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The AME2003 atomic mass evaluation *

(I). Evaluation of input data, adjustment procedures

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Abstract

This paper is the first of two parts presenting the result of a new evaluation of atomic masses (AME2003). In this first part we give full information on the used and rejected input data and on the procedures used in deriving the tables in the second part. We first describe the philosophy and procedures used in selecting nuclear-reaction, decay, and mass spectrometric results as input values in a least-squares evaluation of best values for atomic masses. The calculation procedures and particularities of the AME are then described. All accepted data, and rejected ones with a reported precision still of interest, are presented in a table and compared there with the adjusted values. The differences with the earlier evaluation are briefly discussed and information is given of interest for the users of this AME. The second paper for the AME2003, last in this issue, gives a table of atomic masses, tables and graphs of derived quantities, and the list of references used in both this evaluation and the NUBASE2003 table (first paper in this issue).

AMDC: http://csnwww.in2p3.fr/AMDC/

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1. Introduction

Our last full evaluation of experimental data AME'93 [1]–[4] was published in 1993. Since then an uncommonly large number of quite important new data has become

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available. In fact, as much as 34% of the data used in the present calculation were not used in 1993.

An update AME'95 [5] appeared two years later. Lack of time to evaluate the stream of new quite important data, and also the necessity to create the NUBASE evaluation (see below), prevented the intended further updates of the AME. A certain stabilization, that seems to be reached now, encourages us to publish the present new full evaluation, together with the new version of NUBASE (first paper in this issue).

General aspects of this work will first be discussed. But in doing this, we will mention several local analyses intended, partly, to study points elaborated further below. Other local analyses may be found at the AMDC web site [6].

The main table of the evaluation is given in this Part I. In it (Table I), we present all accepted data, and rejected ones with a reported precision still of interest, and compares them with the adjusted values.

As in our previous evaluations, all the uncertainties in the present tables are one-standard deviation (1 σ) errors.

There is no strict cut-off date for the data from literature used in the present AME2003 evaluation: all data available to us until the material is sent (November 19, 2003) to the publisher have been included. Those which could not be included for special reasons, like the need for a heavy revision of the evaluation at a too late stage, are added in remarks to the relevant data. The final calculation was performed on November 18, 2003.

The present publication updates and includes almost all the information given in the two previous AMEs, published in 1983 and 1993.

1.1. The isomers in the AME and the emergence of NUBASE

Already since long, we maintain a file (called *Mfile*) of approximate mass values for atoms in ground-states and in selected isomeric states as input in our computer programs. These programs essentially calculate the differences between input values and these approximate values in order to gain precision in the calculations. One reason was that, where isomers occur, one has to be careful to check which one is involved in reported experimental data, such as α- and β-decay energies. Cases have occurred where authors were not (yet) aware of isomeric complications. For that reason, our *Mfile* contained known data on such isomeric pairs (half-lives; excitation energies; spin-parities). The matter of isomerism became even more important, when mass spectrometric methods were developed to measure masses of exotic atoms far from β-stability and therefore having small half-lives. The resolution in the spectrometers is limited, and often insufficient to separate isomers. Then, one so obtains an average mass for the isomeric pair. A mass of the ground-state, our primary purpose, can then only be derived if one has information on the excitation energy and on the production rates of the isomers. And in cases where e.g. the excitation energy was not known, it may be estimated, see below. We therefore judged it necessary to make our *Mfile* more complete. This turned out to be a major job. And since it was judged possible, that the result might be useful for others, the resulting NUBASE97 evaluation [7] file was published.

1.2. Highlights

In our earlier work we distinguished a 'backbone' of nuclides along the line of stability in a diagram of atomic number A versus charge number Z [8]. For these nuclides the atomic mass values are known with exceptionally high precision. But a difficulty existed here already since 1980 (see ref. [9], especially Fig. 1) with respect to the atomic masses of stable Hg isotopes. As will be discussed below, new data solve this problem.

New precision measurements with Penning traps considerably improve the precision in our knowledge of atomic mass values along the backbone. Only one group at Winnipeg (see e.g. [2003Ba49]) is still making measurements of stable nuclei with a conventional mass spectrometer. The importance and impact of their results will be outlined below, in particular in solving the long-standing Hg-problem. It is somewhat ironical but not unexpected that the new results show that several older data are less good than thought earlier, but the reverse also occurs to be true. Below we will mention the most prominent examples. Strengthening the backbone, a large number of neutron capture γ-ray energies play an essential *rôle*, and determine neutron separation energies with high precision. For comparison the number of couples of nuclides connected by (n,γ) reactions with an accuracy of 0.5 keV or better is now 243 against 199 in AME93, 128 in AME83 and 60 in the 1977 one. The number of cases known to better than 0.1 keV is presently 100 against 66 in AME93 and 33 in AME83. Also, several reaction energies of (p,γ) reactions are known about as precisely (25 and 8 cases with accuracies better than 0.5 keV and 0.1 keV respectively). In fact, the precisions in both cases is so high that one of us [6] has re-examined all calibrations. Several α-particle energies are also known with comparable precision; and here too it was found necessary to harmonize the calibrations. Another feature near the line of stability is the increased number of measurements of reaction energy differences, which can often be measured with a quite higher precision than the absolute reaction energies. Our computer program accepts this kind of inputs which are given as such in the present table of input data (Table I). This might be another incentive for giving *primary* results in publications: in later evaluations the results will be corrected automatically if calibration values change due to new work.

Penning traps, as well as storage rings and the MISTRAL on-line Smith-type spectrometer, are now also used for making mass measurements of many nuclides further away from the line of stability. As a result, the number of nuclides for which experimental mass values are now known is substantially larger than in our preceding atomic mass tables. These measurements are sometimes made on deeply ionized particles, up to bare nuclei. The results, though, are reduced by their authors to masses of neutral (and un-excited) atoms. They derive the necessary electron binding energies from tables like those of Huang et al. [10] (see also the discussion in Part II, Section 2). These mass-spectrometric measurements are often made with resolutions, that do not allow separation of isomers. A further significant development is presented by the measurements on proton-disintegrations. They allow a very useful extension of the systematics of proton binding energies. But in addition they give in several cases information on excitation energies of isomers. The latter two developments are reasons why we have to give more attention to relative positions of isomers than was necessary in our earlier evaluations. The consequences are discussed below. Especially useful for long chains of α-decays, measured α-decay energies yield often quite precise information about differences in the masses of their members. It is therefore fortunate that new information on α-decay is still regularly reported, mainly by laboratories in Finland, Germany, Japan and the USA. A useful development was also the determination of limits on proton decay energies from measured limits on half-lives (see e.g. [1999Ja02]). The unexpected proton-stability of ^{89}Rh (see also [1995Le14]) forced us to reconsider the systematics of masses in this region.

Remark: in the following text we will mention several data of general interest. We will avoid mention of references when they can be found in Table I. If desirable to still give references, we will give them as key-numbers like [2002Aa15], listed at the end of Part II, under “References used in the AME2003 and the NUBASE2003 evaluations”, p. 579.

2. Units; recalibration of α- and γ-ray energies

Generally a mass measurement can be obtained by establishing an energy relation between the mass we want to determine and a well known nuclidic mass. This energy relation is then expressed in electron-volts (eV). Mass measurements can also be obtained as an inertial mass from its movement characteristics in an electromagnetic field. The mass, thus derived from a ratio of masses, is then expressed in ‘unified atomic mass’ (u). Two units are thus used in the present work.

The mass unit is defined, since 1960, by $1\,\mathrm{u} = M(^{12}\mathrm{C})/12$, one twelfth of the mass of one free atom of carbon-12 in its atomic and nuclear ground-states. Before 1960, two mass units were defined: the physical one $^{16}\mathrm{O}/16$, and the chemical one which considered one sixteenth of the average mass of a standard mixture of the three stable isotopes of oxygen. This difference was considered as being not at all

Table A. Constants used in this work or resulting from the present evaluation.

1 u	=	$M(^{12}\mathrm{C})/12$	=		atomic mass unit			
1 u	=	1 660 538.73	±	0.13	$\times 10^{-33}$ kg	79	ppb	*a*
1 u	=	931 494.013	±	0.037	keV	40	ppb	*a*
1 u	=	931 494.0090	±	0.0071	keV_{90}	7.6	ppb	*b*
1 eV_{90}	=	1 000 000.004	±	0.039	μeV	39	ppb	*a*
1 MeV	=	1 073 544.206	±	0.043	nu	40	ppb	*a*
1 MeV_{90}	=	1 073 544.2100	±	0.0082	nu	7.6	ppb	*b*
M_e	=	548 579.9110	±	0.0012	nu	2.1	ppb	*a*
	=	510 998.902	±	0.021	eV	40	ppb	*a*
	=	510 998.903	±	0.004	eV_{90}	7.6	ppb	*b*
M_p	=	1 007 276 466.76	±	0.10	nu	0.10	ppb	*c*
M_α	=	4 001 506 179.144	±	0.060	nu	0.015	ppb	*c*
$M_n - M_H$	=	839 883.67	±	0.59	nu	700	ppb	*d*
	=	782 346.60	±	0.55	eV_{90}	700	ppb	*d*

a) derived from the work of Mohr and Taylor [11].

b) for the definition of V_{90}, see text.

c) derived from this work combined with M_e and total ionization energies for ^{1}H and ^{4}He from [11].

d) this work.

negligible when taking into account the commercial value of all concerned chemical substances. Kohman, Mattauch and Wapstra [12] then calculated that, if $^{12}\mathrm{C}/12$ was chosen, the change would be ten times smaller for chemists, and in the opposite direction . . . That led to unification; ‘u’ stands therefore, officially, for ‘unified mass unit’! Let us mention to be complete that the chemical mass spectrometry community (e.g. bio-chemistry, polymer chemistry) widely use the dalton (symbol Da, named after John Dalton [14]), which allows to express the number of nucleons in a molecule. It is thus not strictly the same as ‘u’.

The energy unit is the electronvolt. Until recently, the relative precision of $M - A$ expressed in keV was, for several nuclides, less good than the same quantity expressed in mass units. The choice of the volt for the energy unit (the electronvolt) is not evident. One might expect use of the *international* volt V, but one can also choose the volt V_{90} as *maintained* in national laboratories for standards and defined by adopting an exact value for the constant $(2e/h)$ in the relation between frequency and voltage in the Josephson effect. In the 1999 table of standards [11]: $2e/h = 483597.9$ (exact) GHz/V_{90} (see Table B). An analysis by Cohen and Wapstra [15] showed that all precision measurements of reaction and decay energies were calibrated in such a way that they can be more accurately expressed in V_{90}. Also, the precision of the conversion factor between mass units and *maintained* volts V_{90} is more accurate than that between it and *international* volts (see Table A). Thus, already in our previous mass evaluation we decided to use the V_{90} *maintained* volt.

In the most recent evaluation of Mohr and Taylor [11], the difference has become so small that it is of interest only for very few items in our tables. This can be seen in Table A, where the ratio of mass units to electronvolts is given for the two Volt units, and also the ratio of the two Volts. Only for ^{1}H, ^{2}D and ^{16}O, the errors if given in international volts are larger, up to a factor of about 2, than if given in V_{90}. Yet, following the advice of B.N. Taylor we will give our final energy data expressed in eV_{90}.

In Table A we give the relation with the international volt, together with several constants of interest, obtained from the most recent evaluation of Mohr and Taylor [11]. In addition, we give values for the masses of the proton, the neutron and the α particle as derived from the present evaluation. Also a value is given for the mass difference between the neutron and the light hydrogen atom. Interestingly, the new value for $M_n - M_H$ is smaller than the earlier ones by slightly over 3 times the error mentioned then ($2.3\,eV_{90}$). The reason is that a new measurement [1999Ke05] of the wavelength of the γ-rays emitted by the capture of neutrons in hydrogen gave a result rather different from the earlier one by the same group.

In earlier tables, we also gave values for the binding energies, $ZM_H + NM_n - M$. A reason for this was, that the error (in keV_{90}) of this quantity used to be larger than in $M - A$. Due to the increased precision in the mass of the neutron, this is no longer important. We now give instead the binding energy per nucleon for educational reasons, connected to the Aston curve and the maximum stability around the 'Iron-peak' of importance in astrophysics.

Let us mention some historical points. It was in 1986 that Taylor and Cohen [16] showed that the empirical ratio between the two types of volts, which had of course been selected to be nearly equal to 1, had changed by as much as 7 ppm. For this reason, in 1990 the new value was chosen [17] to define the *maintained* volt V_{90}. In their most recent evaluation, Mohr and Taylor [11] had to revise the conversion constant to *international* eV. The result is a slightly higher (and 10 times more precise) value for V_{90}. The defining values, and the resulting mass-energy conversion factors are given in Table B.

Since older precision reaction energy measurements were essentially expressed in keV_{86}, we must take into account the difference in voltage definition which causes a systematic error of 8 ppm. We were therefore obliged to adjust the precise data to the new keV_{90} standard. For α-particle energies, Rytz [18] has taken this change into account in updating his earlier evaluation of α-particle energies. We have used his values in our input data table (Table I) and indicated this by adding in the reference-field the symbol "Z".

Also, a considerable number of (n,γ) and (p,γ) reactions has a precision not much worse than the 8 ppm mentioned. One of us [19] has discussed the necessary

Table B. Definition of used Volt units, and resulting mass-energy conversion constants.

	$2e/h$			u		
1983	483594.21	(1.34)	GHz/V	931501.2	(2.6)	keV
1983	483594	(exact)	GHz/V_{86}	931501.6	(0.3)	keV_{86}
1986	483597.67	(0.14)	GHz/V	931494.32	(0.28)	keV
1990	483597.9	(exact)	GHz/V_{90}	931493.86	(0.07)	keV_{90}
1999	483597.9	(exact)	GHz/V_{90}	931494.009	(0.007)	keV_{90}

recalibration for several γ-rays often used for calibration. This work has been updated to evaluate the influence of new calibrators and of the new Mohr and Taylor fundamental constants on γ-ray and particle energies entering in (n,γ), (p,γ) and (p,n) reactions. In doing this, use was made of the calibration work of Helmer and van der Leun [20], based on the new fundamental constants. For each of the data concerned, the changes are relatively minor. We judge it necessary to make them, however, since otherwise they add up to systematic errors that are non-negligible. As an example, we mention that the energy value for the 411 γ-ray in ^{198}Au, often used for calibration, was changed from 411 801.85 (0.15) eV_{90} [1990Wa22] to 411 802.05 (0.17) eV_{90}. As in the case of Rytz' recalibrations, they are marked by "Z" behind the reference key-number; or, if this was made impossible since this position was used to indicate that a remark was added, by the same symbol added to the error value mentioned in the remark. Our list of inputs (Table I) for our calculations mentions many excitation energies that are derived from γ-ray measurements, and that are generally evaluated in the Nuclear Data Sheets (NDS) [21]. Only in exceptional cases, it made sense to change them to recalibrated results.

For higher γ-ray energies, our previous adjustment used several data recalibrated with results of Penning trap measurements of the masses of initial and final atoms involved in (n,γ) reactions. The use of the new constants, and of more or revised Penning trap results, make it necessary to revise again the recalibrated results [6]. Thus, the energy coming free in the ^{14}N(n,γ)^{15}N reaction, playing a crucial role in these calibrations, was changed from 10 833 301.6 (2.3) eV_{90} to 10 833 296.2 (0.9) eV_{90}.

Several old neutron binding energies can be improved in unexpected ways. Following case presents an illustration. A value with a somewhat large error (650 eV) was reported for the neutron binding energy in ^{54}Cr. Studying the paper taught that this value was essentially the sum of the energies of two capture γ-rays. For their small energy difference a smaller error was reported. Recent work yields a much improved value for the transition to the ground-state, allowing to derive a considerably improved neutron binding energy. Also, in some cases observed neutron resonance

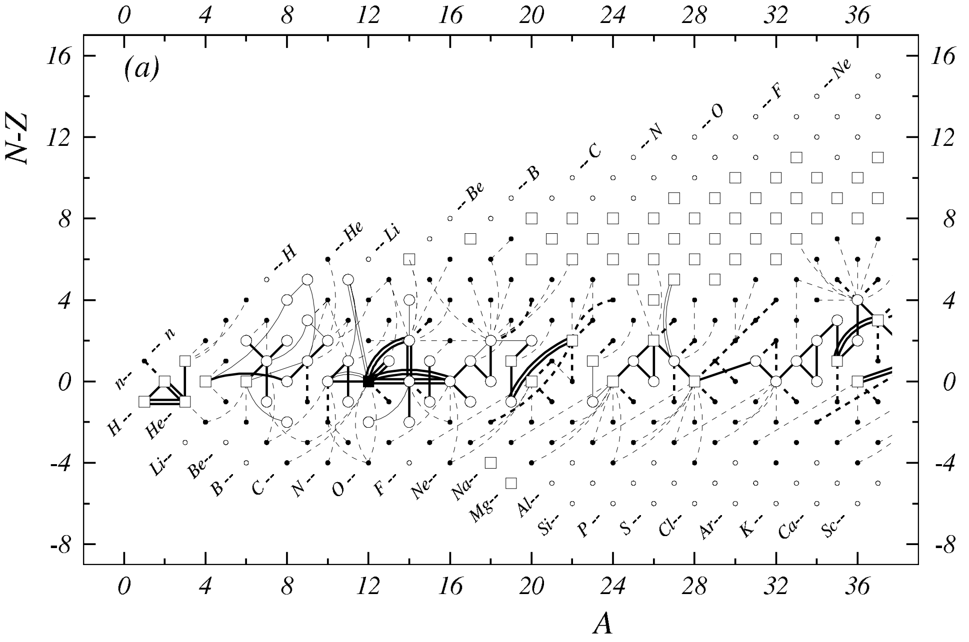


Figure 1: (a)–(i). Diagram of connections for input data.

For *primary data* (those checked by other data):

□	absolute mass-doublet nuclide (i.e. connected to ^{12}C, ^{35}Cl or ^{37}Cl); (or nuclide connected by a unique secondary relative mass-doublet to a remote reference nuclide);
○	other primary nuclide;
⊡ ⊙	primary nuclide with relevant isomer;
//	mass-spectrometric connection;
———	other primary reaction connection.
	Primary connections are drawn with two different thicknesses. Thicker lines represent data of the highest precision in the given mass region
	(limits: 1 keV for $A < 36$, 2 keV for $A = 36$ to 165 and 3 keV for $A > 165$).

For *secondary data* (cases where masses are known from one type of data and are therefore not checked by a different connection):

●	secondary nuclide determined from only experimental data;
∘	nuclide for which mass is estimated from systematical trends;
– – – – –	connection to a secondary nuclide. Note that an experimental connection may exist between two systematic nuclides when none of them is connected to the network of primaries.

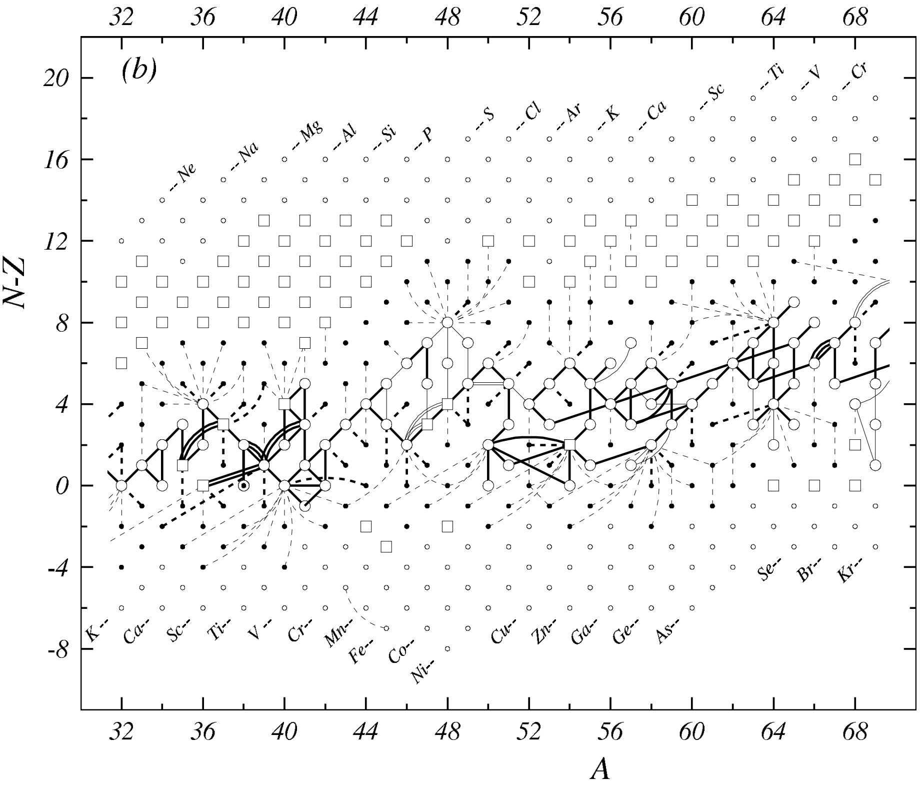


Figure 1 (b). Diagram of connections for input data —- continued.

energies can be combined with later measurements of the excitation energies of the resonance states. Discussions can be found at the web site of the AMDC [6].

We also reconsidered the calibration for proton energies, especially those entering in resonance energies and thresholds. An unfortunate development here is that new data [1994Br37] for the 991 keV ^{27}Al+p resonance, (much used for calibration) reportedly more precise than old ones differs rather more than expected. The value most used in earlier work was 991.88 (0.04) keV of Roush *et al.* [22]. In 1990, Endt *et al.* [23] averaged it with a later result by Stoker *et al.* [24] to get a slightly modified value 991.858 (0.025) keV. In doing this, the changes in the values of natural constants used in the derivation of these values was not taken into account. Correcting for this omission, and critically evaluating earlier data, one of us [25] derived in 1993 a value 991.843 (0.033) keV for this standard, and, after revision, 991.830 (0.050) keV. The new measurement of [1994Br37] yields 991.724 (0.021) keV at two standard deviations from the above adopted value.

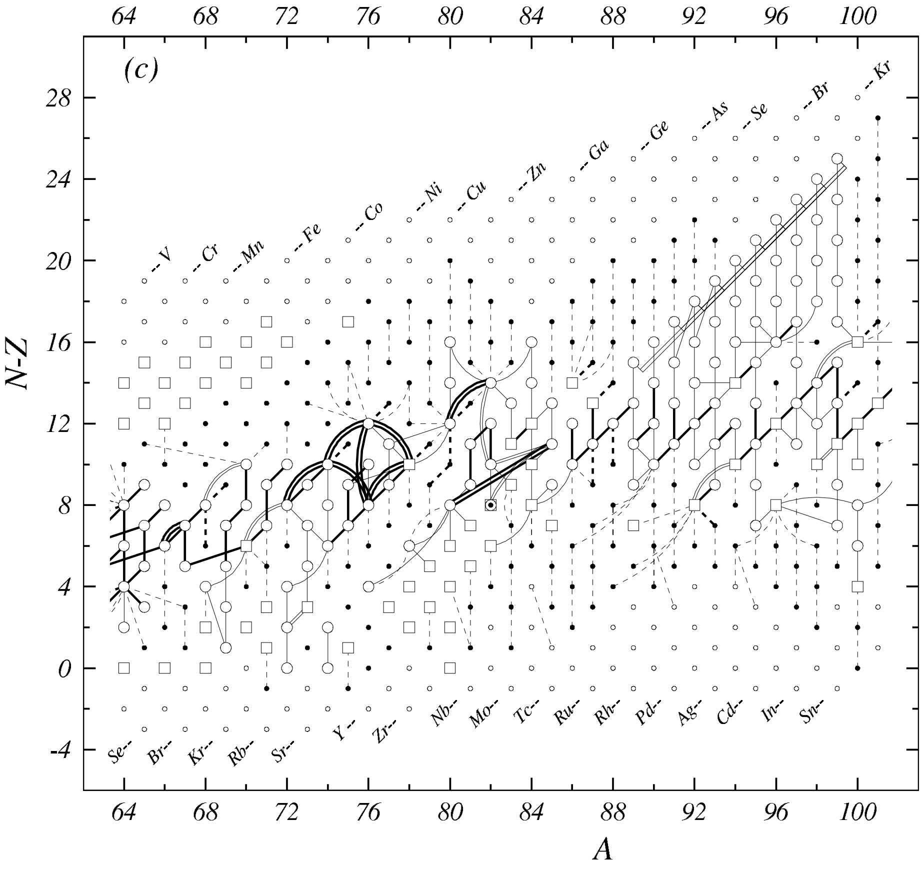


Figure 1 (c). Diagram of connections for input data —- continued.

3. Input data, representation in a connections diagram

The input data in this evaluation are results of measurements of mass spectra and of nuclear reaction $A(a,b)B$ and decay $A(b)B$ energies. The last two are concerned with an initial A and a final B nuclide and one or two reaction particles.

With the exception of some reactions between very light nuclides, the precision with which the masses of reaction particles a and b are known is much higher than that of the measured reaction and decay energies. Thus, these reactions and decays can each be represented as a link between two nuclides A and B. Reaction energy differences $A(a,b)B-C(a,b)D$ are in principle represented by a combination of four masses.

Mass spectra, again with exception of a few cases between very light nuclides, can be separated in a class of connections between two or three nuclides, and a class essentially determining an absolute mass value, see Section 5. Penning trap measurements,

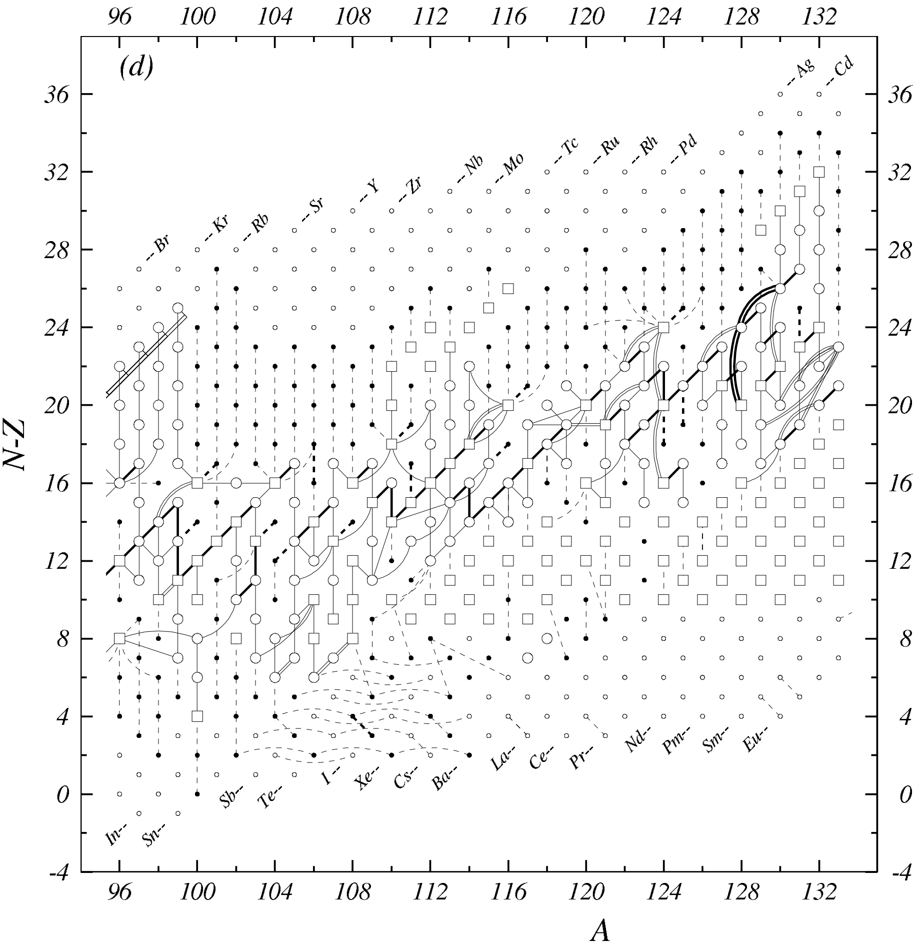


Figure 1 (d). Diagram of connections for input data —- continued.

almost always give ratios of masses between two nuclides (inversely proportional to their cyclotron frequencies in the trap). Sometimes these two nuclides can be very far apart. These Penning trap measurements are thus in most cases best represented as combinations of two masses. Other types of experimental set-up, like ‘Smith-type’, ‘Schottky’, ‘Isochronous’ and ‘time-of-flight’ mass-spectrometers, have their calibration determined in a more complex way, and are thus published by their authors as absolute mass doublets. They are then presented in Table I as a difference with ^{12}C.

For completeness we mention that early mass spectrometric measurements on unstable nuclides can best be represented as linear combinations of masses of three isotopes, with non-integer coefficients [26].

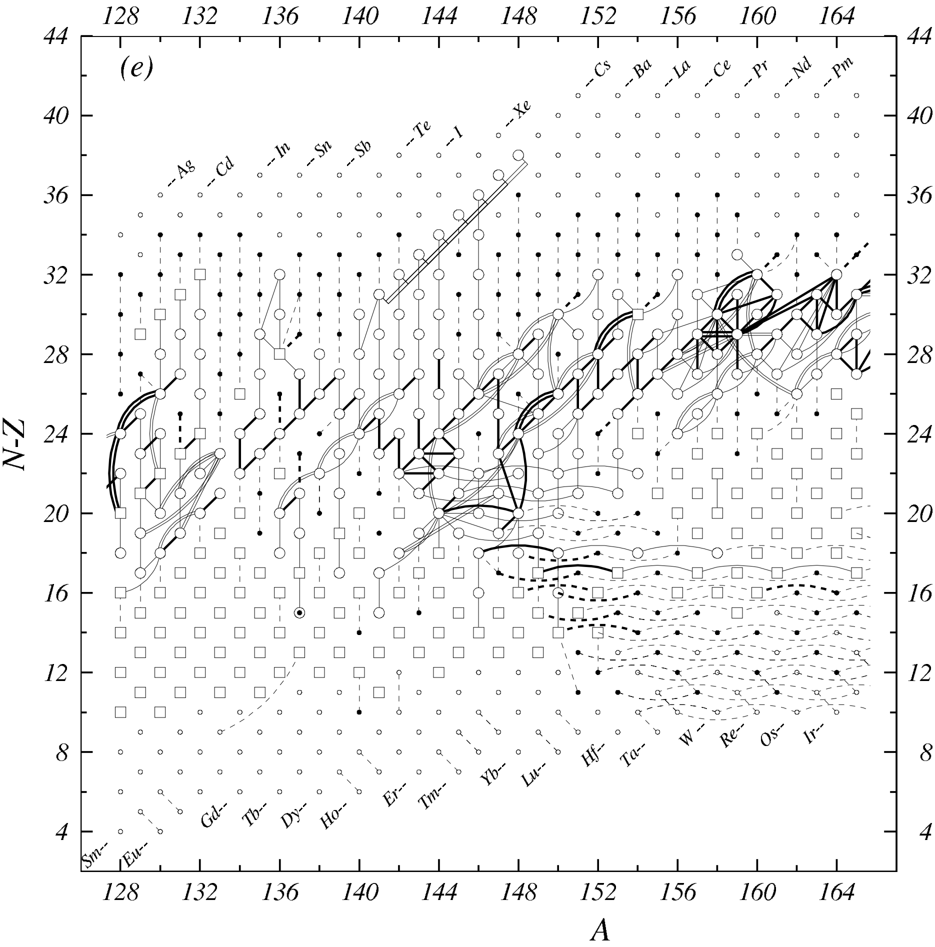


Figure 1 (e). Diagram of connections for input data —- continued.

This situation allows us to represent the input data graphically in a diagram of $(N-Z)$ versus $(N+Z)$ as done in Fig. 1. This is straightforward for the absolute mass-doublets and for the difference-for-two-nuclide data; but not for spectrometric triplets and for differences in reaction energies. The latter are in general more important for one of the two reaction energies than for the other one; in the graphs we therefore represent them simply by the former. (For computational reasons, these data are treated as primaries even though the diagrams then show only one connection.)

All input data are evaluated, i.e. calibrations are checked if necessary, and results are compared with other results and with systematics. As a consequence, several input data are changed or, even, rejected. All input data, including the rejected ones,

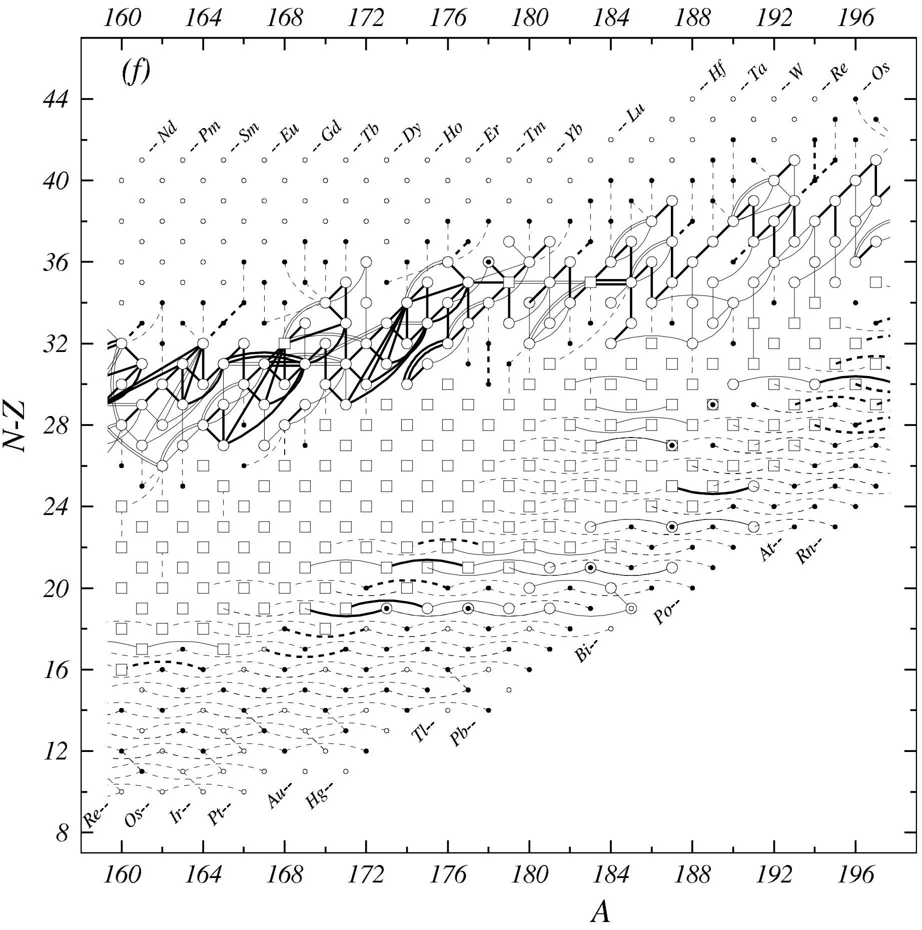


Figure 1 (f). Diagram of connections for input data —- continued.

are given in Table I. Rejected data are not presented in Fig. 1. As can be seen there, the accepted data allow calculation of the mass of many nuclides in several ways; we then speak of *primary* nuclides. The mass values in the table are then derived by least squares methods. In the other cases, the mass of a nuclide can be derived only in one way, from a connection with one other nuclide; they are called *secondary* nuclides. This classification is of importance for our calculation procedure (see Section 5).

The diagrams in Fig. 1 also show many cases where differences between atomic masses are accurately known, but not the masses themselves. Since we wish to include all available experimental material, we have in such cases produced additional estimated reaction energies by interpolation. In the resulting system of data representations, vacancies occur. These vacancies were filled using the same interpolation procedure. We will discuss further the estimates of unknown masses in the

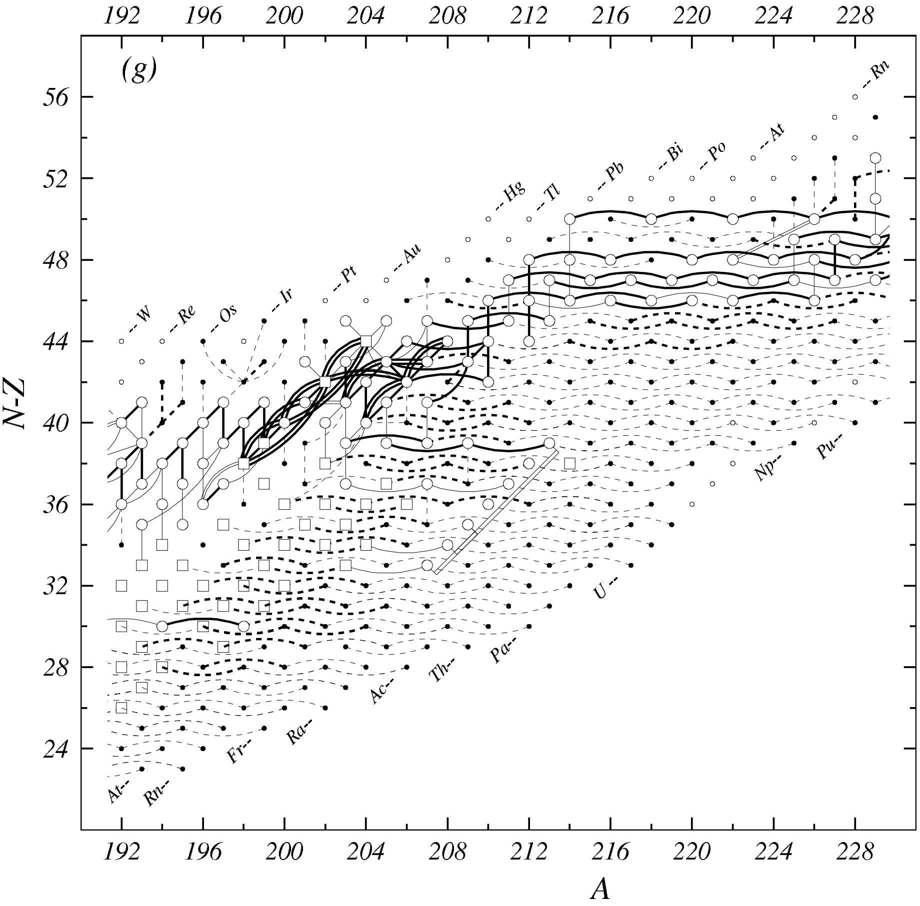


Figure 1 (g). Diagram of connections for input data —- continued.

next section.

Some care should be taken in interpreting Fig. 1, since excited isomeric states and data relations involving such isomers are not completely represented on these drawings. This is not considered a serious defect; those readers who want to update such values should, anyhow, consult Table I which gives all the relevant information.

4. Regularity of the mass-surface and use of systematic trends

When nuclear masses are displayed as a function of *N* and *Z*, one obtains a *surface* in a 3-dimensional space. However, due to the pairing energy, this surface is divided into four *sheets*. The even-even sheet lies lowest, the odd-odd highest, the other two nearly halfway between as represented in Fig. 2. The vertical distances from

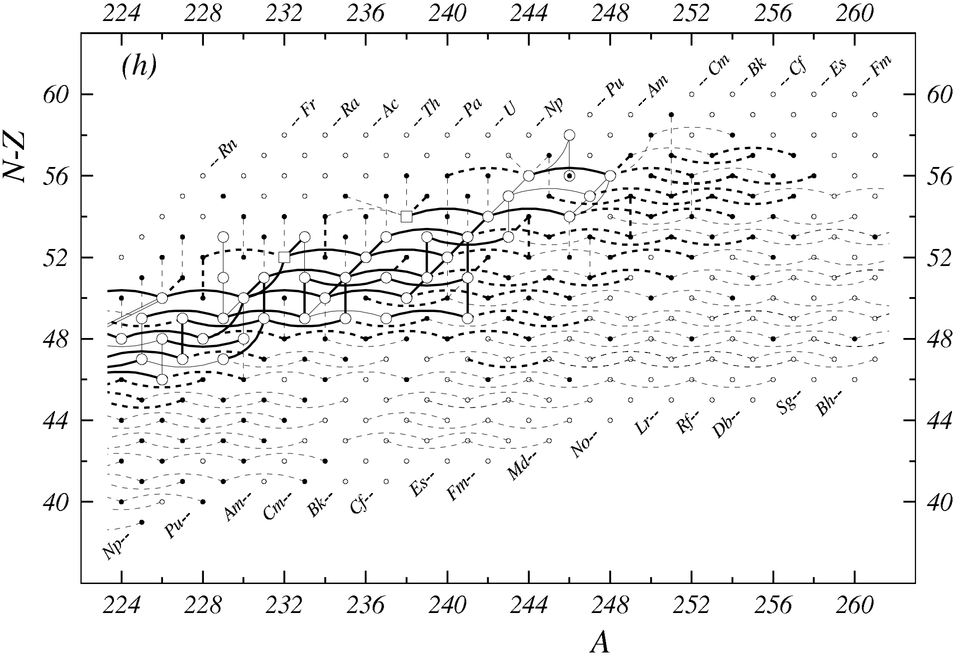


Figure 1 (h). Diagram of connections for input data —- continued.

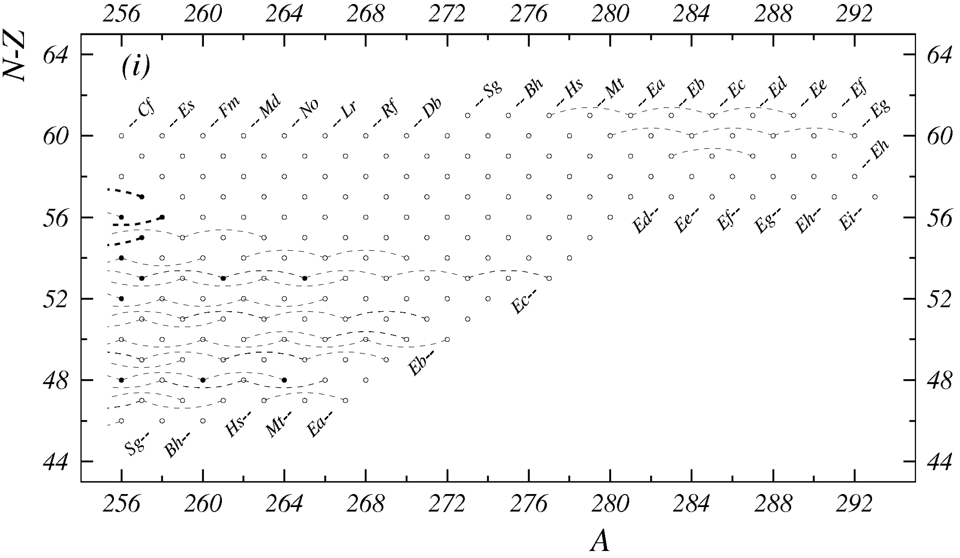


Figure 1 (i). Diagram of connections for input data —- continued.

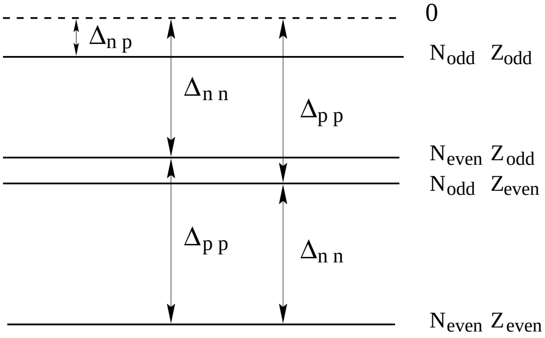


Figure 2: The surface of masses is split into four sheets. This scheme represents the pairing energies responsible for this splitting. The zero energy surface is a purely hypothetical one for no pairing at all among the last nucleons.

the even-even sheet to the odd-even and even-odd ones are the proton and neutron pairing energies Δ_{pp} and Δ_{nn}. They are nearly equal. The distances of the last two sheets to the odd-odd sheet are equal to $\Delta_{nn} - \Delta_{np}$ and $\Delta_{pp} - \Delta_{np}$, where Δ_{np} is the proton-neutron pairing energy due to the interaction between the two odd nucleons, which are generally not in the same shell. These energies are represented in Fig. 2, where a hypothetical energy zero represents a nuclide with no pairing among the last nucleons.

Experimentally, it has been observed that: the four sheets run nearly parallel in all directions, which means that the quantities Δ_{nn}, Δ_{pp} and Δ_{np} vary smoothly and slowly with N and Z; and that each of the mass sheets varies smoothly also, but rapidly [13] with N and Z. The smoothness is also observed for first order derivatives (slopes, e.g. the graphs in Part II) and all second order derivatives (curvatures of the mass surface). They are only interrupted in places by cusps or bumps associated with important changes in nuclear structure: shell or sub-shell closures, shape transitions (spherical-deformed, prolate-oblate), and the so-called 'Wigner' cusp along the $N = Z$ line.

This observed regularity of the mass sheets in all places where no change in the physics of the nucleus are known to exist, can be considered as one of the BASIC PROPERTIES of the mass surface. Thus, dependable estimates of unknown, poorly known or questionable masses can be obtained by extrapolation from well-known mass values on the same sheet. In the evaluation of masses the property of regularity and the possibility to make estimates are used for several purposes:

1. Any coherent deviation from regularity, in a region (N,Z) of some extent, could be considered as an indication that some new physical property is being discovered. However, if one single mass violates the systematic trends, then

one may seriously question the correctness of the related datum. There might be, for example, some undetected systematic [27] contribution to the reported result of the experiment measuring this mass. We then reread the experimental paper with extra care for possible uncertainties, and often ask the authors for further information. This often leads to corrections.

2. There are cases where some experimental data on the mass of a particular nuclide disagree among each other and no particular reason for rejecting one or some of them could be found from studying the involved papers. In such cases, the measure of agreement with the just mentioned regularity can be used by the evaluators for selecting which of the conflicting data will be accepted and used in the evaluation, thus following the same policy as used in our earlier work.
3. There are cases where masses determined from ONLY ONE experiment (or from same experiments) deviate severely from the smooth surface. Such cases are examined closely and are discussed extensively below (Section 4.1).
4. Finally, drawing the mass surface allows to derive estimates for the still unknown masses, either from interpolations or from short extrapolations (see below, Section 4.2).

4.1. Scrutinizing and manipulating the surface of masses

Direct representation of the mass surface is not convenient since the binding energy varies very rapidly with N and Z. Splitting in four sheets, as mentioned above, complicates even more such a representation. There are two ways to still be able to observe with some precision the surface of masses: one of them uses the *derivatives* of this surface, the other is obtained by *subtracting a simple function* of N and Z from the masses.

The derivatives of the mass surface By *derivative* of the mass surface we mean a specified difference between the masses of two nearby nuclei. These functions are also smooth and have the advantage of displaying much smaller variations. For a derivative specified in such a way that differences are between nuclides in the same mass sheet, the near parallelism of these leads to an (almost) unique surface for the derivative, allowing thus a single display. Therefore, in order to illustrate the systematic trends of the masses, we found that such estimates could be obtained best in graphs such as α- and β-decay energies and separation energies of two protons and two neutrons. These four derivatives are plotted against N, Z or A in Part II, Figs. 1–36.

However, from the way these four derivatives are built, they give only information within one of the four sheets of the mass surface (e-e, e-o, o-e or e-e; e-o standing for even N and odd Z). When observing the mass surface, an increased or decreased spacing of the sheets cannot be observed. Also, when estimating unknown masses, divergences of the four sheets could be unduly created, which is unacceptable.

Fortunately, other various representations are possible (e.g. separately for odd and even nuclei: one-neutron separation energies versus N, one-proton separation energy versus Z, β-decay energy versus A, . . .). We have prepared such graphs that can be obtained from the AMDC web distribution [6].

The method of 'derivatives' suffers from involving two masses for each point to be drawn, which means that if one mass is moved then two points are changed in opposite direction, causing confusion in our drawings.

Subtracting a simple function Since the mass surface is smooth, one can try to define a function of N and Z as simple as possible and not too far from the real surface of masses. The difference between the mass surface and this function, while displaying reliably the structure of the former, will vary much less rapidly, improving thus its observation.

A first and simple approach is the semi-empirical *liquid drop* formula of Bethe and Weizsäcker [28] with the addition of a pairing term in order to fuse more or less the four sheets of the mass surface. Another possibility, that we prefer [13], is to use the results of the calculation of one of the modern models. However, we can use here only those models that provide masses specifically for the spherical part, forcing the nucleus to be un-deformed. The reason is that the models generally describe quite well the shell and sub-shell closures, and to some extent the pairing energies, but not the locations of deformation. If the theoretical deformations were included and not located at exactly the same position as given by the experimental masses, the mass difference surface would show two dislocations for each shape transition. Interpretation of the resulting surface would then be very difficult. In our work, we currently make use of such differences with models. The plots we have prepared can also be retrieved from the AMDC web site [6].

Manipulating the mass surface In order to make estimates of unknown masses or to test changes on measured ones, an interactive graphical program was developed [13, 29] that allows simultaneous observation of four graphs, either from the 'derivatives' type or from the 'differences' type, as a function of any of the variables N, Z, A, $N-Z$ or $N-2Z$, while drawing iso-lines (lines connecting nuclides having same value for a parameter) of any of these quantities. The mass of a nuclide can be modified or created in any view and we can determine how much freedom is left in setting a value for this mass. At the same time, interdependence through secondary connections (Fig. 1) are taken into account. In cases where two tendencies may alternate, following the parity of the proton or of the neutron numbers, one of the parities may be deselected.

The replaced values for data yielding the 'irregular masses' as well as the 'estimated unknown masses' (see below) are thus derived by observing the continuity property in several views of the mass surface, with all the consequences due to connections to masses in the same chain. Comparisons with the predictions of 16 nuclear mass-models are presently available in this program.

With this graphical tool, the results of 'replacement' analyses are felt to be safer; and also the estimation of unknown masses are felt more reliable.

All mass values dependent on interpolation procedures, and indeed all values not derived from experimental data alone, have been clearly marked with the sharp (#) symbol in all tables, here and in Part II.

Since 1983 and the AME'83 tables [9], estimates are also given for the precision of such data derived from trends in systematics. These precisions are not based on a formalized procedure, but on previous experience with such estimates.

In the case of extrapolation however, the error in the estimated mass will increase with the distance of extrapolation. These errors are obtained by considering several graphs of systematics with a guess on how much the estimated mass may change without the extrapolated surface looking too much distorted. This recipe is unavoidably subjective, but has proven to be efficient through the agreement of these estimates with newly measured masses in the great majority of cases [30].

4.2. Irregular mass values

When a single mass deviates significantly from regularity with no similar pattern for nuclides with same N or with same Z values, then the correctness of the data determining this mass may be questioned.

Our policy, redefined in AME'95 [5], for those locally *irregular* masses, and only when they are derived from a unique mass relation (i.e., not confirmed by a different experimental method), is to replace them by values derived from trends in the systematics. There are only 27 such physical quantities (twice less than in AME1993) that were selected, partly, in order to avoid too strongly oscillating plots. Generally, in such a unique mass relation, only one measurement is reported. But sometimes there are two measurements (8 cases) or three (only once) that we still treat the same way, since use of the same method and the same type of relation may well lead to the same systematic error (for example a misassignment or ignorance of a final level). Taking into account the connecting chains for secondaries (Figs. 1a–1i) has the consequence that several more ground-state masses are affected (and twice as many values in each type of plot of derivatives as given in Part II). It should be stressed that only the most striking cases have been treated this way, those necessary to avoid, as much as possible, confusions in the graphs in Part II. In particular, as happened previously, the plots of α-decay energies of light nuclei (Fig. 18 and 19 in Part II) exhibit many overlaps and crossings that obscure the drawings; no attempt was made to locate possible origins of such irregularities.

Replacing these few irregular experimental values by ones we recommend, in all tables and graphs in this AME2003, means also that, as explained already in AME1995, we discontinued an older policy that was introduced in AME1993 where original irregular experimental values were given in all main tables, and 'recommended' ones given separately in secondary tables. This policy led to confusion for the users of our tables. We now only give what we consider the *"best recommended values"*, using, when we felt necessary and as explained above, *'values derived from trends in systematics'*. Data not used, following this policy, can be easily located in Table I where they are flagged 'D' and always accompanied by a comment explaining in which direction the value has been changed and by which amount.

Such data, as well as the other local irregularities that can be observed in the figures in Part II could be considered as incentive to remeasure the masses of the involved nuclei, preferably by different methods, in order to remove any doubt and possibly point out true irregularities due to physical properties.

The mass evaluators insist that only the most striking irregularities have been replaced by estimates, those that obscure the graphs in Part II. The reader might convince himself, by checking in Figures 3 and 13, Part II, that the mass of ^{112}Te determined from delayed-proton energy measurement with a precision of 150 keV is evidently 300 keV more bound than indicated by experiment.

4.3. Estimates for unknown masses

Estimates for unknown masses are also made with use of trends in systematics, as explained above, by demanding that all graphs should be as smooth as possible, except where they are expected to show the effects of shell closures or nuclear deformations. Therefore, we warn the user of our tables that the present extrapolations, based on trends of known masses, will be wrong if unsuspected new regions of deformation or (semi-) magic numbers occur.

In addition to the rather severe constraints imposed by the requirement of simultaneous REGULARITY of all graphs, many further constraints result from knowledge of reaction or decay energies in the regions where these estimates are made. These regions and these constraints are shown in Figs. 1a–1i. Two kinds of constraints are present. In some cases the masses of (Z, A) and (Z, A+4) are known but not the mass of (Z, A+2). Then, the values of $S_{2n}(A+2)$ and $S_{2n}(A+4)$ cannot both be chosen freely from systematics; their sum is known. In other cases, the mass differences between several nuclides (A+4n, Z+2n) are known from α-decays and also those of (A-2+4n, Z+2n). Then, the differences between several successive S_{2n}(A+4n, Z+2n) are known. Similar situations exist for two or three successive S_{2p}'s or Q_α's.

Also, knowledge of stability or instability against particle emission, or limits on proton or α emission, yield upper or lower limits on the separation energies.

For proton-rich nuclides with $N < Z$, mass estimates can be obtained from charge symmetry. This feature gives a relation between masses of isobars around the one with $N = Z$. In several cases, we make a correction taking care of the Thomas-Ehrman effect [31], which makes proton-unstable nuclides more bound than follows from the above estimate. For very light nuclides, we can use the estimates for this effect found by Comay *et al.* [32]. But, since analysis of the proton-unstable nuclides (see Section 6.3) shows that this effect is decidedly smaller for $A = 100 – 210$, we use a correction decreasing with increasing mass number.

Another often good estimate can be obtained from the observation that masses of nuclidic states belonging to an isobaric multiplet are represented quite accurately by a quadratic equation of the charge number Z (or of the third components of the isospin, $T_3 = \frac{1}{2}(N - Z)$): the Isobaric Multiplet Mass Equation (IMME). Use of this relation is attractive since, otherwise than the relation mentioned above, it uses experimental information (i.e. excitation energies of isobaric analogues). The exactness of the IMME has regularly been a matter of discussion. Recently a measurement [2001He29] of the mass of ^{33}Ar has questionned the validity of the IMME at $A = 33$. The measured mass, with an error of about 4 keV, was 18 keV lower than the value following from IMME, with an error of 3 keV. But, a new measurement [33] showed that one of the other mass values entering in this equation was wrong. With the new value, the difference is only 3 keV, thus within errors.

Up to the AME'83, we indeed used the IMME for deriving mass values for nuclides for which no, or little information was available. This policy was questioned with respect to the correctness in stating as 'experimental' a quantity that was derived by combination with a calculation. Since AME'93, it was decided not to present any IMME-derived mass values in our evaluation, but rather use the IMME as a guideline when estimating masses of unknown nuclides. We continue this policy here, and do not replace experimental values by an estimated one from IMME, even if orders of magnitude more precise. Typical examples are ^{28}Si and ^{40}Ti, for which the IMME predicts masses with precisions of respectively 24 keV and 22 keV, whereas the experimental masses are known both with 160 keV precision, from double-charge exchange reactions.

Extension of the IMME to higher energy isobaric analogues has been studied by one of the present authors [34]. The validity of the method, however, is made uncertain by possible effects spoiling the relation. In the first place, the strength of some isobaric analogues at high excitation energies is known to be distributed over several levels with the same spin and parity. Even in cases where this is not known to happen, the possibility of its occurrence introduces an uncertainty in the level energy to be used for this purpose. In the second place, as argued by Thomas and Ehrman [31], particle-unstable levels must be expected to be shifted somewhat.

Recently, information on excitation energies of $T_3 = -T + 1$ isobaric analogue states has become available from measurements on proton emission following β-decays of their $T_3 = -T$ parents. Their authors, in some cases, derived from their results a mass value for the parent nuclide, using a formula derived by Antony et al. [35] from a study of known energy differences between isobaric analogues. We observe, however, that one obtains somewhat different mass values by combining Antony differences with the mass of the mirror nuclide of the mother. Also, earlier considerations did not take into account the difference between proton-pairing and neutron-pairing energies, which one of the present authors noticed to have a not negligible influence on the constants in the IMME.

Another possiblility is to use a relation proposed by Jänecke [37], as recently done by Axelsson *et al.* [36] in the case of ^{31}Ar. We have in several cases compared the results of different ways for extrapolating, in order to find a best estimate for the desired mass value.

Enough values have been estimated to ensure that every nucleus for which there is any experimental Q-value is connected to the main group of primary nuclei. In addition, the evaluators want to achieve continuity of the mass surface. Therefore an estimated value is included for any nucleus if it is between two experimentally studied nuclei on a line defined by either $Z =$ constant (isotopes), $N =$ constant (isotones), $N - Z =$ constant (isodiaspheres), or, in a few cases $N + Z =$ constant (isobars). It would have been desirable to give also estimates for all unknown nuclides that are within reach of the present accelerator and mass separator technologies. Unfortunately, such an ensemble is practically not easy to define. Instead, we estimate mass values for all nuclides for which at least one piece of experimental information is available (e.g. identification or half-life measurement or proof of instability towards proton or neutron emission). Then, the ensemble of experimental masses and estimated ones has the same contour as in the NUBASE2003 evaluation.

5. Calculation Procedures

The atomic mass evaluation is particular when compared to the other evaluations of data [13], in that almost all mass determinations are relative measurements. Even those called ‘absolute mass doublets’ are relative to ^{12}C, ^{35}Cl or ^{37}Cl. Each experimental datum sets a relation in mass or in energy among two (in a few cases, more) nuclides. It can be therefore represented by one link among these two nuclides. The ensemble of these links generates a highly entangled network. Figs. 1a–1i, in

Section 3 above, showed a schematic representation of such a network.

The masses of a large number of nuclides are multiply determined, entering the entangled area of the canvas, mainly along the backbone. Correlations do not allow to determine their masses straightforwardly.

To take into account these correlations we use a least-squares method weighed according to the precision with which each piece of data is known. This method will allow to determine a set of adjusted masses.

5.1. Least-squares method

Each piece of data has a value $q_i \pm dq_i$ with the accuracy dq_i (one standard deviation) and makes a relation between 2, 3 or 4 masses with unknown values m_μ. An overdetermined system of Q data to M masses ($Q > M$) can be represented by a system of Q linear equations with M parameters:

$$\sum_{\mu=1}^{M} k_i^\mu m_\mu = q_i \pm dq_i \tag{1}$$

e.g. for a nuclear reaction $A(a,b)B$ requiring an energy q_i to occur, the energy balance writes:

$$m_{\mathrm{A}} + m_{\mathrm{a}} - m_{\mathrm{b}} - m_{\mathrm{B}} = q_i \pm dq_i \tag{2}$$

thus, $k_i^{\mathrm{A}} = +1$, $k_i^{\mathrm{a}} = +1$, $k_i^{\mathrm{B}} = -1$ and $k_i^{\mathrm{b}} = -1$.

In matrix notation, **K** being the (M,Q) matrix of coefficients, Eq. 1 writes: $\mathbf{K}|m\rangle = |q\rangle$. Elements of matrix **K** are almost all null: e.g. for $A(a,b)B$, Eq. 2 yields a line of **K** with only four non-zero elements.

We define the diagonal weight matrix **W** by its elements $w_i^i = 1/(dq_i dq_i)$. The solution of the least-squares method leads to a very simple construction:

$$^{\mathbf{t}}\mathbf{KWK}|m\rangle = {}^{\mathbf{t}}\mathbf{KW}|q\rangle \tag{3}$$

the NORMAL matrix $\mathbf{A} = {}^{\mathbf{t}}\mathbf{KWK}$ is a square matrix of order M, positive-definite, symmetric and regular and hence invertible [38]. Thus the vector $|\overline{m}\rangle$ for the adjusted masses is:

$$|\overline{m}\rangle = \mathbf{A}^{-1}\,{}^{\mathbf{t}}\mathbf{KW}|q\rangle \qquad \text{or} \qquad |\overline{m}\rangle = \mathbf{R}|q\rangle \tag{4}$$

The rectangular (M,Q) matrix **R** is called the RESPONSE matrix.

The diagonal elements of $\mathbf{A}^{-1}$ are the squared errors on the adjusted masses, and the non-diagonal ones $(a^{-1})_\mu^\nu$ are the coefficients for the correlations between masses m_μ and m_ν. Values for correlation coefficients for the most precise nuclides are given in Table B of Part II.

One of the most powerful tools in the least-squares calculation described above is the flow-of-information matrix. This matrix allows to trace back the contribution of each individual piece of data to each of the parameters (here the atomic masses). The AME uses this method since 1993.

The flow-of-information matrix **F** is defined as follows: **K**, the matrix of coefficients, is a rectangular (Q,M) matrix, the transpose of the response matrix $^{\mathbf{t}}\mathbf{R}$ is also a (Q,M) rectangular one. The (i,μ) element of **F** is defined as the product of the corresponding elements of $^{\mathbf{t}}\mathbf{R}$ and of **K**. In reference [39] it is demonstrated that such an element represents the *"influence"* of datum i on parameter (mass) m_μ. A column of **F** thus represents all the contributions brought by all data to a given mass m_μ, and a line of **F** represents all the influences given by a single piece of data. The sum of influences along a line is the *"significance"* of that datum. It has also been proven [39] that the influences and significances have all the expected properties, namely that the sum of all the influences on a given mass (along a column) is unity, that the significance of a datum is always less than unity and that it always decreases when new data are added. The significance defined in this way is exactly the quantity obtained by squaring the ratio of the uncertainty on the adjusted value over that on the input one, which is the recipe that was used before the discovery of the **F** matrix to calculate the relative importance of data.

A simple interpretation of influences and significances can be obtained in calculating, from the adjusted masses and Eq. 1, the adjusted data:

$$|\overline{q}\rangle = \mathbf{KR}|q\rangle. \tag{5}$$

The i^{th} diagonal element of **KR** represents then the contribution of datum i to the determination of $\overline{q_i}$ (same datum): this quantity is exactly what is called above the *significance* of datum i. This i^{th} diagonal element of **KR** is the sum of the products of line i of **K** and column i of **R**. The individual terms in this sum are precisely the *influences* defined above.

The flow-of-information matrix **F**, provides thus insight on how the information from datum i flows into each of the masses m_μ.

The flow-of-information matrix cannot be given in full in a table. It can be observed along lines, displaying then for each datum which are the nuclei influenced by this datum and the values of these *influences*. It can be observed also along columns to display for each primary mass all contributing data with their *influence* on that mass.

The first display is partly given in the table of input data (Table I) in column 'Sig' for the *significance* of primary data and 'Main flux' for the largest *influence*. Since in the large majority of cases only two nuclei are concerned in each piece of data, the second largest *influence* could easily be deduced. It is therefore not felt necessary to give a table of all *influences* for each primary datum.

The second display is given in Part II, Table II for the up to three most important data with their *influence* in the determination of each primary mass.

5.2. Consistency of data

The system of equations being largely over-determined ($Q >> M$) offers the evaluator several interesting possibilities to examine and judge the data. One might for example examine all data for which the adjusted values deviate importantly from the input ones. This helps to locate erroneous pieces of information. One could also examine a group of data in one experiment and check if the errors assigned to them in the experimental paper were not underestimated.

If the precisions dq_i assigned to the data q_i were indeed all accurate, the normalized deviations v_i between adjusted $\overline{q}_i$ and input q_i data (cf. Eq. 5), $v_i = (\overline{q}_i - q_i)/dq_i$, would be distributed as a gaussian function of standard deviation $\sigma = 1$, and would make χ^2:

$$\chi^2 = \sum_{i=1}^{Q} \left(\frac{\overline{q}_i - q_i}{dq_i} \right)^2 \qquad \text{or} \qquad \chi^2 = \sum_{i=1}^{Q} v_i^2 \tag{6}$$

equal to $Q - M$, the number of degrees of freedom, with a precision of $\sqrt{2(Q-M)}$.

One can define as above the NORMALIZED CHI, χ_n (or 'consistency factor' or 'Birge ratio'): $\chi_n = \sqrt{\chi^2/(Q-M)}$ for which the expected value is $1 \pm 1/\sqrt{2(Q-M)}$.

Another quantity of interest for the evaluator is the PARTIAL CONSISTENCY FACTOR, χ_n^p, defined for a (homogeneous) group of p data as:

$$\chi_n^p = \sqrt{\frac{Q}{Q-M} \; \frac{1}{p} \; \sum_{i=1}^{p} v_i^2} . \tag{7}$$

Of course the definition is such that χ_n^p reduces to χ_n if the sum is taken over all the input data. One can consider for example the two main classes of data: the reaction and decay energy measurements and the mass spectrometric data (see Section 5.5). One can also consider groups of data related to a given laboratory and with a given method of measurement and examine the χ_n^p of each of them. There are presently 181 groups of data in Table I, identified in column 'Lab'. A high value of χ_n^p might be a warning on the validity of the considered group of data within the reported errors. We used such analyses in order to be able to locate questionable groups of data. In bad cases they are treated in such a way that, in the final adjustment, no really serious cases occur. Remarks in Table I report where such corrections have been made.

5.3. Separating secondary data

In Section 3, while examining the diagrams of connections (Fig. 1), we noticed that, whereas the masses of *secondary* nuclides can be determined uniquely from the chain of secondary connections going down to a *primary* nuclide, only the latter see the complex entanglement that necessitated the use of the least-squares method.

In terms of equations and parameters, we consider that if, in a collection of equations to be treated with the least-squares method, a parameter occurs in only one equation, removing this equation and this parameter will not affect the result of the fit for all other data. We can thus redefine more precisely what was called *secondary* in Section 3: the parameter above is a *secondary* parameter (or mass) and its related equation a *secondary* equation. After solving the reduced set, the *secondary* equation can be used to find value and error for that *secondary* parameter. The equations and parameters remaining after taking out all secondaries are called *primary*.

Therefore, only the system of *primary* data is overdetermined and will thus be improved in the adjustment, each *primary* nuclide getting benefit from all the available information. *Secondary* data will remain unchanged; they do not contribute to χ^2.

The diagrams in Fig. 1 show, that many *secondary* data exist. Thus, taking them out simplifies considerably the system. More important though, if a better value is found for a *secondary* datum, the mass of the *secondary* nuclide can easily be improved (one has only to watch since the replacement can change other *secondary* masses down the chain, see Fig. 1). The procedure is more complicated for new *primary* data.

We define DEGREES for *secondary* nuclides and *secondary* data. They reflect their distances along the chains connecting them to the network of primaries. The first secondary nuclide connected to a primary one will be a nuclide of degree 2; and the connecting datum will be a datum of degree 2 too. Degree 1 is for primary nuclides and data. Degrees for secondary nuclides and data range from 2 to 14. In Table I, the degree of data is indicated in column ‘Dg’. In the table of atomic masses (Part II, Table I), each *secondary* nuclide is marked with a label in column ‘Orig.’ indicating from which other nuclide its mass value is calculated.

Separating secondary nuclides and data from primaries allow to reduce importantly the size of the system that will be treated by the least-squares method described above. After treatment of the primary data alone, the adjusted masses for primary nuclides can be easily combined with the secondary data to yield masses of secondary nuclides.

In the next section we will show methods for reducing further this system, but without allowing any loss of information. Methods that reduce the system of primaries for the benefit of the secondaries not only decrease computational time (which nowadays is not so important), but allows an easier insight into the relations between data and masses, since no correlation is involved.

