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W. D. Myers

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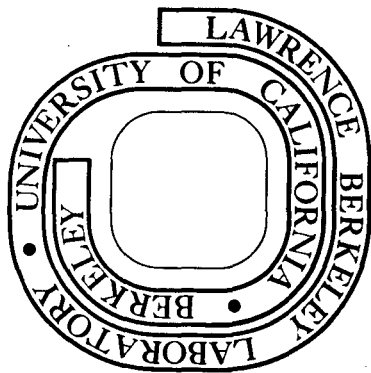
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**DROPLET MODEL
OF ATOMIC NUCLEI**

HAND FOLDED SAMPLES FROM
BLOOMSBURG CRAFTSMEN

DROPLET MODEL OF ATOMIC NUCLEI

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To my parents, **J.D. and Elinor Myers**, and to my friend
Mona Reeva, whose support and encouragement was
essential to its completion

PREFACE

The entire Droplet Model approach was conceived and carried out in collaboration with W. J. Swiatecki, whose influence is to be seen in every part of the work. The theory described here and the table of nuclear properties that appears at the end are the culmination of a series of developments that we have undertaken together off and on over the last twelve years. During that time the Droplet Model has found application to a broad range of static (and more recently dynamic) macroscopic nuclear properties.

The text begins with a historical introduction that briefly traces the development of the Droplet Model and references are given to the earlier work. After that the Droplet Model itself is presented and the values of the coefficients are given. In the following section descriptions are given, of the other terms which must be added to obtain a complete expression for the prediction of atomic mass defects. These sections are all quite brief with the exception of the one in which the "Wigner term" is described. This section (contributed by W. J. Swiatecki) contains a somewhat fuller discussion of our form of the Wigner term than might be thought appropriate in view of the many standard expositions of Wigner's supermultiplet theory and his "Uniform Model" of nuclear masses. One reason for this is that the physical content of our "Matching Energy" Wigner term does not appear to be identical to the usual one. Another reason is that this approach enables us to give a discussion of the shape dependence of the Matching Energy, which we do not recall having seen provided for the conventional Wigner term.

After the atomic mass expression has been fully described there is a section which compares predictions of the model with measured masses, fission barriers, deformations and radii. The mass comparisons are made in a number of different ways in order to best display the deviations that remain.

There are a few closing remarks at the end, and these are followed by a key to the table of nuclear properties and the table itself. The key to the table contains explanations of the various entries and in some cases the expressions that were used in their calculation.

I want to thank all my colleagues who have waited so patiently for the completion of this work. Their continued encouragement was appreciated when I was engaged in writing computer programs, making figures, etc., and all the other dull and uninteresting work that was necessary in order to present the material in the most useful manner.

During the years spent in compiling this work, the author benefitted substantially from discussions with E. R. Hilf, J. R. Nix, P. A. Seeger, and C. F. Tsang. Important contributions were also made by H. von Groote, R. W. Hasse, P. Möller, S. G. Nilsson, and D. Sprung. In connection with the section on the "Wigner term" W. J. Swiatecki has asked me to acknowledge a number of valuable discussions he had with M. G. Redlich. Finally, the author wishes to acknowledge the editorial assistance of Charles Pezzotti and Catherine Webb and the computer programming assistance provided by Tom Strong.

William D. Myers

Berkeley, California
March, 1977

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I. INTRODUCTION

The Droplet Model was conceived in order to effect a systematic refinement of the liquid drop model originated by von Weizsäcker.¹ Earlier developments can be found in the works of Bethe,² Bohr and Wheeler,³ Feenberg,⁴ and Green.⁵ More recent results are contained in the proceedings of the five international conferences on nuclear masses,⁶⁻⁹ and in the proceedings of three conferences on nuclei far from stability.^{10,11} The work that initially stimulated our interest in improving the liquid drop model and some of our preliminary results are contained in Refs. 12-17.

Improved methods for describing average nuclear properties are relevant now because of the recent advances that have been made in our understanding of nuclear masses (and macroscopic properties in general) in terms of a two-part approach. This approach considers nuclear properties, such as masses or density distributions, as being made up of a smooth macroscopic part and an oscillating microscopic part. Initially the idea of a "two-part approach" was confined to the simple addition of empirical corrections to nuclear mass formulas.¹⁸⁻²¹ These corrections were found to be necessary because of fluctuations in the masses due to variations in the nuclear single-particle level densities (such as gaps at magic numbers).

Swiatecki¹²⁻¹⁴ developed a method for calculating the shell corrections that is based on a physical model whose main feature is the deviation of the actual nuclear energy level distribution from uniformity. In this approach the relatively minor bunching together of levels that produces gaps at magic numbers gives rise to nuclear mass deviations that correspond closely to those observed. Eventually, a sound physical basis for the two-part approach was provided by the development of Strutinsky's shell correction method.²² In this method (see Refs. 22-24 for example) the oscillations observed in nuclear energies and densities are related to the properties of the separate particles of the system, which are assumed to be essentially independent and to move in a common nuclear potential.

Progress has also been made in our understanding of the purely macroscopic aspects of nuclear properties, and three items are of special significance for the discussion in the following sections.

The first development of importance has been the clarification of the role of the liquid drop model as an approximate solution of the nuclear many-body problem.^{25,26} For saturating leptodermous* systems like nuclei, we are now aware that the liquid drop

*Leptodermous — having a thin skin. This term has been employed by Tsang, Swiatecki and others^{26,27} for the depiction of distributions that are essentially homogenous except at the surface. Its application implies that all deviations from bulk behavior are confined to a relatively thin surface region.

model potential energy may be thought of simply as a first-order description in terms of two small expansion parameters: the ratio of the surface diffuseness to the size of the system (proportional to $A^{-1/3}$), and the square of the relative neutron excess I^2 , where I equals $(N - Z)/A$.

The second item contributing to our improved understanding of macroscopic properties is the use of the Thomas-Fermi method in self-consistent calculations of nuclear properties.¹⁵ Such calculations are easily performed, and they provide a means of relating many macroscopic properties to their microscopic origin. Of special significance to us here is the fact that the development of the Droplet Model was supported in a number of ways by Thomas-Fermi calculations, like those of Seyler and Blanchard.¹⁵

The third item of importance in our improved understanding of macroscopic properties is the Droplet Model itself. This model is a uniform improvement of the liquid drop model that carries the leptodermous expansion to one higher order so as to include mass formula terms in $A^{1/3}$, $I^2 A^{2/3}$, and $I^4 A$.

In our earlier work^{13,14} we had fitted a more or less conventional liquid drop model mass formula to the smooth mass surface that results when shell corrections, of the type proposed by Swiatecki,¹² are applied to the experimental masses. Besides the usual liquid drop model terms (which are the volume energy, symmetry energy, surface energy, Coulomb energy, and the empirical even-odd mass correction) a surface symmetry energy and Coulomb diffuseness correction were used. Liquid drop model fission barriers were also compared with experiment as a part of the fitting procedure. The inclusion of fission barriers permits more accurate determination of the separate values of the Coulomb and surface energy coefficients, which are highly correlated in a fit to ground state masses alone. We found that the Coulomb energy coefficient (which is inversely proportional to the nuclear radius constant r_0) determined in this way differs by 6 - 10% from that obtained in electron scattering measurements of nuclear sizes.²⁹ A real discrepancy was seen to exist since both methods were expected to be accurate to one or two percent.

In Ref. 15 we undertook a study to determine whether this discrepancy might not be due to the omission of higher order terms (such as compressibility and surface curvature effects) in the liquid drop model. Many of these terms had previously been considered one at a time. For example, the surface symmetry term had been considered in Refs. 18, 19, 30 and the compressibility and Coulomb redistribution in Refs. 31 and 32. Other Coulomb corrections such as the exchange correction² and surface diffuseness correction¹⁷ had also been used before. The curvature correction to the surface energy was discussed in Refs. 33 and 34.

The Droplet Model was developed in the course of our investigation of these higher

order terms, and come preliminary applications of it have already been made. In Ref. 35 the coefficients that appear in the model were determined by fitting to experimental nuclear masses. The model found other applications in predicting isotope shifts³⁶ and in providing a basis for predicting single particle potential well parameters.³⁷ Even more recently the first application of the model to a dynamical process has been made in order to provide an improved macroscopic description of the nuclear giant-dipole resonance.³⁸ After the shape dependence of the Droplet Model had been worked out it became possible to investigate the implications of this model for the fission process.³⁹ A revised version of the Droplet Model shape dependence is contained in Ref. 16, along with a preliminary set of the adjustable coefficients.

The purpose of the present work is to redetermine these coefficients by fitting to masses, fission barriers, and radii. The predictions of the model are then compared with experiment to give an indication of its range of applicability. One gratifying result of this work is the apparent resolution of the radius constant discrepancy mentioned above. The value of this constant obtained in the Droplet Model fit no longer differs from that obtained in electron scattering experiments.

II. THE DROPLET MODEL

The Droplet Model binding energy expression for spherical shapes was first derived in Ref. 15. More recently a general derivation was given in Ref. 16, where the model was extended to include arbitrary shapes. The latter work should be referred to if the reader desires a more detailed discussion than that given in the brief outline below.

The feature that distinguishes the Droplet Model from the standard liquid drop model is that the neutron and proton density distributions are allowed to vary so as to minimize the total nuclear energy. This additional freedom leads to the following expression for the binding energy:

$$\begin{aligned}
 E(N,Z;\text{shape}) = & \left[-a_1 + J\bar{\delta}^2 - \frac{1}{2} K\bar{\epsilon}^2 + \frac{1}{2} M\bar{\delta}^4 \right] A \\
 & + \left[a_2 + \frac{9}{4} (J^2/Q)\bar{\delta}^2 \right] A^{2/3} B_S + a_3 A^{1/3} B_K, \\
 & + c_1 Z^2 A^{-1/3} B_C - c_2 Z^2 A^{1/3} B_R - c_3 Z^2 A^{-1} - c_4 2^{-1/3} Z - c_5 Z^2 B_W,
 \end{aligned} \tag{1}$$

where

$$\bar{\delta} = \left[I + \frac{3}{16} (c_1/Q) Z A^{-2/3} B_V \right] / \left[1 + \frac{9}{4} (J/Q) A^{-1/3} B_S \right], \quad (2)$$

$$\bar{\epsilon} = \left[-2a_2 A^{-1/3} B_S + L\bar{\delta}^2 + c_1 Z^2 A^{-4/3} B_C \right] / K. \quad (3)$$

In these expressions N and Z are the neutron and proton numbers, A is their sum, and I is the relative neutron excess $(N - Z)/A$. The quantity $\bar{\epsilon}$ is a measure of the average deviation of the bulk density from its nuclear matter value. It is defined by the expression

$$\bar{\epsilon} = -\frac{1}{3} \left(\frac{\rho - \rho_0}{\rho_0} \right)_{\text{ave}} \quad (4)$$

To lowest order in $\bar{\epsilon}$ the radius of the nucleus is given by

$$R = r_0 A^{1/3} (1 + \bar{\epsilon}), \quad (5)$$

where the nuclear radius constant r_0 is related to the equilibrium density ρ_0 of infinite nuclear matter by the expression

$$\rho_0 = \left(\frac{4}{3} \pi r_0^3 \right)^{-1} \quad (6)$$

The quantity $\bar{\delta}$ is the value of the local relative neutron excess averaged over the nuclear volume:

$$\bar{\delta} = \left(\frac{\rho_n - \rho_z}{\rho} \right)_{\text{ave}} \quad (7)$$

Since the effective sharp radii of the neutron and proton distributions can differ, producing a neutron skin of thickness t , the quantity $\bar{\delta}$ is not always equal to I as it is in the liquid drop model. For spherical nuclei these quantities are related, to first order in t/R , by the expression

$$\bar{\delta} = I - \frac{3}{2} (t/R) \quad (8)$$

The separate effective sharp radii of the neutron and proton distributions are given by

$$\begin{aligned} R_N &= R + \frac{Z}{A} t, \\ R_Z &= R - \frac{N}{A} t, \end{aligned} \quad (9)$$

and this latter quantity is the one to be compared with the results of the electron scattering or μ -mesic atom experiments.

The coefficients appearing in Eqs. (1-3) and the values that have been chosen for them are:

$$\begin{aligned} a_1 &= 15.96 \text{ MeV, the volume energy coefficient,} \\ a_2 &= 20.69 \text{ MeV, the surface energy coefficient,} \\ J &= 36.8 \text{ MeV, the symmetry energy coefficient,} \\ r_0 &= 1.18 \text{ fm, the nuclear radius constant,} \end{aligned} \quad (10)$$

and

$$\begin{aligned} a_3 &= 0 \text{ MeV, the curvature correction coefficient,} \\ Q &= 17 \text{ MeV, the effective surface stiffness coefficient,} \\ K &= 240 \text{ MeV, the compressibility coefficient,} \\ L &= 100 \text{ MeV, the density-symmetry coefficient,} \\ M &= 0 \text{ MeV, the symmetry anharmonicity coefficient.} \end{aligned} \quad (11)$$

The five Coulomb coefficients that appear are defined in terms of the coefficients above by the expressions:

$$\begin{aligned} c_1 &= \frac{3}{5} (e^2/r_0) \\ &= 0.73219 \text{ MeV, the Coulomb energy coefficient,} \end{aligned} \quad (12)$$

where $e^2 = 1.4399784 \text{ MeV fm}$ is the square of the electronic charge.

$$\begin{aligned} c_2 &= (c_1/336) \cdot (1/J + 18/K) \\ &= 0.00016302 \text{ MeV, volume redistribution coefficient,} \end{aligned} \quad (13)$$

$$\begin{aligned} c_3 &= \frac{5}{2} c_1 (b/r_0)^2 \\ &= 1.28846 \text{ MeV, diffuseness correction coefficient,} \end{aligned}$$

where $b = 0.99$ fm is a measure of the difuseness of the nuclear surface²⁷

$$\begin{aligned}
 c_4 &= \frac{5}{4} \left(\frac{3}{2\pi} \right)^{2/3} c_1 \\
 &= 0.55911 \text{ MeV, exchange correction coefficient,} \\
 c_5 &= \frac{1}{64} \left(c_1^2 / Q \right) \\
 &= 0.00049274 \text{ MeV, surface redistribution coefficient.}
 \end{aligned}
 \tag{14}$$

The quantities B_i , which introduce shape dependence into Eqs. (1-3), are discussed in detail in Refs. 16 and 39. Each of them is concerned with a different aspect of the shape dependence of the binding energy according to the following list:

$$\begin{aligned}
 &B_s, \text{ the surface energy,} \\
 &B_c, \text{ the Coulomb energy,} \\
 &B_k, \text{ the curvature energy,} \\
 &B_r, \text{ the volume redistribution energy,} \\
 &B_v, \text{ the neutron skin energy,} \\
 &B_w, \text{ the surface redistribution energy.}
 \end{aligned}
 \tag{15}$$

As usual they are defined so as to have the value unity for a spherical shape.

The three lines of Eq. (1) represent the volume, surface, and Coulomb contributions to the total binding energy. The four terms in the volume energy contribution (the first line) are: $-a_1$, the binding energy per particle in infinite nuclear matter; $+J\bar{\delta}^2$, the bulk asymmetry term that corrects the binding for the neutron excess; $-\frac{1}{2}K\bar{\epsilon}^2$, the term that gives the extra binding resulting from the competition between various compression and dilatation forces and the bulk compressibility; and, $+\frac{1}{2}M\bar{\delta}^4$, which is a higher order symmetry energy term. The second line consists of two main terms. The first is proportional to the surface area and has the coefficient $\left[a_2 + \frac{9}{4}(J^2/Q)\bar{\delta}^2 \right]$. The quantity a_2 is the surface energy coefficient for semi-infinite nuclear matter. The quantity $\frac{9}{4}(J^2/Q)\bar{\delta}^2$ corrects for the fact that some of the excess nucleons are pushed into the surface when $N \neq Z$. The second term in the second line is the curvature correction to the surface energy.

The last line in Eq. (1) has five separate parts, all associated with the Coulomb energy. The first is the Coulomb energy of a sharp-surfaced sphere of radius $R = r_0 A^{1/3}$. The

second term is a correction for the redistribution of particles in the bulk in response to the Coulomb repulsion, which produces a central depression. The third term is a diffuseness correction, the fourth an exchange correction,* and the last term is a surface redistribution energy associated with the nonuniformity of the neutron skin thickness caused by electrostatic forces.

The other two expressions, Eqs. (2) and (3), are used to calculate the equilibrium values of $\bar{\delta}$ and $\bar{\epsilon}$ for insertion into Eq. (1). They are easily understood in terms of a competition between driving and restoring forces. In Eq. (3), for example, we see that the average deviation $\bar{\epsilon}$ of the bulk density from ρ_0 is driven by 1) surface squeezing, 2) neutron excess dilatation, and 3) Coulomb dilatation. These driving terms appear, in that order, in the numerator of Eq. (3), while the restoring force K appears in the denominator. In Eq. (2) we also see that the driving term I , the overall relative neutron excess, and a Coulomb term that acts to increase the average bulk neutron excess, are both in the numerator. The terms in the denominator act as a restoring force that tends to reduce the average bulk asymmetry $\bar{\delta}$.

All of these expressions are more thoroughly explained in Ref. 16.

III. MASS FORMULA

The Droplet Model of macroscopic nuclear properties contains a number of parameters such as the volume energy, surface energy, and symmetry energy coefficients. Their values can be determined by varying them until the agreement between experimental and predicted values for nuclear masses, fission barriers, and radii is as good as possible. The form of the mass formula employed for this purpose is the following:

$$\begin{aligned} \text{Mass Excess} = & M_N \cdot N + M_H \cdot Z + \text{Droplet Model Term} \\ & + \text{Shell Correction} + \text{Even-Odd Term} + \text{Wigner Term} \quad (16) \\ & - 0.00001433 \cdot Z^{2.39} \text{ MeV} . \end{aligned}$$

The tabulated masses are atomic rather than nuclear and that is why the last term has been added. It provides a small correction to the data for the binding of the atomic electrons.⁴⁰ Another characteristic of the available data is that masses are given as mass

*The usual exchange term is $-c_4 Z^{4/3}/A^{1/3}$; see Ref. 2. Since this is a correction term we have made the simplifying assumption that $Z \approx A/2$. The actual form given in Eq. (1) must be used in conjunction with the coefficients, Eqs. (10-14), given in the text.

excesses relative to ^{12}C as a standard. In this scheme the mass excess of ^{12}C is set to zero, and the true mass of any atom can be obtained from the tabulated mass excess by the relationship⁴¹

$$\text{True Mass} = \text{Mass Excess} + 931.504 \cdot A \text{ MeV.} \quad (17)$$

In this system the coefficients of the first two terms in Eq. (16), which are the mass excesses of the neutron and the hydrogen atom, have the values:⁴¹

$$\begin{aligned} M_{\text{N}} &= 8.07169 \text{ MeV,} \\ M_{\text{H}} &= 7.28922 \text{ MeV.} \end{aligned} \quad (18)$$

A. Shell Corrections

The shell corrections employed were the same as in our original work,^{12,13} with the slight modification in shape dependence added in Ref. 14. These references discuss the physical motivation behind the expressions that are reproduced here.

For spherical nuclei the shell correction is taken to be

$$S(N,Z) = C \cdot \left[\frac{F(N) + F(Z)}{\left(\frac{1}{2}A\right)^{2/3}} - cA^{1/3} \right], \quad (19)$$

where

$$F(N) = q_i \cdot (N - M_{i-1}) \cdot \frac{3}{5} \left(N^{5/3} - M_{i-1}^{5/3} \right), \quad (20)$$

for $M_{i-1} < N < M_i$, and both C and c are adjustable coefficients.

The quantities q_i are defined by

$$q_i = \frac{3}{5} \cdot \frac{M_i^{5/3} - M_{i-1}^{5/3}}{M_i - M_{i-1}}, \quad (21)$$

and the quantities M_i (the magic numbers) are chosen to have the values 2, 8, 14, 50, 82, 126, 184, and 258.

As before, the damping of shell effects with deformation is taken to have the relatively simple functional form

$$(1 - 2\theta^2) e^{-\theta^2}, \quad (22)$$

where θ , as it is used here and in Refs. 13 and 14, is a measure of the deviation of the nuclear shape from spherical. For small deformations given by the expression

$$R(\mu) = \lambda^{-1} R[1 + \alpha P_2(\mu)] , \quad (23)$$

where the value of λ is chosen to insure volume conservation, the quantity θ is given by

$$\theta = \alpha / \alpha_0 , \quad (24)$$

where

$$\alpha_0 = \sqrt{5} (a/r_0) A^{-1/3} . \quad (25)$$

The quantity a that appears in Eq. (25) is an adjustable coefficient that determines how quickly the shell effects damp out as the shape is changed.

Since only the Droplet Model and shell effect terms in Eq. (16) are shape dependent, the whole expression can be recast (using the expressions for the shape dependences B_i given in Section V of Ref. 16) in the form

$$M = M_0 + E\theta^2 + F\theta^3 + S \cdot (1 + 2\theta^2)e^{-\theta^2} . \quad (26)$$

In this expression the first three terms are an expansion of the Droplet Model shape dependence to cubic order in θ , and the last term is the shell correction with its shape dependence. If the lowest minimum in this function is other than spherical then the nucleus is predicted to be deformed in its ground state. The resulting intrinsic quadrupole moment is given to order α^2 by the expression

$$Q_0 = 0.012 \cdot (r_0 A^{1/3})^2 Z \alpha \left(1 + \frac{4}{7} \alpha\right) \text{ barns} \quad (27)$$

As in previous work, the quantity we refer to here as the shell correction is the difference between the minimum energy in Eq. (26) and M_0 . For the three adjustable parameters that appear in the shell correction we have chosen to retain the values used earlier:¹⁴

$$\begin{aligned} C &= 5.8 \text{ MeV}, \\ c &= 0.325, \\ a/r_0 &= 0.444. \end{aligned} \quad (28)$$

In the actual fit, an entirely empirical function $F(N \text{ or } Z)$ similar to the one given in

Section 7.3 of Ref. 13 was employed for $N, Z < 20$. This function was determined from $N = Z$ nuclei with the aid of Eq. (19) after subtracting the other terms of Eq. (16).

B. The Even-Odd Term

In our previous work^{13,14} an even-odd mass term was employed that had the value $+11/\sqrt{A}$, 0 , $-11/\sqrt{A}$ depending on whether the nucleus was odd, odd-A, or even. Here we use a slightly different version that allows for the fact that the separation between the odd and odd-A mass surfaces is slightly smaller than the separation between the even and odd-A surfaces (see the caption to Fig. 2-5 in Ref. 42, for example). Figure 1 shows how the correction was made so the mean mass surface continues to pass through the masses halfway between the even and the odd nuclei. In this scheme the correction is $(\Delta - \frac{1}{2}\delta)$, $(+\frac{1}{2}\delta)$, $(-\Delta + \frac{1}{2}\delta)$ depending on whether the nucleus is odd, odd-A, or even, where $\Delta = 12/\sqrt{A}$ and $\delta = 20/A$.

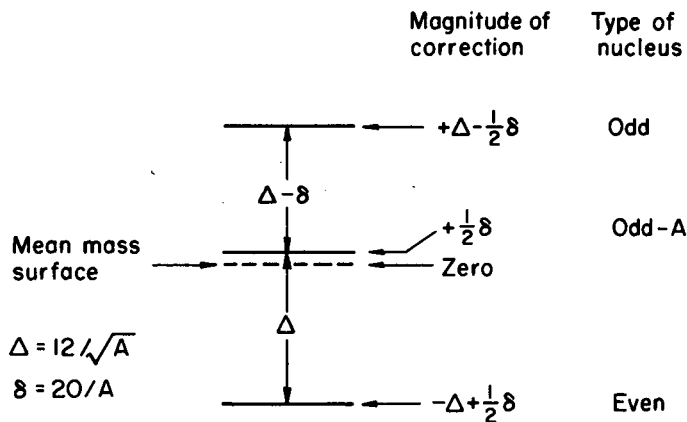


Fig. 1. Scheme used for the even-odd correction.

C. The "Wigner Term"

There is a V-shaped trough or kink in the nuclear mass surface (see Ref. 13, Section 7.2, for example) that is not a shell effect in the usual sense. A term of this kind in the mass equation, proportional to $|I|$, was first discussed by Wigner; see Ref. 43 and References there to the original works, or Ref. 44 in Section III.

A simple argument serves to show how a term with this unusual structure can arise from the increased overlap of wave functions of particles in identical orbits. The idea is, briefly, to write the excess interaction energy ΔE as a product of an average "bond strength" ϵ for non-identical orbit pairs, times a "matching excess factor" $(k - 1)$ expressing the relative interaction gain from the matching of identical orbits (assumed to interact k times more

strongly than the non-identical ones), times the number H of identical orbit pairs in a nucleus, thus

$$\Delta E \approx \epsilon \cdot (k - 1) \cdot H \quad (29)$$

A term proportional to $|N - Z|$ then appears in ΔE because H contains such a term.

An evaluation of this term requires some (straightforward) counting of identical pairs in a nucleus, detailed in Fig. 2, but the basic reason for an $|N - Z|$ term is trivially simple and may be illustrated at once by an analogy. Thus imagine that in a population of A persons (Z men and N women) the men and women are paired off in couples. The number of couples will be given by the smaller of the two numbers N and Z, which may be written as $\frac{1}{2}A - \frac{1}{2}|N - Z|$. The reason for the appearance of the $|N - Z|$ term in the counting of identical pairs in a nucleus is precisely the same as in the above counting of couples.

In order to estimate ΔE in Eq. (29) let us assume the approximate validity of the independent-particle model, so that the nuclear wave function may be considered as made up of spin up and spin down neutrons, and spin up and spin down protons. This

No. of particles in identical orbits	No. of pairs	
1	0	
2	1	
3	3	
4	6	

	N	Z	Number of identical pairs
even-even			$\frac{3}{2}A - N - Z $
odd-even			$\frac{3}{2}A - N - Z - \frac{1}{2}$
even-odd			
odd-odd			$\frac{3}{2}A - N - Z - 1$
odd-odd N = Z			$\frac{3}{2}A - 2$

Fig. 2. Origin of the "Wigner term" in terms of increased binding for nucleons in identical orbits.

is symbolized by the usual four columns of horizontal bars in Fig. 2, each bar representing the spacial part of a particle's wave function (its "orbit"). Bars in the same horizontal line refer to identical orbits. (Or, if the electrostatic and spin-orbit interactions are kept in mind, at least to very similar orbits).

The expectation value of the nuclear interaction energy $\Sigma\Sigma v_{ij}$ will consist of three types of terms or "bonds." The most numerous will be contributions ϵ from "slanted pairs," i.e., from pairs of particles that are neither in the same row nor column in Fig. 2. Secondly, there will be contributions ϵ_H from pairs of particles in identical orbits, i.e., particles in the same horizontal line in Fig. 2 (H stands for "horizontal"). Lastly, there will be contributions ϵ_V from pairs in the same vertical column. The bonds are given by expressions of the type

$$\begin{aligned}\epsilon &= \iint \phi^*(1)\psi^*(2)v_{12}\phi(1)\psi(2)d^3x_1d^3x_2, \\ \epsilon_H &= \iint \phi^*(1)\phi^*(2)v_{12}\phi(1)\phi(2)d^3x_1d^3x_2,\end{aligned}\tag{30}$$

where ϕ, ψ stand for different orbits, and the numbers 1,2 label a pair of particles. The expression for ϵ_V is similar to ϵ , but with the antisymmetrized combination $2^{-1/2} [\phi(1)\psi(2) - \phi(2)\psi(1)]$ in place of $\phi(1)\psi(2)$. This antisymmetrization is necessary for vertical pairs in order to make the total wave function antisymmetric to the interchange of particles whose spin and isospin states are already identical).

The expectation value of the nuclear interaction energy may now be written as

$$E_{\text{int}} = \bar{\epsilon}_V V + \bar{\epsilon} S + \bar{\epsilon}_H H,$$

where $\bar{\epsilon}_V, \bar{\epsilon}, \bar{\epsilon}_H$ stand for average values of the respective bonds, and V, S, H are the numbers of vertical, slanted, and horizontal bonds. (In what follows we shall omit the bars over the ϵ 's).

Denoting the total number of bonds by T [equal to $\frac{1}{2}A(A-1)$] we may rewrite E_{int} as follows:

$$\begin{aligned}E_{\text{int}} &= \epsilon_V V + \epsilon(T - V) + (\epsilon_H - \epsilon)H \\ &= \epsilon_V V + \epsilon(T - V) + \Delta E,\end{aligned}\tag{31}$$

where $\Delta E = \epsilon(k-1)H$, with $k = \epsilon_H/\epsilon$.

The reason for writing E_{int} in the above form is that only the part ΔE contains a term in $|N - Z|$. Thus, in the first line of Eq. (31), the total number of bonds T evidently has no such term. Neither has V , which is readily found with the aid of Fig. 2 to be given by

$$\begin{aligned} V &= \frac{N}{2} \left(\frac{N}{2} - 1 \right) + \frac{Z}{2} \left(\frac{Z}{2} - 1 \right) + \frac{1}{2} A \delta \\ &= \frac{1}{8} A^2 (1 + I^2) - \frac{1}{2} A + \frac{1}{2} A \delta, \end{aligned}$$

where

$$\delta = \frac{1}{A} \begin{cases} 0, & \text{for even-even} \\ \frac{1}{2}, & \text{for odd-A} \\ 1, & \text{for odd-odd} \end{cases}$$

On the other hand the number of identical bonds follows from Fig. 2 as

$$\begin{aligned} H &= \frac{3}{2} A - A \delta - |N - Z| - A \Delta \\ &= -A \left(-\frac{3}{2} + \delta + |I| + \Delta \right), \end{aligned} \tag{32}$$

$$\text{where } \Delta = \frac{1}{A} \begin{cases} 1, & \text{for } N = Z \text{ odd} \\ 0, & \text{otherwise} \end{cases} \tag{33}$$

It follows that in order to discuss the contribution to the energy characterized by the term $|I|$ (and the additional term Δ), it is only necessary to consider the part ΔE in Eq. (31) associated with slanted and horizontal bonds, ϵ and ϵ_H .

As regards the relative size of ϵ_H and ϵ , we note that for (non-singular, non-exchange) interactions v_{12} with a range very large compared to the size of the system the contributions ϵ_H and ϵ in Eq. (30) become proportional to products of normalization integrals and the ratio $\epsilon_H : \epsilon$ tends to unity. But in the more nearly realistic limit of short-ranged interactions the bonds ϵ_H, ϵ become proportional to the overlaps of the density distributions $|\phi|^2$ and $|\psi|^2$ of the particle orbits. This overlap is greater for particles in identical orbits (when the nodes and antinodes of the wave functions match) than for non-identical orbits (when, in general, they do not match). For example, in an infinitely deep potential well in the shape of a parallel-sided box (a "Hill-Wheeler box") the ratio

between the overlap of matching (identical) and totally non-matching orbit densities is readily verified to be

$$\left[\frac{\int_0^\pi \sin^2 nx \sin^2 nx \, dx}{\int_0^\pi \sin^2 mx \sin^2 nx \, dx} \right]^3 = \left(\frac{3}{2} \right)^3 \quad (34)$$

(The exponent 3 is associated with the three dimensions of the box.)

In the above idealized example we would thus have $\epsilon_H : \epsilon = 27/8 = 3.375$. In general then one would estimate that k in Eq. (29) might be a number in the range $1 < k \lesssim 27/8$.

Finally, as regards an estimate of the absolute magnitude of ϵ , we note that the nuclear interaction energy arising from all bonds is about $(-16 - 20)A$ MeV. (The -16 MeV is the nuclear binding energy per particle in nuclear matter and the -20 MeV allows for the kinetic energy per particle.) Hence the average bond energy is of the order of $-36 A$ MeV/ $[\frac{1}{2}A(A - 1)]$ or about $(-72/A)$ MeV. This would also be the slanted bond strength ϵ if one could assume that ϵ_v and ϵ were equal. (The contribution of the term $\epsilon_H H$ to the total energy is one order lower in A and may be disregarded in the present estimates.) In fact, however, ϵ_v may be considerably smaller than ϵ because of the antisymmetrization in vertical bonds. (The result of the antisymmetrization is that ϵ_v would be identically zero for delta-function interactions, or for any range "Serber" forces, relevant in the nuclear context.) If ϵ_v were taken as zero, then slanted bonds would be the only contributors to the interaction energy (to leading order in A) and, since for a larger nucleus (with a smaller neutron excess) $S \approx T - V \approx \frac{1}{2}A^2 - \frac{1}{8}A^2 = \frac{3}{4}(\frac{1}{2}A^2)$, we would estimate

$$\epsilon \approx \frac{4}{3}(-72/A) \text{ MeV} = -(96/A) \text{ MeV}. \quad (35)$$

In any case we shall not be grossly in error if we estimate the Matching Energy ΔE as

$$W\left(-\frac{3}{2} + \delta + |I| + \Delta\right), \quad (36)$$

where $W \approx 96(k - 1)$ MeV, with $1 < k \lesssim 27/8$.

The first term in the bracket in Eq. (36) is a constant. Such terms (of order A^0)

can arise from several sources. We will not retain this particular contribution in order to be consistent with the general formulation of the Droplet Model where the highest-order term is $A^{1/3}$. The second term will not be retained, since it is an even-odd correction of the type discussed in the previous section, and its contribution to the nuclear mass is included in the empirical term described there. The third term, showing the $|I|$ dependence, is the one we originally sought. The last term applies only to $N = Z = \text{odd}$ nuclei. We will keep it because of its peculiar structure and because it is clearly called for by the experimental masses (see Ref. 44, Table I). The form adopted for our "Wigner term" is then

$$E_{\text{Wigner}} = W(|I| + \Delta), \quad (37)$$

and choosing 30 MeV for the value of W gives reasonable agreement with experiment. (This is consistent with a value of k in the anticipated range.)

On the basis of the derivation given above the "Wigner term" should, on the average, be approximately independent of the nuclear shape (with an important qualification mentioned below.) Thus the average interaction energy per pair is, to leading order in A , independent of shape. This may be appreciated by recalling the physical content of Eq. (35), which may be considered as the product of a typical interaction energy between nucleons when within range of their interactions (of the order of tens of MeV), times the fraction of the time two independent nucleons exploring a volume V are within range, which is of the order of $(\text{range of forces})^3/V \approx A^{-1}$. The factor H is, in the nature of things, independent of nuclear shape. The factor $(k - 1)$ may, in general, depend on the details of the particle orbits. But insofar as the usual statistical limit of a large irregular cavity filled with quantized orbits is, apart from surface corrections, approximated by a box calculation, the result suggested by Eq. (34) (that k is independent of shape) should be valid — at least on the average.

The qualification on the shape-independence of the Wigner term is that when a single system divides into n parts (as in fission) the Wigner term must be evaluated separately for the different pieces and the results added. Thus in a division into n pieces, all with the same value of $|I|$, the Wigner term would jump at scission to n times its original value. This strange behavior may be traced to the circumstance that the number of identical pairs H becomes split up at scission into a number of groups H_1, H_2, \dots, H_n associated with the fragments A_1, A_2, \dots, A_n , each group exploring now a smaller volume and interacting therefore with stronger average interactions of about $-96 A_1^{-1}, -96 A_2^{-1}, \dots, -96 A_n^{-1}$ MeV per pair. The result of summing the products $(96 A_1^{-1}) \cdot |N_1 - Z_1|, (96 A_2^{-1}) \cdot |N_2 - Z_2|$, is evidently just n times the original

product $(96 A^{-1}) \cdot |N - Z|$. [We have assumed that $(N_1 - Z_2)/A_1 = (N_2 - Z_2)/A_2 = (N - Z)/A$.] In general then we should write the Wigner or Matching energy as

$$\sum_{i=1}^n W(|I_i| + \Delta_i), \quad (38)$$

where the sum is carried out over the n separate pieces of the nuclear configuration in question.

The predicted jump in the value of the Matching term at scission is a discontinuous step function in the idealization considered here. (This is analogous to the step function encountered in a higher order curvature correction to the surface energy, a contribution, like the Wigner term, of order A^0 . (See Section 3 of the paper by Błocki et al., Ref. 26.) In reality one would expect a washed-out step function reflecting the fact that the nucleonic motions change continuously from an exploration of the total volume to the exploration of the fragment sub-volumes as the neck connecting the fragments closes off gradually.

We have given a somewhat fuller discussion of our form of the Wigner term than might be thought appropriate in view of the many standard expositions of Wigner's supermultiplet theory and his "Uniform Model" of nuclear masses. We offer two excuses. First, we should point out that the physical content of our Matching Energy and of the usual Wigner term does not appear to be identical. The Wigner Supermultiplet theory is more general than the independent-particle model on which we base our derivation of the Matching Energy, and Wigner's "uniformity" assumption of one average strength for space-even bonds and one for space-odd bonds is not the same as our assumption (motivated specifically by the independent-particle model) of one average strength for identical bonds and one for non-identical bonds.

This less general, more specific basis of our model enables us to give a discussion of the shape-dependence of the Matching Energy; which, as far as we know, has not been provided for the conventional Wigner term.

IV. COMPARISON WITH EXPERIMENT

The primary data employed for the determination of the Droplet Model coefficients were the 1678 experimental atomic masses with $A \geq 10$ taken from the 1971 compilation of Wapstra and Gove.⁴¹ These were supplemented by 62 experimental fission barriers, 109 ground state deformations, and 6 nuclear charge radii. The actual fit was

weighted 3/4 to the masses and 1/4 to the fission barriers.* If we had given each datum equal weight the large number of masses would have dominated, leaving the barriers with little influence on the results. The radii were only used in the fitting procedure when we had to choose between $r_0 = 1.17$ and 1.18 fm in rounding off the final set of coefficients. The deformations are determined largely by the coefficients in the shell effect function whose values were taken from our previous work.¹⁴ The resulting Droplet Model predictions for all of these quantities are discussed in the following sections.

A. Beta-Stability Properties

In order to appreciate the quality of the fit, let us compare the general features of the experimental mass surface with those predicted by the theory. One way of doing this is to recognize that the mass surface is essentially a steep-sided valley whose main axis bends away from the $N = Z$ line toward neutron rich nuclei and whose cross section is approximately parabolic.

The solid curves in Fig. 3 show how the valley of beta stability is expected to vary as a function of the mass number A . The characteristics of parabolas fitted (at constant A) to the mass surface are given in this figure for comparison with the corresponding experimental values given by points. The quantity V_A is the minimum value of the parabola, Y_A is the value of the neutron excess ($Y = N - Z$) at the minimum, and C_A is the curvature of the parabola. One sees that the lowest point on the mass surface is at $A \approx 115$, that the displacement of the valley away from the $N = Z$ line increases steadily, and that the curvature of the bottom of the valley decreases with increasing A . One also sees that the agreement between theory and experiment is so good that we must display the difference (as is done in Fig. 4) in order to see the remaining discrepancies.

Figure 4 shows that the minimum values of the parabolas fitted to the experimental masses generally lie below those predicted, and that the curvature of the experimental parabolas is generally greater than that predicted. These two deviations tend to compensate. In addition, note the relatively large excursion of the experimental values of V_A away from those predicted in the vicinity of $A = 190$. This difference seems to be due to the relatively poor quality of our shell corrections for nuclei at the end of the rare-earth region. Another deviation that is probably due to shell effects is the tendency of the experimental valley of beta stability to straighten out in the actinide region and not continue to bend away from the $N = Z$ line as is predicted by the model. This

*A minor error was found in the barrier calculations after the fitting was completed. Its correction resulted in slightly improved agreement with experiment.

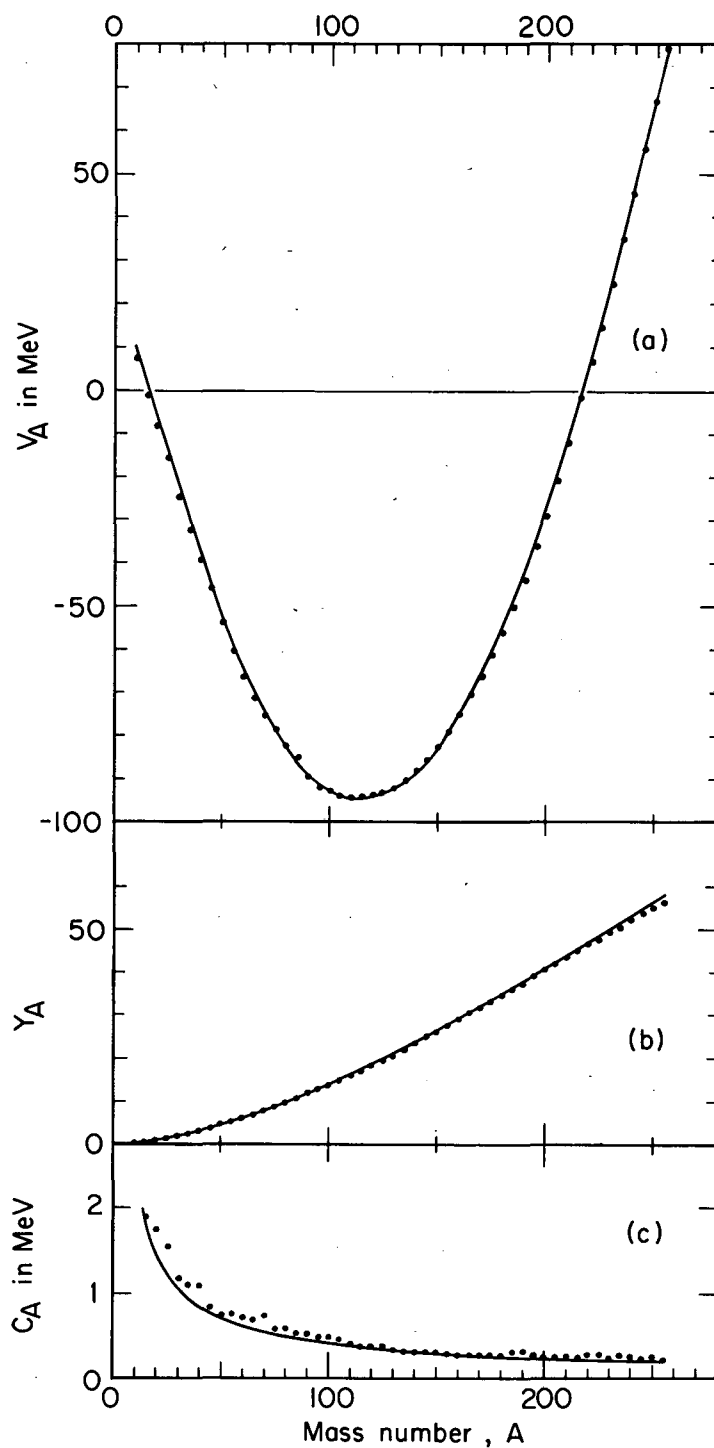


Fig. 3. Experimental and calculated properties of the valley of beta stability are plotted against mass number A . The points shown (for every fifth A value) were determined by fitting the quadratic function $M_A = V_A + \frac{1}{2}C_A(Y - Y_A)^2$ to isobaric sequences after first correcting the experimental masses for shell effects, the even-odd mass differences, the Wigner term and the binding of the atomic electrons. The solid lines represent a similar fit to the Droplet Model predictions for these same nuclei.

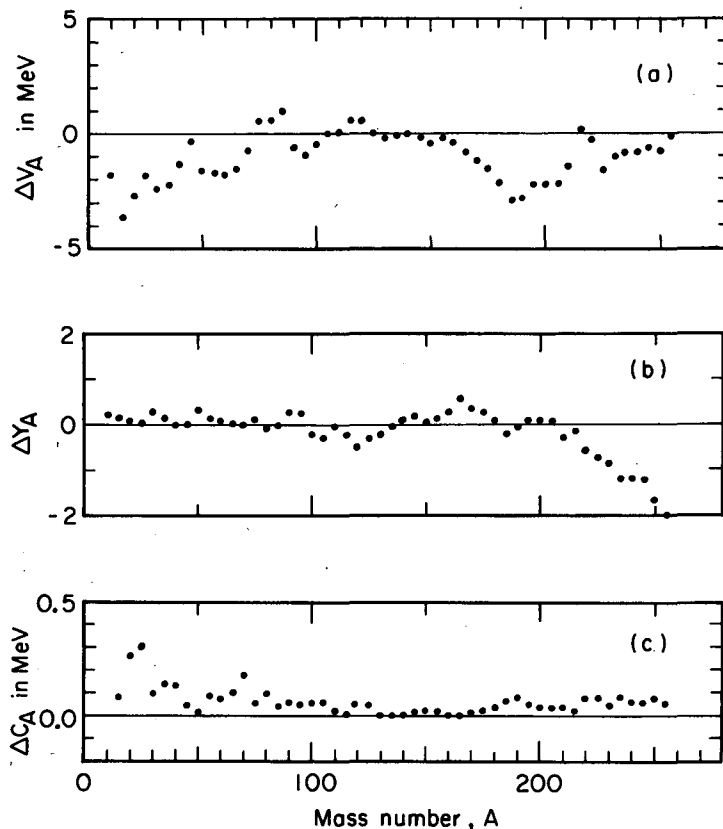


Fig. 4. The difference between the experimental and calculated values of V_A , Y_A , and C_A from Fig. 3 are plotted against mass number A in order to display the remaining deviations. This particularly useful way of displaying the data was inspired by the work of Yamada,⁵² Kodama⁵³ and Ludwig et al.³⁵

tendency shows up as a downward deviation of Y_A in Fig. 4b for $A \geq 210$. In our efforts to understand this deviation we tried other sets of shell corrections,⁴⁵⁻⁴⁷ which reduced the discrepancy to varying degrees, but none of them eliminated it entirely. We also found that by choosing what appear to be unphysical values for the Droplet Model coefficients L and M , which are concerned with higher order asymmetry effects, we could straighten out the valley of beta stability in the actinide region. This had the effect of reducing the discrepancy at the cost of distorting the whole fitting procedure so as to give values that we felt were unreasonable for many of the coefficients. To avoid this undesirable tendency the coefficients L and M were fixed at nominal values close to those indicated by our earlier Thomas-Fermi calculations, and not allowed free variation in the fit.¹⁵ The compressibility coefficient K was also fixed at a nominal value close to the one that gave the best agreement with experiment.

B. Final Mass Differences

Another way of displaying the differences between the experimental masses and the theoretical predictions is to plot the individual mass differences versus the neutron number as is done in Fig. 5. This plot, which should be compared with similar ones in our previous work,¹⁴ shows once again how poor our shell correction function is at the end of the rare-earth region. The agreement between our shell function and the experimental one is also poor for the heavy elements. Microscopic methods for calculating shell effects such as the Strutinsky procedure²²⁻²⁴ were expected to give a better account of these features, but their overall agreement with experiment (as can be seen in Figs. 6 and 7) is about the same.

Of course, it is possible some of the deviations seen in Figs. 3-7 are due to as yet unrecognized macroscopic effects rather than being completely due to shell effects. Another way of displaying the residual errors that might be useful for identifying such trends is a contour plot like Fig. 8. Here the same data as are shown in Fig. 5 are given as contours in the N,Z plane. The main feature of this diagram seems to be the hole near $N = 110$, $Z = 75$ due to over-correction for the shell effects in this region.

C. Fission Barriers

As was mentioned earlier, the Droplet Model coefficients were adjusted to give the best possible agreement between theory and experiment for both ground state masses and fission barriers. The comparison between the measured values of the fission barriers (based on the data from Table 1) and the calculated values is shown in Fig. 9. In the upper part of this figure (a) the measured barriers are plotted relative to the ground state mass according to the scheme shown in Fig. 10. The Droplet Model saddle masses are given in Part (b) and the difference between (a) and (b) is plotted in Part (c). The differences do not seem to be associated with any weakness of the Droplet Model but instead are seen to be almost entirely attributable to shell effects at the barrier. These effects (which are not included in the Droplet Model predictions) have been estimated for the actinide region⁴⁹ and for the lighter nuclei,⁵⁰ and these estimates are plotted in Part (d) of Fig. 9.

