.025	0.009	−2.30	−0.56	2261.86	290.09			−0.85	295.30
207	329	−0.47	0.00	0.05	0.00	−0.474	0.000	0.028	0.009	−2.63	−0.88	2266.02	294.00			−1.21	299.24
208	330	−0.47	0.00	0.05	0.00	−0.474	0.000	0.028	0.009	−2.45	−0.68	2271.20	296.89			−0.98	302.23
209	331	0.29	0.00	0.06	−0.01	0.322	0.000	−0.037	−0.007	−1.32	−1.31	2275.52	300.64			−1.38	306.29
210	332	0.40	0.00	0.00	0.00	0.445	0.000	0.073	0.013	−0.33	−2.52	2281.94	302.30			−2.62	307.98
211	333	0.39	0.00	0.00	0.00	0.433	0.000	0.069	0.012	−0.65	−2.64	2285.58	306.72			−2.77	312.47
212	334	0.38	0.00	0.00	0.00	0.421	0.000	0.065	0.011	−0.70	−2.55	2290.53	309.84			−2.65	315.70
213	335	0.37	0.00	−0.01	0.00	0.409	0.000	0.074	0.015	−1.26	−2.76	2294.10	314.35			−2.85	320.30
214	336	0.38	0.00	0.00	0.00	0.421	0.000	0.065	0.011	−0.83	−2.67	2298.89	317.62			−2.77	323.66
215	337	0.38	0.00	0.00	0.00	0.421	0.000	0.065	0.011	−1.05	−2.87	2302.29	322.30			−2.99	328.40

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 122																	
216	338	0.38	0.00	0.00	0.00	0.421	0.000	0.065	0.011	−0.97	−2.80	2306.95	325.71			−2.90	331.94
217	339	0.37	0.00	0.00	0.00	0.410	0.000	0.062	0.010	−1.35	−2.96	2310.15	330.58			−3.08	336.89
Z = 123																	
174	297	−0.16	0.00	−0.02	−0.01	−0.165	0.000	0.033	0.005	−6.16	−5.68	2066.79	234.16			−5.72	239.57
175	298	−0.11	0.00	−0.01	−0.01	−0.115	0.000	0.017	0.008	−6.09	−5.83	2074.19	234.84			−5.85	240.23
176	299	−0.10	0.00	−0.01	−0.01	−0.104	0.000	0.016	0.008	−5.82	−5.62	2082.53	234.56			−5.64	239.92
177	300	−0.08	0.00	0.00	−0.01	−0.084	0.000	0.003	0.010	−6.05	−5.83	2089.76	235.40			−5.84	240.73
178	301	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−5.95	−5.38	2097.64	235.60			−5.38	240.90
179	302	−0.01	0.00	0.00	0.00	−0.011	0.000	0.000	0.000	−6.18	−5.57	2104.64	236.67			−5.58	241.94
180	303	−0.02	0.00	0.01	0.00	−0.021	0.000	−0.012	0.000	−5.81	−5.20	2112.37	237.01			−5.20	242.25
181	304	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.86	−5.24	2119.00	238.45			−5.24	243.66
182	305	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.33	−4.74	2126.39	239.13			−4.74	244.32
183	306	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−5.23	−4.65	2132.69	240.91			−4.66	246.08
184	307	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.54	−4.00	2139.71	241.95			−4.01	247.11
185	308	0.00	0.01	0.00	0.00	0.000	−0.013	0.000	0.000	−3.70	−3.20	2145.08	244.65			−3.20	249.80
186	309	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.86	−2.43	2151.78	246.03			−2.43	251.16
187	310	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−4.88	−3.22	2158.55	247.33			−3.52	252.16
188	311	−0.40	0.00	0.07	−0.01	−0.407	0.000	−0.014	0.028	−4.92	−3.05	2165.64	248.32			−3.32	253.18
189	312	−0.40	0.00	0.06	−0.01	−0.407	0.000	−0.003	0.024	−4.67	−3.01	2171.37	250.65			−3.30	255.49
190	313	−0.41	0.00	0.06	−0.01	−0.417	0.000	−0.000	0.024	−4.31	−2.64	2178.06	252.04			−2.92	256.89
191	314	−0.41	0.00	0.06	0.00	−0.417	0.000	−0.001	0.015	−4.11	−2.55	2183.55	254.61			−2.87	259.44
192	315	−0.42	0.00	0.06	0.00	−0.426	0.000	0.002	0.015	−3.70	−2.15	2190.01	256.22			−2.46	261.07
193	316	−0.42	0.00	0.05	0.00	−0.426	0.000	0.012	0.011	−3.54	−2.10	2195.35	258.96			−2.43	263.79
194	317	−0.42	0.00	0.05	0.00	−0.426	0.000	0.012	0.011	−3.17	−1.77	2201.69	260.69			−2.08	265.57
195	318	−0.43	0.00	0.05	0.00	−0.436	0.000	0.015	0.010	−3.26	−1.80	2206.92	263.54			−2.14	268.40
196	319	−0.43	0.00	0.05	0.00	−0.436	0.000	0.015	0.010	−2.92	−1.49	2213.08	265.44			−1.80	270.36
197	320	−0.43	0.00	0.04	0.00	−0.435	0.000	0.025	0.006	−2.85	−1.45	2218.05	268.54			−1.79	273.46
198	321	−0.44	0.00	0.05	0.00	−0.445	0.000	0.018	0.010	−2.68	−1.20	2224.09	270.58			−1.52	275.54
199	322	−0.44	0.00	0.04	0.00	−0.445	0.000	0.029	0.006	−2.65	−1.20	2228.92	273.82			−1.54	278.80
200	323	−0.44	0.00	0.04	0.00	−0.445	0.000	0.029	0.006	−2.49	−1.18	2235.00	275.81			−1.49	280.85
201	324	−0.45	0.00	0.04	0.00	−0.454	0.000	0.032	0.005	−2.87	−1.46	2239.93	278.95			−1.81	283.99
202	325	−0.45	0.00	0.04	0.00	−0.454	0.000	0.032	0.005	−2.68	−1.30	2245.70	281.25			−1.63	286.37