Remark: the word *primary* used for these nuclides and for the data connecting them does not mean that they are more important than the others, but only that they are subject to the special treatment below. The labels *primary* and *secondary* are not intrinsic properties of data or nuclides. They may change from primary to secondary or reversely when other information becomes available.

5.4. Compacting the set of data

5.4.1 Pre-averaging

Two or more measurements of the same physical quantities can be replaced without loss of information by their average value and error, reducing thus the system of equations to be treated. Extending this procedure, we consider *parallel* data: reaction data occur that give essentially values for the mass difference between the same two nuclides, except in the rare cases where the precision is comparable to the precision in the masses of the reaction particles. Example: ^{9}Be(γ,n)^{8}Be, ^{9}Be(p,d)^{8}Be, ^{9}Be(d,t)^{8}Be and ^{9}Be(^{3}He,α)^{8}Be.

Such data are represented together, in the main least-squares calculation, by one of them carrying their average value. If the Q data to be pre-averaged are strongly conflicting, i.e. if the consistency factor (or Birge ratio, or normalized χ) $\chi_n = \sqrt{\chi^2/(Q-1)}$ resulting in the calculation of the pre-average is greater than 2.5, the (internal) error σ_i in the average is multiplied by the Birge ratio ($\sigma_e = \sigma_i \times \chi_n$). There are 6 cases where $\chi_n > 2.5$, see Table C. The quantity σ_e is often called the ‘external’ error. However, this treatment is not used in the very rare cases where the errors in the values to be averaged differ too much from one another, since the assigned errors lose any significance (only one case, see Table C.) In such cases, considering policies from the Particle Data Group [40] and some possibilities reviewed by Rajput and MacMahon [41], we there adopt an arithmetic average and the dispersion of values as error which is equivalent to assigning to each of these conflicting data the same error.

As much as 25% of the 1224 cases have values of χ_n (Birge ratio) beyond unity, 2.8% beyond two, 0.2% (2 cases) beyond 3, giving an overall very satisfactory distribution for our treatment. With the choice above of a threshold of χ_n^0=2.5 for the Birge ratio, only 0.4% of the cases are concerned by the multiplication by χ_n. As a matter of fact, in a complex system like the one here, many values of χ_n beyond 1 or 2 are expected to exist, and if errors were multiplied by χ_n in all these cases, the χ^2-test on the total adjustment would have been invalidated. This explains the choice we made here of a rather high threshold ($\chi_n^0 = 2.5$), compared e.g. to $\chi_n^0 = 2$ recommended by Woods and Munster [42] or $\chi_n^0 = 1$ used in a different context

Table C. Worst pre-averagings. n is the number of data in the pre-average.

Item		n	χ_n	σ_e	Item	n	χ_n	σ_e
^{115}Cd(β^-)^{115}In		3	3.61	6.5	^{146}Ba(β^-)^{146}La	2	2.24	107
^{149}Pm(β^-)^{149}Sm		2	3.54	5.4	^{154}Eu(β^-)^{154}Gd	2	2.22	4.0
^{35}S(β^-)^{35}Cl	∗	9	3.07	0.06	^{202}Au(β^-)^{202}Hg	2	2.22	400
^{117}La(p)^{116}Ba		2	2.97	12	^{40}Cl(β^-)^{40}Ar	2	2.21	76
^{249}Bk(α)^{245}Am		2	2.55	2.4	^{36}S(^{14}C,^{17}O)^{33}Si	3	2.16	37
^{76}Ge(^{14}C,^{16}O)^{74}Zn		2	2.53	51	^{153}Gd(n,γ)^{154}Gd	2	2.16	0.39
^{186}Re(β^-)^{186}Os		4	2.45	2.5	^{36}S(^{11}B,^{13}N)^{34}Si	3	2.13	32
^{144}Ce(β^-)^{144}Pr		2	2.44	2.2	^{58}Fe(t,p)^{60}Fe	4	2.13	7.8
^{146}La(β^-)^{146}Ce		2	2.42	129	^{113}Cs(p)^{112}Xe	3	2.11	5.8
^{33}S(p,γ)^{34}Cl		3	2.38	0.33	^{32}S(n,γ)^{33}S	2	2.11	0.065
^{220}Fr(α)^{216}At		2	2.34	4.7	^{223}Pa(α)^{219}Ac	2	2.09	10
^{69}Co$-$C$_{5.75}$		2	2.33	840	^{177}Pt(α)^{173}Os	2	2.06	6.1
^{136}I^m(β^-)^{136}Xe		2	2.33	266	^{147}La(β^-)^{147}Ce	2	2.04	81
^{176}Au(α)^{172}Ir		2	2.31	18	^{244}Cf(α)^{240}Cm	2	2.03	4.0
^{131}Sn(β^-)^{131}Sb		2	2.29	28	^{204}Tl(β^-)^{204}Pb	2	2.03	0.39
^{110}In(β^+)^{110}Cd		3	2.29	28	^{166}Re^m(α)^{162}Ta	2	2.01	17
^{178}Pt(α)^{174}Os		2	2.25	6.3	^{168}Ir^m(α)^{164}Re^m	2	2.00	10
^{166}Os(α)^{162}W		2	2.24	10				

∗arithmetic average and dispersion of values are being used in the adjustment.

by the Particle Data Group [40], for departing from the rule of internal error of the weighted average.

Used policies in treating parallel data

In averaging β- (or α-) decay energies derived from branches, found in the same experiment, to or from different levels in the decay of a given nuclide, the error we use for the average is not the one resulting from the least-squares, but the smallest occurring one.

Some quantities have been reported more than once by the same group. If the results are obtained by the same method and all published in regular refereed journals, only the most recent one is used in the calculation, unless explicitly mentioned otherwise. The reason is that one is inclined to expect that authors who believe their two results are of the same quality would have averaged them in their latest publication. Our policy is different if the newer result is not published in a regular refereed paper (abstract, preprint, private communication, conference, thesis or annual report), then the older one is used in the calculation, except if the newer is an update of the values in the other. In the latter case the original reference in our list mentions the unrefereed paper.

5.4.2 Replacement procedure

Large contributions to χ^2 have been known to be caused by a nuclide *G* connected to two other ones *H* and *K* by reaction links with errors large compared to the error in the mass difference of *H* and *K*, in cases where the two disagreed. Evidently, contributions to χ^2 of such local discrepancies suggest an unrealistically high value of the overall consistency parameter. This is avoided by a replacement procedure: one of the two links is replaced by an equivalent value for the other. The pre-averaging procedure then takes care both of giving the most reasonable mass value for *G*, and of not causing undesirably large contributions to χ^2.

5.4.3 Insignificant data

Another feature to increase the meaning of the final χ^2 is, that data with weights at least a factor 10 less than other data, or than combinations of *all* other data giving the same result, have not been included, generally speaking, in the calculation. They are given in the list of input data (except for most older data of this type that already appeared in our previous tables), but labelled 'U'; comparison with the output values allows to check our judgment. Earlier, data were labelled 'U' if their weight was 10 times less than that of a *simple* combination of other data. This concept has been extended since AME'93 to data that weigh 10 times less than the combination of *all* other accepted data.

5.5. Used policies - treatment of undependable data

The important interdependence of most data, as illustrated by the connection diagrams (Figs. 1a–1i) allows local and general consistency tests. These can indicate that something may be wrong with input values. We follow the policy of checking all significant data differing by more than two (sometimes 1.5) standard deviations from the adjusted values. Fairly often, study of the experimental paper shows that a correction is necessary. Possible reasons are that a transition has been assigned to a wrong final level or that a reported decay energy belongs to an isomer rather than to a ground state or even that the mass number assigned to a decay has been shown to be incorrect. In such cases, the values are corrected and remarks are added below the corresponding data in Table I to explain the reasons for the corrections.

It can also happen, though, that study of the paper leads to serious doubts about the validity of the results within the reported error, but could not permit making a specific correction. In that case, the result is labelled 'F' and not used in the adjustment. It is however given in Table I and compared to the adjusted value. The reader might observe that, in several cases, the difference between the experimental value and the adjusted one is small compared to the experimental error: this does not disprove the correctness of the label 'F' assignment.

Cases where reading the paper does not lead to correction or rejection, but yet the result is not trusted within the given error, are labelled ‘B’ if published in a regular refereed journal, or ‘C’ otherwise.

Data with labels ‘F’, ‘B’ or ‘C’ are not used in the calculation. We do not assign such labels if, as a result, no experimental value published in a regular refereed journal could be given for one or more resulting masses. When necessary, the policy defined for ‘irregular masses’ with ‘D’-label assignment may apply (see Section 4.2).

In some cases thorough analysis of strongly conflicting data could not lead to reasons to think that one of them is more dependable than the others or could not lead to the rejection of a particular piece of data. Also, bad agreement with other data is not the only reason for doubt in the correctness of reported data. As in previous work, and as explained above (see Section 4), we made use of the property of regularity of the surface of masses for helping making a choice and also for making further checks on the other data.

We do not accept experimental results if information on other quantities (e.g. half-lives), derived in the same experiment and for the same nuclide, were in strong contradiction with well established values.

5.6. The AME computer program

Our computer program in four phases has to perform the following tasks: **i)** decode and check the data file; **ii)** build up a representation of the connections between masses, allowing thus to separate primary masses and data from secondary ones, to pre-average same and parallel data, and thus to reduce drastically the size of the system of equations to be solved (see Section 5.3 and 5.4), without any loss of information; **iii)** perform the least-squares matrix calculations (see above); and **iv)** deduce the atomic masses (Part II, Table I), the nuclear reaction and separation energies (Part II, Table III), the adjusted values for the input data (Table I), the *influences* of data on the primary nuclides (Table I), the *influences* received by each primary nuclide (Part II, Table II), and display information on the inversion errors, the correlations coefficients (Part II, Table B), the values of the χ^2s and the distribution of the v_i (see below), . . .

5.7. Results of the calculation

In this evaluation we have 7773 experimental data of which 1230 are labelled U (see above) and 374 are not accepted and labelled B, C, D or F (respectively 207, 58, 37 and 72 items). In the calculation we have thus 6169 valid input data, compressed to 4373 in the pre-averaging procedure. Separating secondary data, leaves a system of 1381 primary data, representing 967 primary reactions and decays, and 414 primary mass spectrometric measurements. To these are added 887 data estimated from systematic trends, some of which are essential for linking unconnected experimental data to the network of experimentally known masses (see Figs. 1a–1i).

In the atomic mass table (Part II, Table I) there is a total of 3504 masses (including ^{12}C) of which 3179 are ground-state masses (2228 experimental masses and 951 estimated ones), and 325 are excited isomers (201 experimental and 122 estimated). Among the 2228 experimental masses, 192 nuclides have a precision better than 1 keV and 1020 better than 10 keV. There are 231 nuclides known with a precision below 100 keV. Separating secondary masses in the ensemble of 3504, leaves 847 primary masses (^{12}C not included).

We have thus to solve a system of 1381 equations with 847 parameters. Thus, theoretically, the expectation value for χ^2 should be 534±33 (and the theoretical $\chi_n = 1 \pm 0.031$).

The total χ^2 of the adjustment is actually 814; this means that, in the average, the errors in the input values have been underestimated by 23%, a still acceptable result. In other words, the experimentalists measuring masses were, on average, too optimistic by 23%. The distribution of the v_i's (the individual contributions to χ^2, as defined in Eq. 6, and given in Table I) is also acceptable, with 15% of the cases beyond unity, 3.2% beyond two, and 8 items (0.007%) beyond 3.

Considering separately the two main classes of data, the partial consistency factors χ_n^p are respectively 1.269 and 1.160 for energy measurements and for mass spectrometry data, showing that both types of input data are responsible for the underestimated error of 23% mentioned above, with a better result for mass spectrometry data.

As in the preceding work [4], we have tried to estimate the average accuracy for 181 groups of data related to a given laboratory and with a given method of measurement, by calculating their partial consistency factors χ_n^p (cf. Section 5.2). On the average the experimental errors appear to be slightly underestimated, with as much as 57% (instead of expected 33%) of the groups of data having χ_n^p larger than unity. Agreeing better with statistics, 5.5% of these groups are beyond $\chi_n^p = 2$. Fortunately though, the impact of the most deviating groups on the final results of our evaluation is reasonably low.

6. Discussion of the input data

Mostly we accept values as given by authors; but in some cases, we must deviate. An example is for recalibration due to change in the definition of the volt, as discussed in Section 2. For somewhat less simple cases, a remark is added.

A curious example of combinations of data that cannot be accepted without change follows from the measurements of the Edinburgh-Argonne group. They report decay energies in α-decay series, where the ancestors are isomers between which the excitation energy is accurately known from their proton-decay energies. These authors give values for the excitation energies between isomeric daughter pairs with considerably smaller errors than follow from the errors quoted for the measured α-decay energies. The evident reason is, that these decay energies are correlated; this means that the errors in their differences are relatively small. Unfortunately, the presented data do not allow an exact calculation of both masses and isomeric excitation energies. This would have required that, instead of the two E_α values of an isomeric pair, they would have given the error in their difference (and, perhaps, a more exact value for the most accurate E_α of the pair). Instead, entering all their Q_α and E_1 (isomeric excitation energies) values in our input file would yield outputs with too small errors. And accepting any partial collection makes some errors rather drastically too large. We therefore do enter here a selection of input values, but sometimes slightly changed, chosen in such a way that our adjusted Q_α and E_1 values and errors differ as little as possible from those given by the authors. A further complication could occur if some of the Q_α's are also measured by other groups. But until now, we found no serious troubles in such cases.

Necessary corrections to recent mass spectrometric data are mentioned in Section 6.2.

A change in errors, not values, is caused by the fact explained below that in several cases we do not necessarily accept reported α-energies as belonging to transitions between ground-states. This also causes errors in derived proton decay energies to deviate from those reported by some authors (e.g. in the α-decay chain of ^{166}Ir).

6.1. Improvements along the backbone

Rather few new measurements of stable species with a classical mass spectrometer have become available; all of them of the Winnipeg group.

Most of the new mass spectrometric data were obtained by precision measurements of ratios of cyclotron frequencies of ions in Penning traps. Similarly to the classical measurements of ratios of voltages or resistances, we found that they can be converted to linear combinations in μu of masses of electrically neutral atoms, without any loss of accuracy. In such cases, we added a remark, to the equation used in the table of input data (Table I), to describe the original data. Other groups give their results directly as masses, a not recommended practice for high precision measurements.

The new mass values for ^{1}H and ^{2}D have errors about one third of the ones in our previous evaluation, due to new Penning trap measurements. Their values in mass units differ less from the earlier ones [5] than the errors then adopted (in eV$_{90}$ they differ somewhat more). But, for ^{4}He new evidence showed that measurements used in the previous evaluation were less dependable than thought: the difference in the mass values in mass units is some 4 times the error assigned in 1995 [5]. The new values are thought more dependable: two new measurements agree. For this reason, we also now replace the old Penning ^{3}He measurement by one of the two groups mentioned, even though its claimed precision is rather smaller. The new Penning results are tested too by making a separate least square analysis of 30 relations, derived from recent Penning trap results, between H, D, T, ^{3}He, ^{12}C, ^{13}C, ^{14}N, ^{15}N, ^{16}O, ^{20}Ne and ^{40}Ar. The result was quite satisfactory: the resulting consistency factor is $\chi_n = 1.01$.

In earlier evaluations we found it necessary to multiply errors in values from some groups of mass spectrometric data with discrete factors (F =1.5, 2.5 or 4.0) following the partial consistency factors χ_n^p we found for these groups (see Section 5.2). The just mentioned result was a reason not to do so (that means $F = 1$) for the Penning trap measurements.

The new Penning trap measurements on ^{20}Ne, ^{22}Ne, ^{23}Na and ^{24}Mg agree nicely with earlier precision reaction energies. Their combination with the precision ^{28}Si result, already used in AME95, causes some difficulties, not solved completely by the new Penning ^{26}Mg result, see Section 7.2, Table C.

A somewhat similar problem occurred between ^{35}Cl and ^{40}Ar. It was partly solved by a new Penning trap measurement on ^{36}Ar, see Section 7.4. And a somewhat analogous problem in the connection between lighter Xe isotopes and ^{133}Cs could be solved in a similar way. We note, in connection with the note above on this problem, that the new Penning trap measurements find ^{133}Cs 5 keV less stable than the AME95 value to which a 3 keV error was assigned (see Section 7.5).

Satisfactory new measurements, finally, were made of masses of stable Hg isotopes. As we discuss below (Section 7.1), these data helped to solve the most difficult problem in our evaluations along the backbone since 1983.

6.2. Mass spectrometry away from β-stability

With ISOLTRAP, a Penning trap connected to the CERN on-line mass separator ISOLDE, atomic masses are determined for nuclides further away from β-stability, from the cyclotron frequencies of their ions captured in the trap. Such a frequency is compared to that of a well know calibrator to yield a ratio of the two masses. This ratio is converted, without loss of accuracy, in a linear relation between the two masses. Methods which are relying on cyclotron frequency measurements have the advantage that, roughly speaking, only one parameter has to be measured, namely a frequency, that is the physical quantity that can be measured the best with high accuracy. Very high resolving power ($10^8/A$) and accuracies (recently improved up to 2×10^{-8}) are achieved up till quite far from the line of β-stability. Such high resolving power made it possible, for the first time in the history of mass-spectrometry, to resolve nuclear isomers from their ground-state (^{84}Rb^{m}) and to determine their excitation energies, as beautifully just demonstrated [2003Gu.A] for ^{70}Cu, ^{70}Cu^{m} and ^{70}Cu^{n}. Their measured excitation energies have been confirmed by $\beta\gamma$ spectroscopy [2003Va.2]. Already in the 1993 evaluation ISOLTRAP data were used. The number of such data is now considerably larger and the precision improved by one order of magnitude, due to careful study of the apparatus and calibration obtained with the absolute calibrator ^{12}C from a carbon cluster source allowing to cover the whole atomic mass range. Typically, the precision can reach 1 keV or better (0.3 keV for ^{18}Ne). One of the most exotic nuclides, ^{74}Rb (65 ms), is even reported with a precision of 4 keV.

Far from stability, the mass-triplet measurements, in which undetectable systematic effects could build-up in large deviations when the procedure is iterated [1986Au02], could be recalibrated with the help of the ISOLTRAP measurements. Recalibration was automatically obtained in the evaluation, since each mass-triplet was originally converted to a linear mass relation among the three nuclides, allowing both easy application of least-squares procedures, and automatic recalibration. In Table I, the relevant equations are normalized to make the coefficient of the middle isotope unity, so that they read e.g.

$$^{97}\mathrm{Rb} - (0.490 \times {}^{99}\mathrm{Rb} - 0.511 \times {}^{95}\mathrm{Rb}) = 350 \pm 60\mathrm{keV}$$

(the isotope symbol representing the mass excess in keV). The other two coefficients are three-digit approximations of

$$\frac{A_2}{A_3 - A_1} \times \frac{A_2 - A_1}{A_3} \quad \textit{and} \quad \frac{A_2}{A_3 - A_1} \times \frac{A_3 - A_2}{A_1}$$

We took A instead of M in order to arrive at coefficients that do not change if the M-values change slightly. The difference is unimportant.

Most of the mass-triplet data, performed in the 80's are now outweighed, except for the most exotic (and thus the most interesting) Francium and neutron-rich Rubidium and Cesium isotopes.

The Orsay Smith-type mass spectrometer MISTRAL, also connected to ISOLDE, has performed quite precise measurements of very short-lived light nuclides. In particular, the mass of ^{11}Li (8.75 ms) is already given in our tables with a precision of 28 keV, and a new measurement (under analysis) should reduce this to about 10 keV. Also, the highly accurate results (5×10^{-7}) for ^{30}Na and ^{33}Mg provide important calibration masses for the more exotic nuclides measured by 'time-of-flight' techniques (see discussion below).

Mass measurements by time-of-flight mass spectrometry technique at SPEG (GANIL) and TOFI (Los Alamos), also apply to very short nuclides, but the precision is here lower. Masses of almost undecelerated fragment products, coming from thin targets bombarded with heavy ions [43] or high energy protons [44] are measured from a combination of magnetic deflection and time of flight determination. Nuclei in an extended region in A/Z and Z are analyzed simultaneously. Each individual ion, even if very short-lived ($1\mu s$), is identified and has its mass measured at the same time. In this way, mass values with accuracies of (3×10^{-6} to 5×10^{-5}) are obtained for a large number of neutron-rich nuclides of light elements, up to $A = 70$. A difficulty is that the obtained value applies to an isomeric mixture where all isomers with half-lives of the order of, or longer than the time of flight (about 1 μs) may contribute. The resolving power, around 10^4, and cross-contaminations can cause significant shifts in masses. The most critical part in these experiments is calibration, since obtained from an empirically determined function, which, in several cases, had to be extrapolated rather far from the calibrating masses. It is possible that, in the future, a few mass-measurements far from stability may provide better calibration points and allow a re-analysis of the concerned data, on a firmer basis. Such recalibrations require analysis of the raw data and cannot be done by the evaluators. With new data from other methods allowing now comparison, we observed strong discrepancies for one of the two groups, and had to increase thus the associated partial consistency factor to $F = 1.5$. We noted already earlier that important differences occurred between ensemble of results within this group of data. Using $F = 1.5$ for data labeled 'TO1-TO6' in the 'Lab'column of Table I, allows to recover consistency.

Longer time-of-flights (50 to 100 μs), thus higher resolving powers, can be obtained with cyclotrons. The accelerating radio-frequency is taken as reference to ensure a precise time determination, but this method implies that the number of turns of the ions inside the cyclotron, should be known exactly. This was achieved succesfully at SARA-Grenoble for the mass of ^{80}Y. More recently, measurements performed at GANIL with the CSS2 cyclotron, could not determine the exact number of turns. In a first experiment on ^{100}Sn, a careful simulation was done instead. In a second experiment on ^{68}Se, ^{76}Sr, ^{80}Sr and ^{80}Y, a mean value of the number of turns was experimentally determined for the most abundant species only, thus mainly the calibrants. Recent Penning traps measurements on ^{68}Se (CPT-Argonne) and ^{76}Sr (ISOLTRAP) revealed that this last method suffered serious systematic errors. Also, the measured ^{80}Y mass not only deviates from that of SARA by 10 σ, but also contradicts the lower limit set by a recent Q_β measurement at Yale (see [30] for a detailed analysis). For these reasons, results from this second GANIL experiment are not used in our set of data for adjustment.

Atomic masses of nuclides up to rather far removed from stability have recently been determined from their orbital frequency in a storage ring (ESR at GSI), with precisions sometimes as good as a few tens of keV. Many of the measured nuclides belong to known α-decay chains. Thus, the available information on masses of, especially, proton-rich nuclides is considerably extended.

It must be mentioned that, in the first group of mass values as given by GSI authors [2000Ra23], several cannot be accepted without changes. The reason is that, in their derivation, α-decay energies between two, or more, of the occurring nuclides have been used. Evidently, they can therefore not without correction be included in our calculations, where they are again combined with these Q_α's. Remarks added to the data in Table I warn for this matter where important. This point is added here to show a kind of difficulty we meet more often in this work. Fortunately, for this group of data it is only of historical interest since all their data are outdated by more recent measurements [2003Li.A] with the same instruments and with a much better precision.

As said above, many ESR results in [2003Li.A] yield an average mass value M_{exp} for a mixture of isomers. We here use our new treatment for the possible mixture of isomers (see Appendix B), and take care to mention such changes duly in remarks added to these data.

The mass M_0 of the ground-state can be calculated if both the excitation energy E_1 of the upper isomer, and the relative intensities of the isomers are known. But often this is not the case. If E_1 is known but not the intensity ratio, one must assume equal probabilities for all possible relative intensities. In the case of one excited isomer, see Appendix B.4, the mass estimate for M_0 becomes $M_{exp} - E_1/2$, and the part of the error due to this uncertainty $0.29E_1$ (see Section B.4). This policy was discussed with the authors of the measurements. In eight cases, more than two isomers contribute to the measured line. They are treated as indicated in Appendix B.

A further complication arises if E_1 is not known. This, in addition with some problems connected with α-decay chains involving isomers, was a reason for us to consider the matter of isomers with considerably more care than we did before. Part of the results of our estimates (as always, flagged with '#') are incorporated in the NUBASE evaluation. In estimating values E_1, we first look at experimental data possibly giving lower limits: e.g. is known that one of two isomers decays to the other; or is even known that γ-rays of known energy occur in such decays. If not, we tried interpolation between values E_1 for neighboring nuclides that can be expected to have the same spin assignments (for odd A: isotones if Z is even, or isotopes if Z is odd). If such a comparison does not yield useful results, indications from theory were sometimes accepted, including upper limits for transition energies following from the measured half-lives. Of course, values estimated this way were provided with somewhat generous errors, dutifully taken into account in deriving final results.

In several of these measurements, an isomer can only contribute if its half-life is at least several seconds. But half-lives as given in tables like NUBASE are those for neutral atoms. For naked nuclei the decay of such an isomer cannot occur by electron conversion; their half-lives may therefore be considerably larger. Examples are the reported mass measurements of the 580 ms ^{151}Er isomer at E_1=2585.5 keV;

and even of the 103 ms ^{117}Te isomer at E_1=296.1 keV.

An interesting result from the new mass-spectrometric measurements is the following. With ISOLTRAP, masses of several more proton-rich nuclides have been determined with a precision of about 15 keV. In combination with α-decay data, good information is obtained for even-Z nuclei between ^{176}Pt and ^{210}Th. These data, combined with Pb α-energies, allow a check on neutron pairing energies in proton-rich Hg and Pb isotopes. The Jensen-Hansen-Jonson [45] estimate is found decidedly better than the earlier formula $12/\sqrt{A}$ MeV.

In some cases, where in principle corrections for isomerism or contaminations should be made, the mass spectrometric data are insignificant. We found it unnecessary then to make the isomer correction; but as a warning, the reference key number is then provided with a label ‘Z’.

6.3. Proton-decays and α-decays

Limits to proton-decay energies may be estimated from half-lives for this kind of decay. Especially interesting are the limits [1999Ja02] for the series of nuclides with $N = Z - 1$ from ^{69}Br to ^{89}Rh. For them, we gave as inputs values for these decay energies, treated as systematic data (see below) but thought especially dependable.

Our 1995 update [5] used some then recent results of measurements of energies of protons emitted in proton decay. Together with many new data, we now possess results for many proton-rich nuclides, from $^{105}_{51}$Sb to $^{185}_{83}$Bi; among them for all intermediary odd-Z nuclides with the exception of only $_{61}$Pm and $_{65}$Tb. These data are important for two reasons. In the first place, we apply systematics of some quantities (among them proton separation energies) for estimating mass values for nuclides, for which no experimental mass data are available. For this purpose, knowledge of proton separation energies just beyond the proton drip line is quite valuable.

In the second place, the properties of proton decay allow in several cases to measure proton-decay energies from both members of an isomeric pair. In the many cases that both are observed to decay to the ground-state of the daughter, one so derives the excitation energy of the isomer. And these studies even allow to get a fair estimate of the spin-parities of the separate members.

This feature is the more valuable since often for both members α-decay is observed. In a particular case, even a succession of several such decays was found. Their study showed several decays earlier assigned to ground-states to belong in reality to upper isomers. Also, these measurements are found to yield good values for the excitation energies of the isomers among the descendants. We here follow the judgement of the authors, including their judgement about the final levels fed in those α-decays.

Often, though, knowledge of final levels in observed α-decays is not available. We need to discuss what to do then. A systematic investigation we made long ago suggested, that in most cases the excitation energy of the final level must be small. We therefore adopted the policy of accepting the measured E_α as feeding the ground-state but to provide, in such cases, the resulting decay energy with a label (not given in Table I) that takes care that its error is increased to 50 keV.

Our computer program averages data of the same kind and uses only the average, also given in Table I, in the final calculation. Caution is then necessary with these 50 keV additions: they are applied to the relevant averages.

Yet, systematics of α-decay energies, theory, or preferably both, may in some cases suggest a larger E_1. In such cases, the estimate for this value (provided with a generous error) has been added as input value.

The mentioned results of proton decay analysis have been a reason to omit the mentioned label in several cases. And we also have to be careful with the use of this label if mass spectrometric results with a precision of about 50 keV or better are known for mother and daughter. Comparison (preferably in combination with theoretical considerations) may here too suggest to drop the mentioned label; or just reversely not to accept a reported α-energy.

In regions where the Nilsson model for deformed nuclides applies, it is expected that the often most intense α-transition feeds a level in the daughter with the same model assignment as the mother. (It is not rarely the only observed α-ray.) In that case, adding an estimate for the E_1 is attractive. And not rarely the energy difference with the ground-state can be estimated by comparison with the energy differences between the corresponding Nilsson levels in nearby nuclides.

Unfortunately, some authors derive a value they call Q_α from a measured α-particle energy by not only correcting for recoil but also for screening by atomic electrons (see Appendix A). In our calculations, the latter corrections have been removed.

Finally, some measured α particle energies are at least partly due to summing with conversion electrons. This is sometimes clear from the observation, that the width of the observed line is larger than that of other ones. In deriving the desired Q_α, it is then necessary to make a small correction for the escaping X-rays. This is again mentioned in remarks added to the items.

6.4. Decay energies from capture ratios and relative positron feedings

For allowed transitions, the ratio of electron capture in different shells is proportional to the ratio of the squares of the energies of the emitted neutrinos, with a proportionality constant dependent on Z and quite well known [46]. For (non-unique) first forbidden transitions, the ratio is not notably different; with few exceptions.

The neutrino energy mentioned is the difference of the transition energy Q with the electron binding energy in the pertinent shell. Especially if the transition energy is not too much larger than the binding energy in, say, the K shell, it can be determined rather well from a measurement of the ratio of capture in the K and L shells.

The non-linear character of the relation between Q and the ratio introduces two problems. In the first place, a symmetrical error for the ratio is generally transformed in an asymmetrical one for the transition energy. Since our least-squares program cannot handle them, we have symmetrized the probability distribution by considering the first and second momenta of the real probability distribution (see NUBASE2003, Appendix A). The other problem is related to averaging of several values that are reported for the same ratio. Our policy, since AME'93, is to average the capture ratios, and calculate the decay energy following from that average. In this procedure we used the best values [46] of the proportionality constant. We also recalculated older reported decay energies originally calculated using now obsolete values for this constant.

The ratio of positron emission and electron capture in the transition to the same final level also depends on the transition energy in a known way (anyhow for allowed and not much delayed first forbidden transitions). Thus, the transition energy can be derived from a measurement of the relative positron feeding of the level, which is often easier than a measurement of the positron spectrum end-point. For several cases we made here the same kind of combinations and corrections as mentioned for capture ratios. But in this case, a special difficulty must be mentioned. Positron decay can only occur when the transition energy exceeds $2m_ec^2 = 1022$ keV. Thus, quite often, a level fed by positrons is also fed by γ-rays coming from higher levels fed by electron capture. Determination of the intensity of this *side* feeding is often difficult. Cases exist where such feeding occurs by a great number of weak γ-rays easily overlooked (the *pandemonium* effect [47]). Then, the reported decay energy may be much lower than the real value. In judging the validity of experimental data, we kept this possibility in our mind.

6.5. Superheavy nuclides

Unfortunately, the names of four elements beyond Z=103 as earlier proposed, and that we accepted in our 1995 evaluation [5], were changed. The Commission on Nomenclature of Inorganic Chemistry of the International Union of Pure and Applied Chemistry IUPAC [48] revised its earlier proposal (see also NUBASE2003, Section 2). As a result, following names and symbols are now definitely accepted (names for $Z = 107$ and 109 are not changed):

104	rutherfordium	Rf	replacing	Db
105	dubnium	Db	”	Jl
106	seaborgium	Sg	”	Rf
108	hassium	Hs	”	Hn

In the 1995 evaluation we already included results assigned to elements 110 and 111; and in 1996 [1996Ho13] the discovery was reported of element 112. The discovery of element 118 and its α-descendants 116 and 114 was announced in Berkeley in 1999 [1999Ni03] but was later withdrawn [2002Ni10]. But authors from Dubna reported observation of isotopes of elements 114 and 116. All these reports have not yet been officially accepted as sufficient evidence for the discovery of these elements, except for element 110. A provisional recommendation of the Inorganic Chemistry Division of the International Union of Pure and Applied Chemistry proposes for it the name darmstadtium, symbol Ds. Until this name and this symbol are officially adopted, we will not use them in our evaluations, to avoid a situation similar to the one described above. No names have been proposed to our knowledge for the heavier elements. We use symbols Ea, ... Ei for elements 110, ... 118.

No data are available that allow to give any purely experimental mass value for any isotope of the latter elements, in fact for no nuclide with $A > 265$. One of the reasons is, that α-decays in the present region of deformed nuclides preferentially feed levels with the same Nilsson model assignments as the mother, which in the daughter are most often excited states, with unknown excitation energies E_1. Thus, in order to find the corresponding mass difference, we have to estimate these E_1's. For somewhat lighter nuclides, one may estimate them, as said above, from known differences in excitation energies for levels with the same Nilsson assignments in other nuclides. But such information is lacking in the region under consideration. In its place, one might consider to use values obtained theoretically [49]. We have not done so, but used their values as a guide-line. Finally, we choose values in such a way that diagrams of α-systematics and mass systematics looked acceptable. Important for this purpose were the experimental α-decay energies for the heaviest isotopes for $Z = 112$, 114 and 116, especially for the even-A isotopes among them. The errors we assigned to values thus obtained may be somewhat optimistic; but we expect them not to be ridiculous.

In addition to these uncertainties, it must be mentioned that Armbruster [50] gives reasons to doubt the validity of the Dubna results mentioned. We recognize the seriousness of his criticism, but nevertheless decided to accept the Dubna results for the time being. This has a consequence for our mass estimates from systematics for all nuclides with neutron numbers above the probably semi-magic $N = 162$: they depend strongly on the correctness of the Dubna results.

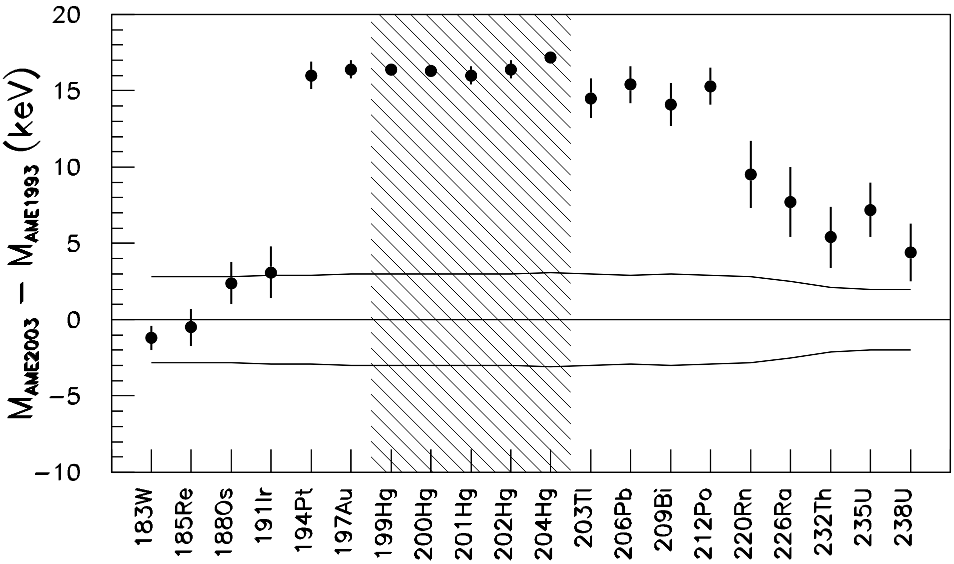


Figure 3: Difference between the mass values obtained in the AME2003 and the AME1993, for nuclides along the line of β-stability around stable Hg's. The errors found in the 1993 evaluation are given by the two lines symmetric around the zero line. Points and error bars refer to the present evaluation.

7. Special cases

7.1. The problem of the stable Hg isotopes

In our earlier evaluations we did not accept the 1980 Winnipeg measurements of the atomic masses of stable Hg isotopes, reported with errors of only about 1 keV. We reconsider the reasons.

In that work [1980Ko25], the mass differences were measured between those Hg isotopes and $^{12}C_2\ Cl_5$ molecules (for $A = 199$ and 201), or $^{12}C^{13}C\ Cl_5$ ones (for $A = 200$, 202 and 204). The resulting Hg masses values were 22 μu high (odd A) and 17 μu high (even-A), compared with values derived from mass spectrometric results for both lighter and heavier nuclides combined with experimental reaction and decay energies, see Fig. 1 in [9]. The difference suggests an influence on the intensities of the ion beams, since ^{13}C is much less abundant than ^{12}C. Therefore, both sets of results were judged questionable.

Very recently, Winnipeg reported [2003Ba49] a new value for ^{199}Hg, 7 μu lower than their 1980 result. In addition, measurements with the Stockholm SMILETRAP Penning trap spectrometer gave results for ^{198}Hg and ^{204}Hg, essentially agreeing with the 1980 Winnipeg even-mass values. Thus, the latter appear to be reasonable.

We now calculated atomic masses accepting these data, in addition to old and new nuclear reaction and decay results. Fig. 3 shows differences between these results and the values adopted in our previous evaluation AME'95.

The relation with the higher-*A* mass spectrometric results (Th and U isotopes) is acceptable at present: the new differences nearly equal the old ones but with changed sign. With lower-*A*, Winnipeg provided further information by new measurements of the mass of ^{183}W and its difference with ^{199}Hg. These essentially confirm the mass values around ^{183}W as given in our earlier evaluations [1, 5]. For completeness, we observe that the new ^{183}W result is 15 μu higher than the 1977 Winnipeg result (error 2.7 μu), which was one of the items that helped to suggest the lower Hg masses.

It is therefore significant that Fig. 3 shows a jump between ^{191}Ir and ^{194}Pt. Closer scrutiny, shows that nuclear reaction energies, in the region between these two nuclides, have discrepancies which, as yet, are not resolved. The upshot, though, is that the earlier difficulty in the connection of the Hg's with lower *A* data appears to be due to errors in the mass spectrometric data then used. We therefore think that the mass values for these Hg isotopes in the present work are definitely more dependable than our earlier ones.

7.2. The masses of ^{26}Al and ^{27}Al

The earlier two results of the ^{25}Mg(n,γ) reactions were not in a perfect agreement, neither with one another nor with the combinations of the average of the well agreeing values for ^{25}Mg(p,γ) with the two values for ^{26}Mg(p,n)^{26}Al, see Table D. The new Penning trap mass values for ^{24}Mg and ^{26}Mg [2003Be02], combined with the average of the very nicely agreeing values for the ^{24}Mg(n,γ) reaction, give a value halfway between the ones just mentioned. This is pleasant but thus it must be concluded that there is an uncertainty in the mass of ^{26}Al. This is unfortunate, especially because of the special interest of the ^{26}Mg(p,n)^{26}Al reaction for problems connected with the intensity of allowed Fermi β-transitions.

A somewhat similar problem occurs in the connections of ^{27}Al with the nuclides just mentioned and, through the (p,γ) reaction, with ^{28}Si. We found no stringent reasons to trust some of them more than others. Thus the mass value presented here for ^{27}Al is a compromise and its error somewhat optimistic.

7.3. The ^{35}S(β^-)^{35}Cl decay energy

This case has been investigated several times in connection with the report that a neutrino might exist with a mass of 17 keV.

Unfortunately, the reported decay energies are so much different (with a Birge ratio $\chi_n = 3.07$, see Table C, Section 5), that we decided to use all of the nine

Table D. ^{26}Mg neutron binding energies derived in different ways .

Method	S_n	Reference	
^{25}Mg(n,γ)	11093.10 (0.06)	1990Pr02	Z
^{25}Mg(n,γ)	11093.23 (0.05)	1992Wa06	Z
^{25}Mg(p,γ)$-^{26}$Mg(p,n)	11092.63 (0.14)		
^{25}Mg(p,γ)$-^{26}$Mg(p,n)	11092.36 (0.19)		
^{24}Mg$-^{26}$Mg + 2n$-^{24}$Mg(n,γ)	11092.94 (0.05)	2003Be02	

available data, irrespective of their claimed precision. Moreover, the most recent, and probably most accurate among the nine ^{35}S(β^-) decay-energy values, are all higher than their average. We therefore applied the procedure described in Section 5.4.1 to get an arithmetic average value and error (derived from the dispersion of the 9 data) of 167.222 ± 0.095 keV. In AME'93 we had 7 data with $\chi_n = 3.45$; the situation unfortunately did not improve significantly.

A value 167.19(0.11) keV, in good agreement with the above adopted value, can also be derived from the reported reaction energies for the ^{34}S(n,γ)^{35}S and ^{34}S(p,γ)^{35}Cl reactions.

7.4. The masses of ^{35,37}Cl and the new ^{36}Ar mass

The SMILETRAP ^{36}Ar result [2003Fr08] is some 1.2 keV lower than the AME95 value, for which an error of 0.3 keV was claimed. The latter value is, essentially, due to mass spectrometric results for ^{35}Cl and ^{37}Cl, combined with reaction energies for five reactions. These data do agree quite well if combined in a least squares analysis: $\chi_n = 1.13$. Adding the new mass value for ^{36}Ar increases χ_n to 2.00. But this value is reduced to a reasonable 1.35 if, of the two available values for the ^{36}Ar(n,γ)^{37}Ar reaction energy, the oldest not well documented one is no longer used. Also, this removes an earlier hardness in the connection with ^{40}Ar, of which the mass was already known with high precision.

7.5. Consequences of new ^{133}Cs mass

The ^{133}Cs results are important for the determination of masses of many Cs and Ba isotopes: as discussed above. Two new ^{133}Cs mass values have been reported, agreeing well. The resulting ^{133}Cs mass is about 5 keV higher than the AME'95 one, to which an error of 3 keV had been assigned. It was mainly the result of a set of connections, through known Cs β^+ decay energies to Xe nuclides, for which mass spectrometric mass values were available (see the scheme Fig. 1 in [1]). The nearest ones are those at mass numbers 124, 128, 129, 130 and 132. Analyzing them, we find that the connection with ^{132}Xe would make ^{133}Cs 15(7) keV higher, whereas that with ^{124}Xe, 35(20) keV lower. The first one, thus, is improved by the SMILETRAP result. The other throws some doubt on the reported ^{125}Cs β^+ decay energy. The other connections are not severely affected.

7.6. The ^{163}Ta(α)^{159}Lu(α)^{155}Tm decay chain

What follows is an analysis of α-chains for which also mass-spectrometric mass values are available. It is given as an example; but also because it presents special difficulties.

For ^{159}Lu and ^{163}Ta [2003Li.A] gives mass values with precision 30 keV. The nuclide ^{155}Tm is connected with precision data to nuclides with more accurately known masses. From these mass values one calculates for ^{159}Lu an α-decay energy of 4480(34) keV to the ^{155}Tm ground-state, and 42(5) keV less to its isomer. The experimental value is 4533(7) keV, average of two agreeing measurements, see Table I. The difference suggests that the E_α (two well agreeing measurements) originate in an upper isomer. Let us look critically to the known decay data.

For ^{159}Lu, the half-lives reported for α- and β-decays are not different, not suggesting isomerism.

In order to see a possible consequence of a less stable ^{159}Lu, we examine its α-decay feeding by ^{163}Ta. The mass measurements yield Q_α = 4652(42) keV, to be compared with a rather higher experimental value 4749(6) keV. The difference would even be larger if ^{159}Lu would be less stable!

This quite strongly suggests that the observed ^{163}Ta α's may originate in a higher isomer. First question: could the half-lives for its α- and β-decays be different? For gamma and X(K) the half-lives is found $T_{1/2} = 11(1)$ s; for α no value. Then, do other $N = 90$ nuclides show isomerism? Yes, but the situations for them seem not comparable. Finally: can we get some information from α ancestors? For ^{179}Tl(α)^{175}Au(α)^{171}Ir(α)^{167}Re, [2002Ro17] gives correlations between α branches reported for their isomers. Their analysis suggests that the ^{167}Re isomers must α-decay to different isomers in ^{163}Ta. This induces us to assign the discussed ^{163}Ta α branch to the upper isomer.

This solves part of the problem. For the other part, we label the observed ^{159}Lu Q_α's with the flag for uncertain assignment (increasing error to 50 keV, see Section 6.3), already because it is unclear which of the two ^{155}Tm isomers is fed. Thus, the main part of the trouble is removed.

7.7. The mass of ^{149}Dy and its α-ancestors

AME95 gives for ^{149}Dy a mass excess of –67688(11) keV. This value was derived with help of [1991Ke11]'s value Q_{β^+} = 3812(10) keV for ^{149}Dy(β^+)^{149}Tb. But ISOLTRAP finds a 45 keV more bound value, –67729(18) keV [2001Bo59]. And ESR-GSI [2003Fi.A] found mass values for the ^{149}Dy and its α-ancestors ^{157}Yb, ^{161}Hf and ^{165}W that all agreed with the values derived from combining Q_α's with the ISOLTRAP ^{149}Dy mass. It is not likely that the mentioned Q_{β^+} belongs to an upper ^{149}Dy isomer. And repeated study of the [1991Ke11] paper did not suggest distrust. Therefore we decided just to accept all experimental data mentioned.

7.8. The masses of ^{100}Sn and ^{100}In

The mass of ^{100}In was derived in AME95 from a preliminary result of a GANIL measurement replaced since by a final report, the latter also giving a mass value for ^{100}Sn for which AME95 gave only a value derived from systematics. These results are particularly interesting because of the double magic character of ^{100}Sn which is, moreover, the heaviest known nuclide with $N = Z$. But for both the reported values indicated over 0.5 MeV more stability than in AME'95, and indeed there indicated by systematics. The difference is not really large compared with the claimed precision, yet unpleasant. Therefore it is satisfactory that new measurements of the positron decay energies of these two nuclides indicate indeed higher mass values. The final values are still somewhat low compared with systematics, but no longer seriously so.

8. General informations and acknowledgements

The full content of the present issue is accessible on-line at the web site [6] of the AMDC. In addition, on that site, several local analyses that we conducted but could not give in the printed version, are available. Also, several graphs for representation of the mass surface, beyond the main ones in Part II, can be obtained there.

As before, the table of masses (Part II, Table I) and the table of nuclear reaction and separation energies (Part II, Table III) are made available in plain ASCII format to allow calculations with computer programs using standard languages. The headers of these files give information on the used formats. The first file with name **mass_rmd.mas03** contains the table of masses. The next two files correspond to the table of reaction and separation energies in two parts of 6 entries each, as in Part II, Table III: **rct1_rmd.mas03** for S_{2n}, S_{2p}, Q_α, $Q_{2\beta}$, $Q_{\varepsilon p}$ and $Q_{\beta n}$ (odd pages in this issue); and **rct2_rmd.mas03** for S_n, S_p, $Q_{4\beta}$, $Q_{d,\alpha}$, $Q_{p,\alpha}$ and $Q_{n,\alpha}$ (facing even pages).

As explained in Section 4.2, we do no more produce special tables in which are included experimental data that we do not recommend to use.

We wish to thank our many colleagues who answered our questions about their experiments and those who sent us preprints of their papers. Special thanks to C. Schwarz and P. Pearson at Elsevier for a particularly good cooperation and reliance in preparing the present publication, resulting in a very short delay between our final calculation and printing. We appreciate the help of C. Gaulard in the preparation of some of the figures of this publication, and of C. Gaulard and D. Lunney for careful reading of the manuscript. One of us (AHW) expresses his gratitude to the NIKHEF-K laboratory for the permission to use their facilities, and especially thanks Mr. K. Huyser for all help with computers.

Appendix A. The meaning of decay energies

Conventionally, the decay energy in an α-decay is defined as the difference in the atomic masses of mother and daughter nuclides:

$$Q_\alpha = M_{\text{mother}} - M_{\text{daughter}} - M_{^4\text{He}} \tag{8}$$

This value equals the sum of the observed energy of the α particle and the easily calculated energy of the recoiling nuclide (with only a minor correction for the fact that the cortege of atomic electrons in the latter may be in an excited state). Very unfortunately, some authors quote as resulting Q_α a value ‘corrected for screening’, which essentially means that they take for the values M in the above equation the masses of the bare nuclei (the difference is essentially that between the total binding energies of all electrons in the corresponding neutral atoms).

This bad custom is a cause of confusion; even so much that in a certain paper this ”correction” was made for some nuclides but not for others.

A similar bad habit has been observed for some proton decay energies (in a special NDS issue). We very strongly object to this custom; at the very least, the symbol Q should not be used for the difference in nuclear masses!

Appendix B. Mixtures of isomers or of isobars in mass spectrometry

In cases where two or more unresolved lines may combine into a single one in an observed spectrum, while one cannot decide which ones are present and in which proportion, a special procedure has to be used.

The first goal is to determine what is the most probable value M_{exp} that will be observed in the measurement, and what is the uncertainty σ of this prediction. We assume that all the lines may contribute and that all contributions have equal probabilities. The measured mass reflects the mixing. We call M_0 the mass of the lowest line, and $M_1, M_2, M_3, \ldots$ the masses of the other lines. For a given composition of the mixture, the resulting mass m is given by

$$m = (1 - \sum_{i=1}^{n} x_i) M_0 + \sum_{i=1}^{n} x_i M_i \qquad \text{with} \begin{cases} 0 \leq x_i \leq 1 \\ \sum_{i=1}^{n} x_i \leq 1 \end{cases} \tag{9}$$

in which the relative unknown contributions $x_1, x_2, x_3, \ldots$ have each a uniform distribution of probability within the allowed range.

If $P(m)$ is the normalized probability of measuring the value m, then :

$$\overline{M} = \int P(m)\, m\, dm \tag{10}$$

$$\text{and} \quad \sigma^2 = \int P(m)\, (m - \overline{M})^2\, dm \tag{11}$$

It is thus assumed that the experimentally measured mass will be $M_{exp} = \overline{M}$, and that σ, which reflects the uncertainty on the composition of the mixture, will have to be quadratically added to the experimental uncertainties.

The difficult point is to derive the function $P(m)$.

B.1. Case of 2 spectral lines

In the case of two lines, one simply gets

$$m = (1 - x_1) M_0 + x_1 M_1 \quad \text{with} \quad 0 \leq x_1 \leq 1 \tag{12}$$

The relation between m and x_1 is biunivocal so that

$$P(m) = \begin{cases} 1/(M_1 - M_0) & \text{if } M_0 \leq m \leq M_1, \\ 0 & \text{elsewhere} \end{cases} \tag{13}$$

i.e. a rectangular distribution (see Fig. 4*a*), and one obtains :

$$M_{exp} = \frac{1}{2}(M_0 + M_1) \tag{14}$$

$$\sigma = \frac{\sqrt{3}}{6}(M_1 - M_0) = 0.290\ (M_1 - M_0)$$

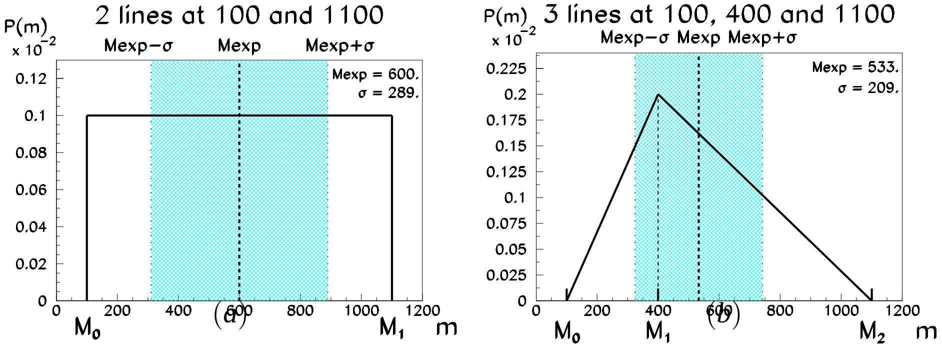


Figure 4: Examples of probabilities to measure m according to an exact calculation in cases of the mixture of two (a) and three (b) spectral lines.

B.2. Case of 3 spectral lines

In the case of three spectral lines, we derive from Eq. 9:

$$m = (1 - x_1 - x_2)M_0 + x_1 M_1 + x_2 M_2 \tag{15}$$

$$\text{with} \begin{cases} 0 \leq x_1 \leq 1 \\ 0 \leq x_2 \leq 1 \\ 0 \leq x_1 + x_2 \leq 1 \end{cases} \tag{16}$$

The relations (15) and (16) may be represented on a x_2 vs x_1 plot (Fig. 5). The conditions (16) define a triangular authorized domain in which the density of probability is uniform. The equation (15) is represented by a straight line. The part of this line contained inside the triangle defines a segment which represents the values of x_1 and x_2 satisfying all relations (16). Since the density of probability is constant along this segment, the probability $P(m)$ is proportional to its length. After normalization, one gets (Fig. 4b):

$$P(m) = \frac{2k}{M_2 - M_0} \qquad \text{with} \begin{cases} k = (m - M_0)/(M_1 - M_0) & \text{if } M_0 \leq m \leq M_1 \\ k = (M_2 - m)/(M_2 - M_1) & \text{if } M_1 \leq m \leq M_2 \end{cases} \tag{17}$$

and finally:

$$\begin{aligned} M_{exp} &= \frac{1}{3}(M_0 + M_1 + M_2) \\ \sigma &= \frac{\sqrt{2}}{6}\sqrt{M_0^2 + M_1^2 + M_2^2 - M_0M_1 - M_1M_2 - M_2M_0} \end{aligned} \tag{18}$$

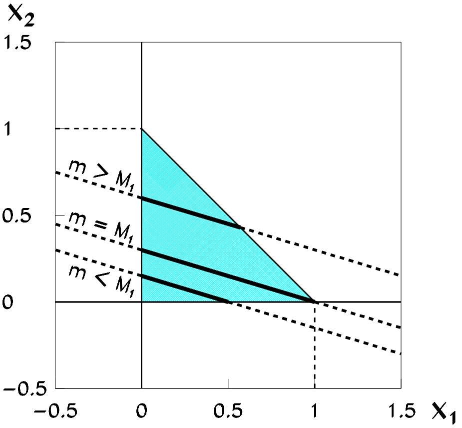


Figure 5: Graphic representation of relations 15 and 16. The length of the segments (full thick lines) inside the triangle are proportional to the probability $P(m)$. Three cases are shown corresponding respectively to $m < M_1$, $m = M_1$, and to $m > M_1$. The maximum of probability is obtained when $m = M_1$.

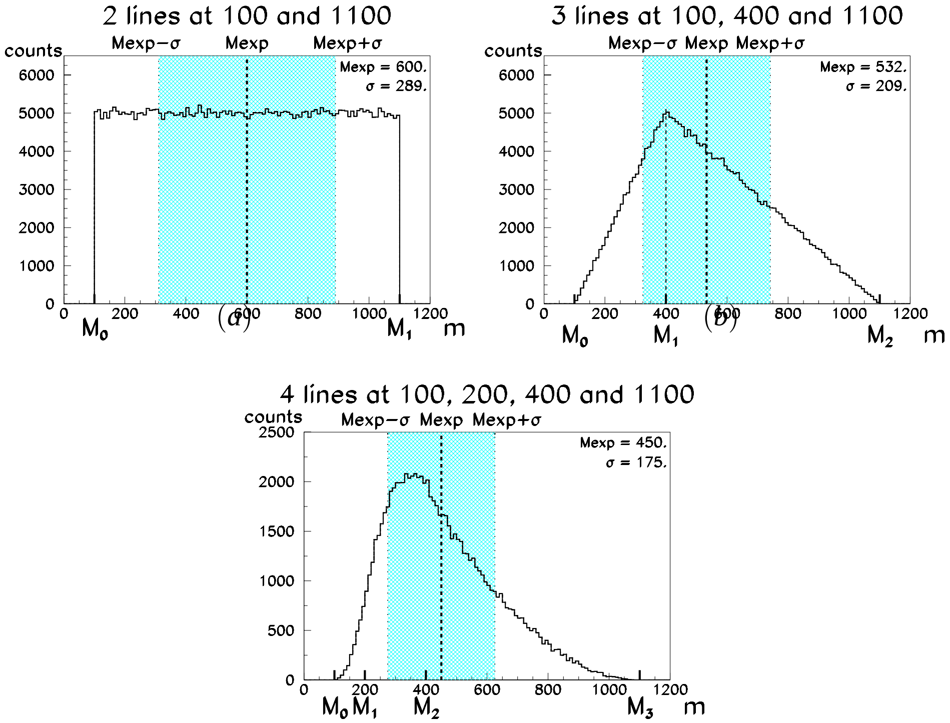
B.3. Case of more than 3 spectral lines

For more than 3 lines, one may easily infer $M_{exp} = \sum_{i=0}^{n} M_i/(n+1)$, but the determination of σ requires the knowledge of $P(m)$. As the exact calculation of $P(m)$ becomes rather difficult, it is more simple to do simulations. However, care must be taken that the values of the x_i's are explored with an exact equality of chance to occur. For each set of x_i's, m is calculated, and the histogram $N_j(m_j)$ of its distribution is built (Fig. 6). Calling *nbin* the number of bins of the histogram, one gets :

$$\begin{aligned} P(m_j) &= \frac{N_j}{\sum_{j=1}^{nbin} N_j} \\ M_{exp} &= \sum_{j=1}^{nbin} P(m_j) m_j \\ \sigma^2 &= \sum_{j=1}^{nbin} P(m_j)(m_j - M_{exp})^2 \end{aligned} \tag{19}$$

A first possibility is to explore the x_i's step-by-step: x_1 varies from 0 to 1, and for each x_1 value, x_2 varies from 0 to $(1-x_1)$, and for each x_2 value, x_3 varies from 0 to $(1-x_1-x_2)$, . . . using the same step value for all.

A second possibility is to choose x_1, x_2, x_3, . . . randomly in the range [0,1] in an independent way, and to keep only the sets of values which satisfy the relation $\sum_{i=1}^{n} x_i \leq 1$. An example of a Fortran program based on the CERN library is given



(a) (b)

(c)

Figure 6: Examples of Monte-Carlo simulations of the probabilities to measure m in cases of two (a), three (b) and four (c) spectral lines.

in Figure 7 for the cases of two, three and four lines. The results are presented in Figure 6.

Both methods give results in excellent agreement with each other, and as well with the exact calculation in the cases of two lines (see Fig. 4*a* and 6*a*) and three lines (see Fig. 4*b* and 6*b*).

B.4. Example of application for one, two or three excited isomers

We consider the case of a mixture implying isomeric states. We want to determine the ground state mass $M_0 \pm \sigma_0$ from the measured mass $M_{exp} \pm \sigma_{exp}$ and the knowledge of the excitation energies $E_1 \pm \sigma_1$, $E_2 \pm \sigma_2, \ldots$

With the above notation, we have $M_1 = M_0 + E_1$, $M_2 = M_0 + E_2, \ldots$

```fortran
      program isomers
c-----------------------------------------------------------------
c-   October 15, 2003               C.Thibault
c-   Purpose and Methods : MC simulation for isomers (2-4 levels)
c-   Returned value      : mass distribution histograms
c-----------------------------------------------------------------
      parameter (nwpawc=10000)
      common/pawc/hmemor(nwpawc)
      parameter (ndim=500000)
      dimension xm(3,ndim)
      data e0,e1,e31,e41,e42/100.,1100.,400.,200.,400./
      call hlimit(nwpawc)
c histograms 2, 3, 4 levels
      call hbook1(200,'',120,0.,1200.,0.)
      call hbook1(300,'',120,0.,1200.,0.)
      call hbook1(400,'',120,0.,1200.,0.)
      call hmaxim(200,6500.)
      call hmaxim(300,6500.)
      call hmaxim(400,2500.)
      w=1.
c random numbers [0,1]
      ntot=3*ndim
      iseq=1
      call ranecq(iseed1,iseed2,iseq,' ')
      call ranecu(xm,ntot,iseq)
      do i=1,ndim
c 2 levels :
         t=1-xm(1,i)
         e = t*e0 + xm(1,i)*e1
         call hfill(200,e,0.,w)
c 3 levels :
         if ((xm(1,i)+xm(2,i)).le.1.) then
           t=1.-xm(1,i)-xm(2,i)
           e= t*e0 + xm(1,i)*e31 + xm(2,i)*e1
           call hfill(300,e,0.,w)
         end if
c 4 levels
         if ((xm(1,i)+xm(2,i)+xm(3,i)).le.1.) then
           t=1.-xm(1,i)-xm(2,i)-xm(3,i)
           e = t*e0 + xm(1,i)*e41 + xm(2,i)*e42 + xm(3,i)*e1
           call hfill(400,e,0.,w)
         end if
      end do
      call hrput(0,'isomers.histo','N')
      end
```

Figure 7: Fortran program used to produce the histograms of Figure 6.

For a single excited isomer, equations (14) lead to :

$$\begin{aligned} M_0 &= M_{exp} - \frac{1}{2}E_1 \\ \sigma^2 &= \frac{1}{12}E_1^2 \qquad \text{or} \qquad \sigma = 0.29\,E_1 \\ \sigma_0^2 &= \sigma_{exp}^2 + (\frac{1}{2}\sigma_1)^2 + \sigma^2 \end{aligned}$$

For two excited isomers, equations (18) lead to :

$$\begin{aligned} M_0 &= M_{exp} - \frac{1}{3}(E_1 + E_2) \\ \sigma^2 &= \frac{1}{18}(E_1^2 + E_2^2 - E_1E_2) \qquad \text{or} \qquad \sigma = 0.236\sqrt{E_1^2 + E_2^2 - E_1E_2} \\ \sigma_0^2 &= \sigma_{exp}^2 + (\frac{1}{3}\sigma_1)^2 + (\frac{1}{3}\sigma_2)^2 + \sigma^2 \end{aligned}$$

If the levels are regularly spaced, *i.e.* $E_2 = 2E_1$,

$$\sigma = \frac{\sqrt{6}}{12}E_2 = 0.204\,E_2$$

while for a value of E_1 very near 0 or E_2,

$$\sigma = \frac{\sqrt{2}}{6}E_2 = 0.236\,E_2$$

For three excited isomers , the example shown in Figure 6*c* leads to:

$$\begin{aligned} M_0 &= M_{exp} - \frac{1}{4}(E_1 + E_2 + E_3) = 450. \\ \sigma &= 175. \\ \sigma_0^2 &= \sigma_{exp}^2 + (\frac{1}{4}\sigma_1)^2 + (\frac{1}{4}\sigma_2)^2 + (\frac{1}{4}\sigma_3)^2 + \sigma^2 \end{aligned}$$

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Table I. Input data compared with adjusted values

EXPLANATION OF TABLE

The ordering is in groups according to highest occurring relevant mass number.

Item	In mass-doublet equation: H $=^{1}$H, N $=^{14}$N, D $=^{2}$H, O $=^{16}$O, C $=^{12}$C.	In mass-triplet equation: Rb^{x}, Rb^{y}: different mixtures of isomers or contaminants.	In nuclear reaction: K^{m}, Cs^{m}, Cs^{n}: upper isomers, see NUBASE.

Input value	Mass doublet: value and its standard error in μu. Triplet: value and its standard error in keV. Reaction: value and its standard error in keV. The value is the combination of mass excesses $\Delta(M-A)$ given under 'item'. It is the author's experimental result and the author's stated uncertainty, except in a few cases for which comments are given and for some α-reactions: if the α-decay is not known to feed the ground-state, then the error is increased to 50 keV. If more than one group report such energies, an average is calculated first (mentioned in the Table) and the 50 keV is added to the averaged error in the adjustment (see Section 6.3).
Adjusted value	Output of calculation. For secondary data ($Dg = 2$–20) the adjusted value is the same as the input value and not given; also, the adjusted value is only given once for a group of results for the same reaction or doublet. Values and errors were rounded off, but not to more than tens of keV. # Value and error derived not from purely experimental data, but at least partly from systematic trends. $*$ No mass value has been calculated for one of the masses involved.
v_i	Normalized deviation between input and adjusted value, given as their difference divided by the input error (see Section 5.2).
Dg	1 Primary data (see Section 3). 2–13 Secondary data of different degrees. B Well-documented data, or data from regular reviewed journals, which disagree with other well-documented values. C Data from incomplete reports, at variance with other data. o Data included in or superseded by later work of same group. D Data not checked by other ones and at variance with systematics, replaced by an estimated value (see Section 4.2). F Study of paper raises doubts about validity of data within the reported error. R Item replaced for computational reasons by an equivalent one giving same result. U Data with much less weight than that of a combination of other data.
Sig	*Significance* ($\times$100) of primary data only (see Section 5.1); the significance of secondary data is always 100%.
Main flux	Largest *influence* ($\times$100) and nucleus to which the data contributes the most (see Section 5.1).

Lab		Identifies the group which measured the corresponding item. Example of Lab key: MA8 Penning Trap data of Mainz-Isolde group. The numbers refer to different experimental conditions.
F		Multiplying factor for mass spectrometric data (see Section 6.1). The standard error given in the 'Input value' column has been multiplied by this factor before being used in the least-squares adjustment.
Reference		Reference keys: (in order to reduce the width of the Table, the two digits for the centuries are omitted; at the end of this volume however, the full reference key-number is given: 2003Ba49 and not 03Ba49)
	03Ba49	Results derived from regular journal. These keys are copied from Nuclear Data Sheets. Where not yet available, the style 03Kr.1 has been used.
	94Jo.A	Result from abstract, preprint, private communication, conference, thesis or annual report.
	NDS03a	References to energies of excited states, where of some interest, are mentioned in remarks in the Qfile. Their reference-keys refer to Nuclear Data Sheets and are indicated NDS036 in which '03' indicates the year (here 2003) and '6' the month (Oct, Nov, Dec indicated a b c) of the NDS issue taken from. When the information has been obtained from the electronic version of NDS, the "Evaluated Nuclear Structure Data Files" (ENSDF), the reference-keys are indicated 'Ens03' for e.g. year 2003. When the excited energy is derived or estimated in NUBASE2003, it is indicated with 'Nubase'.
	AHW	or GAu or CTh : comment written by one of the present authors.
	$*$	A remark on the corresponding item is given below the block of data corresponding to the same (highest) A.
	Y	recalibrations of 65Ry01 for charged particle recalibrations, and recalculated triplets for isomeric mixtures.
	Z	recalibrations of 91Ry01 for α particles, 90Wa22 for γ in (n,γ) and (p,γ) reactions and 91Wa.A for protons and γ in (p,γ) reactions (see Section 2).

Remarks. For data indicated with a star in the reference column, remarks have been added. They are collected in groups at the end of each block of data in which the highest occurring relevant mass number is the same. They give:

i) Information explaining how the values in column 'Input value' have been derived for papers not mentioning e.g. the mass differences as derived from measured ratios of voltages or frequencies - a bad practice - or the reaction energies or values for transitions to excited states in the final nuclei (for which better values of the excitation energies are now known).

ii) Reasons for changing values (e.g. recalibrations) or errors as given by the authors or for rejecting them (i.e. for labelling them B, C or F).

iii) Value suggested by systematical trends and recommended in this evaluation as best estimate (see Section 4.2).

iv) Separate values for capture ratios (see Section 6.4).