At first the differences in Part (c) of the figure were thought to reflect some possible shortcoming of the Droplet Model because of their relatively smooth variation through the periodic table. Negative values of the curvature correction coefficient, and a modified type of surface energy function⁴⁸ were both found to be effective in reducing the differences in the saddle masses but they made the fit to ground state masses worse. This source of concern was subsequently removed when we became aware of the importance of saddle point shell effects.

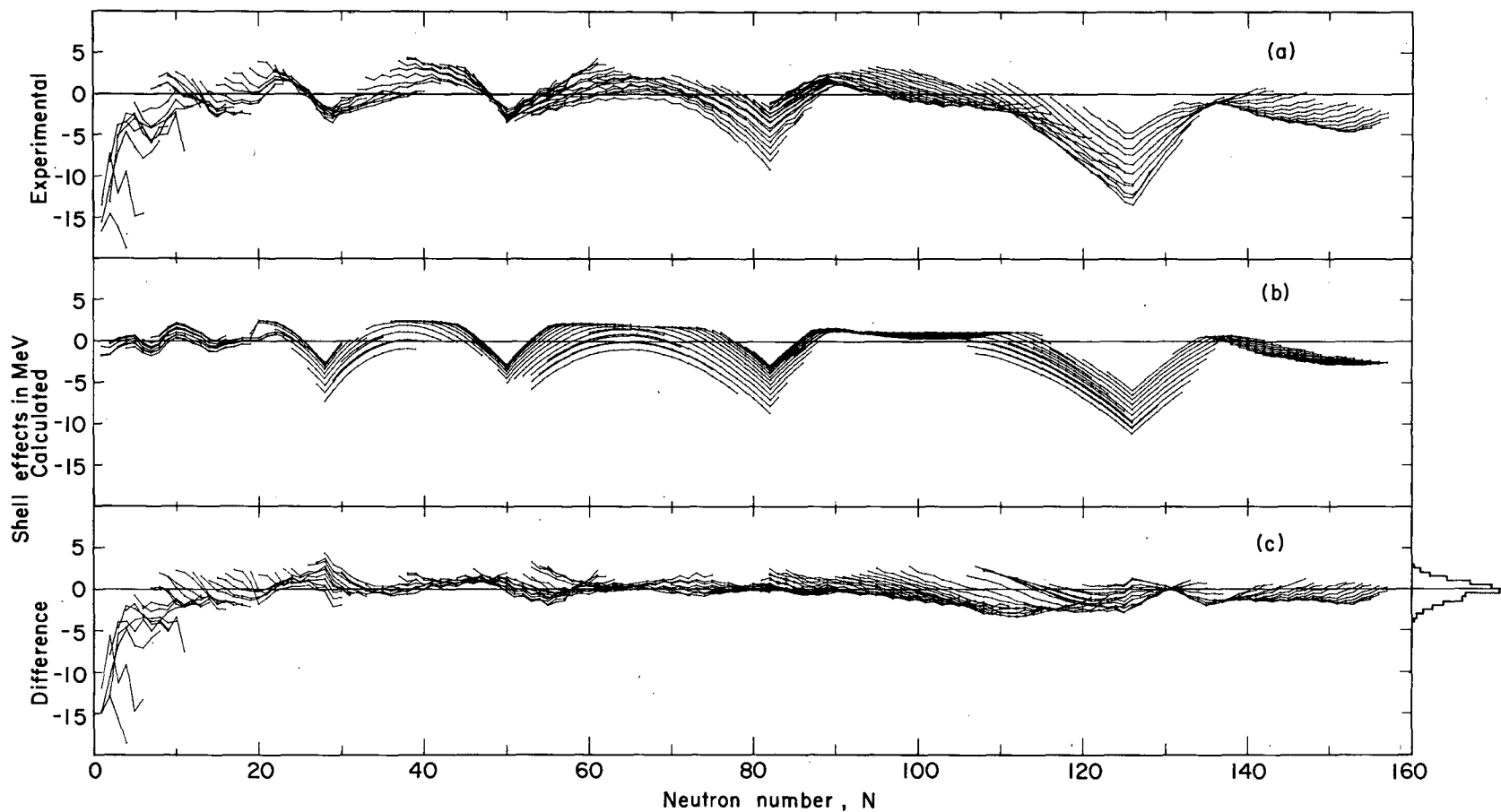


Fig. 5. The experimental and calculated shell effects and their differences are shown as functions of the neutron number. Isotopes of an element are connected by a line. The large negative deviations at the beginning of the periodic table are for nuclei outside of the fit region, which began at $A = 10$. A small histogram to the right of Part (c) shows how the final errors are distributed for nuclei in the fit region. The substantial weight given to fitting fission barriers is presumably responsible for pulling the error distribution slightly to one side so that the mass residuals are not equally distributed about zero.

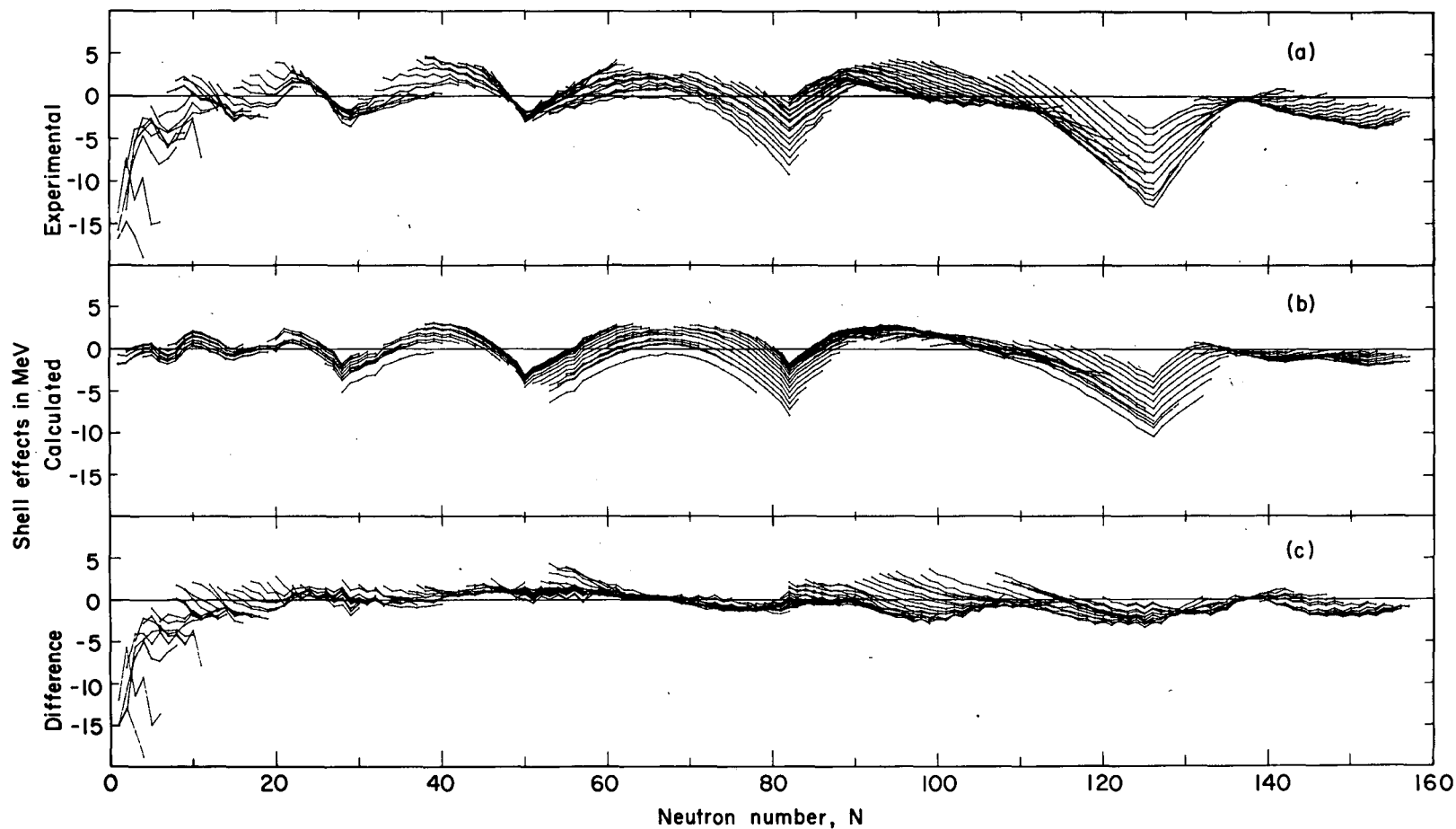


Fig. 6. This figure is like Fig. 5 for N and $Z < 20$ where an empirical shell function is used. The remainder of the calculated shell effects are from Seeger,⁴⁶ who used the Strutinsky method. The Droplet Model coefficients were redetermined to obtain the best agreement with masses and fission barriers. Their values changed very little and the quality of the fit was about the same.

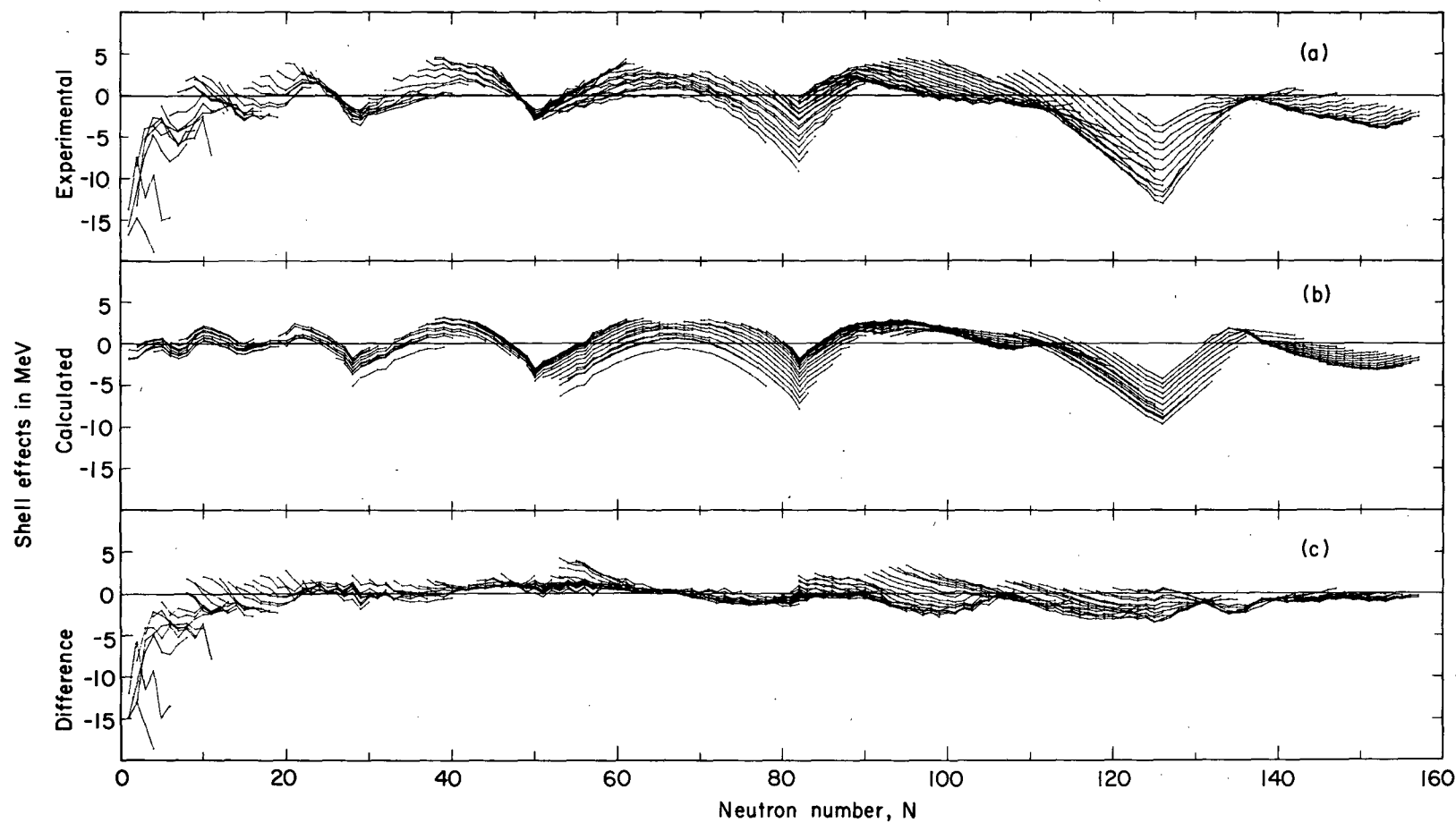


Fig. 7. This figure employs an empirical shell function for N and $Z < 20$ as in Figs. 5b and 6b. It uses the shell corrections provided by Seeger (see Fig. 6b) up to the middle of the rare-earth region then switches to a set of corrections provided by Möller.⁴⁵ The latter set of corrections was adjusted to the heavy-element region where it agrees quite well with experiment. Even though the Droplet Model coefficients were also redetermined, the overall agreement is about the same as that shown in Figs. 5 and 6.

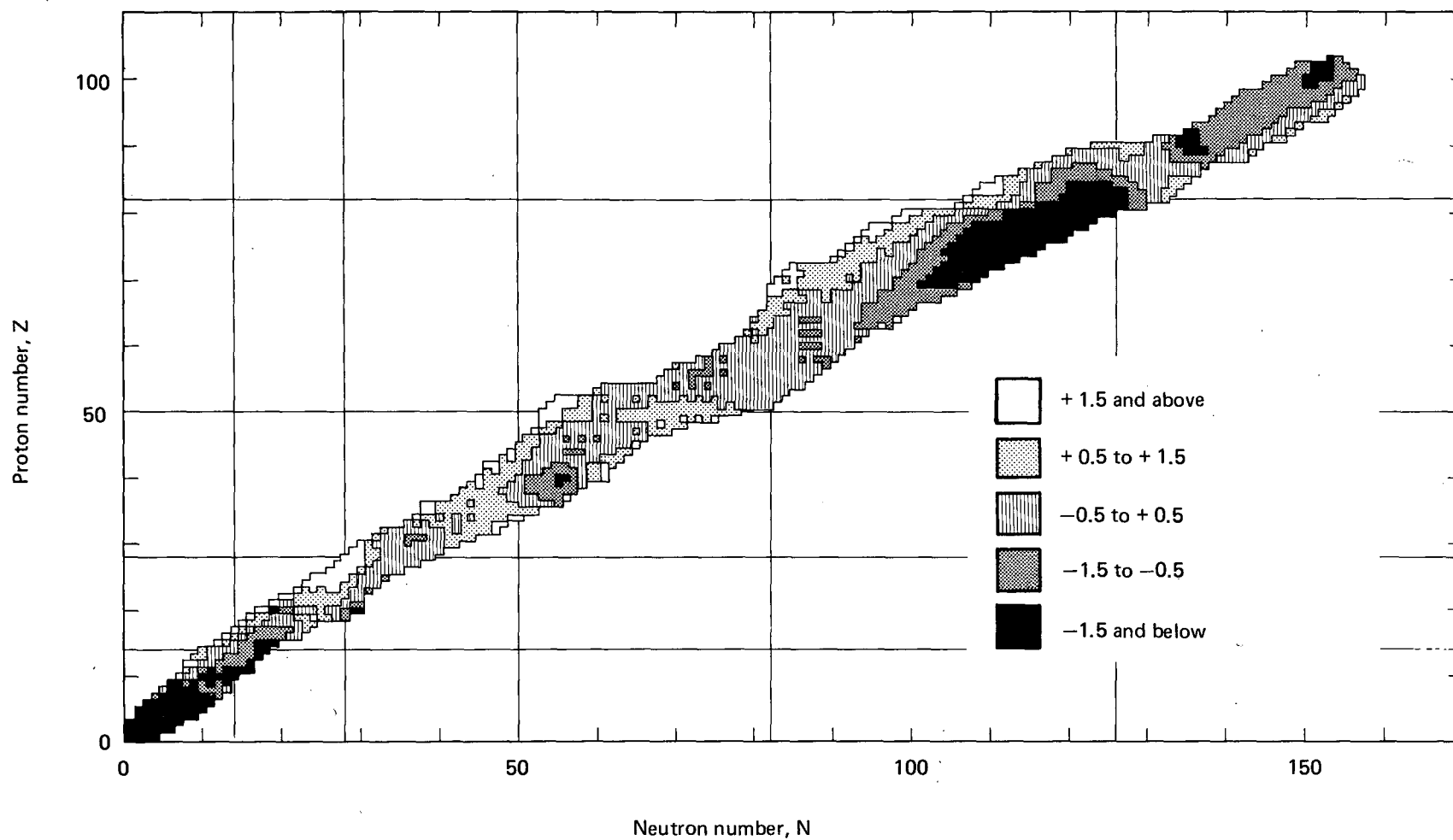


Fig. 8. The differences that remain between the experimental masses and those calculated with Eq. (16) after the Droplet Model coefficients have been adjusted to give the best overall agreement for masses and fission barriers.

Table 1. Experimental Fission Barriers and Saddle Masses.

Name	Z	A	Experimental Barrier	Relative Saddle Mass			Saddle Point Shell Effects ^g
				Exp.	Calc.	Diff.	
Lu	71	173	28.0 ^a	27.2	30.9	-3.7	
Ta	73	179	26.1 ^a	25.0	27.9	-2.9	-2.6
Re	75	185	24.0 ^a	22.0	24.8	-2.8	-3.5
Os	76	186	23.4 ^a	21.4	23.3	-1.9	-3.8
		187	22.7 ^a	20.5	23.2	-2.7	
		188	24.2 ^a	21.8	23.2	-1.4	-4.4
Ir	77	189	22.6 ^a	20.2	21.6	-1.4	
		191	23.7 ^a	20.7	21.5	-0.8	-4.6
Tl	81	201	22.3 ^a	13.8	15.2	-1.4	-0.8
Bi	83	207	21.9 ^a	11.1	12.2	-1.1	-1.7
		209	23.3 ^a	11.1	12.0	-0.9	
Po	84	210	21.0 ^{a,b}	10.1	10.9	-0.8	-0.5
		211	19.7 ^a	10.0	10.8	-0.8	
		212	19.5 ^a	10.9	10.7	0.2	-0.5
At	85	213	17.0 ^a	9.6	9.8	-0.2	
Rn	86	216	13.5 ^c	8.4	8.6	-0.2	
Ra	88	225	9.0 ^d	8.2	6.6	1.6	
		227	8.0 ^d	8.0	6.4	1.6	
Ac	89	226	8.0 ^d	7.0	6.0	1.0	
		227	7.3 ^d	6.6	5.9	0.7	
		228	7.2 ^d	6.8	5.8	1.0	
Th	90	230	6.5 ^e	5.8	5.2	0.6	
		232	6.2 ^e	5.7	5.0	0.7	
		234	6.5 ^e	6.3	4.8	1.5	
Pa	91	231	5.9 ^f	4.9	4.7	0.2	
		232	6.1 ^f	4.9	4.6	0.3	
		233	6.0 ^f	5.0	4.5	0.5	
U	92	232	5.5 ^e	4.0	4.2	-0.2	1.9
		234	6.2 ^e	4.6	4.0	0.6	1.5
		235	6.1 ^f	4.5	4.0	0.5	
		236	5.7 ^e	4.3	3.9	0.4	1.3
		237	6.4 ^f	5.0	3.8	1.2	
		238	5.9 ^e	4.9	3.8	1.1	1.5
		239	6.6 ^f	5.6	3.7	1.9	
	240	6.0 ^e	5.4	3.6	1.8	1.6	

Table 1. (Continued)

Name	Z	A	Experimental Barrier			Saddle Point Shell Effects ^g	
			Exp.	Calc.	Diff.		
Np	93	234	5.4 ^f	3.3	3.7	-0.4	
		235	5.6 ^f	3.6	3.6	0.0	
		236	5.7 ^f	3.6	3.6	0.0	
		237	5.7 ^f	3.9	3.5	0.4	
		238	6.0 ^f	4.0	3.4	0.6	
		239	5.9 ^f	4.3	3.4	0.9	
Pu	94	238	5.9 ^e	3.6	3.1	0.5	1.0
		239	6.4 ^f	3.9	3.1	0.8	
		240	5.8 ^e	3.6	3.0	0.6	1.1
		241	6.3 ^f	4.1	3.0	1.1	
		242	5.6 ^e	3.8	2.9	0.9	1.1
		243	6.1 ^f	4.3	2.9	1.4	
Am	95	245	5.7 ^f	4.3	2.7	1.6	
		240	6.4 ^f	3.4	2.7	0.7	
		241	6.0 ^f	3.3	2.7	0.6	
		242	6.4 ^f	3.7	2.6	1.1	
		243	6.0 ^f	3.7	2.6	1.1	
		244	6.2 ^f	3.8	2.5	1.3	
Cm	96	245	5.9 ^f	4.0	2.5	1.5	
		247	5.6 ^f	4.1	2.4	1.7	
		244	6.1 ^e	3.2	2.3	0.9	1.4
		245	6.4 ^f	3.4	2.2	1.2	
		247	6.2 ^f	3.5	2.1	1.4	
		248	6.2 ^e	3.9	2.1	1.8	1.5
Bk	97	249	5.8 ^f	3.7	2.0	1.7	
		250	5.2 ^e	3.6	2.0	1.6	1.4
Bk	97	249	6.1 ^f	3.2	1.8	1.4	

^aL. G. Moretto et al., Phys. Lett. **38B**, 471 (1972).

^bAverage of two values given.

^cH. Freisleben, H. C. Britt, and J. R. Huizenga, Proceedings of the Third International Conference on the Physics and Chemistry of Fission, paper IAEA/SM - 174/81.

^dInferred from figures in E. Konechy, H. J. Specht, and J. Weber, *ibid.*, paper IAEA/SM - 174/20.

^eB. B. Back et al., *ibid.*, paper IAEA/SM - 174/27.

^fB. B. Back et al., *ibid.*, paper IAEA/SM - 174/201.

^gAll the positive corrections (Z = 92, 94 and 96) were taken from Ref. 49. The values for the lighter nuclei are from Ref. 50. In the latter case the calculated value from a neighboring even nucleus is sometimes used.

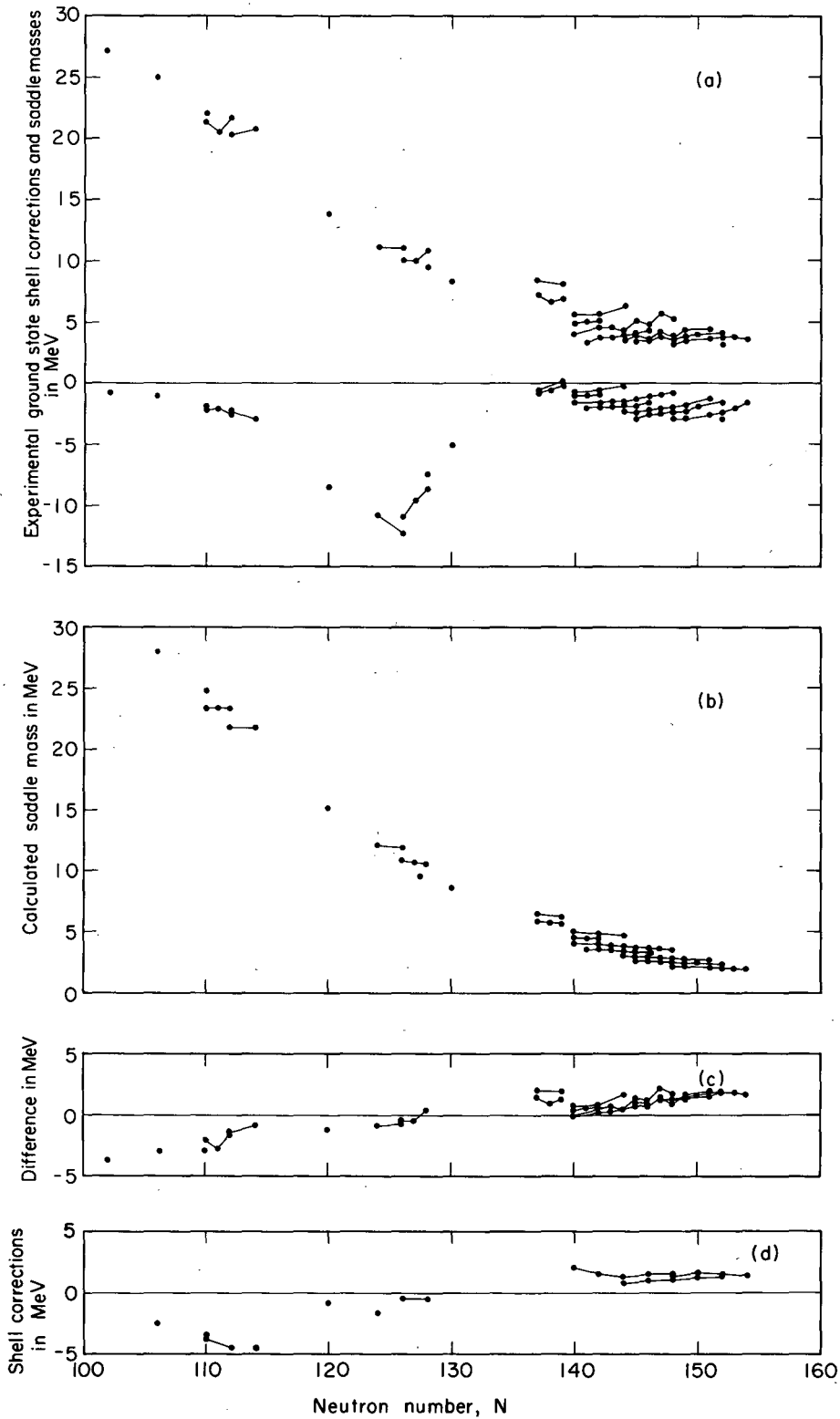


Fig. 9. Experimental and calculated saddle masses and their differences are plotted against neutron number N for nuclei listed in Table 1. The relationship between the experimental ground-state shell correction, fission barrier, and saddle mass can be seen in Fig. 10.

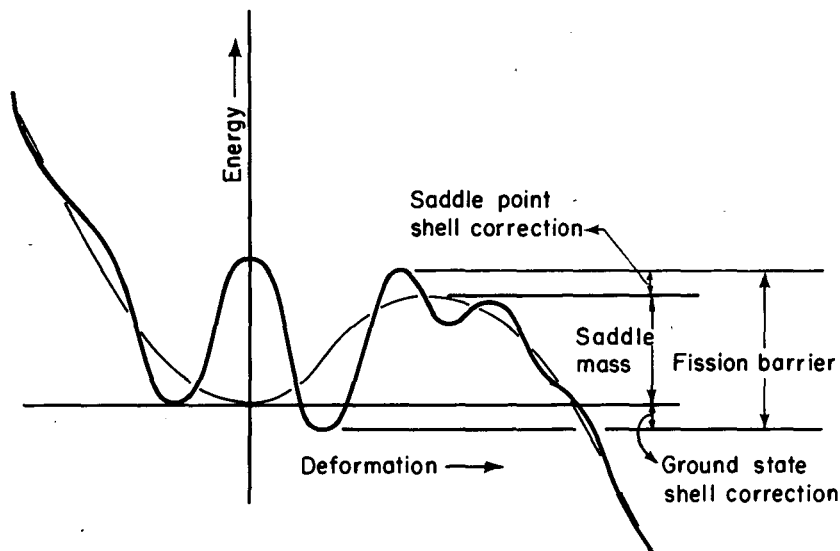


Fig. 10. Schematic diagram to show how the calculated fission barrier is related to the saddle mass and the ground-state shell correction. The figure also shows how saddle point shell effects can cause the experimental barriers to be slightly higher than might otherwise be expected.

D. Deformations

As in our previous work^{13,14} one of the results of the calculation of shell effects is a prediction of nuclear ground state deformations. During the fitting procedure the calculated values were compared with the experimental ones from Ref. 51. Figure 11 shows that there is rough agreement between theory and experiment for nuclei in the rare-earth and actinide regions. The main deviations seem to be associated (as with the mass deviations) with the inability of our shell correction function to adequately portray the behavior of nuclei at the upper end of the rare-earth region.

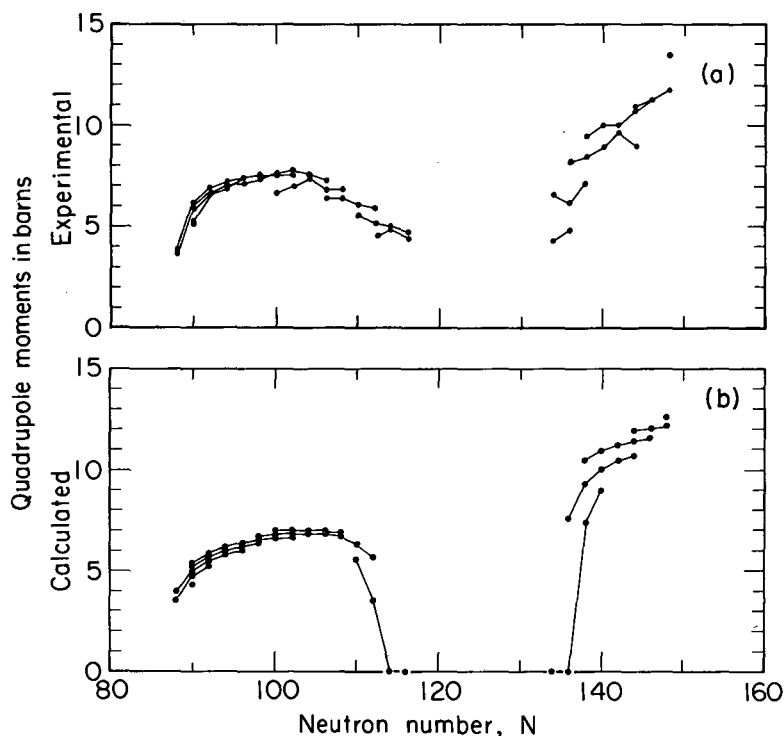


Fig. 11. Calculated and experimental quadrupole moments for nuclei in the rare-earth and actinide region are plotted against neutron number. The moments plotted are for those even-even nuclei listed in Ref. 51, with the omission of a few points with large errors whose tabulated values differed substantially from those of adjacent nuclei.

E. Radii

The Droplet Model parameters chosen to give the best fit for masses and fission barriers also lead to predictions of nuclear charge radii in quite good agreement with experiment. The Droplet Model fit seems to have resolved the discrepancy, mentioned earlier,^{13,14} that existed between the nuclear radius constant inferred from a liquid drop model fit to masses and that obtained from electron scattering measurements of nuclear charge radii. Table 2 lists the calculated and experimental radii that are compared in Fig. 12. This figure also shows how the effective sharp radii of the neutron and proton distributions are expected to vary for nuclei along beta stability and how these radii are related to the radius constant r_0 .

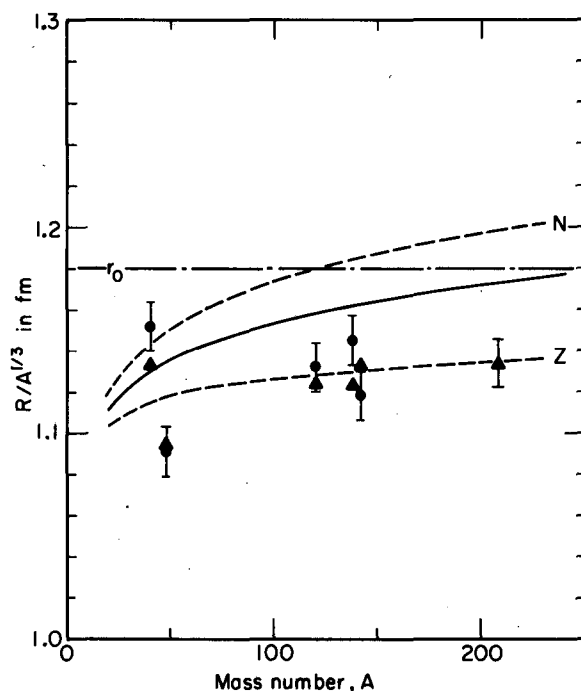


Fig. 12. Various quantities characteristic of the radial extent of spherical nuclei are plotted versus the mass number A . The dashed lines labeled N and Z correspond to the Droplet Model predictions for the quantities $(R_N/A^{1/3})$ and $(R_Z/A^{1/3})$ for nuclei along the bottom of the valley of beta stability. The solid line, which is the weighted mean of the neutron and proton lines, represents the value of $(R/A^{1/3})$ for the total nucleon density. The solid dots correspond to the experimental values of $(R_Z/A^{1/3})$ for various spherical nuclei given in Table 2. The error bars of ± 0.012 fm were chosen to represent the spread in values observed in the tabulated results. Solid triangles indicate the Droplet Model value of $(R_Z/A^{1/3})$ for these same nuclei. For comparison a dot-dashed line is drawn across the figure at 1.18 fm, which is the value of r_0 [the constant related to ρ_0 by Eq. (6)] determined by the fitting procedure.

Table 2. Calculated and Experimental Nuclear Charge Radii.^a

Nucleus	Experiment ^b	Distribution Parameters ^c			R _Z /A ^{1/3}		
		c	a	w	Experimental ^d	Calculated ^e	
⁴⁰ Ca	e	3.650	0.517	0	1.138	1.152	1.133
	e	3.676	0.585	-0.102	1.154		
	e,μ	3.697	0.587	-0.083	1.163		
	e	3.669	0.584	-0.102	1.152		
⁴⁸ Ca	e	3.650	0.498	0	1.066	1.091	1.094
	e	3.744	0.526	-0.03	1.095		
	e,μ	3.797	0.534	-0.048	1.109		
	e	3.737	0.525	-0.03	1.093		
¹²⁰ Sn	e	5.315	0.575	0	1.119	1.132	1.124
	μ	5.495	0.507	0	1.145		
¹³⁸ Ba	μ	5.771	0.496	0	1.144	1.145	1.123
	e	5.83	0.407	0	1.146		
¹⁴² Nd	e	5.614	0.587	0.096	1.118		1.133
²⁰⁸ Pb	μ	6.712	0.481	0	1.152	1.134	1.133
	μ	6.659	0.514	0	1.146		
	μ	6.720	0.504	-0.061	1.154		
	e	6.47	0.523	0	1.115		
	e	6.38	0.537	0.130	1.105		
	e	6.40	0.542	0.140	1.109		
	e	6.66	0.503	0	1.145		
	e	6.597	0.550	0	1.139		
e	6.628	0.544	-0.062	1.142			

^aExperimental data from Table 3 of R. C. Barrett, Rep. Prog. Phys. 37, 1-54 (1974).

^bThe symbol e is used for electron scattering and μ for μ-mesic atom experiments.

^cThe charge densities were parametrized according to the expression

$$\rho_Z = \rho_C [1 + w(r/c)^2] / \{1 + \exp[(r - c)/a]\} .$$

^dThe experimental value of the effective sharp radius of the charge distribution can be calculated with the expression

$$R_Z = c \left[1 + \frac{(1 + 2w)}{(1 + w)} \cdot \frac{\pi^2}{3} \cdot (a/c)^2 + \dots \right] , \text{ see Ref. 15.}$$

^eEqs. (2, 3, 5, 8 and 9) are used to calculate the Droplet Model value of R_Z.

V. REMARKS

The development of the Droplet Model was originally undertaken to improve the liquid drop model approach by carrying the leptodermous expansion of nuclear properties to one higher order in $A^{1/3}$. We hoped, in this way, to help fill the gap existing between the usual liquid drop model (terms of order A and $A^{2/3}$) and the various terms of non-statistical origin such as shell effects, even-odd effects, Wigner term, etc. This work is brought to completion here with the determination of values for the various coefficients that enter and the comparison of calculated and experimental values for masses, fission barriers, and radii.

Some of the coefficients we have evaluated here (the volume energy coefficient, symmetry energy coefficient, surface energy coefficient, and nuclear radius constant, for example) may be considered constants of nature. These constants are probably more accurately determined from the experimental data when the Droplet Model is used than was possible with the liquid drop model. When the Droplet Model is used there is less need for these coefficients to assume slightly incorrect values to compensate for missing higher order terms. The Droplet Model also provides a more accurate way for extrapolating far from beta stability because of the higher order effects that are included. Since a number of higher order shape dependencies (such as the shape dependence of the Coulomb redistribution energy or surface symmetry energy) are included, the Droplet Model will be important in calculations of heavy-ion collisions where highly distorted shapes are involved.

These gains in understanding and completeness are provided by the Droplet Model at the cost of a substantial increase in the complexity of the treatment. However, the widespread availability of high-speed electronic computers makes this increased complexity tolerable for many applications.

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TABLE OF MASSES, DEFORMATIONS, FISSION BARRIERS, RADII, ETC.

A brief account is given here of the method of calculating the various entries in the table of nuclear properties which follows. The coverage of the table is from $Z = 10 \rightarrow 140$ and $N = 10 \rightarrow 210$. The region of nuclei included is also limited by the vanishing of the neutron binding energy (on the neutron-rich side of the valley of stability) and by instability against proton emission in excess of 3 MeV (on the proton-rich side).

While the headings in the table are meant to be descriptive of each column's content, an additional explanation is required in a number of cases and is given below:

DROPLET MASS

This column contains the numerical value [from Eq. (16)], in MeV, of the predicted Droplet Model mass excess for a spherical nucleus having the Z and N values given in the first two columns. (See Section III.)

CALC SHELL

This entry is the contribution to the nuclear mass excess due to the shell effects. Its value corresponds to the difference between the lowest minimum of the shape-dependent part of the mass formula, Eq. (26) and M_0 , the spherical Droplet Model mass. (See Section III. A.) If the energy (mass) of the nucleus falls off monotonically with increasing deformation the words UNSTABLE AGAINST FISSION are written in this column and the remaining columns are blank.

CALC MASS

This column contains the predicted mass excess. The value is simply the sum of the values in the previous two columns.

BINDING ENERGY

The four columns under this heading contain, respectively the binding energies (in MeV) of one neutron, two neutrons, one proton and two protons calculated by using the expressions given below:

$$\begin{aligned}
 B_{\text{neutron}}^{\text{one}}(Z,N) &= [M_{\text{calc}}(Z,N-1) + 8.07169] - M_{\text{calc}}(Z,N) , \\
 B_{\text{neutrons}}^{\text{two}}(Z,N) &= [M_{\text{calc}}(Z,N-2) + 16.14338] - M_{\text{calc}}(Z,N) , \\
 B_{\text{proton}}^{\text{one}}(Z,N) &= [M_{\text{calc}}(Z-1,N) + 7.28922] - M_{\text{calc}}(Z,N) , \\
 B_{\text{protons}}^{\text{two}}(Z,N) &= [M_{\text{calc}}(Z-2,N) + 14.57844] - M_{\text{calc}}(Z,N) .
 \end{aligned}
 \tag{39}$$

DECAY ENERGY

These three columns contain beta, electron capture, and alpha decay energies (in MeV) calculated by using the following expressions:

$$\begin{aligned}
 E_{\text{beta decay}} &= M(Z,N) - M(Z + 1, N - 1) , \\
 E_{\text{electron capture}} &= M(Z,N) - M(Z - 1, N + 1) , \\
 E_{\text{alpha decay}} &= M(Z,N) - [M(Z - 2, N - 2) + 2.42494] .
 \end{aligned}
 \tag{40}$$

GD STA DEF

This column contains the ground state deformation α corresponding to the minimum in the expression for the total energy (Droplet plus shell corrections) as a function of shape, Eq. (26). The intrinsic quadrupole moment implied by this deformation can be calculated (to second order in α) from the expression

$$\begin{aligned}
 Q_0 &= 0.012(r_0 A^{1/3})^2 Z \alpha \left(1 + \frac{4}{7} \alpha\right) , \\
 &= 0.0167 A^{2/3} Z \alpha (1 + 0.57\alpha) \text{ barns} .
 \end{aligned}
 \tag{41}$$

SADDLE

The three columns under this heading contain information concerning the calculation of fission barriers. For very light nuclei these columns are blank. For the heavier nuclei the entry in the first column (labeled MASS is the "saddle mass" (see Fig. 10) calculated by using a simple one-dimensional family of shapes. (The shapes employed were from the so called "y-family." This family consists of the sequence of liquid drop model saddle point shapes for different values of the fissility parameter x . The quantity y is defined as $y = 1 - x$ and a table of the corresponding values of the shape-dependent quantities B_i can be found in Ref. 16.) If the index appearing in the column labeled with the letter I is 1, 2, or 3 the saddle mass was calculated by perturbation, the final value being calculated for a saddle point shape that was found initially by using only the shape-dependent factors B_S and B_C . [See Eq. (15).] When the index is 4 all the B 's are varied in the search for the saddle point. Regardless of which method is used, the value of y corresponding to the saddle point shape is given in the column labeled DEF.

The value of the fission barrier may be estimated by (algebraically) subtracting the ground state shell effects from the saddle mass. Use the experimental shell effect (from the next to last column in the table) if it is available, otherwise the calculated shell

effect should be used. The need, in some cases, for corrections to the barrier due to saddle point shell effects is briefly discussed in Section IV. C, but a general treatment of such corrections beyond the scope of this work.

When the pure Droplet Model saddle mass drops below 0.5 MeV for the heaviest nuclei, an alternative procedure is used in order to better delineate the limits of stability against fission. In these cases the value given corresponds to the difference between the maximum value of the shape-dependent part of the mass formula given by Eq. (26) and the spherical Droplet Model mass M_0 . The column DEF contains the saddle point deformation α [See Eq. (23)], followed by the letters ALP. Just as before, the fission barrier is calculated by (algebraically) subtracting the ground-state shell corrections from the tabulated value of the saddle mass.

Of course, if the energy (mass) decreases monotonically with increasing deformation, then no ground state or barrier exists. In these cases the words UNSTABLE AGAINST FISSION are written after the DROPLET MASS entry and the remaining columns are blank.

SHARP RADIUS

These two columns contain the calculated equivalent sharp radii, in Fermi, of the neutron and proton density distributions calculated by using the following expressions:

$$\begin{aligned}
 R &= r_0 A^{1/3} (1 + \bar{\epsilon}) , \\
 t &= 2/3 (1 - \bar{\delta}) R , \\
 R_N &= R + (Z/A) \cdot t , \\
 R_Z &= R - (N/A) \cdot t ,
 \end{aligned}
 \tag{42}$$

where $\bar{\delta}$ and $\bar{\epsilon}$ are given by Eqs. (2) and (3). To lowest order in the ratio of the diffuseness b to the radius R (See Ref. 27 for definitions of these quantities) the location of the surface C (the half-value radius for a Fermi function) and the rms equivalent radius Q (equal to $5/3 \langle r^2 \rangle$) may be obtained from the following expressions:²⁷

$$\begin{aligned}
 C_{\frac{N}{Z}} &= R_{\frac{N}{Z}} \left[1 - (b/R_{\frac{N}{Z}})^2 + \dots \right] , \\
 Q_{\frac{N}{Z}} &= R_{\frac{N}{Z}} \left[1 + \frac{5}{2} (b/R_{\frac{N}{Z}})^2 + \dots \right] ,
 \end{aligned}
 \tag{43}$$

where $b \approx 1$ fm.

EXPERIMENTAL

The first of these three columns contains the experimental mass excess, in MeV, given by Wapstra and Gove⁴¹ if it is available. The second column contains the ground-state shell effect obtained by subtracting the Droplet mass (in the fourth column of the table) from the experimental mass. The last column is the difference between the experimental mass and the calculated mass.