203	326	−0.46	0.00	0.04	0.00	−0.464	0.000	0.035	0.005	−2.92	−1.43	2250.30	284.72			−1.80	289.84
204	327	−0.46	0.00	0.04	0.00	−0.464	0.000	0.035	0.005	−2.60	−1.16	2255.78	287.32			−1.50	292.52
205	328	−0.46	0.00	0.04	0.00	−0.464	0.000	0.035	0.005	−2.67	−1.15	2260.06	291.10			−1.51	296.33
206	329	−0.47	0.00	0.05	0.00	−0.474	0.000	0.028	0.009	−2.59	−1.00	2265.48	293.75			−1.35	299.05
207	330	−0.47	0.00	0.05	0.00	−0.474	0.000	0.028	0.009	−2.88	−1.25	2269.87	297.44			−1.63	302.78
208	331	0.30	0.00	0.05	0.00	0.333	0.000	−0.021	−0.014	−0.99	−1.42	2275.43	299.95			−1.52	305.63
209	332	0.29	0.00	0.06	−0.01	0.322	0.000	−0.037	−0.007	−1.46	−1.52	2279.49	303.96			−1.61	309.71
210	333	−0.47	0.00	0.04	−0.01	−0.474	0.000	0.040	0.012	−2.82	−1.07	2284.26	307.26			−1.40	312.84
211	334	0.40	0.00	0.01	0.00	0.445	0.000	0.060	0.008	−0.43	−2.88	2289.88	309.71			−3.07	315.51
212	335	0.39	0.00	0.01	−0.01	0.434	0.000	0.055	0.016	−0.61	−2.81	2294.87	312.80			−2.95	318.73
213	336	0.38	0.00	0.00	0.00	0.421	0.000	0.065	0.011	−0.99	−2.98	2298.68	317.06			−3.13	323.06
214	337	0.38	0.00	0.00	0.00	0.421	0.000	0.065	0.011	−0.91	−2.93	2303.51	320.29			−3.05	326.40
215	338	0.38	0.00	0.00	0.00	0.421	0.000	0.065	0.011	−1.13	−3.12	2307.19	324.69			−3.27	330.86
216	339	0.38	0.00	0.01	0.00	0.422	0.000	0.053	0.006	−0.97	−3.05	2311.84	328.10			−3.20	334.37
Z = 124																	
176	300	−0.22	0.00	−0.02	−0.01	−0.226	0.000	0.042	0.003	−5.82	−5.07	2081.92	242.46			−5.15	248.07
177	301	−0.22	0.00	−0.03	−0.02	−0.225	0.000	0.054	0.010	−6.42	−5.40	2089.29	243.16			−5.48	248.73
178	302	−0.23	0.00	−0.03	−0.02	−0.235	0.000	0.056	0.009	−6.42	−5.36	2097.90	242.63			−5.43	248.16
179	303	−0.25	0.00	−0.02	−0.02	−0.255	0.000	0.048	0.011	−6.34	−5.43	2104.79	243.81			−5.53	249.27
180	304	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.81	−4.24	2112.02	244.65			−4.24	250.18
181	305	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.87	−4.30	2118.70	246.05			−4.30	251.54
182	306	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.33	−3.79	2126.39	246.43			−3.79	251.90
183	307	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−4.22	−3.69	2132.69	248.19			−3.70	253.64
184	308	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.52	−3.04	2140.02	248.93			−3.04	254.35

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 124																	
185	309	−0.16	0.00	−0.02	−0.01	−0.165	0.000	0.033	0.005	−3.64	−3.35	2146.53	250.49			−3.39	255.87
186	310	−0.39	0.00	0.08	0.00	−0.398	0.000	−0.028	0.024	−4.45	−2.66	2153.61	251.49			−2.92	256.62
187	311	−0.40	0.00	0.08	0.00	−0.407	0.000	−0.025	0.024	−4.61	−2.77	2159.71	253.46			−3.07	258.54
188	312	−0.40	0.00	0.07	0.00	−0.407	0.000	−0.015	0.020	−4.13	−2.59	2167.11	254.13			−2.87	259.23
189	313	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−5.12	−6.13	2176.43	252.88			−6.33	258.05
190	314	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−4.75	−5.80	2183.47	253.91			−5.97	259.11
191	315	0.38	0.00	0.07	0.01	0.429	0.000	−0.017	−0.032	−4.60	−5.64	2188.91	256.55			−5.85	261.71
192	316	−0.42	0.00	0.06	0.00	−0.426	0.000	0.002	0.015	−2.97	−1.68	2192.11	261.42			−1.97	266.51
193	317	−0.42	0.00	0.06	0.00	−0.426	0.000	0.002	0.015	−2.94	−1.62	2197.46	264.14			−1.94	269.22
194	318	−0.43	0.00	0.05	0.00	−0.436	0.000	0.015	0.010	−2.46	−1.26	2204.06	265.60			−1.57	270.70
195	319	−0.43	0.00	0.05	0.00	−0.436	0.000	0.015	0.010	−2.52	−1.29	2209.30	268.43			−1.61	273.53
196	320	−0.43	0.00	0.05	0.00	−0.436	0.000	0.015	0.010	−2.18	−1.01	2215.80	270.01			−1.30	275.15
197	321	0.48	0.00	0.00	0.01	0.539	0.000	0.109	0.014	−2.08	−6.45	2226.27	267.61			−6.70	272.83
198	322	−0.44	0.00	0.04	0.00	−0.445	0.000	0.029	0.006	−1.96	−0.93	2227.33	274.62			−1.24	279.80
199	323	−0.45	0.00	0.05	0.01	−0.455	0.000	0.020	0.002	−2.41	−1.26	2232.51	277.52			−1.60	282.69
200	324	−0.45	0.00	0.04	0.01	−0.454	0.000	0.031	−0.003	−2.34	−1.19	2238.84	279.26			−1.50	284.50
201	325	−0.45	0.00	0.04	0.00	−0.454	0.000	0.032	0.005	−2.69	−1.50	2243.81	282.36			−1.84	287.60