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
π^+		140081.18	0.35	140081.2	0.4	0.0	1	100	100	π^+			02PaDG	*
$\pi^+(2\beta^+)\pi^-$		1021.998	0.001	1021.9980	0.0010	0.0	1	100	100	π^-			88CoTa	
*π^+	Conventionally! This is M=139570.18(0.35) + m(e^-)												GAu	**
$H_{12}-C$		93900.391	0.012	93900.3849	0.0012	−0.5	U				WA1	1.0	95Va38	
		93900.3804	0.0084			0.5	U				MI1	1.0	95Di08	
		93900.3865	0.0017			−1.0	–				WA1	1.0	01Va33	
		93900.3860	0.0025			−0.4	–				ST2	1.0	02Be64	
	ave.	93900.386	0.001			−1.0	1	78	78	^1H			average	
D_6-C		84610.6616	0.0067	84610.6671	0.0021	0.8	–				WA1	1.0	95Va38	
		84610.6710	0.0054			−0.7	–				MI1	1.0	95Di08	
		84610.6656	0.0036			0.4	–				MI1	1.0	95Di08	
	ave.	84610.666	0.003			0.3	1	61	61	^2H			average	
H_2-D		1548.302	0.012	1548.2863	0.0004	−0.5	U				OH1	2.5	93Go37	
		1548.2836	0.0018			1.5	U				MI1	1.0	95Di08	
$^1H(n,\gamma)^2H$		2224.561	0.009	2224.5660	0.0004	0.6	U				Utr		82Va13	Z
		2224.549	0.009			1.9	U						82Vy10	Z
		2224.560	0.009			0.7	U						83Ad05	Z
		2224.5756	0.0022			−4.4	F				NBS		86Gr01	*
		2224.5727	0.0300			−0.2	U				PTB		97Ro26	*
		2224.5660	0.0004			0.0	1	100	100	1 n	NBS		99Ke05	*
		2224.58	0.05			−0.3	U				Bdn		03Fi.A	*
*$^1H(n,\gamma)^2H$	Original 2224.5890(0.0022) revised by ref.												90Wa22	**
*$^1H(n,\gamma)^2H$	Original error 0.0005 increased for calibration												GAu	**
*$^1H(n,\gamma)^2H$	More precisely, H+n−D=2388170.07(0.42) nu												99Ke05	**
*	corrected to 2388169.95(0.42) nu												99Mo39	**
*$^1H(n,\gamma)^2H$	All errors in 2003Fi.A increased 20 ppm for calibration												GAu	**
$^3H_4-C$		64197.0690	0.0062	64197.111	0.010	6.7	B				WA1	1.0	93Va04	*
		64197.1136	0.0116			−0.3	1	73	73	^3H	ST2	1.0	02Be64	
$^3He_4-C$		64117.2399	0.0039	64117.277	0.010	9.4	B				WA1	1.0	93Va04	
		64117.252	0.030			0.8	–				WA1	1.0	93Va04	*
		64117.294	0.030			−0.6	–				ST2	1.0	01Fr18	
	ave.	64117.273	0.021			0.2	1	24	24	^3He			average	
$D_2-H\ ^3H$		4329.257	0.003	4329.2460	0.0026	−2.5	U				B08	1.5	75Sm02	
$H\ D-{}^3He$		5897.512	0.005	5897.4908	0.0026	−2.8	o				B08	1.5	75Sm02	
		5897.495	0.006			−0.5	1	8	8	^3He	B09	1.5	81Sm02	
$^3H-{}^3He$		19.951	0.004	19.9585	0.0012	0.8	U					2.5	84Ni16	*
		19.967	0.002			−1.7	B					2.5	85Li02	
		19.948	0.003			1.4	U					2.5	85Ta.A	*
$^3H(\beta^-)^3He$		18.600	0.004	18.5912	0.0011	−2.2	U						87Bo07	*
		18.592	0.003			−0.3	–						91Ka41	*
		18.591	0.002			0.1	–						91Ro07	*
		18.593	0.003			−0.6	–						92Ho09	*
		18.591	0.003			0.1	–						93We03	
		18.597	0.014			−0.4	U						95Hi14	
		18.5895	0.0025			0.7	–						95St26	
	ave.	18.591	0.001			0.1	1	95	68	^3He			average	
*$^3H_4-C$	Item preliminarily disregarded												AHW	**
*$^3He_4-C$	Original changed after discussion with authors												AHW	**
*$^3He_4-C$	Original error 0.011 replaced												AHW	**
*$^3H-{}^3He$	Atom mass difference=ion mass difference 18.573 + 0.011												AHW	**
*	required correction cannot be estimated												85Au07	**
*$^3H-{}^3He$	Same authors as ref.												84Ni16	**
*$^3H(\beta^-)^3He$	Result 18604(6) is included in 1987Bo07												85Bo34	**
*$^3H(\beta^-)^3He$	E^-=18.5721(0.0030), SFS and recoil as in ref.												88Ka32	**
*$^3H(\beta^-)^3He$	E^-=18.5705(0.0020), SFS and recoil as in ref.												89St05	**
*$^3H(\beta^-)^3He$	E^-=18.5733(0.0002+syst), SFS and recoil as in ref.												88Ka32	**

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	*F*	Reference	
^{4}He$_{3}-$C	7809.7493	0.0030	7809.76246	0.00019	4.4	o			WA1	1.0	95Va38	
	7809.7704	0.0039			−2.0	U			ST2	1.0	01Fr18	
	7809.7620	0.0003			1.5	o			WA1	1.0	01Va.A	
	7809.7467	0.0066			1.0	U			MZ2	2.5	01Br27	
	7809.76246	0.00019			0.0	1	100	100 ^{4}He	WA1	1.0	03Va.1	
D$_{2}-^{4}$He	25600.331	0.005	25600.3015	0.0007	−2.4	o			MZ1	2.5	90Ge12	∗
	25600.328	0.005			−2.1	B			MZ1	2.5	92Ke06	∗
^{4}H(γ,n)^{3}H	2900	500	2880	100	0.0	U					69Mi10	∗
	2700	600			0.3	U					81Se11	
	2600	200			1.4	2					85Fr01	∗
	3500	500			−1.2	U					86Be35	∗
	2600	400			0.7	U					86Mi14	∗
	3000	200			−0.6	2					87Go25	∗
	3800	300			−3.1	2					90Am04	∗
	3100	300			−0.7	2					91Bl05	∗
	2300	300			1.9	2					95Al31	
	2670	310			0.7	2					03Me11	
^{4}Li(p)^{3}He	3300	300	3100	210	−0.7	2					87Br.B	
∗D$_{2}-^{4}$He	Error has to be confirmed										GAu	∗∗
∗^{4}H(γ,n)^{3}H	Found in ^{7}Li(π^{-},t)^{4}H										69Mi10	∗∗
∗^{4}H(γ,n)^{3}H	From ^{7}Li(^{3}He,^{3}He ^{3}He)^{4}H										85Fr01	∗∗
∗^{4}H(γ,n)^{3}H	From ^{9}Be(^{11}B,^{16}O)^{4}H										86Be35	∗∗
∗^{4}H(γ,n)^{3}H	From ^{7}Li(n,α)^{4}H										86Mi14	∗∗
∗^{4}H(γ,n)^{3}H	Found in ^{9}Be(π^{-},dt)^{4}H, same data in ref.										91Go19	∗∗
∗^{4}H(γ,n)^{3}H	Found in ^{7}Li(π^{-},t)^{4}H										90Am04	∗∗
∗^{4}H(γ,n)^{3}H	Found in ^{2}D(t,n)^{4}H										91Bl05	∗∗
^{5}H(γ,2n)^{3}H	7400	700	1800	100	−8.0	F					87Go25	∗
	5200	400			−8.5	F					95Al31	∗
	1700	300			0.3	U					01Ko52	∗
	1800	100				2					03Go11	∗
^{4}He(n,γ)^{5}He	−890	50				2					66La04	∗
^{4}He(p,γ)^{5}Li	−1965	50				2					65Ma32	∗
∗^{5}H(γ,2n)^{3}H	From ^{9}Be(π^{-},pt)^{5}H, same data in ref.										91Go19	∗∗
∗^{5}H(γ,2n)^{3}H	Probably higher state										01Ko52	∗∗
∗^{5}H(γ,2n)^{3}H	From ^{7}Li(^{6}Li,^{8}B)										95Al31	∗∗
∗^{5}H(γ,2n)^{3}H	Probably higher state										01Ko52	∗∗
∗^{5}H(γ,2n)^{3}H	From p(^{6}He,^{2}He)										01Ko52	∗∗
∗^{5}H(γ,2n)^{3}H	From t(t,p)										03Go11	∗∗
∗^{4}He(n,γ)^{5}He	Average of many reactions leading to ^{5}He										AHW	∗∗
∗^{4}He(p,γ)^{5}Li	Average of many reactions leading to ^{5}Li										AHW	∗∗
^{6}Li$_{2}-$C	30245.590	0.032	30245.59	0.03	0.0	1	100	100 ^{6}Li	1.0	1.0	01He36	
^{6}H(γ,3n)^{3}H	2700	400	2700	260	0.0	2					84Al08	∗
	2600	500			0.2	2					86Be35	∗
	2800	500			−0.2	2					92Al.A	∗
^{6}Li(p,α)^{3}He	4018.2	1.1	4019.633	0.015	1.3	U			MIT		81Ro02	
^{6}Li(p,t)^{4}Li	−18700	300	−18900	210	−0.7	R			Brk		65Ce02	
^{6}Li(p,n)^{6}Be	−5074	13	−5071	5	0.3	2			CIT		67Ho01	
^{6}Li(^{3}He,t)^{6}Be	−4306	6	−4307	5	−0.1	2			CIT		66Wh01	
∗^{6}H(γ,3n)^{3}H	From ^{7}Li(^{7}Li,^{8}B)^{6}H										84Al08	∗∗
∗^{6}H(γ,3n)^{3}H	From ^{9}Be(^{11}B,^{14}O)^{6}H										86Be35	∗∗
∗	^{6}H not observed in ^{6}Li(π^{-},π^{+})										87Se.A	∗∗
∗^{6}H(γ,3n)^{3}H	From ^{7}Li(^{7}Li,^{8}B)^{6}H										92Al.A	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{3}He(α,γ)^{7}Be		1586.3	0.6	1586.10	0.11	−0.3	U					82Kr05	
^{7}He(γ,n)^{6}He		430	20	435	17	0.2	3					02Me07	
^{7}Li(d,^{3}He)^{6}He−^{19}F()^{18}O		−1981.09	0.42	−1981.1	0.4	0.0	1	100	100 ^{6}He	MSU		78Ro01	∗
^{6}Li(n,γ)^{7}Li		7249.98	0.09	7249.97	0.08	−0.1	–			Ptn		85Ko47	Z
		7249.94	0.15			0.2	–			Bdn		03Fi.A	
	ave.	7249.97	0.08			0.0	1	100	100 ^{7}Li			average	
^{7}Li(t,^{3}He)^{7}He		−11184	30	−11174	17	0.3	R			LAl		69St02	
^{7}Li(p,n)^{7}Be		−1644.30	0.10	−1644.24	0.07	0.6	–			Mar		70Ro07	∗
		−1644.18	0.10			−0.6	–			Auc		85Wh03	∗
	ave.	−1644.24	0.07			0.0	1	100	100 ^{7}Be			average	
^{7}Li(π^{+},π^{-})^{7}B		−11870	100	−11940	70	−0.7	R					81Se.A	
∗^{7}Li(d,^{3}He)^{6}He−^{19}F()^{18}O	Q−Q=0.98(0.41) to 1982.07(0.09) level in ^{18}O											AHW	∗∗
∗^{7}Li(p,n)^{7}Be	T=1880.64(0.09,Z); error in Q increased											AHW	∗∗
∗^{7}Li(p,n)^{7}Be	T=1880.43(0.02,Z); error in Q increased											AHW	∗∗
^{4}He(^{64}Ni,^{60}Ni)^{8}He		−31818	15	−31800	7	1.2	–			Pri		75Ko18	
		−31796	8			−0.5	–			Tex		77Tr07	
	ave.	−31801	7			0.1	1	94	94 ^{8}He			average	
^{8}Be(α)^{4}He		91.88	0.05	91.84	0.04	−0.8	–			Zur		68Be02	∗
		91.80	0.05			0.8	–					92Wu09	∗
	ave.	91.84	0.04			0.0	1	100	100 ^{8}Be			average	
^{6}Li(^{3}He,n)^{8}B		−1974.8	1.0	−1974.8	1.0	0.0	1	100	100 ^{8}B	Nvl		58Du78	Y
^{7}Li(n,γ)^{8}Li		2032.78	0.15	2032.61	0.05	−1.1	–					74Ju.A	∗
		2032.77	0.18			−0.9	–			ORn		91Ly01	Z
		2032.57	0.06			0.7	–			Bdn		03Fi.A	
	ave.	2032.61	0.05			0.0	1	100	100 ^{8}Li			average	
∗^{8}Be(α)^{4}He	For atomic binding energy correction see ref.											67St30	∗∗
∗^{7}Li(n,γ)^{8}Li	PrvCom to ref.											74Aj01	∗∗
^{9}Be(p,α)^{6}Li		2125.4	1.8	2124.9	0.4	−0.3	U			NDm		67Od01	
^{6}Li(α,p)^{9}Be		−2125.6	1.2	−2124.9	0.4	0.6	1	11	11 ^{9}Be	NDm		65Br28	
^{7}Li(t,p)^{9}Li		−2385.7	3.0	−2385.3	1.9	0.1	1	42	42 ^{9}Li	MSU		75Ka18	
^{7}Be(^{3}He,n)^{9}C		−6287	5	−6280.6	2.1	1.3	3			CIT		67Ba.A	Z
		−6275.2	3.5			−1.5	3			CIT		71Mo01	Z
^{9}He(γ,n)^{8}He		1270	30	1270	29	0.0	1	92	91 ^{9}He	Ber		99Bo26	
^{9}Be(γ,n)^{8}Be		−1665	1	−1665.3	0.4	−0.3	–			Wis		50Mo56	Y
^{9}Be(p,d)^{8}Be		557.5	1.	559.2	0.4	1.7	–			Wis		51Wi26	Y
		560	2			−0.4	U			Bir		53Co02	Y
		559.0	1.1			0.2	–			Zur		66Re02	
		559.6	0.6			−0.6	–			NDm		67Od01	Z
^{9}Be(γ,n)^{8}Be	ave.	−1665.4	0.4	−1665.3	0.4	0.2	1	88	88 ^{9}Be			average	
^{9}Be(π^{-},π^{+})^{9}He		−30472	100	−30614	29	−1.4	U					87Se05	
^{9}Be(^{14}C,^{14}O)^{9}He		−34580	100	−34579	29	0.0	1	9	9 ^{9}He	Ber		95Bo.B	
^{9}Be(p,n)^{9}B		−1850.4	1.0				2			Wis		50Ri59	Z
^{10}B ^{37}Cl−C ^{35}Cl		9987.21	0.56	9986.9	0.4	−0.2	U			H38	2.5	84El05	
^{10}B(^{3}He,^{6}He)^{7}B		−18550	100	−18480	70	0.7	2			Brk		67Mc14	
^{10}He(γ,2n)^{8}He		1200	300	1070	70	−0.4	U					94Ko16	
^{10}Li(γ,n)^{9}Li		150	150	25	15	−0.8	U					90Am05	∗
		25	15				2					95Zi03	∗
^{10}Li^{m}(γ,n)^{9}Li		240	60	220	40	−0.3	2					97Bo10	∗
		210	50			0.2	2					97Zi04	∗
^{9}Be(^{9}Be,^{8}B)^{10}Li^{n}		−33770	260	−33750	40	0.1	U			Brk		75Wi26	∗
^{9}Be(^{13}C,^{12}N)^{10}Li^{n}		−36370	50	−36390	40	−0.5	2			Ber		93Bo03	∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{10}Be(d,^{3}He)^{9}Li		−14142.8	2.5	−14143.1	1.9	−0.1	1	59	58 ^{9}Li	MSU		75Ka18	
^{9}Be(n,γ)^{10}Be		6812.33	0.06	6812.29	0.06	−0.6	–			MMn		86Ke14	Z
		6812.10	0.14			1.4	–			Bdn		03Fi.A	
	ave.	6812.29	0.06			0.0	1	100	99 ^{10}Be			average	
^{10}Be(^{14}C,^{14}O)^{10}He		−41190	70				2			Ber		94Os04	
^{10}B(p,n)^{10}C		−4430.17	0.09	−4430.30	0.12	−1.5	o			Auc		89Ba28	Z
		−4430.30	0.12				2			Auc		98Ba83	
^{10}B(^{14}N,^{14}B)^{10}N		−47550	400				2					02Le16	
∗^{10}Li(γ,n)^{9}Li	From ^{11}B(π^-,p)^{10}Li											GAu	∗∗
∗^{10}Li(γ,n)^{9}Li	Resonance less than 50 above the one neutron threshold, but											95Zi03	∗∗
∗	could also be final state interaction; then ^{10}Li would be 200 higher											97Bo10	∗∗
∗^{10}Li^{m}(γ,n)^{9}Li	From ^{10}Be(^{12}C,^{12}N)^{10}Li^{m} (1^+ level)											GAu	∗∗
∗^{10}Li^{m}(γ,n)^{9}Li	Theoretical work: 1^+ level above 1- gs											02Ga12	∗∗
∗^{9}Be(^{9}Be,^{8}B)^{10}Li^{n}	Q=–34060(250) to 2^+ level 290(80) above 1^+ level											93Bo03	∗∗
∗	Revised with Breit−Wigner line shape. Probably 2^+ level											97Bo10	∗∗
∗^{9}Be(^{13}C,^{12}N)^{10}Li^{n}	Revised with Breit−Wigner line shape (probably 2^+ level)											97Bo10	∗∗
^{11}Li−C$_{.917}$		43780	130	43798	21	0.1	U			TO2	1.5	88Wo09	
		43805	28			−0.3	1	55	55 ^{11}Li	P40	1.0	03Ba.A	
^{9}Li−^{11}Li$_{.273}$ ^{8}Li$_{.750}$		−1923	31	−1894	6	1.0	U			P13	1.0	75Th08	
^{9}Be(t,p)^{11}Be		−1164	15	−1166	6	−0.1	R			Ald		62Pu01	
^{11}B(d,α)^{9}Be		8029	4	8031.1	0.6	0.5	U			Bir		54El10	Y
		8024	7			1.0	U			MIT		64Sp12	
		8029.7	2.8			0.5	U			NDm		67Od01	
^{9}Be(^{3}He,p)^{11}B		10322.1	2.3	10322.0	0.6	−0.1	U			NDm		67Od01	
^{10}Be(d,p)^{11}Be		−1721	7	−1721	6	0.1	2			CIT		70Go11	
^{11}B(^{7}Li,^{8}B)^{10}Li		−32431	80	−32396	15	0.4	U			MSU		94Yo01	∗
^{11}B(^{7}Li,^{8}B)^{10}Li^{n}		−32908	62	−32870	40	0.6	R			MSU		94Yo01	
^{10}B(n,γ)^{11}B		11454.1	0.2	11454.12	0.16	0.1	–			Ptn		86Ko19	Z
		11454.15	0.27			−0.1	–			Bdn		03Fi.A	
	ave.	11454.12	0.16			0.0	1	100	100 ^{11}B			average	
^{11}N(p)^{10}C		1973	180	1320	50	−3.7	U			MSU		74Be20	∗
		1300	40			0.4	o			Lis		96Ax01	
		1450	400			−0.3	U			MSU		98Az01	∗
		1630	50			−6.3	B			Spe		00Ol01	∗
		1350	120			−0.3	3			Lis		00Ma62	∗
		1310	50			0.1	3			INS		03Gu06	
^{11}B(π^-,π^+)^{11}Li		−33120	50	−33151	19	−0.6	–					91Ko.B	
^{11}B(^{14}C,^{14}O)^{11}Li		−37120	35	−37117	19	0.1	–			MSU		93Yo07	
^{11}B(π^-,π^+)^{11}Li	ave.	−33143	29	−33151	19	−0.3	1	45	45 ^{11}Li			average	
^{11}C(β^+)^{11}B		1982.8	2.6	1982.4	0.9	−0.1	–					75Be28	
^{11}B(p,n)^{11}C		−2759.7	3.	−2764.8	0.9	−1.7	U			Wis		50Ri59	Z
		−2763.2	1.4			−1.1	–			Ric		61Be13	Z
^{11}B(^{3}He,t)^{11}C		−2002.1	1.2	−2001.0	0.9	0.9	–			Str		65Go05	Z
^{11}C(β^+)^{11}B	ave.	1982.4	0.9	1982.4	0.9	0.0	1	100	100 ^{11}C			average	
∗^{11}B(^{7}Li,^{8}B)^{10}Li	Original (>–32471) re-evaluated											GAu	∗∗
∗	Existence of this level not completely certain											94Yo01	∗∗
∗^{11}N(p)^{10}C	From ^{14}N(^{3}He,^{6}He)^{11}N Q=–25010(100) to 250(150) level											90Aj01	∗∗
∗^{11}N(p)^{10}C	From ^{9}Be(^{12}N,^{10}Be)^{11}N											98Az01	∗∗
∗^{11}N(p)^{10}C	From ^{10}B(^{14}N,^{13}B)^{11}N											00Ol01	∗∗
∗^{11}N(p)^{10}C	From scattering ^{10}C on H. precicely, 1270(+180,-50)											00Ma62	∗∗
^{12}C(α,^{8}He)^{8}C		−64278	26	−64267	24	0.4	2			Tex		76Tr01	
^{12}C(^{3}He,^{6}He)^{9}C		−31578	8	−31574.4	2.3	0.5	U			MSU		71Tr03	
		−31575.6	3.2			0.4	R			MSU		79Ka.A	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{10}Be(t,p)^{12}Be		−4809	15				2			Brk		78Al29	
^{10}B(α,d)^{12}C		1340.3	0.8	1339.9	0.4	−0.5	–			Wis		56Do41	Z
^{10}B(^{3}He,p)^{12}C		19692.86	0.44	19693.0	0.4	0.3	–			Mun		83Ch08	∗
^{10}B(α,d)^{12}C	ave.	1339.9	0.4	1339.9	0.4	0.0	1	100	100 ^{10}B			average	
^{12}O(2p)^{10}C		1770	20	1771	18	0.1	3					95Kr03	
^{12}C(π^{+},π^{-})^{12}O		−31034	48	−31026	18	0.2	R					80Bu15	
∗^{10}B(^{3}He,p)^{12}C	Original Q=15305.45(0.3) revised by authors to 15253.95(31)											83Vo.A	∗∗
∗	to 4438.91(0.31) level											90Aj01	∗∗
C H−^{13}C		4470.185	0.008	4470.1943	0.0010	0.8	U			B08	1.5	75Sm02	
C D−^{13}C H		2921.923	0.008	2921.9080	0.0009	−1.3	U			B08	1.5	75Sm02	
		2921.9086	0.0012			−0.5	1	58	58 ^{13}C	MI1	1.0	95Di08	
		2921.9074	0.0015			0.4	1	37	37 ^{13}C	MI1	1.0	95Di08	
^{13}C−C$_{1.083}$		3354.8404	0.0041	3354.8378	0.0010	−0.6	1	6	6 ^{13}C	WA1	1.0	95Va38	
^{11}B(t,p)^{13}B		−233.4	1.0				2			Str		83An15	
^{13}Be(γ,n)^{12}Be		100	70				3					01Th01	
^{12}C(n,γ)^{13}C		4946.31	0.10	4946.3058	0.0009	0.0	U			Bdn		03Fi.A	
^{12}C(p,γ)^{13}N		1943.24	0.32	1943.49	0.27	0.8	–					77Fr20	Z
		1944.1	0.5			−1.2	–					77He26	Z
	ave.	1943.49	0.27			0.0	1	100	100 ^{13}N			average	
^{13}C(^{14}C,^{14}O)^{13}Be^{q}		−37020	50				2			Ber		92Os04	
^{14}Be−C$_{1.167}$		42660	150	42890	140	1.0	2			TO2	1.5	88Wo09	
C D$_2$−^{14}C H$_2$		9311.498	0.006	9311.503	0.004	0.5	1	20	20 ^{14}C	B08	1.5	75Sm02	
C H$_2$−N		12576.0598	0.0008	12576.0594	0.0006	−0.5	1	59	56 ^{14}N	MI1	1.0	95Di08	
^{14}N−C$_{1.167}$		3074.0056	0.0018	3074.0048	0.0006	−0.5	1	12	12 ^{14}N	WA1	1.0	95Va38	
^{14}C H$_2$−N D		1716.269	0.003	1716.270	0.004	0.3	1	80	80 ^{14}C	B08	1.5	75Sm02	
^{14}N(^{3}He,^{9}Li)^{8}C		−42214	50	−42254	23	−0.8	R			MSU		76Ro04	
^{14}C(d,α)^{12}B		361.8	1.4				2			Wis		56Do41	Z
^{14}N(p,t)^{12}N		−22135.5	1.0	−22135.5	1.0	0.0	1	100	100 ^{12}N	MSU		75No.A	
^{14}C(^{11}B,^{12}N)^{13}Be^{p}		−39600	90				2			Dbn		98Be28	
^{13}C(n,γ)^{14}C		8176.61	0.24	8176.435	0.004	−0.7	U			Bdn		03Fi.A	
^{14}C(π^{-},π^{+})^{14}Be		−38100	170	−37960	130	0.8	R					84Gi09	∗
^{14}C(^{14}C,^{14}O)^{14}Be^{p}		−43440	60				2			Ber		95Bo10	
^{14}C(^{7}Li,^{7}Be)^{14}B		−21499	30	−21506	21	−0.2	–			ChR		73Ba34	
^{14}C(^{14}C,^{14}N)^{14}B		−20494	30	−20487	21	0.2	–			Ors		81Na.A	
^{14}C(^{7}Li,^{7}Be)^{14}B	ave.	−21506	21	−21506	21	0.0	1	100	100 ^{14}B			average	
^{14}C(β^{-})^{14}N		155.74	0.08	156.476	0.004	9.2	B					91Su09	∗
		155.95	0.22			2.4	U					95Wi20	
^{14}N(p,n)^{14}O		−5925.41	0.08	−5926.29	0.11	−10.9	F			Auc		81Wh03	
		−5925.41	0.11			−8.0	F			Auc		98Ba83	∗
		−5926.68	0.14			2.3	1	42	42 ^{14}O	Auc		03To03	
∗^{14}C(π^{-},π^{+})^{14}Be	Original error 160 increased with 60 calibration uncertainty											GAu	∗∗
∗^{14}C(β^{-})^{14}N	B: find 17 keV neutrino. See also ref.											91No07	∗∗
∗^{14}N(p,n)^{14}O	Withdrawn by authors											03To03	∗∗
C D H−^{15}N		21817.9119	0.0008	21817.9117	0.0007	−0.3	1	70	67 ^{15}N	MI1	1.0	95Di08	
C H$_3$−^{15}N		23366.1979	0.0017	23366.1980	0.0007	0.1	1	19	18 ^{15}N	MI1	1.0	95Di08	
^{15}F−C$_{1.25}$		17477	86	18010	140	6.2	C			1.0	1.0	01Ze.A	
^{14}N D−^{15}N H		9241.780	0.008	9241.8523	0.0009	6.0	F			B08	1.5	75Sm02	
^{14}C(d,p)^{15}C		−1006.5	0.8				2			Wis		56Do41	Y
^{14}N(n,γ)^{15}N		10833.314	0.012	10833.2961	0.0009	−1.5	U					97Ju02	
		10833.2339	0.0300			2.1	U			PTB		97Ro26	∗
		10833.32	0.22			−0.1	U			Bdn		03Fi.A	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{14}N(p,γ)^{15}O		7297.1	0.9	7296.8	0.5	−0.4	R			CIT		72Ne05	
^{15}N(p,n)^{15}O		−3535.1	1.0	−3536.5	0.5	−1.4	–			CIT		72Je02	Z
		−3537.6	0.8			1.4	–					72Sh08	Z
	ave.	−3536.5	0.5			0.0	1	100	100 ^{15}O			average	
$*^{14}$N(n,γ)^{15}N		Original error 0.0005 increased for calibration										GAu	**
C_4-O_3		15256.121	0.009	15256.1413	0.0005	2.3	U			WA1	1.0	95Va38	
		15256.1425	0.0008			−1.5	o			WA1	1.0	01Va33	
		15256.1415	0.0005			−0.4	1	97	97 ^{16}O	WA1	1.0	03Va.A	
$C\,H_4-O$		36385.5062	0.0013	36385.5087	0.0004	1.9	–			MI1	1.0	95Di08	
		36385.5073	0.0019			0.8	–			MI1	1.0	95Di08	
		36385.5060	0.0022			1.2	–			MI1	1.0	95Di08	
	ave.	36385.506	0.001			2.4	1	20	18 ^{1}H			average	
$^{14}C\,H_2-O$		23977.413	0.014	23977.433	0.004	1.0	U			B08	1.5	75Sm02	
$N_2-C\,O$		11233.3909	0.0022	11233.3900	0.0012	−0.4	1	32	32 ^{14}N	MI1	1.0	95Di08	
^{16}O(α,^{8}He)^{12}O		−66020	120	−65958	20	0.5	U			Brk		78Ke06	
^{16}O(^{3}He,^{6}He)^{13}O		−30516	14	−30513	10	0.2	2			Brk		70Me11	*
		−30511	13			−0.2	2			MSU		71Tr03	*
^{14}C(^{14}C,^{12}N)^{16}B		−48380	60				2			Ber		95Bo10	
^{14}C(t,p)^{16}C		−3015	8	−3013	4	0.2	2			MSU		77Fo09	
		−3013	4			−0.1	2			LAl		78Se04	
^{14}C(^{3}He,p)^{16}N		4983	4	4978.5	2.6	−1.1	R			BNL		66Ga08	
^{14}N(^{3}He,n)^{16}F		−970	15	−957	8	0.9	R			Har		68Ad03	
^{15}N(d,p)^{16}N		286	12	264.5	2.6	−1.8	U			CIT		55Pa50	Y
		269	10			−0.4	U			Pit		57Wa01	Y
		267	8			−0.3	U			MIT		64Sp12	
		270	10			−0.5	U			Pen		66He10	
^{16}O(^{3}He,t)^{16}F		−15430	10	−15436	8	−0.6	2			KVI		80Ja.A	
^{16}O(π^+,π^-)^{16}Ne		−27763	45	−27711	20	1.1	2					80Bu15	
$*^{16}$O(^{3}He,^{6}He)^{13}O		M increased by 7 for more recent calibrator M(^{9}C)=21913(2)										AHW	**
$*^{16}$O(^{3}He,^{6}He)^{13}O		Recalibrated using their ^{12}C(^{3}He,^{6}He) result										AHW	**
$^{17}B-C_{1.417}$		46830	180	46990	180	0.6	2			TO2	1.5	88Wo09	
		47127	250			−0.5	2			GA3	1.0	91Or01	
^{17}O(n,α)^{14}C		1817.2	3.5	1817.70	0.11	0.1	U					01Wa50	
^{16}O(n,γ)^{17}O		4143.24	0.23	4143.13	0.11	−0.5	–					77Mc05	Z
		4143.06	0.13			0.5	–			Bdn		03Fi.A	
^{16}O(d,p)^{17}O		1918.74	0.5	1918.56	0.11	−0.4	–			Rez		90Pi05	*
^{16}O(n,γ)^{17}O	ave.	4143.11	0.11	4143.13	0.11	0.1	1	100	100 ^{17}O			average	
^{16}O(p,γ)^{17}F		600.35	0.28	600.27	0.25	−0.3	–			CIT		75Ro05	
^{16}O(d,n)^{17}F		−1625.0	0.5	−1624.30	0.25	0.6	–			Nvl		60Bo21	Z
^{16}O(p,γ)^{17}F	ave.	600.27	0.25	600.27	0.25	0.0	1	100	100 ^{17}F			average	
$*^{16}$O(d,p)^{17}O		Estimated systematical error 0.5 added to statistical error 0.062										AHW	**
$^{18}Na-C_{1.5}$		25969	54				2			1.0	1.0	01Ze.A	
$^{18}Ne-^{22}Ne_{.818}$		12755.19	0.30				2			MA8	1.0	03Bl.A	
^{18}O(^{48}Ca,^{51}V)^{15}B		−21760	50	−21767	23	−0.1	2			Hei		78Bh02	
		−21768	25			0.1	2			Can		83Ho08	
^{18}O(d,α)^{16}N		4235	7	4245.6	2.7	1.5	R			CIT		55Pa50	Z
		4244	4			0.4	R			MIT		67Sp09	Z
^{16}O(^{3}He,n)^{18}Ne		−3205	13	−3194.27	0.28	0.8	U			Nvl		61Du02	Y
		−3198	6			0.6	U			Ald		61To03	Y
		−3194.0	1.5			−0.2	U					94Ma14	
^{18}O(^{48}Ca,^{49}Ti)^{17}C		−17465	35	−17476	18	−0.3	2			Hei		77No08	
		−17479	20			0.2	2			Can		82Fi10	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference
^{18}O(t,α)^{17}N		3872	15				2			LAl		60Ja13
^{17}O(n,γ)^{18}O		8043.5	1.0	8044.0	0.6	0.5	1	38	38 ^{18}O	Bdn		03Fi.A
^{17}O(p,γ)^{18}F		5606.2	0.6	5606.5	0.5	0.4	1	76	76 ^{18}F	CIT		75Ro05 Z
^{18}O(^{48}Ca,^{48}Ti)^{18}C		−21434	30				2			Can		82Fi10
^{18}O(^{7}Li,^{7}Be)^{18}N		−14761	20	−14758	19	0.2	2			Can		83Pu01
^{18}O(^{14}C,^{14}N)^{18}N		−13720	50	−13740	19	−0.4	2			Ors		80Na14
^{18}F(β^+)^{18}O		1657	2	1655.2	0.6	−0.9	–					64Ho28
^{18}O(p,n)^{18}F		−2436.97	0.73	−2437.6	0.6	−0.8	–			Nvl		64Bo13 Z
^{18}F(β^+)^{18}O	ave.	1654.9	0.7	1655.2	0.6	0.5	1	69	45 ^{18}O			average
^{18}Ne(β^+)^{18}F		4438	9	4443.5	0.6	0.6	U					63Fr10
^{19}C−C$_{1.583}$		35180	130	34810	110	−1.9	B			TO2	1.5	88Wo09
		35506	253			−2.8	B			GA3	1.0	91Or01
C D$_4$−H ^{19}F		50178.88	0.05	50178.85	0.07	−0.3	1	99	99 ^{19}F	B08	1.5	75Sm02
^{19}Mg−C$_{1.583}$		35470	270				2			1.0	1.0	01Ze.A
^{19}Ne−^{22}Ne$_{.864}$		9323.95	0.36	9323.5	0.3	−1.2	1	73	73 ^{19}Ne	MA8	1.0	03Bl.A
^{17}O(t,p)^{19}O		3524	7	3517.2	2.8	−1.0	R			Man		65Mo19
^{18}C(n,γ)^{19}C		530	120	580	90	0.4	3					99Na27 *
		650	150			−0.5	3					01Ma08 *
^{18}O(^{18}O,^{17}F)^{19}N		−19374	50	−19377	16	−0.1	2			Ors		81Na.A
		−19334	35			−1.2	2			Can		89Ca25
^{18}O(^{48}Ca,^{47}Sc)^{19}N		−16540	20	−16526	17	0.7	2			Can		83Ho08
^{18}O(d,p)^{19}O		1727	8	1730.4	2.8	0.4	2			Nob		54Mi89 Y
		1732	8			−0.2	2			CIT		54Th30
		1731	5			−0.1	2			Nob		57Ah19 Y
		1727	5			0.7	2			MIT		64Sp12 Z
		1734	10			−0.4	U			Man		65Mo16
^{19}O(β^-)^{19}F		4800	12	4822.3	2.8	1.9	U					59Al06
^{19}F(p,n)^{19}Ne		−4019.6	1.4	−4021.17	0.29	−1.1	U			Ric		61Be13 Z
		−4021.1	1.0			−0.1	–			Zur		61Ry04 Z
		−4019.6	0.7			−2.3	–					69Ov01 Z
	ave.	−4020.1	0.5			−2.0	1	28	27 ^{19}Ne			average
*^{18}C(n,γ)^{19}C	From Coulomb dissociation cross sections and angular distribution											99Na27 **
*^{18}C(n,γ)^{19}C	From momentum distr. following 1-n removal											01Ma08 **
^{20}C−C$_{1.667}$		40360	240	40320	260	−0.1	2			TO2	1.5	88Wo09
		40165	491			0.3	2			GA3	1.0	91Or01
		40420	550			−0.2	2			GA5	1.0	99Sa.A
^{20}N−C$_{1.667}$		23210	150	23370	60	1.0	2			GA1	1.0	87Gi05
		23380	130			−0.1	2			TO2	1.5	88Wo09
		23397	69			−0.5	2			GA3	1.0	91Or01
C D$_4$−^{20}Ne		63966.9329	0.0026	63966.9360	0.0017	1.2	1	44	34 ^{20}Ne	MI1	1.0	95Di08
^{20}Ne−C$_{1.667}$		−7559.814	0.014	−7559.8246	0.0019	−0.8	U			ST2	1.0	02Bf02
O D$_2$−^{20}Ne		30677.497	0.067	30677.9998	0.0017	3.0	B			OH1	2.5	93Go38
^{20}Ne−^{22}Ne$_{.909}$		270.94	0.33	271.107	0.017	0.5	U			MA8	1.0	03Bl.A
^{20}Ne(^{3}He,^{8}Li)^{15}F		−29960	200	−29830	130	0.6	2			MSU		78Be26
		−29730	180			−0.6	2			Brk		78Ke06
^{20}Ne(α,^{8}He)^{16}Ne		−60150	80	−60212	22	−0.8	U			Brk		78Ke06
		−60197	23			−0.6	R			Tex		83Wo01
^{20}Ne(^{3}He,^{6}He)^{17}Ne		−26188	50	−26167	27	0.4	2			Brk		70Me11 *
		−26158	32			−0.3	2					98Gu10
^{18}O(^{48}Ca,^{46}Sc)^{20}N		−25873	60	−25000	60	14.5	B			Can		89Or03 *
^{18}O(t,p)^{20}O		3082.4	1.9	3081.9	0.9	−0.3	2			Str		82An12
		3081.7	1.0			0.2	2			Str		85An17
^{18}O(^{3}He,p)^{20}F		6875.2	1.5	6878.1	0.6	2.0	1	17	17 ^{18}O	NDm		70Ro06
^{19}F(n,γ)^{20}F		6601.29	0.14	6601.335	0.030	0.3	–			ILn		83Hu12 Z
		6601.32	0.05			0.3	–			MMn		87Ke09 Z
		6601.35	0.04			−0.4	–			ORn		96Ra04
		6601.34	0.13			0.0	–			Bdn		03Fi.A
	ave.	6601.336	0.030			0.0	1	100	100 ^{20}F			average

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{20}Ne(p,n)^{20}Na	−14672.1	7.				2					71Wi07	Z
∗^{20}Ne(^{3}He,^{6}He)^{17}Ne	Orig. M=16479(50) but revised calibrator M(^{9}C)=28910.2(2.1)										AHW	∗∗
∗^{18}O(^{48}Ca,^{46}Sc)^{20}N	Probably to excited levels in ^{20}N and ^{46}Sc										GAu	∗∗
^{21}N−C$_{1.75}$	27060	190	27110	100	0.3	2			GA1	1.0	87Gi05	
	26930	210			0.6	2			TO2	1.5	88Wo09	
	27162	131			−0.4	2			GA3	1.0	91Or01	
^{21}Ne−^{22}Ne$_{.955}$	2073.85	0.39	2073.90	0.05	0.1	U			MA8	1.0	03Bl.A	
^{18}O(^{18}O,^{15}O)^{21}O	−12499	20	−12482	12	0.9	2			Can		89Ca25	
^{18}O(^{64}Ni,^{61}Ni)^{21}O	−11713	15	−11723	12	−0.7	2			Dar		85Wo01	
^{19}F(t,p)^{21}F	6221.0	1.8				2			Str		84An17	
^{20}Ne(n,γ)^{21}Ne	6761.16	0.04	6761.16	0.04	0.1	2			MMn		86Pr05	Z
	6761.19	0.14			−0.2	2			Bdn		03Fi.A	
^{20}Ne(p,γ)^{21}Na	2431.2	0.7				2					69Bl03	Z
^{22}N−C$_{1.833}$	34340	250	34390	210	0.1	2			TO2	1.5	88Wo09	
	34683	389			−0.7	2			GA3	1.0	91Or01	
	34240	320			0.5	2			GA5	1.0	99Sa.A	
^{22}O−C$_{1.833}$	9842	81	9970	60	1.5	R			GA3	1.0	91Or01	
^{22}Ne−C$_{1.833}$	−8614.885	0.019	−8614.886	0.019	−0.1	1	100	100 ^{22}Ne	ST2	1.0	02Bf02	
^{22}Ne−^{20}Ne	−1056.415	0.290	−1055.061	0.019	1.9	U			OH1	2.5	93Go38	
^{18}O(^{18}O,^{14}O)^{22}O	−19060	100	−18850	60	2.1	2			Can		76Hi10	
^{18}O(^{208}Pb,^{204}Pb)^{22}O	−6710	180	−6700	60	0.0	2			ChR		79Ba31	
^{21}Ne(n,γ)^{22}Ne	10364.4	0.3	10364.26	0.04	−0.5	U			MMn		86Pr05	Z
	10363.9	0.5			0.7	U			Bdn		03Fi.A	
^{21}Ne(p,γ)^{22}Na	6738.3	1.1	6739.6	0.4	1.2	R					70An06	∗
^{22}Ne(t,^{3}He)^{22}F	−10788	33	−10800	12	−0.3	2					69St07	∗
	−10794	18			−0.3	2			Dar		88Cl04	∗
^{22}Ne(^{7}Li,^{7}Be)^{22}F	−11691	20	−11680	12	0.6	2			Can		89Or04	∗
^{22}Na(β^+)^{22}Ne	2842.2	0.5	2842.3	0.4	0.2	2					68Be35	
	2840.4	1.5			1.3	U					68We02	
	2841.5	1.0			0.8	2					72Gi17	
∗^{21}Ne(p,γ)^{22}Na	T=701.8(0.5) to 7407.9(1.0) level										70An06	∗∗
∗^{21}Ne(p,γ)^{22}Na	Reanalysis using E(exc) for lower levels of ref.										90Endt	∗∗
∗^{22}Ne(t,^{3}He)^{22}F	Original value –10834(30) re-calculated										GAu	∗∗
∗	from Q to 709.0, 1627.0 and 2571.6 levels										90Endt	∗∗
∗^{22}Ne(t,^{3}He)^{22}F	Original value –10836(12) re-calculated										GAu	∗∗
∗^{22}Ne(^{7}Li,^{7}Be)^{22}F	Q=–12400(20) to 709.0 level										GAu	∗∗
^{23}N−C$_{1.917}$	37110	2000	41220#	320#	2.1	D			GA5	1.0	99Sa.A	∗
^{23}O−C$_{1.917}$	15860	320	15690	130	−0.5	2			GA1	1.0	87Gi05	
	15700	150			−0.1	2			TO2	1.5	88Wo09	
	15621	186			0.4	2			GA3	1.0	91Or01	
^{23}Na−C$_{1.917}$	−10230.721	0.0037	−10230.7191	0.0029	0.5	–			MI2	1.0	99Br47	
	−10230.716	0.0048			−0.7	–			MI2	1.0	99Br47	
	−10229	9			−0.2	U			P40	1.0	03Ga.A	
ave.	−10230.719	0.003			0.0	1	100	100 ^{23}Na			average	
^{23}Ne−^{22}Ne$_{1.045}$	3469.58	0.37	3469.46	0.11	−0.3	U			MA8	1.0	03Bl.A	
^{22}Ne(^{18}O,^{17}F)^{23}F	−14080	90	−14090	80	−0.1	2			Can		89Or04	
^{22}Ne(n,γ)^{23}Ne	5200.65	0.12	5200.65	0.10	0.0	2			MMn		86Pr05	Z
	5200.64	0.20			0.0	2			Bdn		03Fi.A	
^{22}Ne(p,γ)^{23}Na	8794.26	0.17	8794.109	0.018	−0.9	U					89Ba42	Z
^{23}F(β^-)^{23}Ne	8510	170	8480	80	−0.2	R					74Go17	
^{23}Na(p,n)^{23}Mg	−4836.5	6.	−4838.4	1.3	−0.3	U			Ric		58Bi41	Y
	−4848.0	7.			1.4	U			ChR		58Go77	Y
	−4835.8	2.5			−1.1	1	26	26 ^{23}Mg	Har		62Fr09	Z
	−4843.2	5.1			0.9	U			Tkm		63Ok01	Z
∗^{23}N−C$_{1.917}$	Systematical trends suggest ^{23}N 3800 less bound										CTh	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference
^{24}O$-$C$_2$		20000	500	20470	250	0.6	2			TO2	1.5	88Wo09
		20659	442			$-$0.4	2			GA3	1.0	91Or01
		20460	340			0.0	2			GA5	1.0	99Sa.A
^{24}F$-$C$_2$		8135	86	8120	80	$-$0.2	2			GA3	1.0	91Or01
		8030	120			0.5	2			TO4	1.5	91Zh24
^{24}Mg$-$C$_2$		$-$14958.310	0.014	$-$14958.300	0.014	0.7	1	96	96 ^{24}Mg	ST2	1.0	03Be02
		$-$14962	8			0.5	U			P40	1.0	03Ga.A
^{24}Ne$-^{22}$Ne$_{1.091}$		3009.62	0.42				2			MA8	1.0	03Bl.A
^{24}Mg(^{3}He,^{8}Li)^{19}Na		$-$32876	12				2			MSU		75Be38
^{24}Mg(α,^{8}He)^{20}Mg		$-$60677	27				2			Tex		76Tr03
^{24}Mg(^{3}He,^{6}He)^{21}Mg		$-$27488	40	$-$27508	16	$-$0.5	2			Brk		70Me11
		$-$27512	18			0.2	2			MSU		71Tr03
^{22}Ne(t,p)^{24}Ne		5587	10	5587.6	0.4	0.1	U			LAl		61Si03 Z
^{24}Mg(p,t)^{22}Mg		$-$21194	3	$-$21197.4	1.3	$-$1.1	2			MSU		74Ha02
		$-$21198.3	1.5			0.6	2			MSU		74No07
^{23}Na(n,γ)^{24}Na		6959.50	0.12	6959.58	0.08	0.6	2			BNn		74Gr37 Z
		6959.67	0.14			$-$0.7	2			ILn		83Hu11 Z
		6959.38	0.08			2.5	B			Ptn		83Ti02
		6959.59	0.14			$-$0.1	2			Bdn		03Fi.A
^{23}Na(p,γ)^{24}Mg		11692.95	0.17	11692.684	0.013	$-$1.6	U			Wis		67Mo17Z
		11692.43	0.31			0.8	U					85Uh01 Z
^{24}Mg(p,d)^{23}Mg		$-$14307.5	1.5	$-$14306.6	1.3	0.6	1	74	74 ^{23}Mg	MSU		74No07
^{24}Mg(^{7}Li,^{8}He)^{23}Al		$-$37397	27	$-$37393	20	0.1	R					01Ca37
^{24}Na(β^-)^{24}Mg		5511.5	1.0	5515.45	0.08	4.0	B					69Bo48
^{24}Mg(p,n)^{24}Al		$-$14660.0	2.9				2			Yal		69Ov01 Z
^{24}Mg(π^+,π^-)^{24}Si		$-$23588	52	$-$23666	19	$-$1.5	2					80Bu15
^{25}F$-$C$_{2.083}$		12210	150	12100	110	$-$0.5	2			TO2	1.5	88Wo09
		12120	151			$-$0.1	2			GA3	1.0	91Or01
		11990	130			0.6	2			TO4	1.5	91Zh24
^{25}Ne$-$C$_{2.083}$		$-$2293	32	$-$2263	28	0.9	2			P40	1.0	01Lu20
^{25}Mg$-$C$_{2.083}$		$-$14165	10	$-$14163.08	0.03	0.2	U			P40	1.0	03Ga.A
^{23}Na(t,p)^{25}Na		7488.8	1.2				2			Str		84An17
^{24}Mg(n,γ)^{25}Mg		7330.64	0.08	7330.58	0.03	$-$0.8	–			MMn		90Pr02 Z
		7330.69	0.05			$-$2.3	–			ORn		92Wa06
		7330.53	0.15			0.3	–			Bdn		03Fi.A
	ave.	7330.67	0.04			$-$2.2	1	60	56 ^{25}Mg			average
^{24}Mg(p,γ)^{25}Al		2271.6	1.1	2271.6	0.5	0.0	2					71Ev01 Z
		2271.7	0.7			$-$0.2	2					72Pi07 Z
		2271.4	0.8			0.2	2					85Uh01 Z
^{26}F$-$C$_{2.167}$		19820	210	19620	180	$-$0.6	2			TO2	1.5	88Wo09
		19544	300			0.2	2			GA3	1.0	91Or01
		19490	210			0.4	2			TO4	1.5	91Zh24
^{26}Ne$-$C$_{2.167}$		448	90	461	29	0.1	2			GA3	1.0	91Or01
		461	33			0.0	2			P40	1.0	01Lu20
^{26}Na$-$C$_{2.167}$		$-$7367	7	$-$7367	6	0.0	2			P40	1.0	01Lu17
		$-$7367	14			0.0	2			P40	1.0	03Ga.A
^{26}Mg$-$C$_{2.167}$		$-$17407.014	0.034	$-$17407.071	0.030	$-$1.7	1	75	75 ^{26}Mg	ST2	1.0	03Be02
		$-$17400	8			$-$0.9	U			P40	1.0	03Ga.A
^{25}Na$-^{26}$Na$_{.721}$ ^{22}Na$_{.284}$		$-$2881	33	$*$			U			P13	1.0	75Th08
		$-$2921	22	$*$			U			P13	1.0	75Th08
^{26}Al(n,α)^{23}Na		2966.5	2.5	2965.95	0.06	$-$0.2	U					01Wa50
^{26}Mg(^{7}Li,^{8}B)^{25}Ne		$-$22050	100	$-$22120	26	$-$0.7	U			Brk		73Wi06
^{26}Mg(^{13}C,^{14}O)^{25}Ne		$-$19067	50	$-$18989	26	1.6	R			Can		85Wo04
^{25}Mg(n,γ)^{26}Mg		11093.10	0.06	11093.07	0.03	$-$0.4	–			MMn		90Pr02 Z
		11093.23	0.05			$-$3.1	–			ORn		92Wa06 Z
		11093.16	0.22			$-$0.4	U			Bdn		03Fi.A
	ave.	11093.18	0.04			$-$2.7	1	61	40 ^{25}Mg			average
^{25}Mg(p,γ)^{26}Al		6306.39	0.11	6306.45	0.05	0.6	–					85Be17 Z
		6306.38	0.08			0.9	–			Utr		91Ki04 Z

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{25}Mg(p,γ)^{26}Al	ave.	6306.38	0.06	6306.45	0.05	1.1	1	71	67 ^{26}Al			average	
^{26}Mg(π^-,π^+)^{26}Ne		−17676	72	−17666	27	0.1	R					80Na12	
^{26}Mg(t,^{3}He)^{26}Na		−9292	20	−9334	6	−2.1	U			LAl		74Fl01	
^{26}Mg(^{7}Li,^{7}Be)^{26}Na		−10182	40	−10214	6	−0.8	U			ChR		72Ba35	∗
^{26}Mg(p,n)^{26}Al		−4786.25	0.12	−4786.62	0.06	−3.1	1	23	22 ^{26}Al	Auc		94Br11	∗
^{26}Mg(^{3}He,t)^{26}Al$-^{14}$N()^{14}O		1139.43	0.13	1139.67	0.11	1.8	1	65	58 ^{14}O	ChR		87Ko34	∗
∗^{26}Mg(^{7}Li,^{7}Be)^{26}Na	Q=–10222(30) corrected for contribution of unresolved 82.5 level											Ens90	∗∗
∗^{26}Mg(p,n)^{26}Al	T=5209.46(0.12) to ^{26}Al^m at 228.305											AHW	∗∗
∗^{26}Mg(^{3}He,t)^{26}Al$-^{14}$N()1	Q(to 1057.740(0.023) level)–^{14}N()^{14}O=81.69(0.13)											82Al19	∗∗
^{27}F$-$C$_{2.25}$		27500	700	26760	400	−0.7	2			TO2	1.5	88Wo09	
		26005	770			1.0	2			GA3	1.0	91Or01	
		27100	900			−0.3	2			TO4	1.5	91Zh24	
		26900	580			−0.2	2			GA5	1.0	99Sa.A	
^{27}Ne$-$C$_{2.25}$		7470	300	7590	120	0.4	2			GA1	1.0	87Gi05	
		7567	172			0.1	2			GA3	1.0	91Or01	
		7670	130			−0.4	2			TO4	1.5	91Zh24	
^{27}Na$-$C$_{2.25}$		−5922	11	−5923	4	−0.1	1	12	12 ^{27}Na	P40	1.0	01Lu17	
^{27}Na$-^{27}$Al		12538	4	12538	4	0.0	1	88	88 ^{27}Na	P40	1.0	01Lu17	
^{26}Na$-^{27}$Na$_{.770}$ ^{22}Na$_{.236}$		−1437	86	−1391	6	0.5	U			P13	1.0	75Th08	
^{27}Al(p,α)^{24}Mg		1601.3	0.5	1600.96	0.12	−0.7	U			Zur		67St30	Z
		1600.06	0.21			4.3	B			Utr		78Ma23	Z
^{26}Mg(^{18}O,^{17}F)^{27}Na		−13295	55	−13430	4	−2.5	F			Mun		78Pa12	∗
		−13433	60			0.0	U			Can		85Fi08	
^{26}Mg(n,γ)^{27}Mg		6443.26	0.08	6443.39	0.04	1.6	2			MMn		90Pr02	Z
		6443.44	0.05			−1.1	2			ORn		92Wa06	Z
		6443.35	0.13			0.3	2			Bdn		03Fi.A	
^{26}Mg(p,γ)^{27}Al		8270.8	0.5	8271.05	0.12	0.5	–			Utr		59An33	∗
		8271.2	0.5			−0.3	–					63Va24	Z
		8271.3	0.5			−0.5	–			Utr		78Ma24	∗
	ave.	8271.10	0.29			−0.2	1	17	16 ^{27}Al			average	
^{27}Al(p,n)^{27}Si		−5593.8	0.26	−5594.70	0.10	−3.5	F			Auc		77Na24	∗
		−5594.27	0.11			−3.9	F			Auc		85Wh03	∗
		−5594.72	0.10				2			Auc		94Br37	Z
∗^{26}Mg(^{18}O,^{17}F)^{27}Na	Shape of peak raises doubt on centroid determination											GAu	∗∗
∗^{26}Mg(p,γ)^{27}Al	E(p)=338.65(0.12) to 8596.8(0.5) level											78Ma24	∗∗
∗^{26}Mg(p,γ)^{27}Al	E(p)=338.21(0.30) to 8596.8(0.5) level											78Ma24	∗∗
∗^{26}Mg(p,γ)^{27}Al	E(p)=809.90(0.05,Z) to 9050.7(0.5,Z) level											78Ma24	∗∗
∗^{27}Al(p,n)^{27}Si	F: Measurement contains error											94Br37	∗∗
^{28}Ne$-$C$_{2.333}$		11958	238	12070	160	0.5	2			GA3	1.0	91Or01	
		12160	140			−0.4	2			TO4	1.5	91Zh24	
^{28}Na$-$C$_{2.333}$		−1097	96	−1062	14	0.4	U			GA3	1.0	91Or01	
		−1062	14			0.0	1	100	100 ^{28}Na	P40	1.0	01Lu17	
^{28}Mg$-$C$_{2.333}$		−16134	15	−16123.2	2.2	0.7	U			P40	1.0	03Ga.A	
^{28}Si$-$C$_{2.333}$		−23073.43	0.30	−23073.4675	0.0019	−0.1	U			ST1	1.0	93Je06	
		−23073.00	0.27			−0.7	U			OH1	2.5	94Go.A	
		−23073.466	0.008			−0.2	U			ST2	1.0	02Be64	
C$_2$ D$_2-^{28}$Si		51277.0224	0.0024	51277.0232	0.0018	0.3	1	58	57 ^{28}Si	MI1	1.0	95Di08	
^{15}N$_2-^{28}$Si H$_2$		7641.2007	0.0024	7641.1998	0.0018	−0.4	1	58	43 ^{28}Si	MI1	1.0	95Di08	
^{28}Si$_2$ ^{16}O$-^{35}$Cl ^{37}Cl		14013.07	0.70	14012.41	0.07	−0.6	U			H46	1.5	93Nx02	
^{26}Na$-^{28}$Na$_{.619}$ ^{22}Na$_{.394}$		−4203	87	−4208	10	−0.1	U			P13	1.0	75Th08	
^{28}Si(^{3}He,^{8}Li)^{23}Al		−34274	25	−34278	19	−0.2	2			MSU		75Be38	
^{28}Si(α,^{8}He)^{24}Si		−61433	21	−61421	21	0.6	R			Tex		80Tr04	
^{28}Si(^{3}He,^{6}He)^{25}Si		−27981	10				2			MSU		72Be12	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{28}Si(p,t)^{26}Si	−22009	3				2			MSU		74Ha02	
^{27}Al(n,γ)^{28}Al	7725.02	0.20	7725.10	0.06	0.4	U			BNn		78St25	Z
	7725.02	0.10			0.8	2					81Su.A	Z
	7725.14	0.09			−0.4	2			ILn		82Sc14	Z
	7725.17	0.15			−0.5	2			Bdn		03Fi.A	
^{27}Al(p,γ)^{28}Si	11584.89	0.30	11585.11	0.12	0.7	–			Utr		78Ma23	Z
	ave. 11585.12	0.13			−0.1	1	84	84 ^{27}Al			average	
^{27}Al(p,γ)^{28}Si^{r}	−956.15	0.03	−956.139	0.025	0.3	2			Utr		78Ma23	Z
	−956.025	0.020			−5.7	B			Auc		94Br37	Z
	−956.13	0.05			−0.4	2					98Wa.A	Z
^{28}Si(^{7}Li,^{8}He)^{27}P	−37513	40	−37466	27	1.2	R					01Ca37	
^{28}Mg(β^-)^{28}Al	1831.8	2.0				3					54Ol03	
^{28}Si^{r}(IT)^{28}Si	12541.23	0.14	12541.25	0.12	0.1	R			Utr		90En02	Z
^{28}Si(p,n)^{28}P	−15118.3	4.1	−15116	3	0.5	2			Yal		69Ov01	Z
	−15112.3	6.			−0.7	2			BNL		71Go18	Z
^{28}Si(π^+,π^-)^{28}S	−24544	160				2					82Mo12	∗
∗^{28}Si(π^+,π^-)^{28}S	Original –24603(160) recalibrated to ^{16}O(π^+,π^-)^{16}Ne Q=–27704(20)										GAu	∗∗
^{29}Ne$-$C$_{2.417}$	19433	551	19390	290	−0.1	2			GA3	1.0	91Or01	
	19300	400			0.1	2			TO4	1.5	91Zh24	
	19400	410			0.0	2			GA5	1.0	00Sa21	
^{29}Na$-$C$_{2.417}$	2838	143	2861	14	0.2	U			GA3	1.0	91Or01	
	2861	14			0.0	1	100	100 ^{29}Na	P40	1.0	01Lu17	
^{29}Mg$-$C$_{2.417}$	−11400	15				2			P40	1.0	03Ga.A	
^{26}Na$-^{29}$Na$_{.512}$ ^{22}Na$_{.506}$	−5763	91	−5604	9	1.2	U			P10	1.5	75Th08	
	−5576	66			−0.4	U			P13	1.0	75Th08	
^{18}O(^{13}C,2p)^{29}Mg	−1456	50	−1615	14	−3.2	B					81Pa17	
^{26}Mg(^{11}B,^{8}B)^{29}Mg	−19720	50	−19849	14	−2.6	U			Brk		74Sc26	
^{26}Mg(^{18}O,^{15}O)^{29}Mg	−9207	55	−9233	14	−0.5	U			Mun		78Pa12	
	−9250	45			0.4	U			Can		85Fi08	
^{27}Al(t,p)^{29}Al	8679.5	1.2				2			Str		84An17	
^{28}Si(n,γ)^{29}Si	8473.6	0.3	8473.566	0.021	−0.1	o			MMn		80Is02	Z
	8473.61	0.04			−1.1	2			MMn		90Is02	Z
	8473.55	0.04			0.4	2			ORn		92Ra19	Z
	8473.5509	0.0300			0.5	2			PTB		97Ro26	∗
	8473.54	0.17			0.2	U			Bdn		03Fi.A	
^{28}Si(p,γ)^{29}P	2747.1	1.7	2748.8	0.6	1.0	U					73Ba35	Z
	2748.8	0.6				2					74By01	Z
∗^{28}Si(n,γ)^{29}Si	Original error 0.0005 increased for calibration										GAu	∗∗
^{30}Ne$-$C$_{2.5}$	23872	884	24800	610	1.1	2			GA3	1.0	91Or01	
	25660	850			−1.0	2			GA5	1.0	00Sa21	
^{30}Na$-$C$_{2.5}$	9126	218	8976	27	−0.7	U			GA3	1.0	91Or01	
	9330	130			−1.8	U			TO4	1.5	91Zh24	
	8976	27				2			P40	1.0	01Lu17	
^{30}Mg$-$C$_{2.5}$	−9700	230	−9566	9	0.4	o			TO1	1.5	86Vi09	
	−9597	98			0.3	U			GA3	1.0	91Or01	
	−9490	110			−0.5	U			TO4	1.5	91Zh24	
	−9566	9				2			P40	1.0	03Ga.A	
^{26}Na$-^{30}$Na$_{.433}$ ^{22}Na$_{.591}$	−7515	117	∗			U			P13	1.0	75Th08	
^{26}Mg(^{18}O,^{14}O)^{30}Mg	−16234	55	−16093	8	2.6	B			Mun		78Pa12	∗
^{29}Si(n,γ)^{30}Si	10609.6	0.3	10609.199	0.022	−1.3	o			MMn		80Is02	Z
	10609.21	0.04			−0.3	3			MMn		90Is02	Z
	10609.24	0.05			−0.8	3			ORn		92Ra19	Z
	10609.1776	0.0300			0.7	3			PTB		97Ro26	∗
	10609.23	0.21			−0.1	U			Bdn		03Fi.A	
^{29}Si(p,γ)^{30}P	5594.5	0.4	5594.5	0.3	0.0	3					85Re02	
	5594.5	0.5			0.0	3					96Wa33	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{30}Na(β^-)^{30}Mg	17167	330	17272	27	0.3	U					83De04	∗
^{30}Si(t,^{3}He)^{30}Al	−8520	40	−8542	14	−0.5	4					69Aj03	
	−8545	15			0.2	4					87Pe06	
∗^{26}Mg(^{18}O,^{14}O)^{30}Mg	Tentative, say authors; four counts only										AHW	∗∗
∗^{29}Si(n,γ)^{30}Si	Original error 0.0005 increased for calibration										GAu	∗∗
∗^{30}Na(β^-)^{30}Mg	Calculated from 3 values used as calibrators										GAu	∗∗
^{31}Na−C$_{2.583}$	13559	327	13590	230	0.1	2			GA3	1.0	91Or01	
	13610	210			−0.1	2			TO4	1.5	91Zh24	
^{31}Mg−C$_{2.583}$	−3830	220	−3454	13	1.1	o			TO1	1.5	86Vi09	
	−3520	180			0.4	o			GA1	1.0	87Gi05	
	−3458	149			0.0	U			GA3	1.0	91Or01	
	−3370	120			−0.5	U			TO4	1.5	91Zh24	
	−3454	13				2			P40	1.0	03Ga.A	
^{31}P(p,α)^{28}Si	1915.8	0.2	1915.97	0.18	0.8	1	84	84 ^{31}P	Zur		67St30	
^{30}Si(^{18}O,^{17}F)^{31}Al	−12200	25	−12213	20	−0.5	4					88Wo02	
	−12237	35			0.7	4			Ber		89Bo.A	
^{30}Si(n,γ)^{31}Si	6587.32	0.20	6587.395	0.026	0.4	U			MMn		90Is02	Z
	6587.39	0.05			0.1	4			ORn		92Ra19	Z
	6587.3970	0.0300			−0.1	4			PTB		97Ro26	∗
	6587.39	0.14			0.0	U			Bdn		03Fi.A	
∗^{30}Si(n,γ)^{31}Si	Original error 0.0005 increased for calibration										GAu	∗∗
^{32}Na−C$_{2.667}$	19720	636	20470	380	1.2	2			GA3	1.0	91Or01	
	19900	1100			0.3	2			TO4	1.5	91Zh24	
	20980	500			−1.0	2			GA5	1.0	00Sa21	
^{32}Mg−C$_{2.667}$	−800	260	−1025	19	−0.6	o			TO1	1.5	86Vi09	
	−890	270			−0.5	U			GA1	1.0	87Gi05	
	−924	214			−0.5	U			GA3	1.0	91Or01	
	−820	130			−1.1	U			TO4	1.5	91Zh24	
	−1142	113			1.0	o			P40	1.0	01Lu20	
	−1025	19				2			P40	1.0	03Ga.A	
^{32}Al−C$_{2.667}$	−11870	200	−11880	90	0.0	2			GA1	1.0	87Gi05	
	−11877	104			0.0	2			GA3	1.0	91Or01	
^{32}Ar−^{39}K$_{.821}$	27434.8	1.9				2			MA8	1.0	03Bl.1	
^{32}S(^{3}He,^{8}Li)^{27}P	−31277	35	−31314	26	−1.1	2			MSU		77Be13	
^{32}S(^{3}He,^{6}He)^{29}S	−25520	50				2			MSU		73Be09	
^{30}Si(t,p)^{32}Si	7307	1	7308.81	0.04	1.8	U			Str		80An.A	
^{32}S(p,t)^{30}S	−19614	3				2			MSU		74Ha02	
^{31}Si(n,γ)^{32}Si	9203.2180	0.0300				5			PTB		97Ro26	∗
^{31}P(n,γ)^{32}P	7935.73	0.16	7935.65	0.04	−0.5	U			MMn		85Ke11	Z
	7935.65	0.04				2			ILn		89Mi16	Z
	7935.60	0.16			0.3	U			Bdn		03Fi.A	
^{31}P(p,γ)^{32}S	8864.9	0.9	8863.78	0.21	−1.2	–					72Co13	
	8865.6	1.0			−1.8	–					73Ve08	Z
	8865.1	0.9			−1.5	–					74Vi02	
ave.	8864.5	0.4			−1.8	1	25	16 ^{31}P			average	
^{32}S(p,d)^{31}S	−12817.8	1.5				2			MSU		73Mo23	
^{32}Na(β^-)^{32}Mg	18300	1400	20020	360	1.2	U					83De04	
^{32}Si(β^-)^{32}P	221.4	1.2	224.31	0.19	2.4	U					84Po09	
^{32}P(β^-)^{32}S	1710.1	0.7	1710.48	0.22	0.5	R					68Fi04	
^{32}S(p,n)^{32}Cl	−13470	14	−13468	7	0.1	2			Yal		69Ov01	Z
	−13470	9			0.2	2			BNL		71Go18	Z
^{32}S(^{3}He,t)^{32}Cl	−12699	15	−12705	7	−0.4	2					89Je07	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{32}S(π^+,π^-)^{32}Ar		−22815	50	−22793.5	1.8	0.4	U					80Bu15	
∗^{31}Si(n,γ)^{32}Si	Original error 0.0005 increased for calibration											GAu	∗∗
^{33}Na−C$_{2.75}$		27386	1601	26720	940	−0.4	2			GA3	1.0	91Or01	
		26370	1160			0.3	2			GA5	1.0	00Sa21	
^{33}Mg−C$_{2.75}$		5460	900	5254	21	−0.2	o			GA1	1.0	87Gi05	
		5203	318			0.2	U			GA3	1.0	91Or01	
		5710	180			−1.7	U			TO4	1.5	91Zh24	
		5254	21				2			P40	1.0	03Ga.A	
^{33}Al−C$_{2.75}$		−9250	160	−9160	80	0.6	2			GA1	1.0	87Gi05	
		−9167	142			0.1	2			GA3	1.0	91Or01	
		−9020	120			−0.8	2			TO4	1.5	91Zh24	
^{33}Ar−^{36}Ar$_{.917}$		19689.2	4.5	19686.8	0.5	−0.5	U			MA6	1.0	01He29	
^{33}Ar−^{39}K$_{.846}$		20629.86	0.43				2			MA8	1.0	03Bl.1	
^{33}S(n,α)^{30}Si		3496.9	5.0	3493.33	0.14	−0.7	U					01Wa50	
^{32}S(n,γ)^{33}S		8641.5	0.3	8641.615	0.029	0.4	o			MMn		80Is02	Z
		8641.82	0.10			−2.1	–			ORn		83Ra04	Z
		8641.60	0.03			0.5	–			MMn		85Ke08	Z
		8641.81	0.17			−1.1	U			Bdn		03Fi.A	
	ave.	8641.618	0.029			−0.1	1	100	91 ^{32}S			average	
^{32}S(p,γ)^{33}Cl		2276.4	0.9	2276.7	0.4	0.3	2					59Ku79	
		2276.8	0.5			−0.2	2					76Al01	
^{33}Si(β^-)^{33}P		5768	50	5845	16	1.5	R					73Go33	
^{33}P(β^-)^{33}S		249	2	248.5	1.1	−0.2	2					54Ni06	
		248.3	1.3			0.2	2						84Po09
^{34}Mg−C$_{2.833}$		8855	476	9460	250	1.3	2			GA3	1.0	91Or01	
		9190	350			0.5	2			TO4	1.5	91Zh24	
		9900	350			−1.3	2			GA5	1.0	00Sa21	
^{34}Al−C$_{2.833}$		−3400	250	−3150	120	1.0	2			GA1	1.0	87Gi05	
		−3262	218			0.5	2			GA3	1.0	91Or01	
		−2940	120			−1.2	2			TO4	1.5	91Zh24	
^{34}Ar−^{36}Ar$_{.944}$		10907.4	3.8	10908.7	0.4	0.3	U			MA6	1.0	01He29	
^{34}Ar−^{39}K$_{.872}$		11919.02	0.36				2			MA8	1.0	02He23	
^{33}S(n,γ)^{34}S		11417.12	0.10	11417.11	0.09	−0.1	–			ORn		83Ra04	Z
		11417.22	0.23			−0.5	–			Bdn		03Fi.A	
	ave.	11417.14	0.09			−0.3	1	92	87 ^{33}S			average	
^{33}S(p,γ)^{34}Cl		5142.42	0.20	5142.75	0.12	1.7	–			Oak		83Ra04	∗
		5142.4	0.3			1.2	–			Utr		83Wa27	Z
		5143.29	0.20			−2.7	–			Auc		94Li20	
	ave.	5142.77	0.13			−0.2	1	91	87 ^{34}Cl			average	
^{34}S(p,n)^{34}Cl		−6273.11	0.25	−6274.36	0.15	−5.0	F			Auc		92Ba.A	∗
^{34}S(^{3}He,t)^{34}Cl		−5510.8	0.4	−5510.60	0.15	0.5	1	13	13 ^{34}Cl	Mun		77Vo02	
∗^{33}S(p,γ)^{34}Cl	E(p)=974.76(0.15,Z) to 6088.20(0.10,Z) level											83Ra04	∗∗
∗^{34}S(p,n)^{34}Cl	F: disturbed by resonance; at least 0.5 uncertain											94Li20	∗∗
^{35}Mg−C$_{2.917}$		18669	1721	17340#	430#	−0.8	D			GA3	1.0	91Or01	∗
		18830	1070			−1.4	D			GA5	1.0	00Sa21	∗
^{35}Al−C$_{2.917}$		−340	460	−140	190	0.4	2			GA1	1.0	87Gi05	
		−296	298			0.5	2			GA3	1.0	91Or01	
		80	190			−0.8	2			TO4	1.5	91Zh24	
C$_3$−^{35}Cl H		23322.239	0.034	23322.29	0.04	0.9	1	62	62 ^{35}Cl	B07	1.5	71Sm01	
C$_5$ H$_{10}$−^{35}Cl$_2$		140545.01	0.13	140544.96	0.08	−0.3	1	17	17 ^{35}Cl	B07	1.5	71Sm01	
^{34}S(n,γ)^{35}S		6986.00	0.10	6985.88	0.04	−1.2	–			ORn		83Ra04	Z
		6985.84	0.05			0.9	–			MMn		85Ke08	Z
		6986.09	0.14			−1.5	–			Bdn		03Fi.A	
	ave.	6985.89	0.04			−0.2	1	99	95 ^{34}S			average	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{34}S(p,γ)^{35}Cl	6370.7	0.4	6370.72	0.10	0.1	U					76Sp08	Z
	6370.70	0.20			0.1	U			Oak		83Ra04	$*$
^{35}S(β^-)^{35}Cl	167.4	0.2	167.18	0.09	−1.1	B					57Co62	$*$
	166.80	0.15			2.6	B					85Al11	$*$
	167.288	0.030			−3.5	B					85Ap01	$*$
	166.93	0.2			1.3	o					85Ma59	
	167.4	0.1			−2.2	B					85Oh06	$*$
	166.7	0.2			2.4	B					89Si04	$*$
	167.56	0.03			−12.5	B					92Ch27	$*$
	167.35	0.10			−1.7	B					93Ab11	$*$
	167.23	0.10			−0.5	B					93Be21	$*$
	167.27	0.10			−0.9	B					93Mo01	$*$
	167.222	0.095			−0.4	1	96	95 ^{35}S			Averag	$*$
^{35}Cl(p,n)^{35}Ar	−6747.2	1.6	−6748.5	0.7	−0.8	2			Har		75Fr.A	Z
	−6747.9	1.0			−0.6	2			Auc		77Wh03	Z
	−6751.9	1.8			1.9	2			Mtr		78Az01	Z
$*^{35}$Mg−C$_{2.917}$	Average GA3+GA5 18790(910)										GAu	$**$
$*^{35}$Mg−C$_{2.917}$	Systematical trends suggest ^{35}Mg 1350 more bound										CTh	$**$
$*^{34}$S(p,γ)^{35}Cl	E(p)=1264.97(0.13,Z) to 7598.91(0.15,Z) level										83Ra04	$**$
$*^{35}$S(β^-)^{35}Cl	Adopted: simple average and dispersion of 9 data										GAu	$**$
^{36}Mg−C$_3$	24930	1610	23000#	540#	−1.2	D			GA5	1.0	00Sa21	$*$
^{36}Al−C$_3$	6187	421	6210	230	0.0	2			GA3	1.0	91Or01	
	6500	400			−0.5	2			TO4	1.5	91Zh24	
	6140	310			0.2	2			GA5	1.0	00Sa21	
^{36}Si−C$_3$	−13490	320	−13400	130	0.3	2			GA1	1.0	87Gi05	
	−13578	191			0.9	2			GA3	1.0	91Or01	
	−13110	150			−1.3	2			TO4	1.5	91Zh24	
^{36}Ar−C$_3$	−32454.895	0.029	−32454.894	0.029	0.0	1	99	99 ^{36}Ar	ST2	1.0	03Fr08	
^{36}Ar(^{3}He,^{8}Li)^{31}Cl	−29180	50				2			MSU		77Be13	
^{36}S(^{48}Ca,^{51}V)^{33}Al	−14150	140	−14150	70	0.0	R			Dar		86Wo07	
^{36}S(^{14}C,^{17}O)^{33}Si	−6380	20	−6343	16	1.9	2			Mun		84Ma49	
^{36}S(^{11}B,^{14}N)^{33}Si	−4311	30	−4367	16	−1.9	2			Can		85Fi03	
^{36}Ar(^{3}He,^{6}He)^{33}Ar	−23512	30	−23511.3	0.9	0.0	U			MSU		74Na07	
^{36}S(^{11}B,^{13}N)^{34}Si	−7327	25	−7385	14	−2.3	2			Can		85Fi03	
^{36}S(^{14}C,^{16}O)^{34}Si	−2989	20	−2950	14	1.9	2			Mun		84Ma49	
^{36}S(^{64}Ni,^{66}Zn)^{34}Si	−8903	33	−8907	14	−0.1	2			Dar		86Sm05	$*$
^{36}S(d,α)^{34}P	4604.4	5.				2					82So.A	$*$
^{36}Ar(p,t)^{34}Ar	−19513	3	−19515.2	0.4	−0.7	U			MSU		74Ha02	
^{36}S(^{14}C,^{15}O)^{35}Si	−16184	50	−16140	40	0.9	2			Mun		84Ma49	
^{36}S(^{13}C,^{14}O)^{35}Si	−21122	60	−21190	40	−1.1	2			Can		86Fi06	
^{36}S(^{64}Ni,^{65}Zn)^{35}Si	−17250	100	−17490	40	−2.4	B			Dar		86Sm05	$*$
^{36}S(d,^{3}He)^{35}P	−7607	5	−7601.8	1.9	1.0	2			BNL		84Th08	
	−7601	2			−0.4	2			Hei		85Kh04	
^{35}Cl(n,γ)^{36}Cl	8579.73	0.20	8579.63	0.06	−0.5	U			BNn		78St25	Z
	8579.7	0.3			−0.2	o			MMn		80Is02	Z
	8579.81	0.20			−0.9	U			MMn		81Ke02	Z
	8579.66	0.10			−0.3	–					81Su.A	Z
	8579.61	0.09			0.3	–			ILn		82Kr12	Z
	8579.67	0.17			−0.2	–			Bdn		03Fi.A	
ave.	8579.64	0.06			0.0	1	98	97 ^{36}Cl			average	
^{35}Cl(p,γ)^{36}Ar	8506.1	0.5	8506.97	0.05	1.7	U					72Ho40	Z
^{36}S(^{7}Li,^{7}Be)^{36}P	−11277	27	−11275	13	0.1	2			Can		85Dr06	
^{36}S(^{14}C,^{14}N)^{36}P	−10256	15	−10257	13	0.0	2			Mun		84Ma49	
^{36}S(p,n)^{36}Cl	−1924.64	0.31	−1924.56	0.19	0.2	1	39	35 ^{36}S			01Wa50	
^{36}Cl(β^-)^{36}Ar	708.7	0.6	709.68	0.08	1.6	U					67Sp06	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{36}Ar(p,n)^{36}K	−13588.3	8.				2			BNL		71Go18	Z
*^{36}Mg−C_3	Systematical trends suggest ^{36}Mg 1800 more bound										GAu	**
*^{36}S(^{64}Ni,^{66}Zn)^{34}Si	Calibrated with ^{36}S(^{64}Ni,^{62}Ni)M=–26862(12) now−26861(7)										AHW	**
*^{36}S(d,α)^{34}P	Original error 1.2 judged too small										GAu	**
*^{36}S(^{64}Ni,^{65}Zn)^{35}Si	M−A=–14482(59) for average of ground-state and 54, 114, 207 levels										86Sm05	**
^{37}Al−$C_{3.083}$	10310	579	10680	360	0.6	2			GA3	1.0	91Or01	
	10900	450			−0.5	2			GA5	1.0	00Sa21	
^{37}Si−$C_{3.083}$	−7310	305	−7060	180	0.8	2			GA3	1.0	91Or01	
	−6930	150			−0.6	2			TO4	1.5	91Zh24	
C_2 D_8−^{37}Cl H_3	123436.51	0.12	123436.54	0.05	0.1	1	8	8 ^{37}Cl	B07	1.5	71Sm01	
C_3 H_6 O_2−$^{37}Cl_2$	104974.24	0.08	104974.25	0.10	0.1	1	71	71 ^{37}Cl	B07	1.5	71Sm01	
D_2 ^{35}Cl−H_2 ^{37}Cl	15503.80	0.09	15503.58	0.06	−1.0	1	8	5 ^{37}Cl	H31	2.5	77So02	
C_5 H_{12}−^{35}Cl ^{37}Cl	159145.17	0.12	159145.11	0.07	−0.3	1	13	8 ^{37}Cl	B07	1.5	71Sm01	
^{36}S(^{18}O,^{17}F)^{37}P	−14410	40	−14400	40	0.2	2			Can		88Or.A	*
^{36}S(^{48}Ca,^{47}Sc)^{37}P	−11490	120	−11550	40	−0.5	2			Dar		88Fi04	*
^{36}S(n,γ)^{37}S	4303.52	0.12	4303.60	0.06	0.7	2			ORn		84Ra09	Z
	4303.61	0.09			−0.1	2			Bdn		03Fi.A	
^{36}S(d,p)^{37}S	2079.12	0.13	2079.04	0.06	−0.6	2					84Pi03	
^{36}S(p,γ)^{37}Cl	8386.47	0.23	8386.43	0.19	−0.2	1	66	65 ^{36}S	Utr		84No05	Z
^{36}Ar(n,γ)^{37}Ar	8791.1	1.0	8787.44	0.21	−3.7	B					68Wi25	Z
	8788.8	1.2			−1.1	U					70Ha56	Z
	8789.9	0.9			−2.7	U			Bdn		03Fi.A	
^{36}Ar(p,γ)^{37}K	1857.63	0.09				2			Utr		88De03	Z
^{37}Cl(p,n)^{37}Ar	−1595.4	1.0	−1596.22	0.20	−0.8	U			MIT		52Sc09	Z
	−1596.8	1.0			0.6	U			Duk		66Pa18	Z
	−1596.22	0.20				2			PTB		98Bo30	
	−1596.3	1.0			0.1	U					01Wa50	
*^{36}S(^{18}O,^{17}F)^{37}P	And Q=–13650(40), M=–19750(40) if other peak is ground-state one										88Or.A	**
*^{36}S(^{48}Ca,^{47}Sc)^{37}P	And Q=–11569(80),M=–18980(80) if other peak due to ^{47}Sc 807.89 level										88Fi04	**
^{38}Al−$C_{3.167}$	15240	1500	17230	780	1.3	2			GA4	1.0	00Sa21	
	17980	920			−0.8	2			GA5	1.0	00Sa21	
^{38}Si−$C_{3.167}$	−4510	180	−4370	150	0.8	2			GA4	1.0	00Sa21	
	−4020	290			−0.8	2			TO4	1.5	91Zh24	
	−4100	320			−0.8	2			GA5	1.0	00Sa21	
^{38}P−$C_{3.167}$	−15910	140	−15840	110	0.5	2			GA4	1.0	00Sa21	
	−15530	150			−1.4	2			TO4	1.5	91Zh24	
	−16110	310			0.9	2			GA5	1.0	00Sa21	
^{38}Ar−$^{39}K_{.974}$	−1917.88	0.37	−1917.9	0.3	−0.1	1	71	69 ^{38}Ar	MA8	1.0	02He23	
^{35}Cl(α,n)^{38}K	−5862.1	1.5	−5859.3	0.4	1.9	U			Mun		76Sh24	Z
	−5858.7	2.9			−0.2	U			Har		75Sq01	*
^{36}S(^{14}C,^{12}C)^{38}S	−781	10	−783	7	−0.2	R			Mun		84Ma49	
^{37}Cl(n,γ)^{38}Cl	6107.84	0.30	6107.88	0.08	0.1	U					73Sp06	Z
	6107.95	0.10			−0.7	2			MMn		81Ke02	Z
	6107.73	0.15			1.0	2			Bdn		03Fi.A	
^{37}Cl(p,γ)^{38}Ar	10243.0	1.0	10242.0	0.3	−1.0	1	12	11 ^{38}Ar			68En01	Z
^{38}S(β^-)^{38}Cl	2947	20	2937	7	−0.5	3					71En01	
	2936	12			0.1	3					72Vi11	
^{38}Ar(p,n)^{38}K	−6695.65	0.70	−6696.21	0.29	−0.8	1	17	17 ^{38}K			78Ja06	Z
^{38}Ar(p,n)$^{38}K^m$	−6826.73	0.12	−6826.71	0.12	0.1	1	98	98 $^{38}K^m$	Auc		98Ha36	Z
$^{38}K^m$(IT)^{38}K	130.4	0.3	130.50	0.28	0.3	1	85	83 ^{38}K			90Endt	
*^{35}Cl(α,n)^{38}K	Q=–5989.1(2.9,Z) to $^{38}K^m$ at 130.4(0.3)										90Endt	**