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING ENERGY				DECAY ENERGY			GD STA	SADDLE		SHARP RADIUS		EXPERIMENTAL			
						BN	B2N	BZ	B2Z	BETA	EL-CAP	ALPHA	DEF	MASS	DEF	I	NEU	PRO	MASS	SHELL	DIFF
54	49	103	-10.00	-4.03	-14.03	15.47	33.65	-1.85	-5.26	-19.53	18.01	1.46		36.66	.44	2	5.36	5.49			
54	50	104	-18.53	-4.93	-23.46	17.51	32.98	-1.29	-4.51	-20.98	13.15	1.37		37.65	.44	2	5.39	5.50			
54	51	105	-24.34	-3.89	-28.23	12.84	30.35	-1.09	-3.71	-16.13	14.63	3.21		38.60	.44	2	5.42	5.51			
54	52	106	-32.11	-2.94	-35.05	14.90	27.73	-.52	-2.94	-17.59	11.55	5.07		39.50	.48	1	5.44	5.52			
54	53	107	-37.19	-2.08	-39.27	12.29	27.19	-.04	-1.58	-14.79	12.75	4.82		40.36	.48	1	5.47	5.52			
54	54	108	-44.23	-1.30	-45.53	14.33	26.62	.79	-.27	-16.26	9.44	4.62		41.17	.48	1	5.50	5.53			
54	55	109	-48.07	-.60	-48.67	11.21	25.55	.99	.50	-12.94	10.94	4.34		41.94	.48	1	5.52	5.54			
54	56	110	-53.88	.03	-53.85	13.26	24.46	1.54	1.24	-14.14	8.22	4.10		42.67	.48	1	5.55	5.55			
54	57	111	-57.08	.57	-56.51	10.73	23.98	1.73	2.00	-11.15	9.71	3.81		43.36	.48	1	5.57	5.56			
54	58	112	-62.24	1.04	-61.20	12.76	23.49	2.27	2.73	-12.63	7.03	3.56		44.01	.48	1	5.60	5.56			
54	59	113	-64.83	1.42	-63.41	10.28	23.04	2.47	3.49	-9.83	8.50	3.25	.06	44.62	.48	1	5.62	5.57			
54	60	114	-69.37	1.62	-67.75	12.41	22.69	3.12	4.33	-11.18	5.73	2.87	.09	45.21	.50	1	5.64	5.58			
54	61	115	-71.37	1.72	-69.65	9.97	22.39	3.46	5.21	-8.43	7.09	2.42	.11	45.75	.50	1	5.67	5.59	-69.49	1.88	-.16
54	62	116	-75.32	1.77	-73.55	11.97	21.94	4.09	6.05	-9.82	4.37	2.02	.12	46.25	.50	1	5.69	5.59	-75.66	1.66	-.11
54	63	117	-76.76	1.80	-74.96	9.48	21.45	4.33	6.86	-7.11	5.80	1.63	.12	46.72	.50	1	5.72	5.60	-74.77	1.99	-.19
54	64	118	-80.15	1.81	-78.34	11.45	20.93	4.87	7.60	-8.53	3.16	1.31	.13	47.15	.50	1	5.74	5.61	-78.25	1.90	.09
54	65	119	-81.05	1.81	-79.24	8.97	20.42	5.03	8.28	-5.87	4.65	1.02	.12	47.55	.50	1	5.76	5.62	-79.00	2.05	.24
54	66	120	-83.90	1.79	-82.11	10.93	19.91	5.51	8.92	-7.32	2.10	.79	.12	47.94	.52	1	5.78	5.63	-81.90	2.00	.21
54	67	121	-84.29	1.76	-82.53	8.50	19.43	5.61	9.50	-4.73	3.68	.58	.11	48.27	.52	1	5.81	5.63	-82.43	1.86	.10
54	68	122	-86.61	1.70	-84.91	10.45	18.95	5.99	10.03	-6.21	1.28	.44	.10	48.58	.52	1	5.83	5.64	-85.06	1.55	-.15
54	69	123	-86.51	1.59	-84.92	8.08	18.54	6.01	10.56	-3.72	2.92	.26	.09	48.86	.52	1	5.85	5.65	-85.29	1.22	-.37
54	70	124	-88.33	1.39	-86.94	10.10	18.18	6.39	11.11	-5.31	1.33	.09	.05	49.11	.52	1	5.87	5.66	-87.45	.88	-.51
54	71	125	-87.75	1.03	-86.72	7.85	17.95	6.54	11.76	-3.03	2.03	-.21		49.33	.52	1	5.89	5.67	-87.14	.61	-.42
54	72	126	-89.09	.61	-88.48	9.83	17.69	7.01	12.39	-4.73	-.44	-.49		49.52	.52	1	5.92	5.67	-89.16	-.07	-.68
54	73	127	-88.07	.14	-87.93	7.52	17.35	7.18	13.04	-2.36	1.05	-.81		49.68	.52	1	5.94	5.68	-88.32	-.25	-.39
54	74	128	-88.95	-.39	-89.34	9.48	17.00	7.65	13.67	-3.83	-1.40	-1.10		49.85	.54	1	5.96	5.69	-89.86	-.91	-.52
54	75	129	-87.49	-.97	-88.46	7.19	16.67	7.81	14.31	-1.39	.09	-1.42		49.97	.54	1	5.98	5.70	-88.69	-1.20	-.23
54	76	130	-87.92	-1.60	-89.52	9.14	16.32	8.26	14.92	-2.85	-2.32	-1.70		50.06	.54	1	6.00	5.70	-89.88	-1.96	-.36
54	77	131	-86.04	-2.28	-88.32	6.87	16.00	8.41	15.54	-.43	-.83	-2.02		50.12	.54	1	6.02	5.71	-88.41	-2.37	-.09
54	78	132	-86.06	-3.01	-89.07	8.82	15.69	8.87	16.16	-1.91	-3.23	-2.32		50.16	.54	1	6.04	5.72	-89.28	-3.22	-.21
54	79	133	-83.78	-3.79	-87.57	6.57	15.38	9.02	16.77	-.48	-1.75	-2.64		50.18	.54	1	6.06	5.73	-87.66	-3.88	-.09
54	80	134	-83.38	-4.61	-87.99	8.50	15.06	9.46	17.36	-.98	-4.11	-2.92		50.18	.54	1	6.08	5.74	-88.12	-4.74	-.13
54	81	135	-80.71	-5.49	-86.20	6.27	14.78	9.61	17.97	1.38	-2.63	-3.25		50.15	.54	1	6.10	5.74	-86.50	-5.79	-.30
54	82	136	-79.92	-6.40	-86.32	8.19	14.47	10.04	18.54	-.08	-6.99	-3.54		50.11	.54	1	6.12	5.75	-86.42	-6.50	-.10
54	83	137	-76.88	-5.36	-82.24	3.99	12.19	10.20	19.15	4.27	-5.50	-1.85		50.04	.54	1	6.14	5.76	-82.21	-5.33	.03
54	84	138	-75.71	-4.38	-80.09	5.92	9.91	10.63	19.75	2.79	-7.81	-.16		49.95	.54	1	6.16	5.77	-80.07	-4.36	.02
54	85	139	-72.32	-3.46	-75.78	3.76	9.68	10.79	20.35	5.10	-6.32	-.54		49.84	.54	1	6.18	5.77	-75.98	-3.66	-.20
54	86	140	-70.78	-2.60	-73.38	5.67	9.43	11.21	20.92	3.63	-8.61	-.88		49.72	.54	1	6.20	5.78	-73.24	-2.46	.14
54	87	141	-67.05	-1.80	-68.85	3.54	9.22	11.37	21.51	5.92	-7.13	-1.26		49.57	.54	1	6.22	5.79			
54	88	142	-65.16	-1.06	-66.22	5.44	8.98	11.79	22.07	4.45	-9.39	-1.60		49.41	.54	1	6.24	5.80			
54	89	143	-61.09	-.38	-61.47	3.32	8.77	11.93	22.65	6.71	-7.91	-1.98		49.23	.54	1	6.26	5.81			
54	90	144	-58.86	.25	-58.61	5.22	8.54	12.34	23.20	5.25	-10.15	-2.31		49.03	.54	1	6.28	5.81			
54	91	145	-54.48	.82	-53.66	3.12	8.34	12.49	23.77	7.49	-8.68	-2.69		48.81	.54	1	6.30	5.82			
54	92	146	-51.92	1.29	-50.63	5.05	8.16	12.93	24.36	6.04	-10.93	-3.07	.07	48.58	.54	1	6.31	5.83			
54	93	147	-47.23	1.48	-45.75	3.19	8.24	13.34	25.19	8.31	-9.55	-3.71	.11	48.33	.54	1	6.33	5.84			
54	94	148	-44.36	1.54	-42.82	5.15	8.33	13.91	26.07	6.91	-11.82	-4.39	.12	48.07	.54	1	6.35	5.85			
54	95	149	-39.36	1.53	-37.83	3.08	8.23	14.12	26.93	9.18	-10.41	-5.11	.13	47.79	.54	1	6.37	5.85			
54	96	150	-36.19	1.49	-34.70	4.93	8.02	14.57	27.63	7.78	-12.67	-5.80	.14	47.49	.54	1	6.39	5.86			
54	97	151	-30.91	1.44	-29.47	2.84	7.78	14.73	28.26	10.03	-11.26	-6.41	.15	47.18	.54	1	6.41	5.87			
54	98	152	-27.45	1.38	-26.07	4.66	7.51	15.14	28.84	8.62	-13.49	-6.85	.15	46.86	.54	1	6.42	5.88			
54	99	153	-21.89	1.33	-20.56	2.57	7.23	15.27	29.39	10.85	-12.07	-7.20	.15	46.52	.54	1	6.44	5.89			
54	100	154	-18.14	1.28	-16.86	4.37	6.94	15.66	29.92	9.45	-14.28	-7.48	.16	46.17	.54	1	6.46	5.89			
54	101	155	-12.32	1.24	-11.08	2.29	6.66	15.79	30.45	11.65	-12.87	-7.76	.16	45.81	.54	1	6.48	5.90			
54	102	156	-8.29	1.21	-7.08	4.07	6.37	16.16	30.94	10.26	-15.04	-7.99	.16	45.43	.54	1	6.49	5.91			
54	103	157	-2.21	1.19	-1.02	2.01	6.09	16.27	31.43	12.44	-13.63	-8.23	.16	45.04	.54	1	6.51	5.92			
54	104	158	2.08	1.18	3.26	3.79	5.80	16.63	31.90	11.04	-15.78	-8.44	.16	44.64	.54	1	6.53	5.93			
54	105	159	8.40	1.18	9.58	1.75	5.54	16.75	32.38	13.19	-14.36	-8.68	.16	44.22	.54	1	6.55	5.93			
54	106	160	12.95	1.19	14.14	3.52	5.26	17.10	32.82	11.80	-16.48	-8.87	.16	43.80	.54	1	6.56	5.94			
54	107	161	19.52	1.20	20.72	1.49	5.01	17.19	33.26	13.93	-15.05	-9.09	.15	43.36	.54	1	6.58	5.95			
54	108	162	24.32	1.22	25.54	3.25	4.74	17.52	33.66	12.53	-17.13	-9.27	.15	42.91	.54	1	6.60	5.96			
54	109	163	31.12	1.24	32.36	1.25	4.50	17.60	34.04	14.63	-15.66	-9.47	.14	42.45	.54	1	6.62	5.96			
54	110	164	36.15	1.25	37.40	3.03	4.28	17.91	34.34	13.20	-17.67	-9.65	.14	41.99	.54	1	6.63	5.97			
54	111	165	43.18	1.24	44.42	1.05	4.08	17.94	34.50	15.25	-16.05	-9.82	.13	41.51	.54	1	6.65	5.98			
54	112	166	48.44	1.19	49.63	2.86	3.91	18.14	34.61	13.77	-17.77	-9.96	.11	41.02	.54	1	6.67	5.99			
54	113	167	55.69	1.03	56.72	.98	3.84	17.97	34.77	15.69	-16.03	-10.05	.08	40.52	.54	1	6.68	6.00			

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING BN	BINDING B2N	ENERGY BZ	BZ2	DECAY ENERGY BETA	EL-CAP ALPHA	GD STA DEF	SADDLE MASS DEF	SHARP NEU	RADIUS PRO	EXPERIMENTAL MASS SHELL	DIFF	
55	53	108	-27.90	-1.37	-29.27	12.86	27.96	-2.71	-2.75	-13.47	16.26	4.91	38.59	.44	2	5.48	5.55	
55	54	109	-35.13	-.60	-35.73	14.53	27.40	-2.52	-1.72	-14.95	12.94	4.71	39.44	.44	2	5.51	5.56	
55	55	110	-39.80	.10	-39.70	12.05	26.57	-1.68	-.69	-11.92	14.16	4.47	40.26	.48	1	5.53	5.57	
55	56	111	-46.07	.71	-45.36	13.72	25.78	-1.21	.33	-13.13	11.15	4.24	41.03	.48	1	5.56	5.58	
55	57	112	-49.81	1.25	-48.56	11.28	25.00	-.66	1.07	-9.87	12.64	3.98	41.75	.48	1	5.58	5.58	
55	58	113	-55.16	1.58	-53.58	13.09	24.37	-.33	1.94	-11.26	9.83	3.60	.09	42.44	.48	1	5.61	5.59
55	59	114	-58.28	1.72	-56.56	11.05	24.14	.44	2.91	-8.49	11.19	3.08	.12	43.09	.48	1	5.63	5.60
55	60	115	-63.00	1.78	-61.22	12.72	23.78	.76	3.88	-9.88	8.43	2.58	.13	43.70	.48	1	5.65	5.61
55	61	116	-65.54	1.81	-63.73	10.58	23.31	1.37	4.83	-7.16	9.82	2.07	.14	44.28	.48	1	5.68	5.61
55	62	117	-69.66	1.82	-67.84	12.18	22.76	1.58	5.68	-8.55	7.12	1.65	.14	44.82	.48	1	5.70	5.62
55	63	118	-71.63	1.82	-69.81	10.03	22.22	2.13	6.47	-5.88	8.53	1.24	.14	45.33	.50	1	5.73	5.63
55	64	119	-75.19	1.82	-73.37	11.63	21.67	2.32	7.18	-7.29	5.88	.95	.15	45.80	.50	1	5.75	5.64
55	65	120	-76.61	1.82	-74.79	9.49	21.12	2.83	7.87	-4.65	7.31	.71	.14	46.24	.50	1	5.77	5.65
55	66	121	-79.62	1.82	-77.80	11.08	20.58	2.98	8.49	-6.08	4.73	.54	.14	46.64	.50	1	5.79	5.65
55	67	122	-80.52	1.82	-78.70	8.98	20.06	3.46	9.07	-3.48	6.21	.38	.14	47.02	.50	1	5.82	5.66
55	68	123	-83.00	1.81	-81.19	10.57	19.54	3.58	9.56	-4.92	3.72	.27	.13	47.36	.50	1	5.84	5.67
55	69	124	-83.40	1.77	-81.63	8.50	19.08	4.00	10.02	-2.40	5.31	.15	.12	47.67	.50	1	5.86	5.68
55	70	125	-85.39	1.70	-83.69	10.13	18.64	4.04	10.43	-3.90	3.03	.10	.11	47.98	.52	1	5.88	5.69
55	71	126	-85.30	1.55	-83.75	8.13	18.26	4.32	10.86	-1.49	4.73	.02	.09	48.23	.52	1	5.90	5.69
55	72	127	-86.81	1.23	-85.58	9.89	18.04	4.38	11.40	-3.19	2.35	-.17	.09	48.46	.52	1	5.93	5.70
55	73	128	-86.26	.76	-85.50	8.00	17.89	4.86	12.04	-1.01	3.84	-.46	.09	48.65	.52	1	5.95	5.71
55	74	129	-87.30	.23	-87.07	9.64	17.64	5.02	12.67	-2.67	1.39	-.74	.08	48.83	.52	1	5.97	5.72
55	75	130	-86.32	-.35	-86.67	7.67	17.31	5.50	13.31	-2.25	2.86	-1.05	.07	48.97	.52	1	5.99	5.72
55	76	131	-86.91	-.98	-87.89	9.30	16.96	5.65	13.92	-1.71	.44	-1.35	.07	49.09	.52	1	6.01	5.73
55	77	132	-85.50	-1.66	-87.16	7.34	16.64	6.12	14.54	.69	1.91	-1.64	.07	49.19	.52	1	6.03	5.74
55	78	133	-85.66	-2.39	-88.05	8.96	16.30	6.27	15.14	-.77	-.48	-1.92	.06	49.26	.52	1	6.05	5.75
55	79	134	-83.84	-3.17	-87.01	7.03	15.99	6.73	15.75	1.61	.98	-2.24	.05	49.31	.52	1	6.07	5.75
55	80	135	-83.59	-3.99	-87.58	8.64	15.67	6.88	16.34	.14	-1.38	-2.52	.04	49.34	.52	1	6.09	5.76
55	81	136	-81.38	-4.86	-86.24	6.73	15.37	7.33	16.94	2.50	.08	-2.83	.03	49.34	.52	1	6.11	5.77
55	82	137	-80.73	-5.77	-86.50	8.34	15.06	7.47	17.51	1.04	-4.26	-3.11	.02	49.36	.54	1	6.13	5.78
55	83	138	-78.14	-4.74	-82.88	4.44	12.78	7.93	18.13	5.36	-2.79	-1.43	.01	49.32	.54	1	6.15	5.79
55	84	139	-77.11	-3.77	-80.88	6.07	10.51	8.08	18.72	3.89	-5.10	-.26	.01	49.26	.54	1	6.17	5.79
55	85	140	-74.16	-2.85	-77.01	4.21	10.27	8.53	19.31	6.19	-3.63	-.10	.01	49.18	.54	1	6.19	5.80
55	86	141	-72.76	-2.00	-74.76	5.82	10.02	8.67	19.88	4.72	-5.91	-.44	.01	49.08	.54	1	6.21	5.81
55	87	142	-69.45	-1.21	-70.66	3.97	9.79	9.10	20.47	7.00	-4.44	-.81	.01	48.97	.54	1	6.23	5.82
55	88	143	-67.71	-.48	-68.19	5.59	9.57	9.26	21.05	5.52	-6.72	-1.16	.01	48.83	.54	1	6.25	5.82
55	89	144	-64.06	.20	-63.86	3.75	9.34	9.68	21.61	7.78	-5.25	-1.51	.01	48.67	.54	1	6.27	5.83
55	90	145	-61.97	.82	-61.15	5.36	9.11	9.82	22.17	6.21	-7.50	-1.85	.01	48.50	.54	1	6.29	5.84
55	91	146	-58.00	1.32	-56.68	3.60	8.96	10.31	22.80	8.52	-6.05	-2.28	.01	48.31	.54	1	6.30	5.85
55	92	147	-55.58	1.51	-54.07	5.47	9.07	10.72	23.66	7.06	-8.32	-2.93	.01	48.11	.54	1	6.32	5.86
55	93	148	-51.29	1.56	-49.73	3.74	9.20	11.28	24.61	9.33	-6.91	-3.69	.01	47.88	.54	1	6.34	5.86
55	94	149	-48.55	1.54	-47.01	5.35	9.09	11.48	25.39	7.93	-9.17	-4.45	.01	47.64	.54	1	6.36	5.87
55	95	150	-43.96	1.48	-42.48	3.54	8.89	11.93	26.06	10.17	-7.78	-5.21	.01	47.39	.54	1	6.38	5.88
55	96	151	-40.91	1.42	-39.49	5.09	8.62	12.08	26.65	8.78	-10.02	-5.71	.01	47.12	.54	1	6.40	5.89
55	97	152	-36.03	1.34	-34.69	3.26	8.36	12.50	27.24	11.01	-8.63	-6.12	.01	46.83	.54	1	6.41	5.90
55	98	153	-32.69	1.28	-31.41	4.80	8.06	12.64	27.77	9.61	-10.85	-6.42	.01	46.53	.54	1	6.43	5.90
55	99	154	-27.52	1.21	-26.31	2.97	7.77	13.03	28.31	11.83	-9.45	-6.70	.01	46.22	.54	1	6.45	5.91
55	100	155	-23.89	1.16	-22.73	4.49	7.46	13.16	28.82	10.43	-11.65	-6.94	.01	45.89	.54	1	6.47	5.92
55	101	156	-18.46	1.12	-17.34	2.68	7.17	13.55	29.34	12.62	-10.26	-7.19	.01	45.55	.54	1	6.49	5.93
55	102	157	-14.55	1.09	-13.46	4.20	6.87	13.67	29.83	11.23	-12.44	-7.40	.01	45.19	.54	1	6.50	5.93
55	103	158	-8.85	1.07	-7.78	2.39	6.59	14.05	30.32	13.41	-11.04	-7.63	.01	44.83	.54	1	6.52	5.94
55	104	159	-4.67	1.06	-3.61	3.90	6.29	14.16	30.79	12.01	-13.19	-7.82	.01	44.45	.54	1	6.54	5.95
55	105	160	1.28	1.06	2.34	2.12	6.02	14.53	31.28	14.16	-11.80	-8.05	.01	44.05	.54	1	6.56	5.96
55	106	161	5.72	1.07	6.79	3.62	5.74	14.63	31.73	12.76	-13.93	-8.24	.01	43.65	.54	1	6.57	5.97
55	107	162	11.92	1.10	13.02	1.85	5.47	14.99	32.18	14.90	-12.51	-8.44	.01	43.23	.54	1	6.59	5.97
55	108	163	16.60	1.13	17.73	3.36	5.20	15.10	32.62	13.49	-14.62	-8.64	.01	42.81	.54	1	6.61	5.98
55	109	164	23.04	1.16	24.20	1.60	4.96	15.44	33.05	15.59	-13.20	-8.85	.01	42.37	.54	1	6.62	5.99
55	110	165	27.97	1.20	29.17	3.11	4.70	15.52	33.43	14.19	-15.25	-9.03	.01	41.92	.54	1	6.64	6.00
55	111	166	34.64	1.22	35.86	1.38	4.49	15.84	33.78	16.25	-13.77	-9.24	.01	41.46	.54	1	6.66	6.01
55	112	167	39.80	1.23	41.03	2.91	4.28	15.89	34.02	14.81	-15.68	-9.42	.01	40.99	.54	1	6.67	6.01
55	113	168	46.70	1.19	47.89	1.21	4.12	16.11	34.09	16.81	-13.91	-9.60	.01	40.51	.54	1	6.69	6.02
55	114	169	52.09	1.04	53.13	2.83	4.05	15.96	34.20	15.25	-15.61	-9.77	.01	40.02	.54	1	6.71	6.03
55	115	170	59.20	.62	59.82	1.38	4.21	16.21	34.55	16.92	-14.07	-10.00	.01	39.52	.54	1	6.72	6.04
55	116	171	64.81	.06	64.87	3.01	4.40	16.31	34.99	15.14	-16.09	-10.30	.01	39.01	.54	1	6.74	6.05
55	117	172	72.12	-.53	71.59	1.35	4.37	16.66	35.43	17.06	-14.67	-10.62	.01	38.49	.54	1	6.76	6.05
55	118	173	77.95	-1.15	76.80	2.87	4.21	16.75	35.84	15.65	-16.65	-10.90	.01	37.97	.54	1	6.77	6.06
55	119	174	85.47	-1.81	83.66	1.21	4.08	17.08	36.27	17.63	-15.22	-11.21	.01	37.43	.54	1	6.79	6.07
55	120	175	91.50	-2.51	88.99	2.74	3.95	17.18	36.70	16.20	-17.21	-11.50	.01	36.89	.54	1	6.80	6.08
55	121	176	99.22	-3.24	95.98	1.08	3.82	17.50	37.11	18.18	-15.78	-11.80	.01	36.25	.52	1	6.82	6.09
55	122	177	105.45	-4.00	101.45	2.60	3.69	17.60	37.52	16.76	-17.74	-12.08	.01	35.69	.52	1	6.84	6.09
55	123	178	113.36	-4.80	108.56	.96	3.56	17.92	37.93	18.72	-16.32	-12.38	.01	35.12	.52	1	6.85	6.10
55	124	179	119.78	-5.63	114.15	2.48	3.44	18.02	38.34	17.29	-18.27	-12.67	.01	34.55	.52	1	6.87	6.11
55																		

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING ENERGY				DECAY ENERGY			GD STA DEF	SADDLE MASS	SHARP DEF I	RADIUS NEU PRO	EXPERIMENTAL				
						BN	B2N	BZ	B2Z	BETA	EL-CAP	ALPHA					MASS	SHELL	DIFF		
56	50	106	.86	-3.53	-2.67	18.24	34.48	-2.15	-6.21	-22.53	14.79	1.53	33.82	.42	3	5.41	5.56				
56	51	107	-5.71	-2.51	-8.22	13.62	31.87	-1.95	-5.43	-17.73	16.26	3.38	34.84	.42	3	5.44	5.56				
56	52	108	-14.21	-1.58	-15.79	15.65	29.26	-1.39	-4.68	-19.17	13.48	5.24	35.81	.42	3	5.47	5.57				
56	53	109	-20.04	-.74	-20.78	13.05	28.71	-1.20	-3.91	-16.40	14.95	5.02	36.74	.42	3	5.49	5.58				
56	54	110	-27.81	.03	-27.78	15.08	28.13	-.65	-3.17	-17.85	11.93	4.85	37.64	.44	2	5.52	5.59				
56	55	111	-32.94	.71	-32.23	12.52	27.59	-.19	-1.86	-15.10	13.13	4.61	38.49	.44	2	5.54	5.60				
56	56	112	-40.00	1.31	-38.69	14.54	27.05	.62	-.59	-16.56	9.88	4.42	.05	39.29	.44	2	5.57	5.60			
56	57	113	-43.93	1.61	-42.32	11.70	26.23	1.05	.39	-13.28	11.26	3.92	.11	40.06	.44	2	5.59	5.61			
56	58	114	-49.79	1.72	-48.07	13.82	25.52	1.78	1.45	-14.40	8.50	3.36	.13	40.80	.48	1	5.62	5.62			
56	59	115	-53.10	1.76	-51.34	11.34	25.16	2.06	2.51	-11.39	9.88	2.74	.14	41.48	.48	1	5.64	5.63			
56	60	116	-58.34	1.77	-56.57	13.31	24.64	2.64	3.40	-12.77	7.16	2.21	.15	42.13	.48	1	5.66	5.64			
56	61	117	-61.05	1.76	-59.29	10.79	24.09	2.85	4.22	-10.05	8.56	1.69	.15	42.74	.48	1	5.69	5.64			
56	62	118	-65.68	1.75	-63.93	12.72	23.50	3.37	4.96	-11.43	5.88	1.40	.16	43.32	.48	1	5.71	5.65			
56	63	119	-67.82	1.74	-66.08	10.22	22.94	3.56	5.69	-8.76	7.29	1.15	.16	43.86	.48	1	5.74	5.66			
56	64	120	-71.88	1.74	-70.14	12.13	22.35	4.06	6.38	-10.15	4.65	.98	.16	44.36	.48	1	5.76	5.67			
56	65	121	-73.47	1.74	-71.73	9.66	21.79	4.23	7.06	-7.51	6.07	.81	.16	44.84	.48	1	5.78	5.67			
56	66	122	-76.97	1.75	-75.22	11.56	21.23	4.71	7.70	-8.91	3.48	.69	.15	45.27	.48	1	5.80	5.68			
56	67	123	-78.04	1.77	-76.27	9.13	20.69	4.86	8.32	-6.30	4.93	.55	.15	45.68	.48	1	5.83	5.69			
56	68	124	-81.01	1.78	-79.23	11.03	20.16	5.32	8.90	-7.72	2.40	.45	.15	46.08	.50	1	5.85	5.70			
56	69	125	-81.57	1.79	-79.78	8.63	19.65	5.44	9.44	-5.16	3.91	.32	.14	46.42	.50	1	5.87	5.70	-79.57	2.00	.21
56	70	126	-84.04	1.78	-82.26	10.55	19.17	5.87	9.90	-6.62	1.49	.22	.13	46.74	.50	1	5.89	5.71	-82.36	1.68	-.10
56	71	127	-84.12	1.73	-82.39	8.21	18.75	5.93	10.25	-4.15	3.18	.10	.12	47.03	.50	1	5.91	5.72	-82.73	1.39	-.34
56	72	128	-86.09	1.60	-84.49	10.17	18.37	6.21	10.59	-5.68	1.02	.02	.10	47.28	.50	1	5.94	5.73	-85.25	.84	-.76
56	73	129	-85.70	1.30	-84.40	7.98	18.15	6.18	11.05	-3.42	2.67	-.10	.04	47.52	.50	1	5.96	5.74	-85.15	.55	-.75
56	74	130	-87.20	.78	-86.42	10.09	18.07	6.64	11.66	-5.22	.25	-.36	.14	47.72	.50	1	5.98	5.74	-87.30	-.10	-.88
56	75	131	-86.38	.20	-86.18	7.83	17.92	6.80	12.30	-3.00	1.71	-.67	.14	47.90	.50	1	6.00	5.75	-86.72	-.34	-.54
56	76	132	-87.42	-.43	-87.85	9.75	17.57	7.25	12.90	-4.45	-.69	-.94	.14	48.08	.52	1	6.02	5.76	-88.45	-1.03	-.60
56	77	133	-86.17	-1.11	-87.28	7.50	17.25	7.41	13.53	-2.04	.77	-1.25	.14	48.21	.52	1	6.04	5.77	-87.57	-1.40	-.29
56	78	134	-86.78	-1.84	-88.62	9.41	16.91	7.85	14.13	-3.50	-1.61	-1.52	.14	48.31	.52	1	6.06	5.77	-88.96	-2.18	-.34
56	79	135	-85.11	-2.61	-87.72	7.18	16.59	8.00	14.73	-1.11	-.14	-1.82	.14	48.39	.52	1	6.08	5.78	-87.87	-2.76	-.15
56	80	136	-85.30	-3.44	-88.74	9.08	16.27	8.44	15.32	-2.57	-2.50	-2.10	.14	48.45	.52	1	6.10	5.79	-88.90	-3.60	-.16
56	81	137	-83.24	-4.30	-87.54	6.88	15.96	8.59	15.92	-.21	-1.03	-2.40	.14	48.48	.52	1	6.12	5.80	-87.73	-4.49	-.19
56	82	138	-83.02	-5.22	-88.24	8.77	15.65	9.02	16.50	-1.66	-5.36	-2.67	.14	48.49	.52	1	6.14	5.80	-88.27	-5.25	-.03
56	83	139	-80.58	-4.19	-84.77	4.60	13.37	9.18	17.11	2.66	-3.89	-1.00	.14	48.48	.52	1	6.16	5.81	-84.93	-4.35	-.16
56	84	140	-79.98	-3.22	-83.20	6.51	11.10	9.61	17.69	1.20	-6.19	-.70	.14	48.45	.52	1	6.18	5.82	-83.24	-3.26	-.04
56	85	141	-77.16	-2.32	-79.48	4.35	10.86	9.75	18.28	3.51	-4.71	-.34	.14	48.40	.52	1	6.20	5.83	-79.97	-2.81	-.49
56	86	142	-76.19	-1.47	-77.66	6.25	10.60	10.19	18.86	2.05	-6.99	.01	.14	48.33	.52	1	6.22	5.84	-77.77	-1.58	-.11
56	87	143	-73.02	-.69	-73.71	4.12	10.37	10.33	19.44	4.33	-5.53	-.36	.14	48.24	.52	1	6.24	5.84	-74.01	-.99	-.30
56	88	144	-71.68	.04	-71.64	6.00	10.12	10.74	20.00	2.88	-7.78	-.68	.14	48.13	.52	1	6.26	5.85	-71.80	-.12	-.16
56	89	145	-68.18	.71	-67.47	3.90	9.91	10.90	20.58	5.13	-6.32	-1.05	.14	48.00	.52	1	6.28	5.86			
56	90	146	-66.49	1.29	-65.20	5.81	9.70	11.34	21.17	3.64	-8.53	-1.41	.07	47.85	.52	1	6.30	5.87			
56	91	147	-62.65	1.52	-61.13	4.00	9.81	11.75	22.06	5.84	-7.07	-2.09	.11	47.69	.52	1	6.31	5.87			
56	92	148	-60.63	1.57	-59.06	6.00	10.00	12.29	23.01	4.40	-9.33	-2.87	.13	47.51	.52	1	6.33	5.88			
56	93	149	-56.48	1.54	-54.94	3.95	9.95	12.50	23.77	6.65	-7.93	-3.71	.14	47.31	.52	1	6.35	5.89			
56	94	150	-54.13	1.48	-52.65	5.79	9.73	12.93	24.41	5.26	-10.17	-4.44	.15	47.14	.54	1	6.37	5.90			
56	95	151	-49.67	1.40	-48.27	3.69	9.48	13.08	25.01	7.52	-8.77	-4.95	.15	46.91	.54	1	6.39	5.91			
56	96	152	-47.01	1.32	-45.69	5.49	9.18	13.48	25.57	6.13	-11.00	-5.29	.16	46.67	.54	1	6.41	5.91			
56	97	153	-42.26	1.23	-41.03	3.40	8.90	13.63	26.13	8.36	-9.62	-5.62	.16	46.41	.54	1	6.42	5.92			
56	98	154	-39.29	1.16	-38.13	5.18	8.58	14.01	26.65	6.98	-11.82	-5.85	.16	46.13	.54	1	6.44	5.93			
56	99	155	-34.25	1.09	-33.16	3.09	8.28	14.14	27.18	9.20	-10.43	-6.11	.17	45.84	.54	1	6.46	5.94			
56	100	156	-31.00	1.04	-29.96	4.87	7.97	14.52	27.68	7.81	-12.62	-6.32	.17	45.54	.54	1	6.48	5.94			
56	101	157	-25.68	.99	-24.69	2.80	7.67	14.64	28.19	10.01	-11.23	-6.55	.17	45.22	.54	1	6.49	5.95			
56	102	158	-22.14	.96	-21.18	4.56	7.36	15.01	28.68	8.63	-13.40	-6.75	.17	44.88	.54	1	6.51	5.96			
56	103	159	-16.56	.94	-15.62	2.51	7.07	15.13	29.18	10.81	-12.01	-6.97	.17	44.54	.54	1	6.53	5.97			
56	104	160	-12.75	.93	-11.82	4.27	6.78	15.49	29.66	9.42	-14.16	-7.16	.17	44.18	.54	1	6.55	5.98			
56	105	161	-6.91	.94	-5.97	2.23	6.49	15.60	30.13	11.58	-12.76	-7.37	.17	43.81	.54	1	6.56	5.98			
56	106	162	-2.83	.96	-1.87	3.97	6.20	15.95	30.59	10.20	-14.88	-7.55	.17	43.43	.54	1	6.58	5.99			
56	107	163	3.25	.98	4.23	1.96	5.94	16.07	31.07	12.32	-13.50	-7.78	.16	43.03	.54	1	6.60	6.00			
56	108	164	7.59	1.02	8.61	3.70	5.65	16.41	31.50	10.95	-15.59	-7.95	.16	42.63	.54	1	6.62	6.01			
56	109	165	13.92	1.07	14.99	1.69	5.39	16.51	31.94	13.06	-14.18	-8.16	.16	42.21	.54	1	6.63	6.01			
56	110	166	18.50	1.12	19.62	3.44	5.13	16.84	32.36	11.67	-16.24	-8.34	.15	41.71	.52	1	6.65	6.02			
56	111	167	25.06	1.16	26.22	1.46	4.91	16.93	32.77	13.74	-14.81	-8.56	.15	41.27	.52	1	6.67	6.03			
56	112	168	29.88	1.20	31.08	3.21	4.67	17.24	33.13	12.33	-16.81	-8.75	.14	40.82	.52	1	6.68	6.04			
56	113	169	36.67	1.22	37.89	1.26	4.48	17.29	33.40	14.37	-15.24	-8.95	.13	40.35	.52	1	6.70	6.05			
56	114	170	41.72	1.18	42.90	3.06	4.33	17.52	33.48	12.90	-16.91	-9.16	.11	39.88	.52	1	6.72	6.05			
56	115	171	48.72	1.01	49.73	1.24	4.30	1													

Z	N	A	DROPLET		CALC		BINDING ENERGY				DECAY ENERGY			GD STA	SADDLE		SHARP	RADIUS	EXPERIMENTAL		
			MASS	SHELL	MASS	BN	B2N	BZ	B2Z	BETA	EL-CAP	ALPHA	DEF		MASS	DEF I			NEU	PRO	MASS
56	148	204	301.16	-1.00	300.16	.07	-1.45	24.27	47.42	22.67	-26.81	-17.00	.18	19.02	.48	1	7.24	6.32			
XX																					
57	55	112	-23.38	1.24	-22.14	13.08	28.35	-2.80	-2.99	-13.81	16.55	4.70	.04	36.65	.42	3	5.55	5.62			
57	56	113	-30.62	1.57	-29.05	14.99	28.07	-2.36	-1.73	-15.32	13.27	4.25	.11	37.48	.42	3	5.58	5.63			
57	57	114	-35.35	1.68	-33.67	12.70	27.68	-1.37	-3.32	-12.31	14.40	3.61	.14	38.30	.44	2	5.60	5.64			
57	58	115	-41.66	1.71	-39.95	14.35	27.05	-.83	.95	-13.43	11.39	2.98	.15	39.06	.44	2	5.63	5.65			
57	59	116	-45.50	1.70	-43.80	11.92	26.27	-1.25	1.81	-10.18	12.77	2.34	.15	39.78	.44	2	5.65	5.66			
57	60	117	-50.91	1.67	-49.24	13.51	25.43	-.04	2.59	-11.57	10.05	1.92	.16	40.46	.44	2	5.67	5.66			
57	61	118	-54.14	1.65	-52.49	11.33	24.83	.49	3.34	-8.86	11.44	1.65	.16	41.14	.48	1	5.70	5.67			
57	62	119	-58.95	1.63	-57.32	12.90	24.23	.68	4.05	-10.24	8.76	1.48	.17	41.75	.48	1	5.72	5.68			
57	63	120	-61.61	1.62	-59.99	10.74	23.64	1.21	4.76	-7.58	10.15	1.32	.17	42.32	.48	1	5.75	5.69			
57	64	121	-65.83	1.61	-64.22	12.30	23.04	1.37	5.43	-8.97	7.50	1.20	.17	42.86	.48	1	5.77	5.69			
57	65	122	-67.93	1.62	-66.31	10.16	22.46	1.87	6.10	-6.34	8.91	1.08	.17	43.37	.48	1	5.79	5.70			
57	66	123	-71.61	1.64	-69.97	11.73	21.89	2.04	6.75	-7.74	6.30	.97	.16	43.84	.48	1	5.81	5.71			
57	67	124	-73.17	1.67	-71.50	9.61	21.33	2.52	7.38	-5.13	7.73	.86	.16	44.28	.48	1	5.84	5.72			
57	68	125	-76.31	1.70	-74.61	11.18	20.79	2.67	7.99	-6.55	5.18	.76	.16	44.69	.48	1	5.86	5.72			
57	69	126	-77.37	1.73	-75.64	9.10	20.27	3.15	8.59	-4.00	6.62	.63	.15	45.07	.48	1	5.88	5.73			
57	70	127	-79.99	1.75	-78.24	10.67	19.77	3.27	9.13	-5.43	4.15	.53	.15	45.42	.48	1	5.90	5.74	-77.73	2.26	.51
57	71	128	-80.56	1.75	-78.81	8.63	19.31	3.71	9.63	-2.95	5.68	.39	.14	45.74	.48	1	5.92	5.75	-78.45	2.11	.36
57	72	129	-82.69	1.71	-80.98	10.24	18.88	3.78	9.99	-4.42	3.42	.28	.12	46.06	.50	1	5.95	5.75	-81.15	1.54	-.17
57	73	130	-82.79	1.59	-81.20	8.30	18.54	4.09	10.27	-2.06	5.22	.13	.10	46.32	.50	1	5.97	5.76	-81.60	1.19	-.40
57	74	131	-84.45	1.26	-83.19	10.06	18.35	4.05	10.70	-3.75	2.99	-.04	.03	46.56	.50	1	5.99	5.77	-83.76	.69	-.57
57	75	132	-84.09	.68	-83.41	8.29	18.35	4.52	11.32	-1.70	4.44	-.33	.46	46.77	.50	1	6.01	5.78	-83.74	.35	-.33
57	76	133	-85.29	.05	-85.24	9.90	18.20	4.67	11.93	-3.31	2.04	-.59	.46	46.95	.50	1	6.03	5.79	-85.67	-.38	-.43
57	77	134	-84.50	-.62	-85.12	7.96	17.86	5.14	12.54	-.91	3.50	-.88	.47	47.11	.50	1	6.05	5.79	-85.25	-.75	-.13
57	78	135	-85.26	-1.35	-86.61	9.56	17.52	5.28	13.14	-2.36	1.11	-1.14	.47	47.25	.50	1	6.07	5.80	-86.83	-1.57	-.22
57	79	136	-84.05	-2.12	-86.17	7.64	17.19	5.74	13.74	.01	2.57	-1.44	.47	47.36	.50	1	6.09	5.81	-86.03	-1.98	.14
57	80	137	-84.39	-2.95	-87.34	9.24	16.87	5.89	14.33	-1.45	.20	-1.71	.47	47.44	.50	1	6.11	5.82	-87.23	-2.84	.11
57	81	138	-82.77	-3.81	-86.58	7.32	16.55	6.33	14.92	.91	1.66	-2.00	.47	47.50	.50	1	6.13	5.82	-86.48	-3.71	.10
57	82	139	-82.71	-4.72	-87.43	8.92	16.24	6.48	15.50	-.54	-2.66	-2.27	.47	47.54	.50	1	6.15	5.83	-87.19	-4.48	.24
57	83	140	-80.70	-3.70	-84.40	5.04	13.96	6.92	16.10	3.76	-1.20	-.59	.47	47.60	.52	1	6.17	5.84	-84.28	-3.58	.12
57	84	141	-80.25	-2.74	-82.99	6.66	11.70	7.08	16.69	2.30	-3.51	1.09	.47	47.60	.52	1	6.19	5.85	-82.97	-2.72	.02
57	85	142	-77.87	-1.84	-79.71	4.80	11.45	7.52	17.28	4.59	-2.05	.75	.47	47.58	.52	1	6.21	5.85	-79.97	-2.10	-.26
57	86	143	-77.03	-1.01	-78.04	6.40	11.19	7.66	17.85	3.14	-4.33	.42	.47	47.54	.52	1	6.23	5.86	-78.21	-1.18	-.17
57	87	144	-74.29	-.22	-74.51	4.55	10.94	8.10	18.42	5.42	-2.87	.08	.47	47.47	.52	1	6.25	5.87	-74.90	-.61	-.39
57	88	145	-73.10	.50	-72.60	6.16	10.70	8.25	19.00	3.95	-5.14	-.26	.47	47.39	.52	1	6.27	5.88	-72.91	.19	-.31
57	89	146	-70.01	1.16	-68.85	4.32	10.48	8.67	19.57	6.20	-3.65	-.61	.03	47.29	.52	1	6.29	5.88	-69.44	.57	-.59
57	90	147	-68.46	1.49	-66.97	6.20	10.52	9.06	20.40	4.61	-5.84	-1.21	.10	47.17	.52	1	6.30	5.89			
57	91	148	-65.03	1.57	-63.46	4.56	10.76	9.61	21.37	6.82	-4.40	-2.03	.13	47.03	.52	1	6.32	5.90			
57	92	149	-63.15	1.55	-61.60	6.21	10.78	9.82	22.12	5.39	-6.66	-2.88	.14	46.87	.52	1	6.34	5.91			
57	93	150	-59.40	1.49	-57.91	4.39	10.59	10.27	22.76	7.65	-5.26	-3.66	.15	46.70	.52	1	6.36	5.92			
57	94	151	-57.18	1.40	-55.78	5.94	10.33	10.42	23.34	6.26	-7.51	-4.14	.15	46.51	.52	1	6.38	5.92			
57	95	152	-53.12	1.30	-51.82	4.10	10.05	10.83	23.92	8.50	-6.12	-4.51	.16	46.30	.52	1	6.40	5.93			
57	96	153	-50.59	1.21	-49.38	5.63	9.74	10.97	24.46	7.12	-8.36	-4.79	.16	46.08	.52	1	6.41	5.94			
57	97	154	-46.23	1.12	-45.11	3.80	9.43	11.38	25.00	9.34	-6.97	-5.06	.17	45.84	.52	1	6.43	5.95			
57	98	155	-43.40	1.04	-42.36	5.32	9.12	11.51	25.53	7.95	-9.20	-5.29	.17	45.59	.52	1	6.45	5.95			
57	99	156	-38.74	.97	-37.77	3.49	8.80	11.90	26.04	10.17	-7.81	-5.51	.17	45.32	.52	1	6.47	5.96			
57	100	157	-35.61	.91	-34.70	5.00	8.49	12.02	26.55	8.78	-10.01	-5.71	.17	45.04	.52	1	6.49	5.97			
57	101	158	-30.68	.87	-29.81	3.18	8.18	12.41	27.05	10.97	-8.62	-5.93	.17	44.74	.52	1	6.50	5.98			
57	102	159	-27.26	.84	-26.42	4.69	7.86	12.53	27.54	9.60	-10.80	-6.11	.17	44.43	.52	1	6.52	5.98			
57	103	160	-22.05	.82	-21.23	2.88	7.56	12.90	28.03	11.77	-9.41	-6.32	.17	44.11	.52	1	6.54	5.99			
57	104	161	-18.36	.81	-17.55	4.38	7.27	13.02	28.51	10.38	-11.58	-6.51	.17	43.77	.52	1	6.56	6.00			
57	105	162	-12.89	.82	-12.07	2.59	6.98	13.39	28.99	12.53	-10.19	-6.71	.17	43.42	.52	1	6.57	6.01			
57	106	163	-8.93	.84	-8.09	4.09	6.68	13.50	29.46	11.15	-12.33	-6.90	.17	43.06	.52	1	6.59	6.02			
57	107	164	-3.21	.87	-2.34	2.32	6.41	13.86	29.93	13.27	-10.95	-7.11	.17	42.68	.52	1	6.61	6.02			
57	108	165	1.01	.92	1.93	3.81	6.12	13.97	30.38	11.90	-13.05	-7.29	.16	42.30	.52	1	6.62	6.03			
57	109	166	6.98	.97	7.95	2.05	5.86	14.32	30.83	14.00	-11.66	-7.49	.16	41.90	.52	1	6.64	6.04			
57	110	167	11.45	1.03	12.48	3.54	5.59	14.42	31.27	12.62	-13.74	-7.67	.16	41.49	.52	1	6.66	6.05			
57	111	168	17.66	1.09	18.75	1.80	5.34	14.76	31.69	14.70	-12.33	-7.88	.15	41.07	.52	1					

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING ENERGY				DECAY ENERGY		GD STA	SADDLE		SHARP RADIUS		EXPERIMENTAL				
						BN	B2N	BZ	B2Z	BETA	EL-CAP	ALPHA	DEF	MASS	DEF	I	NEU	PRO	MASS	SHELL	DIFF
58	50	108	22.21	-2.44	19.77	18.97	35.95	-2.97	-7.86	-24.03	16.39	1.68		29.72	.40	3	5.43	5.61			
58	51	109	14.90	-1.45	13.45	14.38	33.35	-2.78	-7.09	-19.28	17.83	3.52		30.81	.40	3	5.46	5.62			
58	52	110	5.68	-.54	5.14	16.38	30.77	-2.24	-6.36	-20.72	15.07	5.38		31.85	.40	3	5.49	5.63			
58	53	111	-1.89	.29	-.60	13.81	30.20	-2.05	-5.60	-17.96	16.53	5.19		32.85	.40	3	5.51	5.64			
58	54	112	-9.37	1.04	-8.33	15.80	29.61	-1.51	-4.88	-19.40	13.80	5.04		33.83	.42	3	5.54	5.64			
58	55	113	-15.22	1.49	-13.73	13.47	29.28	-1.12	-3.92	-16.79	15.31	4.62	.11	34.75	.42	3	5.56	5.65			
58	56	114	-22.99	1.62	-21.37	15.71	29.19	-.39	-2.74	-18.24	12.30	3.99	.14	35.62	.42	3	5.59	5.66			
58	57	115	-28.16	1.65	-26.51	13.22	28.92	.13	-1.23	-15.47	13.44	3.29	.15	36.46	.42	3	5.61	5.67			
58	58	116	-35.24	1.62	-33.62	15.17	28.40	.95	.12	-16.85	10.18	2.65	.16	37.25	.42	3	5.64	5.67			
58	59	117	-39.26	1.58	-37.68	12.12	27.30	1.16	.92	-13.60	11.56	2.22	.16	38.01	.42	3	5.66	5.68			
58	60	118	-45.18	1.54	-43.64	14.03	26.16	1.69	1.65	-14.71	8.86	2.01	.17	38.74	.44	2	5.69	5.69			
58	61	119	-48.59	1.51	-47.08	11.52	25.55	1.87	2.37	-11.76	10.24	1.84	.17	39.42	.44	2	5.71	5.70			
58	62	120	-53.90	1.48	-52.42	13.41	24.93	2.38	3.07	-13.13	7.57	1.73	.17	40.07	.44	2	5.73	5.71			
58	63	121	-56.72	1.47	-55.25	10.91	24.32	2.55	3.75	-10.45	8.97	1.61	.17	40.68	.44	2	5.76	5.71			
58	64	122	-61.44	1.47	-59.97	12.79	23.70	3.04	4.41	-11.83	6.34	1.54	.17	41.25	.44	2	5.78	5.72			
58	65	123	-63.71	1.48	-62.23	10.33	23.12	3.20	5.08	-9.19	7.74	1.42	.17	41.83	.48	1	5.80	5.73			
58	66	124	-67.87	1.51	-66.36	12.20	22.53	3.69	5.72	-10.57	5.15	1.35	.17	42.34	.48	1	5.82	5.74			
58	67	125	-69.61	1.54	-68.07	9.78	21.98	3.85	6.38	-7.98	6.55	1.23	.17	42.81	.48	1	5.85	5.74			
58	68	126	-73.22	1.58	-71.64	11.64	21.42	4.31	6.99	-9.37	4.00	1.15	.16	43.26	.48	1	5.87	5.75			
58	69	127	-74.44	1.63	-72.81	9.24	20.89	4.46	7.60	-6.81	5.43	1.04	.16	43.67	.48	1	5.89	5.76			
58	70	128	-77.54	1.68	-75.86	11.12	20.36	4.91	8.18	-8.21	2.95	.94	.16	44.05	.48	1	5.91	5.77			
58	71	129	-78.27	1.71	-76.56	8.76	19.89	5.04	8.75	-5.71	4.42	.80	.15	44.41	.48	1	5.93	5.77			
58	72	130	-80.87	1.72	-79.15	10.66	19.43	5.46	9.24	-7.15	2.05	.68	.14	44.73	.48	1	5.95	5.78			
58	73	131	-81.12	1.68	-79.44	8.37	19.03	5.53	9.62	-4.72	3.74	.53	.12	45.03	.48	1	5.98	5.79	-79.46	1.66	-.02
58	74	132	-83.24	1.53	-81.71	10.35	18.71	5.82	9.86	-6.28	1.69	.35	.09	45.29	.48	1	6.00	5.80	-82.34	.90	-.63
58	75	133	-83.03	1.10	-81.93	8.29	18.63	5.81	10.33	-4.16	3.31	.04		45.53	.48	1	6.02	5.80	-82.37	.66	-.44
58	76	134	-84.69	.47	-84.22	10.36	18.65	6.27	10.95	-5.96	.90	-.22		45.75	.48	1	6.04	5.81	-84.75	-.06	-.53
58	77	135	-84.05	-.20	-84.25	8.11	18.46	6.42	11.55	-3.61	2.36	-.50		45.94	.48	1	6.06	5.82	-84.53	-.48	-.28
58	78	136	-85.26	-.93	-86.19	10.01	18.12	6.87	12.15	-5.06	-.02	-.76		46.14	.50	1	6.08	5.83	-86.46	-1.20	-.27
58	79	137	-84.19	-1.70	-85.89	7.78	17.78	7.01	12.75	-2.67	1.44	-1.04		46.28	.50	1	6.10	5.83	-86.03	-1.84	-.14
58	80	138	-84.97	-2.52	-87.49	9.67	17.45	7.44	13.33	-4.11	-.91	-1.30		46.39	.50	1	6.12	5.84	-87.54	-2.57	-.05
58	81	139	-83.50	-3.38	-86.88	7.46	17.13	7.59	13.92	-1.76	.55	-1.58		46.48	.50	1	6.14	5.85	-86.91	-3.41	-.03
58	82	140	-83.87	-4.29	-88.16	9.35	16.81	8.02	14.50	-3.20	-3.76	-1.85		46.55	.50	1	6.16	5.86	-88.04	-4.17	-.12
58	83	141	-82.01	-3.28	-85.29	5.20	14.55	8.17	15.10	1.09	-2.30	-.18		46.60	.50	1	6.18	5.86	-85.40	-3.39	-.11
58	84	142	-81.98	-2.33	-84.31	7.09	12.29	8.61	15.69	-.36	-4.60	1.51		46.63	.50	1	6.20	5.87	-84.49	-2.51	-.18
58	85	143	-79.74	-1.43	-81.17	4.94	12.02	8.75	16.27	1.95	-3.13	1.17		46.63	.50	1	6.22	5.88	-81.59	-1.85	-.42
58	86	144	-79.33	-.60	-79.93	6.83	11.77	9.18	16.85	.50	-5.41	.84		46.62	.50	1	6.24	5.89	-80.40	-1.07	-.47
58	87	145	-76.73	.17	-76.56	4.70	11.53	9.33	17.43	2.76	-3.96	.50		46.58	.50	1	6.26	5.90	-77.11	-.38	-.55
58	88	146	-75.94	.89	-75.05	6.57	11.27	9.74	17.99	1.33	-6.21	.19		46.52	.50	1	6.28	5.90	-75.74	.20	-.69
58	89	147	-72.99	1.41	-71.58	4.60	11.17	10.02	18.70	3.45	-4.61	-.30	.09	46.45	.50	1	6.29	5.91	-72.23	.76	-.65
58	90	148	-71.84	1.56	-70.28	6.77	11.38	10.60	19.66	1.92	-6.82	-1.06	.12	46.36	.50	1	6.31	5.92	-70.68	1.16	-.40
58	91	149	-68.56	1.56	-67.00	4.78	11.57	10.82	20.44	4.13	-5.41	-1.96	.14	46.24	.50	1	6.33	5.93			
58	92	150	-67.07	1.50	-65.57	6.65	11.43	11.26	21.09	2.73	-7.66	-2.79	.15	46.11	.50	1	6.35	5.93			
58	93	151	-63.45	1.41	-62.04	4.55	11.19	11.41	21.68	4.99	-6.25	-3.33	.15	46.02	.52	1	6.37	5.94			
58	94	152	-61.63	1.31	-60.32	6.35	10.90	11.82	22.25	3.61	-8.50	-3.68	.16	45.85	.52	1	6.39	5.95			
58	95	153	-57.70	1.20	-56.50	4.25	10.60	11.96	22.81	5.85	-7.11	-3.99	.16	45.67	.52	1	6.41	5.96			
58	96	154	-55.55	1.10	-54.45	6.02	10.27	12.35	23.33	4.48	-9.34	-4.22	.17	45.48	.52	1	6.42	5.96			
58	97	155	-51.32	1.01	-50.31	3.93	9.96	12.49	23.87	6.71	-7.95	-4.46	.17	45.26	.52	1	6.44	5.97			
58	98	156	-48.86	.93	-47.93	5.69	9.62	12.87	24.37	5.35	-10.16	-4.66	.17	45.03	.52	1	6.46	5.98			
58	99	157	-44.34	.85	-43.49	3.62	9.32	13.00	24.91	7.54	-8.79	-4.89	.17	44.79	.52	1	6.48	5.99			
58	100	158	-41.58	.80	-40.78	5.37	8.99	13.37	25.40	6.18	-10.97	-5.07	.17	44.53	.52	1	6.49	5.99			
58	101	159	-36.77	.75	-36.02	3.31	8.68	13.50	25.91	8.37	-9.59	-5.28	.17	44.26	.52	1	6.51	6.00			
58	102	160	-33.72	.72	-33.00	5.06	8.36	13.86	26.39	7.00	-11.76	-5.46	.17	43.97	.52	1	6.53	6.01			
58	103	161	-28.63	.70	-27.93	3.00	8.06	13.98	26.89	9.18	-10.38	-5.66	.17	43.67	.52	1	6.55	6.02			
58	104	162	-25.30	.70	-24.60	4.74	7.75	14.34	27.36	7.81	-12.53	-5.84	.17	43.35	.52	1	6.56	6.03			
58	105	163	-19.95	.71	-19.24	2.71	7.45	14.46	27.85	9.96	-11.15	-6.04	.17	43.02	.52	1	6.58	6.03			
58	106	164	-16.35	.73	-15.62	4.45	7.16	14.81	28.32	8.59	-13.28	-6.23	.17	42.68	.52	1	6.60	6.04			
58	107	165	-10.74	.77	-9.97	2.43	6.87	14.92	28.79	10.72	-11.90	-6.42	.17	42.33	.52	1	6.62	6.05			
58	108	166	-6.87	.82	-6.05	4.16	6.58	15.27	29.24	9.36	-14.00	-6.60	.17	41.96	.52	1	6.63	6.06			
58	109	167	-1.01	.87	-.14	2.15	6.31	15.37	29.70	11.47	-12.62	-6.80	.17	41.59	.52	1	6.65	6.06			
58	110	168	3.11	.94	4.05	3.88	6.04	15.72	30.14	10.10	-14.70	-6.98	.16	41.20	.52	1	6.67	6.07			
58	111	169	9.21	1.01	10.22	1.90	5.78	15.82	30.58	12.19	-13.30	-7.19	.16	40.79	.52	1	6.68	6.08			
58	112	170	13.58	1.08	14.66	3.63	5.53	16.15	31.00	10.80	-15.34	-7.38	.15	40.38	.52	1	6.70	6.09			
58	113	171	19.91	1.15	21.06	1.67	5.30	16.24	31.40	12.86	-13.91	-7.59	.15	39.96	.52	1	6.72	6.09			
58	114	172	24.52	1.19	25.71	3.41	5.09	16.54	31.77	11.45	-15.86	-7.80	.14	39.53	.52	1	6.73	6.10			
58	115	173	31.08	1.20	32.28	1.51	4.92	16.59	32.03	13.45	-14.23										