202	326	0.29	0.00	0.02	0.01	0.319	0.000	0.014	−0.013	−2.09	−2.89	2251.42	282.82			−2.97	288.37
203	327	0.29	0.00	0.02	0.01	0.319	0.000	0.014	−0.013	−2.14	−2.89	2255.91	286.40			−2.97	291.98
204	328	0.29	0.00	0.02	0.01	0.319	0.000	0.014	−0.013	−1.70	−2.50	2261.55	288.83			−2.57	294.47
205	329	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−1.67	−2.36	2265.73	292.73			−2.44	298.40
206	330	0.30	0.00	0.04	0.00	0.332	0.000	−0.009	−0.010	−1.14	−1.91	2271.14	295.39			−2.00	301.11
207	331	0.30	0.00	0.05	0.00	0.333	0.000	−0.021	−0.014	−1.34	−1.83	2275.20	299.39			−1.93	305.16
208	332	0.30	0.00	0.05	0.00	0.333	0.000	−0.021	−0.014	−0.99	−1.52	2280.57	302.09			−1.61	307.94
209	333	0.30	0.00	0.06	0.00	0.334	0.000	−0.033	−0.017	−1.40	−1.65	2284.68	306.06			−1.74	311.96
210	334	0.30	0.00	0.07	−0.01	0.335	0.000	−0.047	−0.011	−1.40	−1.40	2289.94	308.87			−1.47	314.86
211	335	0.40	0.00	0.00	0.00	0.445	0.000	0.073	0.013	−0.24	−2.86	2295.21	311.67			−2.99	317.66
212	336	0.40	0.00	0.01	0.00	0.445	0.000	0.060	0.008	0.01	−2.73	2300.42	314.53			−2.87	320.59
213	337	0.30	0.00	0.08	−0.01	0.336	0.000	−0.058	−0.015	−1.66	−1.35	2302.69	320.33			−1.40	326.55
214	338	0.40	0.00	0.02	0.00	0.446	0.000	0.048	0.002	−0.03	−2.81	2309.32	321.77			−2.97	327.96
215	339	0.39	0.00	0.02	−0.01	0.435	0.000	0.043	0.011	−0.50	−2.98	2313.00	326.17			−3.14	332.45
Z = 125																	
178	303	−0.24	0.00	−0.02	−0.02	−0.245	0.000	0.046	0.011	−6.40	−5.56	2096.09	251.72			−5.66	257.54
179	304	−0.24	0.00	−0.02	−0.02	−0.245	0.000	0.046	0.011	−6.48	−5.62	2103.29	252.59			−5.74	258.36
180	305	−0.25	0.00	−0.02	−0.02	−0.255	0.000	0.048	0.011	−6.01	−5.16	2111.27	252.69			−5.26	258.42
181	306	−0.26	0.00	−0.01	−0.03	−0.266	0.000	0.039	0.022	−5.74	−4.86	2117.89	254.14			−4.97	259.83
182	307	−0.26	0.00	−0.01	−0.02	−0.266	0.000	0.038	0.013	−5.02	−4.30	2125.55	254.55			−4.41	260.20
183	308	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−3.49	−3.02	2130.99	257.18			−3.03	262.92
184	309	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	−2.78	−2.37	2138.34	257.90			−2.37	263.61
185	310	0.39	0.00	0.06	0.02	0.440	0.000	0.000	−0.037	−5.63	−7.16	2149.64	254.68			−7.45	260.09
186	311	0.39	0.00	0.06	0.02	0.440	0.000	0.000	−0.037	−5.31	−6.83	2157.10	255.28			−7.09	260.70
187	312	0.39	0.00	0.06	0.02	0.440	0.000	0.000	−0.037	−5.47	−6.96	2163.53	256.93			−7.23	262.32
188	313	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−5.48	−6.69	2170.84	257.69			−6.92	263.10
189	314	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−5.63	−6.80	2177.05	259.55			−7.06	264.93
190	315	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−5.27	−6.48	2184.11	260.56			−6.70	265.97
191	316	0.38	0.00	0.07	0.02	0.429	0.000	−0.015	−0.041	−5.39	−6.35	2189.88	262.86			−6.57	268.27
192	317	0.38	0.00	0.07	0.01	0.429	0.000	−0.017	−0.032	−4.57	−5.84	2196.55	264.26			−6.07	269.66
193	318	0.38	0.00	0.07	0.01	0.429	0.000	−0.017	−0.032	−4.33	−5.55	2201.97	266.92			−5.79	272.31
194	319	−0.43	0.00	0.06	0.00	−0.436	0.000	0.005	0.015	−2.36	−1.21	2204.62	272.34			−1.56	277.63
195	320	−0.43	0.00	0.05	0.00	−0.436	0.000	0.015	0.010	−2.21	−1.19	2210.11	274.92			−1.56	280.20
196	321	0.48	0.00	−0.01	0.01	0.538	0.000	0.122	0.021	−2.23	−6.84	2222.54	270.56			−7.06	276.00
197	322	0.48	0.00	0.00	0.01	0.539	0.000	0.109	0.014	−2.34	−7.03	2228.07	273.10			−7.33	278.49
198	323	−0.45	0.00	0.05	0.01	−0.455	0.000	0.020	0.002	−2.08	−1.08	2228.71	280.53			−1.44	285.87
199	324	−0.45	0.00	0.04	0.01	−0.454	0.000	0.031	−0.003	−2.45	−1.48	2234.25	283.06			−1.87	288.40
200	325	−0.45	0.00	0.04	0.01	−0.454	0.000	0.031	−0.003	−2.46	−1.47	2240.66	284.73			−1.83	290.12
201	326	−0.46	0.00	0.04	0.01	−0.464	0.000	0.034	−0.003	−2.88	−1.77	2245.92	287.54			−2.17	292.93
202	327	−0.46	0.00	0.04	0.01	−0.464	0.000	0.034	−0.003	−2.70	−1.62	2252.00	289.53			−1.99	294.98

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 125																	
203	328	0.29	0.00	0.02	0.01	0.319	0.000	0.014	−0.013	−2.41	−3.27	2258.43	291.17			−3.38	296.92
204	329	0.29	0.00	0.02	0.01	0.319	0.000	0.014	−0.013	−1.96	−2.85	2264.05	293.61			−2.95	299.42