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{39}Al$-$C$_{3.25}$	22970	1580				2			GA5	1.0	00Sa21	
^{39}Si$-$C$_{3.25}$	1900	540	2070	360	0.3	2			GA4	1.0	00Sa21	
	2210	490			−0.3	2			GA5	1.0	00Sa21	
^{39}P$-$C$_{3.25}$	−13890	140	−13820	110	0.5	2			GA4	1.0	00Sa21	
	−13580	160			−1.0	2			TO4	1.5	91Zh24	
	−13870	280			0.2	2			GA5	1.0	00Sa21	
^{39}K$-^{36}$Ar$_{1.083}$	−1144.65	0.44	−1144.67	0.20	−0.1	–			MA8	1.0	02He23	
	−1144.83	0.40			0.4	–			MA8	1.0	03Bl.1	
	ave. −1144.75	0.30			0.3	1	48	47 ^{39}K			average	
^{37}Cl(t,p)^{39}Cl	5701.9	2.5	5699.5	1.7	−1.0	2			Str		84An03	
^{38}Ar(p,γ)^{39}K	6380.9	1.1	6381.43	0.29	0.5	–					70Ma31	Z
	6382.2	0.8			−1.0	–					84Ha27	Z
	ave. 6381.8	0.6			−0.5	1	20	19 ^{38}Ar			average	
^{39}K(p,d)^{38}K	−10851	2	−10853.1	0.4	−1.0	U			MSU		74Wi17	
^{39}Ar(β^-)^{39}K	565	5				2					50Br66	
^{39}K(p,n)^{39}Ca	−7302.5	6.	−7315.0	1.9	−2.1	U			Tal		70Ke08	
	−7314.9	1.8				2					78Ra15	Z
^{40}Si$-$C$_{3.333}$	5290	1010	5870	600	0.6	2			GA4	1.0	00Sa21	
	6180	740			−0.4	2			GA5	1.0	00Sa21	
^{40}P$-$C$_{3.333}$	−8800	200	−8700	150	0.5	2			GA4	1.0	00Sa21	
	−8950	210			0.8	2			TO4	1.5	91Zh24	
	−8200	320			−1.6	2			GA5	1.0	00Sa21	
^{40}S$-$C$_{3.333}$	−24440	190	−24550	150	−0.6	2			GA4	1.0	00Sa21	
	−24530	250			0.0	2			TO4	1.5	91Zh24	
	−24910	340			1.1	2			GA5	1.0	00Sa21	
C$_3$ H$_4$$-^{40}$Ar	68917.0053	0.0035	68917.0058	0.0028	0.1	1	66	66 ^{40}Ar	MI1	1.0	95Di08	
C$_2$ D$_8$$-^{40}$Ar	150431.1045	0.0040	150431.1003	0.0028	−1.1	1	49	24 ^{40}Ar	MI1	1.0	95Di08	
^{20}Ne$_2$$-^{40}$Ar	22497.2245	0.0042	22497.228	0.003	0.9	1	51	44 ^{20}Ne	MI1	1.0	95Di08	
	22497.2280	0.0060			0.1	1	25	22 ^{20}Ne	MI1	1.0	95Di08	
^{40}Ar$-$C$_{3.333}$	−37616.878	0.040	−37616.8775	0.0029	0.0	U			ST2	1.0	02Bf02	
^{40}Ca(^{3}He,^{8}Li)^{35}K	−29693	20				2			MSU		76Be08	
^{40}Ca(α,^{8}He)^{36}Ca	−57580	40				2			Tex		77Tr03	
^{40}Ca(^{3}He,^{6}He)^{37}Ca	−24270	50	−24348	22	−1.6	2			Brk		68Bu02	
	−24368	25			0.8	2			MSU		73Be23	*
^{40}Ca(p,t)^{38}Ca	−20428	11	−20448	5	−1.8	2			MSU		72Pa02	
	−20452	5			0.8	2			MSU		74Se05	
^{40}Ar(^{13}C,^{14}O)^{39}S	−16760	50				2			Can		89Dr03	
^{40}Ar(d,^{3}He)^{39}Cl$-^{36}$Ar()^{35}Cl	−4024.13	2.42	−4021.7	1.7	1.0	R			Hei		93Ma50	
^{39}K(n,γ)^{40}K	7799.50	0.08	7799.51	0.07	0.1	–			ILn		84Vo01	Z
	7799.56	0.16			−0.3	–			Bdn		03Fi.A	
	ave. 7799.51	0.07			0.0	1	91	51 ^{40}K			average	
^{39}K(p,γ)^{40}Ca	8328.24	0.09	8328.23	0.09	−0.1	1	97	94 ^{40}Ca	Utr		90Ki07	Z
^{40}Ca(^{7}Li,^{8}He)^{39}Sc	−37400	40	−37368	25	0.8	2			MSU		88Mo18	
^{40}Ca(^{14}N,^{15}C)^{39}Sc	−27670	30	−27688	24	−0.6	2			Can		88Wo07	
^{40}Cl(β^-)^{40}Ar	7320	80	7480	30	2.0	2					89Mi03	
^{40}Ar(^{7}Li,^{7}Be)^{40}Cl	−8375	35	−8340	30	0.9	2					84Fi02	
^{40}K(n,p)^{40}Ar	2286.7	1.0	2287.04	0.19	0.3	–			ILL		81We12	
^{40}Ar(p,n)^{40}K	−2286.3	1.0	−2287.04	0.19	−0.7	–			Duk		66Pa18	Z
	−2286.3	1.0			−0.7	–					01Wa50	
^{40}K(n,p)^{40}Ar	ave. 2286.4	0.6	2287.04	0.19	1.0	1	11	11 ^{40}K			average	
^{40}Ca(p,n)^{40}Sc	−15105.4	2.9				2			Yal		69Ov01	Z
^{40}Ca(π^+,π^-)^{40}Ti	−24974	160				2					82Mo12	*

*^{40}Ca(^{3}He,^{6}He)^{37}Ca Average of 2 values with small calibration correction AHW **

*^{40}Ca(π^+,π^-)^{40}Ti Recalibrated to ^{16}O(π^+,π^-) Q=–27704(20) GAu **

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{41}Si$-$C$_{3.417}$		14560	1980				2				GA5	1.0	00Sa21	
^{41}P$-$C$_{3.417}$		$-$5930	300	$-$5660	230	0.9	2				GA4	1.0	00Sa21	
		$-$5200	500			$-$0.6	2				TO4	1.5	91Zh24	
		$-$5290	420			$-$0.9	2				GA5	1.0	00Sa21	
^{41}S$-$C$_{3.417}$		$-$20500	150	$-$20420	130	0.5	2				GA4	1.0	00Sa21	
		$-$19970	230			$-$1.3	2				TO4	1.5	91Zh24	
		$-$20430	330			0.0	2				GA5	1.0	00Sa21	
^{41}Cl$-$C$_{3.417}$		$-$29620	190	$-$29320	70	1.1	2				TO3	1.5	90Tu01	
		$-$29500	270			0.5	2				TO4	1.5	91Zh24	
^{41}Ti$-$C$_{3.417}$		$-$16200	390	$-$16860#	110#	$-$1.7	D				1.0	1.0	02St.A	$*$
^{41}K$-^{39}$K$_{1.051}$		$-$30.05	0.32	$-$29.96	0.11	0.3	1	12	7	^{39}K	MA8	1.0	02He23	
^{40}Ar(^{18}O,^{17}F)^{41}Cl		$-$10530	83	$-$10470	70	0.8	R				Can		84Ho.B	
^{40}Ar(n,γ)^{41}Ar		6098.4	0.7	6098.9	0.3	0.7	–						70Ha56	Z
		6099.1	0.4			$-$0.5	–				Bdn		03Fi.A	
	ave.	6098.9	0.3			$-$0.1	1	91	91	^{41}Ar			average	
^{40}Ar(p,γ)^{41}K		7807.8	0.3	7808.15	0.19	1.2	1	42	42	^{41}K			89Sm06	Z
^{40}K(n,γ)^{41}K		10095.19	0.10	10095.19	0.08	0.0	–				ILn		84Kr05	Z
		10095.25	0.20			$-$0.3	–				Bdn		03Fi.A	
	ave.	10095.20	0.09			$-$0.2	1	86	48	^{41}K			average	
^{40}Ca(n,γ)^{41}Ca		8363.0	0.5	8362.80	0.13	$-$0.4	–						69Ar.A	Z
		8362.5	0.5			0.6	–						70Cr04	Z
		8362.72	0.3			0.3	–				MMn		80Is02	Z
		8362.86	0.17			$-$0.3	–				Bdn		03Fi.A	
	ave.	8362.81	0.14			$-$0.1	1	93	87	^{41}Ca			average	
^{40}Ca(p,γ)^{41}Sc		1085.09	0.09	1085.09	0.08	0.0	1	88	88	^{41}Sc	Utr		87Zi02	$*$
^{41}Cl(β^-)^{41}Ar		5670	150	5760	70	0.6	R						74Gu10	
^{41}Ar(β^-)^{41}K		2492.0	1.1	2491.6	0.4	$-$0.4	1	12	9	^{41}Ar			64Pa03	
^{41}K(p,n)^{41}Ca		$-$1203.8	0.5	$-$1203.66	0.18	0.3	1	13	11	^{41}Ca	Can		70Kn03	Z
^{41}Sc^r(IT)^{41}Sc		2882.39	0.10	2882.30	0.05	$-$0.9	–				Utr		87Zi02	Z
		2882.26	0.06			0.6	–				Utr		89Ki11	Z
	ave.	2882.29	0.05			0.0	1	96	84	^{41}Sc^r			average	
$*^{41}$Ti$-$C$_{3.417}$	Systematical trends suggest ^{41}Ti 610 more bound												GAu	$**$
$*^{40}$Ca(p,γ)^{41}Sc	E(p)=647.25(0.05,Z) to 1716.43(0.08,Z) level												87Zi02	$**$
^{42}Si$-$C$_{3.5}$		20860	3990	19790#	540#	$-$0.3	D				GA5	1.0	99Sa.A	$*$
^{42}P$-$C$_{3.5}$		260	740	1010	480	1.0	2				GA4	1.0	00Sa21	
		1550	630			$-$0.9	2				GA5	1.0	00Sa21	
^{42}S$-$C$_{3.5}$		$-$18940	150	$-$18980	130	$-$0.3	2				GA4	1.0	00Sa21	
		$-$18510	350			$-$0.9	2				TO4	1.5	91Zh24	
		$-$19390	350			1.2	2				GA5	1.0	00Sa21	
^{42}Cl$-$C$_{3.5}$		$-$27000	190	$-$26750	150	0.9	2				TO3	1.5	90Tu01	
		$-$26870	190			0.4	2				TO4	1.5	91Zh24	
^{42}Ar$-^{36}$Ar$_{1.167}$		920.6	6.2				2				MA6	1.0	01He29	
^{28}Si(^{16}O,2n)^{42}Ti		$-$17250	13	$-$17251	5	$-$0.1	R						72Zi02	
^{40}Ar(t,p)^{42}Ar		7043	40	7044	6	0.0	U				LAl		61Ja07	
^{40}Ca(^{3}He,n)^{42}Ti		$-$2865	6	$-$2865	5	0.0	2				CIT		67Mi02	
^{41}K(n,γ)^{42}K		7533.78	0.15	7533.80	0.11	0.1	2				ILn		85Kr06	Z
		7533.82	0.15			$-$0.1	2				Bdn		03Fi.A	
^{41}Ca(n,γ)^{42}Ca		11480.63	0.06	11480.63	0.06	0.0	1	95	93	^{42}Ca	ORn		89Ki11	Z
^{41}Ca(p,γ)^{42}Sc$^r-^{40}$Ca()^{41}Sc^r		$-$6.67	0.05	$-$6.67	0.05	0.0	1	96	80	^{42}Sc^r	Utr		89Ki11	$*$
^{42}Cl(β^-)^{42}Ar		9760	220	9510	140	$-$1.1	R						89Mi03	
^{42}Ca(^{3}He,t)^{42}Sc$-^{26}$Mg()^{26}Al		$-$2421.83	0.23	$-$2421.56	0.13	1.2	1	32	23	^{42}Sc	ChR		87Ko34	$*$
^{42}Sc^r(IT)^{42}Sc		6076.33	0.08	6076.33	0.08	0.0	1	91	71	^{42}Sc	Utr		89Ki11	Z
$*^{42}$Si$-$C$_{3.5}$	Systematical trends suggest ^{42}Si 1000 more bound												CTh	$**$
$*^{41}$Ca(p,γ)^{42}Sc$^r-^{40}$Ca()	Calculated from resonance energy difference = 5.73(0.05)												GAu	$**$
$*^{42}$Ca(^{3}He,t)^{42}Sc$-^{26}$Mg()	Q=–2193.52(0.23) to ^{26}Al^m at 228.305												90Endt	$**$

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{43}P$-$C$_{3.583}$		4220	1620	6190	1040	1.2	U			GA4	1.0	00Sa21	
		6190	1040				2			GA5	1.0	00Sa21	
^{43}S$-$C$_{3.583}$		$-$12810	250	$-$12850	220	$-$0.1	2			GA4	1.0	00Sa21	
		$-$13400	900			0.4	2			TO4	1.5	91Zh24	
		$-$12900	460			0.1	2			GA5	1.0	00Sa21	
^{43}Cl$-$C$_{3.583}$		$-$26090	300	$-$25950	170	0.5	2			GA4	1.0	00Sa21	
		$-$25740	200			$-$0.7	2			TO3	1.5	90Tu01	
		$-$25970	350			0.0	2			TO4	1.5	91Zh24	
		$-$26010	330			0.2	2			GA5	1.0	00Sa21	
^{43}Ar$-^{36}$Ar$_{1.194}$		4387.2	5.7				2			MA6	1.0	01He29	
^{40}Ca(α,n)^{43}Ti		$-$11169.9	10.	$-$11172	7	$-$0.2	2			Tal		67Al08	
^{42}Ca(n,γ)^{43}Ca		7933.1	0.5	7932.88	0.17	$-$0.4	–					69Ar.A	Z
		7933.1	0.5			$-$0.4	–			Ptn		69Gr08	Z
		7933.1	0.4			$-$0.5	–					71Bi.A	
		7932.73	0.23			0.7	–			Bdn		03Fi.A	
	ave.	7932.89	0.17			0.0	1	99	97 ^{43}Ca			average	
^{42}Ca(p,γ)^{43}Sc		4935	5	4929.8	1.9	$-$1.0	2					65Br31	
		4929	2			0.4	2					69Wa19	
^{43}K(β^-)^{43}Ca		1817	20	1815	9	$-$0.1	2					54Li24	
		1815	10			0.0	2					59Be72	
^{44}S$-$C$_{3.667}$		$-$10510	580	$-$9790	420	1.2	2			GA4	1.0	00Sa21	
		$-$8960	620			$-$1.3	2			GA5	1.0	00Sa21	
^{44}Cl$-$C$_{3.667}$		$-$21700	130	$-$21720	120	$-$0.1	2			GA4	1.0	00Sa21	
		$-$21500	500			$-$0.3	2			TO3	1.5	90Tu01	
		$-$21450	270			$-$0.7	2			TO4	1.5	91Zh24	
		$-$22150	370			1.2	2			GA5	1.0	00Sa21	
^{44}Ar$-^{39}$K$_{1.128}$		5862.9	1.7				2			MA8	1.0	03Bl.1	
^{44}Sc$-$C$_{3.667}$		$-$40480	410	$-$40597.2	1.9	$-$0.2	U			TO6	1.5	98Ba.A	$*$
^{44}V$-$C$_{3.667}$		$-$25890	130				2			1.0	1.0	02St.A	$*$
^{40}Ca(α,γ)^{44}Ti		5127.1	0.7				2					82Di05	
^{43}Ca(n,γ)^{44}Ca		11130.6	0.5	11131.16	0.23	1.1	–					69Ar.A	Z
		11130.1	0.7			1.5	–					72Wh02	Z
		11131.54	0.29			$-$1.3	–			Bdn		03Fi.A	
	ave.	11131.17	0.24			0.0	1	98	95 ^{44}Ca			average	
^{43}Ca(p,γ)^{44}Sc		6694	2	6696.4	1.7	1.2	2					71Po.A	
^{44}K(β^-)^{44}Ca		5580	80	5660	40	1.0	2					70Le05	
^{44}Ca(t,^{3}He)^{44}K		$-$5660	40	$-$5640	40	0.5	2			LAl		70Aj01	
^{44}Sc(β^+)^{44}Ca		3642	5	3652.4	1.8	2.1	R					50Br52	
		3650	5			0.5	R					55Bl23	
$*^{44}$Sc$-$C$_{3.667}$	M$-$A=–37570(370) keV for mixture gs+m at 270.95 keV											Ens99	$**$
$*^{44}$V$-$C$_{3.667}$	M$-$A=–23980(80) keV for mixture gs+m at 270#100 keV											Nubase	$**$
^{45}S$-$C$_{3.75}$		$-$3610	2460	$-$3490	1870	0.0	2			GA4	1.0	00Sa21	
		$-$3330	2880			$-$0.1	2			GA5	1.0	00Sa21	
^{45}Cl$-$C$_{3.75}$		$-$19690	140	$-$19710	130	$-$0.2	2			GA4	1.0	00Sa21	
		$-$20300	700			0.6	2			TO3	1.5	90Tu01	
		$-$19850	460			0.3	2			GA5	1.0	00Sa21	
^{45}Ar$-^{39}$K$_{1.154}$		9922.45	0.55				2			MA8	1.0	03Bl.1	
^{45}Cr$-$C$_{3.75}$		$-$20360	540				2			1.0	1.0	02St.A	$*$
^{45}Fe(2p)^{43}Cr		1140	40	1130	40	$-$0.1	3					02Gi09	
		1100	100			0.3	3					02Pf02	
^{44}Ca(n,γ)^{45}Ca		7414.8	1.0	7414.79	0.17	0.0	U					69Ar.A	Z
		7414.83	0.3			$-$0.1	–			MMn		80Is02	Z
		7414.79	0.21			0.0	–			Bdn		03Fi.A	
	ave.	7414.80	0.17			$-$0.1	1	99	98 ^{45}Ca			average	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{44}Ca(p,γ)^{45}Sc		6887.8	1.2	6888.3	0.8	0.4	1	46	43	^{45}Sc			74Sc02	Z
^{45}Ca(β^-)^{45}Sc		258	2	255.8	0.8	−1.1	1	17	15	^{45}Sc			65Fr12	
^{45}Ti(β^+)^{45}Sc		2066	5	2062.1	0.5	−0.8	U						66Po04	
^{45}Sc(p,n)^{45}Ti		−2844.4	0.5				2				PTB		85Sc16	Z
∗^{45}Cr−C$_{3.75}$	M−A=–18940(500) keV for mixture gs+m at 50#100 keV												Nubase	∗∗
^{46}Cl−C$_{3.833}$		−16000	860	−15790	770	0.2	2				GA4	1.0	00Sa21	
		−14940	1730			−0.5	2				GA5	1.0	00Sa21	
^{46}Sc−C$_{3.833}$		−44650	230	−44828.1	0.9	−0.5	U				TO6	1.5	98Ba.A	∗
^{32}S(^{16}O,2n)^{46}Cr		−17422	20				2						72Zi02	
^{46}Ti(^{3}He,^{6}He)^{43}Ti		−17470	12	−17466	7	0.3	R				MSU		77Mu03	∗
^{46}Ca(t,α)^{45}K		5998	10				2				Ald		68Sa09	
^{46}Ca(d,t)^{45}Ca		−4144	10	−4137.2	2.3	0.7	–				Ald		67Bj05	
^{46}Ca(^{3}He,α)^{45}Ca		10194	10	10183.2	2.3	−1.1	–				MIT		71Ra35	
^{46}Ca(d,t)^{45}Ca	ave.	−4135	7	−4137.2	2.3	−0.3	1	10	10	^{46}Ca			average	
^{45}Sc(n,γ)^{46}Sc		8760.61	0.3	8760.64	0.10	0.1	2				BNn		80Li07	Z
		8760.58	0.14			0.4	2				Utr		82Ti02	Z
		8760.75	0.18			−0.6	2				Bdn		03Fi.A	
^{45}Sc(p,γ)^{46}Ti		10344.7	0.7	10344.6	0.6	−0.1	1	83	42	^{45}Sc			71Gu.A	
^{46}Ti(^{3}He,t)^{46}V		−7069.0	0.6				2				Mun		77Vo02	
∗^{46}Sc−C$_{3.833}$	M−A=–41520(210) keV for mixture gs+m at 142.528 keV												Ens00	∗∗
∗^{46}Ti(^{3}He,^{6}He)^{43}Ti	Average with ref. Q reduced by 3 for recalibration ^{27}Al(^{3}He,^{6}He)												75Mu09	∗∗
^{47}Ar−C$_{3.917}$		−25400	600	−27810	110	−2.7	B				TO3	1.5	90Tu01	
		−26570	1360			−0.9	U				GA5	1.0	00Sa21	
^{47}Sc−C$_{3.917}$		−47630	230	−47592.5	2.2	0.1	U				TO6	1.5	98Ba.A	∗
C ^{35}Cl−^{47}Ti		17085.94	0.82	17089.6	0.9	1.8	1	19	18	^{47}Ti	H32	2.5	79Ko10	
^{46}Ti ^{13}C−^{47}Ti C		4218.03	0.94	4223.3	0.3	2.2	1	2	1	^{46}Ti	H32	2.5	79Ko10	
^{46}Ca(n,γ)^{47}Ca		7277.4	0.6	7276.36	0.27	−1.7	–						70Cr04	Z
		7276.1	0.3			0.9	–				Bdn		03Fi.A	
	ave.	7276.36	0.27			0.0	1	100	90	^{46}Ca			average	
^{46}Ti(n,γ)^{47}Ti		8875.1	3.0	8880.29	0.29	1.7	U						69Te01	Z
		8880.5	0.3			−0.7	1	93	57	^{46}Ti	Bdn		03Fi.A	
^{46}Ti(d,p)^{47}Ti		6654.3	1.7	6655.72	0.29	0.8	U				NDm		76Jo01	
^{46}Ti(p,γ)^{47}V		5167.60	0.07				2				Utr		86De13	∗
^{47}Ca(β^-)^{47}Sc		1991.9	1.2	1992.0	1.2	0.1	1	96	83	^{47}Ca			87Ju04	
^{47}Sc(β^-)^{47}Ti		600	2	600.3	1.9	0.1	1	88	87	^{47}Sc			56Gr12	
∗^{47}Sc−C$_{3.917}$	M−A=–44320(210) keV for mixture gs+m at 766.83 keV and												Ens95	∗∗
∗	assuming ratio R=0.07(3), from half-life=272 ns and TOF=1 μs												GAu	∗∗
∗^{46}Ti(p,γ)^{47}V	E(p)=985.94(0.05,Z) to 6132.39(0.04,Z) level												NDS951	∗∗
^{13}C ^{35}Cl−^{48}Ti		24261.73	0.75	24261.2	0.9	−0.3	1	22	22	^{48}Ti	H32	2.5	79Ko10	
^{48}Mn−C$_4$		−31480	120				2				1.0	1.0	02St.A	
^{46}Ti ^{37}Cl−^{48}Ti ^{35}Cl		1730.29	0.87	1735.2	0.3	2.2	1	2	1	^{46}Ti	H32	2.5	79Ko10	
^{48}Ca(α,^{9}Be)^{43}Ar		−21160	70	−21127	7	0.5	U				Brk		74Je01	
^{48}Ca(^{3}He,^{7}Be)^{44}Ar		−12362	20	−12380	4	−0.9	U				MSU		76Cr03	∗
^{48}Ca(α,^{7}Be)^{45}Ar		−27840	60	−27789	4	0.9	U				Brk		74Je01	
^{48}Ca(^{6}Li,^{8}B)^{46}Ar		−23325	70	−23330	40	−0.1	2				Brk		74Je01	
^{48}Ca(^{14}C,^{16}O)^{46}Ar		−6739	50	−6740	40	0.0	2				Mun		80Ma40	
^{48}Ca(d,α)^{46}K		1915	15				2				ANL		65Ma07	
^{46}Ti(^{3}He,n)^{48}Cr		5550	18	5556	7	0.3	R				CIT		67Mi02	
^{48}Ca(^{14}C,^{15}O)^{47}Ar		−18142	100				2				MSU		85Be50	
^{48}Ca(d,^{3}He)^{47}K		−10304	12	−10313	7	−0.8	2				ANL		66Ne01	
^{48}Ca(t,α)^{47}K		4006	15	4007	7	0.1	2				LAl		66Wi11	
		4001	10			0.6	2				Ald		68Sa09	
^{48}Ca(d,t)^{47}Ca		−3699	10	−3688	4	1.1	–				ANL		66Er02	
^{48}Ca(^{3}He,α)^{47}Ca		10630	12	10632	4	0.2	–				ANL		66Er02	
		10642	10			−1.0	–				MIT		71Ra35	
^{48}Ca(d,t)^{47}Ca	ave.	−3689	6	−3688	4	0.2	1	45	38	^{48}Ca			average	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{47}Ti(n,γ)^{48}Ti		11626.65	0.04	11626.65	0.04	0.0	1	100	56 ^{48}Ti	Ptn		84Ru06	Z
		11626.66	0.23			0.0	U			Bdn		03Fi.A	
^{48}Ca(^{7}Li,^{7}Be)^{48}K		−12959	27	−12952	24	0.3	2			Can		78We14	
^{48}Ca(^{14}C,^{14}N)^{48}K		−11910	50	−11934	24	−0.5	2			Mun		80Ma40	
^{48}Ca(p,n)^{48}Sc		−534	15	−500	5	2.2	B					67Mc07	Z
		−506	7			0.8	1	58	42 ^{48}Sc			68Mc10	
^{48}Sc(β^-)^{48}Ti		3986	7	3992	5	0.8	1	58	58 ^{48}Sc			57Va08	
^{48}V(β^+)^{48}Ti		4008	5	4012.3	2.4	0.9	2					53Ma64	
		4013.6	3.			−0.4	2					67Ko01	
		4014	7			−0.2	2					74Me15	
∗^{48}Ca(^{3}He,^{7}Be)^{44}Ar		M=–32270(20) Q=–12791(20) for ^{7}Be 429 keV level										GAu	∗∗
^{48}Ca(n,γ)^{49}Ca		5146.6	0.7	5146.45	0.18	−0.2	2					69Ar.A	Z
		5146.38	0.30			0.2	2					70Cr04	Z
		5146.48	0.23			−0.1	2			Bdn		03Fi.A	
^{48}Ca(p,γ)^{49}Sc		9628.7	3.6	9627.2	2.9	−0.4	–					68Vi01	Z
^{48}Ca(d,n)^{49}Sc		7404	7	7402.6	2.9	−0.2	–					68Gr09	
^{48}Ca(p,γ)^{49}Sc	ave.	9629	3	9627.2	2.9	−0.5	1	84	45 ^{48}Ca			average	
^{48}Ti(n,γ)^{49}Ti		8142.39	0.03	8142.389	0.029	0.0	–			Ptn		83Ru08	Z
		8142.35	0.16			0.2	–			Bdn		03Fi.A	
	ave.	8142.389	0.029			0.0	1	100	79 ^{49}Ti			average	
^{48}Ti(p,γ)^{49}V		6756.8	1.5	6758.2	0.8	0.9	R					72Ki06	
^{49}K(β^-)^{49}Ca		10970	70				3					86Mi08	
^{49}Sc(β^-)^{49}Ti		2010	5	2006	4	−0.7	1	61	61 ^{49}Sc			61Re06	
^{49}Ti(p,n)^{49}V		−1383.6	1.0	−1384.2	0.8	−0.6	2			Oak		64Jo11	Z
^{50}K−C$_{4.167}$		−26100	800	−27220	300	−0.9	R			TO3	1.5	90Tu01	
^{50}Sc−C$_{4.167}$		−47940	250	−47812	17	0.3	U			TO6	1.5	98Ba.A	∗
^{50}Cr(p,^{6}He)^{45}V		−28686	17				2			MSU		75Mu09	∗
^{50}Cr(^{3}He,^{6}He)^{47}Cr		−18365	14				2			MSU		77Mu03	∗
^{48}Ca(t,p)^{50}Ca		3012	15	3018	8	0.4	2			Ald		66Hi01	
		3020	10			−0.2	2			LAl		66Wi11	
^{48}Ca(^{3}He,p)^{50}Sc		7965	15				2			ANL		69Oh01	
^{50}Cr(p,t)^{48}Cr		−15100	8	−15101	7	−0.1	2			Oak		71Do18	
^{49}Ti(n,γ)^{50}Ti		10939.19	0.04	10939.19	0.04	0.0	1	100	84 ^{50}Ti	Ptn		84Ru06	Z
		10939.20	0.22			0.0	U			Bdn		03Fi.A	
^{50}Cr(d,t)^{49}Cr		−6743.1	2.2				2			NDm		76Jo01	
^{50}K(β^-)^{50}Ca		14050	300	14220	280	0.6	3					86Mi08	
^{50}V(n,p)^{50}Ti		2984	10	2987.5	1.0	0.3	U			ILL		94Wa17	
^{50}Cr(^{3}He,t)^{50}Mn		−7650.5	0.4	−7651.28	0.23	−1.9	1	33	32 ^{50}Mn	Mun		77Vo02	
^{50}Cr(^{3}He,t)^{50}Mn−^{54}Fe()^{54}Co		610.09	0.17	610.23	0.16	0.8	1	88	68 ^{50}Mn	ChR		87Ko34	∗
∗^{50}Sc−C$_{4.167}$		M−A=–44530(220) keV for mixture gs+m at 256.895 keV										Ens95	∗∗
∗^{50}Cr(p,^{6}He)^{45}V		Original Q increase by 1 for recalibration										AHW	∗∗
∗^{50}Cr(^{3}He,^{6}He)^{47}Cr		Original Q reduced by 3, see ^{46}Ti(^{3}He,^{6}He)										AHW	∗∗
∗^{50}Cr(^{3}He,t)^{50}Mn−^{54}Fe()		Q−Q=40.90(0.16) to 650.99(0.06) level in ^{50}Mn										92Ha.B	∗∗
^{51}Ca−C$_{4.25}$		−38800	350	−38500	100	0.6	U			TO3	1.5	90Tu01	
		−38900	400			0.7	U			TO5	1.5	94Se12	
^{49}Ti ^{37}Cl−^{51}V ^{35}Cl		956.7	0.7	960.4	1.1	1.3	1	14	9 ^{51}V	H18	4.0	64Ba03	
^{48}Ca(^{14}C,^{11}C)^{51}Ca		−15900	150	−15980	90	−0.5	2			Mun		80Ma40	∗
		−16886	100			9.0	B			MSU		85Be50	
^{48}Ca(^{18}O,^{15}O)^{51}Ca		−12040	120	−11990	90	0.4	2			Hei		85Br03	∗
		−13900	40			47.8	B			Can		88Ca21	
^{48}Ca(α,p)^{51}Sc		−5860	20				2			ANL		66Er02	
^{50}Ti(n,γ)^{51}Ti		6372.3	1.2	6372.5	0.5	0.2	2					71Ar39	Z
		6372.6	0.6			−0.2	2			Bdn		03Fi.A	
^{50}Ti(d,p)^{51}Ti		4147.7	1.2	4147.9	0.5	0.2	2			NDm		76Jo01	
^{50}Ti(p,γ)^{51}V		8063.3	2.0	8063.7	1.0	0.2	–					70Kl05	Z
		8063.6	2.0			0.0	–					70Ma36	Z
	ave.	8063.5	1.4			0.2	1	48	32 ^{51}V			average	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{50}V(n,γ)^{51}V	11051.18	0.10	11051.15	0.08	−0.3	2			MMn		78Ro03	Z
	11051.05	0.17			0.6	2			ILn		91Mi08	Z
	11051.14	0.22			0.0	2			Bdn		03Fi.A	
^{50}Cr(n,γ)^{51}Cr	9261.71	0.30	9260.62	0.20	−3.6	B			MMn		80Is02	Z
	9260.63	0.20			0.0	1	99	51 ^{51}Cr	Bdn		03Fi.A	
^{50}Cr(p,γ)^{51}Mn	5270.8	0.3	5270.81	0.30	0.0	1	97	52 ^{50}Cr			72Fo25	Z
^{51}V(p,n)^{51}Cr	−1534.93	0.24	−1534.92	0.24	0.0	1	98	49 ^{51}V	PTB		89Sc24	Z
∗^{48}Ca(^{14}C,^{11}C)^{51}Ca	May be a ^{40}Ca contamination. There is a –16900(150) peak										85Be50	∗∗
∗^{48}Ca(^{18}O,^{15}O)^{51}Ca	Proposed 970(90) level reinterpretated as ground-state by ref.										85Be50	∗∗
∗^{48}Ca(^{18}O,^{15}O)^{51}Ca	Weak M−A=–36120(120) level disregarded										AHW	∗∗
^{52}Ca−C$_{4.333}$	−34900	500				2			TO3	1.5	90Tu01	
^{52}Sc−C$_{4.333}$	−43500	230	−43320	210	0.5	2			TO3	1.5	90Tu01	
	−43350	250			0.1	2			TO5	1.5	94Se12	
	−43110	240			−0.6	2			TO6	1.5	98Ba.A	
^{50}Ti(t,p)^{52}Ti	5698	10	5699	7	0.1	2			LAl		66Wi11	
	5700	10			−0.1	2			LAl		71Ca19	
^{51}V(n,γ)^{52}V	7311.2	0.5	7311.24	0.13	0.1	2					84De15	
	7311.18	0.26			0.2	2			ILn		91Mi08	Z
	7311.27	0.15			−0.2	2			Bdn		03Fi.A	
^{51}V(p,γ)^{52}Cr	10500.7	2.8	10504.5	1.0	1.4	1	13	9 ^{51}V			74Ro44	Z
^{52}Ca(β^-)^{52}Sc	5700	200	7850	720	10.7	B					85Hu03	
^{52}Sc(β^-)^{52}Ti	8020	250	9110	190	4.4	B					85Hu03	
^{52}Mn(β^+)^{52}Cr	4710.9	4.	4711.5	1.9	0.1	R					58Ko57	
	4707.9	6.			0.6	R					60Ka20	
^{52}Fe(β^+)^{52}Mn	2372	10	2374	6	0.2	3					56Ar33	
	2510	100			−1.4	U					95Ir01	
^{52}Fe^m(β^+)^{52}Mn	9187	130				3					79Ge02	
^{53}Sc−C$_{4.417}$	−41440	260	−40390#	320#	2.7	D			TO3	1.5	90Tu01	∗
	−41830	280			3.4	D			TO5	1.5	94Se12	∗
	−41100	400			1.2	D			TO6	1.5	98Ba.A	∗
^{52}Cr(n,γ)^{53}Cr	7939.52	0.3	7939.12	0.14	−1.3	–			MMn		80Is02	Z
	7939.01	0.2			0.6	–			BNn		80Ko01	Z
	7939.10	0.28			0.1	–			Bdn		03Fi.A	
ave.	7939.15	0.14			−0.2	1	98	76 ^{52}Cr			average	
^{52}Cr(p,γ)^{53}Mn	6559.1	1.1	6559.9	0.3	0.8	U					70Ma25	Z
	6559.72	0.36			0.6	1	87	67 ^{53}Mn			79Sw01	Z
^{53}Co^m(p)^{52}Fe	1600.5	30.	1595	21	−0.2	4					70Ce04	
	1590	30			0.2	4					76Vi02	
^{53}Ti(β^-)^{53}V	5020	100				3			ANB		77Pa01	
^{53}Cr(p,n)^{53}Mn	−1381.1	1.6	−1379.2	0.4	1.2	U			Oak		64Jo11	Z
∗^{53}Sc−C$_{4.417}$	Average TO3+TO5+TO6 –41520(190)										GAu	∗∗
∗^{53}Sc−C$_{4.417}$	Systematical trends suggest ^{53}Sc 1060 less bound										CTh	∗∗
^{54}Sc−C$_{4.5}$	−36060	500	−36740	400	−0.9	2			TO3	1.5	90Tu01	∗
	−37060	500			0.4	2			TO5	1.5	94Se12	∗
	−36960	400			0.4	2			TO6	1.5	98Ba.A	∗
^{54}Ti−C$_{4.5}$	−48820	230	−48950	130	−0.4	2			TO3	1.5	90Tu01	
	−49130	250			0.5	2			TO5	1.5	94Se12	
	−48820	280			−0.3	2			TO6	1.5	98Ba.A	
^{13}C ^{37}Cl$_3$−^{54}Fe ^{35}Cl$_2$	23744.46	1.26	23746.7	0.8	0.7	1	6	6 ^{54}Fe	H39	2.5	84Ha20	
^{54}Fe(p,^{6}He)^{49}Mn	−28943	24				2			MSU		75Mu09	∗
^{54}Fe(α,^{8}He)^{50}Fe	−50950	60				2			Tex		77Tr05	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{54}Fe(p,α)^{51}Mn		−3146.9	1.1	−3147.1	0.9	−0.1	1	66	55 ^{51}Mn	NDm		74Jo14	
^{54}Fe(^{3}He,^{6}He)^{51}Fe		−18694	15				2			MSU		77Mu03	∗
^{54}Fe(d,α)^{52}Mn		5163.3	2.2	5163.8	1.8	0.2	2			NDm		76Jo01	
^{54}Fe(p,t)^{52}Fe		−15584	8	−15582	7	0.3	R					78Ko27	∗
^{54}Cr(d,^{3}He)^{53}V		−6879.2	3.1				2			NDm		79Br.B	
^{53}Cr(n,γ)^{54}Cr		9719.30	0.16	9719.12	0.12	−1.1	–					68Wh03	Z
		9718.3	0.4			2.1	–					72Lo26	Z
		9718.91	0.27			0.8	–			MMn		80Is02	Z
		9719.7	0.5			−1.2	–			SAn		89Ho15	Z
		9720.00	0.20			−4.4	B			Bdn		03Fi.A	
	ave.	9719.14	0.13			−0.2	1	98	78 ^{53}Cr			average	
^{53}Cr(p,γ)^{54}Mn		7559.6	1.0				2					75We10	Z
^{54}Fe(d,t)^{53}Fe		−7121.5	2.1	−7121.2	1.6	0.1	2			NDm		74Jo14	
^{54}Fe(^{3}He,α)^{53}Fe		7199.6	2.6	7199.2	1.6	−0.2	2			NDm		74Jo14	
^{54}Ti(β^-)^{54}V		4280	160	4300	130	0.1	R					96Do23	
^{54}Cr(t,^{3}He)^{54}V		−7023	15				2			LAl		77Fl03	
^{54}Fe(^{3}He,t)^{54}Co$-^{42}$Ca()^{42}Sc		−1817.24	0.18	−1817.08	0.17	0.9	1	86	80 ^{54}Co	ChR		87Ko34	
∗^{54}Sc$-$C$_{4.5}$	Original –36000(500) or M=–33500(470) keV											GAu	∗∗
∗^{54}Sc$-$C$_{4.5}$	Original –37000(500) or M=–34470(470) keV											GAu	∗∗
∗^{54}Sc$-$C$_{4.5}$	M$-$A=–34370(370) keV for mixture gs+m at 110(3) keV											Nubase	∗∗
∗^{54}Fe(p,^{6}He)^{49}Mn	Q increased 1 for recalibration											AHW	∗∗
∗^{54}Fe(^{3}He,^{6}He)^{51}Fe	Average with ref. See ^{46}Ti(^{3}He,^{6}He)											75Mu09	∗∗
∗^{54}Fe(p,t)^{52}Fe	Q=–21239(8) to 5655.4 level											Ens00	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{55}Sc$-$C$_{4.583}$		−30600	1100	−31760	790	−0.7	2			TO3	1.5	90Tu01	
		−32100	600			0.4	2			TO6	1.5	98Ba.A	
^{55}Ti$-$C$_{4.583}$		−44650	280	−44730	160	−0.2	2			TO3	1.5	90Tu01	
		−44880	260			0.4	2			TO5	1.5	94Se12	
		−44360	350			−0.7	2			TO6	1.5	98Ba.A	
^{54}Cr(n,γ)^{55}Cr		6246.2	0.4	6246.26	0.19	0.2	2					72Wh05	Z
		6246.28	0.21			−0.1	2			Bdn		03Fi.A	
^{54}Cr(p,γ)^{55}Mn		8067.2	0.4	8067.0	0.4	−0.5	1	83	80 ^{54}Cr			78We12	
^{54}Fe(n,γ)^{55}Fe		9297.91	0.3	9298.23	0.20	1.1	–			MMn		80Is02	Z
		9298.53	0.27			−1.1	–			Bdn		03Fi.A	
	ave.	9298.25	0.20			−0.1	1	96	56 ^{54}Fe			average	
^{54}Fe(p,γ)^{55}Co		5064.0	0.7	5064.1	0.3	0.1	–					77Er02	Z
		5063.9	0.4			0.4	–					80Ha36	Z
	ave.	5063.9	0.3			0.4	1	91	69 ^{55}Co			average	
^{55}Ti(β^-)^{55}V		7440	200	7480	180	0.2	R					96Do23	
^{55}V(β^-)^{55}Cr		5956	100				3			ANB		77Na17	
^{55}Fe(ε)^{55}Mn		231.4	0.4	231.21	0.18	−0.5	–					89Zl.A	
		231.0	1.0			0.2	U					93Wi05	∗
		231.37	0.30			−0.5	–					95Da14	∗
		231.0	0.3			0.7	–					95Sy01	∗
^{55}Mn(p,n)^{55}Fe		−1015.7	2.	−1013.56	0.18	1.1	U			Nvl		59Go68	Z
		−1014.6	0.8			1.3	U			Oak		64Jo11	Z
^{55}Fe(ε)^{55}Mn	ave.	231.23	0.19	231.21	0.18	−0.1	1	97	60 ^{55}Fe			average	
∗^{55}Fe(ε)^{55}Mn	Error estimate by evaluator											AHW	∗∗
∗^{55}Fe(ε)^{55}Mn	Original error 0.10 increased by evaluator											GAu	∗∗
∗^{55}Fe(ε)^{55}Mn	Original statistical error 0.10 increased by evaluator											GAu	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{56}Ti$-$C$_{4.667}$		−41300	350	−41800	210	−1.0	2			TO3	1.5	90Tu01	
		−42010	300			0.5	2			TO5	1.5	94Se12	
		−41770	270			−0.1	2			TO6	1.5	98Ba.A	
^{56}V$-$C$_{4.667}$		−49470	250	−49470	220	0.0	2			TO3	1.5	90Tu01	
		−49640	260			0.4	2			TO5	1.5	94Se12	
		−49310	250			−0.4	2			TO6	1.5	98Ba.A	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
$^{56}\mathrm{Cr}-^{85}\mathrm{Rb}_{.659}$		−1216.3	2.0				2			MA8	1.0	03Gu.A	
$^{56}\mathrm{Mn}-^{85}\mathrm{Rb}_{.659}$		−2965.1	1.5	−2964.5	0.7	0.4	1	24	24 ^{56}Mn	MA8	1.0	03Gu.A	
$^{56}\mathrm{Fe}(\mathrm{p},\alpha)^{53}\mathrm{Mn}$		−1052.3	0.8	−1053.4	0.5	−1.4	1	35	33 ^{53}Mn	NDm		74Jo14	
$^{54}\mathrm{Cr}(\mathrm{t},\mathrm{p})^{56}\mathrm{Cr}$		5995	30	6009.5	2.0	0.5	U			Ald		68Ch20	
		6024	10			−1.4	U			LAl		71Ca19	
$^{54}\mathrm{Fe}(^{3}\mathrm{He},\mathrm{n})^{56}\mathrm{Ni}$		4513	14	4511	11	−0.1	2			CIT		67Mi02	
$^{55}\mathrm{Mn}(\mathrm{n},\gamma)^{56}\mathrm{Mn}$		7270.53	0.3	7270.45	0.13	−0.3	–			MMn		80Is02	Z
		7270.42	0.15			0.2	–			Bdn		03Fi.A	
	ave.	7270.44	0.13			0.0	1	99	76 ^{56}Mn			average	
$^{55}\mathrm{Mn}(\mathrm{p},\gamma)^{56}\mathrm{Fe}$		10183.80	0.17	10183.74	0.17	−0.3	1	95	61 ^{56}Fe	Utr		92Gu03	Z
$^{56}\mathrm{Ti}(\beta^{-})^{56}\mathrm{V}$		7030	330	7140	280	0.3	R					96Do23	
$^{56}\mathrm{Co}(\beta^{+})^{56}\mathrm{Fe}$		4566.0	2.0				2					65Pe18	
$^{57}\mathrm{Ti}-\mathrm{C}_{4.75}$		−35700	1000	−36010	490	−0.2	2			TO3	1.5	90Tu01	
		−36200	400			0.3	2			TO6	1.5	98Ba.A	
$^{57}\mathrm{V}-\mathrm{C}_{4.75}$		−47300	400	−47440	250	−0.2	2			TO3	1.5	90Tu01	
		−47640	270			0.5	2			TO5	1.5	94Se12	
		−47320	250			−0.3	2			TO6	1.5	98Ba.A	
$^{57}\mathrm{Cr}-\mathrm{C}_{4.75}$		−56240	250	−56387.0	2.0	−0.4	U			TO3	1.5	90Tu01	
		−56300	260			−0.2	U			TO5	1.5	94Se12	
		−56170	270			−0.5	U			TO6	1.5	98Ba.A	
$^{57}\mathrm{Cr}-^{85}\mathrm{Rb}_{.671}$		2802.1	2.0				2			MA8	1.0	03Gu.A	
$^{57}\mathrm{Mn}-^{85}\mathrm{Rb}_{.671}$		−2525.1	2.3	−2525.5	2.0	−0.2	1	75	75 ^{57}Mn	MA8	1.0	03Gu.A	
$^{57}\mathrm{Ni}-^{85}\mathrm{Rb}_{.671}$		−1019.8	2.7	−1017.4	1.9	0.9	1	52	52 ^{57}Ni	MA8	1.0	03Gu.A	
$^{54}\mathrm{Cr}(\alpha,\mathrm{p})^{57}\mathrm{Mn}$		−4308	8	−4309.8	1.9	−0.2	U			NDm		76Ma03	
		−4302	8			−1.0	U			Can		78An10	
$^{54}\mathrm{Fe}(\alpha,\mathrm{p})^{57}\mathrm{Co}$		−1770.3	1.8	−1772.3	0.6	−1.1	U			NDm		74Jo14	
$^{55}\mathrm{Mn}(\mathrm{t},\mathrm{p})^{57}\mathrm{Mn}$		7438.2	3.6	7437.1	1.9	−0.3	1	28	25 ^{57}Mn	NDm		77Ma12	
$^{56}\mathrm{Fe}(\mathrm{n},\gamma)^{57}\mathrm{Fe}$		7646.10	0.17	7646.096	0.029	0.0	o			BNn		76Al16	Z
		7645.96	0.20			0.7	U			BNn		78St25	Z
		7646.13	0.21			−0.2	U			MMn		80Is02	Z
		7645.93	0.15			1.1	U			Ptn		80Ve05	Z
		7646.0956	0.0300			0.0	–			PTB		97Ro26	∗
		7646.10	0.15			0.0	–			Bdn		03Fi.A	
	ave.	7646.096	0.029			0.0	1	100	80 ^{57}Fe			average	
$^{56}\mathrm{Fe}(\mathrm{p},\gamma)^{57}\mathrm{Co}$		6027.7	1.0	6027.8	0.5	0.1	–					70Ob02	Z
		6029.3	1.5			−1.0	–					71Le21	Z
	ave.	6028.2	0.8			−0.4	1	43	24 ^{57}Co			average	
$^{57}\mathrm{Ti}(\beta^{-})^{57}\mathrm{V}$		11020	950	10640	510	−0.4	R					96Do23	
$^{57}\mathrm{Cr}(\beta^{-})^{57}\mathrm{Mn}$		5100	100	4962.7	2.6	−1.4	U			ANB		78Da04	
$^{57}\mathrm{Fe}(\mathrm{p},\mathrm{n})^{57}\mathrm{Co}$		−1619.4	2.0	−1618.3	0.5	0.5	–			Oak		64Jo11	Z
		−1618.2	2.0			0.0	–			Can		70Kn03	
	ave.	−1618.8	1.4			0.4	1	15	9 ^{57}Co			average	
$\ast^{56}\mathrm{Fe}(\mathrm{n},\gamma)^{57}\mathrm{Fe}$	Original error 0.0005 increased for calibration											GAu	∗∗
$^{58}\mathrm{V}-\mathrm{C}_{4.833}$		−43210	280	−43170	270	0.1	2			TO3	1.5	90Tu01	
		−43350	280			0.4	2			TO5	1.5	94Se12	
		−42700	400			−0.8	2			TO6	1.5	98Ba.A	
$^{58}\mathrm{Cr}-\mathrm{C}_{4.833}$		−55680	230	−55650	220	0.1	2			TO3	1.5	90Tu01	
		−55750	260			0.3	2			TO5	1.5	94Se12	
		−55490	270			−0.4	2			TO6	1.5	98Ba.A	
$^{58}\mathrm{Ni}(\mathrm{p},^{6}\mathrm{He})^{53}\mathrm{Co}$		−27889	18				2			MSU		75Mu09	∗
$^{58}\mathrm{Ni}(\alpha,^{8}\mathrm{He})^{54}\mathrm{Ni}$		−50190	50				2			Tex		77Tr05	
$^{58}\mathrm{Ni}(\mathrm{p},\alpha)^{55}\mathrm{Co}$		−1335.1	0.9	−1336.1	0.6	−1.1	1	42	31 ^{55}Co	NDm		74Jo14	
$^{58}\mathrm{Ni}(^{3}\mathrm{He},^{6}\mathrm{He})^{55}\mathrm{Ni}$		−17556	11				2			MSU		77Mu03	∗