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING ENERGY				DECAY ENERGY			GD STA DEF	SADDLE MASS	DEF	SHARP NEU	RADIUS PRO	EXPERIMENTAL			
						BN	B2N	BZ	B2Z	BETA	EL-CAP	ALPHA						MASS	SHELL	DIFF	
66	93	159	-69.69	.99	-68.70	6.73	15.54	7.08	13.04	-1.42	.20	.77	.17	37.54	.42	3	6.44	6.14	-69.14	.55	-4.44
66	94	160	-69.94	.87	-69.07	8.45	15.17	7.46	13.54	-2.74	-2.00	.62	.17	37.58	.42	3	6.46	6.14	-69.65	.29	-5.58
66	95	161	-68.12	.75	-67.37	6.37	14.81	7.59	14.07	-.53	-.67	.45	.17	37.59	.42	3	6.48	6.15	-68.03	.09	-.66
66	96	162	-68.02	.64	-67.38	8.07	14.45	7.97	14.58	-1.86	-2.88	.30	.17	37.59	.42	3	6.49	6.16	-68.15	-.13	-.77
66	97	163	-65.87	.55	-65.32	6.01	14.09	8.11	15.09	.34	-1.55	.14	.18	37.57	.42	3	6.51	6.17	-66.35	-.48	-1.03
66	98	164	-65.42	.47	-64.95	7.71	13.71	8.47	15.59	-.97	-3.72	.01	.18	37.53	.42	3	6.53	6.17	-65.93	-.51	-.98
66	99	165	-62.94	.40	-62.54	5.66	13.37	8.60	16.10	1.20	-2.40	-.16	.18	37.55	.44	2	6.55	6.18	-63.58	-.64	-1.04
66	100	166	-62.16	.35	-61.81	7.34	13.00	8.96	16.58	-.11	-4.56	-.29	.18	37.48	.44	2	6.56	6.19	-62.56	-.40	-.75
66	101	167	-59.37	.31	-59.06	5.31	12.66	9.09	17.09	2.05	-3.24	-.46	.18	37.39	.44	2	6.58	6.19			
66	102	168	-58.27	.29	-57.98	7.00	12.31	9.45	17.57	.74	-5.38	-.60	.18	37.29	.44	2	6.60	6.20			
66	103	169	-55.17	.28	-54.89	4.98	11.98	9.58	18.07	2.88	-4.06	-.77	.18	37.16	.44	2	6.61	6.21			
66	104	170	-53.76	.29	-53.47	6.46	11.63	9.93	18.54	1.57	-6.19	-.91	.18	37.03	.44	2	6.63	6.22			
66	105	171	-50.36	.31	-50.05	4.65	11.31	10.05	19.03	3.69	-4.86	-1.08	.18	36.87	.44	2	6.65	6.22			
66	106	172	-48.65	.35	-48.30	6.33	10.98	10.40	19.50	2.38	-6.97	-1.22	.17	36.71	.44	2	6.67	6.23			
66	107	173	-44.96	.40	-44.56	4.34	10.66	10.52	19.97	4.50	-5.64	-1.39	.17	36.52	.44	2	6.68	6.24			
66	108	174	-42.96	.46	-42.50	6.01	10.34	10.87	20.44	3.18	-7.74	-1.54	.17	36.33	.44	2	6.70	6.24			
66	109	175	-38.99	.53	-38.46	4.03	10.04	10.98	20.91	5.27	-6.41	-1.72	.17	36.11	.44	2	6.72	6.25			
66	110	176	-36.70	.62	-36.08	5.69	9.72	11.32	21.36	3.97	-8.47	-1.87	.17	35.89	.44	2	6.73	6.26			
66	111	177	-32.47	.71	-31.76	3.74	9.44	11.44	21.83	6.03	-7.16	-2.06	.17	35.65	.44	2	6.75	6.27			
66	112	178	-29.91	.81	-29.10	5.41	9.16	11.79	22.29	4.71	-9.21	-2.23	.16	35.40	.44	2	6.76	6.27			
66	113	179	-25.41	.91	-24.50	3.47	8.88	11.90	22.75	6.77	-7.88	-2.42	.16	35.13	.44	2	6.78	6.28			
66	114	180	-22.58	1.01	-21.57	5.14	8.62	12.23	23.20	5.44	-9.90	-2.61	.15	34.85	.44	2	6.80	6.29			
66	115	181	-17.83	1.10	-16.73	3.24	8.38	12.35	23.65	7.47	-8.55	-2.82	.15	34.56	.44	2	6.81	6.30			
66	116	182	-14.73	1.16	-13.57	4.91	8.15	12.67	24.08	6.13	-10.49	-3.04	.13	34.26	.44	2	6.83	6.30			
66	117	183	-9.74	1.16	-8.58	3.08	8.00	12.79	24.54	8.09	-9.01	-3.34	.12	33.95	.44	2	6.85	6.31			
66	118	184	-6.39	.98	-5.41	4.90	7.98	13.13	24.98	6.61	-10.62	-3.77	.07	33.62	.44	2	6.86	6.32			
66	119	185	-1.16	.39	-.77	3.42	8.33	13.27	25.45	8.24	-9.21	-4.57	.33	33.28	.44	2	6.88	6.32			
66	120	186	2.43	-.28	2.15	5.16	8.58	13.58	25.87	6.87	-11.16	-5.27	.32	32.93	.44	2	6.89	6.33			
66	121	187	7.90	-.99	6.91	3.31	8.47	13.69	26.29	8.83	-9.80	-5.62	.32	32.57	.44	2	6.91	6.34			
66	122	188	11.73	-1.73	10.00	4.99	8.30	14.00	26.70	7.48	-11.73	-5.86	.32	32.20	.44	2	6.92	6.35			
66	123	189	17.43	-2.51	14.92	3.15	8.13	14.09	27.12	9.42	-10.37	-6.13	.31	31.82	.44	2	6.94	6.35			
66	124	190	21.49	-3.31	18.18	4.81	7.96	14.40	27.53	8.07	-12.28	-6.37	.31	31.43	.44	2	6.95	6.36			
66	125	191	27.40	-4.15	23.25	3.00	7.81	14.50	27.95	9.99	-10.94	-6.64	.31	31.03	.44	2	6.97	6.37			
66	126	192	31.69	-5.02	26.67	4.65	7.65	14.81	28.34	8.65	-14.70	-6.88	.30	30.62	.44	2	6.99	6.38			
66	127	193	37.81	-4.06	33.75	.99	5.64	14.92	28.77	12.41	-13.35	-5.29	.30	30.19	.44	2	7.00	6.38			
66	128	194	42.32	-3.15	39.17	2.65	3.64	15.22	29.18	11.06	-15.24	-3.69	.29	29.76	.44	2	7.02	6.39			
66	129	195	48.65	-2.27	46.38	.87	3.51	15.32	29.59	12.95	-13.88	-3.99	.29	29.32	.44	2	7.03	6.40			
66	130	196	53.37	-1.44	51.93	2.52	3.38	15.62	29.99	11.61	-15.75	-4.27	.28	28.87	.44	2	7.05	6.40			
66	131	197	59.90	-.65	59.25	.75	3.27	15.73	30.40	13.48	-14.41	-4.57	.28	28.42	.44	2	7.06	6.41			
66	132	198	64.83	.09	64.92	2.40	3.15	16.02	30.80	12.13	-16.22	-4.85	.27	27.95	.44	2	7.08	6.42			
66	133	199	71.56	.77	72.33	-.66	3.06	16.10	31.18	13.97	-14.35	-5.17	.06	27.47	.44	2	7.09	6.43			
66	134	200	76.69	.92	77.61	2.79	3.46	16.36	31.53	12.12	-15.99	-5.96	.12	26.85	.42	3	7.11	6.43			
66	135	201	83.61	.84	84.45	1.24	4.03	16.44	31.90	13.71	-14.59	-6.90	.14	26.36	.42	3	7.12	6.44			
66	136	202	88.93	.68	89.61	2.91	4.14	16.73	32.27	12.31	-16.44	-7.37	.15	25.86	.42	3	7.13	6.45			
66	137	203	96.04	.49	96.53	1.16	4.06	16.81	32.65	14.15	-15.12	-7.67	.16	25.35	.42	3	7.15	6.46			
66	138	204	101.56	.29	101.85	2.75	3.90	17.09	33.01	12.84	-16.97	-7.88	.17	24.83	.42	3	7.16	6.46			
66	139	205	108.84	.09	108.93	.99	3.74	17.18	33.40	14.69	-15.67	-8.10	.17	24.31	.42	3	7.18	6.47			
66	140	206	114.55	-.11	114.44	2.56	3.55	17.45	33.76	13.40	-17.53	-8.27	.17	23.78	.42	3	7.19	6.48			
66	141	207	122.01	-.30	121.71	.79	3.36	17.54	34.13	15.25	-16.24	-8.46	.17	23.24	.42	3	7.21	6.49			
66	142	208	127.89	-.47	127.42	2.37	3.16	17.82	34.49	13.97	-18.08	-8.62	.18	22.70	.42	3	7.22	6.49			
66	143	209	135.53	-.64	134.89	.60	2.97	17.90	34.85	15.82	-16.78	-8.80	.18	22.15	.42	3	7.24	6.50			
66	144	210	141.59	-.80	140.79	2.16	2.77	18.17	35.21	14.53	-18.63	-8.96	.18	21.59	.42	3	7.25	6.51			
66	145	211	149.39	-.94	148.45	.41	2.58	18.25	35.57	16.37	-17.34	-9.14	.18	21.02	.42	3	7.26	6.51			
66	146	212	155.62	-1.07	154.55	1.97	2.38	18.52	35.92	15.09	-19.17	-9.30	.18	20.45	.42	3	7.28	6.52			
66	147	213	163.58	-1.18	162.40	.22	2.19	18.61	36.27	16.92	-17.88	-9.46	.18	19.87	.42	3	7.29	6.53			
66	148	214	169.98	-1.28	168.70	1.77	1.99	18.87	36.61	15.65	-19.69	-9.62	.18	19.29	.42	3	7.31	6.54			
66	149	215	178.10	-1.37	176.73	.04	1.81	18.95	36.97	17.46	-18.41	-9.79	.18	18.70	.42	3	7.32	6.54			
66	150	216	184.66	-1.45	183.21	1.59	1.63	19.22	37.31	16.18	-20.22	-9.95	.18	18.11	.42	3	7.34	6.55			
66	152	218	199.66	-1.56	198.10	1.40	1.26	19.55	37.99	16.72	-20.73	-10.27	.18	16.90	.42	3	7.36	6.57			
66	154	220	214.96	-1.62	213.34	1.22	.50	19.89	38.67	17.24	-21.24	-10.60	.18	15.67	.42	3	7.39	6.58			
66	156	222	230.56	-1.62	228.94	1.04	.55	20.22	39.33	17.76	-21.73	-10.92	.18	14.24	.40	3	7.42	6.60			
66	158	224	246.45	-1.58	244.87	.87	.21	20.54	39.99	18.26	-22.22	-11.24	.18	12.97	.40	3	7.45	6.61			
66	160	226	262.63	-1.48	261.15	.69	-.13	20.86	40.63	18.77	-22.70	-11.56	.18	11.69	.40	3	7.47	6.62			
66	162	228	279.08	-1.33	277.75	.53	-.46	21.17	41.27	19.26	-23.17	-11.88	.18	10.38	.40	3	7.50	6.64			
66	164	230	295.80	-1.13	294.67	.37	-.78	21.49	41.89	19.75	-23.63	-12.19	.18	9.06	.40	3	7.53	6.65			
66	166	232	312.78	-.89	311.89	.21	-1.08	21.80	42.52	20.22	-24.09	-12.52	.18	7.72	.40	3	7.				

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING BN	BINDING B2N	ENERGY BZ	B2Z	DECAY BETA	ENERGY EL-CAP	ALPHA	GD STA DEF	SADDLE MASS	SADDLE DEF I	SHARP NEU	RADIUS PRO	EXPERIMENTAL MASS	SHELL	DIFF
67	80	147	-56.29	-1.39	-57.68	12.10	22.67	1.30	5.03	-8.88	7.70	1.74		33.42	-40 3	6.20	6.07			
67	81	148	-57.59	-2.22	-59.81	10.21	22.30	1.72	5.59	-6.58	9.09	1.53		33.77	-40 3	6.22	6.08			
67	82	149	-60.37	-3.10	-63.47	11.73	21.94	1.86	6.14	-7.96	4.91	1.34		34.09	-40 3	6.24	6.08	-61.58	-1.21	1.89
67	83	150	-61.24	-2.13	-63.37	7.97	19.70	2.28	6.71	-3.79	6.30	3.01		34.39	-40 3	6.26	6.09	-62.00	-7.76	1.37
67	84	151	-63.60	-1.22	-64.82	9.52	17.49	2.44	7.28	-5.19	4.04	4.67		34.66	-40 3	6.28	6.10	-63.50	.10	1.32
67	85	152	-64.05	-.37	-64.42	7.67	17.19	2.85	7.84	-2.93	5.43	4.40		34.91	-40 3	6.30	6.10	-63.67	.38	.75
67	86	153	-65.98	.42	-65.56	9.21	16.88	3.00	8.39	-4.32	3.24	4.14		35.14	-40 3	6.32	6.11	-64.83	1.15	.73
67	87	154	-66.03	1.14	-64.89	7.40	16.61	3.38	8.90	-2.12	5.08	3.85	.06	35.41	-42 3	6.34	6.12	-64.60	1.43	.29
67	88	155	-67.56	1.40	-66.16	9.34	16.74	3.48	9.38	-3.93	3.07	3.16	.11	35.60	-42 3	6.36	6.13	-65.82	1.74	.34
67	89	156	-67.22	1.42	-65.80	7.71	17.05	3.87	9.90	-2.00	4.50	2.34	.14	35.76	-42 3	6.37	6.13	-65.39	1.83	.41
67	90	157	-68.36	1.35	-67.01	9.28	16.99	4.00	10.43	-3.45	2.29	1.92	.15	35.90	-42 3	6.39	6.14	-66.89	1.47	.12
67	91	158	-67.64	1.24	-66.40	7.46	16.74	4.39	10.96	-1.26	3.64	1.65	.16	36.02	-42 3	6.41	6.15	-66.41	1.23	-0.01
67	92	159	-68.40	1.12	-67.28	8.95	16.41	4.53	11.48	-2.62	1.42	1.45	.16	36.12	-42 3	6.43	6.15	-67.44	.96	-1.16
67	93	160	-67.32	.99	-66.33	7.12	16.07	4.92	12.00	-.41	2.75	1.27	.17	36.20	-42 3	6.45	6.16	-66.73	.59	-0.40
67	94	161	-67.71	.87	-66.84	8.59	15.70	5.06	12.52	-1.74	.53	1.12	.17	36.26	-42 3	6.47	6.17	-67.21	.50	-0.37
67	95	162	-66.27	.75	-65.52	6.75	15.33	5.43	13.03	.46	1.86	.96	.17	36.30	-42 3	6.48	6.18	-65.98	.29	-0.46
67	96	163	-66.31	.65	-65.66	8.21	14.96	5.57	13.54	-.86	-.34	.82	.17	36.32	-42 3	6.50	6.18	-66.34	-.03	-0.68
67	97	164	-64.53	.55	-63.98	6.39	14.60	5.95	14.05	1.32	.97	.66	.18	36.33	-42 3	6.52	6.19	-64.96	-.43	-.98
67	98	165	-64.22	.48	-63.74	7.84	14.22	6.08	14.55	.01	-1.20	.53	.18	36.31	-42 3	6.54	6.20	-64.87	-.65	-1.13
67	99	166	-62.11	.41	-61.70	6.03	13.87	6.45	15.05	2.18	.11	.38	.18	36.28	-42 3	6.55	6.20	-63.04	-.93	-1.34
67	100	167	-61.47	.36	-61.11	7.48	13.51	6.58	15.55	.86	-2.06	.24	.18	36.23	-42 3	6.57	6.21	-62.30	-.83	-1.19
67	101	168	-59.04	.33	-58.71	5.68	13.15	6.95	16.04	3.03	-.73	.09	.18	36.16	-42 3	6.59	6.22	-60.20	-1.16	-1.49
67	102	169	-58.07	.30	-57.77	7.12	12.81	7.08	16.53	1.71	-2.89	-.06	.18	36.08	-42 3	6.61	6.23	-58.75	-.68	-.98
67	103	170	-55.33	.30	-55.03	5.34	12.46	7.44	17.01	3.85	-1.56	-.20	.18	35.98	-42 3	6.62	6.23	-56.39	-1.06	-1.36
67	104	171	-54.05	.31	-53.74	6.78	12.12	7.57	17.49	2.54	-3.69	-.35	.18	35.86	-42 3	6.64	6.24			
67	105	172	-51.01	.33	-50.68	5.01	11.79	7.92	17.97	4.66	-2.38	-.51	.17	35.73	-42 3	6.66	6.25			
67	106	173	-49.42	.36	-49.06	6.44	11.46	8.04	18.45	3.34	-4.50	-.66	.17	35.59	-42 3	6.67	6.25			
67	107	174	-46.10	.41	-45.69	4.70	11.15	8.41	18.94	5.44	-3.19	-.83	.17	35.42	-42 3	6.69	6.26			
67	108	175	-44.21	.48	-43.73	6.12	10.81	8.52	19.39	4.14	-5.27	-.97	.17	35.25	-42 3	6.71	6.27			
67	109	176	-40.60	.55	-40.05	4.39	10.51	8.88	19.86	6.22	-3.96	-1.14	.17	35.06	-42 3	6.72	6.28			
67	110	177	-38.43	.63	-37.80	5.82	10.21	9.00	20.33	4.90	-6.04	-1.30	.17	34.85	-42 3	6.74	6.28			
67	111	178	-34.54	.73	-33.81	4.09	9.90	9.34	20.78	6.98	-4.71	-1.47	.17	34.63	-42 3	6.76	6.29			
67	112	179	-32.09	.83	-31.26	5.52	9.61	9.46	21.23	5.67	-6.76	-1.64	.16	34.40	-42 3	6.77	6.30			
67	113	180	-27.94	.93	-27.01	3.82	9.34	9.80	21.70	7.71	-5.45	-1.83	.16	34.15	-42 3	6.79	6.30			
67	114	181	-25.22	1.03	-24.19	5.25	9.07	9.92	22.15	6.39	-7.47	-2.01	.15	33.89	-42 3	6.81	6.31			
67	115	182	-20.81	1.11	-19.70	3.57	8.83	10.26	22.61	8.40	-6.13	-2.23	.14	33.62	-42 3	6.82	6.32			
67	116	183	-17.83	1.16	-16.67	5.04	8.62	10.38	23.06	7.06	-8.09	-2.47	.13	33.34	-42 3	6.84	6.33			
67	117	184	-13.17	1.14	-12.03	3.43	8.47	10.74	23.53	9.00	-6.62	-2.79	.11	33.04	-42 3	6.85	6.33			
67	118	185	-9.93	.92	-9.01	5.06	8.49	10.89	24.02	7.52	-8.25	-3.25	.06	32.73	-42 3	6.87	6.34			
67	119	186	-5.03	.30	-4.73	3.79	8.85	11.26	24.52	9.20	-6.88	-4.08		32.41	-42 3	6.88	6.35			
67	120	187	-1.54	-.37	-1.91	5.26	9.04	11.35	24.93	7.86	-8.82	-4.77		32.08	-42 3	6.90	6.35			
67	121	188	3.60	-1.08	-2.52	3.63	8.90	11.68	25.36	9.80	-7.48	-5.12		31.74	-42 3	6.92	6.36			
67	122	189	7.32	-1.82	5.50	5.09	8.73	11.78	25.78	8.45	-9.42	-5.37		31.39	-42 3	6.93	6.37			
67	123	190	12.69	-2.59	10.10	3.47	8.56	12.11	26.21	10.38	-8.07	-5.63		31.02	-42 3	6.95	6.38			
67	124	191	16.65	-3.39	13.26	4.92	8.39	12.20	26.61	9.04	-9.99	-5.87		30.65	-42 3	6.96	6.38			
67	125	192	22.25	-4.23	18.02	3.31	8.23	12.51	27.02	10.95	-8.65	-6.13		30.26	-42 3	6.98	6.39			
67	126	193	26.43	-5.09	21.34	4.76	8.06	12.62	27.42	9.61	-12.41	-6.37		29.87	-42 3	6.99	6.40			
67	127	194	32.25	-4.14	28.11	1.30	6.06	12.93	27.84	13.36	-11.06	-4.78		29.46	-42 3	7.01	6.40			
67	128	195	36.65	-3.22	33.43	2.76	4.05	13.03	28.25	12.02	-12.95	-3.18		29.05	-42 3	7.02	6.41			
67	129	196	42.68	-2.35	40.33	1.17	3.92	13.34	28.66	13.91	-11.60	-3.47		28.62	-42 3	7.04	6.42			
67	130	197	47.30	-1.53	45.77	2.62	3.80	13.44	29.07	12.56	-13.48	-3.76		28.19	-42 3	7.05	6.43			
67	131	198	53.53	-.74	52.79	1.05	3.67	13.75	29.47	14.43	-12.14	-4.04		27.75	-42 3	7.07	6.43			
67	132	199	58.36	.01	58.37	2.49	3.54	13.85	29.86	13.09	-13.96	-4.31		27.30	-42 3	7.08	6.44			
67	133	200	64.79	.71	65.50	.94	3.43	14.13	30.22	14.94	-12.11	-4.61	.04	26.84	-42 3	7.10	6.45			
67	134	201	69.82	.92	70.74	2.82	3.77	14.16	30.52	13.15	-13.71	-5.34		26.37	-42 3	7.11	6.46			
67	135	202	76.44	.86	77.30	1.52	4.34	14.44	30.88	14.63	-12.31	-6.27	.14	25.89	-42 3	7.13	6.46			
67	136	203	81.67	.70	82.37	3.00	4.51	14.53	31.25	13.21	-14.16	-6.74	.15	25.41	-42 3	7.14	6.47			
67	137	204	88.49	.52	89.01	1.44	4.43	14.81	31.62	15.04	-12.83	-7.01	.16	24.91	-42 3	7.16	6.48			
67	138	205	93.91	.32	94.23	2.85	4.29	14.90	31.99	13.71	-14.70	-7.24	.16	24.41	-42 3	7.17	6.48			
67	139	206	100.91	.13	101.04	1.27	4.11	15.18	32.36	15.57	-13.40	-7.43	.17	23.90	-42 3	7.19	6.49			
67	140	207	106.52	-.06	106.46	2.65	3.92	15.27	32.72	14.28	-15.25	-7.61	.17	23.39	-42 3	7.20	6.50			
67	141	208	113.70	-.25	113.45	1.08	3.73	15.55	33.09	16.13	-13.97	-7.80	.17	22.86	-42 3	7.21	6.51			
67	142	209	119.49	-.43	119.06	2.46	3.54	15.64	33.46	14.83	-15.82	-7.97	.17	22.33	-42 3	7.23	6.51			
67	143	210	126.85	-.59	126.26	.88	3.33	15.91	33.82	16.69	-14.53	-8.13	.18	21.80	-42 3	7.24	6.52			
67	144	211	132.82	-.74	132.08	2.25	3.13	16.00	34.17	15.41	-16.37	-8.29	.18	21.25	-42 3	7.26	6.53			
67	145	212	140.34	-.88	139.46	.69	2.94	16.28	34.54	17.24	-15.09	-8.46	.18	20.70	-42 3	7.27	6.54			
67	146	213	146.49	-1.01	145.48	2.05	2.74	16.36	34.89	15.96	-16.92	-8.62	.18	20.14	-42 3	7.29	6.54			
67	147	214	154.18	-1.13	153.05	.50														

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING ENERGY				DECAY ENERGY			GD STA	SADDLE	SHARP	RADIUS	EXPERIMENTAL				
						BN	B2N	BZ	B2Z	BETA	EL-CAP	ALPHA	DEF	MASS	DEF	NEU	PRO	MASS	SHELL	DIFF	
68	63	131	31.00	.48	31.48	14.67	31.78	-2.89	-7.11	-19.50	18.08	4.89	.19	21.00	.36	4	5.86	5.97			
68	64	132	22.62	.50	23.12	16.43	31.10	-2.44	-6.50	-20.79	15.51	4.94	.19	21.87	.36	4	5.88	5.98			
68	65	133	16.63	.54	17.17	14.02	30.46	-2.28	-5.87	-18.22	16.83	4.96	.19	22.69	.36	4	5.90	5.99			
68	66	134	8.86	.60	9.46	15.79	29.80	-1.82	-5.26	-19.52	14.06	4.99	.19	23.49	.36	4	5.92	5.99			
68	67	135	3.46	.67	4.13	13.40	29.18	-1.44	-4.19	-16.98	15.15	4.98	.18	24.26	.38	4	5.94	6.00			
68	68	136	-3.71	.76	-2.95	15.16	28.55	-.78	-3.15	-18.27	12.21	5.01	.18	25.00	.38	4	5.97	6.01			
68	69	137	-8.10	.86	-7.24	12.36	27.52	-.63	-2.54	-15.32	13.54	4.97	.18	25.72	.38	4	5.99	6.02			
68	70	138	-14.27	.96	-13.31	14.13	26.50	-.18	-1.93	-16.42	11.06	4.94	.17	26.40	.40	4	6.01	6.02			
68	71	139	-18.13	1.08	-17.05	11.81	25.94	-.03	-1.32	-13.73	12.40	4.88	.17	27.06	.40	4	6.03	6.03			
68	72	140	-23.76	1.19	-22.57	13.59	25.40	.41	-.73	-15.05	9.96	4.82	.16	27.69	.40	4	6.05	6.04			
68	73	141	-27.10	1.29	-25.81	11.31	24.90	.57	-.12	-12.62	11.31	4.72	.16	28.14	.36	3	6.07	6.04			
68	74	142	-32.21	1.37	-30.84	13.10	24.41	1.01	.47	-13.96	8.95	4.61	.14	28.82	.38	3	6.09	6.05			
68	75	143	-35.06	1.38	-33.68	10.91	24.01	1.18	1.09	-11.60	10.40	4.40	.13	29.35	.38	3	6.11	6.06			
68	76	144	-39.66	1.23	-38.43	12.82	23.73	1.64	1.73	-13.04	8.33	4.09	.09	29.85	.38	3	6.13	6.07			
68	77	145	-42.02	.68	-41.34	10.98	23.80	1.87	2.45	-10.97	9.82	3.40		30.32	.38	3	6.15	6.07			
68	78	146	-46.14	-.02	-46.16	12.88	23.87	2.29	3.02	-12.37	7.49	2.69		30.77	.38	3	6.17	6.08			
68	79	147	-48.04	-.76	-48.80	10.71	23.60	2.44	3.59	-10.05	8.87	2.24		31.27	.40	3	6.19	6.09			
68	80	148	-51.69	-1.54	-53.23	12.51	23.21	2.85	4.14	-11.41	6.58	2.06		31.67	.40	3	6.21	6.09			
68	81	149	-53.14	-2.37	-55.51	10.35	22.85	2.99	4.71	-9.11	7.96	1.85		32.05	.40	3	6.23	6.10			
68	82	150	-56.34	-3.24	-59.58	12.14	22.49	3.40	5.26	-10.49	3.80	1.66		32.40	.40	3	6.25	6.11	-57.90	-1.56	1.68
68	83	151	-57.35	-2.28	-59.63	8.12	20.26	3.54	5.83	-6.33	5.19	3.32		32.72	.40	3	6.27	6.11	-58.20	-.85	1.43
68	84	152	-60.11	-1.38	-61.49	9.92	18.05	3.95	6.40	-7.72	2.93	4.98		33.02	.40	3	6.29	6.12	-60.43	-.32	1.06
68	85	153	-60.71	-.53	-61.24	7.82	17.75	4.10	6.96	-5.47	4.32	4.71		33.30	.40	3	6.31	6.13	-60.25	.46	.99
68	86	154	-63.04	.26	-62.78	9.61	17.44	4.50	7.51	-6.84	2.12	4.47		33.55	.40	3	6.33	6.14	-62.40	.64	.38
68	87	155	-63.23	1.00	-62.23	7.53	17.14	4.62	8.01	-4.61	3.93	4.20		33.78	.40	3	6.35	6.14	-62.01	1.22	.22
68	88	156	-65.15	1.35	-63.80	9.64	17.17	4.93	8.41	-6.32	2.01	3.62	.11	33.99	.40	3	6.37	6.15	-63.69	1.46	.11
68	89	157	-64.96	1.40	-63.56	7.83	17.47	5.05	8.91	-4.50	3.45	2.82	.13	34.18	.40	3	6.38	6.16	-62.99	1.97	.57
68	90	158	-66.48	1.34	-65.14	9.65	17.48	5.42	9.42	-5.97	1.26	2.41	.15	34.34	.40	3	6.40	6.16	-64.91	1.57	.23
68	91	159	-65.90	1.24	-64.66	7.59	17.24	5.55	9.94	-3.79	2.62	2.14	.16	34.49	.40	3	6.42	6.17	-64.34	1.56	.32
68	92	160	-67.04	1.12	-65.92	9.33	16.92	5.92	10.46	-5.15	.41	1.95	.16	34.61	.40	3	6.44	6.18	-65.93	1.11	-.01
68	93	161	-66.10	1.00	-65.10	7.25	16.58	6.06	10.98	-2.94	1.74	1.77	.17	34.80	.42	3	6.46	6.18	-65.16	.94	-.06
68	94	162	-66.86	.88	-65.98	8.95	16.20	6.43	11.48	-4.26	-.76	1.64	.17	34.88	.42	3	6.47	6.19	-66.30	.56	-.32
68	95	163	-65.56	.77	-64.79	6.88	15.84	6.56	11.99	-2.05	.87	1.49	.17	34.95	.42	3	6.49	6.20	-65.13	.43	-.34
68	96	164	-65.97	.67	-65.30	8.58	15.46	6.94	12.50	-3.37	-1.32	1.35	.17	34.99	.42	3	6.51	6.21	-65.92	.05	-.62
68	97	165	-64.33	.58	-63.75	6.52	15.10	7.07	13.01	-1.18	-.01	1.20	.17	35.02	.42	3	6.53	6.21	-64.50	-.17	-.75
68	98	166	-64.38	.50	-63.88	8.20	14.72	7.43	13.50	-2.49	-2.18	1.08	.18	35.03	.42	3	6.55	6.22	-64.90	-.52	-1.02
68	99	167	-62.41	.44	-61.97	6.16	14.36	7.56	14.01	-.31	-.86	.92	.18	35.02	.42	3	6.56	6.23	-63.27	-.86	-1.30
68	100	168	-62.12	.39	-61.73	7.83	13.99	7.92	14.49	-1.61	-3.01	.80	.18	35.00	.42	3	6.58	6.23	-62.97	-.85	-1.24
68	101	169	-59.83	.35	-59.48	5.81	13.65	8.05	15.00	.53	-1.71	.63	.18	34.96	.42	3	6.60	6.24	-60.90	-1.07	-1.42
68	102	170	-59.22	.33	-58.89	7.48	13.29	8.41	15.49	-.77	-3.85	.50	.18	34.90	.42	3	6.61	6.25	-60.09	-.87	-1.20
68	103	171	-56.61	.33	-56.28	5.47	12.95	8.54	15.97	1.37	-2.54	.35	.18	34.82	.42	3	6.63	6.26	-57.70	-1.09	-1.42
68	104	172	-55.67	.34	-55.33	7.13	12.59	8.88	16.44	.08	-4.65	.22	.17	34.73	.42	3	6.65	6.26	-56.48	-.81	-1.15
68	105	173	-52.76	.36	-52.40	5.13	12.27	9.01	16.93	2.19	-3.34	.06	.17	34.62	.42	3	6.67	6.27	-53.42	-.66	-1.02
68	106	174	-51.52	.40	-51.12	6.79	11.92	9.35	17.40	.90	-5.44	-.08	.17	34.49	.42	3	6.68	6.28			
68	107	175	-48.32	.45	-47.87	4.82	11.61	9.48	17.88	2.99	-4.14	-.25	.17	34.35	.42	3	6.70	6.28			
68	108	176	-46.78	.51	-46.27	6.47	11.29	9.83	18.35	1.69	-6.22	-.40	.17	34.20	.42	3	6.72	6.29			
68	109	177	-43.28	.58	-42.70	4.50	10.97	9.94	18.82	3.78	-4.91	-.56	.17	34.03	.42	3	6.73	6.30			
68	110	178	-41.45	.67	-40.78	6.15	10.66	10.28	19.27	2.49	-6.97	-.71	.17	33.85	.42	3	6.75	6.30			
68	111	179	-37.58	.76	-36.92	4.21	10.36	10.40	19.74	4.55	-5.65	-.88	.16	33.65	.42	3	6.76	6.31			
68	112	180	-35.67	.85	-34.72	5.86	10.08	10.74	20.20	3.24	-7.71	-1.06	.16	33.44	.42	3	6.78	6.32			
68	113	181	-31.53	.95	-30.58	3.93	9.80	10.85	20.66	5.29	-6.38	-1.24	.16	33.21	.42	3	6.80	6.33			
68	114	182	-29.15	1.05	-28.10	3.59	9.53	11.20	21.12	3.98	-8.40	-1.43	.15	32.97	.42	3	6.81	6.33			
68	115	183	-24.85	1.12	-23.73	5.70	9.29	11.31	21.58	5.99	-7.06	-1.66	.14	32.72	.42	3	6.83	6.34			
68	116	184	-22.20	1.16	-21.04	5.38	9.08	11.66	22.05	4.66	-9.02	-1.90	.13	32.46	.42	3	6.85	6.35			
68	117	185	-17.65	1.11	-16.54	3.58	8.96	11.80	22.54	6.60	-7.53	-2.24	.10	32.18	.42	3	6.86	6.35			
68	118	186	-14.73	.80	-13.93	5.47	9.04	12.21	23.10	5.09	-9.21	-2.78		31.89	.42	3	6.88	6.36			
68	119	187	-9.94	.16	-9.78	3.92	9.39	12.34	23.60	6.88	-7.86	-3.63		31.59	.42	3	6.89	6.37			
68	120	188	-6.77	-.51	-7.28	5.58	9.49	12.65	24.01	5.55	-9.80	-4.29		31.28	.42	3	6.91	6.38			
68	121	189	-1.74	-1.21	-2.95	3.74	9.32	12.76	24.44	7.49	-8.45	-4.61		30.96	.42	3	6.92	6.38			
68	122	190	1.67	-1.95	-.28	5.40	9.14	13.07	24.86	6.15	-10.39	-4.86		30.62	.42	3	6.94	6.39			
68	123	191	6.94	-2.71	4.23	3.57	8.97	13.17	25.27	8.09	-9.03	-5.11		30.28	.42	3	6.95	6.40			
68	124	192	10.58	-3.51	7.07	5.23	8.80	13.48	25.68	6.75	-10.95	-5.35		29.92	.42	3	6.97	6.40			
68	125	193	16.08	-4.35	11.73	3.41	8.64	13.58	26.10	8.66	-9.61	-5.61		29.56	.42	3	6.99	6.41			
68	126	194	19.95	-5.21	14.74	5.06	8.47	13.89	26.50	7.33	-13.37	-5.86		29.18	.42	3	7.00	6.42			
68	127	195	25.67	-4.26	21.41	1.40	8.26	13.98	26.92	11.08	-12.02	-4.26		28.79	.42	3	7.02	6.43			
68	128	196	29.77	-3.35	26.42	3.06	4.47	14.29	27.33	9.74	-13.90	-2.67		28.39	.42	3	7.03	6.43			</

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BN	BINDING ENERGY B2N	BZ	8Z2	BETA	DECAY ENERGY EL-CAP	ALPHA	GO STA DEF	SADDLE MASS DEF	SHARP NEU	RADIUS PRO	EXPERIMENTAL MASS SHELL	DIFF			
71	101	172	-56.02	.51	-55.51	6.67	15.13	4.94	11.97	.02	2.24	2.18	.17	30.85	.40	3	6.62	6.31	-56.74	-.72	-1.23
71	102	173	-56.01	.50	-55.51	8.08	14.75	5.05	12.44	-1.26	.12	2.08	.17	30.86	.40	3	6.64	6.32	-56.85	-.84	-1.34
71	103	174	-54.26	.50	-53.76	6.32	14.40	5.42	12.93	.86	1.41	1.93	.17	30.85	.40	3	6.66	6.32	-55.56	-1.30	-1.80
71	104	175	-53.93	.51	-53.42	7.73	14.05	5.55	13.41	-4.43	-7.71	1.80	.17	30.83	.40	3	6.67	6.33	-55.15	-1.22	-1.73
71	105	176	-51.86	.53	-51.33	5.98	13.71	5.90	13.89	1.67	.58	1.65	.17	30.79	.40	3	6.69	6.34	-53.37	-1.51	-2.04
71	106	177	-51.21	.57	-50.64	7.39	13.36	6.02	14.36	.39	-1.51	1.53	.17	30.73	.40	3	6.71	6.34	-52.37	-1.16	-1.73
71	107	178	-48.84	.62	-48.22	5.65	13.04	6.38	14.84	2.48	-.23	1.37	.17	30.65	.40	3	6.72	6.35	-50.17	-1.33	-1.95
71	108	179	-47.88	.68	-47.20	7.05	12.70	6.50	15.30	1.19	-2.30	1.24	.17	30.56	.40	3	6.74	6.36	-49.10	-1.22	-1.90
71	109	180	-45.21	.75	-44.46	5.33	12.38	6.85	15.77	3.26	-1.01	1.08	.16	30.46	.40	3	6.76	6.36	-46.47	-1.26	-2.01
71	110	181	-43.96	.82	-43.14	6.74	12.08	6.98	16.25	1.97	-3.08	.92	.16	30.34	.40	3	6.77	6.37			
71	111	182	-41.00	.91	-40.09	5.03	11.77	7.33	16.71	4.03	-1.79	.75	.16	30.20	.40	3	6.79	6.38			
71	112	183	-39.46	.99	-38.47	6.45	11.48	7.45	17.18	2.73	-3.83	.58	.15	30.05	.40	3	6.81	6.39			
71	113	184	-36.22	1.07	-35.15	4.76	11.20	7.80	17.65	4.77	-2.53	.39	.14	29.89	.40	3	6.82	6.39			
71	114	185	-34.39	1.13	-33.26	6.18	10.94	7.93	18.12	3.47	-4.53	.19	.14	29.71	.40	3	6.84	6.40			
71	115	186	-30.88	1.15	-29.73	4.54	10.72	8.30	18.61	5.47	-3.20	-.07	.12	29.52	.40	3	6.85	6.41			
71	116	187	-28.78	1.07	-27.71	6.05	10.59	8.47	19.15	4.13	-5.10	-.41	.10	29.31	.40	3	6.87	6.41			
71	117	188	-25.01	.70	-24.31	4.66	10.72	8.98	19.87	5.94	-3.62	-1.04	.29	29.10	.40	3	6.88	6.42			
71	118	189	-22.64	.11	-22.53	6.30	10.96	9.13	20.45	4.59	-5.56	-1.82		28.87	.40	3	6.90	6.43			
71	119	190	-18.61	-.52	-19.13	4.67	10.97	9.45	20.88	6.54	-4.24	-2.54		28.62	.40	3	6.92	6.43			
71	120	191	-15.98	-1.18	-17.16	6.10	10.77	9.55	21.30	5.21	-6.17	-2.92		28.37	.40	3	6.93	6.44			
71	121	192	-11.70	-1.87	-13.57	4.48	10.59	9.87	21.72	7.15	-4.84	-3.17		28.10	.40	3	6.95	6.45			
71	122	193	-8.82	-2.60	-11.42	5.91	10.40	9.98	22.14	5.82	-6.77	-3.41		27.82	.40	3	6.96	6.46			
71	123	194	-4.30	-3.36	-7.66	4.31	10.23	10.29	22.56	7.74	-5.45	-3.66		27.53	.40	3	6.98	6.46			
71	124	195	-1.18	-4.15	-5.33	5.74	10.05	10.40	22.97	6.41	-7.36	-3.89		27.23	.40	3	6.99	6.47			
71	125	196	3.58	-4.97	-1.39	4.13	9.87	10.71	23.38	8.32	-6.04	-4.14		26.92	.40	3	7.01	6.48			
71	126	197	6.94	-5.82	1.12	5.56	9.70	10.81	23.79	7.00	-9.77	-4.37		26.60	.40	3	7.02	6.48			
71	127	198	11.93	-4.87	7.06	2.14	7.69	11.12	24.20	10.73	-8.43	-2.78		26.26	.40	3	7.04	6.49			
71	128	199	15.52	-3.97	11.55	3.58	5.72	11.23	24.62	9.39	-10.32	-1.20		25.92	.40	3	7.05	6.50			
71	129	200	20.73	-3.11	17.62	2.00	5.58	11.54	25.03	11.27	-9.00	-1.48		25.56	.40	3	7.07	6.50			
71	130	201	24.55	-2.29	22.26	3.43	5.43	11.65	25.43	9.95	-10.86	-1.75		25.20	.40	3	7.08	6.51			
71	131	202	29.98	-1.51	28.47	1.86	5.29	11.95	25.83	11.81	-9.54	-2.02		24.82	.40	3	7.10	6.52			
71	132	203	34.02	-.77	33.25	3.29	5.15	12.05	26.23	10.49	-11.39	-2.29		24.44	.40	3	7.11	6.53			
71	133	204	39.65	-.07	39.58	1.74	5.03	12.36	26.64	12.34	-10.03	-2.57		24.05	.40	3	7.13	6.53			
71	134	205	43.91	.59	44.50	3.16	4.89	12.40	26.84	11.02	-11.36	-2.83		23.64	.40	3	7.14	6.54			
71	135	206	49.75	.89	50.64	1.93	5.08	12.50	26.95	12.54	-9.70	-3.42	.11	23.23	.40	3	7.16	6.55			
71	136	207	54.22	.87	55.09	3.63	5.55	12.54	27.23	10.71	-11.43	-4.09	.13	22.81	.40	3	7.17	6.55			
71	137	208	60.26	.74	61.00	2.15	5.79	12.81	27.59	12.37	-10.11	-4.44	.15	22.38	.40	3	7.19	6.56			
71	138	209	64.93	.58	65.51	3.56	5.72	12.89	27.94	11.02	-11.95	-4.66	.15	21.94	.40	3	7.20	6.57			
71	139	210	71.17	.41	71.58	2.00	5.57	13.17	28.30	12.84	-10.66	-4.85	.16	21.50	.40	3	7.22	6.58			
71	140	211	76.03	.24	76.27	3.38	5.39	13.26	28.67	11.55	-12.50	-5.03	.16	21.04	.40	3	7.23	6.58			
71	141	212	82.46	.07	82.53	1.82	5.19	13.54	29.03	13.39	-11.23	-5.20	.17	20.58	.40	3	7.24	6.59			
71	142	213	87.52	-.10	87.42	3.17	4.99	13.62	29.40	12.11	-13.07	-5.36	.17	20.11	.40	3	7.26	6.60			
71	143	214	94.13	-.25	93.88	1.62	4.79	13.90	29.76	13.94	-11.80	-5.53	.17	19.63	.40	3	7.27	6.60			
71	144	215	99.38	-.40	98.98	2.97	4.59	13.99	30.12	12.68	-13.64	-5.69	.17	19.14	.40	3	7.29	6.61			
71	145	216	106.17	-.53	105.64	1.42	4.38	14.27	30.48	14.50	-12.38	-5.85	.17	18.65	.40	3	7.30	6.62			
71	146	217	111.60	-.65	110.95	2.76	4.18	14.36	30.84	13.24	-14.20	-6.00	.18	18.15	.40	3	7.31	6.62			
71	147	218	118.57	-.76	117.81	1.22	3.97	14.63	31.19	15.06	-12.94	-6.16	.18	17.64	.40	3	7.33	6.63			
71	148	219	124.18	-.86	123.32	2.56	3.77	14.71	31.55	13.80	-14.75	-6.32	.18	17.13	.40	3	7.34	6.64			
71	149	220	131.32	-.94	130.38	1.02	3.57	14.98	31.90	15.61	-13.49	-6.47	.18	16.61	.40	3	7.36	6.65			
71	150	221	137.11	-1.01	136.10	2.35	3.37	15.06	32.24	14.36	-15.29	-6.62	.18	16.08	.40	3	7.37	6.65			
71	151	222	144.41	-1.07	143.34	.83	3.18	15.34	32.60	16.14	-14.04	-6.79	.18	15.54	.40	3	7.38	6.66			
71	152	223	150.37	-1.12	149.25	2.16	2.99	15.42	32.94	14.89	-15.83	-6.94	.18	15.00	.40	3	7.40	6.67			
71	153	224	157.84	-1.15	156.69	.63	2.79	15.68	33.28	16.68	-14.58	-7.09	.18	14.46	.40	3	7.41	6.67			
71	154	225	163.96	-1.17	162.79	1.97	2.61	15.76	33.63	15.43	-16.36	-7.25	.18	13.90	.40	3	7.43	6.68			
71	155	226	171.59	-1.18	170.41	.45	2.42	16.02	33.97	17.20	-15.11	-7.41	.18	13.15	.38	3	7.44	6.68			
71	156	227	177.88	-1.17	176.71	1.77	2.23	16.10	34.29	15.96	-16.87	-7.55	.18	12.59	.38	3	7.45	6.70			
71	157	228	185.66	-1.15	184.51	.27	2.05	16.36	34.63	17.72	-15.62	-7.71	.18	12.02	.38	3	7.47	6.70			
71	158	229	192.10	-1.12	190.98	1.60	1.87	16.44	34.97	16.47	-17.39	-7.87	.18	11.45	.38	3	7.48	6.71			
71	159	230	200.03	-1.08	198.95	.10	1.70	16.70	35.30	18.22	-16.15	-8.04	.18	10.87	.38	3	7.49	6.72			
71	160	231	206.63	-1.02	205.61	1.42	1.51	16.78	35.63	16.98	-17.89	-8.18	.18	10.28	.38	3	7.51	6.72			
71	162	233	221.47	-.87	220.60	1.24	1.16	17.10	36.26	17.49	-18.37	-8.48	.18	9.09	.38	3	7.53	6.74			
71	164	235	236.59	-.68	235.91	1.07	.82	17.43	36.91	17.98	-18.86	-8.80	.17	7.89	.38	3	7.56	6.75			
71	166	237	252.00	-.44	251.56	.90	.49	17.75	37.55	18.47	-19.34	-9.11	.17	6.49	.36	3	7.59	6.77			
71	168	239	267.68	-.17	267.51	.75	.19	18.07	38.19	18.94	-19.82	-9.44	.17	5.20	.28	4	7.61	6.78			
71	170	241	283.64	.13	283.77	.60	-.11	18.39	38.82	19.40	-20.27	-9.77	.16	4.42	.26	4	7.64	6.80			
71	172	243	299.86	.38	300.24	.52	-.33	18.75	39.50	19.83	-20.61	-10.19	.12	3.72	.24	4	7.66	6.81			
71	174	245	316.34	-.42	315.92	1.08	.46</														