205	330	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−1.95	−2.71	2268.52	297.22			−2.82	303.05
206	331	0.30	0.00	0.04	0.01	0.332	0.000	−0.008	−0.020	−1.52	−2.22	2273.90	299.91			−2.32	305.80
207	332	0.30	0.00	0.05	0.00	0.333	0.000	−0.021	−0.014	−1.60	−2.17	2278.28	303.60			−2.29	309.52
208	333	0.31	0.00	0.06	0.00	0.345	0.000	−0.030	−0.018	−1.36	−1.87	2283.67	306.28			−1.97	312.27
209	334	0.30	0.00	0.06	0.00	0.334	0.000	−0.033	−0.017	−1.66	−1.98	2288.05	309.97			−2.09	316.01
210	335	0.31	0.00	0.07	0.00	0.347	0.000	−0.042	−0.021	−1.57	−1.76	2293.35	312.75			−1.85	318.87
211	336	0.30	0.00	0.07	−0.01	0.335	0.000	−0.047	−0.011	−1.82	−1.89	2297.57	316.60			−1.99	322.76
212	337	0.31	0.00	0.08	−0.01	0.347	0.000	−0.056	−0.015	−1.80	−1.67	2302.72	319.52			−1.76	325.78
213	338	0.40	0.00	0.02	−0.01	0.446	0.000	0.046	0.012	−0.28	−3.16	2308.14	322.18			−3.36	328.38
214	339	0.18	0.00	−0.03	0.02	0.193	0.000	0.052	−0.012	−1.22	−0.81	2310.97	327.42			−0.78	333.92
Z = 126																	
180	306	−0.24	0.00	−0.02	−0.02	−0.245	0.000	0.046	0.011	−5.67	−4.88	2110.88	260.36			−4.98	266.43
181	307	−0.26	0.00	−0.01	−0.03	−0.266	0.000	0.039	0.022	−5.42	−4.61	2117.56	261.76			−4.72	267.77
182	308	−0.26	0.00	−0.01	−0.03	−0.266	0.000	0.039	0.022	−4.86	−4.07	2125.55	261.84			−4.17	267.82
183	309	−0.26	0.00	0.00	−0.03	−0.266	0.000	0.028	0.024	−4.45	−3.73	2131.94	263.53			−3.83	269.47
184	310	0.38	0.00	0.05	0.02	0.426	0.000	0.008	−0.032	−5.31	−7.18	2143.71	259.83			−7.42	265.60
185	311	0.39	0.00	0.06	0.02	0.440	0.000	0.000	−0.037	−5.50	−7.26	2150.31	261.30			−7.53	267.01
186	312	0.39	0.00	0.06	0.02	0.440	0.000	0.000	−0.037	−5.18	−6.96	2158.11	261.57			−7.20	267.29
187	313	0.39	0.00	0.06	0.02	0.440	0.000	0.000	−0.037	−5.34	−7.12	2164.58	263.16			−7.38	268.85
188	314	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−5.42	−6.88	2172.23	263.58			−7.10	269.29
189	315	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−5.57	−6.99	2178.47	265.42			−7.24	271.09
190	316	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−5.20	−6.66	2185.82	266.14			−6.87	271.83
191	317	0.38	0.00	0.07	0.02	0.429	0.000	−0.015	−0.041	−5.36	−6.55	2191.62	268.41			−6.76	274.09
192	318	0.38	0.00	0.07	0.01	0.429	0.000	−0.017	−0.032	−4.53	−5.99	2198.55	269.55			−6.21	275.23
193	319	0.38	0.00	0.07	0.01	0.429	0.000	−0.017	−0.032	−4.28	−5.73	2204.01	272.17			−5.96	277.82
194	320	0.38	0.00	0.08	0.00	0.430	0.000	−0.031	−0.027	−3.86	−5.14	2210.71	273.54			−5.37	279.20
195	321	0.48	0.00	−0.01	0.01	0.538	0.000	0.122	0.021	−2.29	−7.30	2218.39	273.93			−7.53	279.59
196	322	0.48	0.00	−0.01	0.02	0.538	0.000	0.124	0.011	−2.11	−7.16	2225.35	275.04			−7.37	280.74
197	323	0.48	0.00	0.00	0.01	0.539	0.000	0.109	0.014	−2.30	−7.42	2230.94	277.52			−7.68	283.17
198	324	0.48	0.00	0.00	0.01	0.539	0.000	0.109	0.014	−2.10	−7.34	2237.76	278.77			−7.56	284.48
199	325	0.49	0.00	0.01	0.01	0.552	0.000	0.102	0.009	−1.93	−7.53	2243.10	281.50			−7.84	287.14
200	326	−0.46	0.00	0.04	0.01	−0.464	0.000	0.034	−0.003	−2.38	−1.56	2243.84	288.84			−1.91	294.45
201	327	−0.46	0.00	0.04	0.01	−0.464	0.000	0.034	−0.003	−2.75	−1.87	2249.13	291.62			−2.25	297.24
202	328	0.29	0.00	0.02	0.01	0.319	0.000	0.014	−0.013	−2.32	−3.35	2257.13	291.69			−3.44	297.63
203	329	0.29	0.00	0.02	0.01	0.319	0.000	0.014	−0.013	−2.38	−3.38	2261.95	294.94			−3.47	300.90
204	330	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−2.05	−2.94	2267.85	297.11			−3.03	303.11
205	331	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−1.94	−2.75	2272.28	300.75			−2.85	306.78
206	332	0.30	0.00	0.04	0.01	0.332	0.000	−0.008	−0.020	−1.50	−2.34	2278.03	303.08			−2.42	309.16
207	333	0.30	0.00	0.05	0.00	0.333	0.000	−0.021	−0.014	−1.59	−2.29	2282.43	306.74			−2.40	312.85
208	334	0.30	0.00	0.05	0.00	0.333	0.000	−0.021	−0.014	−1.23	−1.98	2288.10	309.15			−2.08	315.32
209	335	0.30	0.00	0.06	0.00	0.334	0.000	−0.033	−0.017	−1.68	−2.12	2292.52	312.80			−2.22	319.02
210	336	0.31	0.00	0.07	0.00	0.347	0.000	−0.042	−0.021	−1.60	−1.90	2298.10	315.28			−1.98	321.58