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{58}Ni(p,t)^{56}Ni	−13987	18	−13985	11	0.1	R			Bld		65Ho07	
^{57}Fe(n,γ)^{58}Fe	10044.60	0.3	10044.60	0.18	0.0	–			MMn		80Is02	Z
	10044.65	0.24			−0.2	–			Bdn		03Fi.A	
ave.	10044.63	0.19			−0.1	1	96	84 ^{58}Fe			average	
^{57}Fe(p,γ)^{58}Co	6952	3	6954.7	1.2	0.9	1	16	14 ^{58}Co			70Er03	
^{58}Ni(^{3}He,α)^{57}Ni	8360.3	4.	8360.6	1.8	0.1	1	21	19 ^{57}Ni	MSU		76Na23	
^{58}Ni(^{7}Li,^{8}He)^{57}Cu	−29613	17	−29608	17	0.3	2			Tex		86Ga19	
^{58}Ni(^{14}N,^{15}C)^{57}Cu	−19900	40	−19928	16	−0.7	2			Ber		87St04	
^{58}Fe(t,^{3}He)^{58}Mn	−6228	30				2			LAl		77Fl03	*
^{58}Co(β^+)^{58}Fe	2305	6	2307.5	1.2	0.4	U					52Ch31	
	2307	4			0.1	U					63Rh02	
^{58}Ni(p,n)^{58}Cu	−9351	5	−9348.0	1.4	0.6	2			Mar		64Ma.A	
	−9352.6	3.4			1.3	2			Ric		66Bo20	Z
	−9346.6	1.7			−0.8	2			Yal		69Ov01	Z
^{58}Ni(π^+,π^-)^{58}Zn	−16908	50				2					86Se04	
*^{58}Ni(p,^{6}He)^{53}Co	Q increased 1 for recalibration										AHW	**
*^{58}Ni(^{3}He,^{6}He)^{55}Ni	Average with ref. See ^{46}Ti(^{3}He,^{6}He)										75Mu09	**
*^{58}Fe(t,^{3}He)^{58}Mn	Q=–6300(30) to ^{58}Mn^m at 71.78(0.05)										92Sc.A	**
^{59}V−C$_{4.917}$	−38500	400	−39790	330	−2.2	2			TO3	1.5	90Tu01	
	−40700	350			1.7	2			TO5	1.5	94Se12	
	−39900	400			0.2	2			TO6	1.5	98Ba.A	
^{59}Cr−C$_{4.917}$	−51490	290	−51410	260	0.2	2			TO3	1.5	90Tu01	*
	−51640	310			0.5	2			TO5	1.5	94Se12	*
	−51100	310			−0.7	2			TO6	1.5	98Ba.A	*
^{59}Co(p,α)^{56}Fe	3240.4	1.4	3241.0	0.5	0.4	1	15	10 ^{56}Fe	NDm		74Jo14	
^{59}Ni(p,t)^{57}Ni	−12738.2	3.3	−12734.5	1.8	1.1	1	30	29 ^{57}Ni	MSU		76Na23	
^{58}Fe(n,γ)^{59}Fe	6581.15	0.30	6581.01	0.11	−0.5	2			Ptn		73Sp06	Z
	6580.94	0.20			0.4	2			Ptn		80Ve05	Z
	6581.02	0.14			0.0	2			Bdn		03Fi.A	
^{58}Fe(p,γ)^{59}Co−^{56}Fe()^{57}Co	1336.5	0.7	1336.1	0.5	−0.5	1	44	31 ^{57}Co			75Br29	
^{59}Co(d,t)^{58}Co	−4196.0	1.4	−4196.6	1.1	−0.4	1	62	61 ^{58}Co	NDm		74Jo14	
^{58}Ni(n,γ)^{59}Ni	8999.37	0.30	8999.27	0.05	−0.3	U					75Wi06	Z
	8999.38	0.20			−0.5	U			MMn		77Is01	Z
	8999.10	0.23			0.8	U			ILn		93Ha05	Z
	8999.28	0.05			−0.1	–			ORn		02Ra.A	
	8999.15	0.18			0.7	–			Bdn		03Fi.A	
ave.	8999.27	0.05			0.1	1	100	88 ^{58}Ni			average	
^{58}Ni(p,γ)^{59}Cu	3418.5	0.5				2					63Bo07	Z
	3419	2	3418.5	0.5	−0.3	U					70Fo09	
	3416.7	2.0			0.9	U					75Kl06	Z
^{58}Ni(p,π^-)^{59}Zn	−144735	40	−144740	40	−0.1	R					83Sh31	
^{59}Mn(β^-)^{59}Fe	5200	100	5180	30	−0.2	U			ANB		77Pa18	
^{59}Ni(ε)^{59}Co	1074.5	1.3	1072.76	0.19	−1.3	U					76Be02	*
^{59}Co(p,n)^{59}Ni	−1855.8	2.0	−1855.11	0.19	0.3	U			MIT		51Mc48	Z
	−1854.3	4.0			−0.2	U					57Bu37	Z
	−1855.8	1.6			0.4	U			Oak		64Jo11	Z
	−1855.33	0.20			1.1	1	89	70 ^{59}Co	PTB		98Bo30	
^{59}Zn(β^+)^{59}Cu	9120	100	9100	40	−0.2	3					81Ar13	
*^{59}Cr−C$_{4.917}$	Original –51220(240) or M=–47710(230) keV										GAu	**
*^{59}Cr−C$_{4.917}$	Original –51370(270) or M=–47850(250) keV										GAu	**
*^{59}Cr−C$_{4.917}$	M−A=–47350(250) keV for mixture gs+m at 503.0(1.7) keV										Nubase	**
*^{59}Ni(ε)^{59}Co	Authors add B(K)=8.3 of Ni, changed in 7.7 of Co										AHW	**
^{60}V−C$_{5}$	−33860	700	−34970	510	−1.1	2			TO3	1.5	90Tu01	*
	−35560	600			0.7	2			TO5	1.5	94Se12	*
	−35140	510			0.2	2			TO6	1.5	98Ba.A	*
^{60}Cr−C$_{5}$	−49680	240	−49920	230	−0.7	2			TO3	1.5	90Tu01	
	−50270	280			0.8	2			TO5	1.5	94Se12	
	−49910	280			0.0	2			TO6	1.5	98Ba.A	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{60}Mn−C$_5$		−56550	240	−57090	90	−1.5	U			TO3	1.5	90Tu01	∗
		−56810	290			−0.6	U			TO5	1.5	94Se12	∗
		−56530	280			−1.3	U			TO6	1.5	98Ba.A	∗
^{60}Co−C$_5$		−66380	280	−66182.9	0.7	0.5	U			TO6	1.5	98Ba.A	∗
^{60}Ni−^{85}Rb$_{.706}$		−6937.8	1.6	−6937.2	0.7	0.4	1	17	17 ^{60}Ni	MA8	1.0	03Gu.A	
^{60}Ni(p,α)^{57}Co		−263.6	0.7	−263.8	0.5	−0.3	1	43	36 ^{57}Co	NDm		74Jo14	
^{58}Fe(t,p)^{60}Fe		6907	15	6919	3	0.8	2			LAl		71Ca19	
		6947	10			−2.8	2			MSU		76St11	
		6913	4			1.6	2			LAl		78No05	
^{60}Ni(d,α)^{58}Co		6084.5	2.2	6084.6	1.1	0.0	1	25	25 ^{58}Co	NDm		74Jo14	
^{58}Ni(^{3}He,n)^{60}Zn		818	18	820	11	0.1	2			CIT		67Mi02	
		821	13			−0.1	2			Oak		72Gr39	
^{59}Co(n,γ)^{60}Co		7491.88	0.08	7491.92	0.07	0.5	2			BNn		84Ko29	Z
		7492.05	0.15			−0.9	2			Bdn		03Fi.A	
^{59}Ni(n,γ)^{60}Ni		11387.6	0.4	11387.75	0.05	0.4	U					75Wi06	Z
		11387.73	0.05			0.3	1	99	67 ^{59}Ni	ORn		02Ra.A	
^{60}Ni(d,t)^{59}Ni		−5130.2	2.1	−5130.51	0.05	−0.1	U			NDm		74Jo14	
^{60}Mn(β^-)^{60}Fe		8234	86				3			ANB		78No03	∗
^{60}Co(β^-)^{60}Ni		2823.6	1.0	2823.07	0.21	−0.5	U					68Wo02	
^{60}Ni(p,n)^{60}Cu		−6910.3	1.6				2			Yal		69Ov01	Z
∗^{60}V−C$_5$	Original –33800(700) or M=–31500(650) keV											GAu	∗∗
∗^{60}V−C$_5$	Original –35500(600) or M=–33070(560) keV											GAu	∗∗
∗^{60}V−C$_5$	M−A=–32700(470) keV for mixture gs+m+n at 0#150 and 101(1) keV											Nubase	∗∗
∗^{60}Mn−C$_5$	M−A=–52540(230) keV for mixture gs+m at 271.90 keV											Nubase	∗∗
∗^{60}Mn−C$_5$	M−A=–52780(260) keV for mixture gs+m at 271.90 keV											Nubase	∗∗
∗^{60}Mn−C$_5$	M−A=–52520(250) keV for mixture gs+m at 271.90 keV											Nubase	∗∗
∗^{60}Co−C$_5$	M−A=–61800(260) keV for mixture gs+m at 58.59 keV											Ens00	∗∗
∗^{60}Mn(β^-)^{60}Fe	E$^-$=5714(86) from ^{60}Mn^m at 271.9(0.1) to 2792.4 level											NDS935	∗∗
^{61}Cr−C$_{5.083}$		−44500	400	−45280	270	−1.3	2			TO3	1.5	90Tu01	
		−45910	300			1.4	2			TO5	1.5	94Se12	
		−45120	280			−0.4	2			TO6	1.5	98Ba.A	
^{61}Mn−C$_{5.083}$		−55160	300	−55350	240	−0.4	2			TO3	1.5	90Tu01	
		−55540	280			0.5	2			TO5	1.5	94Se12	
		−55320	270			−0.1	2			TO6	1.5	98Ba.A	
^{58}Ni(^{6}Li,t)^{61}Zn		−4736	23	−4745	16	−0.4	R			LAl		78Wo01	
^{60}Ni(n,γ)^{61}Ni		7820.22	0.40	7820.13	0.05	−0.2	U					75Wi06	Z
		7819.96	0.20			0.8	U			MMn		77Is01	Z
		7820.02	0.20			0.5	U			ILn		93Ha05	Z
		7820.12	0.05			0.2	–			ORn		02Ra.A	
		7820.06	0.16			0.4	–			Bdn		03Fi.A	
	ave.	7820.11	0.05			0.3	1	100	55 ^{61}Ni			average	
^{61}Ga(β^+)^{61}Zn		9255	50				3					02We07	
^{62}Cr−C$_{5.167}$		−42400	600	−43390	360	−1.1	2			TO3	1.5	90Tu01	
		−44200	400			1.4	2			TO5	1.5	94Se12	
		−43100	350			−0.5	2			TO6	1.5	98Ba.A	
^{62}Mn−C$_{5.167}$		−51510	270	−51570	240	−0.2	2			TO3	1.5	90Tu01	
		−52030	280			1.1	2			TO5	1.5	94Se12	
		−51180	280			−0.9	2			TO6	1.5	98Ba.A	
^{62}Ni(p,α)^{59}Co		343.3	0.7	346.4	0.3	4.4	1	22	14 ^{59}Co	NDm		74Jo14	
^{59}Co(α,p)^{62}Ni		−346.5	2.3	−346.4	0.3	0.1	U			NDm		74Jo14	
^{61}Ni(n,γ)^{62}Ni		10596.2	1.5	10596.52	0.29	0.2	–					70Fa06	
		10595.8	0.7			1.0	–					75Wi06	Z
		10595.6	0.4			2.3	–			Bdn		03Fi.A	
^{62}Ni(d,t)^{61}Ni		−4340.6	1.3	−4339.29	0.29	1.0	–			NDm		74Jo14	
^{61}Ni(n,γ)^{62}Ni	ave.	10595.8	0.3	10596.52	0.29	2.2	1	78	45 ^{61}Ni			average	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{62}Ni(t,^{3}He)^{62}Co	−5296	20				2			LAl		76Aj03	
^{62}Cu(β^+)^{62}Ni	3932	10	3948	4	1.6	2					54Nu27	
	3942	10			0.6	2					64Sa32	
	3956	7			−1.1	2					67An01	
^{62}Ni(p,n)^{62}Cu	−4733	10	−4731	4	0.2	2			Bar		61Ri02	
	−4734.8	10.			0.4	2			Ric		66Ri09	
^{62}Zn(β^+)^{62}Cu	1682	10	1626	11	−5.6	B					50Ha65	
	1697	10			−7.1	B					54Nu27	
^{62}Ga(β^+)^{62}Zn	9171	26				3			ANB		79Da04	
^{63}Mn−C$_{5.25}$	−49300	400	−49760	280	−0.8	2			TO3	1.5	90Tu01	
	−50190	300			1.0	2			TO5	1.5	94Se12	
	−49600	290			−0.4	2			TO6	1.5	98Ba.A	
^{63}Fe−C$_{5.25}$	−59190	240	−59630	180	−1.2	2			TO3	1.5	90Tu01	
	−59570	290			−0.1	2			TO5	1.5	94Se12	
	−58990	300			−1.4	2			TO6	1.5	98Ba.A	
^{63}Ga−^{85}Rb$_{.741}$	4658.0	1.4				2			MA8	1.0	03Gu.A	
^{63}Cu(p,α)^{60}Ni	3754.9	1.5	3756.60	0.30	1.1	U			NDm		76Jo01	
^{62}Ni(n,γ)^{63}Ni	6838.04	0.20	6837.78	0.06	−1.3	–			MMn		77Is01	Z
	6837.88	0.18			−0.6	–			ILn		92Ha21	Z
	6837.89	0.14			−0.8	–			Bdn		03Fi.A	
	ave. 6837.92	0.10			−1.5	1	41	21 ^{62}Ni			average	
^{62}Ni(p,γ)^{63}Cu	6122.30	0.08	6122.41	0.06	1.3	1	60	31 ^{62}Ni	Utr		86De14	Z
^{63}Ni(β^-)^{63}Cu	66.9459	0.0054	66.975	0.015	5.3	F					93Oh02	*
	66.980	0.015			−0.4	1	98	61 ^{63}Ni			99Ho09	
^{63}Cu(p,n)^{63}Zn	−4146.5	4.	−4148.9	1.6	−0.6	–			Ric		55Br16	
	−4139.5	8.			−1.2	U			Oak		55Ki28	Z
	−4150.1	4.4			0.3	–			Tkm		63Ok01	
	ave. −4148.1	2.9			−0.2	1	28	27 ^{63}Zn			average	
^{63}Ga(β^+)^{63}Zn	5520	100	5665.9	2.1	1.5	U					72Fi.A	
*^{63}Ni(β^-)^{63}Cu	F: excitation of atomic electron not taken into account										99Ho09	**
^{64}Mn−C$_{5.333}$	−45340	350	−45750	290	−0.8	2			TO3	1.5	90Tu01	*
	−46340	350			1.1	2			TO5	1.5	94Se12	*
	−45620	300			−0.3	2			TO6	1.5	98Ba.A	*
^{64}Fe−C$_{5.333}$	−58600	400	−58800	300	−0.3	2			TO3	1.5	90Tu01	
	−59130	300			0.7	2			TO5	1.5	94Se12	
	−58500	350			−0.6	2			TO6	1.5	98Ba.A	
^{64}Ni−^{85}Rb$_{.753}$	−5609.2	1.4	−5611.7	0.7	−1.8	1	22	22 ^{64}Ni	MA8	1.0	03Gu.A	
^{64}Ga−^{85}Rb$_{.753}$	3261.3	2.5	3261.1	2.2	−0.1	1	75	75 ^{64}Ga	MA8	1.0	03Gu.A	
^{64}Ge−C$_{5.333}$	−57090	690	−58350	30	−1.8	U			GA6	1.0	02Li24	
	−58347	34				2			CP1	1.0	03Sh.A	
^{64}Ni(^{3}He,^{8}B)^{59}Mn	−19610	30				2			MSU		76Ka24	
^{64}Ni(^{3}He,^{7}Be)^{60}Fe	−6511	10	−6526	3	−1.5	R			MSU		76St11	
^{64}Ni(α,^{7}Be)^{61}Fe	−21523	20				2			Tex		77Co08	
^{64}Ni(p,α)^{61}Co	663.2	0.7				2			NDm		74Jo14	
^{64}Zn(p,α)^{61}Cu	844.1	0.7				2			NDm		76Jo01	
^{64}Zn(^{3}He,^{6}He)^{61}Zn	−12331	23	−12322	16	0.4	2			MSU		79We02	
^{64}Ni(^{14}C,^{16}O)^{62}Fe	−501	40	−442	14	1.5	2			Ors		81Be40	
^{64}Ni(^{18}O,^{20}Ne)^{62}Fe	−1915	50	−1938	14	−0.5	2			Can		76Hi14	
	−1920	21			−0.9	2			Hei		77Bh03	*
	−1947	26			0.3	2			Hei		84Ha31	
^{64}Zn(d,α)^{62}Cu	7508	15	7505	4	−0.2	U			MIT		67Sp09	
^{64}Zn(p,t)^{62}Zn	−12493	10				2			Bld		72Fa08	
^{64}Ni(^{34}S,^{35}Ar)^{63}Fe	−17931	260	−18440	170	−1.9	R			Hei		83Wi.B	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{64}Ni(t,α)^{63}Co		7266	20				2				LAl		66Bl15	
^{63}Ni(n,γ)^{64}Ni		9657.58	0.24	9658.04	0.19	1.9	1	63	45	^{64}Ni	ILn		92Ha21	
^{63}Cu(n,γ)^{64}Cu		7916.07	0.12	7916.03	0.09	−0.3	–				BNn		83De28	Z
		7916.14	0.16			−0.7	–				Bdn		03Fi.A	
	ave.	7916.10	0.10			−0.7	1	94	68	^{64}Cu			average	
^{64}Zn(d,t)^{63}Zn		−5604.9	1.7	−5604.7	1.5	0.1	1	76	73	^{63}Zn	NDm		76Jo01	
^{64}Ni(t,^{3}He)^{64}Co		−7288	20				2				LAl		72Fl17	
^{64}Cu(β^{+})^{64}Ni		1673.4	1.0	1675.03	0.20	1.6	U						83Ch47	
^{64}Ni(p,n)^{64}Cu		−2458.22	0.31	−2457.38	0.20	2.7	1	40	26	^{64}Ni	PTB		92Bo02	Z
^{64}Cu(β^{-})^{64}Zn		577.8	1.0	579.4	0.7	1.6	1	47	29	^{64}Zn			83Ch47	
^{64}Zn(p,n)^{64}Ga		−7951	4	−7951.6	2.1	−0.2	1	27	25	^{64}Ga	Tex		72Da.A	
^{64}Zn(^{3}He,t)^{64}Ga		−7168	8	−7187.9	2.1	−2.5	U				MSU		74Ro16	
^{64}Ge(β^{+})^{64}Ga		4410	250	4480	30	0.3	U						73Da01	
∗^{64}Mn−C$_{5.333}$	Original –45270(350) or M=–42170(330) keV												GAu	∗∗
∗^{64}Mn−C$_{5.333}$	Original –46270(350) or M=–43100(330) keV												GAu	∗∗
∗^{64}Mn−C$_{5.333}$	M−A=–42430(280) keV for mixture gs+m at 135(3) keV												Nubase	∗∗
∗^{64}Ni(^{18}O,^{20}Ne)^{62}Fe	Q−Q(^{62}Ni(^{18}O,^{20}Ne))=–2843(20),Q(62)=923(4)												AHW	∗∗
^{65}Mn−C$_{5.417}$		−43900	600	−43660	580	0.3	2				TO5	1.5	94Se12	
		−43500	500			−0.2	2				TO6	1.5	98Ba.A	
^{65}Fe−C$_{5.417}$		−54520	270	−54620	260	−0.2	2				TO3	1.5	90Tu01	∗
		−55110	300			1.1	2				TO5	1.5	94Se12	∗
		−54120	350			−1.0	2				TO6	1.5	98Ba.A	∗
^{65}Ni−^{85}Rb$_{.765}$		−2438.0	2.4	−2434.8	0.7	1.3	1	8	8	^{65}Ni	MA8	1.0	03Gu.A	
^{65}Cu−^{85}Rb$_{.765}$		−4730.6	1.2	−4729.7	0.7	0.8	1	37	37	^{65}Cu	MA8	1.0	03Gu.A	
^{65}Ga−^{85}Rb$_{.765}$		215.4	1.5	215.6	0.9	0.1	1	36	36	^{65}Ga	MA8	1.0	03Gu.A	
^{65}Ge−C$_{5.417}$		−60080	270	−60560	110	−1.8	U				GA6	1.0	02Li24	
^{65}Cu(p,α)^{62}Ni		4344.6	1.8	4346.5	0.7	1.0	1	15	9	^{65}Cu	NDm		76Jo01	
^{64}Ni(n,γ)^{65}Ni		6097.86	0.20	6098.09	0.14	1.2	–				MMn		77Is01	Z
		6098.28	0.19			−1.0	–				Bdn		03Fi.A	
	ave.	6098.08	0.14			0.1	1	100	92	^{65}Ni			average	
^{64}Zn(n,γ)^{65}Zn		7979.3	0.8	7979.32	0.17	0.0	U						71Ot01	Z
		7979.2	0.5			0.2	U						75De.A	Z
		7979.28	0.17			0.2	1	98	51	^{65}Zn	Bdn		03Fi.A	
^{64}Zn(p,γ)^{65}Ga		3942.0	1.0	3942.5	0.6	0.5	–						75We24	Z
		3943.0	1.0			−0.5	–						87Vi01	
	ave.	3942.5	0.7			0.1	1	83	64	^{65}Ga			average	
^{65}Ge(εp)^{64}Zn		2300	100				2						81Ha44	
^{65}Cu(p,n)^{65}Zn		−2134.6	0.8	−2134.4	0.3	0.2	–				Yal		69Ov01	Z
		−2133.55	0.43			−2.0	–				PTB		89Sc24	
	ave.	−2133.8	0.4			−1.7	1	79	43	^{65}Zn			average	
∗^{65}Fe−C$_{5.417}$	M−A=–50740(250) keV for mixture gs+m at 364(3) keV												Nubase	∗∗
∗^{65}Fe−C$_{5.417}$	M−A=–51290(280) keV for mixture gs+m at 364(3) keV												Nubase	∗∗
∗^{65}Fe−C$_{5.417}$	M−A=–50370(330) keV for mixture gs+m at 364(3) keV and												Nubase	∗∗
∗	assuming ratio R=0.13(6), from half-life=430 ns and TOF=1 μs												GAu	∗∗
^{66}Fe−C$_{5.5}$		−52300	700	−53220	320	−0.9	2				TO3	1.5	90Tu01	
		−54020	350			1.5	2				TO5	1.5	94Se12	
		−52800	300			−0.9	2				TO6	1.5	98Ba.A	
^{66}Co−C$_{5.5}$		−60470	300	−60240	270	0.5	2				TO5	1.5	94Se12	∗
		−59870	290			−0.8	2				TO6	1.5	98Ba.A	∗
^{66}Ni−^{85}Rb$_{.776}$		−2409.5	1.5				2				MA8	1.0	03Gu.A	
^{66}Cu−^{85}Rb$_{.776}$		−2680.6	2.2	−2680.0	0.7	0.3	1	11	11	^{66}Cu	MA8	1.0	03Gu.A	
^{66}As−C$_{5.5}$		−55290	730				2				GA6	1.0	02Li24	
^{66}Zn(p,α)^{63}Cu		1544.3	0.8	1544.2	0.8	−0.2	1	89	83	^{66}Zn	NDm		76Jo01	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{64}Ni(t,p)^{66}Ni		6559	25	6567.8	1.5	0.4	U			Ald		71Da16	
^{65}Cu(n,γ)^{66}Cu		7065.80	0.12	7065.93	0.09	1.1	–			BNn		83De29	Z
		7066.13	0.15			–1.3	–			Bdn		03Fi.A	
	ave.	7065.93	0.09			0.0	1	100	89 ^{66}Cu			average	
^{66}Co(β^-)^{66}Ni		9700	500	9890	250	0.4	R					88Bo06	
^{66}Ni(β^-)^{66}Cu		200	30	252.0	1.6	1.7	B					56Jo20	
^{66}Ga(β^+)^{66}Zn		5175.0	3.0				2					63Ca03	
^{66}Ge(β^+)^{66}Ga		2100	30				3					70De39	
^{66}As(β^+)^{66}Ge		9550	50	10120	680	11.4	C			ANB		79Da.A	
*^{66}Co–C$_{5.5}$	Original –60160(300) or M=–56040(280) keV											GAu	**
*^{66}Co–C$_{5.5}$	M–A=–55480(270) keV for mixture gs+m+n at 175(3) and 642(5) keV											Nubase	**
*	and assuming for first isomer a ratio R=0.5(0.2) to ground-state,											GAu	**
*	from half-life=1.21 μs and TOF=1 μs											GAu	**
^{67}Fe–C$_{5.583}$		–50190	500	–49050	450	1.5	2			TO5	1.5	94Se12	*
		–48430	370			–1.1	2			TO6	1.5	98Ba.A	*
^{67}Co–C$_{5.583}$		–59390	300	–59110	340	0.6	2			TO5	1.5	94Se12	
		–58730	350			–0.7	2			TO6	1.5	98Ba.A	
^{67}Ni–C$_{5.583}$		–68370	430	–68431	3	–0.1	U			TO5	1.5	94Se12	*
		–68090	470			–0.5	U			TO6	1.5	98Ba.A	*
^{67}Ni–^{85}Rb$_{.788}$		1079.1	3.1				2			MA8	1.0	03Gu.A	
^{67}Cu–^{85}Rb$_{.788}$		–2760.0	1.3				2			MA8	1.0	03Gu.A	
^{67}As–C$_{5.583}$		–60500	260	–60810	110	–1.2	U			GA6	1.0	02Li24	
^{67}Zn N–^{66}Zn ^{15}N		4060.21	0.25	4059.03	0.23	–1.9	1	14	12 ^{67}Zn	H30	2.5	77Ba10	
^{64}Zn(α,n)^{67}Ge		–8987.5	12.	–8992	5	–0.4	2			ANL		78Mu05	
		–8993	5			0.2	2					79Al04	
^{66}Zn(n,γ)^{67}Zn		7052.5	0.6	7052.33	0.22	–0.3	–					71Ot01	Z
		7052.5	0.5			–0.3	–					75De.A	Z
		7052.5	0.3			–0.6	–			Bdn		03Fi.A	
	ave.	7052.50	0.24			–0.7	1	85	70 ^{67}Zn			average	
^{67}Cu(β^-)^{67}Zn		577	8	561.7	1.5	–1.9	U					53Ea11	
^{67}Zn(p,n)^{67}Ga		–1783.3	1.4	–1783.1	1.2	0.2	1	71	55 ^{67}Ga	Oak		64Jo11	Z
^{67}As(β^+)^{67}Ge		6010	100				3			ANB		80Mu12	
*^{67}Fe–C$_{5.583}$	Original –50000(500) or -46570(470) keV											GAu	**
*^{67}Fe–C$_{5.583}$	M–A=–44930(330) keV for mixture gs+m at 367(3) keV											Nubase	**
*^{67}Ni–C$_{5.583}$	Original –67840(300) or M=–63190(280) keV											GAu	**
*^{67}Ni–C$_{5.583}$	M–A=–62930(330) keV for mixture gs+m at 1007(3) keV											Nubase	**
^{68}Fe–C$_{5.667}$		–46300	500				2			TO6	1.5	98Ba.A	
^{68}Co–C$_{5.667}$		–55640	350	–55130	340	1.0	2			TO5	1.5	94Se12	
		–54750	300			–0.8	2			TO6	1.5	98Ba.A	
^{68}Ni–C$_{5.667}$		–68030	930	–68131	3	–0.1	U			TO5	1.5	94Se12	*
		–67530	930			–0.4	U			TO6	1.5	98Ba.A	*
^{68}Ni–^{85}Rb$_{.800}$		2437.0	3.2				2			MA8	1.0	03Gu.A	
^{68}Cu–C$_{5.667}$		–70570	440	–70389.1	1.7	0.3	U			TO6	1.5	98Ba.A	*
^{68}Cu–^{85}Rb$_{.800}$		179.1	1.7				2			MA8	1.0	03Gu.A	*
^{68}Ga–^{85}Rb$_{.800}$		–1484	37	–1451.7	1.6	0.9	U			MA8	1.0	03Gu.A	
^{68}As–C$_{5.667}$		–63221	107	–63230	50	–0.1	R			GT1	1.0	01Ha66	
^{68}Se–C$_{5.667}$		–56197	86	–58200	40	–9.3	F				2.5	01La31	*
		–57560	1070			–0.6	U			GA6	1.0	02Li24	
		–58202	35				2			CP1	1.0	03Sh.A	
^{66}Ni(t,p)^{68}Ni–^{68}Zn()^{70}Zn		–2110	21	–2100	4	0.5	U			Hei		77Bh03	
^{67}Zn(n,γ)^{68}Zn		10198.2	0.4	10198.10	0.19	–0.3	–					71Ot01	Z
		10198.06	0.22			0.2	–			Bdn		03Fi.A	
	ave.	10198.09	0.19			0.0	1	100	98 ^{68}Zn			average	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{68}Cu(β^-)^{68}Zn		4580	60	4440.2	1.8	−2.3	B					64Ba13	
		4590	50			−3.0	B					72Sw01	
^{68}Zn(t,^{3}He)^{68}Cu		−4410	20	−4421.6	1.8	−0.6	U			LAl		77Sh08	
^{68}Ga(β^+)^{68}Zn		2921.1	1.2				2					72Sl03	
^{68}As(β^+)^{68}Ge		8100	100	8080	40	−0.2	2			ANB		77Pa13	
		8073	54			0.1	2					02Cl.A	*
*^{68}Ni−C$_{5.667}$		M−A=–61950(280) keV for mixture gs+n at 2849.1 keV										Ens02	**
*^{68}Ni−C$_{5.667}$		M−A=–61480(280) keV for mixture gs+n at 2849.1 keV										Ens02	**
*^{68}Cu−C$_{5.667}$		M−A=–65380(350) keV for mixture gs+m at 721.6 keV										Ens02	**
*^{68}Cu−^{85}Rb$_{.800}$		Also 948.6(1.6) uu for ^{68}Cu^m−^{85}Rb$_{.800}$, yielding Exc.= 716.7(2.2) keV										03Gu.A	**
*^{68}Se−C$_{5.667}$		F: other results of same work not trusted, see ^{80}Y										GAu	**
*^{68}As(β^+)^{68}Ge		From mass difference 8667(64) μu										02Cl.A	**
^{69}Co−C$_{5.75}$		−54800	400	−53680	360	1.9	2			TO5	1.5	94Se12	
		−53050	300			−1.4	2			TO6	1.5	98Ba.A	
^{69}Ni−C$_{5.75}$		−64600	400	−64390	4	0.4	U			TO5	1.5	94Se12	*
		−64250	450			−0.2	U			TO6	1.5	98Ba.A	*
^{69}Ni−^{85}Rb$_{.812}$		7237.0	4.0				2			MA8	1.0	03Gu.A	
^{69}Cu−^{85}Rb$_{.812}$		1056.0	1.5				2			MA8	1.0	03Gu.A	
^{69}Zn−C$_{5.75}$		−73580	400	−73449.7	1.0	0.2	U			TO6	1.5	98Ba.A	*
C$_5$ H$_9$−^{69}Ga		144852.7	2.4	144851.7	1.3	−0.2	B			M15	2.5	63Ri07	
^{69}Ga−^{85}Rb$_{.812}$		−2799.8	1.6	−2799.7	1.3	0.1	1	65	65 ^{69}Ga	MA8	1.0	03Gu.A	
^{68}Zn(n,γ)^{69}Zn		6482.3	0.8	6482.07	0.16	−0.3	U					71Ot01	Z
		6481.8	0.5			0.5	U					75De.A	Z
		6482.07	0.16				2			Bdn		03Fi.A	
^{69}Se(εp)^{68}Ge		3390	50	3390	30	0.0	–					76Ha29	
		3370	70			0.3	–					77Ma24	
	ave.	3380	40			0.1	1	71	70 ^{69}Se			average	
^{69}Zn(β^-)^{69}Ga		897	5	909.8	1.5	2.6	B					53Du03	
^{69}Ga(p,n)^{69}Ge		−3009.50	0.55	−3009.5	0.5	0.0	1	100	100 ^{69}Ge	PTB		92Bo.B	Z
^{69}As(β^+)^{69}Ge		3970	50	4010	30	0.9	–					70Bo19	
		4067	50			−1.1	–					77Ma24	
	ave.	4020	40			−0.1	1	78	78 ^{69}As			average	
^{69}Se(β^+)^{69}As		6795	52	6790	40	−0.2	1	52	30 ^{69}Se			77Ma24	
*^{69}Ni−C$_{5.75}$		M−A=–59940(330) keV for mixture gs+m+n at 321(2) and 2701(10) keV										Nubase	**
*^{69}Ni−C$_{5.75}$		M−A=–59620(380) keV for mixture gs+m+n at 321(2) and 2701(10) keV										Nubase	**
*		and assuming for second isomer a ratio R=0.13(0.06) to gs,										GAu	**
*		from half-life=439 ns and TOF=1 μs										GAu	**
*^{69}Zn−C$_{5.75}$		M−A=–68320(350) keV for mixture gs+m at 438.636 keV										Ens00	**
^{70}Co−C$_{5.833}$		−49000	600				2			TO6	1.5	98Ba.A	
^{70}Ni−C$_{5.833}$		−63980	350	−63500	370	0.9	2			TO5	1.5	94Se12	*
		−63020	350			−0.9	2			TO6	1.5	98Ba.A	*
^{70}Cu−^{85}Rb$_{.824}$		5077.6	1.7				2			MA8	1.0	03Gu.A	
^{70}Cu^m−^{85}Rb$_{.824}$		5185.7	2.2				2			MA8	1.0	03Gu.A	
^{70}Cu^n−^{85}Rb$_{.824}$		5337.4	2.3				2			MA8	1.0	03Gu.A	
^{70}Ga−^{85}Rb$_{.824}$		−1293.0	2.3	−1292.8	1.3	0.1	1	32	32 ^{70}Ga	MA8	1.0	03Gu.A	
C$_5$ H$_{10}$−^{70}Ge		154001.3	2.2	154002.9	1.1	0.3	1	4	4 ^{70}Ge	M15	2.5	63Ri07	
C$_4$ H$_6$ O−^{70}Ge		117616.1	1.8	117617.4	1.1	0.3	1	6	6 ^{70}Ge	M15	2.5	63Ri07	
^{70}Se−C$_{5.833}$		−66890	490	−66610	70	0.6	U			GA6	1.0	98Ch20	
		−66635	75			0.3	2			GT1	1.0	01Ha66	
		−66520	140			−0.6	2			GA6	1.0	02Li24	
^{70}Zn ^{35}Cl−^{68}Zn ^{37}Cl		3429.5	1.7	3425.2	2.3	−0.6	1	11	9 ^{70}Zn	H18	4.0	64Ba03	
^{70}Zn(^{3}He,^{8}B)^{65}Co		−18385	13				2			Pri		78Ko24	
^{70}Zn(α,^{7}Be)^{67}Ni		−19155	36	−19167	3	−0.3	U			Tex		78Co.A	
		−19164	22			−0.1	U			Pri		78Ko28	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{70}Ge(p,α)^{67}Ga		1180.9	1.5	1180.6	1.2	−0.2	1	65	45	^{67}Ga	NDm		76Jo01	
^{70}Zn(^{14}C,^{16}O)^{68}Ni		1727	30	1656	4	−2.4	U				Ors		88Gi04	
^{70}Zn(^{18}O,^{20}Ne)^{68}Ni		172	26	160	4	−0.5	U				Hei		84Ha31	
^{70}Ge(p,t)^{68}Ge		−11251	13	−11244	6	0.5	–				ChR		72Hs01	
		−11242	7			−0.3	–				Ors		77Gu02	
	ave.	−11244	6			0.0	1	99	99	^{68}Ge			average	
^{70}Zn(^{14}C,^{15}O)^{69}Ni		−8936	150	−9422	4	−3.2	B				Ors		84De33	
^{70}Zn(d,^{3}He)^{69}Cu		−5605	10	−5623.9	2.4	−1.9	U				ANL		78Ze04	
		−5622	13			−0.1	U				Hei		84Ha31	
^{70}Zn(t,α)^{69}Cu		8682	20	8696.5	2.4	0.7	U				LAl		81Aj02	
^{69}Ga(n,γ)^{70}Ga		7654.0	1.0	7653.65	0.17	−0.4	U						71Ar12	Z
		7653.65	0.17			0.0	1	100	65	^{70}Ga	Bdn		03Fi.A	
^{70}Ge(d,^{3}He)^{69}Ga		−3030	7	−3030.8	1.6	−0.1	U				Ors		78Ro14	
^{70}Cu(β^-)^{70}Zn		6310	110	6588.5	2.5	2.5	U						75Re09	*
		5928	110			6.0	U						75Re09	*
^{70}Zn(t,^{3}He)^{70}Cu		−6559	20	−6569.9	2.5	−0.5	U				LAl		77Sh08	
		−6602	20			1.6	U				LAl		87Aj.A	
^{70}Zn(p,n)^{70}Ga		−1436.1	2.0	−1436.9	1.6	−0.3	–				Nvl		59Go68	Z
		−1439.1	3.0			0.8	–				Oak		64Jo11	Z
	ave.	−1437.2	1.6			0.2	1	94	91	^{70}Zn			average	
^{70}Ga(β^-)^{70}Ge		1650	10	1653.0	1.6	0.3	U						57Bu41	
^{70}As(β^+)^{70}Ge		6220	50				2						63Bo14	
^{70}Se(β^+)^{70}As		2736	85	2300	80	−5.2	B						01To06	
^{70}Br(β^+)^{70}Se		9970	170	10620#	300#	3.8	D				ANB		79Da.A	*
*^{70}Ni−C$_{5.833}$		Original –63860(350) or M=–59490(330) keV											GAu	**
*^{70}Ni−C$_{5.833}$		M−A=–58590(330) keV for mixture gs+m at 2860(2) keV and											Nubase	**
*		assuming ratio R=0.04(2), from half-life=210ns and TOF=1 μs											GAu	**
*^{70}Cu(β^-)^{70}Zn		E=4550(120), 3370(170) to 1786.5, 3038.2 level											NDS931	**
*^{70}Cu(β^-)^{70}Zn		E$^-$=6170(110) from 1+ 242 level											02We03	**
*^{70}Br(β^+)^{70}Se		Systematical trends suggest ^{70}Br 650 less bound											CTh	**
^{71}Co−C$_{5.917}$		−47100	600				2				TO6	1.5	98Ba.A	
^{71}Ni−C$_{5.917}$		−60000	400	−59260	400	1.2	2				TO5	1.5	94Se12	
		−58700	350			−1.1	2				TO6	1.5	98Ba.A	
^{71}Cu−^{85}Rb$_{.835}$		6332.4	1.6				2				MA8	1.0	03Gu.A	
^{71}Zn−C$_{5.917}$		−72080	380	−72278	11	−0.3	U				TO6	1.5	98Ba.A	*
C$_5$ H$_{11}$−^{71}Ga		161370.2	3.2	161374.0	1.1	0.5	U				M15	2.5	63Ri07	
^{71}Ga−^{85}Rb$_{.835}$		−1641.6	3.0	−1643.1	1.1	−0.5	1	13	13	^{71}Ga	MA8	1.0	03Gu.A	
^{71}Se−C$_{5.917}$		−68160	340	−67760	30	1.2	U				GA6	1.0	98Ch20	
		−67687	75			−0.9	R				GT1	1.0	01Ha66	
		−67830	120			0.6	U				GA6	1.0	02Li24	
^{71}Br−C$_{5.917}$		−61260	610				2				GA6	1.0	02Li24	
^{70}Zn(^{18}O,^{17}F)^{71}Cu		−9529	35	−9586.7	2.5	−1.6	U				Ber		89Bo.A	
^{70}Zn(d,p)^{71}Zn		3609	10				2				ANL		67Vo05	
^{70}Ge(n,γ)^{71}Ge		7415.95	0.15	7415.94	0.11	0.0	–				MMn		91Is01	Z
		7415.93	0.15			0.1	–				Bdn		03Fi.A	
	ave.	7415.94	0.11			0.0	1	100	64	^{70}Ge			average	
^{70}Ge(p,γ)^{71}As		4619	5	4620	4	0.2	R						75Li14	
^{71}Ge(ε)^{71}Ga		233.0	0.5	232.51	0.22	−1.0	–				Hei		84Ha.A	
		229.3	1.0			3.2	F						91Zl01	*
		232.1	0.5			0.8	–						93Di03	*
		232.71	0.29			−0.7	–						95Le19	
	ave.	232.65	0.22			−0.6	1	94	61	^{71}Ge			average	
^{71}Ga(^{3}He,t)^{71}Ge−^{65}Cu()^{65}Zn		1122.0	0.9	1119.6	0.4	−2.7	1	18	7	^{65}Zn	Pri		84Ko10	
^{71}As(β^+)^{71}Ge		1997	20	2013	4	0.8	U						53St31	
		2010	10			0.3	2						54Th36	
		2012	10			0.1	2						55Gr08	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{71}Se(β^+)^{71}As	4428	125	4780	30	2.8	B						73Sc17	
	4762	35			0.5	3						01To06	
^{71}Kr(ε)^{71}Br	10140	320				3						97Oi01	
∗^{71}Zn−C$_{5.917}$	M−A=–67060(350) keV for mixture gs+m at 157.7 keV											Ens93	∗∗
∗^{71}Ge(ε)^{71}Ga	F: sees 17 keV neutrino											AHW	∗∗
∗^{71}Ge(ε)^{71}Ga	Original error 0.1 increased for calibration uncertainty											GAu	∗∗
^{72}Ni−C$_6$	−58700	500	−57910	470	1.1	2				TO5	1.5	94Se12	
	−57400	400			−0.8	2				TO6	1.5	98Ba.A	
^{72}Cu−C$_6$	−64250	510	−64179.7	1.5	0.1	U				TO6	1.5	98Ba.A	∗
^{72}Cu−^{85}Rb$_{.847}$	10534.4	1.5				2				MA8	1.0	03Gu.A	
^{72}Ga−^{85}Rb$_{.847}$	1079.5	1.5	1080.4	1.1	0.6	1	53	53	^{72}Ga	MA8	1.0	03Gu.A	
C$_4$ H$_8$ O−^{72}Ge	135438.4	2.1	135439.1	1.8	0.1	1	11	11	^{72}Ge	M15	2.5	63Ri07	
^{72}Kr−^{85}Rb$_{.847}$	16806.5	8.6	16806	9	0.0	1	100	100	^{72}Kr	MA8	1.0	02Ro.A	
^{70}Ge H$_2$−^{72}Ge	17821.3	1.7	17821.6	2.0	0.1	1	22	16	^{72}Ge	M15	2.5	63Ri07	
^{70}Zn(t,p)^{72}Zn	6231	20	6228	6	−0.2	U				Ald		72Hu06	
^{71}Ga(n,γ)^{72}Ga	6521.1	1.0	6520.45	0.19	−0.6	U						70Li04	Z
	6520.44	0.19			0.1	1	99	52	^{71}Ga	Bdn		03Fi.A	
^{72}Ge(d,^{3}He)^{71}Ga	−4241	7	−4241.2	1.8	0.0	U				Ors		78Ro14	
^{72}Zn(β^-)^{72}Ga	458	6				2						63Th03	
^{72}As(β^+)^{72}Ge	4361	10	4356	4	−0.5	2						50Me55	
	4345	10			1.1	2						68Vi05	
^{72}Ge(p,n)^{72}As	−5140	5	−5138	4	0.3	2				Kyu		76Ki12	
^{72}Br(β^+)^{72}Se	8869	95	8880	60	0.1	1	40	39	^{72}Br			01To06	
^{72}Kr(β^+)^{72}Br	5040	80	5070	60	0.4	1	55	55	^{72}Br			73Sc17	
∗^{72}Cu−C$_6$	M−A=–59710(470) keV for mixture gs+m at 270(3) keV											Nubase	∗∗
^{73}Ni−C$_{6.083}$	−52500	500	−53530#	320#	−1.4	D				TO6	1.5	98Ba.A	∗
^{73}Cu−C$_{6.083}$	−62740	350	−63325	4	−1.1	U				TO6	1.5	98Ba.A	
^{73}Cu−^{85}Rb$_{.859}$	12447.9	4.2				2				MA8	1.0	03Gu.A	
^{73}Zn−C$_{6.083}$	−70100	380	−70220	40	−0.2	U				TO6	1.5	98Ba.A	∗
^{73}Ga−^{85}Rb$_{.859}$	947.3	1.8				2				MA8	1.0	03Gu.A	
C$_4$ H$_9$ O−^{73}Ge	141878.4	2.1	141881.0	1.8	0.5	1	11	11	^{73}Ge	M15	2.5	63Ri07	
^{73}Br−C$_{6.083}$	−68428	97	−68310	50	1.2	1	32	32	^{73}Br	GT1	1.0	01Ha66	
^{73}Kr−^{85}Rb$_{.859}$	15062.8	9.7	15062	7	−0.1	2				MA8	1.0	02He23	
	15060.7	10.3			0.1	2				MA8	1.0	02Ro.A	
^{73}Br−^{72}Br	−4610	330	−4950	80	−0.4	U				CR1	2.5	89Sh10	∗
	−4709	166			−1.0	1	11	6	^{72}Br	CR2	1.5	91Sh19	∗
^{72}Ge(n,γ)^{73}Ge	6782.94	0.05	6782.94	0.05	0.0	1	98	72	^{72}Ge	MMn		91Is01	Z
	6783.12	0.15			−1.2	U				Bdn		03Fi.A	
^{72}Ge(^{3}He,d)^{73}As	160	4	166	4	1.6	1	80	80	^{73}As	Hei		76Sc13	
^{73}Kr(εp)^{72}Se	3700	150	4054	14	2.4	B						81Ha44	
^{73}Se(β^+)^{73}As	2740	10	2739	10	−0.1	1	99	99	^{73}Se			56Ha10	
^{73}Br(β^+)^{73}Se	4648	400	4590	50	−0.1	U						74Ro11	∗
	4688	140			−0.7	–						87He21	∗
	4610	70			−0.3	–						01To06	
ave.	4630	60			−0.6	1	65	64	^{73}Br			average	
^{73}Kr(β^+)^{73}Br	6790	350	7080	50	0.8	U						73Sc17	
	6860	220			1.0	U						97Oi01	
∗^{73}Ni−C$_{6.083}$	Systematical trends suggest ^{73}Ni 960 more bound											GAu	∗∗
∗^{73}Zn−C$_{6.083}$	M−A=–65200(350) keV for mixture gs+m at 195.5 keV											Ens93	∗∗
∗^{73}Br−^{72}Br	D_M=–4660(330) uu corrected for ^{72}Br gs+m mixture at 100.92 keV											Ens95	∗∗
∗^{73}Br−^{72}Br	From ^{72}Br/^{73}Br=0.98635312(227)											AHW	∗∗
∗^{73}Br(β^+)^{73}Se	E$^+$ =3600(400) to ^{73}Se^m at 25.71											NDS938	∗∗
∗^{73}Br(β^+)^{73}Se	E$^+$ =3640(140) to ^{73}Se^m at 25.71											NDS938	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{74}Cu$-$C$_{6.167}$		$-$59400	400	$-$60125	7	$-$1.2	U			TO6	1.5	98Ba.A	
^{74}Cu$-^{85}$Rb$_{.871}$		16706.0	6.6				2			MA8	1.0	03Gu.A	
^{74}Ga$-^{85}$Rb$_{.871}$		3777.1	22.6	3777	4	0.0	U			MA8	1.0	02Ke.A	$*$
		3776.9	4.0				2			MA8	1.0	03Gu.A	
C ^{32}S$_2-^{74}$Ge H$_2$		7314.0	1.4	7314.2	1.8	0.0	1	25	25 ^{74}Ge	M15	2.5	63Ri07	
C$_6$ H$_2-^{74}$Se		93173.8	3.8	93173.6	1.8	0.0	U			M15	2.5	63Ri07	
^{74}Kr$-^{85}$Rb$_{.871}$		9916.8	2.6	9915.5	2.2	$-$0.5	–			MA8	1.0	02He23	
		9909.7	4.4			1.3	–			MA8	1.0	02Ro.A	
	ave.	9915.0	2.2			0.2	1	96	96 ^{74}Kr			average	
^{74}Rb$-^{85}$Rb$_{.871}$		21109	19	21096	4	$-$0.7	o			MA8	1.0	02He23	
		21097.9	4.3			$-$0.5	1	84	84 ^{74}Rb	MA8	1.0	03Ke.A	
^{74}Rb$-$C$_{6.167}$		$-$55770	107	$-$55735	4	0.3	U			P40	1.0	02Vi.A	
^{74}Ge ^{35}Cl$-^{72}$Ge ^{37}Cl		2052.01	0.26	2052.04	0.10	0.1	1	7	3 ^{74}Ge	H44	1.5	91Hy01	
^{74}Se(p,t)^{72}Se		$-$11979	12	$-$11979	12	0.0	1	99	99 ^{72}Se	Win		74De31	
^{74}Ge(d,^{3}He)^{73}Ga		$-$5515	7	$-$5518.6	2.3	$-$0.5	U			Ors		78Ro14	
		$-$5509	13			$-$0.7	U			Hei		84Ha31	
^{73}Ge(n,γ)^{74}Ge		10195.90	0.15	10196.22	0.06	2.1	–			ILn		85Ho.A	Z
		10196.31	0.07			$-$1.3	–			MMn		91Is01	Z
		10196.06	0.20			0.8	–			Bdn		03Fi.A	
	ave.	10196.22	0.06			0.0	1	97	62 ^{73}Ge			average	
^{74}Se(d,^{3}He)^{73}As		$-$3027	8	$-$3052	4	$-$3.1	1	20	20 ^{73}As	Ors		83Ro08	$*$
^{74}Zn(β^-)^{74}Ga		2350	100	2340	50	$-$0.1	U					72Er05	
^{74}Ga(β^-)^{74}Ge		5400	100	5373	4	$-$0.3	U					62Ei02	
^{74}As(β^+)^{74}Ge		2558	4	2562.5	1.7	1.1	–					71Bo01	$*$
^{74}Ge(p,n)^{74}As		$-$3343.5	5.6	$-$3344.8	1.7	$-$0.2	–			Tkm		63Ok01	
		$-$3348.3	5.			0.7	–			Oak		64Jo11	Z
		$-$3346	5			0.2	–					70Fi03	Z
		$-$3347	3			0.7	–			Kyu		73Ki11	
^{74}As(β^+)^{74}Ge	ave.	2562.9	1.9	2562.5	1.7	$-$0.2	1	82	82 ^{74}As			average	
^{74}As(β^-)^{74}Se		1351	4	1352.8	1.8	0.4	1	19	18 ^{74}As			71Bo01	$*$
^{74}Br(β^+)^{74}Se		6857	100	6907	15	0.5	U					69La15	$*$
^{74}Se(p,n)^{74}Br		$-$7689	15				2					75Lu02	$*$
^{74}Kr(β^+)^{74}Br		3000	200	2975	15	$-$0.1	U					74Ro11	
		3327	125			$-$2.8	U					75Sc07	
^{74}Rb(β^+)^{74}Kr		10405	9	10414	4	1.1	1	20	16 ^{74}Rb			03Pi08	$*$
$*^{74}$Ga$-^{85}$Rb$_{.871}$		D_M=3780.1(22.5) uu corrected –2.8(1.6) keV for gs+m mixture R$<$0.1										02Ke.A	$**$
$*^{74}$Se(d,^{3}He)^{73}As		Q=–3033(8) for Q(^{76}Se(d,^{3}He))=–4020.7(2.0), now 4014.5										AHW	$**$
$*^{74}$As(β^+)^{74}Ge		Original error increased: E(0)$-$E(2)=593.1(1.5) but										AHW	$**$
$*$		E(2)=595.88(0.04), see also ^{84}Rb(β^+)										AHW	$**$
$*^{74}$As(β^-)^{74}Se		Original value 1350.1(0.7), error increased, see ^{84}Rb(β^+)										AHW	$**$
$*^{74}$Br(β^+)^{74}Se		E$^+$ =5200(100), 4500(100) to 634.76, 1363.21 levels										69La15	$**$
$*$		from ^{74}Br^m at 13.8(0.5)										93Do05	$**$
$*^{74}$Se(p,n)^{74}Br		T=7868(15) to 72.65 (not 63) level										AHW	$**$
$*^{74}$Rb(β^+)^{74}Kr		Deduced from measured half-life and branching ratio										GAu	$**$

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{75}Cu$-$C$_{6.25}$		$-$58100	700				2			TO6	1.5	98Ba.A	
^{75}Ga$-^{85}$Rb$_{.882}$		4301.7	2.6				2			MA8	1.0	03Gu.A	
C$_3$ H$_7$ O$_2-^{75}$As		123009.8	2.6	123008.0	2.0	$-$0.3	1	9	9 ^{75}As	M15	2.5	63Ri07	
^{75}As$-^{85}$Rb$_{.882}$		$-$601.3	7.6	$-$602.1	2.0	$-$0.1	U			MA8	1.0	02Ke.A	
^{75}Kr$-^{85}$Rb$_{.882}$		8747.2	8.7				2			MA8	1.0	02He23	
^{75}Rb$-$C$_{6.25}$		$-$61430	8				2			MA2	1.0	94Ot01	
^{74}Ge(n,γ)^{75}Ge		6505.26	0.08	6505.31	0.07	0.6	2			MMn		91Is01	Z
		6505.45	0.14			$-$1.0	2			Bdn		03Fi.A	
^{74}Ge(p,γ)^{75}As		6901.6	5.	6898.9	1.0	$-$0.5	U					74Wa08	
^{74}Ge(^{3}He,d)^{75}As		1414	4	1405.5	1.0	$-$2.1	U			Hei		76Sc13	
^{74}Se(n,γ)^{75}Se		8027.60	0.08	8027.60	0.07	0.0	–			ILn		84To11	Z
		8027.59	0.16			0.1	–			Bdn		03Fi.A	
	ave.	8027.60	0.07			0.0	1	100	99 ^{74}Se			average	
^{75}Zn(β^-)^{75}Ga		6060	80	6000	70	$-$0.8	3			Stu		86Ek01	
^{75}As(p,n)^{75}Se		$-$1647.2	2.0	$-$1645.7	0.8	0.7	–			Nvl		59Go68	Z
		$-$1647.3	1.1			1.5	–			Oak		64Jo11	Z
	ave.	$-$1647.3	1.0			1.6	1	71	63 ^{75}As			average	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$^{75}\mathrm{Br}(\beta^{+})^{75}\mathrm{Se}$	3010	20	3030	14	1.0	2						52Fu04	
	3030	50			0.0	U						61Ba43	
	3050	20			−1.0	2						69Ra24	
$^{75}\mathrm{Sr}(\varepsilon)^{75}\mathrm{Rb}$	10600	220				3						03Hu01	
$^{76}\mathrm{Cu}-^{85}\mathrm{Rb}_{.894}$	24135.0	7.2				2				MA8	1.0	03Gu.A	
$^{76}\mathrm{Ga}-^{85}\mathrm{Rb}_{.894}$	7687.6	2.1				2				MA8	1.0	03Gu.A	
$\mathrm{C}\ ^{32}\mathrm{S}_2-^{76}\mathrm{Ge}$	22741.6	1.5	22739.4	1.8	−0.6	U				M15	2.5	63Ri07	
$^{76}\mathrm{Ge}-\mathrm{C}_{6.333}$	−78597.242	0.096	−78597.4	1.8	−2.1	U				ST2	1.0	01Do08	
$^{76}\mathrm{Kr}-^{85}\mathrm{Rb}_{.894}$	4774.3	4.7	4770	4	−0.9	1	85	85	$^{76}\mathrm{Kr}$	MA8	1.0	02He23	
$^{76}\mathrm{Rb}-\mathrm{C}_{6.333}$	−64929	8	−64927.8	2.0	0.2	U				MA2	1.0	94Ot01	
$^{76}\mathrm{Rb}-^{85}\mathrm{Rb}_{.894}$	13932.2	2.0				2				MA8	1.0	02He23	
$^{76}\mathrm{Sr}-\mathrm{C}_{6.333}$	−58813	107	−58230	40	2.2	F					2.5	01La31	*
$^{76}\mathrm{Sr}\ ^{19}\mathrm{F}-\mathrm{C}_{7.917}$	−59830	40				2				MA8	1.0	01Si.A	
$^{76}\mathrm{Ge}\ ^{35}\mathrm{Cl}-^{74}\mathrm{Ge}\ ^{37}\mathrm{Cl}$	3174.61	0.41	3174.9	0.5	0.4	1	69	43	$^{76}\mathrm{Ge}$	H44	1.5	91Hy01	
$^{76}\mathrm{Se}\ ^{35}\mathrm{Cl}-^{74}\mathrm{Ge}\ ^{37}\mathrm{Cl}$	986.30	0.65	985.9	0.5	−0.4	1	28	17	$^{76}\mathrm{Se}$	H44	1.5	91Hy01	
$^{76}\mathrm{Ge}-^{76}\mathrm{Se}$	2188.60	0.42	2188.96	0.05	0.6	U				H44	1.5	91Hy01	
	2188.963	0.054			0.0	1	100	53	$^{76}\mathrm{Ge}$	ST2	1.0	01Do08	
$^{75}\mathrm{Rb}-^{76}\mathrm{Rb}_{.493}\ ^{74}\mathrm{Rb}_{.507}$	−1140	170	−1083	8	0.1	U				P20	2.5	82Au01	
$^{76}\mathrm{Ge}(^{14}\mathrm{C},^{17}\mathrm{O})^{73}\mathrm{Zn}$	−3974	40				2				Ors		84Be10	
$^{76}\mathrm{Ge}(^{14}\mathrm{C},^{16}\mathrm{O})^{74}\mathrm{Zn}$	163	40	250	50	2.2	2				Ors		84Be10	
$^{76}\mathrm{Ge}(^{18}\mathrm{O},^{20}\mathrm{Ne})^{74}\mathrm{Zn}$	−1219	21	−1240	50	−1.2	2				Hei		84Ha31	
$^{76}\mathrm{Ge}(^{14}\mathrm{C},^{15}\mathrm{O})^{75}\mathrm{Zn}$	−10354	150	−10580	70	−1.5	R				Ors		84De33	
$^{76}\mathrm{Ge}(\mathrm{d},^{3}\mathrm{He})^{75}\mathrm{Ga}$	−6545	7	−6544.0	2.9	0.1	U				Ors		78Ro14	
	−6536	22			−0.4	U				Hei		84Ha31	
$^{75}\mathrm{As}(\mathrm{n},\gamma)^{76}\mathrm{As}$	7328.421	0.075	7328.41	0.07	−0.1	1	100	84	$^{76}\mathrm{As}$	ILn		90Ho10	Z
	7328.81	0.15			−2.7	B				Bdn		03Fi.A	
$^{75}\mathrm{Se}(\mathrm{n},\gamma)^{76}\mathrm{Se}$	11154.15	0.30	11154.35	0.29	0.7	1	97	91	$^{75}\mathrm{Se}$	ILn		83To20	Z
$^{76}\mathrm{Zn}(\beta^{-})^{76}\mathrm{Ga}$	4160	80				3				Stu		86Ek01	
$^{76}\mathrm{Ga}(\beta^{-})^{76}\mathrm{Ge}$	7010	90	6916.4	2.6	−1.0	U				Stu		86Ek01	
$^{76}\mathrm{As}(\beta^{-})^{76}\mathrm{Se}$	2970	2	2962.5	0.8	−3.7	1	17	16	$^{76}\mathrm{As}$			69Na11	
$^{76}\mathrm{Br}(\beta^{+})^{76}\mathrm{Se}$	5002	20	4963	9	−2.0	2						71Dz08	
$^{76}\mathrm{Br}(\mathrm{n},\mathrm{p})^{76}\mathrm{Se}$	5730	15	5745	9	1.0	2				ILL		78An14	
$^{76}\mathrm{Se}(\mathrm{p},\mathrm{n})^{76}\mathrm{Br}$	−5738.6	15.	−5745	9	−0.4	2						75Lu02	
$*^{76}\mathrm{Sr}-\mathrm{C}_{6.333}$	F: other results of same work not trusted, see ^{80}Y											GAu	**
$^{77}\mathrm{Zn}-\mathrm{C}_{6.417}$	−62790	780	−63040	130	−0.2	U				TO6	1.5	98Ba.A	*
$^{77}\mathrm{Ga}-^{85}\mathrm{Rb}_{.906}$	9072.8	2.6				2				MA8	1.0	03Gu.A	
$^{77}\mathrm{Kr}-^{85}\mathrm{Rb}_{.906}$	4588.5	2.1				2				MA8	1.0	02He23	
$^{77}\mathrm{Rb}-\mathrm{C}_{6.417}$	−69592	8				2				MA2	1.0	94Ot01	
$^{77}\mathrm{Sr}\ ^{19}\mathrm{F}-\mathrm{C}_{8}$	−63652	10				2				MA8	1.0	01Si.A	
$^{75}\mathrm{Rb}-^{77}\mathrm{Rb}_{.325}\ ^{74}\mathrm{Rb}_{.676}$	−1340	380	−1058	11	0.3	U				P20	2.5	82Au01	
$^{76}\mathrm{Ge}(\mathrm{n},\gamma)^{77}\mathrm{Ge}$	6072.5	1.0	6072.3	0.4	−0.2	U						72Gr34	Z
	6071.7	1.2			0.5	U						72Ha74	Z
	6072.3	0.4				2				Bdn		03Fi.A	
$^{76}\mathrm{Ge}(^{3}\mathrm{He},\mathrm{d})^{77}\mathrm{As}$	2497	3	2499.0	1.8	0.7	1	34	31	$^{77}\mathrm{As}$	Hei		76Sc13	
$^{76}\mathrm{Se}(\mathrm{n},\gamma)^{77}\mathrm{Se}$	7418.87	0.20	7418.86	0.06	0.0	–				BNn		81En07	
	7418.85	0.07			0.1	–				ILn		85To10	Z
	7418.85	0.15			0.1	–				Bdn		03Fi.A	
ave.	7418.85	0.06			0.1	1	99	72	$^{77}\mathrm{Se}$			average	
$^{77}\mathrm{Sr}(\varepsilon\mathrm{p})^{76}\mathrm{Kr}$	3850	200	3921	10	0.4	U						76Ha29	
$^{77}\mathrm{Zn}(\beta^{-})^{77}\mathrm{Ga}$	7270	120				3				Stu		86Ek01	
$^{77}\mathrm{Ga}(\beta^{-})^{77}\mathrm{Ge}$	5340	60	5221.7	3.0	−2.0	U				Stu		77Al17	
$^{77}\mathrm{As}(\beta^{-})^{77}\mathrm{Se}$	679	4	683.0	1.8	1.0	1	19	18	$^{77}\mathrm{As}$			51Je01	
$^{77}\mathrm{Se}(\mathrm{p},\mathrm{n})^{77}\mathrm{Br}$	−2147	4	−2147.0	2.8	0.0	2				Oak		58Jo01	
	−2147.0	4.			0.0	2				Tkm		63Ok01	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference
^{77}Kr(β^+)^{77}Br	3012	30	3065	4	1.8	U					55Th01
^{77}Rb(β^+)^{77}Kr	5272	26	5345	8	2.8	B					82Mo10
	5113	69			3.4	B			BNL		83Li11
^{77}Sr(β^+)^{77}Rb	6986	227	7020	12	0.2	U			BNL		83Li11
$*^{77}$Zn$-$C$_{6.417}$	M$-$A=–58100(700) keV for mixture gs+m at 772.39 keV										Ens97 $**$
^{78}Ga$-^{85}$Rb$_{.918}$	12585.2	2.6				2			MA8	1.0	03Gu.A
C$_6$ H$_6-^{78}$Se	129642.6	2.2	129641.1	1.8	-0.3	1	10	10 ^{78}Se	M15	2.5	63Ri07
C$_6$ H$_6-^{78}$Kr	126548.3	3.6	126585.4	1.2	4.1	B			M15	2.5	63Ri07
^{78}Kr$-^{85}$Rb$_{.918}$	1342.3	1.4	1341.8	1.2	-0.4	–			MA8	1.0	02He23
	1338.9	2.2			1.3	–			MA8	1.0	02Ro.A
ave.	1341.3	1.2			0.4	1	95	95 ^{78}Kr			average
^{78}Rb$-$C$_{6.5}$	-71859	8				2			MA2	1.0	94Ot01
^{78}Sr$-$C$_{6.5}$	-67820	8				2			MA2	1.0	94Ot01
^{78}Se ^{35}Cl$-^{76}$Ge ^{37}Cl	-1143.57	0.72	-1143.38	0.20	0.2	1	3	2 ^{78}Se	H44	1.5	91Hy01
^{78}Se ^{35}Cl$-^{76}$Se ^{37}Cl	1044.58	0.45	1045.59	0.19	1.5	1	8	5 ^{78}Se	H44	1.5	91Hy01
^{77}Rb$-^{78}$Rb$^x_{.494}$ ^{76}Rb$_{.507}$	-1192	19	$*$			U			P20	2.5	82Au01
^{78}Kr(α,^{8}He)^{74}Kr	-41080	75	-41021	7	0.8	U			Tex		82Mo23 $*$
^{78}Se(p,α)^{75}As	870.9	2.3	870.4	0.8	-0.2	1	13	12 ^{75}As	NDm		82Zu04
^{78}Kr(^{3}He,^{6}He)^{75}Kr	-12581	14	-12520	8	4.4	B					87Mo06
^{76}Ge(t,p)^{78}Ge	6310	5	6310	4	0.0	2			LAl		78Ar12
	6310	5			0.0	2			Phi		81St18
^{78}Kr(α,^{6}He)^{76}Kr	-20351	10	-20336	4	1.5	R			Tex		82Mo23 $*$
^{78}Kr(p,t)^{76}Kr	-12840	15	-12826	4	0.9	U			Tky		81Ma30
^{78}Se(d,^{3}He)^{77}As	-4904	4	-4905.0	1.8	-0.3	1	19	18 ^{77}As	Ors		83Ro08 $*$
^{77}Se(n,γ)^{78}Se	10497.7	0.3	10497.81	0.16	0.4	–			BNn		81En07 Z
	10497.75	0.21			0.3	–			Bdn		03Fi.A
ave.	10497.73	0.17			0.4	1	90	64 ^{78}Se			average
^{78}Kr(d,t)^{77}Kr	-5804	7	-5824.4	2.2	-2.9	B					87Mo06
^{78}Zn(β^-)^{78}Ga	6440	140	6360	90	-0.5	o			Stu		86Ek01
	6364	90				3			Stu		00Me.A
^{78}Ga(β^-)^{78}Ge	8200	80	8156	5	-0.6	o			Stu		86Ek01
	8054	43			2.4	B			Stu		00Me.A
^{78}Ge(β^-)^{78}As	967	30	955	10	-0.4	R					65Fr04
	987	20			-1.6	R					65Kv01
^{78}Se(p,n)^{78}Br	-4344	10	-4356	4	-1.2	2			Bar		61Ri02
	-4370	10			1.4	2			LAl		61Sc11
	-4355.5	7.4			-0.1	2			Tkm		63Ok01 Z
	-4356	5			0.0	2					70Fi03 Z
^{78}Rb^x(IT)^{78}Rb	74	12				3					82Au01 $*$
$*^{78}$Kr(α,^{8}He)^{74}Kr	Original –41120(75) for 4 events included 1 background event										GAu $**$
$*^{78}$Kr(α,^{6}He)^{76}Kr	Replaced by calibration free ^{80}Kr(α,^{6}He)^{78}Kr$-^{78}$Kr()^{76}Kr										GAu $**$
$*^{78}$Se(d,^{3}He)^{77}As	Original value –4910(4) corrected, see ^{74}Se(d,^{3}He)										AHW $**$
$*^{78}$Rb^x(IT)^{78}Rb	Corrected; using ^{78}Rb^m(IT)=111.2										GAu $**$
C$_6$ H$_7-^{79}$Br	136444.3	2.4	136438.1	2.2	-1.0	U			M15	2.5	63Ri07
^{79}Kr$-$C$_{6.583}$	-79981	52	-79918	4	1.2	U			GS2	1.0	03Li.A $*$
^{79}Rb$-$C$_{6.583}$	-76013	8	-76011	6	0.3	1	65	65 ^{79}Rb	MA2	1.0	94Ot01
^{79}Sr$-$C$_{6.583}$	-70292	9				2			MA2	1.0	94Ot01
^{78}Se(n,γ)^{79}Se	6962.6	0.3	6962.83	0.13	0.8	2					79Br.A Z
	6962.2	0.3			2.1	2			BNn		81En07 Z
	6963.11	0.17			-1.6	2			Bdn		03Fi.A
^{78}Kr(^{3}He,d)^{79}Rb	-1585	10	-1581	6	0.4	1	36	35 ^{79}Rb	Phi		87St11
^{79}Zn(β^-)^{79}Ga	8550	240	9090#	240#	2.2	D			Stu		86Ek01 $*$
^{79}Ga(β^-)^{79}Ge	7000	80	6980	40	-0.3	o			Stu		86Ek01
	6979	40				4			Stu		00Me.A
^{79}Ge(β^-)^{79}As	4300	200	4150	90	-0.8	3					70Ka04
	4110	100			0.4	3			Stu		81Al20
^{79}Kr(β^+)^{79}Br	1612	10	1626	3	1.4	4					52Be55
	1620	5			1.2	4					54Th39
	1635	5			-1.8	4					64Bo25