Z	N	DROPLET		CALC SHELL	CALC MASS	BINDING ENERGY				DECAY ENERGY			GD STA DEF	SADDLE MASS DEF I	SHARP NEU	RADIUS PRO	EXPERIMENTAL				
		A	MASS			BN	B2N	BZ	B2Z	BETA	EL-CAP	ALPHA					MASS SHELL	DIFF			
72	82	154	-31.52	-4.33	-35.85	13.22	24.68	1.70	1.88	-13.21	6.62	2.83		24.70	.34	3	6.29	6.20			
72	83	155	-33.65	-3.38	-37.03	9.25	22.47	1.85	2.43	-9.11	7.99	4.49		25.36	.36	3	6.31	6.21			
72	84	156	-37.49	-2.49	-39.98	11.01	20.27	2.24	2.98	-10.46	5.76	6.15		25.75	.36	3	6.33	6.22			
72	85	157	-39.20	-1.65	-40.85	8.94	19.96	2.40	3.54	-8.24	7.12	5.90		26.11	.36	3	6.34	6.22	-39.05	.15	1.80
72	86	158	-42.60	-.87	-43.47	10.69	19.63	2.79	4.08	-9.59	4.91	5.68		26.45	.36	3	6.36	6.23	-42.18	.42	1.29
72	87	159	-43.88	-.14	-44.02	8.62	19.32	2.93	4.62	-7.38	6.27	5.44		26.77	.36	3	6.38	6.24	-42.74	1.14	1.28
72	88	160	-46.86	.54	-46.32	10.37	19.00	3.32	5.09	-8.73	4.36	5.22		27.07	.36	3	6.40	6.24	-45.23	1.63	1.09
72	89	161	-47.74	1.10	-46.64	8.39	18.77	3.25	5.25	-6.61	6.16	4.91	.08	27.34	.36	3	6.42	6.25	-45.54	2.20	1.10
72	90	162	-50.31	1.27	-49.04	10.48	18.86	3.53	5.60	-8.36	4.15	4.35	.12	27.60	.36	3	6.44	6.26	-48.20	2.11	.84
72	91	163	-50.79	1.27	-49.52	8.55	19.03	3.61	6.06	-6.53	5.55	4.02	.14	27.97	.38	3	6.46	6.26	-48.62	2.17	.90
72	92	164	-52.96	1.21	-51.75	10.30	18.85	3.97	6.53	-7.98	3.38	3.84	.15	28.19	.38	3	6.47	6.27	-51.06	1.90	.69
72	93	165	-53.07	1.13	-51.94	8.26	18.56	4.09	7.03	-5.85	4.71	3.68	.15	28.39	.38	3	6.49	6.28	-51.08	1.99	.86
72	94	166	-54.85	1.04	-53.81	9.95	18.21	4.45	7.51	-7.17	2.54	3.56	.16	28.57	.38	3	6.51	6.28	-53.41	1.44	.40
72	95	167	-54.59	.95	-53.64	7.90	17.85	4.58	8.02	-5.00	3.84	3.42	.16	28.73	.38	3	6.53	6.29	-53.20	1.39	.44
72	96	168	-56.00	.86	-55.14	9.57	17.47	4.94	8.51	-6.31	1.67	3.31	.17	28.87	.38	3	6.54	6.30	-55.19	1.81	-0.05
72	97	169	-55.37	.78	-54.59	7.52	17.10	5.06	9.01	-4.13	2.97	3.18	.17	28.99	.38	3	6.56	6.30	-54.70	.67	-1.11
72	98	170	-56.42	.72	-55.70	9.18	16.71	5.43	9.49	-5.42	.82	3.08	.17	29.08	.38	3	6.58	6.31	-56.10	.32	-1.40
72	99	171	-55.45	.66	-54.79	7.16	16.34	5.55	10.00	-3.27	2.11	2.94	.17	29.17	.38	3	6.60	6.32	-55.29	.16	-1.50
72	100	172	-56.15	.62	-55.53	8.81	15.97	5.91	10.48	-4.56	-.03	2.83	.17	29.23	.38	3	6.61	6.33	-56.34	-1.19	-1.81
72	101	173	-54.84	.59	-54.25	6.79	15.60	6.04	10.97	-2.41	1.27	2.70	.17	29.40	.40	3	6.63	6.33	-55.25	-1.41	-1.00
72	102	174	-55.20	.58	-54.62	8.44	15.24	6.39	11.45	-3.70	-.86	2.58	.17	29.43	.40	3	6.65	6.34	-55.76	-.56	-1.14
72	103	175	-53.57	.58	-52.99	6.45	14.88	6.52	11.94	-1.57	.43	2.44	.17	29.44	.40	3	6.66	6.35	-54.54	-.97	-1.55
72	104	176	-53.59	.59	-53.00	8.08	14.52	6.87	12.41	-2.85	-1.67	2.32	.17	29.44	.40	3	6.68	6.35	-54.56	-.97	-1.56
72	105	177	-51.64	.61	-51.03	6.10	14.18	6.99	12.89	-1.74	-.38	2.18	.17	29.42	.40	3	6.70	6.36	-52.87	-1.23	-1.84
72	106	178	-51.34	.65	-50.69	7.73	13.83	7.34	13.36	-2.02	-2.47	2.05	.17	29.38	.40	3	6.72	6.37	-52.42	-1.08	-1.73
72	107	179	-49.09	.70	-48.39	5.77	13.50	7.46	13.84	-.07	-1.18	1.90	.17	29.33	.40	3	6.73	6.37	-50.45	-1.36	-2.06
72	108	180	-48.48	.75	-47.73	7.40	13.18	7.81	14.32	-1.22	-3.26	1.75	.16	29.26	.40	3	6.75	6.38	-49.77	-1.29	-2.04
72	109	181	-45.93	.82	-45.11	5.46	12.86	7.93	14.79	-.86	-1.97	1.59	.16	29.18	.40	3	6.76	6.39	-47.39	-1.46	-2.28
72	110	182	-45.01	.89	-44.12	7.08	12.54	8.27	15.25	-.42	-4.03	1.45	.16	29.08	.40	3	6.78	6.39	-45.90	-.89	-1.78
72	111	183	-42.17	.97	-41.20	5.15	12.24	8.40	15.72	1.64	-2.73	1.28	.15	28.97	.40	3	6.80	6.40	-43.22	-1.05	-2.02
72	112	184	-40.96	1.04	-39.92	6.79	11.95	8.74	16.19	.36	-4.77	1.10	.15	28.84	.40	3	6.81	6.41			
72	113	185	-37.84	1.10	-36.74	4.89	11.68	8.87	16.68	2.39	-3.48	.89	.14	28.69	.40	3	6.83	6.42			
72	114	186	-36.34	1.14	-35.20	6.54	11.43	9.23	17.16	1.10	-5.47	.68	.13	28.54	.40	3	6.85	6.43			
72	115	187	-32.95	1.11	-31.84	4.71	11.25	9.39	17.69	3.09	-4.13	.37	.11	28.37	.40	3	6.86	6.43			
72	116	188	-31.17	.91	-30.26	6.49	11.20	9.83	18.31	1.73	-5.96	-.06	.06	28.18	.40	3	6.88	6.44			
72	117	189	-27.51	.38	-27.13	4.94	11.44	10.11	19.10	3.62	-4.60	-.83		27.99	.40	3	6.89	6.44			
72	118	190	-25.46	-.21	-25.67	6.61	11.56	10.43	19.56	2.31	-6.54	-1.56		27.78	.40	3	6.91	6.45			
72	119	191	-21.54	-.83	-22.37	4.77	11.39	10.53	19.98	4.26	-5.21	-2.18		27.55	.40	3	6.92	6.46			
72	120	192	-19.23	-1.49	-20.72	6.42	11.20	10.85	20.40	2.94	-7.14	-2.45		27.32	.40	3	6.94	6.46			
72	121	193	-15.06	-2.18	-17.24	4.59	11.01	10.95	20.83	4.87	-5.82	-2.70		27.07	.40	3	6.95	6.47			
72	122	194	-12.50	-2.90	-15.40	6.23	10.82	11.27	21.25	3.55	-7.74	-2.93		26.81	.40	3	6.97	6.48			
72	123	195	-8.09	-3.66	-11.75	4.42	10.65	11.38	21.68	5.46	-6.42	-3.19		26.54	.40	3	6.99	6.48			
72	124	196	-5.27	-4.44	-9.71	6.04	10.45	11.68	22.07	4.16	-8.32	-3.40		26.26	.40	3	7.00	6.49			
72	125	197	-.62	-5.24	-5.88	4.24	10.28	11.78	22.49	6.06	-7.00	-3.65		25.96	.40	3	7.02	6.50			
72	126	198	2.44	-6.11	-3.67	5.86	10.10	12.08	22.89	4.75	-10.72	-3.88		25.66	.40	3	7.03	6.50			
72	127	199	7.32	-5.16	2.16	2.25	8.10	12.19	23.31	8.47	-9.39	-2.30		25.34	.40	3	7.05	6.51			
72	128	200	10.61	-4.26	6.35	3.88	6.13	12.49	23.72	7.15	-11.27	-.72		25.02	.40	3	7.06	6.52			
72	129	201	15.72	-3.40	12.32	2.11	5.98	12.59	24.13	9.03	-9.94	-.99		24.68	.40	3	7.08	6.53			
72	130	202	19.24	-2.59	16.65	3.73	5.84	12.90	24.54	7.71	-11.81	-1.27		24.33	.40	3	7.09	6.53			
72	131	203	24.57	-1.81	22.76	1.97	5.70	12.99	24.94	9.58	-10.49	-1.54		23.98	.40	3	7.11	6.54			
72	132	204	28.32	-1.07	27.25	3.58	5.55	13.29	25.33	8.27	-12.33	-1.79		23.61	.40	3	7.12	6.55			
72	133	205	33.85	-.37	33.48	1.84	5.42	13.39	25.74	10.12	-11.02	-2.07		23.23	.40	3	7.14	6.55			
72	134	206	37.82	.28	38.10	3.45	5.29	13.68	26.08	8.80	-12.54	-2.33		22.85	.40	3	7.15	6.56			
72	135	207	43.56	.81	44.37	1.80	5.25	13.56	26.07	10.55	-10.71	-2.70	.08	22.45	.40	3	7.16	6.57			
72	136	208	47.74	.89	48.63	3.82	5.62	13.75	26.29	8.74	-12.37	-3.40	.12	22.05	.40	3	7.18	6.57			
72	137	209	53.69	.80	54.49	2.21	6.03	13.80	26.61	10.21	-11.02	-3.79	.14	21.63	.40	3	7.19	6.58			
72	138	210	58.07	.67	58.74	3.83	6.03	14.07	26.95	8.83	-12.84	-4.02	.15	21.21	.40	3	7.21	6.59			
72	139	211	64.21	.51	64.72	2.09	5.91	14.15	27.32	10.62	-11.55	-4.23	.16	20.78	.40	3	7.22	6.60			
72	140	212	68.80	.34	69.14	3.65	5.74	14.42	27.68	9.33	-13.39	-4.40	.16	20.34	.40	3	7.24	6.60			
72	141	213	75.14	.17	75.31	1.90	5.55	14.50	28.04	11.16	-12.11	-4.57	.16	19.89	.40	3	7.25	6.61			
72	142	214	79.92	.02	79.94	3.45	5.35	14.78	28.40	9.90	-13.94	-4.72	.17	19.44	.40	3	7.27	6.62			
72	143	215	86.44	-.14	86.30	1.70	5.15	14.86	28.77	11.72	-12.68	-4.90	.17	18.98	.40	3	7.28	6.63			
72	144	216	91.42	-.28	91.14	3.23	4.94	15.13	29.12	10.47	-14.50	-5.04	.17	18.51	.40	3	7.29	6.62			
72	145	217	98.12	-.41	97.71	1.50	4.74	15.22	29.49	12.30	-13.24	-5.21	.17	18.03	.40	3	7.31	6.64			
72	146	218	103.28	-.53	102.75	3.03	4.53	15.49	29.84	11.04	-15.06	-5.36	.17	17.54	.40	3	7.32	6.64			
72	147																				

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING BN B2N	ENERGY BZ B2Z	DECAY ENERGY BETA EL-CAP ALPHA	GO STA DEF MASS	SADDLE DEF I	SHARP NEUP	RADIUS PRO	EXPERIMENTAL MASS SHELL	DIFF							
76	95	171	-36.09	1.15	-34.94	8.83	19.62	2.76	4.34	-7.52	6.62	5.16	.13	21.66	.34	3	6.56	6.38	-33.49	2.60	1.45
76	96	172	-38.49	1.13	-37.36	10.50	19.32	3.09	4.78	-8.92	4.51	5.08	.14	21.86	.34	3	6.58	6.39	-36.14	2.35	1.22
76	97	173	-38.88	1.09	-37.79	8.50	19.00	3.21	5.26	-6.85	5.80	4.96	.14	22.05	.34	3	6.60	6.39	-36.75	2.13	1.04
76	98	174	-40.91	1.05	-39.86	10.14	18.64	3.56	5.74	-8.16	3.67	4.87	.15	22.22	.34	3	6.61	6.40	-39.06	1.85	.80
76	99	175	-40.93	1.02	-39.91	8.13	18.26	3.67	6.21	-6.03	4.96	4.77	.15	22.38	.34	3	6.63	6.41	-39.34	1.59	.57
76	100	176	-42.60	.99	-41.61	9.77	17.90	4.03	6.69	-7.32	2.83	4.66	.15	22.51	.34	3	6.65	6.41	-41.36	1.24	.25
76	101	177	-42.28	.97	-41.31	7.77	17.54	4.15	7.18	-5.21	4.11	4.54	.15	22.63	.34	3	6.66	6.42	-41.41	.87	-1.10
76	102	178	-43.59	.96	-42.63	9.40	17.17	4.50	7.65	-6.48	2.00	4.44	.15	22.73	.34	3	6.68	6.43	-42.96	.63	-3.33
76	103	179	-42.93	.96	-41.97	7.42	16.81	4.63	8.14	-4.38	3.27	4.31	.15	22.81	.34	3	6.70	6.43	-42.74	.19	-.77
76	104	180	-43.89	.97	-42.92	9.03	16.44	4.97	8.60	-5.63	1.19	4.21	.15	23.12	.36	3	6.71	6.44	-43.96	-.07	-1.04
76	105	181	-42.91	.99	-41.92	7.07	16.10	5.10	9.09	-3.54	2.45	4.07	.15	23.18	.36	3	6.73	6.45	-43.40	-.49	-1.48
76	106	182	-43.54	1.01	-42.53	8.68	15.75	5.45	9.56	-4.80	.37	3.94	.15	23.23	.36	3	6.75	6.45	-44.25	-.71	-1.72
76	107	183	-42.23	1.04	-41.19	6.73	15.42	5.58	10.05	-2.72	1.64	3.79	.15	23.25	.36	3	6.76	6.46	-43.37	-1.14	-2.18
76	108	184	-42.54	1.07	-41.47	8.35	15.09	5.93	10.53	-3.97	-1.42	3.65	.14	23.26	.36	3	6.78	6.47	-44.16	-1.62	-2.69
76	109	185	-40.92	1.09	-39.83	6.43	14.78	6.07	11.02	-1.90	.84	3.67	.13	23.26	.36	3	6.80	6.47	-42.76	-1.84	-2.93
76	110	186	-40.92	1.10	-39.82	8.06	14.49	6.44	11.53	-3.15	-1.21	3.28	.12	23.24	.36	3	6.81	6.48	-42.96	-2.04	-3.14
76	111	187	-39.00	1.08	-37.92	6.18	14.23	6.60	12.06	-1.08	.06	3.04	.11	23.20	.36	3	6.83	6.49	-41.18	-2.18	-3.26
76	112	188	-38.69	.97	-37.72	7.87	14.05	7.03	12.66	-2.30	-1.99	2.72	.08	23.15	.36	3	6.85	6.49	-41.10	-2.41	-3.38
76	113	189	-36.47	.65	-35.82	6.17	14.04	7.37	13.42	-.25	-.72	2.19	.23	23.08	.36	3	6.86	6.50	-38.95	-2.48	-3.13
76	114	190	-35.86	.21	-35.65	7.90	14.08	7.83	14.21	-1.56	-2.68	1.57	.23	23.00	.36	3	6.88	6.51	-38.67	-2.81	-3.02
76	115	191	-33.37	-.26	-33.63	6.05	13.95	7.95	14.80	.41	-1.37	.93	.22	23.01	.36	3	6.89	6.51	-36.36	-2.99	-2.73
76	116	192	-32.47	-.77	-33.24	7.68	13.73	8.27	15.23	-.90	-3.32	.35	.22	22.80	.36	3	6.91	6.52	-35.85	-3.38	-2.61
76	117	193	-29.69	-1.31	-31.00	5.84	13.52	8.38	15.65	1.06	-2.00	-.01	.22	22.68	.36	3	6.92	6.53	-33.37	-3.68	-2.37
76	118	194	-28.51	-1.89	-30.40	7.47	13.31	8.69	16.09	-.25	-3.95	-.24	.22	22.54	.36	3	6.94	6.53	-32.40	-3.89	-2.00
76	119	195	-25.47	-2.50	-27.97	5.64	13.11	8.81	16.52	1.69	-2.64	-.47	.22	22.39	.36	3	6.96	6.54	-29.85	-4.38	-1.88
76	120	196	-24.01	-3.14	-27.15	7.26	12.89	9.11	16.93	.39	-4.56	-.68	.22	22.23	.36	3	6.97	6.55			
76	121	197	-20.70	-3.82	-24.52	5.44	12.70	9.22	17.35	2.32	-3.25	-.91	.22	22.06	.36	3	6.99	6.55			
76	122	198	-18.98	-4.53	-23.51	7.05	12.50	9.53	17.77	1.01	-5.17	-1.14	.21	21.87	.36	3	7.00	6.56			
76	123	199	-15.42	-5.26	-20.68	5.25	12.30	9.63	18.18	2.93	-3.86	-1.36	.21	21.67	.36	3	7.02	6.57			
76	124	200	-13.43	-6.03	-19.46	6.85	12.10	9.93	18.59	1.64	-5.75	-1.57	.21	21.46	.36	3	7.03	6.58			
76	125	201	-9.63	-6.84	-16.47	5.07	11.93	10.04	19.02	3.52	-4.46	-1.82	.21	21.24	.36	3	7.05	6.58			
76	126	202	-7.39	-7.67	-15.06	6.67	11.73	10.34	19.41	2.23	-8.15	-2.03	.21	21.01	.36	3	7.06	6.59			
76	127	203	-3.34	-6.73	-10.07	3.09	9.75	10.45	19.83	5.92	-6.84	-.46	.20	20.76	.36	3	7.08	6.60			
76	128	204	-.85	-5.84	-6.69	4.69	7.78	10.74	20.23	4.63	-8.70	1.11	.20	20.51	.36	3	7.09	6.60			
76	129	205	3.43	-4.99	-1.56	2.94	7.63	10.85	20.65	6.48	-7.40	.84	.20	20.24	.36	3	7.11	6.61			
76	130	206	6.16	-4.17	1.99	4.53	7.46	11.15	21.04	5.20	-9.25	.60	.19	19.96	.36	3	7.12	6.62			
76	131	207	10.67	-3.40	7.27	2.79	7.32	11.26	21.46	7.05	-7.95	.33	.19	19.67	.36	3	7.14	6.62			
76	132	208	13.63	-2.67	10.96	4.38	7.17	11.55	21.86	5.75	-9.80	.08	.19	19.38	.36	3	7.15	6.63			
76	133	209	18.37	-1.97	16.40	2.64	7.01	11.65	22.25	7.60	-8.49	-.17	.19	19.07	.36	3	7.17	6.64			
76	134	210	21.56	-1.32	20.24	4.23	6.87	11.94	22.65	6.31	-10.32	-.42	.18	18.75	.36	3	7.18	6.64			
76	135	211	26.51	-.70	25.81	2.50	6.73	12.04	23.04	8.14	-9.03	-.69	.18	18.42	.36	3	7.19	6.65			
76	136	212	29.92	-1.12	29.80	4.08	6.58	12.33	23.40	6.85	-10.75	-.93	.18	18.08	.36	3	7.21	6.66			
76	137	213	35.09	-.42	35.51	2.36	6.45	12.33	23.88	8.67	-9.01	-1.19	.17	17.74	.36	3	7.22	6.66			
76	138	214	38.72	.79	39.51	4.07	6.44	12.30	23.34	7.25	-10.42	-1.54	.09	17.38	.36	3	7.24	6.67			
76	139	215	44.09	.83	44.92	2.66	6.74	12.30	23.57	8.62	-9.01	-1.82	.12	17.01	.36	3	7.25	6.68			
76	140	216	47.93	.76	48.69	4.30	6.96	12.53	23.88	6.97	-10.78	-2.00	.14	16.64	.36	3	7.27	6.68			
76	141	217	53.51	.66	54.17	2.60	6.89	12.60	24.20	8.66	-9.49	-2.17	.15	16.26	.36	3	7.28	6.69			
76	142	218	57.55	.54	58.09	4.15	6.75	12.86	24.55	7.35	-11.30	-2.32	.15	15.87	.36	3	7.29	6.70			
76	143	219	63.33	.41	63.74	2.42	6.57	12.94	24.91	9.14	-10.04	-2.48	.16	15.47	.36	3	7.31	6.70			
76	144	220	67.57	.29	67.86	3.95	6.37	13.21	25.26	7.88	-11.85	-2.63	.16	15.06	.36	3	7.32	6.71			
76	145	221	73.54	.17	73.71	2.22	6.17	13.29	25.62	9.68	-10.61	-2.78	.16	14.64	.36	3	7.34	6.72			
76	146	222	77.98	.07	78.05	3.73	5.96	13.56	25.97	8.44	-12.40	-2.92	.16	14.22	.36	3	7.35	6.72			
76	147	223	84.13	-.03	84.10	2.02	5.75	13.64	26.33	10.24	-11.17	-3.08	.17	13.79	.36	3	7.36	6.73			
76	148	224	88.76	-.12	88.64	3.53	5.55	13.91	26.69	9.00	-12.97	-3.23	.17	13.35	.36	3	7.38	6.74			
76	149	225	95.10	-.19	94.91	1.81	5.33	13.99	27.03	10.81	-11.72	-3.37	.17	12.91	.36	3	7.39	6.75			
76	150	226	99.92	-.26	99.66	3.31	5.13	14.26	27.39	9.57	-13.51	-3.52	.17	12.45	.36	3	7.41	6.75			
76	151	227	106.43	-.31	106.12	1.61	4.93	14.34	27.74	11.36	-12.28	-3.67	.17	11.99	.36	3	7.42	6.76			
76	152	228	111.43	-.35	111.08	3.11	4.73	14.61	28.09	10.13	-14.06	-3.82	.17	11.52	.36	3	7.43	6.77			
76	153	229	118.12	-.38	117.74	1.42	4.52	14.69	28.43	11.91	-12.82	-3.97	.17	11.05	.36	3	7.45	6.77			
76	154	230	123.30	-.40	122.90	2.91	4.33	14.95	28.78	10.68	-14.59	-4.11	.17	10.57	.36	3	7.46	6.78			
76	155	231	130.15	-.40	129.75	1.23	4.13	15.03	29.12	12.45	-13.36	-4.27	.17	10.08	.36	3	7.47	6.79			
76	156	232	135.51	-.40	135.11	2.71	3.94	15.29	29.47	11.22	-15.12	-4.42	.17	9.59	.36	3	7.49	6.79			
76	157	233	142.53	-.38	142.15	1.04	3.75	15.37	29.81	12.98	-13.89	-4.57	.17	9.09	.36	3	7.50	6.80			
76	158	234	148.06	-.35	147.71	2.51	3.55	15.62	30.14	11.77	-15.64	-4.71	.17	8.47	.34	3	7.51	6.81			
76	159	235	155.24	-.30	154.94	.85	3.36	15.70	30.47	13.52	-14.40	-4.86	.17	7.93	.30	4	7.53	6.81			
76	160</																				

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING ENERGY			DECAY ENERGY			GD STA DEF	SADDLE DEF I	SHARP NEU	RADIUS PRO	EXPERIMENTAL					
						BN	B2N	BZ	BETA	EL-CAP	ALPHA					MASS	MASS	SHELL	DIFF		
80	96	176	-13.79	-.32	-14.11	11.16	20.66	2.07	2.63	-10.63	6.23	5.91	14.83	.32	4	6.61	6.47				
80	97	177	-15.17	-.08	-15.25	9.20	20.37	2.20	2.97	-8.55	7.54	5.69	15.07	.32	4	6.63	6.48				
80	98	178	-18.17	.12	-18.05	10.87	20.08	2.54	3.29	-9.86	5.52	5.58	15.30	.32	4	6.65	6.49				
80	99	179	-19.18	.28	-18.90	8.93	19.79	2.62	3.63	-7.79	6.89	5.53	15.51	.32	4	6.66	6.49	-16.13	3.05	2.77	
80	100	180	-21.80	.40	-21.40	10.58	19.50	2.90	3.98	-9.08	4.89	5.51	15.71	.32	4	6.68	6.50	-19.30	2.50	2.10	
80	101	181	-22.45	.47	-21.98	8.65	19.23	2.98	4.39	-7.03	6.21	5.45	15.88	.32	4	6.70	6.51	-20.12	2.33	1.86	
80	102	182	-24.70	.50	-24.20	10.29	18.94	3.30	4.83	-8.32	4.17	5.37	16.05	.34	4	6.71	6.51	-22.66	2.04	1.54	
80	103	183	-25.00	.49	-24.51	8.38	18.67	3.43	5.31	-6.28	5.44	5.23	16.22	.34	4	6.73	6.52	-23.42	1.58	1.09	
80	104	184	-26.91	.44	-26.47	10.03	18.41	3.81	5.84	-7.58	3.36	5.06	16.37	.34	4	6.75	6.53	-25.59	1.32	.88	
80	105	185	-26.87	.35	-26.52	8.13	18.15	3.98	6.40	-5.56	4.60	4.83	16.50	.34	4	6.76	6.53	-25.93	.94	.59	
80	106	186	-28.42	.22	-28.20	9.75	17.88	4.37	6.97	-6.85	2.57	4.59	16.62	.34	4	6.78	6.54	-27.96	.46	.24	
80	107	187	-28.05	.05	-28.00	7.87	17.63	4.52	7.59	-4.84	3.87	4.28	16.72	.34	4	6.80	6.55	-27.91	.14	.09	
80	108	188	-29.28	-.16	-29.44	9.50	17.38	4.86	8.21	-6.14	1.86	3.94	16.80	.34	4	6.81	6.55	-29.52	-.24	-.08	
80	109	189	-28.58	-.40	-28.98	7.62	17.12	4.97	8.78	-4.14	3.17	3.58	16.87	.34	4	6.83	6.56	-29.35	-.77	-.37	
80	110	190	-29.48	-.68	-30.16	9.25	16.87	5.30	9.26	-5.43	1.19	3.22	16.92	.34	4	6.85	6.57	-30.89	-1.41	-.73	
80	111	191	-28.48	-1.00	-29.48	7.39	16.64	5.42	9.71	-3.45	2.48	2.87	16.96	.34	4	6.86	6.57	-30.47	-1.99	-.99	
80	112	192	-29.06	-1.35	-30.41	9.01	16.39	5.74	10.15	-4.74	.52	2.65	16.98	.34	4	6.88	6.58	-31.84	-2.78	-1.43	
80	113	193	-27.75	-1.74	-29.49	7.16	16.16	5.85	10.59	-2.77	1.81	2.43	16.99	.34	4	6.89	6.59	-31.10	-3.35	-1.61	
80	114	194	-28.02	-2.17	-30.19	8.77	15.93	6.17	11.03	-4.06	-1.14	2.23	16.98	.34	4	6.91	6.59	-32.17	-4.15	-1.98	
80	115	195	-26.41	-2.63	-29.04	6.92	15.69	6.28	11.46	-2.10	1.16	2.01	16.96	.36	4	6.92	6.60	-31.16	-4.75	-2.12	
80	116	196	-26.38	-3.12	-29.50	8.53	15.46	6.59	11.88	-3.38	-.78	1.82	16.93	.36	4	6.94	6.60	-31.84	-5.46	-2.34	
80	117	197	-24.49	-3.65	-28.14	6.71	15.24	6.71	12.32	-1.45	.51	1.60	16.89	.36	4	6.96	6.61	-30.75	-6.26	-2.61	
80	118	198	-24.17	-4.21	-28.38	8.31	15.02	7.02	12.74	-2.73	-1.42	1.39	16.83	.36	4	6.97	6.62	-30.97	-6.80	-2.59	
80	119	199	-22.00	-4.80	-26.80	6.50	14.80	7.13	13.16	-.80	-1.13	1.18	16.76	.36	4	6.99	6.62	-29.55	-7.55	-2.75	
80	120	200	-21.39	-5.43	-26.82	8.09	14.58	7.44	13.58	-2.08	-2.04	.97	16.68	.36	4	7.00	6.63	-29.51	-8.12	-2.69	
80	121	201	-18.95	-6.09	-25.04	6.29	14.38	7.55	14.01	-.18	-.76	.75	16.58	.36	4	7.02	6.64	-27.66	-8.71	-2.62	
80	122	202	-18.06	-6.78	-24.84	7.88	14.16	7.85	14.41	-1.45	-2.65	.55	16.43	.34	3	7.03	6.64	-27.35	-9.29	-2.51	
80	123	203	-15.35	-7.50	-22.85	6.08	13.96	7.95	14.83	.45	-1.37	.34	16.30	.34	3	7.05	6.65	-25.27	-9.92	-2.42	
80	124	204	-14.19	-8.26	-22.45	7.66	13.75	8.25	15.24	-.83	-3.26	.13	16.16	.34	3	7.06	6.66	-24.69	-10.50	-2.24	
80	125	205	-11.23	-9.04	-20.27	5.89	13.56	8.36	15.65	1.05	-1.98	-.09	16.01	.34	3	7.08	6.66	-22.28	-11.05	-2.01	
80	126	206	-9.80	-9.85	-19.65	7.46	13.34	8.65	16.04	-.21	-5.62	-.28	15.85	.34	3	7.09	6.67	-20.94	-11.14	-1.29	
80	127	207	-6.58	-8.92	-15.50	3.92	11.38	8.76	16.46	3.44	-4.33	1.27	15.68	.34	3	7.11	6.68				
80	128	208	-4.91	-8.03	-12.94	5.51	9.43	9.06	16.87	2.16	-6.19	2.82	15.49	.34	3	7.12	6.68				
80	129	209	-1.44	-7.19	-8.63	5.76	9.27	9.17	17.28	4.01	-4.91	2.57	15.29	.34	3	7.14	6.69				
80	130	210	.49	-6.38	-5.89	5.33	9.09	9.46	17.68	2.74	-6.75	2.34	15.09	.34	3	7.15	6.70				
80	131	211	4.19	-5.61	-1.42	3.60	8.94	9.57	18.09	4.58	-5.48	2.08	14.87	.34	3	7.17	6.70				
80	132	212	6.36	-4.88	1.48	5.17	8.77	9.86	18.49	3.30	-7.31	1.84	14.64	.34	3	7.18	6.71				
80	133	213	10.30	-4.18	6.12	3.44	8.61	9.96	18.88	5.14	-6.02	1.60	14.40	.34	3	7.19	6.72				
80	134	214	12.71	-3.53	9.18	5.01	8.45	10.25	19.27	3.87	-7.85	1.37	14.15	.34	3	7.21	6.72				
80	135	215	16.88	-2.91	13.97	3.29	8.29	10.35	19.66	5.70	-6.56	1.13	13.89	.34	3	7.22	6.73				
80	136	216	19.52	-2.33	17.19	4.85	8.13	10.63	20.05	4.43	-8.37	.89	13.62	.34	3	7.24	6.74				
80	137	217	23.91	-1.79	22.12	3.14	7.99	10.73	20.44	6.24	-7.10	.64	13.34	.34	3	7.25	6.74				
80	138	218	26.77	-1.28	25.49	4.70	7.84	11.02	20.82	4.96	-8.90	.41	13.06	.34	3	7.27	6.75				
80	139	219	31.38	-.81	30.57	3.00	7.69	11.11	21.20	6.77	-7.62	.17	12.76	.34	3	7.28	6.76				
80	140	220	34.47	-.38	34.09	4.54	7.54	11.39	21.50	5.50	-9.41	-.07	12.45	.34	3	7.29	6.76				
80	141	221	39.28	.02	39.30	2.86	7.41	11.48	21.55	7.28	-7.91	-.32	12.14	.34	3	7.31	6.77				
80	142	222	42.59	.39	42.98	4.40	7.25	11.52	21.51	6.03	-9.35	-.46	11.81	.34	3	7.32	6.78				
80	143	223	47.61	.67	48.28	2.77	7.17	11.34	21.53	7.75	-7.79	-.42	.08	11.48	.34	3	7.34	6.78			
80	144	224	51.12	.73	51.85	4.49	7.27	11.50	21.76	6.25	-9.46	-.49	.11	11.14	.34	3	7.35	6.79			
80	145	225	56.35	.72	57.07	2.86	7.35	11.53	22.03	7.75	-8.16	-.59	.12	10.79	.34	3	7.36	6.80			
80	146	226	60.07	.68	60.75	4.39	7.25	11.76	22.35	6.25	-9.91	-.70	.13	10.45	.32	4	7.38	6.80			
80	147	227	65.48	.63	66.11	2.71	7.10	11.84	22.68	7.91	-8.67	-.84	.14	10.12	.30	4	7.39	6.81			
80	148	228	69.41	.57	69.98	4.20	6.91	12.08	23.01	6.62	-10.43	-.96	.14	9.80	.30	4	7.41	6.82			
80	149	229	75.01	.52	75.53	2.52	6.73	12.17	23.37	8.36	-9.21	-1.11	.15	9.48	.30	4	7.42	6.82			
80	150	230	79.13	.47	79.60	4.00	6.52	12.42	23.71	7.13	-10.98	-1.24	.15	9.16	.30	4	7.43	6.83			
80	151	231	84.93	.43	85.36	2.31	6.32	12.50	24.05	8.89	-9.75	-1.38	.15	8.83	.30	4	7.45	6.84			
80	152	232	89.24	.40	89.64	3.79	6.11	12.76	24.39	7.67	-11.51	-1.51	.15	8.51	.28	4	7.46	6.84			
80	153	233	95.21	.38	95.59	2.12	5.91	12.85	24.74	9.43	-10.30	-1.67	.15	8.21	.28	4	7.47	6.85			
80	154	234	99.71	.37	100.08	3.59	5.70	13.11	25.08	8.22	-12.05	-1.80	.15	7.91	.28	4	7.49	6.86			
80	155	235	105.87	.36	106.23	1.92	5.51	13.19	25.43	9.98	-10.84	-1.95	.15	7.60	.28	4	7.50	6.86			
80	156	236	110.55	.37	110.92	3.38	5.30	13.44	25.77	8.78	-12.58	-2.09	.15	7.30	.28	4	7.51	6.87			
80	157	237	116.87	.38	117.25	1.73	5.12	13.54	26.13	10.52	-11.39	-2.26	.15	6.98	.28	4	7.53	6.88			
80	158	238	121.73	.40	122.13	3.19	4.92	13.80	26.47	9.32	-13.13	-2.40	.15	6.69	.26	4	7.54	6.88			
80	159	239	128.23	.43	128.66	1.54	4.74	13.89	26.82	11.07	-11.92	-2.56	.14	6.41	.26	4	7.55	6.89			
80	160	240	133.26	.46	133.72	3.01	4.56	14.15	27.17	9.87	-13.66	-2.73	.14	6.14	.26	4	7.57	6.90			
80	161	241	139.93	.50	140.43	1.37	4.38	14.24	27.52	11.64	-12.45	-2.90	.13	5.86	.26	4	7.58	6.90			
80	162	242	145.13	.52	145.65	2.84	4.22	14.52	27.90	10.47											

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING ENERGY				DECAY ENERGY			GO STA	SADDLE		SHARP	RADIUS		EXPERIMENTAL		
						BN	B2N	BZ	B2Z	BETA	EL-CAP	ALPHA	DEF	MASS	DEF	I	NEU	PRO	MASS	SHELL	DIFF
83	123	206	-9.86	-8.05	-17.91	6.81	15.21	3.73	10.87	-1.32	3.56	3.05		12.28	.30	4	7.07	6.71	-20.12	-10.26	-2.21
83	124	207	-9.23	-8.79	-18.02	8.18	14.99	3.84	11.27	-2.58	1.67	2.86		12.20	.30	4	7.09	6.72	-20.04	-10.81	-2.02
83	125	208	-6.99	-9.56	-16.55	6.61	14.78	4.15	11.69	-7.70	2.94	2.65		12.10	.30	4	7.10	6.72	-18.88	-11.89	-2.33
83	126	209	-6.08	-10.37	-16.45	7.97	14.57	4.25	12.09	-1.96	-7.70	2.45		12.00	.30	4	7.11	6.73	-18.26	-12.18	-1.81
83	127	210	-3.58	-9.45	-13.03	4.65	12.62	4.56	12.51	1.66	.56	3.99		11.88	.30	4	7.13	6.74	-14.78	-11.20	-1.75
83	128	211	-2.42	-8.56	-10.98	6.03	10.67	4.68	12.92	.40	-1.29	5.54		11.76	.30	4	7.14	6.74	-11.84	-9.42	-8.86
83	129	212	.34	-7.72	-7.38	4.47	10.50	4.99	13.33	2.25	-1.03	5.29		11.63	.30	4	7.16	6.75	-8.12	-8.46	-7.74
83	130	213	1.76	-6.92	-5.16	5.85	10.32	5.10	13.74	.99	-1.88	5.05		11.48	.30	4	7.17	6.76	-5.23	-6.99	-7.07
83	131	214	4.77	-6.16	-1.39	4.30	10.15	5.40	14.15	2.83	-6.2	4.81		11.33	.30	4	7.19	6.77	-1.18	-5.95	.21
83	132	215	6.44	-5.43	1.01	5.67	9.98	5.51	14.54	1.57	-2.45	4.58		11.17	.30	4	7.20	6.76	1.73	-4.71	.72
83	133	216	9.69	-4.74	4.95	4.13	9.81	5.80	14.94	3.40	-1.19	4.35		11.01	.30	4	7.22	6.78	5.99	-3.70	1.04
83	134	217	11.60	-4.09	7.51	5.51	9.64	5.92	15.34	2.14	-3.01	4.11		10.83	.30	4	7.23	6.79			
83	135	218	15.08	-3.48	11.60	3.98	9.49	6.21	15.74	3.95	-1.76	3.86		10.65	.30	4	7.25	6.78			
83	136	219	17.24	-2.90	14.34	5.34	9.31	6.31	16.12	2.71	-3.56	3.64		10.45	.30	4	7.26	6.80			
83	137	220	20.95	-2.36	18.59	3.82	9.16	6.61	16.51	4.51	-2.31	3.40		10.25	.30	4	7.27	6.80			
83	138	221	23.34	-1.86	21.48	5.18	9.00	6.71	16.90	3.26	-4.11	3.17		10.04	.30	4	7.29	6.81			
83	139	222	27.27	-1.39	25.88	3.67	8.85	7.00	17.29	5.05	-2.86	2.93		9.84	.28	4	7.30	6.81			
83	140	223	29.89	-.96	28.93	5.02	8.69	7.10	17.67	3.80	-4.65	2.70		9.64	.28	4	7.32	6.82			
83	141	224	34.04	-.56	33.48	3.52	8.54	7.39	18.05	5.58	-3.40	2.46		9.44	.28	4	7.33	6.83			
83	142	225	36.88	-.19	36.69	4.87	8.38	7.48	18.42	4.34	-5.17	2.25		9.23	.28	4	7.34	6.83			
83	143	226	41.24	.14	41.38	3.38	8.24	7.77	18.80	6.10	-3.93	2.00		9.02	.28	4	7.36	6.84			
83	144	227	44.30	.43	44.73	4.72	8.09	7.86	19.17	5.00	-5.70	1.78		8.80	.28	4	7.37	6.85			
83	145	228	48.87	.63	49.50	3.30	8.02	8.21	19.58	6.97	-4.52	1.47	.08	8.58	.28	4	7.39	6.85			
83	146	229	52.13	.68	52.81	4.76	8.06	8.50	19.97	5.84	-6.46	1.06	.11	8.35	.28	4	7.40	6.86			
83	147	230	56.91	.68	57.59	3.30	8.06	8.97	20.34	7.67	-5.40	.66	.12	8.11	.28	4	7.41	6.87			
83	148	231	60.38	.65	61.03	4.63	7.93	9.24	20.71	6.49	-7.26	.40	.13	7.87	.28	4	7.43	6.87			
83	149	232	65.36	.62	65.98	3.13	7.75	9.60	21.07	8.29	-6.10	.20	.13	7.62	.26	4	7.44	6.88			
83	150	233	69.03	.58	69.61	4.43	7.57	9.75	21.44	7.09	-7.90	.02	.14	7.41	.26	4	7.45	6.89			
83	151	234	74.20	.55	74.75	2.93	7.37	10.21	21.80	8.87	-6.72	-.15	.14	7.19	.26	4	7.47	6.89			
83	152	235	78.07	.53	78.60	4.23	7.16	10.16	22.14	7.68	-8.48	-.29	.14	6.96	.26	4	7.48	6.90			
83	153	236	83.43	.51	83.94	2.73	6.96	10.43	22.49	9.45	-7.28	-.45	.14	6.73	.26	4	7.49	6.91			
83	154	237	87.49	.50	87.99	4.02	6.75	10.52	22.84	8.25	-9.02	-.60	.14	6.50	.26	4	7.51	6.91			
83	155	238	93.04	.49	93.53	2.53	6.55	10.77	23.19	9.99	-7.81	-.75	.14	6.26	.26	4	7.52	6.92			
83	156	239	97.29	.50	97.79	3.82	6.34	10.84	23.52	8.80	-9.51	-.89	.14	6.02	.26	4	7.53	6.93			
83	157	240	103.01	.50	103.51	2.34	6.16	11.07	23.88	10.52	-8.27	-1.05	.14	5.80	.24	4	7.55	6.93			
83	158	241	107.45	.52	107.97	3.62	5.96	11.10	24.20	9.32	-9.86	-1.19	.13	5.59	.24	4	7.56	6.94			
83	159	242	113.35	.53	113.88	2.15	5.78	11.24	24.54	11.02	-8.46	-1.36	.13	5.37	.24	4	7.57	6.95			
83	160	243	117.96	.54	118.50	3.45	5.61	11.13	24.87	9.79	-9.95	-1.52	.12	5.16	.24	4	7.59	6.95			
83	161	244	124.04	.53	124.57	2.01	5.45	11.17	25.19	11.46	-8.51	-1.70	.10	4.94	.24	4	7.60	6.96			
83	162	245	128.83	.44	129.27	3.36	5.38	11.10	25.48	10.13	-10.03	-1.95	.06	4.72	.24	4	7.61	6.97			
83	163	246	135.07	.18	135.25	2.09	5.46	11.34	25.81	11.53	-8.79	-2.35		4.49	.24	4	7.63	6.97			
83	164	247	140.03	-.12	139.91	3.41	5.50	11.42	26.13	10.00	-10.46	-2.69		4.29	.22	4	7.64	6.98			
83	165	248	146.44	-.45	145.99	1.99	5.40	11.67	26.46	11.41	-9.24	-2.91		4.10	.22	4	7.65	6.99			
83	166	249	151.57	-.81	150.76	3.30	5.29	11.75	26.78	10.12	-10.90	-3.13		3.91	.22	4	7.66	6.99			
83	167	250	158.14	-1.19	156.95	1.88	5.18	12.00	27.11	11.77	-9.68	-3.35		3.71	.22	4	7.68	7.00			
83	168	251	163.43	-1.59	161.84	3.19	5.07	12.08	27.42	10.56	-11.33	-3.55		3.51	.22	4	7.69	7.01			
83	169	252	170.16	-2.03	168.13	1.78	4.97	12.33	27.74	12.20	-10.12	-3.77		3.31	.22	4	7.70	7.01			
83	170	253	175.62	-2.49	173.13	3.07	4.85	12.40	28.05	10.99	-11.76	-3.98		3.14	.20	4	7.72	7.02			
83	171	254	182.50	-2.97	179.53	1.67	4.75	12.64	28.37	12.63	-10.54	-4.19		2.97	.20	4	7.73	7.02			
83	172	255	188.11	-3.48	184.63	2.97	4.65	12.72	28.68	11.41	-12.18	-4.40		2.80	.20	4	7.74	7.03			
83	173	256	195.15	-4.01	191.14	1.57	4.54	12.96	28.98	13.05	-10.95	-4.60		2.63	.20	4	7.75	7.04			
83	174	257	200.91	-4.57	196.34	2.87	4.44	13.04	29.30	11.82	-12.59	-4.82		2.45	.18	4	7.77	7.05			
83	175	258	208.09	-5.15	202.94	1.48	4.34	13.28	29.60	13.45	-11.37	-5.03		2.31	.18	4	7.78	7.05			
83	176	259	214.01	-5.76	208.25	2.76	4.24	13.35	29.90	12.23	-12.99	-5.23		2.17	.18	4	7.79	7.06			
83	177	260	221.34	-6.39	214.95	1.37	4.14	13.58	30.20	13.85	-11.78	-5.44		2.03	.18	4	7.80	7.06			
83	178	261	227.40	-7.04	220.36	2.66	4.04	13.66	30.50	12.64	-13.39	-5.64		1.88	.18	4	7.82	7.07			
83	179	262	234.87	-7.72	227.15	1.28	3.94	13.88	30.80	14.25	-12.18	-5.85		1.73	.18	4	7.83	7.08			
83	180	263	241.08	-8.42	232.66	2.56	3.85	13.96	31.10	13.04	-13.78	-6.05		1.60	.16	4	7.84	7.08			
83	181	264	248.69	-9.14	239.55	1.18	3.75	14.18	31.39	14.64	-12.57	-6.25		1.48	.16	4	7.85	7.09			
83	182	265	255.04	-9.89	245.15	2.46	3.66	14.25	31.68	13.43	-14.17	-6.45		1.36	.16	4	7.87	7.10			
83	183	266	262.78	-10.65	252.13	1.10	3.56	14.48	31.97	15.03	-12.96	-6.65		1.24	.16	4	7.88	7.10			
83	184	267	269.27	-11.44	257.83	2.37	3.46	14.55	32.25	13.83	-16.25	-6.85		1.13	.14	4	7.89	7.11			
83	186	269	283.77	-9.69	274.08	.58	-11	14.85	32.85	15.91	-16.62	-3.85		.94	.14	4	7.91	7.12			
83	188	271	298.53	-8.05	290.48	.51	-26	15.15	33.43	16.28	-16.98	-4.29		.75	.14	4	7.94	7.14			
83	190	273	313.55	-6.54	307.01	.44	-39	15.44	34.01	16.63	-17.35	-4.74		.61	.12	4	7.96	7.15			
83	192	275	328.82	-5.14	323.68	.37	-53	15.73	34.58	16.99	-17.70	-5.18		2.69	.19ALP		7.99	7.16			
83	194	277	344.34	-3.85	340.49	.30	-66														