211	337	0.30	0.00	0.07	0.00	0.335	0.000	−0.045	−0.021	−1.93	−2.05	2302.36	319.10			−2.13	325.45
212	338	0.31	0.00	0.08	−0.01	0.347	0.000	−0.056	−0.015	−1.83	−1.81	2307.76	321.77			−1.89	328.19
213	339	0.30	0.00	0.08	−0.01	0.336	0.000	−0.058	−0.015	−1.92	−1.77	2311.66	325.94			−1.84	332.43
Z = 127																	
183	310	−0.26	0.00	0.00	−0.03	−0.266	0.000	0.028	0.024	−4.60	−3.90	2130.37	272.38			−4.03	278.62
184	311	0.39	0.00	0.06	0.02	0.440	0.000	0.000	−0.037	−5.62	−7.62	2142.42	268.40			−7.93	274.42
185	312	0.39	0.00	0.06	0.02	0.440	0.000	0.000	−0.037	−5.80	−7.76	2149.39	269.51			−8.08	275.48
186	313	0.39	0.00	0.06	0.02	0.440	0.000	0.000	−0.037	−5.49	−7.50	2157.26	269.71			−7.79	275.68
187	314	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−6.04	−7.65	2164.03	271.01			−7.96	276.94
188	315	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−5.80	−7.44	2171.73	271.38			−7.72	277.32
189	316	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−5.95	−7.55	2178.25	272.92			−7.84	278.83
190	317	0.38	0.00	0.07	0.02	0.429	0.000	−0.015	−0.041	−5.86	−7.23	2185.64	273.61			−7.47	279.55

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 127																	
191	318	0.38	0.00	0.07	0.02	0.429	0.000	−0.015	−0.041	−5.77	−7.09	2191.72	275.60			−7.35	281.51
192	319	0.38	0.00	0.07	0.01	0.429	0.000	−0.017	−0.032	−4.93	−6.57	2198.70	276.69			−6.83	282.60
193	320	0.38	0.00	0.08	0.01	0.430	0.000	−0.029	−0.037	−5.10	−6.30	2204.45	279.01			−6.58	284.89
194	321	0.38	0.00	0.08	0.00	0.430	0.000	−0.031	−0.027	−4.29	−5.74	2211.19	280.35			−6.01	286.23
195	322	0.38	0.00	0.08	0.00	0.430	0.000	−0.031	−0.027	−4.03	−5.49	2216.76	282.84			−5.77	288.71
196	323	0.38	0.00	0.08	0.00	0.430	0.000	−0.031	−0.027	−3.48	−4.98	2223.36	284.32			−5.24	290.22
197	324	0.48	0.00	0.00	0.01	0.539	0.000	0.109	0.014	−2.51	−7.96	2231.98	283.77			−8.29	289.61
198	325	0.49	0.00	0.01	0.01	0.552	0.000	0.102	0.009	−1.87	−7.80	2238.74	285.08			−8.14	290.92
199	326	0.49	0.00	0.01	0.01	0.552	0.000	0.102	0.009	−2.16	−8.10	2244.48	287.41			−8.47	293.23
200	327	−0.46	0.00	0.04	0.01	−0.464	0.000	0.034	−0.003	−2.53	−1.88	2244.99	294.98			−2.28	300.78
201	328	−0.47	0.00	0.04	0.01	−0.474	0.000	0.037	−0.004	−2.94	−2.17	2250.54	297.49			−2.62	303.27
202	329	0.29	0.00	0.02	0.01	0.319	0.000	0.014	−0.013	−2.60	−3.74	2258.65	297.46			−3.85	303.60
203	330	0.29	0.00	0.02	0.02	0.319	0.000	0.015	−0.022	−2.84	−3.78	2263.77	300.40			−3.88	306.58
204	331	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−2.34	−3.24	2269.58	302.66			−3.34	308.86
205	332	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−2.24	−3.14	2274.40	305.92			−3.26	312.15
206	333	0.30	0.00	0.04	0.01	0.332	0.000	−0.008	−0.020	−1.79	−2.73	2280.15	308.24			−2.84	314.50
207	334	0.30	0.00	0.05	0.01	0.333	0.000	−0.020	−0.023	−2.03	−2.70	2284.86	311.60			−2.82	317.90
208	335	0.31	0.00	0.06	0.00	0.345	0.000	−0.030	−0.018	−1.64	−2.38	2290.53	314.01			−2.50	320.34
209	336	0.30	0.00	0.06	0.00	0.334	0.000	−0.033	−0.017	−1.98	−2.50	2295.22	317.39			−2.62	323.77
210	337	0.31	0.00	0.07	0.00	0.347	0.000	−0.042	−0.021	−1.92	−2.31	2300.84	319.83			−2.42	326.28
211	338	0.30	0.00	0.07	0.00	0.335	0.000	−0.045	−0.021	−2.24	−2.43	2305.36	323.39			−2.54	329.89
212	339	0.31	0.00	0.08	−0.01	0.347	0.000	−0.056	−0.015	−2.15	−2.21	2310.79	326.03			−2.32	332.59
Z = 128																	
185	313	0.39	0.00	0.06	0.02	0.440	0.000	0.000	−0.037	−5.52	−7.80	2149.28	276.90			−8.11	283.20
186	314	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−5.59	−7.52	2157.44	276.82			−7.81	283.12
187	315	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−5.84	−7.72	2164.28	278.05			−8.02	284.30
188	316	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−5.61	−7.51	2172.28	278.11			−7.78	284.37
189	317	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−5.75	−7.62	2178.83	279.64			−7.91	285.86
190	318	0.39	0.00	0.08	0.01	0.442	0.000	−0.025	−0.037	−5.51	−7.29	2186.50	280.04			−7.57	286.24
191	319	0.39	0.00	0.08	0.01	0.442	0.000	−0.025	−0.037	−5.43	−7.15	2192.60	282.01			−7.45	288.17