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{79}Y(β^+)^{79}Sr	7120	450				3					92Mu12	
*^{79}Kr−$C_{6.583}$	M−A=–74437(30) keV for mixture gs+m at 129.77 keV										NDS025	**
*^{79}Zn(β^-)^{79}Ga	Systematical trends suggest ^{79}Zn 540 less bound										GAu	**
C_6 H_8−^{80}Se	146068.5	2.9	146079.0	2.1	1.4	U			M15	2.5	63Ri07	
C_6 H_8−^{80}Kr	146225.7	4.6	146221.3	1.6	−0.4	U			M15	2.5	63Ri07	
^{80}Kr−^{85}Rb$_{.941}$	−614.5	1.7	−615.2	1.6	−0.4	1	86	86 ^{80}Kr	MA8	1.0	02He23	
^{80}Rb−$C_{6.667}$	−77478	8	−77481	7	−0.3	1	88	88 ^{80}Rb	MA2	1.0	94Ot01	
^{80}Sr−$C_{6.667}$	−75475	8	−75479	7	−0.5	2			MA2	1.0	94Ot01	
	−75493	15			0.9	2			MA8	1.0	01Si.A	
^{80}Y−$C_{6.667}$	−65720	190				2			1.0	1.0	98Is06	
	−66664	86	−65720	190	4.4	F				2.5	01La31	*
^{80}Zr−$C_{6.667}$	−59600	1600				2			1.0	1.0	98Is06	
	−59740	161	−59600	1600	0.3	F				2.5	01La31	*
^{80}Se(p,α)^{77}As	1020.0	2.8	1020.7	2.0	0.2	1	49	33 ^{77}As	NDm		82Zu04	
^{80}Kr(^{3}He,^{6}He)^{77}Kr	−10398	24	−10386.9	2.6	0.5	U					87Mo06	
^{80}Se(d,α)^{78}As	5755	12	5768	10	1.1	2			Phi		77Mo13	
^{80}Se(p,t)^{78}Se	−8395.1	3.0	−8394.7	1.6	0.1	–			NDm		82Zu04	
ave.	−8394.1	2.1			−0.3	1	58	43 ^{80}Se			average	
^{80}Kr(α,^{6}He)^{78}Kr−^{78}Kr()^{76}Kr	1432	10	1453	5	2.1	R					78Kr-2	
	1432	10			2.1	1	21	15 ^{76}Kr			82Mo23	
^{80}Se(d,^{3}He)^{79}As	−5921	7	−5919	5	0.3	2			Ors		83Ro08	*
	−5921	13			0.2	2			Hei		83Wi14	
^{80}Se(t,α)^{79}As	8407	10	8401	5	−0.6	2			Phi		83Mo09	
^{80}Se(p,d)^{79}Se	−7687.6	3.0	−7689.1	1.6	−0.5	R			NDm		82Zu04	
^{79}Br(n,γ)^{80}Br	7892.11	0.20	7892.28	0.13	0.8	3			ILn		78Do06	Z
	7892.41	0.18			−0.7	3			Bdn		03Fi.A	
^{80}Zn(β^-)^{80}Ga	7540	200	7290	120	−1.2	3			Stu		86Ek01	
	7150	150			0.9	3			Trs		86Gi07	
^{80}Ga(β^-)^{80}Ge	10380	120				2			Stu		86Ek01	
^{80}Ge(β^-)^{80}As	2630	20	2644	19	0.7	1	91	78 ^{80}Ge	Trs		86Gi07	
^{80}Se(t,^{3}He)^{80}As	−5560	25	−5582	23	−0.9	1	86	86 ^{80}As	LAl		79Aj02	
^{80}Se(p,n)^{80}Br	−2652.81	0.31				2			PTB		92Bo02	Z
^{80}Br(β^-)^{80}Kr	1970	30	2003.0	2.4	1.1	U					52Fu04	
	2040	20			−1.8	U					54Li19	
	1997	10			0.6	U					69Ka06	
^{80}Kr(p,n)^{80}Rb	−6484.0	20.	−6502	7	−0.9	1	13	12 ^{80}Rb			72Ja.A	
^{80}Y(β^+)^{80}Sr	6952	152	9090	180	14.1	D			BNL		81Li12	*
	6934	242			8.9	D					82De36	*
*^{80}Y−$C_{6.667}$	F: above lower limit M=–65890(90) uu –61376(83) keV determined by ref										03Ba18	**
*^{80}Zr−$C_{6.667}$	F: other results of same work not trusted, see ^{80}Y and ^{68}Se										GAu	**
*^{80}Se(d,^{3}He)^{79}As	Originally –5927(7), see ^{74}Se(d,^{3}He)										AHW	**
*^{80}Y(β^+)^{80}Sr	Systematical trends suggest ^{80}Y 2200 less bound										GAu	**
C_6 H_9−^{81}Br	154135.3	3.8	154134.7	2.1	−0.1	U			M15	2.5	63Ri07	
^{81}Rb−$C_{6.75}$	−81001	8	−81004	6	−0.4	1	65	65 ^{81}Rb	MA2	1.0	94Ot01	
	−80958	41			−1.1	U			GS2	1.0	03Li.A	*
^{81}Sr−$C_{6.75}$	−76786	8	−76788	7	−0.3	2			MA2	1.0	94Ot01	
	−76793	12			0.4	2			MA8	1.0	01Si.A	
^{79}Rb−^{81}Rb$_{.325}$ ^{78}Rb$^x_{.675}$	−1130	30	−1149	15	−0.2	U			P20	2.5	82Au01	Y
^{80}Rb−^{81}Rb$_{.494}$ ^{79}Rb$_{.506}$	927	29	928	8	0.0	U			P20	2.5	82Au01	Y
^{80}Se(n,γ)^{81}Se	6700.9	0.5	6700.9	0.4	0.0	2			BNn		81En07	Z
	6700.9	0.5			0.0	2			Bdn		03Fi.A	
^{80}Kr(d,p)^{81}Kr	5646	4	5648.3	2.3	0.6	1	32	21 ^{81}Kr	Oak		86Bu18	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{80}Kr(^{3}He,d)^{81}Rb	−637	10	−642	6	−0.5	1	37	35	^{81}Rb	Phi		87St11	
^{81}Zr(εp)^{80}Sr	4700	200	4530	170	−0.8	3						99Hu05	
^{81}Ga(β^-)^{81}Ge	8320	150				4				Stu		81Al20	
^{81}Ge(β^-)^{81}As	6230	120				3				Stu		81Al20	*
^{81}Kr(ε)^{81}Br	280.7	0.5	280.8	0.5	0.2	1	94	74	^{81}Kr			88Ax01	*
^{81}Y(β^+)^{81}Sr	5408	86	5510	60	1.2	3				BNL		81Li12	
	5620	89			−1.2	3						82De36	
^{81}Zr(β^+)^{81}Y	7160	290	7530	180	1.3	R						82De36	
*^{81}Rb−$C_{6.75}$	M−A=–75369(29) keV for mixture gs+m at 86.31 keV											NDS96b	**
*^{81}Ge(β^-)^{81}As	Q^-=6230(120); and 6930(280) from ^{81}Ge^m at 679.13											NDS936	**
*^{81}Kr(ε)^{81}Br	Q(ε)=4.7(0.5) to 275.99 level											AHW	**
C_6 H_{10}−^{82}Se	161545.0	4.6	161550.9	2.2	0.5	U				M15	2.5	63Ri07	
C_6 H_{10}−^{82}Kr	164769.8	3.4	164766.7	1.9	−0.4	U				M15	2.5	63Ri07	
^{82}Kr−^{85}Rb$_{.965}$	−1394.9	2.6	−1393.5	1.9	0.5	1	54	54	^{82}Kr	MA8	1.0	02He23	
^{82}Rb−$C_{6.833}$	−81790	9	−81791.4	3.0	−0.2	1	11	11	^{82}Rb	MA2	1.0	94Ot01	*
	−81775	39			−0.4	U				GS2	1.0	03Li.A	*
^{82}Rb^m−^{85}Rb$_{.965}$	3406.0	2.8	3405.7	2.6	−0.1	1	88	88	^{82}Rb^m	MA8	1.0	03Gu.A	
^{82}Sr−$C_{6.833}$	−81606	8	−81598	6	1.0	1	56	56	^{82}Sr	MA2	1.0	94Ot01	
	−81604	63			0.1	U				GS2	1.0	03Li.A	
^{82}Se ^{35}Cl−^{80}Se ^{37}Cl	3128.92	0.63	3128.2	1.2	−0.4	1	61	33	^{82}Se	H40	2.5	85El01	
^{82}Se−^{82}Kr	3216.1	1.6	3215.8	2.0	−0.1	1	70	44	^{82}Se	H45	1.5	93Nx01	
^{79}Rb−^{82}Rb$_{.241}$ ^{78}Rb$^x_{.760}$	−1536	29	−1627	15	−1.3	U				P20	2.5	82Au01	Y
^{81}Rb−^{82}Rb$_{.741}$ ^{78}Rb$^x_{.260}$	−1680	40	−1615	15	0.6	U				P20	2.5	82Au01	Y
^{80}Rb−^{82}Rb$_{.325}$ ^{79}Rb$_{.675}$	440	40	381	8	−0.6	U				P20	2.5	82Au01	Y
^{82}Se(^{14}C,^{16}O)^{80}Ge	−449	60	−322	28	2.1	1	22	22	^{80}Ge	Ors		83Be.C	
^{82}Se(^{18}O,^{20}Ne)^{80}Ge	−2020	40	−1818	28	5.0	B				Hei		83Wi14	*
^{82}Se(p,t)^{80}Se	−7496.1	3.0	−7494.9	1.1	0.4	–				NDm		82Zu04	
ave.	−7495.8	2.1			0.4	1	30	17	^{82}Se			average	
^{82}Se(d,^{3}He)^{81}As	−6864	10	−6856	5	0.8	2				Ors		83Ro08	*
^{82}Se(t,α)^{81}As	7467	6	7464	5	−0.5	2				Phi		82Mo04	
^{82}Se(p,d)^{81}Se	−7051.8	2.8	−7051.2	1.2	0.2	R				NDm		82Zu04	
^{81}Br(n,γ)^{82}Br	7592.80	0.20	7592.94	0.12	0.7	–				ILn		78Do06	Z
	7593.02	0.15			−0.5	–				Bdn		03Fi.A	
ave.	7592.94	0.12			0.0	1	100	80	^{81}Br			average	
^{82}Ge(β^-)^{82}As	4700	140				3				Stu		81Al20	
^{82}As(β^-)^{82}Se	7270	200				2						70Va31	
	7740	30	7270	200	−15.7	B				Stu		00Me.A	
^{82}As^m(β^-)^{82}Se	6600	200	7519	25	4.6	F						70Ka04	
	7625	22			−4.8	B				Stu		00Me.A	
^{82}Se(t,^{3}He)^{82}As^m	−7500	25				2				LAl		79Aj02	
^{82}Br(β^-)^{82}Kr	3092.9	1.0	3093.0	1.0	0.1	1	96	80	^{82}Br			56Wa24	
^{82}Rb(β^+)^{82}Kr	4400	15	4401	3	0.1	–						69Be74	*
^{82}Kr(p,n)^{82}Rb	−5161	20	−5184	3	−1.1	–						72Ja.A	
^{82}Rb(β^+)^{82}Kr ave.	4392	12	4401	3	0.7	1	7	5	^{82}Rb			average	
^{82}Rb^m(IT)^{82}Rb	69.0	1.5	69.1	1.5	0.1	1	96	84	^{82}Rb			Ens03	
^{82}Y(β^+)^{82}Sr	7868	185	7820	100	−0.3	2				BNL		81Li12	
	7793	123			0.2	2						82De36	
^{82}Zr(β^+)^{82}Y	4000	500	4000#	200#	0.0	F						82De36	*
*^{82}Rb−$C_{6.833}$	M=–81716(9) μu for ^{82}Rb^m at 68.9(1.5) keV											NDS95c	**
*^{82}Rb−$C_{6.833}$	M−A=–76138(30) keV for mixture gs+m at 69.1(1.5) keV											Ens95	**
*^{82}Se(^{18}O,^{20}Ne)^{80}Ge	Recalibrated to ^{64}Ni()^{62}Fe=–1938(15)											AHW	**
*^{82}Se(d,^{3}He)^{81}As	Originally –6870(10), see ^{74}Se(d,^{3}He)											AHW	**
*^{82}Rb(β^+)^{82}Kr	E^+ =3350(60); and 800(15) of ^{82}Rb^m at 68.9(1.5) to 2648.36 level											NDS95c	**
*^{82}Zr(β^+)^{82}Y	For 2.5(0.1) m activity, but Ensdf$_{2003}$ adopts 32(5) s											Nubase	**

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$C_6\,H_{11}-{}^{83}Kr$	171946.8	3.4	171939	3	−0.9	1	13	13	^{83}Kr	M15	2.5	63Ri07	
$^{83}Rb-C_{6.917}$	−84886	8	−84890	6	−0.5	1	65	65	^{83}Rb	MA2	1.0	94Ot01	
$^{83}Sr-{}^{83}Rb$	2447	9				2				MA2	1.0	94Ot01	
$^{83}Kr-{}^{82}Kr$	648	12	652	3	0.1	U				M15	2.5	63Ri07	
$^{81}Rb-{}^{83}Rb_{.488}\ {}^{79}Rb_{.513}$	−529	26	−544	7	−0.2	U				P20	2.5	82Au01	Y
$^{81}Rb-{}^{83}Rb_{.325}\ {}^{80}Rb_{.675}$	−1054	27	−1039	8	0.2	U				P20	2.5	82Au01	Y
$^{82}Rb-{}^{83}Rb_{.659}\ {}^{80}Rb_{.342}$	627	24	605	5	−0.4	U				P20	2.5	82Au01	Y
$^{82}Rb-{}^{83}Rb_{.494}\ {}^{81}Rb_{.506}$	1098	23	1055	5	−0.7	U				P21	2.5	82Au01	Y
$^{82}Se(d,p)^{83}Se$	3593.4	3.0				2				NDm		78Mo12	
$^{82}Se(^{3}He,d)^{83}Br$	3207.4	5.6	3210	4	0.5	1	56	50	^{83}Br	NDm		83Zu01	
$^{82}Kr(^{3}He,d)^{83}Rb$	288	10	281	6	−0.7	1	37	35	^{83}Rb	Phi		87St11	
$^{83}Zr(\varepsilon p)^{82}Sr$	2750	100	2260	100	−4.9	B						83Ha06	
$^{83}As(\beta^-)^{83}Se$	5460	220				3				Stu		77Al17	
$^{83}Br(\beta^-)^{83}Kr$	982	10	973	4	−0.9	–						51Du03	
	967	15			0.4	U						63Pa09	
	966	6			1.1	–						69Ph03	
ave.	970	5			0.5	1	63	50	^{83}Br			average	
$^{83}Sr(\beta^+)^{83}Rb$	2264	10				2						68Et01	
$^{83}Y(\beta^+)^{83}Sr$	4509	85	4470	40	−0.5	3				BNL		81Li12	∗
	4455	50			0.3	3						82De36	∗
$^{83}Zr(\beta^+)^{83}Y$	5868	85				4						82De36	∗
$^{83}Nb(\beta^+)^{83}Zr$	7500	300				5						88Ku14	
$\ast{}^{83}Y(\beta^+)^{83}Sr$	E^+ =2868(85) from $^{83}Y^m$ at 62.0 to 681.11 level											NDS926	∗∗
$\ast{}^{83}Y(\beta^+)^{83}Sr$	E^+ =3353(50) to 35.47 level											NDS926	∗∗
∗	and E^+ =2941(84) from $^{83}Y^m$ at 62.0 to 681.11 level											NDS926	∗∗
$\ast{}^{83}Zr(\beta^+)^{83}Y$	Q^+ =5806(85) to $^{83}Y^m$ at 62.0											NDS926	∗∗
$\ast{}^{83}Zr(\beta^+)^{83}Y$	Recalculated value 5802(50) of ref. not accepted											87Ra06	∗∗

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$C_6\,H_{12}-{}^{84}Kr$	182399.4	2.5	182394	3	−0.9	1	23	23	^{84}Kr	M15	2.5	63Ri07	
$^{84}Rb-C_7$	−85616	8	−85615	3	0.1	1	14	14	^{84}Rb	MA2	1.0	94Ot01	
$C_6\,H_{12}-{}^{84}Sr$	180470.8	2.6	180475	3	0.7	1	28	28	^{84}Sr	M15	2.5	63Ri07	
$^{82}Se(t,p)^{84}Se$	6016	15	6019	14	0.2	1	92	92	^{84}Se	LAl		74Kn02	
$^{84}Sr(p,t)^{82}Sr$	−12310	10	−12296	6	1.4	–				Oak		73Ba56	
	−12295	12			−0.1	–				Win		74De31	
ave.	−12304	8			1.0	1	53	44	^{82}Sr			average	
$^{83}Kr(n,\gamma)^{84}Kr$	10519.5	1.8	10520.60	0.30	0.6	U						72Ma42	Z
	10520.6	0.3			0.0	1	100	75	^{83}Kr	Bdn		03Fi.A	
$^{84}Sr(d,t)^{83}Sr$	−5720	30	−5662	11	1.9	B						70Be24	∗
$^{84}As(\beta^-)^{84}Se$	7195	200	9870#	300#	13.4	F				Trs		94Gi07	∗
$^{84}Se(\beta^-)^{84}Br$	1818	50	1848	20	0.6	1	16	8	^{84}Br			68Re12	
	1808	100			0.4	U						70Ei02	
$^{84}Br(\beta^-)^{84}Kr$	4629	15	4632	14	0.2	1	92	92	^{84}Br			70Ha21	∗
$^{84}Br^m(\beta^-)^{84}Kr$	4970	100				2						70Ha21	∗
$^{84}Rb(\beta^+)^{84}Kr$	2679	3	2681.0	2.3	0.7	–						64La03	
	2682	5			−0.2	–						71Bo01	∗
ave.	2679.8	2.6			0.5	1	80	40	^{84}Rb			average	
$^{84}Rb(\beta^-)^{84}Sr$	892	4	894	3	0.5	1	63	39	^{84}Sr			71Bo01	∗
$^{84}Y(\beta^+)^{84}Sr$	6499	135	6490	90	−0.1	2				BNL		81Li12	
	6475	124			0.1	2						82De36	
$^{84}Y^m(\beta^+)^{84}Sr$	6409	170				2				BNL		81Li12	
$\ast{}^{84}Sr(d,t)^{83}Sr$	Q=–5755(30) to 35.47 level											NDS	∗∗
$\ast{}^{84}As(\beta^-)^{84}Se$	Observed (β^-n) decay implies $Q\beta > 8681(15)$											93Ru01	∗∗
$\ast{}^{84}Br(\beta^-)^{84}Kr$	E^-=4626(15),3810(50),2700(50) to ground-state, 881.615, 1897.784											NDS976	∗∗
$\ast{}^{84}Br^m(\beta^-)^{84}Kr$	E^-=2200(100) to 2770.95 5^- level											NDS976	∗∗
$\ast{}^{84}Rb(\beta^+)^{84}Kr$	Original error increased: $E_0-E(2^+)$=877.2(1.5) but											AHW	∗∗
∗	$E(2^+)$=881.56(0.08), see also $^{74}As(\beta^+)$											NDS	∗∗
$\ast{}^{84}Rb(\beta^-)^{84}Sr$	Originally 891.8(2.0), error increased see $^{84}Rb(\beta^+)$											AHW	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
C$_6$ H$_{13}-^{85}$Rb		189927.6	3.9	189935.679	0.012	0.8	U			M15	2.5	63Ri07	
^{85}Y$-$C$_{7.083}$		$-$83559	31	$-$83567	20	$-$0.3	2			GS2	1.0	03Li.A	$*$
C$_6$ H$_{14}-^{85}$Rb		197760.706	0.014	197760.711	0.012	0.4	–			MI2	1.0	99Br47	
^{85}Rb$-$C$_6$ H$_{12}$		$-$182110.662	0.024	$-$182110.647	0.012	0.6	–			MI2	1.0	99Br47	
C$_6$ H$_{14}-^{85}$Rb	ave.	197760.711	0.012	197760.711	0.012	0.0	1	100	100 ^{85}Rb			average	
^{83}Rb$-^{85}$Rb$_{.488}$ ^{81}Rb$_{.512}$		$-$351	22	$-$344	7	0.1	U			P21	2.5	82Au01	Y
^{84}Kr(d,p)^{85}Kr		4895	8	4896	3	0.1	1	17	12 ^{84}Kr	MIT		63Ho.A	
^{85}Rb(p,d)^{84}Rb		$-$8275	6	$-$8264.1	2.8	1.8	1	22	22 ^{84}Rb	Bld		78Sh11	
^{84}Sr(d,p)^{85}Sr		6303	8	6305	4	0.3	1	25	14 ^{84}Sr			71Mo02	
^{85}Mo(εp)^{84}Zr		5100	200				3					99Hu05	
^{85}Se(β^-)^{85}Br		6182	23				3			Bwg		92Gr.A	
^{85}Br(β^-)^{85}Kr		2870	19				2			Stu		79Al05	
^{85}Kr(β^-)^{85}Rb		687	2	687.1	1.9	0.0	1	95	95 ^{85}Kr			70Wo08	
^{85}Rb(^{3}He,t)^{85}Sr		$-$1083	3	$-$1083.3	2.8	$-$0.1	1	89	89 ^{85}Sr	Pri		82Ko06	
^{85}Y(β^+)^{85}Sr		3255	25	3260	19	0.2	R					63Do07	$*$
^{85}Zr(β^+)^{85}Y		4693	99				3					82De36	
^{85}Nb(β^+)^{85}Zr		6000	200				4					88Ku14	
$*^{85}$Y$-$C$_{7.083}$	M$-$A=–77824(28) keV for mixture gs+m at 19.8 keV											Ens94	$**$
$*^{85}$Y(β^+)^{85}Sr	E$^+$ =1540(20) to 743.13 level											NDS912	$**$
$*$	and E$^+$ =2240(10) from ^{85}Y^m at 19.8 (discrepant $->$ outer error used)											NDS912	$**$
C$_6$ H$_{14}-^{86}$Kr		198936.7	2.7	198939.72	0.11	0.4	U			M15	2.5	63Ri07	
^{86}Kr$-$C$_{7.167}$		$-$89389.271	0.110				2			ST2	1.0	02Bf02	
C$_6$ H$_{14}-^{86}$Sr		200264.9	3.6	200290.2	1.2	2.8	B			M15	2.5	63Ri07	
^{86}Sr ^{19}F$-$C$_{8.75}$		$-$92332	12	$-$92336.6	1.2	$-$0.4	U			MA8	1.0	01Si.A	
^{86}Y$-$C$_{7.167}$		$-$85019	75	$-$85114	15	$-$1.3	U			GS2	1.0	03Li.A	$*$
^{86}Kr$-^{85}$Rb$_{1.012}$		$-$120.3	3.6	$-$120.49	0.11	$-$0.1	U			MA8	1.0	02Ro.A	
^{86}Sr(p,t)^{84}Sr		$-$11535	10	$-$11541	3	$-$0.6	1	11	10 ^{84}Sr	Oak		73Ba56	
^{85}Rb(n,γ)^{86}Rb		8651.1	1.0	8651.00	0.20	$-$0.1	U					69Da15	Z
		8651.3	1.5			$-$0.2	U					70Or.A	
		8650.98	0.20			0.1	1	99	99 ^{86}Rb	Bdn		03Fi.A	
^{86}Se(β^-)^{86}Br		5099	11				4			Bwg		92Gr.A	
^{86}Br(β^-)^{86}Kr		7626	11				3			Bwg		92Gr.A	
^{86}Rb(β^-)^{86}Sr		1774	5	1776.6	1.1	0.5	–					64Da16	
		1770	3			2.2	–					66An10	
		1779.2	2.5			$-$1.1	–					75Be21	
		1775	3			0.5	–					75Ra09	
	ave.	1775.2	1.5			0.9	1	49	48 ^{86}Sr			average	
^{86}Y(β^+)^{86}Sr		5220	20	5240	14	1.0	2					62Ya01	
		5260	20			$-$1.0	2					65Va02	
^{86}Nb(β^+)^{86}Zr		7978	80				3					82De43	
^{86}Mo(β^+)^{86}Nb		5270	430				4					94Sh07	$*$
$*^{86}$Y$-$C$_{7.167}$	M$-$A=–79086(29) keV for mixture gs+m at 218.30 keV											NDS018	$**$
$*^{86}$Mo(β^+)^{86}Nb	E$^+$ =4000(400) to (0$^+$,1$^+$,2$^+$) level at estimated 250(160)											94Sh07	$**$
^{87}Kr$-$C$_{7.25}$		$-$86622	30	$-$86645.14	0.29	$-$0.8	U			GS2	1.0	03Li.A	
C$_4$ H$_7$ O$_2-^{87}$Rb		135417.8	2.7	135423.937	0.013	0.9	U			M15	2.5	63Ri07	
^{87}Rb$-$C$_{7.25}$		$-$90817	9	$-$90819.473	0.013	$-$0.3	U			MA2	1.0	94Ot01	
C$_4$ H$_7$ O$_2-^{87}$Sr		135722.2	3.5	135727.3	1.2	0.6	U			M15	2.5	63Ri07	
^{87}Y$-$C$_{7.25}$		$-$89153	30	$-$89124.3	1.7	1.0	U			GS2	1.0	03Li.A	$*$
^{87}Zr$-$C$_{7.25}$		$-$85222	30	$-$85184	9	1.3	U			GS2	1.0	03Li.A	
C$_6$ H$_{16}-^{87}$Rb		216019.966	0.023	216019.986	0.013	0.9	–			MI2	1.0	99Br47	
^{87}Rb$-$C$_6$ H$_{14}$		$-$200369.931	0.015	$-$200369.922	0.013	0.6	–			MI2	1.0	99Br47	
C$_6$ H$_{16}-^{87}$Rb	ave.	216019.986	0.013	216019.986	0.013	0.0	1	100	100 ^{87}Rb			average	
^{84}Rb$-^{87}$Rb$_{.241}$ ^{83}Rb$_{.759}$		850	72	656	5	$-$1.1	U			P21	2.5	82Au01	$*$

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{87}Sr(p,t)^{85}Sr		−11440	10	−11439	3	0.1	U			Oak		73Ba56	
^{87}Br(β^-n)^{86}Kr		1335	25	1337	18	0.1	R					84Kr.B	
^{86}Kr(n,γ)^{87}Kr		5515.04	0.6	5515.17	0.25	0.2	3					77Je03	Z
		5515.20	0.27			−0.1	3			Bdn		03Fi.A	
^{86}Sr(n,γ)^{87}Sr		8428.12	0.17	8428.15	0.12	0.2	–			ILn		86Wi16	Z
		8428.17	0.17			−0.1	–			Bdn		03Fi.A	
	ave.	8428.15	0.12			0.1	1	100	51 ^{86}Sr			average	
^{86}Sr(p,γ)^{87}Y		5785.4	3.3	5784.1	1.1	−0.4	R					71Um03	
^{87}Mo(εp)^{86}Zr		3700	300	2820	230	−2.9	B					83Ha06	
^{87}Se(β^-)^{87}Br		7275	35				5			Bwg		92Gr.A	
^{87}Br(β^-)^{87}Kr		6855	25	6852	18	−0.1	4			Bwg		92Gr.A	
^{87}Kr(β^-)^{87}Rb		3888	7	3888.37	0.27	0.1	U					73Wo01	
^{87}Rb(β^-)^{87}Sr		272	3	282.6	1.1	3.5	B					59Fl40	
		274	3			2.9	B					61Be41	
^{87}Rb(^{3}He,t)^{87}Sr−^{81}Br()^{81}Kr		564.0	1.5	563.4	1.1	−0.4	1	51	46 ^{87}Sr	Pri		82Ko06	
^{87}Sr(p,n)^{87}Y		−2644.2	1.2	−2644.0	1.1	0.1	2					71Um03	Z
^{87}Nb(β^+)^{87}Zr		5165	60				3					82De43	∗
^{87}Mo(β^+)^{87}Nb		6382	308	6490	210	0.3	4					82De43	∗
		6589	300			−0.3	4					91Mi15	∗
∗^{87}Y−C$_{7.25}$		M−A=–82665(28) keV for ^{87}Y^m at Eexc=380.82 keV										NDS023	∗∗
∗^{84}Rb−^{87}Rb$_{.241}$ ^{83}Rb$_{.759}$		D_M=1080(40) keV corrected –230(60) for mixture gs+m at 464.62 keV										GAu	∗∗
∗^{87}Nb(β^+)^{87}Zr		Q$^+$ =5169(60) from ^{87}Nb^m at 3.9(0.1)										91Ju05	∗∗
∗^{87}Mo(β^+)^{87}Nb		Q$^+$ =6378(308)) to ^{87}Nb^m at 3.9(0.1)										91Ju05	∗∗
∗^{87}Mo(β^+)^{87}Nb		E$^+$ =5300(300) to level 262.7 above ^{87}Nb^m at 3.9(0.1)										91Ju05	∗∗
C$_4$ H$_8$ O$_2$−^{88}Sr		146789.1	4.7	146817.4	1.2	2.4	B			M15	2.5	63Ri07	
^{88}Sr−C$_{7.333}$		−94386	11	−94387.9	1.2	−0.2	U			MA8	1.0	01Si.A	
^{88}Y−C$_{7.333}$		−90500	31	−90498.9	2.0	0.0	U			GS2	1.0	03Li.A	
^{88}Rb−^{85}Rb$_{1.035}$		2615	9	2613.21	0.17	−0.2	U			MA4	1.0	02Ra23	
^{88}Sr−^{85}Rb$_{1.035}$		−3108	20	−3090.3	1.2	0.9	U			MA8	1.0	02Ke.A	
^{86}Kr(t,p)^{88}Kr		4091	15	4087	13	−0.2	3			LAl		76Fl02	
^{87}Rb(n,γ)^{88}Rb		6082.52	0.16				2			Bdn		03Fi.A	
^{87}Sr(n,γ)^{88}Sr		11112.63	0.22	11112.64	0.16	0.1	–			ILn		87Wi15	Z
		11112.64	0.22			0.0	–			Bdn		03Fi.A	
	ave.	11112.64	0.16			0.1	1	100	95 ^{88}Sr			average	
^{88}Se(β^-)^{88}Br		6854	31				5			Bwg		92Gr.A	
^{88}Br(β^-)^{88}Kr		8960	36				4			Bwg		92Gr.A	
^{88}Kr(β^-)^{88}Rb		2930	30	2917	13	−0.4	R			Trs		78Wo15	
^{88}Rb(β^-)^{88}Sr		5318	9	5312.7	1.1	−0.6	U			Gsn		80De02	∗
		5313	5			−0.1	U			Trs		82Br23	
^{88}Y(β^+)^{88}Sr		3622.6	1.5				2					79An36	
^{88}Nb(β^+)^{88}Zr		7550	100				3					84Ox01	
^{88}Nb^m(β^+)^{88}Zr		7590	100				3					84Ox01	
^{88}Tc(β^+)^{88}Mo		8600	1300	9990#	200#	1.1	D					96Od01	∗
		7800	600			3.6	D					96Sh27	∗
∗^{88}Rb(β^-)^{88}Sr		Original error 4 corrected by ref										94Ha.A	∗∗
∗^{88}Tc(β^+)^{88}Mo		Systematical trends suggest ^{88}Tc 2050 less bound										CTh	∗∗
C$_7$ H$_5$−^{89}Y		133247.0	3.4	133276.9	2.7	3.5	B			M15	2.5	63Ri07	
^{89}Nb−C$_{7.417}$		−86588	34	−86582	29	0.2	2			GS2	1.0	03Li.A	∗
^{89}Rb−^{85}Rb$_{1.047}$		4628	9	4634	6	0.7	1	42	42 ^{89}Rb	MA4	1.0	02Ra23	
^{88}Sr(n,γ)^{89}Sr		6358.70	0.13	6358.72	0.09	0.1	–			ILn		89Wi05	Z
		6358.73	0.13			−0.1	–			Bdn		03Fi.A	
	ave.	6358.71	0.09			0.0	1	100	95 ^{89}Sr			average	
^{88}Sr(p,γ)^{89}Y		7078	4	7069.0	2.6	−2.3	B					75Be.B	Z

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference
^{89}Br(β^-)^{89}Kr	8155	30				3			Bwg		92Gr.A
^{89}Kr(β^-)^{89}Rb	4970	60	4990	50	0.3	2			Trs		78Wo15
	5030	100			−0.4	2			Stu		81Ho17
^{89}Rb(β^-)^{89}Sr	4486	12	4497	5	0.9	–					66Ki06
	4510	9			−1.5	–			Gsn		80De02 $*$
ave.	4501	7			−0.7	1	57	56 ^{89}Rb			average
^{89}Sr(β^-)^{89}Y	1488	4	1492.6	2.6	1.2	1	42	38 ^{89}Y			70Wo05
^{89}Zr(β^+)^{89}Y	2841	10	2832.9	2.8	−0.8	U					51Hy24
	2832	10			0.1	U					53Sh48
	2828	7			0.7	–					60Ha26
^{89}Y(p,n)^{89}Zr	−3612.8	4.	−3615.2	2.8	−0.6	–			Tkm		63Ok01 Z
	−3619.4	6.			0.7	–			Oak		64Jo11 Z
^{89}Zr(β^+)^{89}Y ave.	2832	3	2832.9	2.8	0.4	1	86	82 ^{89}Zr			average
^{89}Nb(β^+)^{89}Zr	4340	50	4218	27	−2.4	B					74Vo08
^{89}Tc(β^+)^{89}Mo	7510	210	7160#	200#	−1.7	D					91He04 $*$
$*^{89}$Nb$-$C$_{7.417}$	M$-$A=–80656(28) keV for mixture gs+m at 0#30 keV										Nubase $**$
$*^{89}$Rb(β^-)^{89}Sr	Original error 8 corrected by ref										94Ha.A $**$
$*^{89}$Tc(β^+)^{89}Mo	E$^+$ =6370(210) to 118.8 level; no Fermi$-$Kurie plot										91He04 $**$
$*^{89}$Tc(β^+)^{89}Mo	Systematical trends suggest ^{89}Tc 350 more bound										GAu $**$
C$_4$ H$_{10}$ O$_2-^{90}$Zr	163377	6	163375.1	2.5	−0.1	U			M15	2.5	63Ri07
^{90}Nb$-$C$_{7.5}$	−88872	50	−88735	5	2.7	U			GS2	1.0	03Li.A $*$
^{90}Rb$-^{85}$Rb$_{1.059}$	8211	9	8216	7	0.6	1	61	61 ^{90}Rb	MA4	1.0	02Ra23 $*$
^{89}Rb$-^{90}$Rb$^x_{.791}$ ^{85}Rb$_{.209}$	−1826	24	−1821	14	0.1	U			P21	2.5	82Au01
^{90}Zr(α,^{8}He)^{86}Zr	−40136	30				2			INS		90Ka01
^{90}Zr(^{3}He,^{6}He)^{87}Zr	−12083	8				2			MSU		78Pa11
^{90}Zr(p,t)^{88}Zr	−12805	10				2			Oak		71Ba43
^{89}Y(n,γ)^{90}Y	6857.26	0.30	6857.03	0.10	−0.8	–					83De17
	6856.98	0.17			0.3	–			ILn		93Mi04 Z
	6857.01	0.14			0.1	–			Bdn		03Fi.A
ave.	6857.03	0.10			0.0	1	100	52 ^{90}Y			average
^{89}Y(p,γ)^{90}Zr	8351	4	8354.5	1.7	0.9	1	17	12 ^{89}Y			75Be.B
^{90}Zr(p,d)^{89}Zr	−9728	10	−9745	3	−1.7	U			Oak		71Ba43
^{90}Zr(d,t)^{89}Zr	−5719.2	7.1	−5712	3	0.9	1	19	18 ^{89}Zr	SPa		79Bo37
^{90}Br(β^-)^{90}Kr	9800	400	10350	80	1.4	B			Stu		81Ho17
	10350	75				3			Bwg		92Gr.A
^{90}Kr(β^-)^{90}Rb	4410	30	4392	17	−0.6	2					70Ma11
	4390	40			0.0	2			Trs		78Wo15
	4380	25			0.5	2			Bwg		87Gr.A
^{90}Rb^x(IT)^{90}Rb	71	12				2					82Au01
^{90}Rb(β^-)^{90}Sr	6587	10	6580	7	−0.7	1	44	39 ^{90}Rb	Gsn		92Pr03
^{90}Sr(β^-)^{90}Y	546	2	545.9	1.4	−0.1	–					64Da16
	546	2			−0.1	–					83Ha35
ave.	546.0	1.4			−0.1	1	99	95 ^{90}Sr			average
^{90}Y(β^-)^{90}Zr	2271	2	2279.8	1.7	4.4	B					61Ni02
	2284	5			−0.8	–					64Da16
	2273	5			1.4	–					64La13
	2280	5			0.0	–					66Ri01
	2279.5	2.9			0.1	–					83Ha35
ave.	2279.2	2.0			0.3	1	66	44 ^{90}Y			average
^{90}Nb(β^+)^{90}Zr	6111	4				2					68Pe01
^{90}Mo(β^+)^{90}Nb	2489	4				3					66Pe10
^{90}Tc(β^+)^{90}Mo	9130	410	8960	240	−0.4	4					74Ia01 $*$
	8870	300			0.3	4					81Ox01
^{90}Tc^m(β^+)^{90}Mo	9270	300				4					81Ox01
$*^{90}$Nb$-$C$_{7.5}$	M$-$A=–82721(29) keV for mixture gs+n at 124.67 keV										NDS97b$**$
$*^{90}$Rb$-^{85}$Rb$_{1.059}$	D_M=8326(9) uu for ^{90}Rb^m at Eexc=106.90 keV; M$-$A=–79260(9) keV										Ens98 $**$
$*^{90}$Tc(β^+)^{90}Mo	E$^+$ =7900(400) to ground-state (22%) and 948.11 (77%) level										NDS92c$**$

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{91}Rb$-$C$_{7.583}$		−83532	21	−83463	9	1.3	U			Pb1	2.5	89Al33	
C$_7$ H$_7$$-$^{91}Zr		149143.1	4.4	149129.5	2.5	−1.2	U			M15	2.5	63Ri07	
^{91}Nb$-$C$_{7.583}$		−93064	46	−93004	4	1.3	U			GS2	1.0	03Li.A	∗
^{91}Rb$-$^{85}Rb$_{1.071}$		11003	10	11010	9	0.7	1	75	75 ^{91}Rb	MA4	1.0	02Ra23	
^{91}Sr$-$^{85}Rb$_{1.071}$		4702	9	4676	5	−2.9	1	29	29 ^{91}Sr	MA4	1.0	02Ra23	
^{90}Rb^x$-$^{91}Rb$_{.824}$ ^{85}Rb$_{.176}$		−686	24	−767	15	−1.4	U			P21	2.5	82Au01	
^{90}Zr(n,γ)^{91}Zr		7194.4	0.5	7194.5	0.5	0.1	1	99	70 ^{90}Zr			81Lo.A	Z
		7192.7	0.8			2.2	B			Bdn		03Fi.A	
^{90}Zr(p,γ)^{91}Nb		5167	5	5154.1	3.0	−2.6	o					71Ra08	
		5167	4			−3.2	B					75Be.B	Z
^{91}Ru^m(εp)^{90}Mo		4300	500				4					83Ha06	
^{91}Br(β^-)^{91}Kr		9790	100	9800	40	0.1	3			Bwg		89Gr03	
		9805	50			−0.1	3			Bwg		92Gr.A	
^{91}Kr(β^-)^{91}Rb		6420	80	6440	60	0.2	2			Trs		78Wo15	
		6450	80			−0.2	2			Bwg		89Gr03	
^{91}Rb(β^-)^{91}Sr^x		5850	20	5853	8	0.2	–			McG		83Ia02	
		5860	10			−0.7	–			Gsn		92Pr03	
	ave.	5858	9			−0.5	1	86	73 ^{91}Sr^x			average	
^{91}Sr^x(IT)^{91}Sr		70	20	47	11	−1.2	1	31	27 ^{91}Sr^x			AHW	∗
^{91}Sr(β^-)^{91}Y		2669	10	2700	4	3.1	–					53Am08	
		2684	10			1.6	–					73Ha11	∗
		2704	8			−0.5	–			Gsn		80De02	∗
		2709	15			−0.6	–			McG		83Ia02	
	ave.	2691	5			1.8	1	71	60 ^{91}Sr			average	
^{91}Y(β^-)^{91}Zr		1545	5	1545.4	1.8	0.1	–					64La13	
		1544	2			0.7	–					75Ra08	
	ave.	1544.1	1.9			0.7	1	96	89 ^{91}Y			average	
^{91}Zr(p,n)^{91}Nb		−2045	6	−2040.3	3.0	0.8	2			Oak		70Ki01	
		−2038.8	3.4			−0.4	2			Kyu		71Ma47	
^{91}Mo(β^+)^{91}Nb		4460	30	4428	12	−1.1	R					56Sm96	
		4435	23			−0.3	R					93Os06	
^{91}Tc(β^+)^{91}Mo		6220	200				3					74Ia01	

∗^{91}Nb$-$C$_{7.583}$ M−A=–86636(30) keV for mixture gs+m at 104.60 keV NDS991∗∗
∗^{91}Sr^x(IT)^{91}Sr β feeding in ^{91}Sr: <8% of ground-state and 25% of 93.628 level NDS908∗∗
∗^{91}Sr(β^-)^{91}Y Original error 4 increased: discr. with other results AHW ∗∗
∗^{91}Sr(β^-)^{91}Y Original error 3 corrected by ref 94Ha.A ∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{92}Rb$-$C$_{7.667}$		−80323	32	−80271	7	0.6	U			Pb1	2.5	89Al33	
C$_7$ H$_8$$-$^{92}Zr		157569.4	3.8	157559.4	2.5	−1.1	U			M15	2.5	63Ri07	
^{92}Nb$-$C$_{7.667}$		−92851	56	−92806	3	0.8	U			GS2	1.0	03Li.A	∗
C$_7$ H$_8$$-$^{92}Mo		155790.0	3.2	155789	4	−0.1	1	26	26 ^{92}Mo	M15	2.5	63Ri07	
^{92}Rb$-$^{85}Rb$_{1.082}$		15176	9	15172	7	−0.4	1	53	53 ^{92}Rb	MA4	1.0	02Ra23	
^{92}Sr$-$^{85}Rb$_{1.082}$		6482	9	6481	4	−0.1	–			MA4	1.0	02Ra23	
		6484.0	4.3			−0.6	–			MA8	1.0	03Gu.A	
	ave.	6484	4			−0.6	1	89	89 ^{92}Sr			average	
^{89}Rb$-$^{92}Rb$_{.553}$ ^{85}Rb$_{.449}$		−3457	24	−3470	6	−0.2	U			P21	2.5	82Au01	
^{91}Rb$-$^{92}Rb$_{.848}$ ^{85}Rb$_{.153}$		−1703	25	−1767	10	−1.0	U			P21	2.5	82Au01	
^{90}Rb^x$-$^{92}Rb$_{.699}$ ^{85}Rb$_{.303}$		−2059	24	−2128	14	−1.2	U			P21	2.5	82Au01	
^{90}Rb^x$-$^{92}Rb$_{.326}$ ^{89}Rb$_{.674}$		209	24	159	14	−0.8	U			P21	2.5	82Au01	
^{92}Mo(α,^{8}He)^{88}Mo		−43278	20				2			INS		90Ka01	
^{92}Mo(p,α)^{89}Nb		−1306	50	−1291	27	0.3	R			ANL		75Se.A	
^{92}Mo(^{3}He,^{6}He)^{89}Mo		−14465	15				2			MSU		80Pa02	
^{92}Rb(β^-n)^{91}Sr		785	15	802	7	1.1	1	23	15 ^{92}Rb			84Kr.B	
^{91}Zr(n,γ)^{92}Zr		8634.91	0.20	8634.80	0.11	−0.6	–			ILn		79Br25	Z
		8634.64	0.15			1.0	–					81Su.A	Z
		8635.00	0.24			−0.8	–			Bdn		03Fi.A	
	ave.	8634.79	0.11			0.1	1	100	64 ^{91}Zr			average	
^{92}Mo(p,d)^{91}Mo		−10446	15	−10448	11	−0.1	2			Tex		73Ko03	
		−10432	25			−0.6	2			Grn		73Mo03	
^{92}Br(β^-)^{92}Kr		12155	100	12200	50	0.5	3			Bwg		89Gr03	
		12220	55			−0.3	3			Bwg		92Gr.A	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{92}Kr(β^-)^{92}Rb		5987	10				2			Bwg		92Gr.A	
^{92}Rb(β^-)^{92}Sr		8080	30	8096	6	0.5	–			McG		83Ia02	
		8096	16			0.0	–			Bwg		92Gr.A	
		8107	15			−0.8	–			Gsn		92Pr03	
	ave.	8099	10			−0.4	1	39	31 ^{92}Rb			average	
^{92}Sr(β^-)^{92}Y		1929	50	1946	9	0.3	U					57He39	
		1930	30			0.5	–			Trs		78Wo15	
		1920	20			1.3	–			McG		83Ia02	
	ave.	1923	17			1.4	1	33	30 ^{92}Y			average	
^{92}Y(β^-)^{92}Zr		3640	20	3641	9	0.0	–					62Bu16	
		3630	15			0.7	–			McG		83Ia02	
	ave.	3634	12			0.6	1	58	57 ^{92}Y			average	
^{92}Zr(p,n)^{92}Nb		−2790.7	2.3	−2787.9	1.8	1.2	–			Kyu		74Ku01	
		−2792	5			0.8	–					75Ke12	
	ave.	−2790.9	2.1			1.5	1	74	65 ^{92}Nb			average	
^{92}Mo(p,n)^{92}Tc		−8672	50	−8653	26	0.4	2			Tal		66Mo06	∗
^{92}Mo(^{3}He,t)^{92}Tc		−7882	30	−7889	26	−0.2	2			ChR		73Ha02	
∗^{92}Nb$-$C$_{7.667}$	M$-$A=–86422(34) keV for mixture gs+m at 135.5 keV											NDS00b	∗∗
∗^{92}Mo(p,n)^{92}Tc	T=9040(50) to 270.15 level											NDS	∗∗
^{93}Rb$-$C$_{7.75}$		−78036	21	−77958	8	1.5	U			Pb1	2.5	89Al33	
C$_7$ H$_9$$-^{93}$Nb		164046.9	3.5	164047.2	2.6	0.0	U			M15	2.5	63Ri07	
^{93}Mo$-$C$_{7.75}$		−93194	30	−93187	4	0.2	U			GS2	1.0	03Li.A	∗
^{93}Tc$-$C$_{7.75}$		−89729	31	−89751	4	−0.7	U			GS2	1.0	03Li.A	
^{93}Rb$-^{85}$Rb$_{1.094}$		18549	10	18544	8	−0.5	1	66	66 ^{93}Rb	MA4	1.0	02Ra23	
^{93}Sr$-^{85}$Rb$_{1.094}$		10526	10	10528	8	0.2	1	65	65 ^{93}Sr	MA4	1.0	02Ra23	
^{91}Rb$-^{93}$Rb$_{.489}$ ^{89}Rb$_{.511}$		−471	9	−480	9	−0.4	1	16	12 ^{91}Rb	P31	2.5	86Au02	
^{91}Rb$-^{93}$Rb$_{.326}$ ^{90}Rb$^x_{.674}$		−656	23	−630	15	0.5	U			P21	2.5	82Au01	
^{92}Rb$-^{93}$Rb$_{.495}$ ^{91}Rb$_{.505}$		465	23	435	8	−0.5	U			P21	2.5	82Au01	
^{93}Rb(β^-n)^{92}Sr		2220	30	2179	8	−1.4	1	8	6 ^{93}Rb			84Kr.B	
^{92}Zr(n,γ)^{93}Zr		6733.7	1.1	6734.5	0.4	0.7	–					72Gr23	Z
		6734.0	0.7			0.7	–					79Ke.D	Z
		6735.3	0.7			−1.2	–			Bdn		03Fi.A	
	ave.	6734.5	0.5			0.0	1	98	55 ^{92}Zr			average	
^{93}Nb(γ,n)^{92}Nb		−8825	3	−8831.3	2.0	−2.1	1	46	35 ^{92}Nb	McM		79Ba06	
^{92}Mo(n,γ)^{93}Mo		8069.81	0.09	8069.81	0.09	0.0	1	100	52 ^{92}Mo	MMn		91Is02	Z
		8070.0	0.3			−0.6	U			Bdn		03Fi.A	
^{92}Mo(p,γ)^{93}Tc		4086.5	1.0				2					83Ay01	
^{93}Kr(β^-)^{93}Rb		8600	100				2			Bwg		87Gr.A	
^{93}Rb(β^-)^{93}Sr		7440	30	7467	9	0.9	–			McG		83Ia02	
		7455	35			0.3	–			Bwg		87Gr.A	
		7456	15			0.7	–			Gsn		92Pr03	
	ave.	7453	13			1.1	1	49	25 ^{93}Rb			average	
^{93}Sr(β^-)^{93}Y		4110	20	4139	12	1.4	1	35	24 ^{93}Y	McG		83Ia02	
^{93}Y(β^-)^{93}Zr		2890	20	2894	10	0.2	–					59Kn38	
		2880	15			0.9	–			McG		83Ia02	
	ave.	2884	12			0.9	1	76	76 ^{93}Y			average	
^{93}Zr(β^-)^{93}Nb		93.8	2.	91.2	1.6	−1.3	1	63	37 ^{93}Nb			53Gl.A	
^{93}Nb(p,n)^{93}Mo		−1188	10	−1187	4	0.1	–					68Fi01	
		−1190	5			0.6	–					75Ch05	
	ave.	−1190	4			0.6	1	62	52 ^{93}Mo			average	
^{93}Ru(β^+)^{93}Tc		6337	85				3					83Ay01	
∗^{93}Mo$-$C$_{7.75}$	M$-$A=–84385(28) keV for ^{93}Mo^m at Eexc=2424.89 keV											Ens97	∗∗
^{94}Rb$-^{85}$Rb$_{1.106}$		23958	10	23965	9	0.7	1	80	80 ^{94}Rb	MA4	1.0	02Ra23	
^{94}Sr$-^{85}$Rb$_{1.106}$		12924	10	12922	8	−0.2	1	59	59 ^{94}Sr	MA4	1.0	02Ra23	
C$_7$ H$_{10}$$-^{94}$Zr		171929.4	3.9	171935.1	2.6	0.6	1	7	7 ^{94}Zr	M15	2.5	63Ri07	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$C_7\,H_{10}-{}^{94}Mo$		173159.6	3.2	173162.1	2.1	0.3	1	7	7	^{94}Mo	M15	2.5	63Ri07	
$^{94}Tc-C_{7.833}$		−90362	39	−90343	5	0.5	U				GS2	1.0	03Li.A	∗
$^{94}Mo\,{}^{35}Cl-{}^{92}Mo\,{}^{37}Cl$		1234.0	2.	1227	4	−0.8	1	24	22	^{92}Mo	H11	4.0	63Bi12	
$^{92}Rb-{}^{94}Rb_{.587}\,{}^{89}Rb_{.413}$		−764	24	−784	8	−0.3	U				P21	2.5	82Au01	Y
$^{92}Rb-{}^{94}Rb_{.489}\,{}^{90}Rb^x_{.511}$		−717	23	−732	14	−0.3	U				P21	2.5	82Au01	Y
$^{93}Rb-{}^{94}Rb_{.742}\,{}^{90}Rb^x_{.258}$		−1296	25	−1294	16	0.0	U				P21	2.5	82Au01	Y
$^{94}Zr(d,\alpha)^{92}Y$		8278	25	8257	9	−0.8	1	14	13	^{92}Y	Grn		74Gi09	
$^{94}Zr(d,t)^{93}Zr$		−1960.2	2.4	−1963.9	1.9	−1.5	1	66	36	^{94}Zr	SPa		79Bo37	
$^{93}Nb(n,\gamma)^{94}Nb$		7227.51	0.09	7227.54	0.08	0.3	–				MMn		88Ke09	Z
		7227.63	0.15			−0.6	–				Bdn		03Fi.A	
	ave.	7227.54	0.08			0.0	1	100	57	^{94}Nb			average	
$^{94}Rb(\beta^-)^{94}Sr$		10335	45	10287	10	−1.1	U				Bwg		82Pa24	∗
		10312	20			−1.2	1	26	15	^{94}Rb	Gsn		92Pr03	
$^{94}Sr(\beta^-)^{94}Y$		3512	10	3508	8	−0.4	1	59	30	^{94}Sr	Gsn		80De02	∗
$^{94}Y(\beta^-)^{94}Zr$		4920	9	4918	7	−0.2	1	61	58	^{94}Y	Gsn		80De02	∗
$^{94}Nb(\beta^-)^{94}Mo$		2043.3	6.	2045.2	2.0	0.3	–						66Sn02	
		2046.3	3.			−0.4	–						68Ho10	
	ave.	2045.7	2.7			−0.2	1	55	43	^{94}Nb			average	
$^{94}Tc(\beta^+)^{94}Mo$		4261	5	4256	4	−1.1	2						64Ha29	
$^{94}Mo(p,n)^{94}Tc$		−5027.8	7.	−5038	4	−1.5	2						73Mc04	∗
$^{94}Rh^m(\beta^+)^{94}Ru$		9930	400				3						80Ox01	
$\ast{}^{94}Tc-C_{7.833}$	M−A=–84133(29) keV for mixture gs+m at 75.5(1.9) keV												NDS925	∗∗
$\ast{}^{94}Rb(\beta^-)^{94}Sr$	As corrected by ref.												87Gr.A	∗∗
$\ast{}^{94}Sr(\beta^-)^{94}Y$	Original error 6 corrected by ref												94Ha.A	∗∗
$\ast{}^{94}Y(\beta^-)^{94}Zr$	Original error 5 corrected by ref												94Ha.A	∗∗
$\ast{}^{94}Mo(p,n)^{94}Tc$	T=5158(7) to $^{94}Tc^m$ at 75.5(1.9)												NDS852	∗∗
$^{95}Sr-{}^{85}Rb_{1.118}$		17987	10	17978	8	−0.9	1	64	64	^{95}Sr	MA4	1.0	02Ra23	
$C_7\,H_{11}-{}^{95}Mo$		180236.5	3.5	180233.2	2.1	−0.4	U				M15	2.5	63Ri07	
$^{95}Tc-C_{7.917}$		−92417	32	−92343	6	2.3	U				GS2	1.0	03Li.A	∗
$^{93}Rb-{}^{95}Rb_{.653}\,{}^{89}Rb_{.348}$		−1323	25	−1179	16	2.3	U				P21	2.5	82Au01	
$^{93}Rb-{}^{95}Rb_{.587}\,{}^{90}Rb^x_{.413}$		−1376	24	−1214	19	2.7	U				P21	2.5	82Au01	
$^{94}Rb-{}^{95}Rb_{.792}\,{}^{90}Rb^x_{.209}$		−16	28	175	22	2.7	U				P21	2.5	82Au01	Y
$^{92}Rb-{}^{95}Rb_{.242}\,{}^{91}Rb_{.758}$		80	23	96	10	0.3	U				P21	2.5	82Au01	
$^{93}Rb-{}^{95}Rb_{.489}\,{}^{91}Rb_{.511}$		−654	12	−687	13	−1.1	B				P31	2.5	86Au02	∗
$^{94}Rb-{}^{95}Rb_{.660}\,{}^{92}Rb_{.341}$		433	15	408	16	−0.7	1	18	13	^{95}Rb	P31	2.5	86Au02	
		462	28			−0.8	U				P31	2.5	86Au02	
$^{94}Zr(n,\gamma)^{95}Zr$		6461.6	1.0	6462.2	0.9	0.6	–						79Ke.D	Z
		6357.8	0.3			348.2	F				Bdn		03Fi.A	
$^{94}Zr(d,p)^{95}Zr$		4237.4	2.0	4237.7	0.9	0.1	–				SPa		79Bo37	
$^{94}Zr(n,\gamma)^{95}Zr$	ave.	6461.7	0.9	6462.2	0.9	0.6	1	95	54	^{94}Zr			average	
$^{94}Mo(n,\gamma)^{95}Mo$		7369.10	0.10	7369.10	0.10	0.0	1	100	79	^{94}Mo	MMn		91Is02	Z
		7368.4	0.5			1.4	U				Bdn		03Fi.A	
$^{95}Pd^m(\varepsilon p)^{94}Ru$		6991	300				3						82Ku15	∗
$^{95}Rb(\beta^-)^{95}Sr$		9280	45	9263	21	−0.4	–				Bwg		87Gr.A	
		9272	35			−0.3	–				Gsn		92Pr03	
	ave.	9275	28			−0.4	1	57	54	^{95}Rb			average	
$^{95}Sr(\beta^-)^{95}Y$		6082	10	6090	8	0.8	1	61	32	^{95}Sr	Gsn		84Bl.A	
		6052	25			1.5	U						90Ma03	
$^{95}Y(\beta^-)^{95}Zr$		4445	9	4451	7	0.6	1	61	59	^{95}Y	Gsn		80De02	∗
$^{95}Zr(\beta^-)^{95}Nb$		1125	8	1124.1	1.8	−0.1	U						54Za05	
		1119	5			1.0	–						55Dr43	
		1122.7	3.			0.5	–						74An22	
	ave.	1121.7	2.6			0.9	1	51	40	^{95}Zr			average	
$^{95}Nb(\beta^-)^{95}Mo$		925.5	0.5	925.6	0.5	0.2	1	98	89	^{95}Nb			63La06	
$^{95}Tc(\beta^+)^{95}Mo$		1683	10	1691	5	0.8	–						65Cr04	∗
		1693	6			−0.4	–						74An05	∗
	ave.	1690	5			0.1	1	98	97	^{95}Tc			average	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{95}Ru(β^+)^{95}Tc	2558	30	2567	13	0.3	1	18	15	^{95}Ru			68Pi03	
^{95}Rh(β^+)^{95}Ru	5110	150				2						75We03	
*^{95}Tc$-$C$_{7.917}$	M$-$A=–86066(28) keV for mixture gs+m at 38.89 keV											Ens95	**
*^{93}Rb$-^{95}$Rb$_{.489}$ ^{91}Rb$_{.511}$	Rejected by authors											86Au02	**
*^{95}Pd^m(εp)^{94}Ru	E(p)=4300(300) to ^{94}Ru^m at 2644.55											NDS933	**
*	Same E(p); both from figures											82No06	**
*^{95}Y(β^-)^{95}Zr	Original error 5 corrected by ref											94Ha.A	**
*	Q$^-$=4417(10) given by same group, not used											84Bl.A	**
*^{95}Tc(β^+)^{95}Mo	E$^+$ =700(10) from ^{95}Tc^m at 38.89											NDS933	**
*^{95}Tc(β^+)^{95}Mo	E$^+$ =710(6) from ^{95}Tc^m at 38.89											NDS933	**
C$_7$ H$_{12}-^{96}$Zr	185628	6	185627.0	3.0	−0.1	U				M15	2.5	63Ri07	
C$_7$ H$_{12}-^{96}$Mo	189226.9	3.0	189220.9	2.1	−0.8	1	8	8	^{96}Mo	M15	2.5	63Ri07	
^{96}Tc$-$C$_8$	−92192	32	−92129	6	2.0	U				GS2	1.0	03Li.A	*
C$_7$ H$_{12}-^{96}$Ru	186304.6	3.8	186303	8	−0.2	1	79	79	^{96}Ru	M16	2.5	63Da10	
^{93}Rb$-^{96}$Rb$_{.554}$ ^{89}Rb$_{.448}$	−2210	27	−2092	18	1.8	U				P21	2.5	82Au01	
^{95}Rb$-^{96}$Rb$_{.848}$ ^{89}Rb$_{.152}$	−1590	30	−1515	26	1.0	U				P21	2.5	82Au01	
^{94}Rb$-^{96}$Rb$_{.699}$ ^{89}Rb$_{.302}$	−1250	30	−1080	22	2.3	U				P21	2.5	82Au01	Y
^{94}Rb$-^{96}$Rb$_{.588}$ ^{91}Rb$_{.413}$	−380	25	−444	19	−1.0	U				P21	2.5	82Au01	
^{95}Rb$-^{96}$Rb$_{.742}$ ^{92}Rb$_{.258}$	−1116	27	−1134	24	−0.3	1	13	7	^{96}Rb	P21	2.5	82Au01	
	−1143	16			0.2	1	36	19	^{96}Rb	P31	2.5	86Au02	
^{96}Zr(d,α)^{94}Y	7609	20	7617	7	0.4	1	13	12	^{94}Y	Grn		74Gi09	
^{96}Ru(p,t)^{94}Ru	−11165	10				2				Oak		71Ba01	
^{96}Zr(t,α)^{95}Y	8294	20	8289	7	−0.2	1	13	12	^{95}Y	LAl		83Fl06	
^{96}Zr(d,t)^{95}Zr	−1595.8	2.8	−1599.1	2.2	−1.2	1	60	43	^{96}Zr	SPa		79Bo37	
^{95}Mo(n,γ)^{96}Mo	9154.32	0.05	9154.32	0.05	0.0	1	100	70	^{95}Mo	MMn		91Is02	Z
	9153.90	0.20			2.1	B				Bdn		03Fi.A	
^{96}Ru(p,d)^{95}Ru	−8470	10	−8469	10	0.1	1	91	85	^{95}Ru	Oak		71Ba01	
^{96}Rb(β^-)^{96}Sr	11590	80	11714	29	1.6	–				Bwg		87Gr.A	
	11709	40			0.1	–				Gsn		92Pr03	
ave.	11690	40			0.8	1	65	37	^{96}Rb			average	
^{96}Sr(β^-)^{96}Y	5332	30	5408	18	2.5	F						79Pe17	*
	5413	22			−0.2	–				Gsn		80De02	*
	5345	50			1.3	U				Bwg		87Gr.A	
	5354	40			1.3	–						90Ma03	
ave.	5399	19			0.4	1	90	72	^{96}Sr			average	
^{96}Y(β^-)^{96}Zr	7120	50	7096	23	−0.5	–				Gsn		80De02	*
	7030	70			0.9	U				Bwg		87Gr.A	
	7067	30			1.0	–						90Ma03	
ave.	7081	26			0.6	1	82	82	^{96}Y			average	
^{96}Y^m(β^-)^{96}Zr	8237	21				2				Bwg		92Gr.A	
^{96}Nb(β^-)^{96}Mo	3186.8	3.2				2						68An03	
^{96}Mo(p,n)^{96}Tc	−3760	10	−3756	5	0.4	2						74Do09	
	−3754	6			−0.3	2						78Ke10	
^{96}Ru(p,n)^{96}Rh	−7175	10				2						70As08	Z
^{96}Pd(β^+)^{96}Rh	3450	150				3						85Ry02	
*^{96}Tc$-$C$_8$	M$-$A=–85860(28) keV for mixture gs+m at 34.28 keV											NDS931	**
*^{96}Sr(β^-)^{96}Y	E$^-$=4400(30) to 931.7 level and other E$^-$											NDS	**
*^{96}Sr(β^-)^{96}Y	F: all other ^{79}Pe$_{17}$ results are strongly discrepant											GAu	**
*^{96}Sr(β^-)^{96}Y	Original error 20 corrected by ref											94Ha.A	**
*	Q$^-$=5362(10) given by same group, not used											84Bl.A	**
*^{96}Y(β^-)^{96}Zr	Q$^-$=7079(15) given by same group, not used											84Bl.A	**
^{97}Rb$-$C$_{8.083}$	−62512	64	−62650	30	−0.9	U				Pb1	2.5	89Al33	
C$_5$ H$_5$ O$_2-^{97}$Mo	122937.6	2.3	122932.9	2.1	−0.8	1	13	13	^{97}Mo	M15	2.5	63Ri07	
^{97}Ru$-$C$_{8.083}$	−92471	30	−92445	9	0.9	U				GS2	1.0	03Li.A	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{94}Rb$-^{97}$Rb$_{.485}$ ^{91}Rb$_{.516}$		−21	25	−134	17	−1.8	U			P21	2.5	82Au01	Y
^{96}Rb$-^{97}$Rb$_{.792}$ ^{92}Rb$_{.209}$		650	30	621	30	−0.4	1	16	10 ^{96}Rb	P21	2.5	82Au01	
^{95}Rb$-^{97}$Rb$_{.490}$ ^{93}Rb$_{.511}$		−165	25	−152	23	0.2	1	13	9 ^{95}Rb	P21	2.5	82Au01	
^{96}Rb$-^{97}$Rb$_{.742}$ ^{93}Rb$_{.258}$		848	19	811	29	−0.8	1	38	27 ^{96}Rb	P31	2.5	86Au02	
^{96}Zr(n,γ)^{97}Zr		5574	5	5575.2	0.4	0.2	U					77Ba33	
		5575.1	0.4			0.2	1	99	55 ^{96}Zr	Bdn		03Fi.A	
^{96}Mo(n,γ)^{97}Mo		6821.15	0.25	6821.26	0.21	0.5	–			MMn		91Is02	Z
		6821.5	0.4			−0.6	–			Bdn		03Fi.A	
	ave.	6821.25	0.21			0.1	1	99	62 ^{96}Mo			average	
^{96}Mo(^{3}He,d)^{97}Tc		229	8	225	4	−0.5	–			ANL		74Co27	
		220	8			0.6	–			Pit		74Co27	
	ave.	225	6			0.1	1	53	53 ^{97}Tc			average	
^{96}Ru(d,p)^{97}Ru		5886	3	5886.9	2.8	0.3	2			Can		77Ho02	
		5892	7			−0.7	2			ANL		77Me04	
^{97}Rb(β^-)^{97}Sr		10440	60	10432	28	−0.1	–			Bwg		87Gr.A	
		10462	40			−0.8	–			Gsn		92Pr03	
	ave.	10460	30			−0.7	1	72	61 ^{97}Rb			average	
^{97}Sr(β^-)^{97}Y		7452	40	7470	16	0.4	–			Gsn		84Bl.A	
		7480	18			−0.6	–			Bwg		92Gr.A	
	ave.	7475	16			−0.3	1	93	90 ^{97}Sr			average	
^{97}Y(β^-)^{97}Zr		6702	25	6689	11	−0.5	–			Gsn		84Bl.A	
		6689	13			0.0	–			Bwg		92Gr.A	∗
	ave.	6692	12			−0.2	1	97	97 ^{97}Y			average	
^{97}Zr(β^-)^{97}Nb		2657.3	2.	2659.0	1.8	0.8	1	80	56 ^{97}Zr			74Ra.A	
^{97}Nb(β^-)^{97}Mo		1933.1	2.	1934.8	1.8	0.8	1	80	76 ^{97}Nb			74Ra.A	
^{97}Mo(p,n)^{97}Tc		−1102	6	−1103	4	−0.1	1	47	47 ^{97}Tc	ANL		74Co27	
^{97}Rh(β^+)^{97}Ru		3533	50	3520	40	−0.2	3					62Ba28	
		3513	50			0.2	3					62Ch21	
^{97}Pd(β^+)^{97}Rh		4790	300				4					80Go11	
^{97}Ag(β^+)^{97}Pd		6980	110				5					99Hu10	
∗^{97}Y(β^-)^{97}Zr	E$^-$=6688(13); and 7361(26) from ^{97}Y^m at 667.51											NDS939∗∗	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
C$_5$ H$_6$ O$_2-^{98}$Mo		131375.4	2.8	131371.3	2.1	−0.6	1	9	9 ^{98}Mo	M15	2.5	63Ri07	
C$_7$ H$_{14}-^{98}$Ru		204263.5	2.9	204263	7	0.0	1	86	86 ^{98}Ru	M16	2.5	63Da10	
^{98}Rh$-$C$_{8.167}$		−89302	46	−89292	13	0.2	U			GS2	1.0	03Li.A	∗
^{94}Rb$-^{98}$Rb$_{.411}$ ^{91}Rb$_{.590}$		−290	40	−399	23	−1.1	U			P21	2.5	82Au01	Y
^{97}Rb$-^{98}$Rb$_{.792}$ ^{93}Rb$_{.209}$		−250	60	−240	40	0.1	U			P21	2.5	82Au01	
^{96}Rb$-^{98}$Rb$_{.490}$ ^{94}Rb$_{.511}$		330	30	370	40	0.6	U			P21	2.5	82Au01	Y
^{97}Rb$-^{98}$Rb$_{.660}$ ^{95}Rb$_{.340}$		−300	50	−180	40	1.0	U			P21	2.5	82Au01	
		−232	27			0.8	1	34	20 ^{98}Rb	P31	2.5	86Au02	
^{96}Zr(t,p)^{98}Zr		3508	20	3505	20	−0.2	1	97	98 ^{98}Zr	LAl		69Bl01	
^{96}Zr(^{3}He,p)^{98}Nb		5728	5				2			Phi		75Me13	
^{96}Ru(^{16}O,^{14}C)^{98}Pd		−12529	20				2			BNL		82Th01	
^{97}Mo(n,γ)^{98}Mo		8642.60	0.07	8642.60	0.07	0.0	–			MMn		91Is02	Z
		8642.57	0.18			0.2	–			Bdn		03Fi.A	
	ave.	8642.60	0.07			0.0	1	100	55 ^{98}Mo			average	
^{97}Mo(^{3}He,d)^{98}Tc		680	8	683	3	0.4	–			ANL		74Co27	
		686	10			−0.3	–			McM		76Ma16	
	ave.	682	6			0.1	1	29	29 ^{98}Tc			average	
^{98}Rb(β^-)^{98}Sr		11200	110	12420	50	11.1	B					79Pe17	
		12270	30			5.1	C			McG		84Ia.A	
		12440	75			−0.2	–			Bwg		87Gr.A	
		12380	65			0.7	–			Gsn		92Pr03	
	ave.	12410	50			0.4	1	85	80 ^{98}Rb			average	
^{98}Rb^m(β^-)^{98}Sr		12710	120				2			Bwg		87Gr.A	
^{98}Sr(β^-)^{98}Y		5821	10	5822	10	0.1	1	99	96 ^{98}Sr	Gsn		84Bl.A	
		5815	40			0.2	U			Bwg		87Gr.A	
^{98}Y(β^-)^{98}Zr		8780	30	8820	15	1.3	–			Gsn		84Bl.A	
		8963	41			−3.5	C					88Ma.A	
		8830	17			−0.6	–			Bwg		92Gr.A	
	ave.	8818	15			0.1	1	99	96 ^{98}Y			average	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$^{98}\mathrm{Y}^{m}(\beta^-)^{98}\mathrm{Zr}$		9233	27				2				Bwg		92Gr.A	
$^{98}\mathrm{Mo(p,n)}^{98}\mathrm{Tc}$		−2458	10	−2466	3	−0.8	1	11	11	$^{98}\mathrm{Tc}$	ANL		74Co27	
$^{98}\mathrm{Tc}(\beta^-)^{98}\mathrm{Ru}$		1795	22	1797	7	0.1	1	11	8	$^{98}\mathrm{Ru}$			73Ok.A	
$^{98}\mathrm{Rh}(\beta^+)^{98}\mathrm{Ru}$		5151	50	5050	10	−2.0	U						94Ba06	
$^{98}\mathrm{Ru(p,n)}^{98}\mathrm{Rh}$		−5832	10				2						70As08	Z
$^{98}\mathrm{Ag}(\beta^+)^{98}\mathrm{Pd}$		8420	150	8240	60	−1.2	3						79Ve.A	∗
		8200	70			0.6	3						00Hu17	
$^{98}\mathrm{Cd}(\varepsilon)^{98}\mathrm{Ag}$		5430	40				4						01St.A	
$\ast{}^{98}\mathrm{Rh}-\mathrm{C}_{8.167}$		M−A=–83154(30) keV for mixture gs+m at 60#50 keV											Nubase	∗∗
$\ast{}^{98}\mathrm{Ag}(\beta^+)^{98}\mathrm{Pd}$		Q^+ =6880(150) to 1541.6 level											NDS987	∗∗
$\mathrm{C_7\,H_{15}}-{}^{99}\mathrm{Ru}$		211442.8	3.0	211436.2	2.2	−0.9	1	8	8	$^{99}\mathrm{Ru}$	M16	2.5	63Da10	
$^{99}\mathrm{Ru}-{}^{98}\mathrm{Ru}$		652	11	652	7	0.0	1	6	6	$^{98}\mathrm{Ru}$	M16	2.5	63Da10	
$^{97}\mathrm{Rb}-{}^{99}\mathrm{Rb}_{.653}\,{}^{93}\mathrm{Rb}_{.348}$		100	100	140	80	0.2	1	11	10	$^{99}\mathrm{Rb}$	P21	2.5	82Au01	
$^{98}\mathrm{Rb}-{}^{99}\mathrm{Rb}_{.742}\,{}^{95}\mathrm{Rb}_{.258}$		690	180	520	100	−0.4	U				P21	2.5	82Au01	
$^{97}\mathrm{Rb}-{}^{99}\mathrm{Rb}_{.490}\,{}^{95}\mathrm{Rb}_{.511}$		350	60	230	70	−0.8	1	19	16	$^{99}\mathrm{Rb}$	P31	2.5	86Au02	
$^{99}\mathrm{Ru}(\mathrm{n},\alpha)^{96}\mathrm{Mo}$		6822	5	6819.9	1.6	−0.4	U						01Wa50	
$^{96}\mathrm{Ru}(^{16}\mathrm{O},^{13}\mathrm{C})^{99}\mathrm{Pd}$		−11723	20	−11746	15	−1.2	1	57	49	$^{99}\mathrm{Pd}$	BNL		82Th01	
$^{98}\mathrm{Mo}(\mathrm{n},\gamma)^{99}\mathrm{Mo}$		5925.42	0.15	5925.43	0.15	0.1	1	100	66	$^{99}\mathrm{Mo}$	MMn		91Is02	Z
		5927.7	0.5			−4.5	U				Bdn		03Fi.A	
$^{99}\mathrm{Tc(p,d)}^{98}\mathrm{Tc}$		−6740	5	−6742	3	−0.4	–						76Sl06	
		−6755	9			1.4	–				Bld		77Em02	
	ave.	−6744	4			0.3	1	59	57	$^{98}\mathrm{Tc}$			average	
$^{99}\mathrm{Rb}(\beta^-)^{99}\mathrm{Sr}$		11340	120	11310	110	−0.3	1	82	74	$^{99}\mathrm{Rb}$	McG		84Ia.A	
		10960	130			2.7	C				Bwg		87Gr.A	
$^{99}\mathrm{Sr}(\beta^-)^{99}\mathrm{Y}$		8030	80	8020	80	−0.2	1	92	91	$^{99}\mathrm{Sr}$	McG		84Ia.A	
		8360	75			−4.6	C				Bwg		87Gr.A	
$^{99}\mathrm{Y}(\beta^-)^{99}\mathrm{Zr}$		7568	14	7568	14	0.0	1	100	99	$^{99}\mathrm{Y}$	Bwg		92Gr.A	
$^{99}\mathrm{Zr}(\beta^-)^{99}\mathrm{Nb}$		4559	15	4558	15	0.0	1	100	100	$^{99}\mathrm{Zr}$	Bwg		92Gr.A	
$^{99}\mathrm{Mo}(\beta^-)^{99}\mathrm{Tc}$		1356.7	1.0	1357.3	1.0	0.6	1	92	58	$^{99}\mathrm{Tc}$			71Na01	
$^{99}\mathrm{Tc}(\beta^-)^{99}\mathrm{Ru}$		292	3	293.8	1.4	0.6	–						51Ta05	
		290	4			1.0	–						52Fe16	
		293.5	2.0			0.2	–						80Al02	∗
	ave.	292.6	1.5			0.8	1	85	45	$^{99}\mathrm{Ru}$			average	
$^{99}\mathrm{Rh}(\beta^+)^{99}\mathrm{Ru}$		2038	10	2043	7	0.5	–						52Sc11	∗
		2053	10			−1.0	–						59To.A	
		2110	40			−1.7	U						74An23	
	ave.	2046	7			−0.4	1	95	94	$^{99}\mathrm{Rh}$			average	
$^{99}\mathrm{Pd}(\beta^+)^{99}\mathrm{Rh}$		3410	20	3387	15	−1.2	1	57	51	$^{99}\mathrm{Pd}$			69Ph01	∗
$^{99}\mathrm{Ag}(\beta^+)^{99}\mathrm{Pd}$		5430	150				2						81Hu03	
$\ast{}^{99}\mathrm{Tc}(\beta^-)^{99}\mathrm{Ru}$		E^+ =434.8(2.6), 346.7(2.0) from $^{99}\mathrm{Tc}^m$ at 142.6833 to gs, 89.68 level											NDS949	∗∗
$\ast{}^{99}\mathrm{Rh}(\beta^+)^{99}\mathrm{Ru}$		E^+ =740(10) from $^{99}\mathrm{Rh}^m$ at 64.3 to 340.73 level											NDS949	∗∗
$\ast{}^{99}\mathrm{Pd}(\beta^+)^{99}\mathrm{Rh}$		E^+ =2180(20), 1930(20), 1510(20)											69Ph01	∗∗
∗		to 200.4, 464.0, 874.1 levels above 1/2$^-$ level (now ground-state)											NDS949	∗∗
$\mathrm{C_7\,H_{16}}-{}^{100}\mathrm{Mo}$		217730.3	4.2	217723	6	−0.7	1	36	36	$^{100}\mathrm{Mo}$	M15	2.5	63Ri07	
$\mathrm{C_7\,H_{16}}-{}^{100}\mathrm{Ru}$		220983.8	3.7	220981.0	2.2	−0.3	1	5	5	$^{100}\mathrm{Ru}$	M16	2.5	63Da10	
$^{100}\mathrm{Rh}-\mathrm{C}_{8.333}$		−91855	46	−91878	20	−0.5	1	18	18	$^{100}\mathrm{Rh}$	GS2	1.0	03Li.A	∗
$^{100}\mathrm{Cd}-\mathrm{C}_{8.333}$		−79636	214	−79710	100	−0.3	1	23	23	$^{100}\mathrm{Cd}$	CS1	1.0	96Ch32	
$^{100}\mathrm{In}-\mathrm{C}_{8.333}$		−69405	322	−68890	270	1.6	B				CS1	1.0	96Ch32	
$^{100}\mathrm{Sn}-\mathrm{C}_{8.333}$		−62020	1020	−60960	760	1.0	B				CS1	1.0	96Ch32	
$^{100}\mathrm{Mo}\,{}^{35}\mathrm{Cl}-{}^{98}\mathrm{Mo}\,{}^{37}\mathrm{Cl}$		5019	2	5019	6	0.0	1	60	58	$^{100}\mathrm{Mo}$	H11	4.0	63Bi12	
$^{96}\mathrm{Ru}(^{16}\mathrm{O},^{12}\mathrm{C})^{100}\mathrm{Pd}$		−5599	26	−5583	13	0.6	1	24	17	$^{100}\mathrm{Pd}$	BNL		82Th01	
$^{100}\mathrm{Mo}(\mathrm{d},^{3}\mathrm{He})^{99}\mathrm{Nb}$		−5639	15	−5653	12	−0.9	–				Tex		74Bi08	
$^{100}\mathrm{Mo}(\mathrm{t},\alpha)^{99}\mathrm{Nb}$		8642	20	8668	12	1.3	–				LAl		83Fl06	
$^{100}\mathrm{Mo}(\mathrm{d},^{3}\mathrm{He})^{99}\mathrm{Nb}$	ave.	−5653	12	−5653	12	0.0	1	100	100	$^{99}\mathrm{Nb}$			average	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{99}Tc(n,γ)^{100}Tc	6764.4	1.				2					79Pi08	
^{99}Ru(n,γ)^{100}Ru	9672.65	0.06	9673.324	0.026	11.2	o			ILn		88Co18	Z
	9673.39	0.05			−1.3	–			MMn		91Is02	Z
	9673.30	0.03			0.8	–			ILn		00Ge01	
	9673.41	0.19			−0.5	U			Bdn		03Fi.A	
ave.	9673.324	0.026			0.0	1	100	55 ^{100}Ru			average	
^{100}Sr(β^-)^{100}Y	7520	140	7080	100	−3.2	C			McG		84Ia.A	
	7075	100				5			Bwg		87Gr.A	
^{100}Y(β^-)^{100}Zr	7920	100	9310	70	13.9	C			McG		84Ia.A	∗
	9310	70				4			Bwg		87Gr.A	
^{100}Zr(β^-)^{100}Nb	3335	25				3			Bwg		87Gr.A	
^{100}Nb(β^-)^{100}Mo	6245	25				2			Bwg		87Gr.A	
^{100}Nb^m(β^-)^{100}Mo	6745	75	6714	28	−0.4	2			Bwg		87Gr.A	
^{100}Mo(t,^{3}He)^{100}Nb^m	−6690	30	−6695	28	−0.2	2			LAl		79Aj03	
^{100}Rh(β^+)^{100}Ru	3630	20	3635	18	0.2	1	82	82 ^{100}Rh			53Ma64	
^{100}Ag(β^+)^{100}Pd	7075	90	7080	80	0.0	–					79Ve.A	∗
	7022	200			0.3	–					80Ha20	∗
ave.	7070	80			0.1	1	87	87 ^{100}Ag			average	
^{100}Cd(β^+)^{100}Ag	3890	70	3900	70	0.1	1	90	77 ^{100}Cd			89Ry02	
^{100}In(β^+)^{100}Cd	10900	930	10080	230	−0.9	U			Lvp		95Sz01	∗
	10080	230				2					02Pl03	
^{100}Sn(β^+)^{100}In	7390	660				3					97Su06	∗
∗^{100}Rh−C$_{8.333}$	M−A=–85508(29) keV for mixture gs+m at 107.6 keV										NDS975	∗∗
∗^{100}Y(β^-)^{100}Zr	Not unambiguously ground-state transition										GAu	∗∗
∗^{100}Ag(β^+)^{100}Pd	From 5^+ ground-state to 2920.4 high spin level										79Ve.A	∗∗
∗^{100}Ag(β^+)^{100}Pd	E$^+$ =5350(200) from ^{100}Ag^m at 15.52 to 665.57 2^+ level										NDS905	∗∗
∗^{100}In(β^+)^{100}Cd	From lower and upper limits 9300−12500										GAu	∗∗
∗^{100}Sn(β^+)^{100}In	Q$^+$ =7200(+800−500)										97Su06	∗∗
C$_8$ H$_5$−^{101}Ru	133549.5	2.2	133543.1	2.2	−1.2	1	15	15 ^{101}Ru	M16	2.5	63Da10	
^{101}Rh−C$_{8.417}$	−93821	58	−93836	18	−0.3	U			GS2	1.0	03Li.A	∗
^{101}Pd−C$_{8.417}$	−91816	30	−91711	19	3.5	U			GS2	1.0	03Li.A	
^{100}Mo(n,γ)^{101}Mo	5398.23	0.08	5398.24	0.07	0.1	2			ILn		90Se17	Z
	5398.27	0.13			−0.2	2			Bdn		03Fi.A	
^{100}Ru(n,γ)^{101}Ru	6802.0	0.7	6802.05	0.24	0.1	–					82Ba69	
	6802.04	0.25			0.1	–			Bdn		03Fi.A	
ave.	6802.04	0.24			0.1	1	100	60 ^{101}Ru			average	
^{101}Rb(β^-)^{101}Sr	11810	110				7			Bwg		92Ba28	
^{101}Sr(β^-)^{101}Y	9505	80				6			Bwg		92Ba28	
^{101}Y(β^-)^{101}Zr	8545	90				5			Bwg		92Ba28	
^{101}Zr(β^-)^{101}Nb	5485	25				4			Bwg		92Gr.A	
^{101}Nb(β^-)^{101}Mo	4569	18				3			Bwg		92Gr.A	
^{101}Mo(β^-)^{101}Tc	2836	40	2825	25	−0.3	R					57Ok.A	
^{101}Tc(β^-)^{101}Ru	1620	30	1614	24	−0.2	2					71Ar23	
^{101}Pd(β^+)^{101}Rh	1980	4				3					71Ib01	
^{101}Ag(β^+)^{101}Pd	4100	200	4200	100	0.5	4					72We.A	
	4350	200			−0.7	4					78Ha11	
	4180	150			0.2	4					79Ve.A	
^{101}Cd(β^+)^{101}Ag	5530	130	5480	110	−0.4	5					70Be.A	∗
	5350	200			0.6	5					72We.A	
∗^{101}Rh−C$_{8.417}$	M−A=–87315(29) keV for mixture gs+m at 157.32 keV										NDS981	∗∗
∗^{101}Cd(β^+)^{101}Ag	Measured E+ may go to excited state										70Be.A	∗∗
C$_8$ H$_6$−^{102}Ru	142604.8	3.2	142600.9	2.2	−0.5	1	7	7 ^{102}Ru	M16	2.5	63Da10	
^{102}Ag−C$_{8.5}$	−88315	30				2			GS2	1.0	03Li.A	∗
^{100}Mo(t,p)^{102}Mo	5034	20				2			LAl		72Ca10	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{100}Mo(^{3}He,p)^{102}Tc		6054	20	6024	10	−1.5	1	27	20 ^{102}Tc	Pri		82De03	
^{102}Pd(p,t)^{100}Pd		−10356	12	−10360	11	−0.3	1	84	83 ^{100}Pd	Win		74De31	
^{101}Ru(n,γ)^{102}Ru		9219.64	0.05	9219.64	0.05	0.0	1	100	75 ^{102}Ru	MMn		91Is02	Z
		9219.63	0.19			0.1	U			Bdn		03Fi.A	
^{102}In(εp)^{101}Ag		3420	310	3230	150	−0.6	o			Lvp		91Re.A	∗
^{102}Sr(β^-)^{102}Y		8815	70				6			Bwg		92Ba28	
^{102}Y(β^-)^{102}Zr		9850	70				5			Bwg		92Ba28	
^{102}Zr(β^-)^{102}Nb		4605	30				4			Bwg		87Gr18	
^{102}Nb(β^-)^{102}Mo		7210	35				3			Bwg		87Gr18	
^{102}Nb^m(β^-)^{102}Mo		7335	40				3			Bwg		87Gr18	
^{102}Rh(β^+)^{102}Ru		2317	10	2323	5	0.6	–					61Hi06	
		2325	10			−0.2	–					63Bo17	
^{102}Ru(p,n)^{102}Rh		−3115	15	−3105	5	0.6	–					83Do11	
^{102}Rh(β^+)^{102}Ru	ave.	2323	6	2323	5	0.0	1	51	50 ^{102}Rh			average	
^{102}Rh(β^-)^{102}Pd		1150	6	1150	5	0.0	1	57	50 ^{102}Rh			61Hi06	
^{102}Ag(β^+)^{102}Pd		5800	200	5660	28	−0.7	F					67Ch05	∗
		5500	100			1.6	U					67Ch05	∗
		4910	140			5.4	C					70Be.A	∗
		5350	200			1.6	U					72We.A	
		5880	110			−2.0	U					79Ve.A	
^{102}Cd(β^+)^{102}Ag		2587	8				3			GSI		91Ke08	
^{102}In(β^+)^{102}Cd		9250	380	8970	110	−0.7	4			Lvp		95Sz01	∗
		8970	150			0.0	4			GSI		98Ka.A	
		8910	170			0.3	4			GSI		03Gi06	∗
^{102}Sn(β^+)^{102}In		5780	70				5					01St.A	
∗^{102}Ag−C$_{8.5}$		M−A=–82260(28) keV for mixture gs+m at 9.3 keV										NDS983	∗∗
∗^{102}In(εp)^{101}Ag		Estimated from proton spectrum from 1450 to 3200 keV										GAu	∗∗
∗^{102}Ag(β^+)^{102}Pd		F: E$^+$ =2260(40) does not fit with later decay scheme										NDSAHW	∗∗
∗^{102}Ag(β^+)^{102}Pd		From combination with decay scheme in ref.										NDS983	∗∗
∗^{102}Ag(β^+)^{102}Pd		Q$^+$ =4920(100) from ^{102}Ag^m at 9.3(0.4)										NDS983	∗∗
∗^{102}In(β^+)^{102}Cd		From determined upper 9900 and lower 8600 limits										GAu	∗∗
∗^{102}In(β^+)^{102}Cd		Good agreement with authors earlier measurement, average=8950(120)										03Gi06	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
C$_8$ H$_7$−^{103}Rh		149263.5	3.3	149271	3	0.9	1	13	13 ^{103}Rh	M16	2.5	63Da10	
^{103}Ag−C$_{8.583}$		−91091	52	−91027	18	1.2	U			GS2	1.0	03Li.A	∗
^{103}Cd−^{102}Cd		−1534	154	−1040	40	2.1	U			CR2	1.5	92Sh.A	∗
^{103}Rh(p,t)^{101}Rh		−8275	17				2			Pri		64Th05	
^{102}Ru(n,γ)^{103}Ru		6232.2	0.3	6232.05	0.15	−0.5	–					82Ba69	Z
		6232.00	0.17			0.3	–			Bdn		03Fi.A	
	ave.	6232.05	0.15			0.0	1	100	83 ^{103}Ru			average	
^{102}Pd(n,γ)^{103}Pd		7624.6	1.5	7625.4	0.8	0.5	–					70Bo29	
		7625.6	0.9			−0.3	–			Bdn		03Fi.A	
	ave.	7625.3	0.8			0.0	1	99	92 ^{102}Pd			average	
^{103}Zr(β^-)^{103}Nb		6945	85				5			Bwg		87Gr18	
^{103}Nb(β^-)^{103}Mo		5530	30				4			Bwg		87Gr18	
^{103}Mo(β^-)^{103}Tc		3750	60				3			Bwg		87Gr18	
^{103}Ru(β^-)^{103}Rh		764	4	763.4	2.1	−0.1	–					58Ro09	
		760	6			0.6	–					65Mu09	
		762	5			0.3	–					70Pe04	
		769	4			−1.4	–					82Oh04	
	ave.	764.6	2.3			−0.5	1	86	80 ^{103}Rh			average	
^{103}Pd(ε)^{103}Rh		543.0	0.8	543.1	0.8	0.1	1	99	92 ^{103}Pd			86Be53	
^{103}Ag(β^+)^{103}Pd		2622	27	2688	17	2.4	1	38	38 ^{103}Ag	Dlf		88Bo28	
^{103}Cd(β^+)^{103}Ag		4131	11	4142	10	1.0	1	90	62 ^{103}Ag	Dlf		88Bo28	
^{103}In(β^+)^{103}Cd		5380	200	6050	20	3.4	B			Brk		83Wo04	
		6050	20				2			Dlf		88Bo28	
		6040	60			0.2	U					98Ka42	
∗^{103}Ag−C$_{8.583}$		M−A=–84784(29) keV for mixture gs+m at 134.45 keV										NDS017	∗∗
∗^{103}Cd−^{102}Cd		From ^{102}Cd/^{103}Cd=0.99029800(150)										AHW	∗∗