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING ENERGY				DECAY ENERGY			GO STA	SADDLE		SHARP		RADIUS		EXPERIMENTAL	
						BN	B2N	BZ	B2Z	BETA	EL-CAP	ALPHA	DEF	MASS	DEF	I	NEU	PRO	MASS	SHELL	DIFF
84	99	183	9.50	.40	9.90	9.90	21.72	-5.2	-2.24	-11.74	10.92	9.79		9.66	.28	4	6.70	6.58			
84	100	184	5.94	.51	6.45	11.52	21.42	-1.8	-1.76	-12.89	8.87	9.61		9.85	.28	4	6.71	6.59			
84	101	185	4.33	.58	4.91	9.61	21.14	-0.5	-1.28	-10.75	10.15	9.40		10.03	.28	4	6.73	6.59			
84	102	186	1.14	.61	1.75	11.23	20.85	.29	-0.81	-11.96	8.12	9.22		10.19	.28	4	6.75	6.60			
84	103	187	-1.10	.60	.50	9.33	20.56	.41	-1.34	-9.90	9.41	9.02		10.34	.28	4	6.76	6.60			
84	104	188	-2.93	.55	-2.38	10.95	20.28	.76	.14	-11.19	7.39	8.83		10.48	.28	4	6.78	6.61			
84	105	189	-3.83	.46	-3.37	9.06	20.01	.89	.61	-9.23	8.66	8.62		10.61	.28	4	6.80	6.62			
84	106	190	-6.30	.34	-5.96	10.67	19.73	1.22	1.06	-10.58	6.67	8.44		10.73	.28	4	6.81	6.62			
84	107	191	-6.85	.17	-6.68	8.79	19.46	1.34	1.53	-8.69	7.95	8.23		10.83	.28	4	6.83	6.63			
84	108	192	-8.98	-.03	-9.01	10.40	19.19	1.67	1.98	-10.08	5.96	8.04		10.92	.28	4	6.85	6.64			
84	109	193	-9.20	-.27	-9.47	8.53	18.93	1.79	2.43	-8.18	7.24	7.84		11.00	.28	4	6.86	6.64	-7.40	1.80	2.07
84	110	194	-10.99	-.55	-11.54	10.14	18.67	2.12	2.89	-9.45	5.27	7.64		11.07	.28	4	6.88	6.65	-9.78	1.21	1.76
84	111	195	-10.90	-.87	-11.77	8.29	18.43	2.25	3.36	-7.49	6.53	7.42		11.13	.28	4	6.89	6.66	-10.30	.60	1.47
84	112	196	-12.36	-1.22	-13.58	9.89	18.18	2.57	3.80	-8.76	4.57	7.23		11.19	.30	4	6.91	6.66	-12.46	-.10	1.12
84	113	197	-11.95	-1.60	-13.55	8.05	17.93	2.69	4.24	-6.79	5.85	7.02		11.24	.30	4	6.92	6.67	-12.76	-.81	.79
84	114	198	-13.09	-2.02	-15.11	9.64	17.68	3.00	4.68	-8.05	3.90	6.83		11.28	.30	4	6.94	6.67	-14.74	-1.65	.37
84	115	199	-12.37	-2.47	-14.84	7.81	17.44	3.12	5.12	-6.10	5.18	6.62		11.31	.30	4	6.96	6.68	-14.86	-2.49	-.02
84	116	200	-13.20	-2.96	-16.16	9.39	17.19	3.43	5.55	-7.36	3.25	6.42		11.33	.30	4	6.97	6.69	-16.63	-3.43	-.47
84	117	201	-12.19	-3.48	-15.67	7.58	16.97	3.55	5.99	-5.43	4.51	6.21		11.33	.30	4	6.99	6.69	-16.42	-4.23	-.75
84	118	202	-12.72	-4.04	-16.76	9.16	16.74	3.87	6.42	-6.70	2.59	6.00		11.32	.30	4	7.00	6.70	-17.89	-5.17	-1.13
84	119	203	-11.41	-4.63	-16.04	7.35	16.51	3.98	6.86	-4.78	3.86	5.79		11.31	.30	4	7.02	6.71	-17.43	-6.02	-1.39
84	120	204	-11.65	-5.25	-16.90	8.93	16.29	4.29	7.28	-6.04	1.95	5.59		11.28	.30	4	7.03	6.71	-18.45	-6.80	-1.55
84	121	205	-10.06	-5.90	-15.96	7.13	16.06	4.40	7.71	-4.13	3.21	5.38		11.24	.30	4	7.05	6.72	-17.70	-7.64	-1.74
84	122	206	-10.01	-6.58	-16.59	8.70	15.84	4.71	8.13	-5.38	1.32	5.18		11.19	.30	4	7.06	6.72	-18.31	-8.30	-1.72
84	123	207	-8.15	-7.29	-15.44	6.93	15.63	4.82	8.55	-3.49	2.58	4.96		11.13	.30	4	7.08	6.73	-17.13	-8.98	-1.69
84	124	208	-7.81	-8.04	-15.85	8.48	15.41	5.12	8.96	-4.74	.70	4.77		11.06	.30	4	7.09	6.74	-17.46	-9.65	-1.61
84	125	209	-5.68	-8.81	-14.49	6.71	15.20	5.23	9.37	-2.86	1.96	4.56		10.98	.30	4	7.11	6.74	-16.36	-10.68	-1.87
84	126	210	-5.08	-9.61	-14.69	8.27	14.98	5.53	9.78	-4.11	-1.66	4.35		10.88	.30	4	7.12	6.75	-15.94	-10.86	-1.25
84	127	211	-2.68	-8.70	-11.38	4.76	13.03	5.64	10.21	-.49	-.40	5.89		10.78	.30	4	7.14	6.76	-12.43	-9.75	-1.05
84	128	212	-1.81	-7.82	-9.63	6.32	11.08	5.94	10.62	-1.75	-2.25	7.43		10.68	.30	4	7.15	6.76	-10.36	-8.55	-.73
84	129	213	.84	-6.98	-6.14	4.58	10.90	6.05	11.03	-.11	-.98	7.19		10.56	.30	4	7.17	6.77	-6.65	-7.49	-.51
84	130	214	1.97	-6.19	-4.22	6.14	10.73	6.35	11.45	-1.16	-2.83	6.95		10.44	.28	4	7.18	6.78	-4.46	-6.43	-.24
84	131	215	4.87	-5.43	-.56	4.41	10.56	6.46	11.86	.69	-1.57	6.70		10.32	.28	4	7.20	6.78	-.51	-5.38	.05
84	132	216	6.25	-4.71	1.54	5.97	10.39	6.75	12.27	-.57	-3.40	6.46		10.19	.28	4	7.21	6.79	1.79	-4.46	.25
84	133	217	9.39	-4.02	5.37	4.25	10.21	6.86	12.67	1.26	-2.14	6.22		10.05	.28	4	7.22	6.80	5.97	-3.42	.60
84	134	218	11.40	-3.38	7.65	5.79	10.04	7.15	13.06	.02	-3.95	6.00		9.91	.28	4	7.24	6.80	8.39	-2.64	.74
84	135	219	14.40	-2.77	11.63	4.09	9.88	7.26	13.47	1.83	-2.71	5.75		9.76	.28	4	7.25	6.81			
84	136	220	16.28	-2.20	14.08	5.62	9.71	7.54	13.86	.59	-4.51	5.52		9.60	.28	4	7.27	6.82			
84	137	221	19.88	-1.66	18.22	3.93	9.56	7.65	14.26	2.39	-3.26	5.27		9.44	.28	4	7.28	6.82			
84	138	222	21.99	-1.16	20.83	5.47	9.39	7.94	14.65	1.14	-5.05	5.04		9.27	.28	4	7.30	6.83			
84	139	223	25.83	-.69	25.14	3.77	9.23	8.03	15.03	2.95	-3.79	4.81		9.09	.28	4	7.31	6.83			
84	140	224	28.17	-.26	27.91	5.30	9.07	8.31	15.41	1.70	-5.57	4.59		8.90	.28	4	7.32	6.84			
84	141	225	32.22	.13	32.35	3.62	8.93	8.42	15.81	3.48	-4.33	4.34		8.71	.28	4	7.34	6.85			
84	142	226	34.78	.49	35.27	5.15	8.78	8.70	16.19	2.35	-6.11	4.10		8.51	.28	4	7.35	6.85			
84	143	227	39.05	.68	39.73	3.62	8.77	8.94	16.71	4.31	-5.00	3.73	.09	8.31	.28	4	7.37	6.86			
84	144	228	41.84	.70	42.54	5.26	8.88	9.48	17.35	3.17	-6.96	3.23	.12	8.10	.28	4	7.38	6.87			
84	145	229	46.31	.66	46.97	3.63	8.90	9.82	18.03	4.99	-5.85	2.69	.13	7.90	.26	4	7.39	6.87			
84	146	230	49.31	.61	49.92	5.13	8.75	10.19	18.68	3.82	-7.67	2.19	.14	7.71	.26	4	7.41	6.88			
84	147	231	53.99	.55	54.54	3.45	8.58	10.34	19.31	5.62	-6.49	1.69	.14	7.51	.26	4	7.42	6.88			
84	148	232	57.20	.49	57.69	4.92	8.37	10.64	19.88	4.44	-8.29	1.25	.15	7.31	.26	4	7.43	6.89			
84	149	233	62.08	.43	62.51	3.25	8.17	10.75	20.36	6.22	-7.10	.81	.15	7.11	.26	4	7.45	6.90			
84	150	234	65.49	.38	65.87	4.71	7.96	11.03	20.78	5.03	-8.88	.46	.15	6.90	.26	4	7.46	6.91			
84	151	235	70.57	.34	70.91	3.03	7.75	11.13	21.18	6.81	-7.69	.19	.15	6.69	.26	4	7.47	6.91			
84	152	236	74.18	.31	74.49	4.49	7.53	11.39	21.56	5.62	-9.45	-.01	.15	6.47	.26	4	7.49	6.92			
84	153	237	79.45	.29	79.74	2.82	7.32	11.49	21.92	7.38	-8.25	-.20	.15	6.25	.26	4	7.50	6.93			
84	154	238	83.26	.28	83.54	4.27	7.10	11.74	22.26	6.20	-9.99	-.35	.15	6.04	.24	4	7.51	6.93			
84	155	239	88.71	.28	88.99	2.62	6.90	11.83	22.60	7.94	-8.79	-.51	.15	5.85	.24	4	7.53	6.94			
84	156	240	92.71	.29	93.00	4.07	6.68	12.08	22.92	6.76	-10.52	-.65	.15	5.65	.24	4	7.54	6.94			
84	157	241	98.35	.30	98.65	2.41	6.48	12.15	23.23	8.49	-9.31	-.79	.15	5.45	.24	4	7.55	6.95			
84	158	242	102.53	.33	102.86	3.86	6.28	12.39	23.50	7.30	-11.02	-.90	.15	5.24	.24	4	7.57	6.96			
84	159	243	108.34	.36	108.70	2.23	6.09	12.47	23.71	9.02	-9.80	-1.02	.15	5.04	.24	4	7.58	6.96			
84	160	244	112.71	.40	113.11	3.67	5.89	12.68	23.81	7.82	-11.45	-1.09	.14	4.83	.24	4	7.59	6.97			
84	161	245	118.70	.44	119.14	2.04	5.71	12.71	23.89	9.53	-10.13	-1.12	.14	4.61	.24	4	7.61	6.98			
84	162	246	123.24	.48	123.72	3.49	5.53	12.83	23.94	8.31	-11.53	-1.05	.13	4.43	.22	4	7.62	6.98			
84	163	247	129.40	.50	129.90	1.89	5.39	12.64	23.98	9.97	-10.01	-.98	.12	4.24	.22	4	7.63	6.99			
84	164	248	134.12	.46	134.58	3.40	5.29	12.62	24.04	8.67	-11.41	-.92	.08	4.06	.22	4	7.6				

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BN	BINDING B2N	ENERGY B2	B2Z	DECAY ENERGY EL-CAP	ALPHA	GD STA DEF	MASS	SADDLE DEF	SHARP NEU	PROIUS PRO	EXPERIMENTAL MASS SHELL	DIFF	
88	112	200	11.13	.77	11.90	10.36	19.15	1.61	1.40	-9.96	6.36	7.91	.13	7.07	.24	4	6.94	6.74	
88	113	201	10.66	.76	11.42	8.55	18.91	1.41	1.46	-8.09	8.00	8.02	.11	7.13	.24	4	6.96	6.75	
88	114	202	8.65	.56	9.21	10.28	18.83	1.50	1.68	-9.59	6.29	8.06		7.18	.24	4	6.97	6.75	
88	115	203	8.49	.11	8.60	8.69	18.96	1.62	2.11	-8.11	7.54	7.87		7.22	.24	4	6.99	6.76	
88	116	204	6.80	-.38	6.42	10.25	18.94	1.93	2.54	-9.69	5.62	7.69		7.26	.26	4	7.00	6.77	
88	117	205	6.95	-.91	6.04	8.45	18.70	2.04	2.97	-7.79	6.87	7.49		7.30	.26	4	7.02	6.77	
88	118	206	5.57	-1.46	4.11	10.01	18.45	2.35	3.39	-9.03	4.97	7.31		7.33	.26	4	7.03	6.78	4.29 -1.28 .18
88	119	207	6.02	-2.05	3.97	8.21	18.22	2.46	3.82	-7.12	6.21	7.11		7.35	.26	4	7.05	6.79	3.89 -2.13 -.08
88	120	208	4.95	-2.67	2.28	9.76	17.98	2.77	4.24	-8.36	4.32	6.93		7.37	.26	4	7.06	6.79	2.03 -2.92 -.25
88	121	209	5.69	-3.32	2.37	7.98	17.74	2.88	4.66	-6.47	5.57	6.73		7.37	.26	4	7.08	6.80	1.96 -3.73 -.41
88	122	210	4.91	-4.00	.91	9.53	17.51	3.18	5.07	-7.71	3.69	6.55		7.37	.26	4	7.09	6.80	.50 -4.41 -.41
88	123	211	5.94	-4.72	1.22	7.76	17.29	3.29	5.49	-5.83	4.93	6.34		7.36	.26	4	7.11	6.81	3.26 -4.23 -.51
88	124	212	5.45	-5.46	-.01	9.30	17.06	3.59	5.90	-7.06	3.06	6.16		7.34	.26	4	7.12	6.82	-3.30 -5.75 -.29
88	125	213	6.75	-6.23	.52	7.54	16.84	3.70	6.31	-5.19	4.31	5.96		7.32	.26	4	7.14	6.82	.17 -6.58 -.35
88	126	214	6.54	-7.03	-.49	9.08	16.62	4.00	6.72	-6.43	.71	5.77		7.29	.26	4	7.15	6.83	-.03 -6.57 .46
88	127	215	8.12	-6.14	1.98	5.60	14.68	4.10	7.14	-2.84	1.96	7.30		7.25	.26	4	7.17	6.84	2.55 -5.57 .57
88	128	216	8.19	-5.28	2.91	7.14	12.74	4.40	7.55	-4.08	.12	8.83		7.20	.26	4	7.18	6.84	3.26 -4.93 .35
88	129	217	10.02	-4.46	5.56	5.42	12.56	4.52	7.97	-2.24	1.36	8.60		7.15	.26	4	7.20	6.85	5.89 -4.13 .33
88	130	218	10.36	-3.68	6.68	6.95	12.37	4.81	8.37	-3.48	-.47	8.38		7.09	.26	4	7.21	6.85	6.66 -3.70 .20
88	131	219	12.46	-2.94	9.52	5.23	12.19	4.92	8.77	-1.65	.78	8.15		7.02	.24	4	7.23	6.86	9.39 -3.07 -.13
88	132	220	13.06	-2.23	10.83	6.76	12.00	5.21	9.17	-2.88	-1.04	7.93		6.96	.24	4	7.24	6.87	10.28 -2.78 -.55
88	133	221	15.40	-1.57	13.83	5.06	11.83	5.22	9.59	-1.07	.19	7.69		6.89	.24	4	7.25	6.87	12.97 -2.92 -.86
88	134	222	16.26	-.93	15.33	6.58	11.64	5.60	9.97	-2.29	-1.60	7.48		6.82	.24	4	7.27	6.88	14.34 -1.92 -.99
88	135	223	18.85	-.34	18.51	4.89	11.47	5.71	10.37	-.49	-.37	7.25		6.74	.24	4	7.28	6.89	17.26 -1.59 -1.25
88	136	224	19.96	.22	20.18	6.41	11.29	5.99	10.76	-1.71	-2.16	7.03		6.65	.24	4	7.30	6.89	18.83 -1.13 -1.35
88	137	225	22.79	.64	23.43	4.81	11.22	6.20	11.26	.07	-.97	6.70	.09	6.56	.24	4	7.31	6.90	22.01 -0.78 -1.42
88	138	226	24.14	.67	24.81	6.70	11.51	6.88	12.10	-1.12	-2.81	6.02	.13	6.47	.24	4	7.32	6.90	23.69 -0.45 -1.12
88	139	227	27.21	.58	27.79	5.09	11.79	7.12	13.02	.71	-1.63	5.26	.14	6.37	.24	4	7.34	6.91	27.20 -0.01 -.59
88	140	228	28.80	.46	29.26	6.60	11.69	7.45	13.65	-.47	-3.45	4.50	.15	6.26	.24	4	7.35	6.92	28.96 .16 -.30
88	141	229	32.09	.32	32.41	4.91	11.52	7.59	14.14	1.35	-2.27	3.75	.16	6.15	.24	4	7.37	6.92	32.70 .61 -.29
88	142	230	33.91	.18	34.09	6.39	11.31	7.88	14.57	.16	-4.09	3.34	.16	6.04	.24	4	7.38	6.93	34.59 .68 .50
88	143	231	37.43	.05	37.48	4.69	11.07	7.98	14.97	1.97	-2.90	3.09	.16	5.92	.24	4	7.39	6.94	
88	144	232	39.48	-.07	39.41	6.15	10.83	8.26	15.36	.80	-4.69	2.90	.17	5.80	.24	4	7.41	6.94	
88	145	233	43.22	-.18	43.04	4.45	10.59	8.36	15.73	2.60	-3.50	2.74	.17	5.67	.24	4	7.42	6.95	
88	146	234	45.49	-.29	45.20	5.90	10.35	8.63	16.11	1.42	-5.29	2.59	.17	5.54	.24	4	7.43	6.95	
88	147	235	49.44	-.38	49.06	4.21	10.11	8.73	16.48	3.21	-4.11	2.44	.17	5.40	.24	4	7.45	6.96	
88	148	236	51.93	-.46	51.47	5.66	9.87	8.99	16.84	2.03	-5.88	2.31	.17	5.26	.24	4	7.46	6.97	
88	149	237	56.08	-.53	55.55	3.99	9.65	9.09	17.21	3.80	-4.71	2.16	.17	5.12	.22	4	7.48	6.97	
88	150	238	58.79	-.59	58.20	5.42	9.41	9.34	17.56	2.63	-6.46	2.04	.17	5.00	.22	4	7.49	6.98	
88	151	239	63.15	-.63	62.52	3.75	9.18	9.44	17.92	4.40	-5.28	1.91	.17	4.87	.22	4	7.50	6.99	
88	152	240	66.06	-.67	65.39	5.19	8.95	9.69	18.27	3.22	-7.04	1.78	.17	4.74	.22	4	7.52	6.99	
88	153	241	70.62	-.69	69.93	3.53	8.72	9.79	18.63	4.97	-5.86	1.65	.17	4.60	.22	4	7.53	7.00	
88	154	242	73.73	-.70	73.03	4.97	8.50	10.04	18.97	3.80	-7.60	1.52	.17	4.47	.22	4	7.54	7.01	
88	155	243	78.48	-.70	77.78	3.32	8.29	10.14	19.33	5.53	-6.43	1.38	.17	4.33	.22	4	7.56	7.01	
88	156	244	81.79	-.68	81.11	4.75	8.06	10.39	19.67	4.37	-8.16	1.26	.17	4.18	.22	4	7.57	7.02	
88	157	245	86.74	-.65	86.09	3.10	7.84	10.47	20.00	6.11	-6.97	1.13	.17	4.04	.22	4	7.58	7.02	
88	158	246	90.24	-.62	89.62	4.53	7.64	10.73	20.35	4.92	-8.71	1.00	.17	3.89	.22	4	7.59	7.03	
88	159	247	95.37	-.57	94.80	2.90	7.43	10.81	20.69	6.65	-7.53	.86	.17	3.74	.20	4	7.61	7.04	
88	160	248	99.07	-.51	98.56	4.31	7.21	11.05	21.01	5.48	-9.24	.74	.17	3.61	.20	4	7.62	7.04	
88	161	249	104.38	-.44	103.94	2.69	7.01	11.14	21.35	7.19	-8.06	.61	.17	3.48	.20	4	7.63	7.05	
88	162	250	108.26	-.35	107.91	4.11	6.79	11.38	21.66	6.03	-9.75	.49	.17	3.35	.20	4	7.65	7.06	
88	163	251	113.75	-.26	113.49	2.49	6.60	11.46	21.99	7.73	-8.58	.36	.17	3.22	.20	4	7.66	7.06	
88	164	252	117.81	-.16	117.65	3.91	6.40	11.70	22.31	6.55	-10.27	.23	.17	3.08	.20	4	7.67	7.07	
88	165	253	123.48	-.05	123.43	2.30	6.20	11.77	22.61	8.25	-9.07	.10	.16	2.94	.20	4	7.68	7.08	
88	166	254	127.72	.07	127.79	3.71	6.01	12.00	22.89	7.08	-10.73	-.01	.16	2.80	.18	4	7.70	7.08	
88	167	255	133.55	.19	133.74	2.12	5.83	12.07	23.12	8.75	-9.50	-.14	.15	2.68	.18	4	7.71	7.09	
88	168	256	137.97	.30	138.27	3.54	5.66	12.25	23.11	7.56	-10.94	-.25	.14	2.57	.18	4	7.72	7.09	
88	169	257	143.97	.39	144.36	1.98	5.52	12.14	22.91	9.18	-9.21	-.35	.13	2.45	.18	4	7.74	7.10	
88	170	258	148.55	.34	148.89	3.54	5.33	11.97	22.82	7.82	-10.44	-.33	.06	2.33	.18	4	7.75	7.11	
88	171	259	154.72	-.14	154.58	2.38	5.93	12.04	23.13	8.91	-9.23	-.53	.06	2.20	.18	4	7.76	7.11	
88	172	260	159.47	-.65	158.82	3.83	6.22	12.27	23.45	7.27	-10.86	-.74		2.08	.18	4	7.77	7.12	
88	173	261	165.79	-1.18	164.61	2.29	6.12	12.36	23.76	8.90	-9.66	-.94		1.96	.18	4	7.79	7.13	
88	174	262	170.71	-1.74	168.97	3.71	6.00	12.58	24.07	7.71	-11.27	-1.14		1.84	.16	4	7.80	7.13	
88	175	263	177.19	-2.32	174.87	2.17	5.89	12.66	24.38	9.33	-10.07	-1.35		1.74	.16	4	7.81	7.14	
88	176	264	182.27	-2.93	179.34	3.60	5.78	12.89	24.69	8.14	-11.68	-1.55		1.64	.16	4	7.82	7.15	
88	177	265	188.90	-3.55	185.35	2.07	5.66	12.97	24.99	9.75	-10.48	-1.75		1.53	.16	4	7.84	7.15	
88	178	266	194.13	-4.21	189.92	3.49	5.56	13.19	25.30	8.55	-12.09	-1.95		1.43	.16	4	7.85	7.16	
88	179	267	200.91	-4.88	196.03	1.97	5.46	13.27	25.60	10.16	-10.89	-2.15		1.32	.16	4	7.86	7.17	
88	180	268	206.30	-5.58	200.72	3.38	5.35	13.49	25.90	8.97	-12.48	-2.35		1.23	.14	4	7.87	7.17	
88	181	269	213.23	-6.30	206.93	1.86	5.24	13.5											

Z	N	DROPLET		CALC SHELL	CALC MASS	BINDING		ENERGY		DECAY ENERGY			GD STA DEF	SADDLE MASS	SHARP DEF I	SHARP NEU	RADIUS PRO	EXPERIMENTAL			
		A	MASS			BN	BZN	BZ	BZZ	BETA	EL-CAP	ALPHA						MASS	SHELL	DIFF	
91	137	228	30.09	.37	30.46	6.06	13.62	4.13	10.05	-2.26	2.33	6.14	.15	4.84	.22	4	7.33	6.95	28.88	-1.21	-1.58
91	138	229	30.96	.20	31.16	7.37	13.44	4.25	10.50	-1.44	.51	5.37	.16	4.78	.22	4	7.35	6.96	29.90	-1.06	-1.26
91	139	230	33.36	.03	33.39	5.84	13.21	4.55	10.91	.38	1.69	5.03	.17	4.71	.22	4	7.36	6.97	32.19	-1.17	-1.20
91	140	231	34.47	-.14	34.33	7.13	12.97	4.66	11.31	-.80	-.13	4.82	.17	4.65	.22	4	7.37	6.97	33.44	-1.03	-.89
91	141	232	37.11	-.31	36.80	5.60	12.73	4.94	11.71	1.01	1.04	4.65	.17	4.57	.22	4	7.39	6.98	35.95	-1.16	-.85
91	142	233	38.46	-.46	38.00	6.88	12.47	5.05	12.09	-.16	-.76	4.51	.17	4.49	.22	4	7.40	6.99	37.51	-.95	-.49
91	143	234	41.33	-.60	40.73	5.35	12.22	5.32	12.46	1.64	-.42	4.37	.17	4.41	.22	4	7.42	6.99	40.38	-.95	-.35
91	144	235	42.92	-.73	42.19	6.61	11.96	5.42	12.83	.47	-1.37	4.26	.18	4.33	.22	4	7.43	7.00	42.33	-.59	.14
91	145	236	46.01	-.85	45.16	5.10	11.71	5.69	13.20	2.25	-.21	4.12	.18	4.24	.22	4	7.44	7.00	45.56	-.45	.40
91	146	237	47.82	-.96	46.86	6.37	11.47	5.79	13.57	1.08	-1.99	4.00	.18	4.14	.22	4	7.46	7.01	47.71	-.11	.85
91	147	238	51.13	-1.05	50.08	4.86	11.22	6.06	13.94	2.85	-.82	3.87	.18	4.06	.20	4	7.47	7.02	51.30	.17	1.22
91	148	239	53.17	-1.13	52.04	6.12	10.97	6.15	14.29	1.69	-2.59	3.76	.18	3.97	.20	4	7.48	7.02			
91	149	240	56.70	-1.20	55.50	4.61	10.73	6.42	14.65	3.46	-1.42	3.64	.18	3.89	.20	4	7.50	7.03			
91	150	241	58.95	-1.25	57.70	5.87	10.48	6.51	15.00	2.29	-3.18	3.52	.18	3.80	.20	4	7.51	7.04			
91	151	242	62.69	-1.30	61.39	4.37	10.25	6.78	15.36	4.04	-2.02	3.39	.18	3.71	.20	4	7.52	7.04			
91	152	243	65.15	-1.33	63.82	5.64	10.02	6.87	15.71	2.87	-3.77	3.27	.18	3.61	.20	4	7.54	7.05			
91	153	244	69.10	-1.35	67.75	4.14	9.78	7.13	16.06	4.62	-2.60	3.15	.18	3.51	.20	4	7.55	7.05			
91	154	245	71.77	-1.35	70.42	5.40	9.55	7.22	16.40	3.46	-4.34	3.04	.18	3.41	.20	4	7.56	7.06			
91	155	246	75.91	-1.35	74.56	3.93	9.33	7.48	16.76	5.19	-3.18	2.90	.18	3.31	.20	4	7.58	7.07			
91	156	247	78.79	-1.33	77.46	5.18	9.10	7.57	17.10	4.03	-4.91	2.79	.18	3.21	.20	4	7.59	7.07			
91	157	248	83.13	-1.30	81.83	3.70	8.88	7.83	17.44	5.75	-3.75	2.66	.18	3.10	.20	4	7.60	7.08			
91	158	249	86.21	-1.26	84.95	4.95	8.66	7.91	17.78	4.59	-5.47	2.54	.18	2.99	.18	4	7.61	7.09			
91	159	250	90.74	-1.20	89.54	3.49	8.44	8.17	18.12	6.31	-4.30	2.42	.18	2.90	.18	4	7.63	7.09			
91	160	251	94.01	-1.14	92.87	4.74	8.22	8.26	18.46	5.14	-6.02	2.29	.18	2.81	.18	4	7.64	7.10			
91	161	252	98.73	-1.06	97.67	3.28	8.01	8.51	18.79	6.85	-4.85	2.17	.18	2.71	.18	4	7.65	7.10			
91	162	253	102.20	-.97	101.23	4.52	7.79	8.59	19.11	5.70	-6.54	2.06	.18	2.61	.18	4	7.67	7.11			
91	163	254	107.10	-.87	106.23	3.07	7.59	8.84	19.44	7.40	-5.39	1.92	.17	2.52	.18	4	7.68	7.12			
91	164	255	110.75	-.76	109.99	4.31	7.38	9.12	19.77	6.24	-7.08	1.80	.17	2.41	.18	4	7.69	7.12			
91	165	256	115.83	-.64	115.19	2.87	7.18	9.17	20.10	7.92	-5.92	1.67	.17	2.31	.18	4	7.70	7.13			
91	166	257	119.67	-.51	119.16	4.11	6.97	9.24	20.41	6.77	-7.59	1.56	.17	2.21	.18	4	7.72	7.14			
91	167	258	124.93	-.37	124.56	2.67	6.77	9.49	20.73	8.45	-6.43	1.42	.17	2.10	.18	4	7.73	7.14			
91	168	259	128.94	-.23	128.71	3.91	6.59	9.56	21.05	7.28	-8.10	1.29	.17	2.00	.16	4	7.74	7.15			
91	169	260	134.37	-.07	134.30	2.48	6.40	9.80	21.34	8.94	-6.92	1.16	.16	1.91	.16	4	7.75	7.15			
91	170	261	138.56	.09	138.65	3.72	6.21	9.86	21.60	7.78	-8.53	1.05	.16	1.82	.16	4	7.77	7.16			
91	171	262	144.16	.24	144.40	2.32	6.04	10.07	21.72	9.41	-7.09	.91	.15	1.73	.16	4	7.78	7.17			
91	172	263	148.52	.35	148.87	3.60	5.92	9.91	21.42	8.20	-8.09	.77	.12	1.64	.16	4	7.79	7.17			
91	173	264	154.28	.08	154.36	2.57	6.18	9.89	21.48	9.41	-6.65	.39		1.55	.16	4	7.80	7.18			
91	174	265	158.81	-.48	158.33	4.10	6.68	9.97	21.79	7.61	-8.26	.19		1.46	.16	4	7.82	7.19			
91	175	266	164.74	-1.06	163.68	2.72	6.83	10.20	22.10	9.12	-7.08	-.01		1.37	.14	4	7.83	7.19			
91	176	267	169.43	-1.66	167.77	3.98	6.71	10.28	22.41	7.95	-8.68	-.20		1.29	.14	4	7.84	7.20			
91	177	268	175.52	-2.29	173.23	2.61	6.60	10.51	22.72	9.55	-7.50	-.40		1.22	.14	4	7.85	7.20			
91	178	269	180.37	-2.94	177.43	3.87	6.48	10.59	23.02	8.37	-9.10	-.59		1.14	.14	4	7.87	7.21			
91	179	270	186.61	-3.61	183.00	2.50	6.37	10.82	23.33	9.96	-7.92	-.79		1.07	.14	4	7.88	7.22			
91	180	271	191.62	-4.31	187.31	3.76	6.26	10.89	23.63	8.78	-9.51	-.99		.99	.14	4	7.89	7.22			
91	181	272	198.01	-5.03	192.98	2.40	6.16	11.13	23.94	10.36	-8.34	-1.19		.91	.14	4	7.90	7.23			
91	182	273	203.18	-5.77	197.41	3.65	6.04	11.20	24.23	9.19	-9.91	-1.37		.85	.12	4	7.91	7.24			
91	183	274	209.72	-6.53	203.19	2.29	5.94	11.43	24.53	10.77	-8.74	-1.57		.79	.12	4	7.93	7.24			
91	184	275	215.04	-7.32	207.72	3.54	5.83	11.50	24.82	9.59	-11.99	-1.76		.73	.12	4	7.94	7.25			
91	185	276	221.73	-8.45	215.28	.51	4.05	11.72	25.12	12.84	-10.81	-.28		.67	.12	4	7.95	7.26			
91	186	277	227.19	-9.62	221.57	1.77	2.29	11.80	25.43	11.65	-12.38	1.18		.61	.12	4	7.96	7.26			
91	187	278	234.03	-4.81	229.22	.43	2.20	12.02	25.72	13.23	-11.19	.97		.55	.12	4	7.97	7.27			
91	188	279	239.64	-4.03	235.61	1.68	2.11	12.10	26.01	12.05	-12.75	.77		2.25	.19ALP		7.99	7.27			
91	189	280	246.61	-3.29	243.32	.35	2.04	12.32	26.32	13.59	-11.59	.54		1.88	.19ALP		8.00	7.28			
91	190	281	252.36	-2.56	249.80	1.60	1.95	12.40	26.60	12.43	-13.13	.33		1.53	.19ALP		8.01	7.29			
91	191	282	259.47	-1.87	257.60	.27	1.87	12.62	26.90	13.97	-11.96	.12		1.19	.19ALP		8.02	7.29			
91	192	283	265.37	-1.21	264.16	1.51	1.78	12.69	27.18	12.80	-13.50	-.09		.87	.20ALP		8.03	7.30			
91	193	284	272.61	-.57	272.04	.19	1.70	12.91	27.47	14.34	-12.33	-.30		.55	.20ALP		8.05	7.31			
91	194	285	278.64	.04	278.68	1.43	1.62	12.98	27.76	13.17	-13.72	-.51		.26	.22ALP		8.06	7.31			
91	195	286	286.02	-.05	285.97	.78	2.21	13.72	28.71	14.34	-12.40	-1.39	.17	.03	.26ALP		8.07	7.32			
91	196	287	292.18	-.32	291.86	2.18	2.96	13.81	29.44	13.20	-13.97	-2.42	.18	-.16	.28ALP		8.08	7.32			
91	197	288	299.69	-.59	299.10	.83	3.01	14.01	29.73	14.76	-12.84	-3.43	.18	-.32	.29ALP		8.09	7.33			
91	198	289	305.99	-.84	305.15	2.03	2.85	14.08	29.99	13.63	-14.39	-4.00	.18	-.46	.30ALP		8.10	7.34			
91	199	290	313.62	-1.09	312.53	.68	2.71	14.29	30.28	15.17	-13.27	-4.14	.19	-.60	.30ALP		8.12	7.34			
91	200	291	320.05	-1.32	318.73	1.87	2.56	14.35	30.54	14.05	-14.81	-4.26	.19	-.73	.30ALP		8.13	7.35			
91	201	292	327.81	-1.54	326.27	.53	2.41	14.56	30.81	15.60	-13.68	-4.38	.19	-.86	.31ALP		8.14	7.36			
91	202	293	334.36	-1.74	332.62	1.73	2.25	14.62	31.07	14.47	-15.22	-4.50	.19	-.99	.31ALP		8.15	7.36			
91	203	294	342.24	-1.94	340.30																

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING BN	ENERGY BZN	BZ2	DECAY BETA	ENERGY EL-CAP	ALPHA	GD STA DEF	SADDLE MASS	DEF I	SHARP NEU	RADIUS PRO	EXPERIMENTAL MASS	SHELL	DIFF
92	110	202	46.04	-.30	45.74	11.49	21.48	-1.16	-1.62	-13.08	8.89	9.30	.18	3.97	.20	4	6.94	6.81	
92	111	203	44.36	-.16	44.20	9.62	21.10	-.05	-1.20	-11.08	10.10	9.24	.18	4.05	.20	4	6.96	6.82	
92	112	204	41.16	-.02	41.14	11.13	20.75	.25	-.79	-12.28	8.13	9.17	.17	4.12	.20	4	6.97	6.82	
92	113	205	39.81	.13	39.94	9.27	20.40	.36	-.38	-10.32	9.34	9.10	.17	4.18	.20	4	6.99	6.83	
92	114	206	36.95	.29	37.24	10.78	20.05	.64	-.01	-11.51	7.43	9.04	.16	4.24	.20	4	7.00	6.83	
92	115	207	35.92	.44	36.36	8.95	19.73	.73	.33	-9.58	8.71	8.96	.16	4.29	.20	4	7.02	6.84	
92	116	208	33.39	.58	33.97	10.47	19.41	.97	.51	-10.80	7.03	8.90	.14	4.34	.20	4	7.03	6.85	
92	117	209	32.68	.65	33.33	8.71	19.18	.90	.37	-8.96	8.85	8.79	.12	4.39	.22	4	7.05	6.85	
92	118	210	30.46	.42	30.88	10.51	19.23	.89	.47	-10.53	7.28	8.55	.14	4.33	.22	4	7.06	6.86	
92	119	211	30.06	-.16	29.90	9.06	19.57	1.00	.89	-9.22	8.52	8.35	.14	4.48	.22	4	7.08	6.86	
92	120	212	28.16	-.78	27.38	10.59	19.65	1.29	1.30	-10.63	6.63	8.18	.14	4.51	.22	4	7.09	6.87	
92	121	213	28.06	-1.43	26.63	8.82	19.41	1.40	1.72	-8.74	7.87	8.00	.14	4.54	.22	4	7.11	6.88	
92	122	214	26.46	-2.11	24.35	10.35	19.17	1.70	2.13	-9.97	5.99	7.83	.14	4.56	.22	4	7.12	6.88	
92	123	215	26.65	-2.82	23.83	8.59	18.94	1.82	2.54	-8.10	7.22	7.64	.14	4.58	.22	4	7.14	6.89	
92	124	216	25.35	-3.56	21.79	10.11	18.70	2.11	2.95	-9.32	5.36	7.47	.14	4.60	.22	4	7.15	6.89	
92	125	217	25.83	-4.33	21.50	8.36	18.47	2.22	3.35	-7.46	6.59	7.28	.14	4.60	.22	4	7.17	6.90	
92	126	218	24.82	-5.13	19.69	9.88	18.24	2.51	3.75	-8.68	3.03	7.11	.14	4.61	.22	4	7.18	6.91	
92	127	219	25.57	-4.25	21.32	6.44	16.32	2.63	4.18	-5.14	4.25	8.62	.14	4.60	.22	4	7.20	6.91	
92	128	220	24.85	-3.40	21.45	7.95	14.38	2.91	4.57	-6.34	2.44	10.16	.14	4.59	.22	4	7.21	6.92	
92	129	221	25.88	-2.60	23.28	6.24	14.19	3.02	4.98	-4.52	3.66	9.94	.14	4.58	.22	4	7.23	6.92	
92	130	222	25.43	-1.84	23.59	7.75	14.00	3.31	5.39	-5.74	1.84	9.73	.14	4.56	.22	4	7.24	6.93	
92	131	223	26.72	-1.11	25.61	6.05	13.81	3.43	5.80	-3.93	3.06	9.50	.14	4.54	.22	4	7.26	6.94	
92	132	224	26.54	-.42	26.12	7.56	13.62	3.72	6.19	-5.15	1.25	9.30	.14	4.51	.22	4	7.27	6.94	
92	133	225	28.10	.24	28.34	5.86	13.42	3.82	6.58	-3.33	2.48	9.09	.14	4.48	.22	4	7.28	6.95	
92	134	226	28.19	.61	28.80	7.61	13.47	4.34	7.22	-4.74	.86	8.64	.11	4.44	.22	4	7.30	6.96	
92	135	227	30.00	.54	30.54	6.33	13.94	4.68	8.22	-3.00	2.08	7.77	.14	4.40	.22	4	7.31	6.96	28.90
92	136	228	30.34	.38	30.72	7.89	14.22	5.02	8.82	-4.20	.26	6.86	.15	4.35	.22	4	7.33	6.97	29.24
92	137	229	32.40	.20	32.60	6.19	14.08	5.15	9.28	-2.37	1.44	5.99	.16	4.30	.22	4	7.34	6.97	31.22
92	138	230	32.99	.02	33.01	7.67	13.86	5.44	9.69	-3.54	-.37	5.62	.17	4.25	.20	4	7.35	6.98	31.63
92	139	231	35.29	-.17	35.12	5.96	13.62	5.55	10.10	-1.73	.79	5.39	.17	4.20	.20	4	7.37	6.99	33.80
92	140	232	36.13	-.34	35.79	7.41	13.36	5.83	10.49	-2.89	-1.01	5.24	.17	4.15	.20	4	7.38	6.99	34.61
92	141	233	38.67	-.51	38.16	5.70	13.11	5.93	10.87	-1.09	.16	5.09	.17	4.09	.20	4	7.39	7.00	36.94
92	142	234	39.75	-.66	39.09	7.15	12.85	6.20	11.25	-2.25	-1.64	4.97	.18	4.03	.20	4	7.41	7.00	38.17
92	143	235	42.52	-.80	41.72	5.45	12.59	6.30	11.62	-.45	-.46	4.84	.18	3.97	.20	4	7.42	7.01	40.93
92	144	236	43.84	-.93	42.91	6.89	12.33	6.57	11.98	-1.61	-2.25	4.73	.18	3.90	.20	4	7.44	7.02	42.46
92	145	237	46.84	-1.05	45.79	5.19	12.07	6.66	12.35	.18	-1.08	4.60	.18	3.83	.20	4	7.45	7.02	45.41
92	146	238	48.38	-1.16	47.22	6.63	11.83	6.93	12.72	-1.00	-2.87	4.48	.18	3.76	.20	4	7.46	7.03	47.34
92	147	239	51.60	-1.25	50.35	4.95	11.58	7.03	13.08	.79	-1.69	4.36	.18	3.68	.20	4	7.48	7.04	50.60
92	148	240	53.37	-1.33	52.04	6.38	11.33	7.29	13.44	-.38	-3.46	4.25	.18	3.61	.20	4	7.49	7.04	52.74
92	149	241	56.81	-1.40	55.41	4.70	11.08	7.38	13.80	1.39	-2.29	4.13	.18	3.52	.20	4	7.50	7.05	-.63
92	150	242	58.80	-1.45	57.35	6.13	10.84	7.64	14.15	.23	-4.04	4.02	.18	3.44	.20	4	7.52	7.05	
92	151	243	62.44	-1.50	60.94	4.47	10.61	7.74	14.52	1.98	-2.88	3.88	.18	3.35	.20	4	7.53	7.06	
92	152	244	64.65	-1.53	63.12	5.89	10.37	7.99	14.86	.82	-4.63	3.77	.18	3.26	.20	4	7.54	7.07	
92	153	245	68.50	-1.54	66.96	4.24	10.13	8.08	15.21	2.58	-3.46	3.66	.18	3.17	.20	4	7.56	7.07	
92	154	246	70.92	-1.55	69.27	5.66	9.90	8.33	15.56	1.41	-5.20	3.54	.18	3.08	.18	4	7.57	7.08	
92	155	247	74.97	-1.54	73.43	4.02	9.67	8.43	15.91	3.15	-4.03	3.41	.18	3.00	.18	4	7.58	7.08	
92	156	248	77.60	-1.52	76.08	5.43	9.44	8.67	16.24	2.00	-5.75	3.30	.18	2.92	.18	4	7.60	7.09	
92	157	249	81.85	-1.49	80.36	3.79	9.22	8.76	16.59	3.73	-4.59	3.18	.18	2.83	.18	4	7.61	7.10	
92	158	250	84.68	-1.45	83.23	5.20	8.99	9.01	16.93	2.57	-6.31	3.06	.18	2.74	.18	4	7.62	7.10	
92	159	251	89.12	-1.39	87.73	3.57	8.77	9.10	17.26	4.29	-5.14	2.94	.18	2.66	.18	4	7.63	7.11	
92	160	252	92.14	-1.33	90.81	4.98	8.56	9.35	17.61	3.12	-6.86	2.81	.18	2.57	.18	4	7.65	7.12	
92	161	253	96.77	-1.25	95.52	3.37	8.35	9.44	17.95	4.83	-5.70	2.68	.18	2.47	.18	4	7.66	7.12	
92	162	254	99.99	-1.16	98.83	4.77	8.13	9.68	18.27	3.68	-7.40	2.57	.18	2.38	.18	4	7.67	7.13	
92	163	255	104.81	-1.06	103.75	3.15	7.92	9.76	18.60	5.38	-6.23	2.44	.18	2.28	.18	4	7.69	7.13	
92	164	256	108.22	-.95	107.27	4.55	7.71	10.00	18.93	4.23	-7.92	2.32	.18	2.19	.18	4	7.70	7.14	
92	165	257	113.22	-.82	112.40	2.95	7.49	10.08	19.24	5.93	-6.75	2.20	.17	2.09	.18	4	7.71	7.15	
92	166	258	116.81	-.69	116.12	4.34	7.29	10.32	19.57	4.77	-8.43	2.08	.17	2.00	.16	4	7.72	7.15	
92	167	259	121.98	-.55	121.43	2.76	7.10	10.41	19.90	6.44	-7.28	1.94	.17	1.92	.16	4	7.74	7.16	
92	168	260	125.76	-.40	125.36	4.14	6.90	10.64	20.21	5.29	-8.94	1.82	.17	1.84	.16	4	7.75	7.17	
92	169	261	131.11	-.24	130.87	2.56	6.71	10.72	20.52	6.96	-7.77	1.69	.17	1.75	.16	4	7.76	7.17	
92	170	262	135.06	-.07	134.99	3.95	6.51	10.94	20.81	5.81	-9.41	1.57	.16	1.67	.16	4	7.77	7.18	
92	171	263	140.58	.10	140.68	2.38	6.33	11.01	21.07	7.46	-8.18	1.44	.15	1.58	.16	4	7.79	7.18	
92	172	264	144.70	.25	144.95	3.79	6.18	11.20	21.12	6.27	-9.42	1.30	.14	1.49	.16	4	7.80	7.19	
92	173	265	150.39	.33	150.72	2.31	6.10	10.93	20.82	7.82	-7.61	1.12	.10	1.41	.14	4	7.81	7.20	
92	174	266	154.68	-.13	154.55	4.23	6.55	11.07	21.04	6.05	-9.13	.63	.14	1.34	.14	4	7.82	7.20	
92	175	267	160.53	-.71	159.82	2.80	7.04	11.15	21.35	7.20	-7.95	.43	.14	1.26	.14	4	7.84	7.21	
92	176	268	164.99	-1.31	163.68	4.21	7.02	11.38	21.66	6.02	-9.55	.24	.14	1.19	.14	4	7.85	7.22	
92	177	269	171.00	-1.94	169.06	2.69	6.91	11.45	21.97	7.63	-8.37	.04	.14	1.12	.14	4	7.86	7.22	
92	178	270	175.62	-2.59	173.03	4.10	6.80	11.68	22.28	6.44	-9.97	-.15	.14	1.05	.14	4	7.87	7.23	
92	179	271	181.79	-3.26	178.53	2.58	6.68	11.76	22.58	8.05	-8.78	-.34	.14	.97	.14	4	7.88	7.23	
92	180	272	186.57	-3.95	182.62	3													