192	320	0.38	0.00	0.08	0.01	0.430	0.000	−0.029	−0.037	−5.19	−6.67	2199.92	282.76			−6.91	288.96
193	321	0.38	0.00	0.08	0.01	0.430	0.000	−0.029	−0.037	−4.97	−6.42	2205.71	285.04			−6.69	291.21
194	322	0.38	0.00	0.08	0.01	0.430	0.000	−0.029	−0.037	−4.36	−5.85	2212.74	286.08			−6.09	292.28
195	323	0.38	0.00	0.08	0.00	0.430	0.000	−0.031	−0.027	−3.89	−5.59	2218.32	288.58			−5.86	294.72
196	324	0.38	0.00	0.09	0.00	0.431	0.000	−0.043	−0.032	−3.78	−5.09	2225.23	289.74			−5.34	295.92
197	325	0.38	0.00	0.09	0.00	0.431	0.000	−0.043	−0.032	−3.46	−4.74	2230.52	292.51			−5.00	298.67
198	326	0.49	0.00	0.01	0.01	0.552	0.000	0.102	0.009	−1.86	−8.32	2241.32	289.79			−8.63	295.91
199	327	0.49	0.00	0.01	0.01	0.552	0.000	0.102	0.009	−2.16	−8.54	2247.00	292.18			−8.88	298.28
200	328	0.49	0.00	0.02	0.00	0.553	0.000	0.087	0.012	−1.90	−8.31	2253.79	293.46			−8.64	299.59
201	329	−0.47	0.00	0.04	0.01	−0.474	0.000	0.037	−0.004	−2.80	−2.28	2253.04	302.28			−2.71	308.32
202	330	0.29	0.00	0.02	0.02	0.319	0.000	0.015	−0.022	−2.75	−3.79	2261.38	302.01			−3.87	308.42
203	331	0.29	0.00	0.02	0.02	0.319	0.000	0.015	−0.022	−2.82	−3.81	2266.50	304.96			−3.90	311.38
204	332	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−2.33	−3.36	2272.69	306.85			−3.46	313.28
205	333	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−2.23	−3.27	2277.52	310.09			−3.37	316.54
206	334	0.29	0.00	0.04	0.01	0.321	0.000	−0.010	−0.020	−1.97	−2.84	2283.55	312.12			−2.93	318.62
207	335	0.29	0.00	0.04	0.01	0.321	0.000	−0.010	−0.020	−1.97	−2.85	2288.31	315.44			−2.95	321.96
208	336	0.30	0.00	0.06	0.00	0.334	0.000	−0.033	−0.017	−1.84	−2.51	2294.25	317.58			−2.61	324.14
209	337	0.30	0.00	0.06	0.00	0.334	0.000	−0.033	−0.017	−2.02	−2.68	2299.00	320.90			−2.79	327.49
210	338	0.31	0.00	0.07	0.00	0.347	0.000	−0.042	−0.021	−1.94	−2.47	2304.89	323.07			−2.57	329.72
211	339	0.30	0.00	0.07	0.00	0.335	0.000	−0.045	−0.021	−2.31	−2.63	2309.45	326.58			−2.73	333.28
Z = 129																	
187	316	0.39	0.00	0.07	0.02	0.441	0.000	−0.011	−0.041	−5.90	−7.99	2162.75	286.86			−8.34	293.39
188	317	0.39	0.00	0.08	0.02	0.443	0.000	−0.023	−0.046	−6.08	−7.77	2170.77	286.92			−8.09	293.45
189	318	0.39	0.00	0.08	0.02	0.443	0.000	−0.023	−0.046	−6.30	−7.95	2177.69	288.07			−8.29	294.55
190	319	0.39	0.00	0.08	0.02	0.443	0.000	−0.023	−0.046	−5.98	−7.66	2185.43	288.40			−7.97	294.89
191	320	0.38	0.00	0.08	0.01	0.430	0.000	−0.029	−0.037	−5.91	−7.53	2191.82	290.08			−7.85	296.52

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 129																	
192	321	0.38	0.00	0.08	0.01	0.430	0.000	−0.029	−0.037	−5.39	−7.03	2199.15	290.82			−7.33	297.27
193	322	0.38	0.00	0.08	0.01	0.430	0.000	−0.029	−0.037	−5.20	−6.83	2205.28	292.76			−7.14	299.18
194	323	0.38	0.00	0.09	0.00	0.431	0.000	−0.043	−0.032	−4.89	−6.33	2212.41	293.71			−6.64	300.12
195	324	0.38	0.00	0.09	0.00	0.431	0.000	−0.043	−0.032	−4.59	−6.03	2218.24	295.95			−6.35	302.34
196	325	0.38	0.00	0.09	0.00	0.431	0.000	−0.043	−0.032	−4.09	−5.58	2225.21	297.05			−5.87	303.46
197	326	0.38	0.00	0.10	−0.01	0.432	0.000	−0.057	−0.027	−4.09	−5.17	2230.75	299.57			−5.50	305.95
198	327	0.38	0.00	0.10	−0.01	0.432	0.000	−0.057	−0.027	−3.59	−4.72	2237.52	300.88			−5.01	307.28
199	328	0.49	0.00	0.01	0.01	0.552	0.000	0.102	0.009	−2.44	−9.17	2247.73	298.74			−9.57	305.04
200	329	0.49	0.00	0.02	0.00	0.553	0.000	0.087	0.012	−2.20	−8.96	2254.56	299.98			−9.35	306.31
201	330	−0.48	0.00	0.04	0.02	−0.483	0.000	0.039	−0.012	−3.10	−2.63	2253.80	308.81			−3.11	315.05
202	331	0.29	0.00	0.02	0.02	0.319	0.000	0.015	−0.022	−3.02	−4.15	2262.16	308.52			−4.25	315.16
203	332	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−3.04	−4.14	2267.55	311.21			−4.28	317.83
204	333	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−2.63	−3.77	2273.82	313.00			−3.88	319.65
205	334	0.29	0.00	0.03	0.01	0.320	0.000	0.002	−0.016	−2.53	−3.67	2278.94	315.96			−3.79	322.63
206	335	0.29	0.00	0.04	0.01	0.321	0.000	−0.010	−0.020	−2.30	−3.27	2285.01	317.96			−3.38	324.67
207	336	0.29	0.00	0.04	0.01	0.321	0.000	−0.010	−0.020	−2.30	−3.27	2290.05	320.99			−3.39	327.72