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$C_8\ H_8-{}^{104}Ru$	157171.5	3.4	157168	3	−0.5	1	16	16	^{104}Ru	M16	2.5	63Da10	
$C_8\ H_8-{}^{104}Pd$	158612	10	158564	4	−1.9	U				M16	2.5	63Da10	
$^{104}Pd-C_{8.667}$	−95938	30	−95964	4	−0.9	U				GS2	1.0	03Li.A	
$^{104}Ag-C_{8.667}$	−91410	30	−91371	6	1.3	U				GS2	1.0	03Li.A	∗
$^{104}Cd-C_{8.667}$	−90147	30	−90151	10	−0.1	U				GS2	1.0	03Li.A	
$^{104}In-{}^{103}In$	−1241	231	−1620	90	−1.1	U				CR2	1.5	91Sh19	∗
$^{104}Ru(d,\alpha)^{102}Tc$	7180	10	7188	9	0.8	1	82	80	^{102}Tc	Pri		82De03	
$^{104}Ru(d,{}^3He)^{103}Tc$	−5289	10	−5287	9	0.2	2				VUn		83De20	
$^{104}Ru(t,\alpha)^{103}Tc$	9048	30	9033	9	−0.5	2				LAl		81Fl02	
$^{104}Ru(d,t)^{103}Ru-{}^{148}Gd()^{147}Gd$	85	3	82.7	2.7	−0.8	1	79	65	^{104}Ru	Jul		86Ru04	∗
$^{103}Rh(n,\gamma)^{104}Rh$	6998.96	0.10	6998.96	0.08	0.0	2				MMn		81Ke03	Z
	6998.95	0.14			0.0	2				Bdn		03Fi.A	
$^{104}Nb(\beta^-)^{104}Mo$	8105	90				4				Bwg		87Gr18	
$^{104}Nb^m(\beta^-)^{104}Mo$	8320	80				4				Bwg		87Gr18	
$^{104}Mo(\beta^-)^{104}Tc$	2155	40	2157	28	0.1	3				Bwg		87Gr18	
	2160	40			−0.1	3				Jyv		94Jo.A	
$^{104}Tc(\beta^-)^{104}Ru$	5620	70	5600	50	−0.2	2						78Su03	
	5590	60			0.2	2				Bwg		87Gr18	
$^{104}Pd(p,n)^{104}Ag$	−5061	4				3						79De44	
$^{104}In(\beta^+)^{104}Cd$	7100	200	7870	80	3.8	B						78Hu06	
	7260	250			2.4	B				Brk		83Wo04	
	7800	250			0.3	–				Dlf		88Bo28	
	7880	100			−0.1	–				GSI		98Ka.A	
ave.	7870	90			0.0	1	83	82	^{104}In			average	
$^{104}Sn(\beta^+)^{104}In$	4515	60				2				GSI		91Ke11	
$*^{104}Ag-C_{8.667}$	M−A=–85144(28) keV for mixture gs+m at 6.9 keV											Ens00	∗∗
$*^{104}In-{}^{103}In$	From ^{103}In/^{104}In=0.99038900(222)											AHW	∗∗
$*^{104}Ru(d,t)^{103}Ru-{}^{148}Gd()$	Q=82(3) to 2.81 level (AHW)											NDS932	∗∗
$^{105}Rh-C_{8.75}$	−94378	53	−94306	4	1.4	U				GS2	1.0	03Li.A	∗
$^{105}Ag-C_{8.75}$	−93534	31	−93471	12	2.0	U				GS2	1.0	03Li.A	∗
$^{105}In-{}^{104}In$	−3618	144	−3620	90	0.0	1	18	18	^{104}In	CR2	1.5	91Sh19	∗
$^{104}Ru(n,\gamma)^{105}Ru$	5909.9	0.5	5910.10	0.11	0.4	–						74Hr01	
	5910.1	0.2			0.0	–						78Gu14	
	5910.11	0.14			−0.1	–				Bdn		03Fi.A	
ave.	5910.10	0.11			0.0	1	100	82	^{105}Ru			average	
$^{104}Pd(n,\gamma)^{105}Pd$	7094.1	0.7				2						70Bo29	
$^{105}Sb(p)^{104}Sn$	482.6	15.				3						94Ti03	
$^{105}Nb(\beta^-)^{105}Mo$	6485	70				4				Bwg		87Gr18	
$^{105}Mo(\beta^-)^{105}Tc$	4950	45				3				Bwg		87Gr18	
$^{105}Tc(\beta^-)^{105}Ru$	3640	55				2				Bwg		87Gr18	
$^{105}Ru(\beta^-)^{105}Rh$	1916	4	1918	3	0.5	1	76	58	^{105}Rh			67Sc01	
$^{105}Rh(\beta^-)^{105}Pd$	570	5	567.2	2.5	−0.6	–						51Du03	
	560	5			1.4	–						56La24	
	568	4			−0.2	–						64Ka23	
ave.	566.3	2.6			0.3	1	89	47	^{105}Pd			average	
$^{105}Ag(\varepsilon)^{105}Pd$	1347	25	1345	11	−0.1	–						67Pi03	
	1310	25			1.4	–						67Sc26	
ave.	1329	18			0.9	1	36	35	^{105}Ag			average	
$^{105}Cd(\beta^+)^{105}Ag$	2738	5	2738	4	0.0	–						53Jo20	∗
	2742	11			−0.4	–						86Bo28	∗
ave.	2739	5			−0.2	1	97	80	^{105}Cd			average	
$^{105}In(\beta^+)^{105}Cd$	5140	200	4849	13	−1.5	B				Brk		83Wo04	
	4849	13			0.0	1	100	99	^{105}In			86Bo28	
$*^{105}Rh-C_{8.75}$	M−A=–87847(32) keV for mixture gs+m at 129.781 keV											NDS934	∗∗
$*^{105}Ag-C_{8.75}$	M−A=–87113(28) keV for mixture gs+m at 25.465 keV											Ens93	∗∗
$*^{105}In-{}^{104}In$	From ^{104}In/^{105}In=0.99050293(139)											AHW	∗∗
$*^{105}Cd(\beta^+)^{105}Ag$	E^+ =1691(5) to $^{105}Ag^m$ at 25.465											NDS934	∗∗
$*^{105}Cd(\beta^+)^{105}Ag$	E^+ =1695(11) to $^{105}Ag^m$ at 25.465											NDS934	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$C_8\ H_{10}-{}^{106}Pd$		174764.0	4.3	174765	4	0.1	1	17	17	^{106}Pd	M16	2.5	63Da10	
$^{106}Pd-C_{8.833}$		−96495	30	−96514	4	−0.6	U				GS2	1.0	03Li.A	
$^{106}Ag-C_{8.833}$		−93318	44	−93331	5	−0.3	U				GS2	1.0	03Li.A	∗
$C_8\ H_{10}-{}^{106}Cd$		171789.3	2.7	171791	6	0.2	1	89	89	^{106}Cd	M16	2.5	63Da10	
$^{106}In-C_{8.833}$		−86516	32	−86535	13	−0.6	1	17	17	^{106}In	GS2	1.0	03Li.A	∗
$^{106}Te(\alpha)^{102}Sn$		4323.5	30.	4290	9	−1.1	U						81Sc17	
		4290.2	9.				6						94Pa11	
		4323.5	30.			−1.1	U						02Ma19	
$^{106}Cd(^3He,^6He)^{103}Cd$		−9173	17	−9147	15	1.5	1	76	72	^{103}Cd	MSU		78Pa11	
$^{104}Ru(t,p)^{106}Ru$		5892	20	5894	7	0.1	R				LAl		72Ca10	
$^{106}Cd(p,t)^{104}Cd$		−10802	15	−10819	7	−1.1	–				MSU		82Cr01	
		−10829	12			0.9	–				Pri		83De03	
		−10819	12			0.0	–				Ors		84Ro.A	
	ave.	−10819	7			0.0	1	100	100	^{104}Cd			average	
$^{105}Pd(n,\gamma)^{106}Pd$		9560.5	0.4	9560.97	0.28	1.2	–				BNn		87Fo20	∗
		9561.4	0.4			−1.1	–				Bdn		03Fi.A	
	ave.	9560.95	0.28			0.1	1	100	51	^{105}Pd			average	
$^{105}Pd(^3He,d)^{106}Ag$		322	8	320.0	2.8	−0.2	1	13	12	^{106}Ag	Bld		75An07	
$^{106}Cd(d,t)^{105}Cd$		−4661	50	−4616	12	0.9	U						73De16	
$^{106}Cd(^3He,\alpha)^{105}Cd$		9728	25	9704	12	−1.0	1	25	20	^{105}Cd	Man		75Ch21	
$^{106}Mo(\beta^-)^{106}Tc$		3520	17	3520	12	0.0	5				Bwg		92Gr.A	
		3520	17			0.0	5				Jyv		94Jo.A	
$^{106}Tc(\beta^-)^{106}Ru$		6547	11				4				Bwg		92Gr.A	
$^{106}Ru(\beta^-)^{106}Rh$		39.2	0.3	39.40	0.21	0.7	3						50Ag01	
		39.6	0.3			−0.7	3						58Gr07	
$^{106}Rh(\beta^-)^{106}Pd$		3530	10	3541	6	1.1	2						52Al06	
		3550	10			−0.9	2						58Gr07	
		3550	20			−0.5	2						60Se05	
$^{106}Rh^m(\beta^-)^{106}Pd$		3677	10				2						66De11	
$^{106}Ag(\varepsilon)^{106}Pd$		2961	4	2965.1	2.8	1.0	–						78Ge01	∗
$^{106}Pd(p,n)^{106}Ag$		−3756	5	−3747.5	2.8	1.7	–						79De44	
$^{106}Ag(\varepsilon)^{106}Pd$	ave.	2966	3	2965.1	2.8	−0.3	1	81	79	^{106}Ag			average	
$^{106}In(\beta^+)^{106}Cd$		6516	30	6526	11	0.3	–						66Ca09	∗
		6507	29			0.7	–						86Bo28	∗
$^{106}Cd(p,n)^{106}In$		−7312.9	15.	−7308	11	0.3	–				ANL		84Fi05	∗
$^{106}In(\beta^+)^{106}Cd$	ave.	6524	12	6526	11	0.2	1	86	82	^{106}In			average	
$^{106}Sn(\beta^+)^{106}In$		3195	60	3180	50	−0.2	–				GSI		79Pl06	
		3200	100			−0.2	–						88Ba10	
	ave.	3200	50			−0.3	1	91	90	^{106}Sn			average	
∗$^{106}Ag-C_{8.833}$		M−A=–86880(32) keV for mixture gs+m at 89.66 keV											NDS934	∗∗
∗$^{106}In-C_{8.833}$		M−A=–80575(29) keV for mixture gs+m at 28.6 keV											NDS934	∗∗
∗$^{105}Pd(n,\gamma)^{106}Pd$		Calculated from 13 γ energies in 2 keV n-capture											AHW	∗∗
∗		to levels in ^{106}Pd; corr. for recoil											NDS945	∗∗
∗$^{106}Ag(\varepsilon)^{106}Pd$		L/K=0.203(0.003) gives Q^+ =99(4), recalculated Q											AHW	∗∗
∗		from $^{106}Ag^m$ at 89.66 to 2951.78 level											NDS945	∗∗
∗$^{106}In(\beta^+)^{106}Cd$		E^+ =4890(30) from $^{106}In^m$ at 28.6 to 632.64 level											NDS945	∗∗
∗$^{106}In(\beta^+)^{106}Cd$		E^+ =2965(30) to 2491.66 level and 4908(29)											NDS945	∗∗
∗		from $^{106}In^m$ at 28.6 to 632.64 level											NDS945	∗∗
∗$^{106}Cd(p,n)^{106}In$		T=7535(15) to 151.1 level											NDS	∗∗
$^{107}Pd-C_{8.917}$		−95013	95	−94867	4	1.5	U				GS2	1.0	03Li.A	∗
$C_8\ H_{11}-{}^{107}Ag$		180986.4	3.1	180979	5	−1.0	1	35	35	^{107}Ag	M16	2.5	63Da10	
$^{107}Cd-C_{8.917}$		−93410	30	−93382	6	0.9	U				GS2	1.0	03Li.A	
$^{107}In-C_{8.917}$		−89710	30	−89705	12	0.2	1	17	17	^{107}In	GS2	1.0	03Li.A	
$^{107}Sn-{}^{106}Sn$		−1148	86	−1240	90	−0.7	1	50	40	^{107}Sn	CR2	1.5	92Sh.A	∗
$^{107}Te(\alpha)^{103}Sn$		3982.2	15.	4008	5	1.7	3						79Sc22	
		4011.3	5.			−0.6	3						91He21	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{107}Ag(p,t)^{105}Ag	−9015	15	−8995	11	1.4	1	50	48	^{105}Ag	Min		75Ku14	∗
^{106}Pd(n,γ)^{107}Pd	6536.4	0.5	6536.4	0.5	0.1	1	99	67	^{107}Pd	Bdn		03Fi.A	
^{107}Ag(p,d)^{106}Ag	−7305	11	−7311	4	−0.6	1	12	8	^{106}Ag	Bld		75An07	
^{107}Mo(β^-)^{107}Tc	6160	60				4				Bwg		89Gr23	
^{107}Tc(β^-)^{107}Ru	4820	85				3				Bwg		89Gr23	
^{107}Ru(β^-)^{107}Rh	3140	300	2940	120	−0.7	2						62Pi02	
	2900	135			0.3	2				Bwg		89Gr23	
^{107}Rh(β^-)^{107}Pd	1510	40	1504	12	−0.1	1	10	9	^{107}Rh			62Pi02	
^{107}Pd(β^-)^{107}Ag	33	3	34.1	2.7	0.4	1	82	50	^{107}Ag			49Pa.B	
^{107}Cd(β^+)^{107}Ag	1417	4	1417	4	0.0	1	98	96	^{107}Cd			62La10	∗
^{107}In(β^+)^{107}Cd	3426	11	3425	10	−0.1	1	87	83	^{107}In			86Bo28	
∗^{107}Pd−C$_{8.917}$	M−A=–88397(62) keV for mixture gs+m at 214.6 keV											NDS002	∗∗
∗^{107}Sn−^{106}Sn	From ^{107}Sn/^{106}Sn=1.00943053(81)											AHW	∗∗
∗^{107}Ag(p,t)^{105}Ag	Recalibrated with (p,t) results on ^{104}Pd, ^{105}Pd, ^{106}Pd and ^{108}Pd											AHW	∗∗
∗^{107}Cd(β^+)^{107}Ag	E$^+$ =302(4) to ^{107}Ag^m at 93.13											NDS914	∗∗
C$_8$ H$_{12}$−^{108}Pd	190014	6	190009	4	−0.4	1	6	6	^{108}Pd	M16	2.5	63Da10	
^{108}Ag−C$_9$	−93973	50	−94044	5	−1.4	U				GS2	1.0	03Li.A	∗
C$_8$ H$_{12}$−^{108}Cd	189715.6	2.9	189717	6	0.2	1	68	68	^{108}Cd	M16	2.5	63Da10	
^{108}In−C$_9$	−90277	31	−90302	10	−0.8	1	11	11	^{108}In	GS2	1.0	03Li.A	∗
^{108}Sn−C$_9$	−88102	32	−88075	21	0.9	1	44	44	^{108}Sn	GS2	1.0	03Li.A	
^{108}Sn−^{107}Sn	−3650	76	−3720	90	−0.6	1	61	60	^{107}Sn	CR2	1.5	92Sh.A	∗
^{108}Te(α)^{104}Sn	3444.9	4.				3						91He21	
^{108}I(α)^{104}Sb	4099.1	5.				5						94Pa12	
^{108}Pd(d,^{3}He)^{107}Rh	−4456	12	−4457	12	0.0	1	92	91	^{107}Rh	Grn		86Ka43	
^{107}Ag(n,γ)^{108}Ag	7269.6	0.6	7271.41	0.17	3.0	U				ILn		85Ma54	Z
	7271.41	0.17				2				Bdn		03Fi.A	
^{108}Mo(β^-)^{108}Tc	5135	60	4650#	150#	−8.1	D				Bwg		92Gr.A	∗
	5120	40			−11.8	o						94Jo.A	∗
	5100	60			−7.5	D						95Jo02	∗
^{108}Tc(β^-)^{108}Ru	7720	50				4				Bwg		89Gr23	
^{108}Ru(β^-)^{108}Rh	1315	100	1350	50	0.3	3						62Pi02	
	1420	185			−0.4	3				Bwg		89Gr23	
	1380	80			−0.4	o				Jyv		92Jo05	
	1350	60			−0.1	3				Jyv		94Jo.A	
^{108}Rh(β^-)^{108}Pd	4505	105				2				Bwg		89Gr23	
^{108}Rh^m(β^-)^{108}Pd	4434	50	4450	40	0.3	2						69Pi08	
	4510	100			−0.6	2						84Bh02	
^{108}In(β^+)^{108}Cd	5124	50	5137	9	0.3	U						62Ka23	∗
	5125	14			0.8	–						86Bo28	∗
^{108}Cd(p,n)^{108}In	−5927	12	−5919	9	0.7	–				ANL		84Fi05	∗
^{108}In(β^+)^{108}Cd	ave. 5136	9	5137	9	0.0	1	87	82	^{108}In			average	
^{108}Sn(β^+)^{108}In	2089	25	2075	19	−0.6	1	61	54	^{108}Sn	GSI		79Pl06	
∗^{108}Ag−C$_9$	M−A=–87480(34) keV for mixture gs+m at 109.440 keV											Ens00	∗∗
∗^{108}In−C$_9$	M−A=–84078(28) keV for mixture gs+m at 29.75 keV											Ens00	∗∗
∗^{108}Sn−^{107}Sn	From ^{107}Sn/^{108}Sn=0.99076701(70)											AHW	∗∗
∗^{108}Mo(β^-)^{108}Tc	Systematical trends suggest ^{108}Mo 470 more bound											CTh	∗∗
∗^{108}In(β^+)^{108}Cd	E$^+$ =1290(80) to 2807.91 level and E$^+$ =3500(50)											62Ka23	∗∗
∗	from ^{108}In^m at 29.75 to 632.986 level											NDS978	∗∗
∗^{108}In(β^+)^{108}Cd	E$^+$ =1887(28) to 2239.26 level; and 3494(14)											86Bo28	∗∗
∗	from ^{108}In^m at 29.75 to 632.96 level											NDS914	∗∗
∗^{108}Cd(p,n)^{108}In	T=–6191(8),-6244(9),errors statistical only,											AHW	∗∗
∗	to 198.38, 266.06 levels.											NDS978	∗∗
C$_8$ H$_{13}$−^{109}Ag	196972.1	3.8	196973	3	0.1	1	11	11	^{109}Ag	M16	2.5	63Da10	
^{109}Sn−C$_{9.083}$	−88747	30	−88717	11	1.0	U				GS2	1.0	03Li.A	
^{109}Te(α)^{105}Sn	3225.6	4.				3						91He21	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{109}Ag(p,t)^{107}Ag	−7995	15	−7982	5	0.9	1	11	8	^{107}Ag	Min		75Ku14	*
^{108}Pd(n,γ)^{109}Pd	6153.8	0.3	6153.60	0.15	−0.7	–				ILn		80Ca02	Z
	6153.54	0.17			0.4	–				Bdn		03Fi.A	
ave.	6153.60	0.15			0.0	1	100	91	^{108}Pd			average	
^{108}Cd(^{3}He,d)^{109}In−^{110}Cd()^{111}In	−806.5	2.6	−806.3	2.5	0.1	1	96	47	^{109}In			80Ta07	
^{109}Te(εp)^{108}Sn	7140	60				2						73Bo20	
^{109}I(p)^{108}Te	819	5	819.5	1.9	0.1	4						84Fa04	
	819.6	2.0			0.0	4						92He.A	
^{109}Tc(β^-)^{109}Ru	6315	70				4				Bwg		89Gr23	
^{109}Ru(β^-)^{109}Rh	4160	65				3				Bwg		89Gr23	
^{109}Pd(β^-)^{109}Ag	1116	2	1116.1	2.0	0.0	1	97	91	^{109}Pd			62Br15	*
^{109}Cd(ε)^{109}Ag	182	3	214.2	2.9	10.7	C						68Go.A	*
	214	3			0.1	1	94	85	^{109}Cd			Averag	*
^{109}In(β^+)^{109}Cd	2015	8	2020	6	0.6	–						62No06	
	2030	15			−0.7	–						71Ba08	
ave.	2018	7			0.2	1	68	53	^{109}In			average	
^{109}Sb(β^+)^{109}Sn	6380	16				3						82Jo03	
*^{109}Ag(p,t)^{107}Ag	Recalibrated with (p,t) results on ^{104}Pd, ^{105}Pd, ^{106}Pd and ^{108}Pd											AHW	**
*^{109}Pd(β^-)^{109}Ag	E$^-$=1028(2) to ^{109}Ag^m at 88.0341											NDS91c	**
*^{109}Cd(ε)^{109}Ag	IBE=68(3) gives 94(3) to ^{109}Ag^m at 88.0341											NDS91c	**
*^{109}Cd(ε)^{109}Ag	From aver. LM/K=0.2265(0.0026) $->$ Q$^+$ =126(3); recalc. Q											AHW	**
*	to ^{109}Ag^m at 88.0341											NDS91c	**
*	LMN/K=0.228(0.003)											65Le06	**
*	L/K=0.195(0.005) $->$ LMN/K=0.258(0.006) $->$ Q$^+$ =109(5) not used											65Le06	**
*	LMN/K=0.226(0.003)											70Go39	**
^{110}Ru−C$_{9.167}$	−85899	77	−85860	60	0.5	1	55	55	^{110}Ru	JY1	1.0	03Ko.A	
^{110}Rh−C$_{9.167}$	−88708	84	−88860	50	−1.9	1	42	42	^{110}Rh	JY1	1.0	03Ko.A	*
C$_8$ H$_{14}$−^{110}Pd	204389	9	204397	12	0.4	1	27	27	^{110}Pd	M16	2.5	63Da10	
C$_8$ H$_{14}$−^{110}Cd	206548.4	4.6	206548.4	2.9	0.0	1	6	6	^{110}Cd	M16	2.5	63Da10	
^{110}In−C$_{9.167}$	−92898	36	−92835	13	1.8	U				GS2	1.0	03Li.A	*
^{110}Sn−C$_{9.167}$	−92189	30	−92157	15	1.1	2				GS2	1.0	03Li.A	
^{110}Te(α)^{106}Sn	2723.1	15.				2						81Sc17	
^{110}I(α)^{106}Sb	3574.2	10.	3580	50	0.2	7						81Sc17	
	3586.7	5.			−0.1	7						91He21	
^{110}Xe(α)^{106}Te	3878.3	30.	3885	14	0.2	7						81Sc17	
	3886.6	15.			−0.1	7						92He.A	
^{110}Pd(p,t)^{108}Pd	−6495	15	−6486	11	0.6	1	51	49	^{110}Pd	Min		75Ku14	*
^{110}Pd(d,^{3}He)^{109}Rh	−5134	5				2				VUn		87Ka29	
^{110}Pd(t,α)^{109}Rh	9206	25	9186	5	−0.8	U				LAl		82Fl09	
^{109}Ag(n,γ)^{110}Ag	6809.2	0.1	6809.20	0.10	0.0	1	100	71	^{109}Ag			81Bo.B	
	6808.20	0.16			6.3	B				Bdn		03Fi.A	
^{110}Tc(β^-)^{110}Ru	9021	55				2				Jyv		00Kr.A	
^{110}Ru(β^-)^{110}Rh	2810	50	2790	40	−0.3	1	78	45	^{110}Ru	Jyv		91Jo11	
^{110}Rh(β^-)^{110}Pd	5400	100	5570	50	1.7	1	26	25	^{110}Rh			70Pi01	
^{110}Rh^m(β^-)^{110}Pd	5500	500	5510	19	0.0	U						63Ka21	
	5510	19				2				Bwg		00Kr.A	
^{110}Ag(β^-)^{110}Cd	2891.4	3.0	2892.4	1.6	0.3	–						63Da03	*
	2892.9	2.0			−0.2	–						67Mo12	*
ave.	2892.4	1.7			0.0	1	94	71	^{110}Ag			average	
^{110}In(β^+)^{110}Cd	3928	20	3878	12	−2.5	2						51Mc11	*
	3868	20			0.5	2						53Bl44	*
	3838	20			2.0	2						62Ka08	*
^{110}Sb(β^+)^{110}Sn	8750	200	8300#	200#	−2.3	D						72Mi26	*
	9085	100			−7.8	D						72Si28	*
*^{110}Rh−C$_{9.167}$	M−A=–82641(72) keV for mixture gs+m at –20(60) keV											Nubase	**
*^{110}In−C$_{9.167}$	M−A=–86503(28) keV for mixture gs+m at 62.1 keV											Ens00	**
*^{110}Pd(p,t)^{108}Pd	Recalibrated with (p,t) results on ^{104}Pd, ^{105}Pd, ^{106}Pd and ^{108}Pd											AHW	**
*^{110}Ag(β^-)^{110}Cd	E$^-$=529(3) from ^{110}Ag^m at 117.59 to 2479.95 level											NDS92c	**
*^{110}Ag(β^-)^{110}Cd	E$^-$=2891(4); and 531(2)											67Mo12	**
*	from ^{110}Ag^m at 117.59 to 2479.95 level											NDS92c	**
*^{110}In(β^+)^{110}Cd	E$^+$ =2310(20) from ^{110}In^m at 62.08(0.04) to 657.76 level											89Kr12	**

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$*^{110}$In(β^+)^{110}Cd	E$^+$ =2250(20) from ^{110}In^m at 62.08(0.04) to 657.76 level											89Kr12	∗∗
$*^{110}$In(β^+)^{110}Cd	E$^+$ =2220(20) from ^{110}In^m at 62.08(0.04) to 657.76 level											89Kr12	∗∗
$*^{110}$Sb(β^+)^{110}Sn	Systematical trends suggest ^{110}Sb 720 more bound											GAu	∗∗
^{111}Ru$-$C$_{9.25}$	$-$82304	79				2				JY1	1.0	03Ko.A	
^{111}Rh$-$C$_{9.25}$	$-$88283	79	$-$88410	30	$-$1.7	C				JY1	1.0	03Ko.A	
^{111}Ag$-$C$_{9.25}$	$-$94741	51	$-$94709	3	0.6	U				GS2	1.0	03Li.A	∗
C$_8$ H$_{15}-^{111}$Cd	213184.4	3.9	213197.4	2.9	1.3	1	9	9	^{111}Cd	M16	2.5	63Da10	
^{111}Cd$-$C$_{9.25}$	$-$95774	30	$-$95821.9	2.9	$-$1.6	U				GS2	1.0	03Li.A	∗
^{111}Sb$-$C$_{9.25}$	$-$86837	30				2				GS2	1.0	03Li.A	
^{111}I(α)^{107}Sb	3270.1	10.	3280	50	0.2	3						79Sc22	
	3293.0	10.			$-$0.2	3						92He.A	
^{111}Xe(α)^{107}Te	3693.3	25.	3720	50	0.5	4						79Sc22	
	3714.1	30.			0.1	4						81Sc17	
	3723.5	10.			$-$0.1	4						91He21	
^{110}Pd(n,γ)^{111}Pd	5726.3	0.4				2				Bdn		03Fi.A	
^{110}Cd(n,γ)^{111}Cd	6975.5	0.5	6975.85	0.19	0.7	–						86Ba72	
	6975.9	0.2			$-$0.3	–						90Ne.B	
	6975.1	0.4			1.9	B				Bdn		03Fi.A	
ave.	6975.84	0.19			0.0	1	100	68	^{110}Cd			average	
^{111}Te(εp)^{110}Sn	5070	70				3						68Ba53	
^{111}Tc(β^-)^{111}Ru	7449	80				3				Jyv		00Kr.A	
^{111}Ru(β^-)^{111}Rh	5039	50	5690	80	13.1	C				Jyv		00Kr.A	
^{111}Rh(β^-)^{111}Pd	3640	50	3647	28	0.1	3				Jyv		00Kr.A	
	3650	33			$-$0.1	3				Bwg		00Kr.A	
^{111}Pd(β^-)^{111}Ag	2210	100	2217	11	0.1	U						52Mc34	∗
	2190	50			0.5	U						57Kn.A	∗
	2160	100			0.6	U						60Pr07	∗
^{111}Ag(β^-)^{111}Cd	1035	2	1036.8	1.4	0.9	2						71Na02	
	1038.6	2.			$-$0.9	2						77Re12	
^{111}Sb(β^+)^{111}Sn	4470	50	5057	29	11.7	B						72Si28	
$*^{111}$Ag$-$C$_{9.25}$	M$-$A=–88221(44) keV for mixture gs+m at 59.82 keV											NDS962	∗∗
$*^{111}$Cd$-$C$_{9.25}$	M$-$A=–88817(28) keV for ^{111}Cd^m at Eexc=396.214 keV											Ens00	∗∗
$*^{111}$Pd(β^-)^{111}Ag	Q$^-$=2150(100) to ^{111}Ag^m at 59.82											NDS908	∗∗
$*^{111}$Pd(β^-)^{111}Ag	Q$^-$=2130(50) to ^{111}Ag^m at 59.82											NDS908	∗∗
$*^{111}$Pd(β^-)^{111}Ag	Q$^-$=2100(100) to ^{111}Ag^m at 59.82											NDS908	∗∗
^{112}Ru$-$C$_{9.333}$	$-$81035	79				2				JY1	1.0	03Ko.A	
^{112}Rh$-$C$_{9.333}$	$-$85510	117	$-$85610	60	$-$0.8	R				JY1	1.0	03Ko.A	∗
C$_8$ H$_{16}-^{112}$Cd	222445.3	3.9	222442.7	2.9	$-$0.3	1	9	9	^{112}Cd	M16	2.5	63Da10	
^{112}In$-$C$_{9.333}$	$-$94366	58	$-$94468	6	$-$1.8	U				GS2	1.0	03Li.A	∗
C$_8$ H$_{16}-^{112}$Sn	220384	9	220382	5	$-$0.1	U				M16	2.5	63Da10	
^{112}Sb$-$C$_{9.333}$	$-$87597	30	$-$87602	19	$-$0.2	2				GS2	1.0	03Li.A	
^{112}I(α)^{108}Sb	2987.0	30.				3						81Sc17	
^{112}Xe(α)^{108}Te	3329.1	20.	3330	6	0.1	4						81Sc17	
	3308.5	15.			1.4	4						92He.A	
	3335.4	7.			$-$0.7	4						94Pa11	
^{112}Sn(^{3}He,^{6}He)^{109}Sn	$-$8686	9				2				MSU		78Pa11	
^{110}Pd(t,p)^{112}Pd	5659	20	5648	17	$-$0.5	1	70	60	^{112}Pd	LAl		72Ca10	
^{112}Cd(^{14}C,^{16}O)^{110}Pd	5543	29	5526	11	$-$0.6	1	14	13	^{110}Pd	LAl		84Co19	
^{112}Cd(p,t)^{110}Cd	$-$7891	5	$-$7888.4	0.4	0.5	U				Min		73Oo01	
^{112}Sn(p,t)^{110}Sn	$-$10485	15	$-$10478	14	0.5	R				Roc		70Fl08	
^{111}Cd(n,γ)^{112}Cd	9394.3	0.3	9394.32	0.30	0.1	1	100	60	^{111}Cd	ILn		93Dr.A	
^{112}Cd(γ,n)^{111}Cd	$-$9403	5	$-$9394.32	0.30	1.7	U				McM		79Ba06	
^{111}Cd(d,p)^{112}Cd	7170	10	7169.75	0.30	0.0	U				Yal		67Ba15	
	7171	5			$-$0.3	U				MIT		67Sp09	
^{112}Sn(p,d)^{111}Sn	$-$8574	15	$-$8563	5	0.7	2				Har		70Ca01	
^{112}Sn(d,t)^{111}Sn	$-$4529.0	5.7	$-$4531	5	$-$0.3	2				SPa		75Be09	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{112}Cs(p)^{111}Xe		814.3	7.				5					94Pa12	
^{112}Tc$(\beta^-)^{112}$Ru		9484	100				3			Jyv		00Kr.A	
^{112}Ru$(\beta^-)^{112}$Rh		4520	80	4260	90	−3.3	B			Jyv		91Jo11	*
^{112}Rh$(\beta^-)^{112}$Pd		6200	500	6600	50	0.8	U			Jyv		88Ay02	
		6573	54			0.4	2			Bwg		00Kr.A	
^{112}Rh$^m(\beta^-)^{112}$Pd		6929	56				2			Bwg		00Kr.A	
^{112}Pd$(\beta^-)^{112}$Ag		299	20	288	17	−0.5	1	70	40 ^{112}Pd			55Nu11	
^{112}Ag$(\beta^-)^{112}$Cd		3967	20	3956	17	−0.5	1	70	70 ^{112}Ag			62In01	
^{112}Cd(p,n)^{112}In		−3376	6	−3367	5	1.5	1	62	58 ^{112}In	Tky		80Ad04	
^{112}In$(\beta^-)^{112}$Sn		656	6	665	5	1.5	1	62	42 ^{112}In			53Bl44	
^{112}Sb$(\beta^+)^{112}$Sn		7029	50	7061	18	0.6	R					72Si28	
		7062	26			−0.1	R					82Jo03	
^{112}Sn(p,n)^{112}Sb		−7995	55	−7843	18	2.8	B			VUn		76Ka19	
*^{112}Rh$-$C$_{9.333}$	ave M$-$A=–79482(36) keV for mixture gs+m at 340(70) keV											Nubase	**
*^{112}In$-$C$_{9.333}$	M$-$A=–87823(30) keV for mixture gs+m at 156.59 keV											NDS96b	**
*^{112}Ru$(\beta^-)^{112}$Rh	E$^-$=4190(80) to 327.0 level											NDS96b	**
^{113}Ru$-$C$_{9.417}$		−77034	93	−77510	80	−5.1	C			JY1	1.0	03Ko.A	*
^{113}Rh$-$C$_{9.417}$		−84466	83	−84470	50	0.0	1	40	40 ^{113}Rh	JY1	1.0	03Ko.A	
C$_9$ H$_5-^{113}$Cd		134721.1	3.9	134723.5	2.9	0.2	1	9	9 ^{113}Cd	M16	2.5	63Da10	
^{113}Cd$-$C$_{9.417}$		−95506	93	−95598.3	2.9	−1.0	U			GS2	1.0	03Li.A	*
C$_9$ H$_5-^{113}$In		135015	9	135067	3	2.3	B			M16	2.5	63Da10	
^{113}In$-$C$_{9.417}$		−95969	126	−95942	3	0.2	U			GS2	1.0	03Li.A	*
^{113}Sn$-$C$_{9.417}$		−94796	39	−94829	4	−0.9	U			GS2	1.0	03Li.A	*
^{113}Sb$-$C$_{9.417}$		−90635	30	−90628	19	0.2	R			GS2	1.0	03Li.A	
^{113}Te$-$C$_{9.417}$		−84109	30				2			GS2	1.0	03Li.A	
^{113}I$(\alpha)^{109}$Sb		2705.9	40.				4					81Sc17	
^{113}Xe$(\alpha)^{109}$Te		3094.8	15.				3					79Sc22	
^{113}Cd(p,t)^{111}Cd		−7456	5	−7452.6	0.7	0.7	U			Min		73Oo01	
^{113}In(p,t)^{111}In$-^{115}$In()^{113}In		−810	10	−807	5	0.3	1	25	11 ^{115}In	Roc		74Ma09	
^{113}In(p,t)^{111}In$-^{112}$Cd()^{110}Cd		−746.3	4.1	−746	4	0.0	1	78	77 ^{111}In	SPa		80Ta07	
^{112}Cd(n,γ)^{113}Cd		6542.0	0.2	6540.1	0.6	−9.6	C					90Ne.A	
^{112}Cd(d,p)^{113}Cd		4315.56	0.64	4315.5	0.6	−0.1	1	98	58 ^{113}Cd	Rez		90Pi05	*
^{112}Sn(n,γ)^{113}Sn		7741.9	2.3	7743.1	1.8	0.5	–					75Sl.A	
^{112}Sn(d,p)^{113}Sn		5518.2	3.2	5518.5	1.8	0.1	–			SPa		75Be09	
^{112}Sn(n,γ)^{113}Sn	ave.	7742.2	1.9	7743.1	1.8	0.5	1	96	80 ^{112}Sn			average	
^{112}Sn(^{3}He,d)^{113}Sb		−2400	40	−2446	17	−1.2	R			Sac		68Co22	
^{113}Xe$(\varepsilon$p$)^{112}$Te		7920	150				4					82Pl05	
^{113}Cs(p)^{112}Xe		967	4	973.5	2.6	1.6	5					84Fa04	
		982.7	4.			−2.3	5					92He.A	
		967.6	6.			1.0	5					94Pa12	
^{113}Ru$(\beta^-)^{113}$Rh		6480	50				2			Jyv		00Kr.A	
^{113}Rh$(\beta^-)^{113}$Pd		5008	50	5010	40	0.0	1	75	60 ^{113}Rh	Jyv		00Kr.A	
^{113}Pd$(\beta^-)^{113}$Ag		3340	35	3340	30	0.0	1	88	85 ^{113}Pd	Stu		90Fo07	
^{113}Ag$(\beta^-)^{113}$Cd		2010	20	2017	16	0.3	–					57Je.A	
		2031	30			−0.5	–			Stu		90Fo07	*
	ave.	2016	17			0.0	1	97	97 ^{113}Ag			average	
^{113}Cd$(\beta^-)^{113}$In		320	10	320	3	0.0	1	11	7 ^{113}In	CIT		88Mi13	
^{113}Sn$(\beta^+)^{113}$In		1034.6	5.0	1036.6	2.7	0.4	–					93Li10	
^{113}In(p,n)^{113}Sn		−1809	6	−1818.9	2.7	−1.7	–			Oak		73Ra13	
^{113}Sn$(\beta^+)^{113}$In	ave.	1031	4	1036.6	2.7	1.4	1	51	45 ^{113}Sn			average	
^{113}Sb$(\beta^+)^{113}$Sn		3934	30	3913	17	−0.7	2					61Se08	
		3945	50			−0.6	2					69Ki16	
^{113}Te$(\beta^+)^{113}$Sb		5520	300	6070	30	1.8	U					74Bu21	
		5720	200			1.8	U					74Ch17	
*^{113}Ru$-$C$_{9.417}$	M$-$A=–71692(77) keV for mixture gs+m at 130(18) keV											Nubase	**
*^{113}Cd$-$C$_{9.417}$	M$-$A=–88832(41) keV for mixture gs+m at 263.54 keV											NDS983	**
*^{113}In$-$C$_{9.417}$	M$-$A=–89199(30) keV for mixture gs+m at 391.699 keV											Ens99	**
*^{113}Sn$-$C$_{9.417}$	M$-$A=–88263(29) keV for mixture gs+m at 77.386 keV											Ens00	**
*^{112}Cd(d,p)^{113}Cd	Estimated systematical error 0.5 added to statistical error 0.40											AHW	**
*^{113}Ag$(\beta^-)^{113}$Cd	Q$^-$=2075(30) from ^{113}Ag^m at 43.5											NDS904	**

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{114}Rh−C$_{9.5}$		−81194	121				2			JY1	1.0	03Ko.A	∗
C$_8$ H$_{18}$−^{114}Cd		237487.6	4.	237492.0	2.9	0.4	1	8	8 ^{114}Cd	M16	2.5	63Da10	
^{114}In−C$_{9.5}$		−94986	68	−95086	3	−1.5	U			GS2	1.0	03Li.A	∗
^{114}Sb−C$_{9.5}$		−90731	30				2			GS2	1.0	03Li.A	
^{114}Te−C$_{9.5}$		−87911	30				2			GS2	1.0	03Li.A	
^{114}Xe−^{133}Cs$_{.857}$		9008	12				2			MA6	1.0	03Di.1	
^{114}Cd ^{35}Cl−^{112}Cd ^{37}Cl		3548.5	1.0	3550.8	0.7	0.9	U			H26	2.5	73Me28	
^{114}Ba(γ,^{12}C)^{102}Sn		18110	780	18980	40	1.1	F					95Gu01	∗
^{114}Cs(α)^{110}I		3357.0	30.				6					81Sc17	
^{114}Ba(α)^{110}Xe		3534.2	40.				8					02Ma19	
^{113}Cd(n,γ)^{114}Cd		9042.76	0.20	9042.98	0.14	1.1	–			ILn		79Br25	Z
		9043.18	0.19			−1.1	–			Bdn		03Fi.A	
	ave.	9042.98	0.14			0.0	1	100	71 ^{114}Cd			average	
^{113}In(n,γ)^{114}In		7274.0	1.2	7273.85	0.27	−0.1	U					75Ra07	Z
		7273.83	0.27			0.1	1	100	82 ^{113}In	Bdn		03Fi.A	
^{114}Sn(d,t)^{113}Sn		−4043.7	4.2	−4041.9	2.7	0.4	1	43	38 ^{113}Sn	SPa		75Be09	
^{114}Cs(εp)^{113}I		8730	150	9300#	300#	3.8	D					82Pl05	∗
^{114}Ru(β^-)^{114}Rh		6100	200	5100#	200#	−5.0	o			Jyv		92Jo05	∗
		6120	200			−5.1	D			Jyv		94Jo.A	∗
^{114}Rh(β^-)^{114}Pd		6500	500	7860	120	2.7	U			Jyv		88Ay02	
		7392	53			8.9	C			Jyv		00Kr.A	
^{114}Pd(β^-)^{114}Ag		1414	30	1452	18	1.3	–			Stu		90Fo07	
		1451	25			0.0	–			Jyv		94Jo.A	
	ave.	1436	19			0.8	1	85	50 ^{114}Ag			average	
^{114}Ag(β^-)^{114}Cd		5160	110	5072	25	−0.8	U			Stu		84Lu02	
		5018	35			1.5	1	50	50 ^{114}Ag	Stu		90Fo07	
^{114}In(β^-)^{114}Sn		1987	2	1988.7	0.7	0.9	–					61Da01	
		1989	1			−0.3	–					61Ni02	
		1988.5	1.0			0.2	–					68Ze04	
	ave.	1988.6	0.7			0.3	1	98	72 ^{114}In			average	
^{114}Sb(β^+)^{114}Sn		5690	100	6046	28	3.6	U					69Bu.A	
^{114}Sn(p,n)^{114}Sb		−6875	35	−6828	28	1.3	B			VUn		76Ka19	
∗^{114}Rh−C$_{9.5}$	ave M−A=–75532(61) keV for mixture gs+m at 200#150 keV											Nubase	∗∗
∗^{114}In−C$_{9.5}$	M−A=–88384(31) keV for mixture gs+m at 190.29 keV											NDS96b	∗∗
∗^{114}Ba(γ,^{12}C)^{102}Sn	Most probably background											GAu	∗∗
∗^{114}Cs(εp)^{113}I	Systematical trends suggest ^{114}Cs 570 less bound											CTh	∗∗
∗^{114}Ru(β^-)^{114}Rh	E$^-$=5910(120) doublet to 127.0, 255.2 levels											92Jo05	∗∗
∗^{114}Ru(β^-)^{114}Rh	Systematical trends suggest ^{114}Ru 1000 more bound											CTh	∗∗
^{115}Rh−C$_{9.583}$		−79666	87				2			JY1	1.0	03Ko.A	
C$_9$ H$_7$−^{115}In		150910	8	150897	5	−0.7	U			M16	2.5	63Da10	
^{115}In−C$_{9.583}$		−96095	30	−96122	5	−0.9	U			GS2	1.0	03Li.A	
C$_9$ H$_7$−^{115}Sn		151411	8	151433	3	1.1	U			M16	2.5	63Da10	
^{115}Sb−C$_{9.583}$		−93402	30	−93402	17	0.0	2			GS2	1.0	03Li.A	
^{115}Te−C$_{9.583}$		−88098	30				2			GS2	1.0	03Li.A	∗
^{115}I−C$_{9.583}$		−81952	31				2			GS2	1.0	03Li.A	
^{115}Xe−^{133}Cs$_{.865}$		8078	13				2			MA6	1.0	03Di.1	
^{114}Cd(d,p)^{115}Cd		3916.30	0.59	3916.3	0.6	0.0	1	98	87 ^{115}Cd	Rez		90Pi05	∗
^{115}In(γ,n)^{114}In		−9039	5	−9036	4	0.6	1	58	48 ^{115}In	McM		79Ba06	
^{114}Sn(n,γ)^{115}Sn		7545.5	2.0	7546.4	1.7	0.4	–			ORn		78Ra16	Z
^{114}Sn(d,p)^{115}Sn		5320.6	3.4	5321.8	1.7	0.4	–			SPa		75Be09	
^{114}Sn(n,γ)^{115}Sn	ave.	7545.4	1.7	7546.4	1.7	0.6	1	94	70 ^{114}Sn			average	
^{115}Xe(εp)^{114}Te		6200	130	5940	30	−2.0	U					72Ho18	
^{115}Ru(β^-)^{115}Rh		7780	100				3			Jyv		00Kr.A	
^{115}Rh(β^-)^{115}Pd		6000	500	6190	100	0.4	U			Jyv		88Ay01	
		6566	50			−7.4	C			Jyv		00Kr.A	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{115}Pd(β^-)^{115}Ag	4584	50				3			Stu		90Fo07	
^{115}Ag(β^-)^{115}Cd	3180	100	3100	30	−0.8	2					64Ba36	
	3105	100			0.0	2					78Ma18	
	3091	40			0.3	2					90Fo07	*
^{115}Cd(β^-)^{115}In	1460	4	1446	4	−3.5	–					74Bo26	
	1431	5			3.0	–					75Bo29	*
	1440	2			3.1	–					76Ra33	*
ave.	1443	6			0.6	1	49	41 ^{115}In			average	
^{115}In(β^-)^{115}Sn	494	20	499	4	0.3	U					49Be53	*
	494	30			0.2	U					62Se03	*
	480	30			0.6	U					62Wa15	
	495	20			0.2	U					72Mu02	
	482	15			1.2	U					78Pf01	
^{115}Sb(β^+)^{115}Sn	3030	20	3033	16	0.1	R					61Se08	
*^{115}Te−C$_{9.583}$	M−A=–82058(28) keV for mixture gs+m at 10(7) keV										Nubase	**
*^{114}Cd(d,p)^{115}Cd	Estimated systematical error 0.5 added to statistical error 0.32										AHW	**
*^{115}Ag(β^-)^{115}Cd	Q$^-$=3132(40) from ^{115}Ag^m at 41.1										NDS929	**
*^{115}Cd(β^-)^{115}In	E$^-$=320(5), 679(6) from ^{115}Cd^m at 181.0 to 1290.592, 933.780 levels										NDS991	**
*^{115}Cd(β^-)^{115}In	Q$^-$=1621(2) from ^{115}Cd^m at 181.0										NDS929	**
*^{115}In(β^-)^{115}Sn	Q$^-$=830(20) from ^{115}In^m at 336.244										NDS991	**
*^{115}In(β^-)^{115}Sn	Q$^-$=830(30) from ^{115}In^m at 336.244										NDS991	**