Z	N	DROPLET A	CALC MASS	CALC SHELL	CALC MASS	BINDING ENERGY				DECAY ENERGY			GO STA DEF	SADDLE MASS	SHARP DEF I	RADIUS NEU PRO	EXPERIMENTAL				
						BN	BZN	BZ	BZ2	BETA	EL-CAP	ALPHA					MASS	SHELL	DIFF		
92	197	289	292.27	-0.75	291.52	.90	3.28	14.87	28.88	12.86	-13.62	-3.30	.18	-.42	.29ALP	8.10	7.35				
92	198	290	298.36	-1.00	297.36	2.23	3.13	15.08	29.15	11.74	-15.18	-3.44	.19	-.56	.30ALP	8.11	7.35				
92	199	291	305.92	-1.25	304.67	.75	2.99	15.15	29.44	13.28	-14.06	-3.58	.19	-.69	.30ALP	8.12	7.36				
92	200	292	312.15	-1.47	310.68	2.08	2.82	15.34	29.70	12.17	-15.59	-3.68	.19	-.82	.31ALP	8.13	7.37				
92	201	293	319.84	-1.69	318.15	.60	2.67	15.41	29.97	13.72	-14.46	-3.81	.19	-.95	.31ALP	8.14	7.37				
92	202	294	326.19	-1.90	324.29	1.93	2.53	15.61	30.24	12.59	-16.01	-3.93	.19	-1.07	.31ALP	8.16	7.38				
92	203	295	334.00	-2.10	331.90	.46	2.39	15.68	30.52	14.12	-14.89	-4.07	.19	-1.19	.31ALP	8.17	7.39				
92	204	296	340.48	-2.28	338.20	1.78	2.23	15.88	30.77	13.01	-16.42	-4.18	.19	-1.31	.31ALP	8.18	7.39				
92	205	297	348.42	-2.45	345.97	.31	2.08	15.94	31.03	14.55	-15.28	-4.29	.19	-1.42	.31ALP	8.19	7.40				
92	206	298	355.02	-2.62	352.40	1.63	1.94	16.14	31.30	13.42	-16.82	-4.42	.19	-1.53	.31ALP	8.20	7.40				
92	207	299	363.07	-2.77	360.30	.17	1.81	16.20	31.56	14.95	-15.69	-4.55	.19	-1.64	.31ALP	8.21	7.41				
92	208	300	369.80	-2.91	366.89	1.48	1.66	16.39	31.82	13.84	-17.21	-4.66	.19	-1.75	.31ALP	8.22	7.42				
92	209	301	377.96	-3.04	374.92	.04	1.53	16.47	32.08	15.35	-16.09	-4.79	.19	-1.85	.31ALP	8.24	7.42				
92	210	302	384.81	-3.16	381.65	1.35	1.38	16.65	32.33	14.24	-17.60	-4.90	.19	-1.95	.31ALP	8.25	7.43				
XX																					
93	107	200	65.84	-.89	64.95	10.69	23.07	-2.79	-3.69	-11.72	13.88	9.80	.19	3.14	.18	4	6.90	6.81			
93	108	201	61.83	-.78	61.05	11.98	22.66	-2.69	-3.28	-12.90	11.89	9.77	.19	3.22	.18	4	6.92	6.82			
93	109	202	59.48	-.67	58.81	10.30	22.29	-2.36	-2.83	-10.91	13.07	9.71	.18	3.29	.20	4	6.93	6.82			
93	110	203	55.82	-.54	55.28	11.60	21.91	-2.25	-2.41	-12.10	11.08	9.66	.18	3.38	.20	4	6.95	6.83			
93	111	204	53.82	-.39	53.43	9.93	21.53	-1.94	-2.00	-10.10	12.29	9.61	.18	3.46	.20	4	6.97	6.84			
93	112	205	50.50	-.24	50.26	11.24	21.17	-1.83	-1.58	-11.30	10.31	9.55	.18	3.53	.20	4	6.98	6.84			
93	113	206	48.83	-.08	48.75	9.58	20.82	-1.52	-1.16	-9.34	11.51	9.47	.17	3.60	.20	4	7.00	6.85			
93	114	207	45.85	.09	45.94	10.89	20.46	-1.41	-.77	-10.54	9.57	9.41	.17	3.67	.20	4	7.01	6.85			
93	115	208	44.51	.26	44.77	9.24	20.13	-1.11	-.38	-8.60	10.80	9.33	.16	3.73	.20	4	7.03	6.86			
93	116	209	41.86	.43	42.29	10.56	19.80	-1.03	-.06	-9.80	8.96	9.27	.16	3.78	.20	4	7.04	6.87			
93	117	210	40.84	.57	41.41	8.96	19.51	-.79	.11	-7.92	10.52	9.18	.14	3.83	.20	4	7.06	6.87			
93	118	211	38.51	.61	39.12	10.36	19.31	-.94	-.06	-9.24	9.22	9.04	.11	3.87	.20	4	7.07	6.88			
93	119	212	37.80	.20	38.00	9.19	19.55	-.82	.18	-7.87	10.62	8.64	.39	3.91	.20	4	7.09	6.88			
93	120	213	35.79	-.41	35.38	10.70	19.89	-.71	.58	-9.61	8.75	8.47	.39	3.95	.20	4	7.10	6.89			
93	121	214	35.38	-1.06	34.32	9.13	19.83	-.41	1.00	-7.76	9.97	8.29	.39	3.98	.20	4	7.12	6.90			
93	122	215	33.67	-1.74	31.93	10.46	19.59	-.29	1.41	-8.99	8.10	8.12	.40	4.00	.20	4	7.13	6.90			
93	123	216	33.56	-2.45	31.11	8.89	19.35	.01	1.83	-7.12	9.32	7.94	.40	4.02	.20	4	7.15	6.91			
93	124	217	32.15	-3.19	28.96	10.22	19.11	.12	2.23	-8.34	7.46	7.77	.40	4.04	.20	4	7.16	6.91			
93	125	218	32.33	-3.95	28.38	8.66	18.88	.41	2.63	-6.48	8.69	7.60	.40	4.05	.20	4	7.18	6.92			
93	126	219	31.21	-4.75	26.46	9.99	18.65	.52	3.03	-7.70	5.13	7.42	.40	4.05	.20	4	7.19	6.93			
93	127	220	31.67	-3.87	27.80	6.73	16.72	.82	3.44	-4.16	6.36	8.95	.40	4.06	.20	4	7.21	6.93			
93	128	221	30.83	-3.04	27.79	8.07	14.81	.94	3.86	-5.39	4.51	10.45	.40	4.05	.20	4	7.22	6.94			
93	129	222	31.57	-2.24	29.33	6.54	14.61	1.23	4.26	-3.57	5.74	10.24	.40	4.05	.20	4	7.23	6.94			
93	130	223	31.01	-1.47	29.54	7.87	14.40	1.35	4.66	-4.78	3.92	10.05	.40	4.04	.20	4	7.25	6.95			
93	131	224	32.02	-.75	31.27	6.34	14.21	1.63	5.06	-2.97	5.14	9.83	.40	4.02	.20	4	7.26	6.96			
93	132	225	31.73	-.06	31.67	7.67	14.01	1.75	5.46	-4.19	3.33	9.63	.40	4.01	.20	4	7.28	6.96			
93	133	226	33.00	.54	33.54	6.20	13.87	2.09	5.91	-2.44	4.74	9.36	.08	3.98	.20	4	7.29	6.97			
93	134	227	32.98	.56	33.54	8.08	14.27	2.55	6.89	-3.91	3.00	8.56	.13	3.96	.20	4	7.30	6.97			
93	135	228	34.51	.41	34.92	6.69	14.77	2.91	7.59	-2.12	4.20	7.63	.15	3.93	.20	4	7.32	6.98			
93	136	229	34.75	.22	34.97	8.02	14.72	3.04	8.06	-3.30	2.37	6.69	.16	3.89	.20	4	7.33	6.99	33.77	-0.98	-1.20
93	137	230	36.52	.03	36.55	6.50	14.51	3.34	8.49	-1.48	3.54	6.19	.17	3.86	.20	4	7.35	6.99	35.20	-1.32	-1.35
93	138	231	37.02	-.17	36.85	7.77	14.26	3.44	8.89	-2.65	1.72	5.97	.17	3.82	.20	4	7.36	7.00	35.65	-1.37	-1.20
93	139	232	39.04	-.35	38.69	6.24	14.01	3.73	9.27	-.83	2.90	5.80	.17	3.77	.20	4	7.37	7.00	37.31	-1.73	-1.38
93	140	233	39.78	-.53	39.25	7.51	13.74	3.83	9.66	-2.00	1.09	5.67	.17	3.72	.20	4	7.39	7.01	38.02	-1.76	-1.23
93	141	234	42.04	-.70	41.34	5.98	13.49	4.11	10.04	-.20	2.25	5.53	.18	3.67	.20	4	7.40	7.02	39.98	-2.06	-1.36
93	142	235	43.02	-.85	42.17	7.25	13.22	4.22	10.41	-1.36	.45	5.42	.18	3.62	.20	4	7.42	7.02	41.06	-1.96	-1.11
93	143	236	45.52	-1.00	44.52	5.72	12.97	4.48	10.79	.43	1.61	5.29	.18	3.56	.20	4	7.43	7.03	43.44	-2.08	-1.08
93	144	237	46.74	-1.13	45.61	6.98	12.70	4.58	11.15	-.74	-.17	5.18	.18	3.50	.20	4	7.44	7.03	44.89	-1.85	-.72
93	145	238	49.46	-1.24	48.22	5.47	12.45	4.86	11.52	1.05	.99	5.07	.18	3.43	.20	4	7.46	7.04	47.48	-1.98	-.74
93	146	239	50.91	-1.35	49.56	6.73	12.19	4.95	11.88	-1.12	-.79	4.95	.18	3.37	.20	4	7.47	7.05	49.33	-1.58	-.23
93	147	240	53.86	-1.44	52.42	5.21	11.94	5.22	12.24	1.66	.38	4.84	.18	3.29	.20	4	7.48	7.05	52.23	-1.63	-.19
93	148	241	55.53	-1.52	54.01	6.48	11.70	5.32	12.61	.49	-1.40	4.72	.18	3.22	.20	4	7.50	7.06	54.33	-1.20	.32
93	149	242	58.70	-1.59	57.11	4.97	11.45	5.58	12.97	2.25	-.24	4.60	.18	3.15	.18	4	7.51	7.07	57.54	-1.16	.43
93	150	243	60.60	-1.64	58.96	6.23	11.20	5.68	13.31	1.10	-1.99	4.50	.18	3.09	.18	4	7.52	7.07			
93	151	244	63.98	-1.68	62.30	4.73	10.96	5.94	13.67	2.85	-.83	4.38	.18	3.02	.18	4	7.54	7.08			
93	152	245	66.09	-1.71	64.38	5.99	10.72	6.04	14.02	1.69	-2.58	4.26	.18	2.95	.18	4	7.55	7.08			
93	153	246	69.68	-1.73	67.95	4.50	10.49	6.29	14.38	3.42	-1.42	4.13	.18	2.88	.18	4	7.56	7.09			
93	154	247	72.01	-1.73	70.28	5.75	10.25	6.38	14.72	2.27	-3.15	4.03	.18	2.80	.18	4	7.58	7.10			
93	155	248	75.80	-1.72	74.08	4.27	10.02	6.64	15.07	4.00	-2.00	3.91	.18	2.73	.18	4	7.59	7.10			
93	156	249	78.34	-1.70	76.64	5.52	9.78	6.73	15.40	2.85	-3.72	3.80	.18	2.65	.18	4	7.60	7.11			
93	157	250	82.33	-1.67	80.66	4.05	9.56	6.99	15.75	4.57	-2.57	3.67	.18	2.57	.18	4	7.62	7.11			
93	158	251	85.07	-1.63	83.44	5.29	9.34	7.07	16.09	3.41	-4.29	3.55	.18	2.48	.18	4	7.63	7.12			
93	159	252	89.26	-1.57	87.69	3.82	9.12	7.32	16.43	5.13	-3.13	3.43	.18	2.40	.18	4	7.64				

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING ENERGY B2N	B2Z	BETA	EL-CAP	ALPHA	GD STA DEF	SADDLE MASS DEF I	SHARP NEU PRO	RADIUS	EXPERIMENTAL MASS SHELL	DIFF						
95	139	234	46.33	-1.70	45.63	6.62	14.78	2.91	7.63	-2.04	4.09	6.65	.18	2.96	.18	4	7.39	7.04	44.43	-1.90	-1.20	
95	140	235	46.70	-1.88	45.82	7.88	14.50	3.01	8.01	-3.19	2.29	6.54	.18	2.93	.18	4	7.40	7.05	44.67	-2.03	-1.15	
95	141	236	48.58	-1.05	47.53	6.35	14.24	3.29	8.39	-1.40	3.44	6.42	.18	2.89	.18	4	7.42	7.05	46.03	-2.55	-1.50	
95	142	237	49.19	-1.20	47.99	7.62	13.97	3.39	8.76	-2.56	1.64	6.32	.18	2.86	.18	4	7.43	7.06	46.65	-2.54	-1.34	
95	143	238	51.32	-1.34	49.98	6.09	13.70	3.66	9.12	-1.76	2.81	6.21	.18	2.82	.18	4	7.44	7.07	48.49	-2.83	-1.49	
95	144	239	52.17	-1.47	50.70	7.35	13.44	3.76	9.49	-1.92	1.02	6.11	.18	2.78	.18	4	7.46	7.07	49.41	-2.76	-1.29	
95	145	240	54.53	-1.59	52.94	5.83	13.18	4.03	9.86	-1.14	2.18	5.99	.18	2.73	.18	4	7.47	7.08	51.54	-2.99	-1.40	
95	146	241	55.62	-1.69	53.93	7.08	12.91	4.12	10.21	-1.29	.41	5.89	.18	2.68	.18	4	7.48	7.08	52.95	-2.67	-.98	
95	147	242	58.20	-1.78	56.42	5.58	12.66	4.39	10.58	.47	1.56	5.78	.18	2.63	.18	4	7.50	7.09	55.49	-2.71	-.93	
95	148	243	59.52	-1.86	57.66	6.83	12.41	4.49	10.93	-.68	-.20	5.67	.18	2.58	.18	4	7.51	7.10	57.19	-2.33	-.47	
95	149	244	62.32	-1.92	60.40	5.33	12.16	4.76	11.29	1.07	.95	5.56	.18	2.53	.18	4	7.52	7.10	59.90	-2.42	-.50	
95	150	245	63.87	-1.98	61.89	6.58	11.91	4.84	11.65	-.08	-.80	5.45	.18	2.47	.18	4	7.54	7.11	61.92	-1.95	.03	
95	151	246	66.89	-2.02	64.87	5.09	11.67	5.11	12.01	1.66	.34	5.33	.18	2.41	.18	4	7.55	7.11	64.94	-1.95	.07	
95	152	247	68.65	-2.04	66.61	6.34	11.42	5.21	12.35	.51	-1.40	5.23	.18	2.35	.18	4	7.56	7.12	67.16	-1.49	.55	
95	153	248	71.89	-2.06	69.83	4.85	11.19	5.46	12.71	2.25	-.25	5.11	.18	2.28	.18	4	7.58	7.13	70.52	-1.37	.69	
95	154	249	73.87	-2.06	71.81	6.09	10.94	5.55	13.05	1.10	-1.98	5.00	.18	2.22	.16	4	7.59	7.13				
95	155	250	77.31	-2.05	75.26	4.62	10.72	5.81	13.40	2.83	-.83	4.88	.18	2.17	.16	4	7.60	7.14				
95	156	251	79.50	-2.03	77.47	5.86	10.48	5.90	13.74	1.67	-2.56	4.77	.18	2.11	.16	4	7.62	7.14				
95	157	252	83.15	-1.99	81.16	4.39	10.25	6.16	14.08	3.40	-1.40	4.65	.18	2.05	.16	4	7.63	7.15				
95	158	253	85.55	-1.95	83.60	5.63	10.02	6.24	14.42	2.25	-3.11	4.54	.18	1.99	.16	4	7.64	7.16				
95	159	254	89.39	-1.89	87.50	4.17	9.80	6.50	14.77	3.95	-1.97	4.41	.18	1.93	.16	4	7.65	7.16				
95	160	255	91.99	-1.82	90.17	5.41	9.58	6.59	15.10	2.81	-3.68	4.30	.18	1.87	.16	4	7.67	7.17				
95	161	256	96.04	-1.74	94.30	3.94	9.35	6.83	15.43	4.51	-2.52	4.19	.18	1.80	.16	4	7.68	7.17				
95	162	257	98.83	-1.64	97.19	5.18	9.13	6.93	15.76	3.37	-4.22	4.07	.18	1.73	.16	4	7.69	7.18				
95	163	258	103.07	-1.54	101.53	3.73	8.91	7.17	16.09	5.06	-3.07	3.95	.18	1.67	.16	4	7.71	7.19				
95	164	259	106.06	-1.43	104.63	4.96	8.70	7.25	16.42	3.91	-4.76	3.83	.18	1.60	.16	4	7.72	7.19				
95	165	260	110.48	-1.30	109.18	3.52	8.49	7.50	16.75	5.60	-3.61	3.71	.18	1.52	.16	4	7.73	7.20				
95	166	261	113.66	-1.16	112.50	4.75	8.27	7.58	17.07	4.46	-5.28	3.60	.18	1.47	.14	4	7.74	7.21				
95	167	262	118.26	-1.02	117.24	3.32	8.08	7.83	17.41	6.12	-4.15	3.46	.18	1.41	.14	4	7.76	7.21				
95	168	263	121.62	-.86	120.76	4.55	7.88	7.92	17.73	4.97	-5.82	3.34	.18	1.35	.14	4	7.77	7.22				
95	169	264	126.41	-.69	125.72	3.12	7.67	8.15	18.04	6.65	-4.67	3.23	.17	1.29	.14	4	7.78	7.22				
95	170	265	129.96	-.51	129.45	4.34	7.46	8.23	18.35	5.51	-6.32	3.11	.17	1.23	.14	4	7.79	7.23				
95	171	266	134.91	-.33	134.58	2.93	7.28	8.47	18.68	7.15	-5.18	2.97	.17	1.17	.14	4	7.81	7.24				
95	172	267	138.64	-.13	138.51	4.15	7.08	8.55	18.96	6.01	-6.80	2.86	.16	1.11	.14	4	7.82	7.24				
95	173	268	143.77	.06	143.83	2.75	6.90	8.77	19.25	7.64	-5.59	2.73	.16	1.04	.14	4	7.83	7.25				
95	174	269	147.67	.24	147.91	4.00	6.74	8.80	19.29	6.48	-6.63	2.59	.14	.98	.14	4	7.84	7.25				
95	175	270	152.97	.14	153.11	2.87	6.86	8.72	19.13	7.81	-4.98	2.19	.93	.12	4	7.85	7.26					
95	176	271	157.04	-.46	156.58	4.60	7.47	8.80	19.43	5.94	-6.58	1.53	.88	.12	4	7.87	7.27					
95	177	272	162.51	-1.08	161.43	3.23	7.82	9.03	19.73	7.45	-5.41	1.35	.83	.12	4	7.88	7.27					
95	178	273	166.74	-1.73	165.01	4.48	7.71	9.12	20.05	6.27	-7.01	1.15	.78	.12	4	7.89	7.28					
95	179	274	172.37	-2.40	169.97	3.12	7.59	9.34	20.35	7.87	-5.84	.96	.73	.12	4	7.90	7.29					
95	180	275	176.77	-3.09	173.68	4.37	7.48	9.42	20.65	6.70	-7.42	.77	.68	.12	4	7.92	7.29					
95	181	276	182.56	-3.81	178.75	3.00	7.36	9.64	20.96	8.28	-6.26	.58	.62	.12	4	7.93	7.30					
95	182	277	187.12	-4.55	182.57	4.25	7.25	9.73	21.26	7.11	-7.84	.39	.57	.12	4	7.94	7.30					
95	183	278	193.06	-5.31	187.75	2.89	7.14	9.95	21.56	8.68	-6.68	.20	.53	.10	4	7.95	7.31					
95	184	279	197.79	-6.09	191.70	4.13	7.02	10.02	21.85	7.53	-9.90	.02	3.16	.19ALP	7.96	7.32						
95	185	280	203.88	-5.23	198.65	1.12	5.25	10.25	22.15	10.76	-8.74	1.49	2.75	.19ALP	7.98	7.32						
95	186	281	208.76	-4.41	204.35	2.37	3.49	10.32	22.45	9.59	-10.30	2.95	2.36	.19ALP	7.99	7.33						
95	187	282	215.00	-3.61	211.39	1.03	3.40	10.55	22.75	11.15	-9.13	2.74	1.98	.19ALP	8.00	7.33						
95	188	283	220.03	-2.84	217.19	2.27	3.30	10.62	23.04	9.99	-10.68	2.54	1.61	.19ALP	8.01	7.34						
95	189	284	226.41	-2.11	224.30	.95	3.23	10.85	23.36	11.52	-9.53	2.31	1.25	.19ALP	8.02	7.35						
95	190	285	231.59	-1.40	230.19	2.19	3.13	10.93	23.65	10.36	-11.08	2.11	.91	.19ALP	8.03	7.35						
95	191	286	238.12	-.71	237.41	.86	3.04	11.15	23.94	11.91	-9.91	1.91	.57	.19ALP	8.05	7.36						
95	192	287	243.45	-.06	243.39	2.09	2.95	11.22	24.22	10.75	-11.18	1.71	.26	.20ALP	8.06	7.37						
95	193	288	250.12	-.05	250.07	1.40	3.48	11.80	25.14	11.69	-9.75	.88	.18	-.03	.24ALP	8.07	7.37					
95	194	289	255.59	-.35	255.24	2.90	4.29	11.87	25.57	10.56	-11.32	-.22	.18	-.25	.27ALP	8.08	7.38					
95	195	290	262.40	-.63	261.77	1.54	4.44	12.08	25.85	12.12	-10.20	-1.28	.19	-.42	.28ALP	8.09	7.38					
95	196	291	268.00	-.91	267.09	2.74	4.29	12.16	26.14	10.99	-11.77	-1.57	.19	-.58	.29ALP	8.10	7.39					
95	197	292	274.95	-1.17	273.78	1.39	4.13	12.37	26.42	12.55	-10.65	-1.69	.19	-.72	.29ALP	8.12	7.40					
95	198	293	280.70	-1.41	279.29	2.57	3.95	12.43	26.68	11.44	-12.19	-1.79	.19	-.86	.30ALP	8.13	7.40					
95	199	294	287.77	-1.65	286.12	1.23	3.81	12.65	26.97	12.98	-11.08	-1.92	.19	-.98	.30ALP	8.14	7.41					
95	200	295	293.65	-1.88	291.77	2.42	3.65	12.72	27.24	11.86	-12.63	-2.04	.19	-1.11	.30ALP	8.15	7.42					
95	201	296	300.86	-2.09	298.77	1.08	3.50	12.92	27.51	13.41	-11.51	-2.16	.19	-1.23	.31ALP	8.16	7.42					
95	202	297	306.88	-2.30	304.58	2.26	3.34	12.98	27.78	12.29	-13.05	-2.28	.19	-1.34	.31ALP	8.17	7.43					
95	203	298	314.21	-2.49	311.72	.93	3.19	13.19	28.05	13.82	-11.93	-2.40	.19	-1.46	.31ALP	8.18	7.43					
95	204	299	320.36	-2.67	317.69	2.11	3.03	13.25	28.31	12.72	-13.46	-2.51	.19	-1.57	.31ALP	8.20	7.44					
95	205	300	327.82	-2.84	324.9																	

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING ENERGY				DECAY ENERGY		GO STA DEF	SADDLE		SHARP NEU	RADIUS PRO	EXPERIMENTAL				
						BN	B2N	BZ	B2Z	BETA	EL-CAP		ALPHA	MASS			DEF I	MASS	SHELL	DIFF	
96	118	214	61.71	.32	62.03	10.91	20.33	-1.15	-1.58	-12.39	8.47	10.28	.16	2.40	.18	4	7.10	6.93			
96	119	215	60.46	.48	60.94	9.15	20.07	-1.10	-1.37	-10.54	10.16	10.15	.14	2.45	.18	4	7.11	6.94			
96	120	216	57.74	.45	58.19	10.83	19.98	-1.11	-1.53	-11.94	8.87	9.90	.06	2.49	.18	4	7.13	6.95			
96	121	217	56.81	-.19	56.62	9.64	20.47	-1.02	-1.13	-10.78	10.10	9.20		2.52	.18	4	7.14	6.95			
96	122	218	54.39	-.86	53.53	11.16	20.80	.29	-.72	-12.18	8.24	9.02		2.56	.18	4	7.15	6.96			
96	123	219	53.76	-1.57	52.19	9.41	20.57	.39	-.31	-10.32	9.45	8.85		2.59	.18	4	7.17	6.96			
96	124	220	51.66	-2.30	49.36	10.91	20.31	.68	.08	-11.52	7.61	8.70		2.61	.18	4	7.18	6.97			
96	125	221	51.32	-3.07	48.25	9.17	20.09	.79	.49	-9.68	8.81	8.52		2.64	.18	4	7.20	6.98			
96	126	222	49.51	-3.86	45.65	10.67	19.85	1.08	.89	-10.88	5.29	8.36		2.65	.18	4	7.21	6.98			
96	127	223	49.46	-2.99	46.47	7.26	17.92	1.19	1.29	-7.36	6.51	9.88		2.67	.18	4	7.23	6.99			
96	128	224	47.94	-2.17	45.77	8.76	16.03	1.48	1.71	-8.58	4.68	11.39		2.68	.18	4	7.24	6.99			
96	129	225	48.17	-1.38	46.79	7.06	15.82	1.59	2.11	-6.76	5.89	11.18		2.69	.18	4	7.26	7.00			
96	130	226	46.94	-.62	46.32	8.55	15.60	1.87	2.50	-7.95	4.09	11.00		2.69	.18	4	7.27	7.01			
96	131	227	47.44	.09	47.53	6.86	15.41	1.99	2.91	-6.15	5.33	10.78		2.69	.18	4	7.28	7.01			
96	132	228	46.49	.52	47.01	8.60	15.45	2.48	3.55	-7.60	3.93	10.35	.12	2.69	.18	4	7.30	7.02			
96	133	229	47.26	.40	47.66	7.42	16.02	2.72	4.37	-6.06	5.16	9.38	.15	2.69	.18	4	7.31	7.02			
96	134	230	46.58	.19	46.77	8.96	16.38	3.02	4.85	-7.26	3.33	8.37	.16	2.68	.18	4	7.33	7.03			
96	135	231	47.61	-.03	47.58	7.26	16.22	3.14	5.27	-5.44	4.50	7.70	.17	2.67	.18	4	7.34	7.04			
96	136	232	47.20	-.25	46.95	8.71	15.97	3.42	5.66	-6.59	2.69	7.49	.17	2.65	.18	4	7.35	7.04			
96	137	233	48.49	-.46	48.03	6.99	15.70	3.52	6.05	-4.77	3.85	7.32	.17	2.63	.18	4	7.37	7.05			
96	138	234	48.33	-.67	47.66	8.43	15.43	3.80	6.44	-5.93	2.03	7.20	.18	2.61	.18	4	7.38	7.05			
96	139	235	49.87	-.86	49.01	6.73	15.16	3.91	6.82	-4.12	3.19	7.08	.18	2.59	.18	4	7.40	7.06			
96	140	236	49.97	-1.04	48.93	8.15	14.88	4.17	7.19	-5.27	1.40	6.98	.18	2.56	.18	4	7.41	7.07	47.99	-1.98	-.94
96	141	237	51.75	-1.20	50.55	6.46	14.61	4.28	7.56	-3.47	2.56	6.87	.18	2.53	.18	4	7.42	7.07	49.18	-2.57	-1.37
96	142	238	52.10	-1.36	50.74	7.88	14.34	4.54	7.93	-4.62	.77	6.77	.18	2.50	.18	4	7.44	7.08	49.42	-2.68	-1.32
96	143	239	54.12	-1.50	52.62	6.19	14.07	4.64	8.30	-2.83	1.92	6.66	.18	2.47	.18	4	7.45	7.08	51.11	-3.01	-1.51
96	144	240	54.71	-1.63	53.08	7.61	13.80	4.91	8.67	-3.98	.14	6.56	.18	2.43	.18	4	7.46	7.09	51.72	-2.99	-1.36
96	145	241	56.97	-1.74	55.23	5.93	13.54	5.00	9.03	-2.19	1.31	6.46	.18	2.39	.18	4	7.48	7.10	53.72	-3.25	-1.51
96	146	242	57.79	-1.85	55.94	7.35	13.29	5.27	9.40	-3.36	-.48	6.34	.18	2.34	.18	4	7.49	7.10	54.83	-2.96	-1.11
96	147	243	60.28	-1.93	58.35	5.68	13.02	5.36	9.75	-1.57	.69	6.25	.18	2.30	.16	4	7.50	7.11	57.20	-3.08	-1.15
96	148	244	61.34	-2.01	59.33	7.09	12.76	5.62	10.11	-2.73	-1.07	6.14	.18	2.26	.16	4	7.52	7.11	58.47	-2.87	-.86
96	149	245	64.05	-2.07	61.98	5.42	12.51	5.71	10.46	-.96	.09	6.03	.18	2.22	.16	4	7.53	7.12	61.02	-3.03	-.96
96	150	246	65.33	-2.13	63.20	6.84	12.27	5.97	10.83	-2.12	-1.67	5.92	.18	2.18	.16	4	7.54	7.13	62.64	-2.69	-.56
96	151	247	68.26	-2.16	66.10	5.18	12.02	6.07	11.17	-.36	-.51	5.81	.18	2.13	.16	4	7.56	7.13	65.56	-2.70	-.54
96	152	248	69.77	-2.19	67.58	6.59	11.77	6.32	11.52	-1.51	-2.25	5.71	.18	2.08	.16	4	7.57	7.14	67.42	-2.35	-1.16
96	153	249	72.91	-2.20	70.71	4.95	11.53	6.41	11.87	.23	-1.10	5.59	.18	2.04	.16	4	7.58	7.14	70.78	-2.13	.07
96	154	250	74.64	-2.20	72.44	6.34	11.28	6.66	12.21	-.91	-2.82	5.49	.18	1.99	.16	4	7.60	7.15	73.07	-1.57	.63
96	155	251	77.99	-2.19	75.80	4.71	11.05	6.76	12.56	-.81	-1.68	5.37	.18	1.93	.16	4	7.61	7.16			
96	156	252	79.93	-2.17	77.76	6.11	10.82	7.01	12.91	-.33	-3.40	5.26	.18	1.88	.16	4	7.62	7.16			
96	157	253	83.48	-2.13	81.35	4.49	10.59	7.10	13.25	1.39	-2.25	5.14	.18	1.82	.16	4	7.64	7.17			
96	158	254	85.63	-2.09	83.54	5.88	10.36	7.35	13.60	.24	-3.97	5.03	.18	1.77	.16	4	7.65	7.17			
96	159	255	89.39	-2.03	87.36	4.26	10.13	7.43	13.93	1.95	-2.82	4.91	.18	1.71	.16	4	7.66	7.18			
96	160	256	91.74	-1.96	89.78	5.65	9.91	7.68	14.27	-.81	-4.52	4.80	.18	1.65	.16	4	7.67	7.19			
96	161	257	95.70	-1.88	93.82	4.03	9.69	7.76	14.60	2.51	-3.37	4.68	.18	1.58	.16	4	7.69	7.19			
96	162	258	98.25	-1.78	96.47	5.42	9.46	8.01	14.93	1.38	-5.06	4.57	.18	1.53	.14	4	7.70	7.20			
96	163	259	102.39	-1.68	100.71	3.83	9.25	8.10	15.27	3.06	-3.92	4.44	.18	1.48	.14	4	7.71	7.20			
96	164	260	105.14	-1.56	103.58	5.21	9.03	8.34	15.60	1.93	-5.60	4.33	.18	1.43	.14	4	7.72	7.21			
96	165	261	109.48	-1.43	108.05	3.61	8.81	8.42	15.92	3.62	-4.44	4.22	.18	1.37	.14	4	7.74	7.22			
96	166	262	112.42	-1.30	111.12	4.99	8.61	8.66	16.25	2.47	-6.12	4.10	.18	1.32	.14	4	7.75	7.22			
96	167	263	116.93	-1.15	115.78	3.41	8.41	8.75	16.58	4.14	-4.99	3.97	.18	1.26	.14	4	7.76	7.23			
96	168	264	120.06	-.99	119.07	4.79	8.19	8.99	16.90	3.01	-6.65	3.85	.18	1.21	.14	4	7.77	7.24			
96	169	265	124.76	-.82	123.94	3.21	7.99	9.07	17.22	4.67	-5.50	3.73	.18	1.15	.14	4	7.79	7.24			
96	170	266	128.07	-.64	127.43	4.58	7.79	9.30	17.54	3.54	-7.16	3.61	.17	1.09	.14	4	7.80	7.25			
96	171	267	132.95	-.45	132.50	3.01	7.58	9.38	17.85	5.20	-6.01	3.49	.17	1.03	.14	4	7.81	7.25			
96	172	268	136.44	-.26	136.18	4.38	7.40	9.61	18.16	4.05	-7.65	3.37	.17	.98	.12	4	7.82	7.26			
96	173	269	141.49	-.05	141.44	2.82	7.20	9.68	18.45	5.70	-6.47	3.25	.16	.93	.12	4	7.84	7.27			
96	174	270	145.16	.14	145.30	4.20	7.03	9.89	18.70	4.54	-7.81	3.11	.15	.88	.12	4	7.85	7.27			
96	175	271	150.38	.27	150.65	2.73	6.93	9.75	18.47	6.10	-5.93	2.91	.10	.84	.12	4	7.86	7.28			
96	176	272	154.22	-.24	153.98	4.74	7.47	9.89	18.69	4.26	-7.44	2.14		.79	.12	4	7.87	7.28			
96	177	273	159.60	-.87	158.73	3.31	8.06	9.98	19.01	5.54	-6.28	1.76		.74	.12	4	7.89	7.29			
96	178	274	163.62	-1.51	162.11	4.70	8.01	10.20	19.30	4.39	-7.86	1.59		.69	.12	4	7.90	7.30			
96	179	275	169.16	-2.18	166.98	3.20	7.90	10.28	19.62	5.97	-6.70	1.39		.64	.12	4	7.91	7.30			
96	180	276	173.04	-2.87	170.47	4.59	7.78	10.50	19.92	4.82	-8.28	1.21		.59	.12	4	7.92	7.31			
96	181	277	179.35	-3.59	175.46	3.08	7.66	10.58	20.22	6.40	-7.12	1.02		.55	.10	4	7.93	7.31			
96	182	278	183.39	-4.32	179.07	4.46	7.54	10.80	20.52	5.24	-8.69	.84		.51	.10	4	7.95	7.32			
96	183	279	189.25	-5.08	184.17	2.97	7.43	10.88	20.82	6.81	-7.53	.64		2.71	.19ALP		7.96	7.33			
96	184	280																			

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING BN	BINDING B2N	ENERGY BZ	ENERGY B2Z	DECAY BETA	ENERGY EL-CAP	ALPHA	GD STA DEF	SADDLE MASS	SADDLE DEF I	SHARP NEU	RADIUS PRO	EXPERIMENTAL MASS	EXPERIMENTAL SHELL	EXPERIMENTAL DIFF	
102	140	242	82.46	-1.73	80.73	9.25	17.10	1.77	2.39	-8.72	4.92	9.53	.19	.97	.12	4	7.45	7.17			
102	141	243	83.12	-1.90	81.22	7.57	16.83	1.88	2.77	-6.94	6.04	9.43	.19	.96	.12	4	7.47	7.18			
102	142	244	82.37	-2.04	80.33	8.97	16.54	2.14	3.13	-8.06	4.28	9.36	.19	.96	.12	4	7.48	7.19			
102	143	245	83.28	-2.18	81.10	7.29	16.27	2.24	3.50	-6.30	5.41	9.26	.19	.95	.12	4	7.49	7.19			
102	144	246	82.78	-2.30	80.48	8.69	15.99	2.50	3.86	-7.43	3.64	9.18	.19	.95	.12	4	7.51	7.20			
102	145	247	83.94	-2.41	81.53	7.02	15.71	2.60	4.22	-5.66	4.78	9.08	.19	.94	.12	4	7.52	7.20			
102	146	248	83.69	-2.51	81.18	8.42	15.44	2.86	4.58	-6.79	3.02	8.99	.19	.93	.12	4	7.53	7.21			
102	147	249	85.08	-2.59	82.49	6.76	15.18	2.96	4.95	-5.04	4.15	8.89	.19	.92	.12	4	7.55	7.21			
102	148	250	85.08	-2.66	82.42	8.15	14.91	3.21	5.29	-6.16	2.41	8.81	.19	.91	.12	4	7.56	7.22			
102	149	251	86.71	-2.72	83.99	6.50	14.65	3.30	5.65	-4.42	3.54	8.71	.19	.89	.12	4	7.57	7.23	82.78	-3.93	-1.21
102	150	252	86.94	-2.76	84.18	7.88	14.38	3.56	6.00	-5.54	1.81	8.62	.19	.88	.12	4	7.59	7.23	82.87	-4.07	-1.31
102	151	253	88.80	-2.79	86.01	6.24	14.13	3.65	6.35	-3.80	2.94	8.52	.19	.86	.12	4	7.60	7.24	84.35	-4.45	-1.66
102	152	254	89.26	-2.81	86.45	7.63	13.87	3.91	6.70	-4.93	1.21	8.43	.19	.85	.12	4	7.61	7.24	84.75	-4.51	-1.70
102	153	255	91.34	-2.82	88.52	6.00	13.63	4.00	7.05	-3.21	2.34	8.32	.19	.83	.12	4	7.62	7.25	86.87	-4.47	-1.65
102	154	256	92.04	-2.81	89.23	7.37	13.36	4.24	7.38	-4.32	.64	8.24	.19	.81	.12	4	7.64	7.26	87.82	-4.22	-1.41
102	155	257	94.34	-2.80	91.54	5.75	13.13	4.34	7.74	-2.61	1.76	8.12	.19	.79	.12	4	7.65	7.26	90.25	-4.09	-1.29
102	156	258	95.27	-2.77	92.48	7.15	12.88	4.59	8.08	-3.74	.05	8.02	.19	.77	.12	4	7.66	7.27			
102	157	259	97.77	-2.73	95.04	5.51	12.64	4.68	8.42	-2.03	1.18	7.92	.19	.75	.12	4	7.68	7.27			
102	158	260	98.90	-2.68	96.22	6.89	12.41	4.93	8.76	-3.16	-.53	7.81	.19	.72	.12	4	7.69	7.28			
102	159	261	101.63	-2.61	99.02	5.28	12.17	5.02	9.10	-1.45	.61	7.71	.19	.70	.12	4	7.70	7.28			
102	160	262	102.98	-2.54	100.44	6.65	11.93	5.26	9.43	-2.57	-1.09	7.61	.19	.67	.12	4	7.71	7.29			
102	161	263	105.92	-2.45	103.47	5.05	11.69	5.35	9.76	-.88	.05	7.51	.19	.65	.12	4	7.73	7.30			
102	162	264	107.47	-2.35	105.12	6.42	11.47	5.59	10.10	-2.00	-1.64	7.40	.19	.63	.10	4	7.74	7.30			
102	163	265	110.61	-2.24	108.37	4.83	11.24	5.68	10.43	-.32	-.51	7.29	.19	.61	.10	4	7.75	7.31			
102	164	266	112.37	-2.12	110.25	6.19	11.01	5.92	10.76	-1.44	-2.18	7.19	.19	.59	.10	4	7.76	7.31			
102	165	267	115.71	-1.99	113.72	4.60	10.79	6.01	11.09	.24	-1.06	7.08	.19	.57	.10	4	7.78	7.32			
102	166	268	117.67	-1.85	115.82	5.97	10.57	6.25	11.42	-.89	-2.73	6.96	.18	.54	.10	4	7.79	7.33			
102	167	269	121.20	-1.70	119.50	4.39	10.36	6.33	11.75	-.77	-1.61	6.85	.18	.52	.10	4	7.80	7.33			
102	168	270	123.36	-1.53	121.83	5.75	10.14	6.57	12.06	-.34	-3.26	6.75	.18	.50	.10	4	7.81	7.34			
102	169	271	127.08	-1.36	125.72	4.18	9.93	6.66	12.39	1.31	-2.14	6.63	.18	-.07	.33ALP		7.83	7.34			
102	170	272	129.44	-1.17	128.27	5.53	9.70	6.88	12.70	.21	-3.78	6.53	.18	-.08	.33ALP		7.84	7.35			
102	171	273	133.34	-.98	132.36	3.98	9.51	6.97	13.03	1.84	-2.67	6.40	.18	-.08	.32ALP		7.85	7.36			
102	172	274	135.89	-.77	135.12	5.32	9.29	7.20	13.34	.74	-4.30	6.30	.18	-.07	.31ALP		7.86	7.36			
102	173	275	139.98	-.56	139.42	3.77	9.09	7.28	13.66	2.37	-3.18	6.18	.18	-.05	.30ALP		7.88	7.37			
102	174	276	142.71	-.33	142.38	5.11	8.88	7.51	13.97	1.26	-4.80	6.08	.18	-.01	.29ALP		7.89	7.37			
102	175	277	146.98	-.10	146.88	3.57	8.68	7.59	14.28	2.89	-3.66	5.95	.17	.06	.27ALP		7.90	7.38			
102	176	278	149.89	.13	150.02	4.93	8.50	7.80	14.55	1.76	-4.61	5.83	.15	.19	.24ALP		7.91	7.38			
102	177	279	154.33	-.24	154.09	4.01	8.93	7.83	14.71	2.76	-3.21	5.09		.42	.20ALP		7.92	7.39			
102	178	280	157.43	-.88	156.55	5.61	9.62	8.04	15.00	1.35	-4.79	4.14		.68	.19ALP		7.94	7.40			
102	179	281	162.04	-1.54	160.50	4.12	9.74	8.13	15.32	2.93	-3.64	3.86		.95	.19ALP		7.95	7.40			
102	180	282	165.31	-2.22	163.09	5.49	9.60	8.35	15.61	1.79	-5.21	3.69		1.24	.19ALP		7.96	7.41			
102	181	283	170.09	-2.93	167.16	4.00	9.48	8.43	15.92	3.35	-4.08	3.50		1.53	.18ALP		7.97	7.41			
102	182	284	173.54	-3.66	169.88	5.35	9.35	8.64	16.22	2.22	-5.64	3.33		1.84	.18ALP		7.98	7.42			
102	183	285	178.48	-4.41	174.07	3.88	9.24	8.73	16.53	3.77	-4.50	3.14		2.15	.18ALP		8.00	7.43			
102	184	286	182.09	-5.18	176.91	5.24	9.11	8.95	16.82	2.64	-7.69	2.97		2.47	.18ALP		8.01	7.43			
102	185	287	187.21	-4.34	182.87	2.12	7.35	9.02	17.12	5.83	-6.54	4.43		2.08	.18ALP		8.02	7.44			
102	186	288	190.98	-3.53	187.45	3.49	5.61	9.24	17.42	4.69	-8.09	5.87		1.70	.18ALP		8.03	7.44			
102	187	289	196.25	-2.75	193.50	2.02	5.51	9.32	17.73	6.24	-6.94	5.67		1.33	.18ALP		8.04	7.45			
102	188	290	200.19	-2.00	198.19	3.38	5.41	9.54	18.02	5.10	-8.48	5.47		.97	.18ALP		8.05	7.46			
102	189	291	205.62	-1.27	204.35	1.92	5.30	9.61	18.31	6.65	-7.33	5.28		.63	.18ALP		8.07	7.46			
102	190	292	209.71	-.57	209.14	3.28	5.20	9.84	18.61	5.50	-8.87	5.08		.30	.17ALP		8.08	7.47			
102	191	293	215.29		UNSTABLE AGAINST FISSION																
102	192	294	219.55		UNSTABLE AGAINST FISSION																
102	193	295	225.28		UNSTABLE AGAINST FISSION																
102	194	296	229.69	-.95	228.74			10.48	19.96		-8.87		.20	-.93	.24ALP		8.12	7.49			
102	195	297	235.56	-1.22	234.34	2.47		10.56	20.25	7.02	-7.77	2.20	.20	-1.12	.26ALP		8.13	7.50			
102	196	298	240.12	-1.48	238.64	3.78	6.24	10.76	20.53	5.92	-9.32	2.09	.19	-1.29	.27ALP		8.15	7.50			
102	197	299	246.14	-1.73	244.41	2.30	6.08	10.84	20.81	7.46	-8.22	1.97	.19	-1.44	.28ALP		8.16	7.51			
102	198	300	250.85	-1.97	248.88	3.61	5.90	11.04	21.08	6.37	-9.76	1.87	.19	-1.57	.28ALP		8.17	7.52			
102	199	301	257.02	-2.20	254.82	2.13	5.74	11.21	21.36	7.91	-8.65	1.76	.19	-1.70	.29ALP		8.18	7.52			
102	200	302	261.87	-2.42	259.45	3.43	5.57	11.31	21.63	6.81	-10.19	1.64	.19	-1.82	.29ALP		8.19	7.53			
102	201	303	268.17	-2.62	265.55	1.98	5.41	11.38	21.91	8.35	-9.09	1.53	.19	-1.94	.29ALP		8.20	7.53			
102	202	304	273.17	-2.82	270.35	3.27	5.24	11.58	22.18	7.26	-10.62	1.42	.19	-2.05	.29ALP		8.21	7.54			
102	203	305	279.61	-3.00	276.61	1.81	5.08	11.65	22.45	8.79	-9.52	1.31	.19	-2.15	.29ALP		8.23	7.55			
102	204	306	284.74	-3.18	281.56	3.11	4.93	11.85	22.73	7.69	-11.05	1.18	.19	-2.25	.30ALP		8.24	7.55			
102	205	307	291.32	-3.34	287.98	1.66	4.77	11.92	22.99	9.22	-9.95	1.07	.19	-2.35	.30ALP		8.25	7.56			
102	206	308	296.59	-3.49	293.10	2.95	4.61	12.12	23.26	8.13	-11.46	.97	.19	-2.45	.30ALP		8.26	7.56			
102	207	309	303.29	-3.64	299.65	1.51	4.47	12.19	23.54	9.63	-10.38	.83	.19	-2.54	.30ALP		8.27	7.57			
102	208	310	308.70	-3.77	304.93	2.80	4.31	12.39	23.80	8.55	-11.88	.73	.19	-2.63	.30ALP		8.28	7.58			
102	209	311	3																		