208	337	0.30	0.00	0.06	0.00	0.334	0.000	−0.033	−0.017	−2.15	−2.91	2295.98	323.13			−3.04	329.88
209	338	0.30	0.00	0.06	0.00	0.334	0.000	−0.033	−0.017	−2.34	−3.08	2301.01	326.17			−3.22	332.95
210	339	0.30	0.00	0.07	0.00	0.335	0.000	−0.045	−0.021	−2.47	−2.87	2306.92	328.33			−2.98	335.18
Z = 130																	
189	319	0.39	0.00	0.08	0.02	0.443	0.000	−0.023	−0.046	−5.96	−7.89	2177.42	295.62			−8.22	302.44
190	320	0.39	0.00	0.08	0.01	0.442	0.000	−0.025	−0.037	−5.34	−7.59	2185.45	295.67			−7.91	302.47
191	321	0.38	0.00	0.08	0.01	0.430	0.000	−0.029	−0.037	−5.61	−7.53	2191.94	297.25			−7.85	304.02
192	322	0.38	0.00	0.08	0.01	0.430	0.000	−0.029	−0.037	−5.09	−6.99	2199.52	297.74			−7.28	304.52
193	323	0.38	0.00	0.09	0.00	0.431	0.000	−0.043	−0.032	−5.13	−6.76	2205.64	299.69			−7.08	306.41
194	324	0.38	0.00	0.09	0.00	0.431	0.000	−0.043	−0.032	−4.58	−6.29	2213.09	300.32			−6.58	307.05
195	325	0.38	0.00	0.09	0.00	0.431	0.000	−0.043	−0.032	−4.28	−5.97	2218.93	302.54			−6.29	309.24
196	326	0.38	0.00	0.10	−0.01	0.432	0.000	−0.057	−0.027	−4.11	−5.45	2226.12	303.42			−5.75	310.12
197	327	0.38	0.00	0.10	−0.01	0.432	0.000	−0.057	−0.027	−3.93	−5.25	2231.89	305.73			−5.56	312.40
198	328	0.38	0.00	0.10	−0.01	0.432	0.000	−0.057	−0.027	−3.42	−4.78	2238.94	306.74			−5.07	313.45
199	329	0.38	0.00	0.11	−0.02	0.433	0.000	−0.071	−0.023	−3.71	−4.60	2244.53	309.23			−4.91	315.90
200	330	0.38	0.00	0.11	−0.02	0.433	0.000	−0.071	−0.023	−3.29	−4.22	2251.48	310.35			−4.49	317.06
201	331	0.29	0.00	0.02	0.02	0.319	0.000	0.015	−0.022	−3.12	−4.42	2257.26	312.64			−4.52	319.52
202	332	0.29	0.00	0.02	0.02	0.319	0.000	0.015	−0.022	−2.99	−4.26	2264.24	313.73			−4.35	320.64
203	333	0.29	0.00	0.03	0.02	0.320	0.000	0.003	−0.026	−3.21	−4.29	2269.67	316.37			−4.39	323.28
204	334	0.29	0.00	0.03	0.02	0.320	0.000	0.003	−0.026	−2.81	−3.90	2276.24	317.88			−3.99	324.82
205	335	0.29	0.00	0.04	0.01	0.321	0.000	−0.010	−0.020	−2.72	−3.78	2281.33	320.85			−3.90	327.77
206	336	0.29	0.00	0.04	0.01	0.321	0.000	−0.010	−0.020	−2.32	−3.42	2287.74	322.52			−3.52	329.48
207	337	0.29	0.00	0.05	0.01	0.322	0.000	−0.022	−0.023	−2.60	−3.42	2292.78	325.55			−3.53	332.52
208	338	0.29	0.00	0.05	0.01	0.322	0.000	−0.022	−0.023	−2.25	−3.12	2299.06	327.34			−3.21	334.36
209	339	0.29	0.00	0.06	0.00	0.322	0.000	−0.036	−0.017	−2.60	−3.26	2304.07	330.40			−3.38	337.43
Z = 131																	
192	323	0.38	0.00	0.09	0.00	0.431	0.000	−0.043	−0.032	−5.46	−7.34	2198.04	306.51			−7.70	313.55
193	324	0.38	0.00	0.09	0.00	0.431	0.000	−0.043	−0.032	−5.34	−7.15	2204.50	308.12			−7.53	315.11
194	325	0.38	0.00	0.09	0.00	0.431	0.000	−0.043	−0.032	−4.77	−6.62	2211.91	308.78			−6.97	315.78
195	326	0.38	0.00	0.10	−0.01	0.432	0.000	−0.057	−0.027	−4.84	−6.30	2218.04	310.72			−6.68	317.67
196	327	0.38	0.00	0.10	−0.01	0.432	0.000	−0.057	−0.027	−4.39	−5.91	2225.38	311.45			−6.25	318.42
197	328	0.38	0.00	0.10	−0.01	0.432	0.000	−0.057	−0.027	−4.21	−5.70	2231.44	313.47			−6.07	320.40
198	329	0.38	0.00	0.11	−0.02	0.433	0.000	−0.071	−0.023	−4.16	−5.22	2238.49	314.49			−5.56	321.43
199	330	0.38	0.00	0.11	−0.02	0.433	0.000	−0.071	−0.023	−4.07	−5.12	2244.45	316.59			−5.48	323.51
200	331	0.38	0.00	0.11	−0.02	0.433	0.000	−0.071	−0.023	−3.65	−4.66	2251.33	317.79			−4.99	324.73
201	332	0.38	0.00	0.12	−0.02	0.435	0.000	−0.083	−0.027	−4.15	−4.53	2257.08	320.11			−4.87	327.04
202	333	0.28	0.00	0.02	0.02	0.308	0.000	0.013	−0.023	−3.44	−4.58	2264.28	320.98			−4.68	328.16
203	334	0.29	0.00	0.03	0.02	0.320	0.000	0.003	−0.026	−3.52	−4.70	2270.09	323.24			−4.82	330.40
204	335	0.29	0.00	0.03	0.02	0.320	0.000	0.003	−0.026	−3.12	−4.32	2276.67	324.73			−4.42	331.92
205	336	0.29	0.00	0.04	0.01	0.321	0.000	−0.010	−0.020	−3.06	−4.21	2282.08	327.39			−4.35	334.56

Table 1 (Continued)

N	A	ε_2	ε_3	ε_4	ε_6	β_2	β_3	β_4	β_6	E_{s+p} (MeV)	E_{mic} (MeV)	E_{bind} (MeV)	M_{th} (MeV)	M_{exp} (MeV)	σ_{exp} (MeV)	E_{mic}^{FL} (MeV)	M_{th}^{FL} (MeV)
Z = 131																	
206	337	0.29	0.00	0.04	0.01	0.321	0.000	−0.010	−0.020	−2.66	−3.85	2288.50	329.05			−3.98	336.25