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING BN	B2N	ENERGY BZ	B2Z	DECAY ENERGY BETA	EL-CAP	ALPHA	GD STA DEF	SADDLE MASS	DEF I	SHARP NEU	RADIUS PRO	EXPERIMENTAL MASS	SHELL	DIFF	
103	140	243	89.97	-1.81	88.16	9.36	17.49	-1.5	1.63	-7.84	6.94	9.92	.19	.78	.12	4	7.46	7.19			
103	141	244	90.36	-1.97	88.39	7.84	17.20	.12	2.00	-6.06	8.07	9.83	.19	.78	.12	4	7.47	7.20			
103	142	245	89.51	-2.12	87.39	9.07	16.92	.22	2.36	-7.19	6.29	9.75	.19	.78	.12	4	7.49	7.20			
103	143	246	90.16	-2.25	87.91	7.56	16.63	.48	2.72	-5.41	7.43	9.67	.19	.78	.12	4	7.50	7.21			
103	144	247	89.56	-2.37	87.19	8.79	16.35	.58	3.08	-6.54	5.66	9.59	.19	.77	.12	4	7.51	7.21			
103	145	248	90.45	-2.48	87.97	7.29	16.08	.85	3.45	-4.78	6.79	9.49	.19	.76	.12	4	7.53	7.22			
103	146	249	90.10	-2.57	87.53	8.52	15.80	.95	3.80	-5.91	5.03	9.41	.19	.76	.12	4	7.54	7.23			
103	147	250	91.24	-2.65	88.59	7.02	15.53	1.20	4.15	-4.15	6.17	9.33	.19	.75	.12	4	7.55	7.23			
103	148	251	91.13	-2.72	88.41	8.25	15.26	1.30	4.51	-5.28	4.42	9.23	.19	.74	.12	4	7.57	7.24			
103	149	252	92.50	-2.78	89.72	6.76	15.00	1.56	4.87	-3.55	5.54	9.13	.19	.73	.12	4	7.58	7.24			
103	150	253	92.63	-2.82	89.81	7.99	14.74	1.66	5.22	-4.67	3.80	9.04	.19	.71	.12	4	7.59	7.25			
103	151	254	94.23	-2.85	91.38	6.51	14.48	1.92	5.57	-2.94	4.93	8.95	.19	.70	.12	4	7.61	7.26			
103	152	255	94.60	-2.87	91.73	7.73	14.22	2.01	5.91	-4.06	3.21	8.86	.19	.69	.12	4	7.62	7.26			
103	153	256	96.43	-2.88	93.55	6.25	13.97	2.26	6.26	-2.34	4.33	8.75	.19	.67	.12	4	7.63	7.27	91.82	-4.61	-1.73
103	154	257	97.03	-2.87	94.16	7.47	13.71	2.35	6.60	-3.46	2.62	8.67	.19	.65	.10	4	7.64	7.27	92.70	-4.33	-1.46
103	155	258	99.08	-2.86	96.22	6.00	13.47	2.61	6.95	-1.75	3.74	8.56	.19	.64	.10	4	7.66	7.28			
103	156	259	99.90	-2.83	97.07	7.22	13.23	2.70	7.29	-2.88	2.03	8.46	.19	.63	.10	4	7.67	7.28			
103	157	260	102.16	-2.79	99.37	5.77	12.99	2.96	7.64	-1.18	3.14	8.35	.19	.61	.10	4	7.68	7.29			
103	158	261	103.20	-2.73	100.47	6.98	12.74	3.05	7.97	-2.30	1.45	8.26	.19	.60	.10	4	7.70	7.30			
103	159	262	105.68	-2.67	103.01	5.53	12.51	3.30	8.32	-.61	2.57	8.15	.19	.58	.10	4	7.71	7.30			
103	160	263	106.94	-2.59	104.35	6.74	12.26	3.38	8.64	-1.72	.89	8.06	.19	.56	.10	4	7.72	7.31			
103	161	264	109.63	-2.50	107.13	5.29	12.03	3.63	8.97	-.03	2.01	7.96	.19	.55	.10	4	7.73	7.31			
103	162	265	111.09	-2.41	108.68	6.51	11.81	3.73	9.32	-1.16	.31	7.84	.19	.53	.10	4	7.75	7.32			
103	163	266	113.99	-2.30	111.69	5.07	11.58	3.96	9.65	.52	1.44	7.74	.19	.51	.10	4	7.76	7.32			
103	164	267	115.66	-2.18	113.48	6.28	11.35	4.05	9.98	-.60	-.24	7.63	.19	-.20	.35ALP		7.77	7.33			
103	165	268	118.75	-2.04	116.71	4.85	11.12	4.30	10.30	1.07	-.89	7.53	.18	-.22	.34ALP		7.78	7.34			
103	166	269	120.63	-1.90	118.73	6.05	10.90	4.38	10.63	-.04	-.78	7.43	.18	-.24	.34ALP		7.80	7.34			
103	167	270	123.92	-1.75	122.17	4.63	10.68	4.62	10.96	1.61	-.34	7.31	.18	-.25	.33ALP		7.81	7.35			
103	168	271	125.99	-1.58	124.41	5.83	10.46	4.71	11.28	.50	-1.31	7.21	.18	-.26	.33ALP		7.82	7.35			
103	169	272	129.47	-1.41	128.06	4.42	10.25	4.95	11.61	2.15	-.21	7.09	.18	-.27	.33ALP		7.83	7.36			
103	170	273	131.74	-1.22	130.52	5.62	10.03	5.04	11.92	1.04	-1.85	6.99	.18	-.27	.32ALP		7.85	7.37			
103	171	274	135.41	-1.03	134.38	4.21	9.83	5.27	12.25	2.67	-.74	6.87	.18	-.26	.31ALP		7.86	7.37			
103	172	275	137.87	-.82	137.05	5.41	9.61	5.36	12.56	1.57	-2.37	6.76	.18	-.24	.31ALP		7.87	7.38			
103	173	276	141.72	-.61	141.11	4.01	9.42	5.60	12.88	3.19	-1.27	6.64	.18	-.21	.29ALP		7.88	7.38			
103	174	277	144.37	-.38	143.99	5.20	9.20	5.68	13.19	2.09	-2.89	6.54	.18	-.15	.28ALP		7.89	7.39			
103	175	278	148.41	-.14	148.27	3.80	8.99	5.90	13.49	3.72	-1.75	6.43	.18	-.06	.26ALP		7.91	7.40			
103	176	279	151.24	.10	151.34	4.99	8.79	5.98	13.78	2.60	-2.75	6.32	.16	.11	.21ALP		7.92	7.40			
103	177	280	155.45	-.25	155.20	4.20	9.21	6.18	14.00	-.01	-1.35	5.59	.16	.36	.19ALP		7.93	7.41			
103	178	281	158.46	-.88	157.58	5.70	9.90	6.26	14.30	2.21	-2.92	4.62	.16	.63	.18ALP		7.94	7.41			
103	179	282	162.85	-1.54	161.31	4.34	10.04	6.48	14.61	3.79	-1.78	4.26	.16	.90	.18ALP		7.95	7.42			
103	180	283	166.03	-2.23	163.80	5.57	9.92	6.57	14.92	2.61	-3.36	4.07	.16	1.19	.18ALP		7.97	7.42			
103	181	284	170.59	-2.93	167.66	4.22	9.79	6.79	15.22	4.24	-2.22	3.90	.16	1.48	.18ALP		7.98	7.43			
103	182	285	173.95	-3.65	170.30	5.44	9.65	6.87	15.51	3.08	-3.78	3.73	.16	1.79	.18ALP		7.99	7.44			
103	183	286	178.68	-4.40	174.28	4.09	9.53	7.09	15.81	4.64	-2.64	3.55	.16	2.10	.18ALP		8.00	7.44			
103	184	287	182.21	-5.17	177.04	5.31	9.40	7.17	16.11	3.50	-5.83	3.38	.16	2.42	.18ALP		8.01	7.45			
103	185	288	187.09	-4.33	182.76	2.35	7.66	7.40	16.42	6.68	-4.69	4.82	.16	2.03	.18ALP		8.03	7.45			
103	186	289	190.79	-3.53	187.26	3.57	5.92	7.48	16.72	5.53	-6.24	6.26	.16	1.65	.18ALP		8.04	7.46			
103	187	290	195.84	-2.75	193.09	2.24	5.81	7.70	17.03	7.08	-5.10	6.06	.16	1.28	.18ALP		8.05	7.47			
103	188	291	199.70	-2.00	197.70	3.46	5.71	7.78	17.32	5.94	-6.65	5.87	.16	.93	.18ALP		8.06	7.47			
103	189	292	204.91	-1.27	203.64	2.14	5.60	8.00	17.61	7.48	-5.50	5.68	.16	.59	.17ALP		8.07	7.48			
103	190	293	208.93	-.58	208.35	3.36	5.50	8.08	17.91	6.34		5.48	.16	.27	.16ALP		8.08	7.48			
103	191	294	214.29																		
103	192	295	218.47																		
103	193	296	223.99																		
103	194	297	228.32	-1.00	227.32			8.71	19.19		-7.02		.21	-1.00	.23ALP		8.13	7.51			
103	195	298	233.98	-1.26	232.72	2.67		8.92	19.47		-5.92		.20	-1.20	.25ALP		8.14	7.51			
103	196	299	238.47	-1.52	236.95	3.84	6.51	8.98	19.74		-7.46		2.59	.20	-1.38	.27ALP		8.15	7.52		
103	197	300	244.28	-1.77	242.51	2.51	6.35	9.19	20.03	8.26	-6.37		2.47	.19	-1.53	.27ALP		8.16	7.53		
103	198	301	248.91	-2.01	246.90	3.68	6.19	9.27	20.31	7.16	-7.92		2.36	.19	-1.67	.28ALP		8.18	7.53		
103	199	302	254.87	-2.23	252.64	2.34	6.01	9.47	20.58	8.70	-6.81		2.26	.19	-1.80	.28ALP		8.19	7.54		
103	200	303	259.65	-2.45	257.20	3.51	5.85	9.54	20.85	7.61	-8.35		2.15	.19	-1.92	.29ALP		8.20	7.54		
103	201	304	265.74	-2.65	263.09	2.18	5.69	9.75	21.13	9.14	-7.26		2.03	.19	-2.04	.29ALP		8.21	7.55		
103	202	305	270.67	-2.85	267.82	3.34	5.52	9.82	21.40	8.05	-8.78		1.92	.19	-2.15	.29ALP		8.22	7.56		
103	203	306	276.90	-3.03	273.87	2.02	5.36	10.03	21.68	9.57	-7.69		1.80	.19	-2.25	.29ALP		8.23	7.56		
103	204	307	281.97	-3.21	278.76	3.18	5.20	10.09	21.95	8.48	-9.22		1.69	.19	-2.35	.29ALP		8.24	7.57		
103	205	308	288.34	-3.37	284.97	1.86	5.04	10.29	22.22	10.00	-8.13		1.58	.19	-2.45	.29ALP		8.25	7.57		
103	206	309	293.54	-3.52	290.02	3.02	4.88	10.36	22.49	8.91	-9.64		1.47	.19	-2.55	.30ALP		8.27	7.58		
103	207	310	300.05	-3.66	296.39	1.70	4.72	10.56	22.75	10.43	-8.55		1.36	.19	-2.64	.29ALP		8.28	7.59		
103	208	311	305.38	-3.79	301.59	2.87	4.57	10.64	23.02	9.33	-10.06		1.24	.19	-2.73	.30ALP		8.29	7.59		
103	209	312	312.02	-3.91	308.11	1.56	4.42	10.83	23.28	10.84											

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING BN	BINDING B2N	ENERGY BZ	ENERGY B2Z	DECAY BETA	ENERGY EL-CAP	ENERGY ALPHA	GD STA DEF	SADDLE MASS	SADDLE DEF I	SHARP NEU	RADIUS PRO	EXPERIMENTAL MASS	EXPERIMENTAL SHELL	EXPERIMENTAL DIFF
104	134	238	101.95	-0.62	101.33	10.53	19.64	-1.10	-1.38	-11.88	8.03	10.81	.19	.60	.10	4	7.39	7.18		
104	135	239	101.45	-0.86	100.59	8.82	19.34		-1.00	-10.06	9.17	10.72	.19	.60	.10	4	7.40	7.18		
104	136	240	99.53	-1.09	98.44	10.22	19.03	.28	-0.62	-11.19	7.36	10.64	.19	.61	.10	4	7.41	7.19		
104	137	241	99.30	-1.31	97.99	8.52	18.74	.38	-0.25	-9.39	8.49	10.55	.19	.61	.10	4	7.43	7.19		
104	138	242	97.66	-1.51	96.15	9.92	18.43	.64	-.12	-10.52	6.70	10.49	.19	.62	.10	4	7.44	7.20		
104	139	243	97.69	-1.70	95.99	8.23	18.15	.74	.50	-8.73	7.83	10.40	.19	.62	.10	4	7.45	7.20		
104	140	244	96.32	-1.87	94.45	9.62	17.84	1.00	.85	-9.85	6.06	10.33	.19	.62	.10	4	7.47	7.21		
104	141	245	96.61	-2.03	94.58	7.94	17.56	1.10	1.22	-8.07	7.18	10.25	.19	.62	.10	4	7.48	7.21		
104	142	246	95.49	-2.18	93.31	9.34	17.28	1.37	1.59	-9.20	5.40	10.16	.19	.62	.10	4	7.49	7.22		
104	143	247	96.04	-2.31	93.73	7.66	16.99	1.46	1.95	-7.42	6.54	10.08	.19	.62	.10	4	7.51	7.23		
104	144	248	95.18	-2.43	92.75	9.05	16.71	1.73	2.31	-8.55	4.78	10.00	.19	.62	.10	4	7.52	7.23		
104	145	249	95.97	-2.54	93.43	7.39	16.44	1.83	2.68	-6.79	5.90	9.90	.19	.61	.10	4	7.53	7.24		
104	146	250	95.37	-2.63	92.74	8.77	16.16	2.08	3.02	-7.91	4.16	9.83	.19	.61	.10	4	7.55	7.24		
104	147	251	96.40	-2.71	93.69	7.12	15.89	2.18	3.38	-6.16	5.28	9.74	.19	.60	.10	4	7.56	7.25		
104	148	252	96.04	-2.78	93.26	8.50	15.62	2.43	3.74	-7.28	3.54	9.65	.19	.60	.10	4	7.57	7.26		
104	149	253	97.31	-2.83	94.48	6.86	15.36	2.53	4.09	-5.54	4.67	9.56	.19	.59	.10	4	7.59	7.26		
104	150	254	97.20	-2.87	94.33	8.23	15.08	2.77	4.43	-6.65	2.95	9.49	.19	.58	.10	4	7.60	7.27		
104	151	255	98.70	-2.90	95.80	6.60	14.83	2.87	4.78	-4.92	4.07	9.38	.19	.57	.10	4	7.61	7.27		
104	152	256	98.82	-2.92	95.90	7.97	14.56	3.12	5.13	-6.04	2.35	9.30	.19	.56	.10	4	7.63	7.28		
104	153	257	100.55	-2.93	97.62	6.34	14.32	3.22	5.48	-4.32	3.47	9.19	.19	.55	.10	4	7.64	7.28		
104	154	258	100.90	-2.92	97.98	7.71	14.06	3.46	5.82	-5.44	1.76	9.11	.19	.54	.10	4	7.65	7.29		
104	155	259	102.85	-2.90	99.95	6.10	13.81	3.56	6.17	-3.73	2.88	9.00	.19	.53	.10	4	7.66	7.30		
104	156	260	103.43	-2.87	100.56	7.46	13.56	3.80	6.50	-4.84	1.18	8.91	.19	.52	.10	4	7.68	7.30		
104	157	261	105.60	-2.83	102.77	5.85	13.32	3.90	6.85	-3.14	2.30	8.80	.19	.50	.10	4	7.69	7.31		
104	158	262	106.39	-2.78	103.61	7.23	13.09	4.15	7.20	-4.28	.60	8.70	.19	-.34	.35ALP		7.70	7.31		
104	159	263	108.78	-2.71	106.07	5.62	12.84	4.24	7.53	-2.56	1.72	8.60	.19	-.36	.35ALP		7.72	7.32		
104	160	264	109.79	-2.64	107.15	6.99	12.61	4.48	7.87	-3.69	.03	8.50	.19	-.38	.35ALP		7.73	7.32		
104	161	265	112.39	-2.55	109.84	5.39	12.37	4.57	8.20	-1.99	1.15	8.39	.19	-.39	.35ALP		7.74	7.33		
104	162	266	113.62	-2.45	111.17	6.74	12.13	4.81	8.53	-3.10	-.52	8.30	.19	-.41	.34ALP		7.75	7.34		
104	163	267	116.42	-2.34	114.08	5.16	11.91	4.90	8.86	-1.43	.60	8.19	.19	-.42	.34ALP		7.77	7.34		
104	164	268	117.85	-2.22	115.63	6.52	11.68	5.14	9.20	-2.55	-1.08	8.08	.19	-.44	.34ALP		7.78	7.35		
104	165	269	120.86	-2.08	118.78	4.93	11.44	5.22	9.51	-.86	.05	7.99	.19	-.45	.34ALP		7.79	7.35		
104	166	270	122.50	-1.94	120.56	6.29	11.22	5.46	9.84	-1.98	-1.61	7.89	.19	-.46	.33ALP		7.80	7.36		
104	167	271	125.70	-1.79	123.91	4.71	11.01	5.55	10.17	-.32	-.50	7.77	.19	-.46	.33ALP		7.82	7.37		
104	168	272	127.54	-1.62	125.92	6.06	10.78	5.78	10.49	-1.43	-2.14	7.67	.19	-.47	.32ALP		7.83	7.37		
104	169	273	130.93	-1.45	129.48	4.50	10.57	5.87	10.82	.22	-1.04	7.55	.19	-.46	.32ALP		7.84	7.38		
104	170	274	132.97	-1.26	131.71	5.85	10.35	6.10	11.13	-.88	-2.67	7.45	.18	-.45	.31ALP		7.85	7.38		
104	171	275	136.55	-1.07	135.48	4.29	10.15	6.19	11.46	.75	-1.57	7.33	.18	-.43	.31ALP		7.86	7.39		
104	172	276	138.78	-.86	137.92	5.64	9.93	6.42	11.78	-.35	-3.20	7.23	.19	-.40	.30ALP		7.88	7.39		
104	173	277	142.55	-.64	141.91	4.09	9.72	6.50	12.09	1.29	-2.08	7.12	.19	-.35	.29ALP		7.89	7.40		
104	174	278	144.97	-.42	144.55	5.42	9.51	6.73	12.41	.18	-3.71	7.01	.19	-.27	.27ALP		7.90	7.41		
104	175	279	148.92	-.18	148.74	3.88	9.31	6.81	12.72	1.81	-2.59	6.89	.19	-.15	.24ALP		7.91	7.41		
104	176	280	151.52																	
104	177	281	155.65	-.28	155.37		9.51	7.12	13.30		-2.20	6.07		.32	.18ALP		7.94	7.42		
104	178	282	158.44	-.92	157.52	5.92		7.34	13.61	.35	-3.78	5.07		.59	.18ALP		7.95	7.43		
104	179	283	162.74	-1.58	161.16	4.43	10.35	7.43	13.92	1.92	-2.65	4.64		.86	.18ALP		7.96	7.44		
104	180	284	165.71	-2.26	163.45	5.78	10.21	7.64	14.21	.79	-4.21	4.48		1.15	.18ALP		7.97	7.44		
104	181	285	170.18	-2.96	167.22	4.30	10.09	7.73	14.52	2.36	-3.08	4.29		1.44	.18ALP		7.98	7.45		
104	182	286	173.32	-3.68	169.64	5.66	9.95	7.95	14.82	1.23	-4.63	4.13		1.75	.18ALP		8.00	7.45		
104	183	287	177.97	-4.43	173.54	4.17	9.83	8.02	15.12	2.79	-3.50	3.95		2.06	.18ALP		8.01	7.46		
104	184	288	181.28	-5.19	176.09	5.52	9.69	8.24	15.41	1.66	-6.67	3.79		2.38	.18ALP		8.02	7.46		
104	185	289	186.09	-4.36	181.73	2.43	7.95	8.32	15.72	4.84	-5.53	5.23		1.99	.18ALP		8.03	7.47		
104	186	290	189.57	-3.55	186.02	3.78	6.21	8.54	16.01	3.71	-7.07	6.68		1.62	.18ALP		8.04	7.48		
104	187	291	194.54	-2.78	191.76	2.32	6.11	8.62	16.32	5.24	-5.94	6.47		1.25	.18ALP		8.05	7.48		
104	188	292	198.18	-2.03	196.15	3.68	6.01	8.84	16.62	4.11	-7.49	6.27		.90	.18ALP		8.07	7.49		
104	189	293	203.31	-1.31	202.00	2.22	5.90	8.92	16.92	5.64	-6.35	6.07		.56	.17ALP		8.08	7.49		
104	190	294	207.12	-.61	206.51	3.57	5.79	9.13	17.21	4.52		5.89		.25	.16ALP		8.09	7.50		
104	191	295	212.41	.05	212.46	2.12	5.69			6.05		5.69		.06	.04ALP		8.10	7.51		
104	192	296	216.37																	
104	193	297	221.81																	
104	194	298	225.94																	
104	195	299	231.53					9.78	18.69		-6.72		.21	-1.28	.24ALP		8.15	7.53		
104	196	300	235.80	-1.55	234.25	4.05		9.99	18.97	4.88	-8.26	3.09	.20	-1.46	.26ALP		8.16	7.54		
104	197	301	241.54	-1.80	239.74	2.58	6.63	10.06	19.25	6.42	-7.17	2.97	.20	-1.62	.27ALP		8.17	7.54		
104	198	302	245.97	-2.03	243.94	3.88	6.45	10.26	19.52	5.33	-8.70	2.87	.19	-1.76	.27ALP		8.18	7.55		
104	199	303	251.85	-2.26	249.59	2.42	6.30	10.33	19.80	6.86	-7.61	2.75	.19	-1.89	.28ALP		8.19	7.55		
104	200	304	256.43	-2.47	253.96	3.71	6.12	10.53	20.07	5.78	-9.13	2.65	.19	-2.02	.28ALP		8.20	7.56		
104	201	305	262.45	-2.68	259.77	2.25	5.97	10.61	20.36	7.30	-8.05	2.53	.19	-2.13	.28ALP		8.22	7.56		
104	202	306	267.17	-2.87	264.30	3.54	5.80	10.81	20.63	6.22	-9.57	2.42	.19	-2.24	.29ALP		8.23	7.57		
104	203	307	273.33	-3.05	270.28	2.10	5.64	10.88	20.90	7.74	-8.48	2.31	.19	-2.35	.29ALP		8.24	7.58		
104	204	308	278.20	-3.23	274.97	3.38	5.47	11.07	21.17	6.65	-10.00	2.20	.19	-2.45	.					

Z	N	A	DROPLET MASS	CALC SHELL	CALC MASS	BINDING ENERGY				DECAY ENERGY		GD STA	SADDLE	SHARP	RADIUS	EXPERIMENTAL		
						BN	BZN	BZ	BZZ	BETA	EL-CAP ALPHA	DEF	MASS	DEF I	NEU	PRO	MASS SHELL	DIFF
105	137	242	108.03	-1.36	106.67	8.79	19.11	-1.38	-1.01	-8.49	10.52	10.94	.19	-.29	.33ALP	7.43	7.21	
105	138	243	106.28	-1.56	104.72	10.02	18.81	-1.28	-.64	-9.62	8.72	10.87	.19	-.32	.33ALP	7.45	7.22	
105	139	244	106.05	-1.75	104.30	8.49	18.51	-1.02	-2.27	-7.83	9.85	10.79	.19	-.34	.34ALP	7.46	7.22	
105	140	245	104.57	-1.92	102.65	9.72	18.21	-.91	.09	-8.95	8.07	10.72	.19	-.36	.34ALP	7.47	7.23	
105	141	246	104.59	-2.08	102.51	8.21	17.93	-.64	.46	-7.18	9.19	10.64	.19	-.38	.34ALP	7.49	7.23	
105	142	247	103.38	-2.22	101.16	9.43	17.63	-.55	.81	-8.30	7.43	10.57	.19	-.40	.34ALP	7.50	7.24	
105	143	248	103.66	-2.36	101.30	7.92	17.36	-.28	1.18	-6.54	8.55	10.48	.19	-.41	.35ALP	7.51	7.24	
105	144	249	102.70	-2.47	100.23	9.15	17.07	-.18	1.54	-7.66	6.79	10.41	.19	-.43	.35ALP	7.53	7.25	
105	145	250	103.23	-2.58	100.65	7.65	16.79	.08	1.90	-5.90	7.91	10.32	.19	-.44	.35ALP	7.54	7.26	
105	146	251	102.52	-2.67	99.85	8.87	16.52	.18	2.26	-7.03	6.16	10.24	.19	-.45	.35ALP	7.55	7.26	
105	147	252	103.30	-2.75	100.55	7.37	16.24	.43	2.61	-5.28	7.28	10.15	.19	-.46	.35ALP	7.57	7.27	
105	148	253	102.84	-2.82	100.02	8.60	15.97	.53	2.97	-6.40	5.54	10.07	.19	-.48	.35ALP	7.58	7.27	
105	149	254	103.85	-2.87	100.98	7.11	15.71	.79	3.32	-4.67	6.66	9.97	.19	-.49	.35ALP	7.59	7.28	
105	150	255	103.64	-2.91	100.73	8.32	15.43	.88	3.66	-5.78	4.94	9.90	.19	-.50	.35ALP	7.61	7.28	
105	151	256	104.88	-2.94	101.94	6.86	15.18	1.15	4.02	-4.06	6.05	9.79	.19	-.51	.35ALP	7.62	7.29	
105	152	257	104.90	-2.96	101.94	8.07	14.92	1.24	4.37	-5.18	4.32	9.70	.19	-.53	.35ALP	7.63	7.30	
105	153	258	106.38	-2.97	103.41	6.60	14.67	1.49	4.72	-3.47	5.44	9.60	.19	-.54	.35ALP	7.65	7.30	
105	154	259	106.63	-2.96	103.67	7.82	14.42	1.59	5.06	-4.58	3.72	9.52	.19	-.55	.35ALP	7.66	7.31	
105	155	260	108.34	-2.94	105.40	6.35	14.16	1.84	5.40	-2.87	4.85	9.42	.19	-.57	.35ALP	7.67	7.31	
105	156	261	108.82	-2.91	105.91	7.56	13.91	1.93	5.74	-3.98	3.14	9.33	.19	-.58	.35ALP	7.68	7.32	
105	157	262	110.74	-2.87	107.87	6.10	13.67	2.18	6.09	-2.29	4.25	9.23	.19	-.59	.35ALP	7.70	7.32	
105	158	263	111.44	-2.81	108.63	7.32	13.42	2.28	6.42	-3.40	2.56	9.14	.19	-.60	.34ALP	7.71	7.33	
105	159	264	113.58	-2.75	110.83	5.87	13.19	2.52	6.76	-1.72	3.67	9.03	.19	-.62	.34ALP	7.72	7.34	
105	160	265	114.50	-2.67	111.83	7.08	12.94	2.62	7.09	-2.83	1.99	8.93	.19	-.63	.34ALP	7.73	7.34	
105	161	266	116.85	-2.58	114.27	5.64	12.71	2.86	7.43	-1.15	3.10	8.83	.19	-.64	.34ALP	7.75	7.35	
105	162	267	117.99	-2.48	115.51	6.83	12.47	2.95	7.76	-2.26	1.43	8.74	.19	-.65	.34ALP	7.76	7.35	
105	163	268	120.55	-2.37	118.18	5.40	12.24	3.19	8.09	-.58	2.54	8.63	.19	-.66	.33ALP	7.77	7.36	
105	164	269	121.89	-2.25	119.64	6.61	12.01	3.28	8.42	-1.70	.87	8.53	.19	-.66	.33ALP	7.78	7.36	
105	165	270	124.65	-2.11	122.54	5.18	11.78	3.53	8.75	-.03	1.98	8.43	.19	-.67	.33ALP	7.80	7.37	
105	166	271	126.20	-1.97	124.23	6.38	11.56	3.62	9.07	-1.14	.32	8.32	.19	-.67	.33ALP	7.81	7.38	
105	167	272	129.16	-1.82	127.34	4.96	11.34	3.86	9.41	.51	1.43	8.21	.19	-.67	.32ALP	7.82	7.38	
105	168	273	130.91	-1.65	129.26	6.16	11.11	3.95	9.73	-.60	-.22	8.11	.19	-.66	.32ALP	7.83	7.39	
105	169	274	134.07	-1.48	132.59	4.74	10.90	4.18	10.05	1.05	.88	8.00	.19	-.65	.31ALP	7.85	7.39	
105	170	275	136.02	-1.29	134.73	5.94	10.68	4.27	10.37	-.06	-.75	7.90	.19	-.63	.31ALP	7.86	7.40	
105	171	276	139.37	-1.10	138.27	4.53	10.47	4.50	10.69	1.58	.35	7.78	.19	-.59	.30ALP	7.87	7.41	
105	172	277	141.51	-.89	140.62	5.72	10.25	4.59	11.01	.47	-1.28	7.68	.19	-.55	.29ALP	7.88	7.41	
105	173	278	145.05	-.67	144.38	4.32	10.04	4.82	11.32	2.11	-.17	7.57	.19	-.48	.28ALP	7.89	7.42	
105	174	279	147.38	-.45	146.93	5.51	9.84	4.91	11.64	1.00	-1.81	7.46	.19	-.38	.26ALP	7.91	7.42	
105	175	280	151.10															
105	176	281	153.62															
105	177	282	157.52	-.35	157.17			5.49	12.61		-.35	6.48		.30	.17ALP	7.94	7.44	
105	178	283	160.22	-.98	159.24	6.00		5.57	12.91	1.21	-1.92	5.48		.56	.18ALP	7.95	7.45	
105	179	284	164.30	-1.64	162.66	4.65	10.65	5.79	13.22	2.79	-.79	5.03		.84	.18ALP	7.97	7.45	
105	180	285	167.18	-2.32	164.86	5.87	10.52	5.88	13.53	1.65	-2.36	4.86		1.12	.18ALP	7.98	7.46	
105	181	286	171.43	-3.02	168.41	4.52	10.39	6.10	13.83	3.21	-1.23	4.68		1.42	.18ALP	7.99	7.46	
105	182	287	174.49	-3.74	170.75	5.73	10.26	6.18	14.12	2.08	-2.79	4.52		1.72	.18ALP	8.00	7.47	
105	183	288	178.91	-4.48	174.43	4.39	10.13	6.40	14.42	3.64	-1.65	4.34		2.04	.18ALP	8.01	7.47	
105	184	289	182.14	-5.25	176.89	5.31	10.00	6.48	14.72	2.51	-4.84	4.17		2.36	.18ALP	8.03	7.48	
105	185	290	186.73	-4.42	182.31	2.65	8.26	6.70	15.03	5.68	-3.70	5.61		1.97	.18ALP	8.04	7.49	
105	186	291	190.13	-3.61	186.52	3.87	6.52	6.78	15.32	4.55	-5.24	7.06		1.59	.18ALP	8.05	7.49	
105	187	292	194.88	-2.84	192.04	2.54	6.42	7.01	15.63	6.08	-4.12	6.85		1.23	.18ALP	8.06	7.50	
105	188	293	198.45	-2.09	196.36	3.75	6.30	7.08	15.92	4.96	-5.65	6.67		.88	.17ALP	8.07	7.50	
105	189	294	203.36	-1.37	201.99	2.44	6.20	7.31	16.22	6.49	-4.52	6.47		.55	.17ALP	8.08	7.51	
105	190	295	207.09	-.68	206.41	3.65	6.09	7.38	16.52	5.36	-6.05	6.28		.24	.16ALP	8.10	7.52	
105	191	296	212.16	-.01	212.15	2.33	5.98	7.60	16.89	6.89		6.09		.02	.09ALP	8.11	7.52	
105	192	297	216.05															
105	193	298	221.27															
105	194	299	225.32															
105	195	300	230.70	-1.33	229.37			8.15	17.93		-4.88		.22	-1.33	.23ALP	8.15	7.55	
105	196	301	234.90	-1.58	233.32	4.11		8.22	18.21		-6.42	3.58	.20	-1.53	.25ALP	8.16	7.55	
105	197	302	240.43	-1.82	238.61	2.78	6.90	8.42	18.48	7.22	-5.33	3.46	.20	-1.70	.26ALP	8.18	7.56	
105	198	303	244.78	-2.05	242.73	3.95	6.74	8.50	18.75	6.12	-6.86	3.36	.20	-1.85	.27ALP	8.19	7.56	
105	199	304	250.45	-2.27	248.18	2.63	6.57	8.71	19.03	7.66	-5.77	3.24	.19	-1.98	.27ALP	8.20	7.57	
105	200	305	254.96	-2.49	252.47	3.78	6.40	8.77	19.31	6.57	-7.30	3.14	.19	-2.11	.28ALP	8.21	7.57	
105	201	306	260.77	-2.69	258.08	2.46	6.24	8.98	19.59	8.09	-6.22	3.02	.19	-2.23	.28ALP	8.22	7.58	
105	202	307	265.42	-2.88	262.54	3.62	6.07	9.05	19.86	7.01	-7.74	2.92	.19	-2.34	.28ALP	8.23	7.59	
105	203	308	271.38	-3.06	268.32	2.29	5.91	9.25	20.13	8.53	-6.65	2.81	.19	-2.45	.29ALP	8.24	7.59	
105	204	309	276.17	-3.23	272.94	3.45	5.74	9.33	20.40	7.44	-8.17	2.70	.19	-2.55	.29ALP	8.25	7.60	
105	205	310	282.27	-3.39	278.88	2.13	5.58	9.53	20.67	8.96	-7.08	2.59	.19	-2.65	.29ALP	8.27	7.60	
105	206	311	287.20	-3.54	283.66	3.29	5.42	9.60	20.94	7.88	-8.60	2.47	.19	-2.74	.29ALP	8.28	7.61	
105	207	312	293.43	-3.68	289.75	1.98	5.27	9.80	21.21	9.38	-7.52	2.36	.19	-2.83	.29ALP	8.29	7.62	
105	208	313	298.51	-3.81	294.70	3.13	5.10	9.86	21.47	8.31	-9.02	2.26	.19	-2.92	.29ALP	8.30	7.62	
105	209	314	304.87	-3.93	300.94	1.83	4.95	10.07	21.74	9.80	-7.94	2.13	.19	-3.01	.29ALP	8.31	7.63	
105	210	315	310.08	-4.04	30													

Z	N	A	DROPLET		CALC SHELL	CALC MASS	BINDING ENERGY			DECAY ENERGY			GD STA DEF	SADDLE MASS DEF I	SHARP NEU PRO	RADIUS	EXPERIMENTAL	
			MASS	MASS			BN	B2M	BZ	B2Z	BETA	EL-CAP					ALPHA	MASS SHELL
106	134	240	119.52	-0.73	118.79	10.90	20.40	-0.85	-2.88	-12.99	9.16	11.54	.19	-0.39	.30ALP	7.40	7.21	
106	135	241	118.64	-0.97	117.67	9.19	20.09	-0.75	-2.51	-11.18	10.29	11.46	.19	-0.47	.31ALP	7.41	7.22	
106	136	242	116.35	-1.19	115.16	10.59	19.78	-0.48	-2.14	-12.30	8.49	11.40	.19	-0.52	.31ALP	7.43	7.22	
106	137	243	115.75	-1.41	114.34	8.89	19.48	-0.39	-1.77	-10.50	9.62	11.33	.19	-0.57	.32ALP	7.44	7.23	
106	138	244	113.73	-1.61	112.12	10.29	19.18	-0.11	-1.39	-11.64	7.82	11.25	.19	-0.60	.32ALP	7.46	7.23	
106	139	245	113.39	-1.79	111.60	8.60	18.88	-0.01	-1.03	-9.85	8.95	11.18	.19	-0.63	.33ALP	7.47	7.24	
106	140	246	111.65	-1.96	109.69	9.99	18.58	.25	-0.66	-10.96	7.18	11.11	.19	-0.66	.33ALP	7.48	7.24	
106	141	247	111.58	-2.12	109.46	8.30	18.29	.34	-0.30	-9.18	8.31	11.04	.19	-0.68	.33ALP	7.50	7.25	
106	142	248	110.10	-2.26	107.84	9.69	18.00	.60	.06	-10.30	6.54	10.97	.19	-0.69	.34ALP	7.51	7.26	
106	143	249	110.28	-2.39	107.89	8.02	17.71	.70	.42	-8.53	7.67	10.89	.19	-0.71	.34ALP	7.52	7.26	
106	144	250	109.06	-2.51	106.55	9.41	17.43	.96	.78	-9.66	5.90	10.81	.19	-0.72	.34ALP	7.54	7.27	
106	145	251	109.49	-2.61	106.88	7.75	17.15	1.06	1.14	-7.90	7.03	10.73	.19	-0.74	.34ALP	7.55	7.27	
106	146	252	108.53	-2.71	105.82	9.13	16.88	1.31	1.50	-9.02	5.28	10.64	.19	-0.75	.34ALP	7.56	7.28	
106	147	253	109.21	-2.78	106.43	7.47	16.59	1.41	1.84	-7.26	6.41	10.57	.19	-0.76	.34ALP	7.57	7.28	
106	148	254	108.49	-2.85	105.64	8.85	16.33	1.67	2.20	-8.39	4.66	10.48	.19	-0.77	.34ALP	7.59	7.29	
106	149	255	109.41	-2.90	106.51	7.21	16.06	1.76	2.55	-6.64	5.79	10.39	.19	-0.78	.34ALP	7.60	7.30	
106	150	256	108.94	-2.94	106.00	8.58	15.79	2.01	2.90	-7.76	4.06	10.31	.19	-0.79	.34ALP	7.61	7.30	
106	151	257	110.09	-2.97	107.12	6.95	15.53	2.11	3.25	-6.04	5.18	10.21	.19	-0.80	.34ALP	7.63	7.31	
106	152	258	109.86	-2.99	106.87	8.32	15.27	2.36	3.60	-7.15	3.45	10.12	.19	-0.81	.34ALP	7.64	7.31	
106	153	259	111.25	-2.99	108.26	6.69	15.00	2.45	3.94	-5.42	4.58	10.04	.19	-0.82	.34ALP	7.65	7.32	
106	154	260	111.25	-2.98	108.27	8.06	14.75	2.70	4.28	-6.54	2.87	9.95	.19	-0.83	.34ALP	7.67	7.32	
106	155	261	112.86	-2.96	109.90	6.44	14.50	2.79	4.63	-4.83	3.99	9.86	.19	-0.84	.34ALP	7.68	7.33	
106	156	262	113.09	-2.93	110.16	7.81	14.25	3.04	4.97	-5.94	2.29	9.76	.19	-0.84	.34ALP	7.69	7.34	
106	157	263	114.92	-2.89	112.03	6.20	14.01	3.13	5.32	-4.25	3.40	9.66	.19	-0.85	.34ALP	7.70	7.34	
106	158	264	115.38	-2.83	112.55	7.56	13.75	3.37	5.64	-5.35	1.71	9.57	.19	-0.86	.34ALP	7.72	7.35	
106	159	265	117.43	-2.77	114.66	5.96	13.52	3.46	5.99	-3.66	2.83	9.47	.19	-0.87	.34ALP	7.73	7.35	
106	160	266	118.11	-2.69	115.42	7.31	13.27	3.70	6.32	-4.77	1.15	9.38	.19	-0.87	.33ALP	7.74	7.36	
106	161	267	120.37	-2.60	117.77	5.72	13.03	3.79	6.65	-3.08	2.26	9.28	.19	-0.88	.32ALP	7.75	7.36	
106	162	268	121.26	-2.50	118.76	7.08	12.80	4.04	6.99	-4.20	.58	9.18	.19	-0.88	.33ALP	7.77	7.37	
106	163	269	123.73	-2.39	121.34	5.49	12.57	4.12	7.32	-2.52	1.70	9.07	.19	-0.89	.33ALP	7.78	7.38	
106	164	270	124.84	-2.27	122.57	6.84	12.34	4.36	7.65	-3.63	.03	8.98	.19	-0.89	.32ALP	7.79	7.38	
106	165	271	127.51	-2.13	125.38	5.27	12.10	4.45	7.97	-1.96	1.15	8.87	.19	-0.89	.32ALP	7.80	7.39	
106	166	272	128.82	-1.99	126.83	6.62	11.88	4.69	8.30	-3.07	-0.52	8.77	.19	-0.88	.32ALP	7.82	7.39	
106	167	273	131.69	-1.84	129.85	5.05	11.67	4.78	8.64	-1.42	.59	8.65	.19	-0.86	.31ALP	7.83	7.40	
106	168	274	133.21	-1.67	131.54	6.39	11.44	5.01	8.95	-2.52	-1.05	8.56	.19	-0.85	.31ALP	7.84	7.40	
106	169	275	136.28	-1.50	134.78	4.83	11.22	5.10	9.28	-0.87	.05	8.45	.19	-0.82	.30ALP	7.85	7.41	
106	170	276	138.00	-1.31	136.69	6.17	11.00	5.33	9.59	-1.97	-1.58	8.35	.19	-0.79	.30ALP	7.86	7.42	
106	171	277	141.26	-1.11	140.15	4.62	10.78	5.42	9.91	-0.33	-0.47	8.24	.19	-0.75	.29ALP	7.88	7.42	
106	172	278	143.17	-0.91	142.26	5.96	10.57	5.65	10.24	-1.44	-2.11	8.13	.19	-0.68	.28ALP	7.89	7.43	
106	173	279	146.62	-0.69	145.93	4.41	10.36	5.74	10.55	.20	-1.00	8.02	.19	-0.60	.26ALP	7.90	7.43	
106	174	280	148.73	-0.47	148.26	5.74	10.15	5.96	10.87	-0.89		7.92	.20	-0.46	.24ALP	7.91	7.44	
106	175	281	152.36															
106	176	282	154.66															
106	177	283	158.47															
106	178	284	160.95	-1.08	159.87	6.23		6.43	11.93	.49	-1.22	6.86		.29	.17ALP	7.95	7.46	
106	179	285	164.95	-1.73	163.22	4.73	10.95	6.73	12.52	.94	-1.64	5.43		.83	.18ALP	7.97	7.47	
106	180	286	167.61	-2.41	165.20	6.08	10.82	6.95	12.83	-1.19	-3.21	5.27		1.11	.18ALP	7.98	7.47	
106	181	287	171.77	-3.11	168.66	4.61	10.70	7.04	13.14	1.37	-2.09	5.07		1.40	.18ALP	8.00	7.48	
106	182	288	174.61	-3.83	170.78	5.96	10.56	7.25	13.44	.24	-3.65	4.91		1.71	.18ALP	8.01	7.49	
106	183	289	178.95	-4.57	174.38	4.48	10.43	7.33	13.74	1.80	-2.51	4.73		2.02	.18ALP	8.02	7.49	
106	184	290	181.96	-5.33	176.63	5.83	10.30	7.55	14.03	.67	-5.68	4.57		2.34	.18ALP	8.03	7.50	
106	185	291	186.47	-6.50	181.97	2.74	8.56	7.63	14.34	3.84	-4.55	6.01		1.96	.18ALP	8.04	7.50	
106	186	292	189.66	-3.70	185.96	4.08	6.82	7.84	14.63	2.72	-6.08	7.45		1.58	.18ALP	8.06	7.51	
106	187	293	194.33	-2.92	191.41	2.62	6.70	7.93	14.93	4.26	-4.95	7.26		1.22	.17ALP	8.07	7.51	
106	188	294	197.68	-2.18	195.50	3.97	6.60	8.15	15.23	3.13	-6.49	7.06		.88	.17ALP	8.08	7.52	
106	189	295	202.51	-1.46	201.05	2.52	6.50	8.23	15.54	4.66	-5.36	6.86		.55	.17ALP	8.09	7.53	
106	190	296	206.03	-0.77	205.26	3.86	6.39	8.44	15.83	3.54	-6.89	6.68		.24	.16ALP	8.10	7.53	
106	191	297	211.02	-1.0	210.92	2.42	6.28	8.52	16.12	5.07		6.49		.01	.12ALP	8.11	7.54	
106	192	298	214.70															
106	193	299	219.85															
106	194	300	223.69															
106	195	301	228.99															
106	196	302	232.99	-1.60	231.39			9.22	17.44		-7.22			.21	-1.59	.24ALP	8.17	7.57
106	197	303	238.44	-1.83	236.61	2.85		9.29	17.71		-6.12	3.96	.20	-1.77	.25ALP	8.18	7.57	
106	198	304	242.59	-2.06	240.53	4.15	7.00	9.49	17.98	4.30	-7.65	3.85	.20	-1.92	.26ALP	8.19	7.58	
106	199	305	248.18	-2.28	245.90	2.70	6.85	9.57	18.27	5.83	-6.57	3.73	.20	-2.07	.27ALP	8.20	7.58	
106	200	306	252.48	-2.49	249.99	3.99	6.68	9.77	18.54	4.74	-8.09	3.63	.19	-2.20	.27ALP	8.22	7.59	
106	201	307	258.23	-2.69	255.54	2.53	6.51	9.84	18.81	6.28	-7.00	3.52	.19	-2.32	.28ALP	8.23	7.60	
106	202	308	262.67	-2.88	259.79	3.82	6.34	10.04	19.09	5.19	-8.53	3.41	.19	-2.43	.28ALP	8.24	7.60	
106	203	309	268.56	-3.06	265.50	2.36	6.18	10.11	19.36	6.71	-7.44	3.30	.19	-2.54	.28ALP	8.25	7.61	
106	204	310	273.15	-3.23	269.92	3.65	6.01	10.31	19.63	5.63	-8.95	3.19	.19	-2.64	.28ALP	8.26	7.61	
106	205	311	279.18	-3.39	275.79	2.20	5.85	10.38	19.90	7.15	-7.87	3.08	.19	-2.74	.28ALP	8.27	7.62	
106	206	312	283.91	-3.54	280.37	3.49	5.69	10.58	20.17	6.07	-9.38	2.97	.19	-2.84	.29ALP	8.28	7.63	
106	207	313	290.07	-3.68	286.39	2.05	5.54	10.65	20.45	7.57	-8.30	2.85	.19	-2.93	.29ALP	8.29	7.63	
106	208	314	294.95	-3.81	291.14	3.32	5.37	10.84	20.71	6.50	-9.80	2.75	.19	-3.01	.29ALP	8.30	7.64	
106	209	315	301.24	-3.93	297.31	1.90	5.22	10.92	20.98	7.99	-8.73	2.63	.19	-3.10				

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