207	338	0.29	0.00	0.05	0.01	0.322	0.000	−0.022	−0.023	−2.96	−3.87	2293.84	331.77			−4.00	338.98
208	339	0.29	0.00	0.05	0.01	0.322	0.000	−0.022	−0.023	−2.61	−3.56	2300.14	333.55			−3.68	340.80
Z = 132																	
194	326	0.38	0.00	0.10	−0.01	0.432	0.000	−0.057	−0.027	−4.80	−6.55	2211.86	316.11			−6.91	323.44
195	327	0.38	0.00	0.10	−0.01	0.432	0.000	−0.057	−0.027	−4.60	−6.35	2218.13	317.92			−6.72	325.20
196	328	0.38	0.00	0.10	−0.01	0.432	0.000	−0.057	−0.027	−4.15	−5.91	2225.73	318.40			−6.25	325.69
197	329	0.38	0.00	0.11	−0.02	0.433	0.000	−0.071	−0.023	−4.44	−5.72	2231.80	320.39			−6.08	327.64
198	330	0.38	0.00	0.11	−0.02	0.433	0.000	−0.071	−0.023	−4.01	−5.33	2239.24	321.02			−5.66	328.29
199	331	0.38	0.00	0.11	−0.02	0.433	0.000	−0.071	−0.023	−3.91	−5.14	2245.14	323.20			−5.49	330.44
200	332	0.38	0.00	0.12	−0.02	0.435	0.000	−0.083	−0.027	−4.08	−4.72	2252.35	324.05			−5.04	331.32
201	333	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.08	−4.69	2258.21	326.27			−5.02	333.50
202	334	0.28	0.00	0.02	0.02	0.308	0.000	0.013	−0.023	−3.47	−4.74	2265.70	326.85			−4.84	334.32
203	335	0.28	0.00	0.02	0.02	0.308	0.000	0.013	−0.023	−3.58	−4.82	2271.50	329.13			−4.93	336.59
204	336	0.28	0.00	0.03	0.01	0.308	0.000	−0.001	−0.016	−3.12	−4.38	2278.31	330.39			−4.50	337.85
205	337	0.29	0.00	0.04	0.01	0.321	0.000	−0.010	−0.020	−3.08	−4.36	2283.81	332.95			−4.50	340.40
206	338	0.29	0.00	0.04	0.01	0.321	0.000	−0.010	−0.020	−2.67	−4.00	2290.51	334.33			−4.12	341.80
207	339	0.29	0.00	0.05	0.01	0.322	0.000	−0.022	−0.023	−3.02	−4.05	2295.92	336.99			−4.18	344.47
Z = 133																	
196	329	0.38	0.00	0.11	−0.02	0.433	0.000	−0.071	−0.023	−4.86	−6.34	2224.26	327.15			−6.74	334.72
197	330	0.38	0.00	0.11	−0.02	0.433	0.000	−0.071	−0.023	−4.77	−6.22	2230.71	328.77			−6.64	336.30
198	331	0.38	0.00	0.11	−0.02	0.433	0.000	−0.071	−0.023	−4.33	−5.74	2238.07	329.48			−6.13	337.02
199	332	0.38	0.00	0.12	−0.02	0.435	0.000	−0.083	−0.027	−4.83	−5.61	2244.32	331.31			−6.01	338.81
200	333	0.38	0.00	0.12	−0.02	0.435	0.000	−0.083	−0.027	−4.47	−5.28	2251.63	332.06			−5.64	339.59
201	334	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.47	−5.24	2257.77	333.99			−5.62	341.49
202	335	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.14	−4.94	2264.94	334.90			−5.30	342.43
203	336	0.28	0.00	0.02	0.02	0.308	0.000	0.013	−0.023	−3.92	−5.27	2271.26	336.65			−5.40	344.39
204	337	0.28	0.00	0.03	0.01	0.308	0.000	−0.001	−0.016	−3.47	−4.83	2278.09	337.89			−4.97	345.63
205	338	0.37	0.00	0.12	−0.03	0.422	0.000	−0.089	−0.017	−4.20	−4.61	2283.68	340.38			−4.94	347.92
206	339	0.37	0.00	0.12	−0.03	0.422	0.000	−0.089	−0.017	−3.85	−4.30	2290.45	341.68			−4.60	349.26
Z = 134																	
198	332	0.38	0.00	0.12	−0.02	0.435	0.000	−0.083	−0.027	−4.72	−5.77	2238.06	336.78			−6.15	344.67
199	333	0.38	0.00	0.12	−0.02	0.435	0.000	−0.083	−0.027	−4.71	−5.73	2244.41	338.50			−6.13	346.35
200	334	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.36	−5.40	2252.01	338.97			−5.76	346.83
201	335	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.36	−5.37	2258.18	340.87			−5.75	348.70
202	336	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.03	−5.07	2265.63	341.50			−5.41	349.35
203	337	0.27	0.00	0.02	0.02	0.296	0.000	0.010	−0.023	−4.16	−5.37	2271.94	343.26			−5.48	351.33
204	338	0.28	0.00	0.03	0.02	0.309	0.000	0.001	−0.026	−3.70	−5.01	2279.14	344.14			−5.12	352.21
205	339	0.28	0.00	0.04	0.01	0.309	0.000	−0.013	−0.020	−3.67	−4.92	2284.88	346.47			−5.06	354.51
Z = 135																	
201	336	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.73	−5.90	2257.05	349.30			−6.34	357.41
202	337	0.38	0.00	0.12	−0.03	0.434	0.000	−0.085	−0.018	−4.40	−5.61	2264.51	349.90			−6.01	358.04
203	338	0.27	0.00	0.02	0.02	0.296	0.000	0.010	−0.023	−4.59	−5.89	2271.10	351.39			−6.02	359.77
204	339	0.37	0.00	0.12	−0.03	0.422	0.000	−0.089	−0.017	−4.49	−5.30	2278.08	352.48			−5.66	360.63
Z = 136																	
203	339	0.27	0.00	0.02	0.02	0.296	0.000	0.010	−0.023	−4.68	−6.09	2271.20	358.58			−6.22	367.32