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{116}Rh−C$_{9.667}$	−75938	148				2			JY1	1.0	03Ko.A	*
C$_9$ H$_8$−^{116}Cd	157837.4	2.9	157844	3	1.0	1	22	22 ^{116}Cd	M16	2.5	63Da10	
C$_9$ H$_8$−^{116}Sn	160861	8	160860	3	−0.1	U			M16	2.5	63Da10	
^{116}Sb−C$_{9.667}$	−93123	126	−93206	6	−0.7	U			GS2	1.0	03Li.A	*
^{116}Te−C$_{9.667}$	−91540	30				2			GS2	1.0	03Li.A	
^{116}Xe−^{133}Cs$_{.872}$	4027	14				2			MA6	1.0	03Di.1	
^{116}Cd ^{35}Cl−^{114}Cd ^{37}Cl	4348.7	1.2	4347.4	2.2	−0.4	1	52	44 ^{116}Cd	H26	2.5	73Me28	
^{116}Cs($\varepsilon\alpha$)^{112}Te	12300	400	12810#	200#	1.3	D					77Bo28	
	12400	900			0.5	D					76Jo.A	*
	12810	100			0.0	R					S-sugg	
^{116}Cd(^{14}C,^{16}O)^{114}Pd	2497	29	2534	23	1.3	1	66	65 ^{114}Pd	LAl		84Co19	
^{116}Cd(p,t)^{114}Cd	−6363	5	−6359.3	2.0	0.7	1	16	14 ^{116}Cd	Min		73Oo01	
^{116}Cd(γ,n)^{115}Cd	−8702	4	−8700.2	2.0	0.4	1	26	21 ^{116}Cd	McM		79Ba06	
^{115}In(n,γ)^{116}In	6783.8	1.2	6784.72	0.22	0.8	U					72Ra39	Z
	6784.4	1.1			0.3	U					74Co35	
	6784.72	0.22				2			Bdn		03Fi.A	
^{115}Sn(n,γ)^{116}Sn	9563.41	0.11	9563.45	0.10	0.3	–			ORn		91Ra01	Z
	9563.55	0.19			−0.5	–			Bdn		03Fi.A	
ave.	9563.45	0.10			0.0	1	100	78 ^{115}Sn			average	
^{115}Sn(^{3}He,d)^{116}Sb−^{120}Sn()^{121}Sb	−1722	10	−1705	5	1.7	1	29	27 ^{116}Sb	VUn		78Ka12	
^{116}Cs(εp)^{115}I	6350	300	6980#	110#	2.1	B					78Da07	*
^{116}Rh(β^-)^{116}Pd	8000	500	9220	150	2.4	B			Jyv		88Ay02	
^{116}Pd(β^-)^{116}Ag	2607	30				3			Stu		90Fo07	
	2620	100	2610	30	−0.1	U			Jyv		94Jo.A	
^{116}Ag(β^-)^{116}Cd	6028	130	6150	50	1.0	2			Stu		82Al29	*
	6170	50			−0.4	2			Stu		90Fo07	*
^{116}Sn(p,n)^{116}Sb	−5483.2	6.	−5489	5	−1.0	1	75	73 ^{116}Sb	Oak		77Jo03	
^{116}Sb^m(β^+)^{116}Sn	5090	40				2					60Je03	
^{116}Te(β^+)^{116}Sb	1554	100	1552	29	0.0	U					61Fi05	
^{116}I(β^+)^{116}Te	7760	130	7780	100	0.1	R					70Be.A	
	7710	200			0.3	R					76Go02	
^{116}Xe(β^+)^{116}I	4340	200	4450	100	0.5	3					76Go02	
*^{116}Rh−C$_{9.667}$	M−A=–70636(100) keV for mixture gs+m at 200#150 keV										Nubase	**
*^{116}Sb−C$_{9.667}$	M−A=–86553(34) keV for mixture gs+m at 380(40) keV										Nubase	**
*^{116}Cs($\varepsilon\alpha$)^{112}Te	Q=12500(900) from ^{116}Cs^m at estim 100#60 keV										GAu	**
*^{116}Cs($\varepsilon\alpha$)^{112}Te	Systematical trends suggest ^{116}Cs 500 less bound										CTh	**
*^{116}Cs(εp)^{115}I	Q=6450(300) from ^{116}Cs^m at estimated 100#60 keV										GAu	**
*^{116}Ag(β^-)^{116}Cd	Q$^-$=6110(130) from ^{116}Ag^m at 81.9										NDS949	**
*^{116}Ag(β^-)^{116}Cd	Q$^-$=6199(100); and 6241(50) from ^{116}Ag^m at 81.9										NDS949	**

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
C ^{35}Cl$_3$−^{117}Sn		3596	2	3606	3	1.3	1	15	15	^{117}Sn	H14	4.0	62Ba24	
^{117}Te−C$_{9.75}$		−91318	30	−91355	14	−1.2	2				GS2	1.0	03Li.A	
		−91359	30			0.1	2				GS2	1.0	03Li.A	*
^{117}I−C$_{9.75}$		−86350	30				2				GS2	1.0	03Li.A	
^{117}Xe−C$_{9.75}$		−79647	30	−79641	11	0.2	R				GS2	1.0	03Li.A	
^{117}Xe−^{133}Cs$_{.880}$		3562	12	3561	11	−0.1	2				MA6	1.0	03Di.1	
^{117}Cs−^{133}Cs$_{.880}$		11873	67	11870	70	0.0	1	100	100	^{117}Cs	MA4	1.0	99Am05	*
^{116}Cd(d,p)^{117}Cd		3552.66	1.0				2				Rez		90Pi05	*
^{116}Sn(n,γ)^{117}Sn		6943.5	2.0	6943.2	0.5	−0.2	U						75Bh01	Z
		6943.3	1.5			−0.1	U						78Ra16	Z
		6942.9	0.5			0.5	–				Bdn		03Fi.A	
^{116}Sn(d,p)^{117}Sn		4721.0	1.8	4718.6	0.5	−1.3	–				SPa		75Be09	
^{116}Sn(n,γ)^{117}Sn	ave.	6943.1	0.5	6943.2	0.5	0.1	1	99	77	^{116}Sn			average	
^{116}Sn(^{3}He,d)^{117}Sb		−1091	10	−1088	9	0.3	1	80	80	^{117}Sb	VUn		78Ka12	*
^{117}Xe(εp)^{116}Te		4100	200	3795	30	−1.5	U						72Ho18	
^{117}Ba(εp)^{116}Xe		7900	300	8470#	300#	1.9	D						78Bo20	*
^{117}La(p)^{116}Ba		789.8	6.	803	11	2.3	3						01So02	
		813.0	5.			−1.9	3						01Ma69	
^{117}La^m(p)^{116}Ba		941.1	10.				3						01So02	
^{117}Pd(β^-)^{117}Ag		5735	32				4				Jyv		00Kr.A	
^{117}Ag(β^-)^{117}Cd		4160	50				3				Stu		82Al29	*
^{117}In(β^-)^{117}Sn		1456.6	5.	1455	5	−0.3	1	95	94	^{117}In			55Mc17	*
^{117}Sn(p,n)^{117}Sb		−2525	20	−2538	9	−0.6	1	20	20	^{117}Sb	Oak		71Ke21	
^{117}Te(β^+)^{117}Sb		3552	20	3548	16	−0.2	R						62Kh05	
		3492	30			1.9	R						67Be46	
^{117}I(β^+)^{117}Te		4680	100	4660	30	−0.2	U						69La33	
		4610	110			0.5	U						70Be.A	*
^{117}Xe(β^+)^{117}I		6270	300	6249	30	−0.1	U						85Le10	*
^{117}Cs^x(IT)^{117}Cs		50	50	50	50	0.0	1	100	100	^{117}Cs^x			AHW	

*^{117}Te−C$_{9.75}$	M−A=–84804(28) keV for ^{117}Te^m at Eexc=296.1 keV	NDS023	**
*^{117}Cs−^{133}Cs$_{.880}$	M−A=–66422(20) keV for mixture gs+m at 150#80 keV	Ens00	**
*^{116}Cd(d,p)^{117}Cd	Estimated systematical error 0.5 added to statistical error 0.85	AHW	**
*^{116}Sn(^{3}He,d)^{117}Sb	Q–Q(^{120}Sn(^{3}He,d))= 1373(10,Ka), Q(120)=282.1(2.0)	AHW	**
*^{117}Ba(εp)^{116}Xe	Systematical trends suggest ^{117}Ba 570 less bound	CTh	**
*^{117}Ag(β^-)^{117}Cd	Q$^-$=4260(110); and 4170(50) from ^{117}Ag^m at 28.6	NDS926	**
*^{117}In(β^-)^{117}Sn	E$^-$=740(10) to 711.54 level; and 1772(5), 1616(5)	55Mc17	**
*	from ^{117}In^m at 315.302 to ground-state, 158.56 level	NDS926	**
*^{117}I(β^+)^{117}Te	Q$^+$ =4310(100) assumed to 274.4, 325.9 levels	AHW	**
*^{117}Xe(β^+)^{117}I	May be lower limit	AHW	**

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
C$_9$ H$_{10}$−^{118}Sn		176645	7	176647	3	0.1	U				M16	2.5	63Da10	
^{118}Te−C$_{9.833}$		−94162	30	−94172	16	−0.3	R				GS2	1.0	03Li.A	
^{118}I−C$_{9.833}$		−86932	30	−86926	21	0.2	2				GS2	1.0	03Li.A	
		−86920	30			−0.2	2				GS2	1.0	03Li.A	*
^{118}Xe−C$_{9.833}$		−83785	30	−83821	11	−1.2	R				GS2	1.0	03Li.A	
^{118}Xe−^{133}Cs$_{.887}$		37	12	43	11	0.5	2				MA6	1.0	03Di.1	
^{118}Cs^x−^{133}Cs$_{.887}$		10429	13	10429	13	0.0	1	100	100	^{118}Cs^x	MA1	1.0	99Am05	
^{117}Cs^x−^{118}Cs$^x_{.496}$ ^{116}Cs$_{.504}$		−1160	400	−1180#	130#	0.0	U				P32	2.5	86Au02	
^{118}Cs($\varepsilon\alpha$)^{114}Te		10600	200	11050	30	2.3	U						77Bo28	
		10750	200			1.5	U						78Da07	*
^{116}Cd(t,p)^{118}Cd		5650	20				2				Ald		67Hi01	
^{117}Sn(n,γ)^{118}Sn		9326.5	2.	9327.4	0.9	0.5	–						70Or.A	
		9324.8	2.1			1.3	–						75Sl.A	
		9327.9	1.1			−0.4	–				Bdn		03Fi.A	
	ave.	9327.1	0.9			0.4	1	98	62	^{117}Sn			average	
^{118}Pd(β^-)^{118}Ag		4100	200				4				Jyv		89Ko22	*
^{118}Ag(β^-)^{118}Cd		7122	100	7140	60	0.2	3				Stu		82Al29	*
		7110	470			0.1	U				Stu		82Al29	*
		7155	76			−0.2	3						95Ap.A	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{118}In^m(β^-)^{118}Sn		4270	100	4530#	50#	2.6	B						64Ka10	
^{118}Sn(p,n)^{118}Sb		−4439.0	3.				2				Oak		77Jo03	
^{118}Sb^m(β^+)^{118}Sn		3907	5				2						61Bo13	
^{118}I(β^+)^{118}Te		7080	150	6750	25	−2.2	B						68La18	$*$
		7068	100			−3.2	C						70Be.A	
^{118}Cs(β^+)^{118}Xe		9300	1000	9670	16	0.4	U						76Da.C	
^{118}Cs^x(IT)^{118}Cs		5	4	5	4	0.0	1	100	100	^{118}Cs			82Au01	$*$
$*^{118}$I$-$C$_{9.833}$		M$-$A=–80775(28) keV for ^{118}I^m at Eexc=190.1(1.0) keV											Nubase	$**$
$*^{118}$Cs($\varepsilon\alpha$)^{114}Te		As read from Fig$_{.2}$ (p.401)											GAu	$**$
$*^{118}$Pd(β^-)^{118}Ag		Original value 4000(200) corrected for new branching ratios											93Ja03	$**$
$*^{118}$Ag(β^-)^{118}Cd		E$^-$=4330(240), 3960(170), 3810(150)											GAu	$**$
$*$		to 2788.75, 3224.37, 3265.70 levels, reinterpreted											95Ap.A	$**$
$*^{118}$Ag(β^-)^{118}Cd		E$^-$=3990(720), 3910(630)											NDS876	$**$
$*$		from ^{118}Ag^m at 127.49(0.05) to 3181.72, 3381.8 levels, reinterpreted											95Ap.A	$**$
$*^{118}$I(β^+)^{118}Te		E$^+$ =5450(150) to 605.71 level											68La18	$**$
$*^{118}$Cs^x(IT)^{118}Cs		Original 24(19) corrected for new estimated IT=100(60)#											GAu	$**$
C$_9$ H$_{11}-^{119}$Sn		182778	7	182768	3	−0.6	U				M16	2.5	63Da10	
^{119}I$-$C$_{9.917}$		−89926	30				2				GS2	1.0	03Li.A	
^{119}Xe$-$C$_{9.917}$		−84601	30	−84589	11	0.4	R				GS2	1.0	03Li.A	
^{119}Xe$-^{133}$Cs$_{.895}$		33	12	31	11	−0.1	2				MA6	1.0	03Di.1	
^{119}Cs$-$C$_{9.917}$		−77532	57	−77623	15	−1.6	U				GS2	1.0	03Li.A	$*$
^{119}Cs$^x-^{133}$Cs$_{.895}$		7018	13	7015	9	−0.2	2				MA1	1.0	99Am05	
		7012	13			0.2	2				MA4	1.0	99Am05	
^{119}I$-^{118}$I		−2747	155	−3000	40	−1.1	U				CR2	1.5	92Sh.A	$*$
^{119}I$-^{117}$I		−3570	155	−3580	40	0.0	U				CR2	1.5	92Sh.A	$*$
^{118}Cs$^x-^{119}$Cs$^x_{.661}$ ^{116}Cs$_{.339}$		530	80	420#	100#	−0.6	U				P32	2.5	86Au02	
^{118}Cs$^x-^{119}$Cs$^x_{.496}$ ^{117}Cs$^x_{.504}$		870	50	910	40	0.3	U				P22	2.5	82Au01	
		980	40			−0.7	U				P32	2.5	86Au02	
^{119}Sn(t,α)^{118}In$-^{118}$Sn()^{117}In		−127	6	−127	6	0.0	1	100	100	^{118}In	McM		85Pi03	
^{118}Sn(n,γ)^{119}Sn		6484.6	1.5	6483.6	0.6	−0.7	–						78Ra16	
		6483.3	0.6			0.5	–				Bdn		03Fi.A	
	ave.	6483.5	0.6			0.3	1	99	64	^{118}Sn			average	
^{118}Sn(^{3}He,d)^{119}Sb		−388	10	−383	8	0.5	1	59	59	^{119}Sb	VUn		78Ka12	$*$
^{119}Ba(εp)^{118}Xe		6200	200				3						78Bo20	
^{119}Ag(β^-)^{119}Cd		5350	40				3				Stu		82Al29	
^{119}Cd(β^-)^{119}In		3797	80				2				Stu		82Al29	$*$
^{119}Sb(ε)^{119}Sn		579	20	591	8	0.6	–						57Ol05	
^{119}Sn(p,n)^{119}Sb		−1369	15	−1373	8	−0.3	–				Oak		71Ke21	
^{119}Sb(ε)^{119}Sn	ave.	584	12	591	8	0.6	1	41	41	^{119}Sb			average	
^{119}Te(β^+)^{119}Sb		2293	2				2						60Ko12	
^{119}I(β^+)^{119}Te		3630	100	3419	29	−2.1	U						69La33	
		3370	100			0.5	U						70Be.A	
^{119}Xe(β^+)^{119}I		4990	120	4971	30	−0.2	U						70Be.A	
^{119}Cs(β^+)^{119}Xe		6260	290	6489	17	0.8	U						83Pa.A	
^{119}Cs^x(IT)^{119}Cs		16	11				3						82Au01	$*$
$*^{119}$Cs$-$C$_{9.917}$		M$-$A=–72195(48) keV for mixture gs+m at 50#30 keV											Nubase	$**$
$*^{119}$I$-^{118}$I		From ^{118}I/^{119}I=0.99161584(117) –3039(139)											GAu	$**$
$*^{119}$I$-^{117}$I		From ^{117}I/^{119}I=0.98321059(130)											GAu	$**$
$*^{118}$Sn(^{3}He,d)^{119}Sb		Q$-$Q(^{120}Sn(^{3}He,d)^{121}Sb)=–673(10), Q(120)=285.1(2.1)											AHW	$**$
$*^{119}$Cd(β^-)^{119}In		Q$^-$=3800(90); and 3940(80) from ^{119}Cd^m at 146.54											NDS92a	$**$
$*^{119}$Cs^x(IT)^{119}Cs		Original 33(22) corrected for new estimated IT=50(30)#											GAu	$**$
^{13}C ^{35}Cl$_2$ ^{37}Cl$-^{120}$Sn		4758	3	4768.1	2.7	0.8	1	5	5	^{120}Sn	H14	4.0	62Ba24	
^{120}Sb$-$C$_{10}$		−94796	76	−94928	8	−1.7	U				GS2	1.0	03Li.A	$*$
C$_9$ H$_{12}-^{120}$Te		189879	9	189880	10	0.1	1	21	21	^{120}Te	M16	2.5	63Da10	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{120}I$-$C$_{10}$		−90222	104	−89952	19	2.6	U			GS2	1.0	03Li.A	∗
^{120}Xe$-$C$_{10}$		−88231	30	−88216	13	0.5	R			GS2	1.0	03Li.A	
^{120}Xe$-^{133}$Cs$_{.902}$		−2930	14	−2933	13	−0.2	2			MA6	1.0	03Di.1	
^{120}Cs$-$C$_{10}$		−79342	54	−79323	11	0.4	U			GS2	1.0	03Li.A	∗
^{120}Cs$^x-^{133}$Cs$_{.902}$		5956	12	5965	10	0.7	2			MA1	1.0	99Am05	
		5983	17			−1.1	2			MA4	1.0	99Am05	
^{118}Cs$^x-^{120}$Cs$^x_{.328}$ ^{117}Cs$^x_{.672}$		460	120	450	60	0.0	U			P22	2.5	82Au01	
^{119}Cs$^x-^{120}$Cs$^x_{.661}$ ^{117}Cs$^x_{.339}$		−940	50	−945	30	0.0	U			P22	2.5	82Au01	
^{119}Cs$^x-^{120}$Cs$^x_{.496}$ ^{118}Cs$^x_{.504}$		−1220	30	−1167	14	0.7	U			P22	2.5	82Au01	
		−1200	30			0.4	U			P32	2.5	86Au02	
^{120}Cs($\varepsilon\alpha$)^{116}Te		9200	300	8955	30	−0.8	U					76Jo.A	
^{120}Te(p,t)^{118}Te		−9343	12	−9344	11	−0.1	2			Win		74De31	
^{120}Sn(d,^{3}He)^{119}In		−5169	20	−5196	7	−1.4	1	13	13 ^{119}In	MSU		71We01	
^{120}Sn(t,α)^{119}In$-^{118}$Sn()^{117}In		−692	6	−690	6	0.4	1	92	87 ^{119}In	McM		85Pi03	
^{120}Sn(d,t)^{119}Sn		−2847.0	2.5	−2850.8	2.2	−1.5	1	78	55 ^{119}Sn	SPa		75Be09	
^{120}Pd(β^-)^{120}Ag		5500	100				4			Jyv		94Jo.A	
^{120}Ag(β^-)^{120}Cd		8200	100	8320	70	1.2	3			Stu		82Al29	
		8450	100			−1.3	3					95Ap.A	
^{120}In(β^-)^{120}Sn		5370	40				2					87Ga.A	
^{120}In^m(β^-)^{120}Sn		5280	200	5420#	50#	0.7	D					64Ka10	∗
		5340	170			0.5	D			Stu		78Al18	∗
^{120}Sn(p,n)^{120}Sb		−3462.9	7.1				2			Tkm		63Ok01	
^{120}I(β^+)^{120}Te		5615	15				2					70Ga32	∗
		5778	150	5615	15	−1.1	U					68La18	∗
^{120}Xe(β^+)^{120}I		1960	40	1617	21	−8.6	F					74Mu10	∗
^{120}Cs^x(IT)^{120}Cs		5	4				3					82Au01	∗
^{120}Ba(β^+)^{120}Cs		5000	300				4					92Xu04	
∗^{120}Sb$-$C$_{10}$	M−A=–88302(50) keV for mixture gs+m at 0#100 keV											Nubase	∗∗
∗^{120}I$-$C$_{10}$	M−A=–83881(28) keV for mixture gs+n at 320(15) keV											Nubase	∗∗
∗^{120}Cs$-$C$_{10}$	M−A=–73856(29) keV for mixture gs+m at 100#60 keV											Nubase	∗∗
∗^{120}In^m(β^-)^{120}Sn	Systematical trends suggest ^{120}In^m 105 less bound											GAu	∗∗
∗^{120}I(β^+)^{120}Te	E$^+$ =4595(15), 4030(20) to ground-state, 560.438 level											NDS026	∗∗
∗^{120}I(β^+)^{120}Te	E$^+$ =3130(150) from ^{120}I^m at 150(30) to 1776.23 level											Nubase	∗∗
∗^{120}Xe(β^+)^{120}I	p$^+$ =0.07(0.01) to 25.1 level, recalculated Q											AHW	∗∗
∗^{120}Cs^x(IT)^{120}Cs	Original 24(19) corrected for new estimated IT=100(60)#											GAu	∗∗
C$_9$ H$_{13}-^{121}$Sb		197910.5	3.7	197909.7	2.4	−0.1	1	7	7 ^{121}Sb	M16	2.5	63Da10	
^{121}Sb$-$C ^{35}Cl ^{37}Cl$_2$		3162	3	3157.8	2.4	−0.3	U			H14	4.0	62Ba24	
^{121}Sb$-$C$_{10.083}$		−96180	30	−96184.3	2.4	−0.1	U			GS2	1.0	03Li.A	
^{121}I$-$C$_{10.083}$		−92609	30	−92633	11	−0.8	1	14	14 ^{121}I	GS2	1.0	03Li.A	
^{121}Xe$-$C$_{10.083}$		−88562	30	−88538	12	0.8	R			GS2	1.0	03Li.A	
^{121}Xe$-^{133}$Cs$_{.910}$		−2495	13	−2499	12	−0.3	2			MA6	1.0	03Di.1	
^{121}Cs$-^{133}$Cs$_{.910}$		3248	25	3268	15	0.8	R			MA1	1.0	99Am05	∗
^{121}Cs$-$C$_{10.083}$		−82821	38	−82771	15	1.3	2			GS2	1.0	03Li.A	∗
^{121}Sb ^{35}Cl$-^{119}$Sn ^{37}Cl		3452	2	3458.1	2.9	0.8	1	13	10 ^{119}Sn	H14	4.0	62Ba24	
^{119}Cs$^x-^{121}$Cs$^x_{.328}$ ^{118}Cs$^x_{.672}$		−1080	30	∗			U			P22	2.5	82Au01	
^{120}Cs$^x-^{121}$Cs$^x_{.661}$ ^{118}Cs$^x_{.339}$		280	30	∗			U			P22	2.5	82Au01	
^{120}Cs$^x-^{121}$Cs$^x_{.496}$ ^{119}Cs$^x_{.504}$		813	14	∗			U			P32	2.5	86Au02	
^{120}Sn(n,γ)^{121}Sn		6170.3	2.	6170.3	0.3	0.0	U					76Ca24	
		6170.5	0.7			−0.3	–					81Ba53	
		6170.1	0.4			0.6	–			Bdn		03Fi.A	
^{120}Sn(d,p)^{121}Sn		3946.2	1.7	3945.8	0.3	−0.3	–			SPa		75Be09	
^{120}Sn(n,γ)^{121}Sn	ave.	6170.2	0.3	6170.3	0.3	0.3	1	99	70 ^{120}Sn			average	
^{120}Te(^{3}He,d)^{121}I		−1320.5	4.4	−1322	4	−0.3	1	97	83 ^{121}I	Hei		78Sz09	
^{121}Ba(εp)^{120}Xe		4200	300	4140	140	−0.2	R					78Bo20	
^{121}Pr(p)^{120}Ce		837	50				3					90Bo39	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$^{121}\mathrm{Ag}(\beta^-)^{121}\mathrm{Cd}$	6400	120				4				Stu		82Al29	
$^{121}\mathrm{Cd}(\beta^-)^{121}\mathrm{In}$	4780	80				3				Stu		82Al29	$*$
$^{121}\mathrm{In}(\beta^-)^{121}\mathrm{Sn}$	3406	50	3363	27	−0.9	R				Stu		78Al18	
$^{121}\mathrm{Sn}(\beta^-)^{121}\mathrm{Sb}$	383	5	391.0	2.1	1.6	–						49Du15	
	383.4	3.			2.5	–						68Sn01	$*$
ave.	383.3	2.6			3.0	1	65	43	$^{121}\mathrm{Sn}$			average	
$^{121}\mathrm{Te}(\beta^+)^{121}\mathrm{Sb}$	1080	30	1044	26	−1.2	1	74	74	$^{121}\mathrm{Te}$			75Me23	$*$
$^{121}\mathrm{I}(\beta^+)^{121}\mathrm{Te}$	2364	50	2264	27	−2.0	1	29	26	$^{121}\mathrm{Te}$			53Fi.A	
	2384	100			−1.2	U						65Bu03	
$^{121}\mathrm{Xe}(\beta^+)^{121}\mathrm{I}$	4160	140	3814	15	−2.5	C						70Be.A	
$^{121}\mathrm{Cs}(\beta^+)^{121}\mathrm{Xe}$	5400	20	5372	18	−1.4	R						81So06	
	5400	40			−0.7	R				JAE		96Os04	$*$
$^{121}\mathrm{Cs}^x(\mathrm{IT})^{121}\mathrm{Cs}$	46	8	$*$			C						GAu	
$^{121}\mathrm{Ba}(\beta^+)^{121}\mathrm{Cs}$	6340	160	6360	140	0.1	3				JAE		96Os04	
$*^{121}\mathrm{Cs}-^{133}\mathrm{Cs}_{.910}$	D_M=3285(13) uu for mixture gs+m at 68.5 keV; M−A=–77089(12) keV											NDS005	$**$
$*^{121}\mathrm{Cs}-\mathrm{C}_{10.083}$	M−A=–77113(29) keV for mixture gs+m at 68.5 keV											NDS005	$**$
$*^{121}\mathrm{Cd}(\beta^-)^{121}\mathrm{In}$	Q^-=4890(150); and 4960(80) from $^{121}\mathrm{Cd}^m$ at 214.89											NDS91a	$**$
$*^{121}\mathrm{Sn}(\beta^-)^{121}\mathrm{Sb}$	E^-=383(3); and 354(5) from $^{121}\mathrm{Sn}^m$ at 6.30 to 37.13 level											NDS91a	$**$
$*^{121}\mathrm{Te}(\beta^+)^{121}\mathrm{Sb}$	p^+ =0.024(0.011) gives Q^+ =315(30), recalculated Q+											AHW	$**$
$*$	from $^{121}\mathrm{Te}^m$ at 293.98 to 37.13 level											NDS91a	$**$
$*^{121}\mathrm{Cs}(\beta^+)^{121}\mathrm{Xe}$	Q^+ =5470(40) from $^{121}\mathrm{Cs}^m$ at 68.5											NDS005	$**$
$^{122}\mathrm{Xe}-\mathrm{C}_{10.167}$	−91637	30	−91632	12	0.2	R				GS2	1.0	03Li.A	
$^{122}\mathrm{Xe}-^{133}\mathrm{Cs}_{.917}$	−4931	13	−4932	12	−0.1	2				MA6	1.0	03Di.1	
$^{122}\mathrm{Cs}-^{133}\mathrm{Cs}_{.917}$	2810	45	2810	30	0.1	1	58	58	$^{122}\mathrm{Cs}$	MA1	1.0	99Am05	$*$
$^{122}\mathrm{Cs}-\mathrm{C}_{10.167}$	−83881	53	−83890	30	−0.1	1	42	42	$^{122}\mathrm{Cs}$	GS2	1.0	03Li.A	$*$
$^{122}\mathrm{Cs}^m-^{133}\mathrm{Cs}_{.917}$	2961	12	2959	10	−0.2	2				MA1	1.0	99Am05	
	2955	17			0.2	2				MA4	1.0	99Am05	
$^{122}\mathrm{Ba}-\mathrm{C}_{10.167}$	−80096	30				2				GS2	1.0	03Li.A	
$^{120}\mathrm{Cs}^x-^{122}\mathrm{Cs}^x_{.492}\ ^{118}\mathrm{Cs}^x_{.508}$	−724	27	$*$			U				P32	2.5	86Au02	
$^{120}\mathrm{Cs}^x-^{122}\mathrm{Cs}^x_{.328}\ ^{119}\mathrm{Cs}^x_{.672}$	360	17	$*$			U				P32	2.5	86Au02	
$^{121}\mathrm{Cs}^x-^{122}\mathrm{Cs}^x_{.496}\ ^{120}\mathrm{Cs}^x_{.504}$	−1169	15	$*$			U				P32	2.5	86Au02	
$^{122}\mathrm{Te}(\mathrm{p,t})^{120}\mathrm{Te}$	−8560	12	−8570	10	−0.9	1	65	64	$^{120}\mathrm{Te}$	Win		74De31	
$^{122}\mathrm{Sn}(\mathrm{d},^{3}\mathrm{He})^{121}\mathrm{In}$	−5910	50	−5900	27	0.2	2				Sac		69Co03	
	−5861	43			−0.9	2				MSU		71We01	
$^{122}\mathrm{Sn}(\mathrm{d,t})^{121}\mathrm{Sn}$	−2558.8	3.0	−2556.0	2.5	0.9	1	67	40	$^{122}\mathrm{Sn}$	SPa		75Be09	
$^{121}\mathrm{Sb}(\mathrm{n},\gamma)^{122}\mathrm{Sb}$	6806.4	0.3	6806.38	0.15	−0.1	U						72Sh.A	Z
	6806.36	0.15			0.1	1	100	62	$^{121}\mathrm{Sb}$	Bdn		03Fi.A	
$^{122}\mathrm{Sn}(\mathrm{t},^{3}\mathrm{He})^{122}\mathrm{In}$	−6350	50				2				LAl		78Aj01	
$^{122}\mathrm{In}^n(\beta^-)^{122}\mathrm{Sn}$	6736	200	6660	130	−0.4	2						71Ta07	
	6590	180			0.4	2				Stu		78Al18	
$^{122}\mathrm{Sb}(\beta^-)^{122}\mathrm{Te}$	1970	5	1983.9	1.9	2.8	–						55Fa33	
	1980	3			1.3	–						68Hs02	
ave.	1977.4	2.6			2.5	1	54	46	$^{122}\mathrm{Sb}$			average	
$^{122}\mathrm{I}(\beta^+)^{122}\mathrm{Te}$	4234	5				2						77Re.A	
$^{122}\mathrm{Cs}(\beta^+)^{122}\mathrm{Xe}$	7050	180	7220	30	0.9	U						83Pa.A	
	7000	150			1.4	U				IRS		93Al03	
	7080	50			2.7	B				JAE		96Os04	
$^{122}\mathrm{Cs}^m(\beta^+)^{122}\mathrm{Xe}$	6950	250	7350	14	1.6	U						83Pa.A	
	7300	150			0.3	U				IRS		93Al03	
$^{122}\mathrm{Cs}^x(\mathrm{IT})^{122}\mathrm{Cs}$	11	6	$*$			U						82Au01	$*$
$*^{122}\mathrm{Cs}-^{133}\mathrm{Cs}_{.917}$	D_M=2880(12) uu for mixture gs+m at 130(30) keV; M−A=–78082(11) keV											99Am05	$**$
$*^{122}\mathrm{Cs}-\mathrm{C}_{10.167}$	M−A=–78070(28) keV for mixture gs+m at 130(30) keV											NDS943	$**$
$*^{122}\mathrm{Cs}^x(\mathrm{IT})^{122}\mathrm{Cs}$	Original 45(33) revised from $^{122}\mathrm{Cs}^m$=114(18)											GAu	$**$

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	*F*	Reference	
C$_8$ H$_{13}$ N$-^{123}$Sb		200580.0	3.3	200585.5	2.2	0.7	U				M16	2.5	63Da10	
^{123}Te$-$C$_{10.25}$		−95615	83	−95730.0	1.6	−1.4	U				GS2	1.0	03Li.A	∗
^{123}I$-$C$_{10.25}$		−94444	30	−94411	4	1.1	U				GS2	1.0	03Li.A	
^{123}Xe$-^{133}$Cs$_{.925}$		−4048	13	−4061	10	−1.0	1	62	62	^{123}Xe	MA6	1.0	03Di.1	
^{123}Cs$-$C$_{10.25}$		−87007	57	−87004	13	0.1	U				GS2	1.0	03Li.A	∗
^{123}Cs$-^{133}$Cs$_{.925}$		453	13				2				MA1	1.0	99Am05	
^{123}Ba$-^{133}$Cs$_{.925}$		6238	13				2				MA5	1.0	00Be42	
^{123}Ba$-$C$_{10.25}$		−81327	30	−81219	13	3.6	C				GS2	1.0	03Li.A	
^{123}Sb ^{35}Cl$-^{121}$Sb ^{37}Cl		3343	2	3348.4	2.3	0.7	1	8	5	^{121}Sb	H14	4.0	62Ba24	
^{122}Sn(n,γ)^{123}Sn		5948	3	5945.8	1.2	−0.7	–						75Bh01	
		5945.8	1.5			0.0	–						77Ca09	
^{122}Sn(d,p)^{123}Sn		3721.8	2.6	3721.3	1.2	−0.2	–				SPa		75Be09	
^{122}Sn(n,γ)^{123}Sn	ave.	5946.3	1.2	5945.8	1.2	−0.4	1	94	49	^{122}Sn			average	
^{123}Sb(γ,n)^{122}Sb		−8966	4	−8965.3	2.1	0.2	1	28	16	^{122}Sb	McM		79Ba06	
^{122}Te(n,γ)^{123}Te		6937	5	6929.18	0.16	−1.6	U						68Ch.A	
		6929.1	0.5			0.2	–						91Ho08	
		6929.16	0.17			0.1	–				Bdn		03Fi.A	
^{122}Te(d,p)^{123}Te		4706	6	4704.62	0.16	−0.2	U				MIT		75Li22	
^{122}Te(n,γ)^{123}Te	ave.	6929.15	0.16	6929.18	0.16	0.2	1	100	92	^{122}Te			average	
^{122}Te(^{3}He,d)^{123}I		−574.2	3.5	−575	3	−0.3	1	97	96	^{123}I	Hei		78Sz04	
^{123}Cd(β^-)^{123}In		6115	33				3				Stu		87Sp09	
^{123}In(β^-)^{123}Sn		4400	30	4394	24	−0.2	2				Stu		87Sp09	∗
^{123}Sn(β^-)^{123}Sb		1395	10	1403.6	2.9	0.9	–						49Du15	∗
		1420	10			−1.6	–						50Ke11	
		1399	20			0.2	U						66Au04	
	ave.	1408	7			−0.5	1	17	11	^{123}Sn			average	
^{123}I(β^+)^{123}Te		1260	7	1229	3	−4.5	C						86Ag.A	
^{123}Xe(β^+)^{123}I		2676	15	2695	10	1.3	1	42	38	^{123}Xe			60Mo.A	
^{123}Cs(β^+)^{123}Xe		4110	30	4205	15	3.2	B				JAE		96Os04	
^{123}Cs^x(IT)^{123}Cs		7	4				3						82Au01	
^{123}Ba(β^+)^{123}Cs		5330	100	5389	17	0.6	U				JAE		96Os04	
∗^{123}Te$-$C$_{10.25}$	M$-$A=–88941(30) keV for mixture gs+m at 247.55 keV												NDS93b∗∗	
∗^{123}Cs$-$C$_{10.25}$	M$-$A=–80968(28) keV for mixture gs+m at 156.74 keV												NDS93b∗∗	
∗^{123}In(β^-)^{123}Sn	Q$^-$=4410(31); and 4645(72) from ^{123}In^m at 327.21												NDS93b∗∗	
∗^{123}Sn(β^-)^{123}Sb	E$^-$=1260(10) from ^{123}Sn^m at 24.6 to 160.33 level												NDS93b∗∗	
^{124}Sn$-^{13}$C ^{37}Cl$_3$		4210.47	0.71	4211.3	1.5	0.5	1	71	70	^{124}Sn	H39	2.5	84Ha20	
^{124}Sn$-$C$_{10.333}$		−94716	21	−94726.1	1.5	−0.5	U				MA8	1.0	01Si.A	
^{124}Te$-^{13}$C ^{37}Cl$_3$		1754.63	1.26	1755.3	1.6	0.2	1	25	25	^{124}Te	H39	2.5	84Ha20	
^{124}Te$-^{54}$Fe ^{35}Cl$_2$		25501.65	2.56	25502.0	1.7	0.1	1	7	6	^{124}Te	H39	2.5	84Ha20	
^{124}I$-$C$_{10.333}$		−93786	30	−93790.1	2.5	−0.1	U				GS2	1.0	03Li.A	
^{124}Xe$-^{13}$C ^{37}Cl$_3$		4831.15	1.58	4830.4	2.0	−0.2	1	25	25	^{124}Xe	H39	2.5	84Ha20	
^{124}Xe$-^{54}$Fe ^{35}Cl$_2$		28575.78	0.99	28577.1	1.9	0.5	1	61	57	^{124}Xe	H39	2.5	84Ha20	
^{124}Xe$-^{133}$Cs$_{.932}$		−5986	13	−5988.2	2.0	−0.2	U				MA6	1.0	03Di.1	
^{124}Cs$-^{133}$Cs$_{.932}$		370	13	377	9	0.5	R				MA1	1.0	99Am05	
		361	15			1.0	R				MA8	1.0	03Gu.A	
^{124}Cs$-$C$_{10.333}$		−87696	30	−87742	9	−1.5	2				GS2	1.0	03Li.A	
		−87693	30			−1.6	2				GS2	1.0	03Li.A	∗
^{124}Ba$-^{133}$Cs$_{.932}$		3212	15	3212	13	0.0	2				MA1	1.0	99Am05	
^{124}Ba$-$C$_{10.333}$		−84905	30	−84906	13	0.0	R				GS2	1.0	03Li.A	
^{124}La$-$C$_{10.333}$		−75464	71	−75430	60	0.5	2				GS2	1.0	03Li.A	∗
^{124}Sn ^{35}Cl$-^{122}$Sn ^{37}Cl		4784	2	4785.0	2.8	0.1	1	12	11	^{122}Sn	H15	4.0	62Ba23	
^{124}Te ^{35}Cl$-^{122}$Te ^{37}Cl		2728	2	2724.09	0.26	−0.5	U				H16	4.0	63Ba47	
^{124}Sn$-^{124}$Te		2458.51	0.89	2456.1	1.6	−1.1	1	54	30	^{124}Te	H39	2.5	84Ha20	
^{124}Xe$-^{124}$Te		3076.00	1.78	3075.1	2.3	−0.2	1	27	17	^{124}Xe	H39	2.5	84Ha20	
^{120}Cs$^x-^{124}$Cs$^x_{.194}$ ^{119}Cs$^x_{.807}$		310	30	∗			U				P22	2.5	82Au01	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{121}Cs$^{x}-{}^{124}$Cs$^{x}_{.244}$ ^{120}Cs$^{x}_{.756}$	−1360	30	*			U			P22	2.5	82Au01	
^{123}Cs$^{x}-{}^{124}$Cs$^{x}_{.744}$ ^{120}Cs$^{x}_{.256}$	−1390	30	*			U			P22	2.5	82Au01	
^{124}Sn(d,^{6}Li)^{120}Cd	−5216	24	−5214	19	0.1	2					79Ja21	
^{124}Sn(^{3}He,^{7}Be)^{120}Cd	−5098	30	−5102	19	−0.1	2			MSU		76St11	
^{124}Sn(^{18}O,^{20}Ne)^{122}Cd	−1246	43				2					97Gu32	
^{124}Sn(d,^{3}He)^{123}In	−6610	50	−6606	24	0.1	R			Sac		69Co03	
	−6572	66			−0.5	R			MSU		71We01	
^{124}Sn(d,t)^{123}Sn	−2233.4	3.7	−2230.4	2.6	0.8	1	48	43 ^{123}Sn	SPa		75Be09	
^{123}Sb(n,γ)^{124}Sb	6467.55	0.10	6467.50	0.06	−0.5	–					73Sh.A	Z
	6467.40	0.10			1.0	–					81Su.A	Z
	6467.58	0.14			−0.6	–			Bdn		03Fi.A	
ave.	6467.50	0.06			0.0	1	100	79 ^{123}Sb			average	
^{123}Te(n,γ)^{124}Te	9425	2	9423.97	0.17	−0.5	U					69Bu05	
	9423.7	1.5			0.2	U					70Or.A	
	9424.05	0.30			−0.3	–			Ltn		95Ge06	Z
	9423.89	0.20			0.4	–			Bdn		03Fi.A	
ave.	9423.94	0.17			0.2	1	100	92 ^{123}Te			average	
^{124}Cd(β^{-})^{124}In	4166	39				3			Stu		87Sp09	
^{124}In(β^{-})^{124}Sn	7360	49				2			Stu		87Sp09	
^{124}In^{m}(β^{-})^{124}Sn	7341	51				2			Stu		87Sp09	
^{124}Sb(β^{-})^{124}Te	2907.7	5.	2904.3	1.5	−0.7	–					65Hs02	
	2903.7	4.			0.1	–					66Ca10	
	2904.7	2.			−0.2	–					69Na05	
ave.	2904.9	1.7			−0.4	1	83	79 ^{124}Sb			average	
^{124}I(β^{+})^{124}Te	3157	4	3159.6	1.9	0.6	2					71Bo01	*
	3160.3	2.1			−0.3	2					92Wo03	
^{124}Cs(β^{+})^{124}Xe	5910	30	5929	9	0.6	U			JAE		96Os04	
^{124}Cs^{x}(IT)^{124}Cs	30	20				3					AHW	*
^{124}La(β^{+})^{124}Ba	8930	110	8830	60	−0.9	R			JAE		98Ko66	
*^{124}Cs$-$C$_{10.333}$	M−A=–81223(28) keV for ^{124}Cs^{m} at Eexc=462.55 keV										NDS974	**
*^{124}La$-$C$_{10.333}$	M−A=–70244(32) keV for mixture gs+m at 100#100 keV										Nubase	**
*^{124}I(β^{+})^{124}Te	Original error increased see ^{84}Rb(β^{+})										AHW	**
*^{124}Cs^{x}(IT)^{124}Cs	Based on ^{124}Cs^{m}(IT)=462.54										NDS843	**
*^{124}Cs^{x}(IT)^{124}Cs	Isomeric ratio assumed <0.1 as in ^{118}Cs, ^{120}Cs, ^{122}Cs										AHW	**
^{125}I$-$C$_{10.417}$	−95374	30	−95369.8	1.6	0.1	U			GS2	1.0	03Li.A	
^{125}Cs$-{}^{133}$Cs$_{.940}$	−1382	14	−1397	8	−1.0	–			MA1	1.0	99Am05	
	−1386	14			−0.8	–			MA4	1.0	99Am05	
ave.	−1384	10			−1.3	1	71	71 ^{125}Cs			average	
^{125}Cs$-$C$_{10.417}$	−90280	30	−90272	8	0.3	U			GS2	1.0	03Li.A	
^{125}Ba$-{}^{133}$Cs$_{.940}$	3356	13	3348	12	−0.6	2			MA5	1.0	00Be42	
^{125}Ba$-$C$_{10.417}$	−85569	30	−85527	12	1.4	R			GS2	1.0	03Li.A	
^{125}La$-$C$_{10.417}$	−79191	30	−79184	28	0.2	2			GS2	1.0	03Li.A	
^{122}Cs$^{x}-{}^{125}$Cs$_{.244}$ ^{121}Cs$^{x}_{.756}$	715	23	*			U			P32	2.5	86Au02	
^{124}Sn(n,γ)^{125}Sn	5733.1	1.5	5733.1	0.6	0.0	2					77Ca09	Z
	5733.1	0.6			0.0	2					81Ba53	
^{124}Sn(d,p)^{125}Sn	3509.4	3.6	3508.5	0.6	−0.2	U			SPa		75Be09	
^{124}Te(n,γ)^{125}Te	6569.0	1.0	6568.970	0.030	0.0	U					71Gr.A	
	6568.97	0.03			0.0	1	100	83 ^{125}Te			99Ho01	
	6569.39	0.19			−2.2	B			Bdn		03Fi.A	
^{124}Te(d,p)^{125}Te	4344	8	4344.404	0.030	0.1	U			MIT		69Gr24	
^{124}Te(^{3}He,d)^{125}I	115.1	3.0	107.38	0.07	−2.6	B			Hei		78Sz04	
^{124}Xe(n,γ)^{125}Xe	7603.3	0.4	7603.3	0.4	−0.1	1	100	99 ^{125}Xe			82Ka.A	
^{125}Cd(β^{-})^{125}In	7122	62				4			Stu		87Sp09	*
^{125}Cd^{m}(β^{-})^{125}In	7172	35				4			Stu		87Sp09	*
^{125}In(β^{-})^{125}Sn	5418	30				3			Stu		87Sp09	*
^{125}Sb(β^{-})^{125}Te	767.7	3.	766.7	2.1	−0.3	2					64Ma30	
	765.7	3.			0.3	2					66Ma49	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$^{125}\mathrm{I}(\varepsilon)^{125}\mathrm{Te}$	186.1	0.3	185.77	0.06	−1.1	U						86Bo46	
	185.77	0.06				2						94Hi04	
$^{125}\mathrm{Cs}(\beta^+)^{125}\mathrm{Xe}$	3072	20	3104	8	1.6	–						54Ma54	
	3082	20			1.1	–						75We23	
ave.	3077	14			1.9	1	31	29	$^{125}\mathrm{Cs}$			average	
$^{125}\mathrm{Ba}(\beta^+)^{125}\mathrm{Cs}$	4560	250	4420	14	−0.6	U						68Da09	
	4380	50			0.8	U				JAE		96Os04	
$^{125}\mathrm{La}(\beta^+)^{125}\mathrm{Ba}$	5950	70	5909	28	−0.6	R				JAE		98Ko66	
$*^{125}\mathrm{Cd}(\beta^-)^{125}\mathrm{In}$	E^-=4625(62) to 2497.45 level											NDS93a$**$	
$*^{125}\mathrm{Cd}^m(\beta^-)^{125}\mathrm{In}$	E^-=5009(109), 4581(126), 4533(39) to 2101.50, 2640.32, 2641.92 levels											NDS93a$**$	
$*^{125}\mathrm{In}(\beta^-)^{125}\mathrm{Sn}$	Q^-=5443(31); and 5730(43) from $^{125}\mathrm{In}^m$ at 360.12											NDS93a$**$	
$^{126}\mathrm{Xe}-\mathrm{C}_{10.5}$	−95647	30	−95726	7	−2.6	C				GS2	1.0	03Li.A	
$^{126}\mathrm{Cs}-^{133}\mathrm{Cs}_{.947}$	−1011	13				2				MA1	1.0	99Am05	
$^{126}\mathrm{Ba}-^{133}\mathrm{Cs}_{.947}$	786	15	787	13	0.1	2				MA1	1.0	99Am05	
$^{126}\mathrm{Ba}-\mathrm{C}_{10.5}$	−88745	30	−88750	13	−0.2	R				GS2	1.0	03Li.A	
$^{126}\mathrm{La}-\mathrm{C}_{10.5}$	−80503	232	−80490	100	0.1	2				GS2	1.0	03Li.A	$*$
$^{126}\mathrm{Ce}-\mathrm{C}_{10.5}$	−76029	30				2				GS2	1.0	03Li.A	
$^{126}\mathrm{Te}\ ^{35}\mathrm{Cl}-^{124}\mathrm{Te}\ ^{37}\mathrm{Cl}$	3441.28	1.54	3443.89	0.11	1.1	U				H43	1.5	90Dy04	
$^{123}\mathrm{Cs}^x-^{126}\mathrm{Cs}_{.390}\ ^{121}\mathrm{Cs}^x_{.610}$	−1160	30	$*$			U				P22	2.5	82Au01	
$^{124}\mathrm{Cs}^x-^{126}\mathrm{Cs}_{.590}\ ^{121}\mathrm{Cs}^x_{.410}$	−340	30	$*$			U				P22	2.5	82Au01	
$^{124}\mathrm{Cs}^x-^{126}\mathrm{Cs}_{.492}\ ^{122}\mathrm{Cs}^x_{.508}$	−570	30	$*$			U				P22	2.5	82Au01	
$^{124}\mathrm{Cs}^x-^{126}\mathrm{Cs}_{.328}\ ^{123}\mathrm{Cs}^x_{.672}$	390	30	$*$			U				P22	2.5	82Au01	
$^{125}\mathrm{Cs}-^{126}\mathrm{Cs}_{.496}\ ^{124}\mathrm{Cs}^x_{.504}$	−1130	30	−1075	26	0.7	U				P22	2.5	82Au01	
$^{124}\mathrm{Sn(t,p)}^{126}\mathrm{Sn}$	5445	15	5445	11	0.0	2				Ald		69Bj01	
	5444	15			0.0	2				Roc		70Fl05	
$^{125}\mathrm{Te}(\mathrm{n},\gamma)^{126}\mathrm{Te}$	9113.7	0.4	9113.69	0.08	0.0	U						77Ko.A	
	9113.69	0.08			0.0	1	100	83	$^{126}\mathrm{Te}$			03Vo03	
$^{126}\mathrm{Cd}(\beta^-)^{126}\mathrm{In}$	5486	36				4				Stu		87Sp09	
$^{126}\mathrm{In}(\beta^-)^{126}\mathrm{Sn}$	8207	39				3				Stu		87Sp09	
$^{126}\mathrm{In}^m(\beta^-)^{126}\mathrm{Sn}$	8309	51				3				Stu		87Sp09	
$^{126}\mathrm{Sn}(\beta^-)^{126}\mathrm{Sb}$	378	30				3						71Or04	
$^{126}\mathrm{I}(\beta^+)^{126}\mathrm{Te}$	2151	5	2154	4	0.6	1	53	50	$^{126}\mathrm{I}$			59Ha27	
$^{126}\mathrm{I}(\beta^-)^{126}\mathrm{Xe}$	1258	5				2						55Ko14	
$^{126}\mathrm{Cs}(\beta^+)^{126}\mathrm{Xe}$	4780	20	4824	14	2.2	B				JAE		96Os04	
$^{126}\mathrm{La}(\beta^+)^{126}\mathrm{Ba}$	7700	100	7700	90	0.0	R				JAE		98Ko66	
$^{126}\mathrm{La}^m(\beta^+)^{126}\mathrm{Ba}$	7910	400				3				JAE		98Ko66	
$*^{126}\mathrm{La}-\mathrm{C}_{10.5}$	M−A=–74883(28) keV for mixture gs+m at 210(410) keV											Nubase $**$	
$\mathrm{C}_{10}\ \mathrm{H}_7-^{127}\mathrm{I}$	150297	6	150303	4	0.4	1	6	6	$^{127}\mathrm{I}$	M16	2.5	63Da10	
	150305.3	3.4			−0.3	1	20	20	$^{127}\mathrm{I}$	M16	2.5	63Da10	
$^{127}\mathrm{Cs}-^{133}\mathrm{Cs}_{.955}$	−2287	13	−2289	6	−0.2	–				MA1	1.0	99Am05	
	−2293.3	7.7			0.5	–				MA8	1.0	03Gu.A	
ave.	−2292	7			0.4	1	82	82	$^{127}\mathrm{Cs}$			average	
$^{127}\mathrm{Cs}-\mathrm{C}_{10.583}$	−92571	30	−92582	6	−0.4	U				GS2	1.0	03Li.A	
$^{127}\mathrm{Ba}-^{133}\mathrm{Cs}_{.955}$	1389	13	1387	12	−0.1	2				MA5	1.0	00Be42	
$^{127}\mathrm{Ba}-\mathrm{C}_{10.583}$	−88923	39	−88906	12	0.4	R				GS2	1.0	03Li.A	$*$
$^{127}\mathrm{La}-\mathrm{C}_{10.583}$	−83640	30	−83625	28	0.5	2				GS2	1.0	03Li.A	$*$
$^{127}\mathrm{Ce}-\mathrm{C}_{10.583}$	−77269	62				2				GS2	1.0	03Li.A	$*$
$^{125}\mathrm{Cs}-^{127}\mathrm{Cs}_{.591}\ ^{122}\mathrm{Cs}^x_{.410}$	−1098	18	$*$			U				P32	2.5	86Au02	
$^{126}\mathrm{Te}(\mathrm{n},\gamma)^{127}\mathrm{Te}$	6289	3	6287.8	0.4	−0.4	U						72Mu.A	
	6287.8	0.4			0.1	1	100	98	$^{127}\mathrm{Te}$	Bdn		03Fi.A	
$^{127}\mathrm{I}(\gamma,\mathrm{n})^{126}\mathrm{I}$	−9145	3	−9143.9	2.7	0.4	1	83	50	$^{126}\mathrm{I}$	MMn		86Ts04	
$^{127}\mathrm{Cd}(\beta^-)^{127}\mathrm{In}$	8468	63				5				Stu		87Sp09	
$^{127}\mathrm{In}(\beta^-)^{127}\mathrm{Sn}$	6514	31				4				Stu		87Sp09	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$^{127}\mathrm{In}^m(\beta^-)^{127}\mathrm{Sn}$		6976	64				4				Stu		87Sp09	
$^{127}\mathrm{Sn}(\beta^-)^{127}\mathrm{Sb}$		3201	24				3				Stu		77Lu06	$*$
$^{127}\mathrm{Sb}(\beta^-)^{127}\mathrm{Te}$		1581	5				2						67Ra13	
$^{127}\mathrm{Te}(\beta^-)^{127}\mathrm{I}$		683	10	702	3	1.9	–						55Da37	
		695	10			0.7	–						56Kn20	
	ave.	689	7			1.8	1	24	22	$^{127}\mathrm{I}$			average	
$^{127}\mathrm{Xe}(\varepsilon)^{127}\mathrm{I}$		663.3	2.2	662.3	2.0	−0.4	–						68Sc14	
$^{127}\mathrm{I}(^3\mathrm{He,t})^{127}\mathrm{Xe}$		−676	6	−680.9	2.0	−0.8	–				Pri		89Ch01	
$^{127}\mathrm{Xe}(\varepsilon)^{127}\mathrm{I}$	ave.	662.6	2.1	662.3	2.0	−0.1	1	98	92	$^{127}\mathrm{Xe}$			average	
$^{127}\mathrm{Cs}(\beta^+)^{127}\mathrm{Xe}$		2115	25	2081	6	−1.4	–						54Ma54	
		2076	20			0.2	–						67Sp08	
		2089	20			−0.4	–						75We23	
	ave.	2090	12			−0.8	1	27	18	$^{127}\mathrm{Cs}$			average	
$^{127}\mathrm{Ba}(\beta^+)^{127}\mathrm{Cs}$		3450	100	3424	13	−0.3	U						76Be11	
$^{127}\mathrm{La}(\beta^+)^{127}\mathrm{Ba}$		5010	70	4920	28	−1.3	R				JAE		98Ko66	
$*^{127}\mathrm{Ba}-\mathrm{C}_{10.583}$		M−A=–82791(28) keV for mixture gs+m at 80.33 keV											NDS961	$**$
$*^{127}\mathrm{La}-\mathrm{C}_{10.583}$		M−A=–77903(28) keV for mixture gs+m at 14.8(1.2) keV											NDS961	$**$
$*^{127}\mathrm{Ce}-\mathrm{C}_{10.583}$		M−A=–71976(29) keV for mixture gs+m at 0#100 keV											Nubase	$**$
$*^{127}\mathrm{Sn}(\beta^-)^{127}\mathrm{Sb}$		Q^-=3206(24) from $^{127}\mathrm{Sn}^m$ at 4.7											NDS822	$**$
$\mathrm{C}_{10}\,\mathrm{H}_8-^{128}\mathrm{Xe}$		159068.2	4.2	159069.0	1.5	0.1	U				M16	2.5	63Da10	
		159069.7	0.7			−0.4	1	77	77	$^{128}\mathrm{Xe}$	C3	2.5	70Ke05	
$^{128}\mathrm{Cs}-^{133}\mathrm{Cs}_{.962}$		−1293	13	−1296	6	−0.2	1	21	21	$^{128}\mathrm{Cs}$	MA1	1.0	99Am05	
$^{128}\mathrm{Cs}-\mathrm{C}_{10.667}$		−92181	30	−92251	6	−2.3	U				GS2	1.0	03Li.A	
$^{128}\mathrm{Ba}-^{133}\mathrm{Cs}_{.962}$		−720	13	−727	11	−0.5	–				MA1	1.0	99Am05	
	ave.	−718	12			−0.8	1	83	83	$^{128}\mathrm{Ba}$			average	
$^{128}\mathrm{Ba}-\mathrm{C}_{10.667}$		−91663	30	−91682	11	−0.6	R				GS2	1.0	03Li.A	
$^{128}\mathrm{La}-\mathrm{C}_{10.667}$		−84436	69	−84410	60	0.3	2				GS2	1.0	03Li.A	$*$
$^{128}\mathrm{Ce}-\mathrm{C}_{10.667}$		−81089	30				2				GS2	1.0	03Li.A	
$^{128}\mathrm{Pr}-\mathrm{C}_{10.667}$		−71209	32				2				GS2	1.0	03Li.A	
$^{128}\mathrm{Te}\,^{35}\mathrm{Cl}-^{126}\mathrm{Te}\,^{37}\mathrm{Cl}$		4106	2	4101.5	2.2	−0.6	1	8	5	$^{128}\mathrm{Te}$	H16	4.0	63Ba47	
		4102.3	1.8			−0.2	1	24	15	$^{128}\mathrm{Te}$	C3	2.5	70Ke05	
$^{128}\mathrm{Te}-^{128}\mathrm{Xe}$		931.26	1.20	931.8	1.6	0.3	1	77	57	$^{128}\mathrm{Te}$	H43	1.5	90Dy04	
$^{126}\mathrm{Cs}-^{128}\mathrm{Cs}_{.656}\ ^{122}\mathrm{Cs}^x_{.344}$		−1130	30	$*$			U				P22	2.5	82Au01	
$^{124}\mathrm{Cs}^x-^{128}\mathrm{Cs}_{.323}\ ^{122}\mathrm{Cs}^x_{.678}$		−1070	30	$*$			U				P22	2.5	82Au01	
$^{126}\mathrm{Cs}-^{128}\mathrm{Cs}_{.591}\ ^{123}\mathrm{Cs}^x_{.410}$		−350	30	−334	18	0.2	U				P22	2.5	82Au01	
$^{124}\mathrm{Cs}^x-^{128}\mathrm{Cs}_{.194}\ ^{123}\mathrm{Cs}^x_{.807}$		370	50	366	25	0.0	U				P22	2.5	82Au01	
$^{125}\mathrm{Cs}-^{128}\mathrm{Cs}_{.244}\ ^{124}\mathrm{Cs}^x_{.756}$		−1440	30	−1354	23	1.1	U				P22	2.5	82Au01	
$^{126}\mathrm{Cs}-^{128}\mathrm{Cs}_{.492}\ ^{124}\mathrm{Cs}^x_{.508}$		−610	30	−562	25	0.6	U				P22	2.5	82Au01	
$^{127}\mathrm{Cs}-^{128}\mathrm{Cs}_{.661}\ ^{125}\mathrm{Cs}_{.339}$		−965	16	−934	7	0.8	U				P32	2.5	86Au02	
$^{127}\mathrm{Cs}-^{128}\mathrm{Cs}_{.496}\ ^{126}\mathrm{Cs}_{.504}$		−1160	30	−1108	14	0.7	U				P22	2.5	82Au01	
$^{127}\mathrm{I}(\mathrm{n},\gamma)^{128}\mathrm{I}$		6826.12	0.05	6826.13	0.05	0.2	–				MMn		90Is03	Z
		6826.22	0.14			−0.6	–				Bdn		03Fi.A	
	ave.	6826.13	0.05			0.0	1	100	88	$^{128}\mathrm{I}$			average	
$^{128}\mathrm{Cd}(\beta^-)^{128}\mathrm{In}$		7070	290				5				Stu		87Sp09	
$^{128}\mathrm{In}(\beta^-)^{128}\mathrm{Sn}$		8992	45	8980	40	−0.4	4				Stu		87Sp09	
		8910	90			0.7	4				Gsn		90St13	
$^{128}\mathrm{In}^n(\beta^-)^{128}\mathrm{Sn}$		9306	43	9290	40	−0.3	4				Stu		87Sp09	
		9230	90			0.7	4				Gsn		90St13	
$^{128}\mathrm{Sn}(\beta^-)^{128}\mathrm{Sb}^m$		1265	30	1264	13	0.0	3						76Nu01	
		1290	40			−0.7	3				Stu		77Lu06	
		1260	15			0.3	3				Gsn		90St13	
$^{128}\mathrm{Sb}^m(\mathrm{IT})^{128}\mathrm{Sb}$		10	7				3						AHW	$*$
$^{128}\mathrm{Sb}^m(\beta^-)^{128}\mathrm{Te}$		4391	40	4394	24	0.1	2				Stu		77Lu06	
		4395	30			0.0	2				Gsn		90St13	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{128}I(β^-)^{128}Xe	2116	10	2122	4	0.6	1	14	12	^{128}I			56Be18	
^{128}Cs(β^+)^{128}Xe	3928	6	3929	5	0.1	1	81	79	^{128}Cs			76Cr.B	
^{128}La(β^+)^{128}Ba	6650	400	6770	60	0.3	U						66Li04	
	6820	100			−0.5	R				JAE		98Ko66	
∗^{128}La−C$_{10.667}$	M−A=–78601(28) keV for mixture gs+m at 100#100 keV											Nubase	∗∗
∗^{128}Sb^m(IT)^{128}Sb	From 3.6% IT for M$_3$ transition											NDS832	∗∗
^{129}Sn−C$_{10.75}$	−86521	31				2				MA8	1.0	01Si.A	∗
^{129}Xe−C$_2$ ^{35}Cl$_3$	−1777.98	0.68	−1778.6	0.8	−0.6	1	60	59	^{129}Xe	H47	1.5	94Hy01	
^{129}Cs−^{133}Cs$_{.970}$	−2216	14	−2224	5	−0.6	1	12	12	^{129}Cs	MA1	1.0	99Am05	
^{129}La−C$_{10.75}$	−87300	30	−87307	22	−0.2	2				GS2	1.0	03Li.A	
^{129}Ce−C$_{10.75}$	−81898	30				2				GS2	1.0	03Li.A	
^{129}Pr−C$_{10.75}$	−74905	32				2				GS2	1.0	03Li.A	
^{128}Te(n,γ)^{129}Te	6085	3	6082.41	0.08	−0.9	U						72Mu.A	
	6082.42	0.09			−0.1	–						03Wi02	
	6082.36	0.19			0.3	–				Bdn		03Fi.A	
ave.	6082.41	0.08			0.0	1	100	92	^{129}Te			average	
^{129}Nd(εp)^{128}Ce	5300	300	6010#	200#	2.4	D						78Bo.A	∗
^{129}In(β^-)^{129}Sn	7655	32				3				Stu		87Sp09	
^{129}In^m(β^-)^{129}Sn	8033	66				3				Stu		87Sp09	
^{129}Sn(β^-)^{129}Sb	3996	120	4030	40	0.3	U				Stu		77Lu06	
^{129}Sb(β^-)^{129}Te	2345	30	2375	21	1.0	2						70Oh05	
^{129}Te(β^-)^{129}I	1485	10	1500	3	1.5	U						64De10	∗
	1503	4			−0.7	1	60	52	^{129}I			68Go34	∗
^{129}I(β^-)^{129}Xe	190	5	194	3	0.8	1	40	39	^{129}I			54De17	
^{129}Cs(β^+)^{129}Xe	1197	5	1197	5	0.0	1	83	83	^{129}Cs			76Ma35	
^{129}Ba(β^+)^{129}Cs	2446	15	2436	11	−0.7	1	53	49	^{129}Ba			61Ar05	∗
^{129}La(β^+)^{129}Ba	3720	50	3738	24	0.4	R						79Br05	
	3740	40			0.0	R				JAE		98Ko66	
^{129}Ce(β^+)^{129}La	5600	200	5040	30	−2.8	B				IRS		93Al03	
∗^{129}Sn−C$_{10.75}$	M−A=–80576(27) keV for mixture gs+m at 35.2 keV											Ens96	∗∗
∗^{129}Nd(εp)^{128}Ce	Systematical trends suggest ^{129}Nd 710 less bound											CTh	∗∗
∗^{129}Te(β^-)^{129}I	E$^-$=1452(10) to 27.79 level; and 1595(10) from ^{129}Te^m at 105.50											NDS837	∗∗
∗^{129}Te(β^-)^{129}I	E$^-$=1476(4) to 27.79 level; and 1607(7) from ^{129}Te^m at 105.50											NDS837	∗∗
∗^{129}Ba(β^+)^{129}Cs	E$^+$ =1425(15); and 1243(35), 975(60)											61Ar05	∗∗
∗	from ^{129}Ba^m at 8.42 to 188.93, 426.48 levels											NDS837	∗∗
^{130}Sn−C$_{10.833}$	−86028	19	−86033	11	−0.2	–				MA8	1.0	01Si.A	
	−86031	15			−0.1	–				MA8	1.0	01Si.A	∗
ave.	−86030	12			−0.2	1	95	95	^{130}Sn			average	
^{13}C C$_8$ N H$_7$−^{130}Xe	157695.4	0.7	157696.1	0.8	0.4	1	21	21	^{130}Xe	C3	2.5	70Ke05	
^{130}Xe−C ^{13}C ^{35}Cl$_3$	−6407.63	1.21	−6404.9	0.8	1.5	1	19	19	^{130}Xe	H47	1.5	94Hy01	
^{130}Xe−^{133}Cs$_{.977}$	−4114	13	−4118.5	0.8	−0.3	U				MA6	1.0	03Di.1	
^{130}Cs−^{133}Cs$_{.977}$	−916	13	−918	9	−0.2	1	48	48	^{130}Cs	MA1	1.0	99Am05	
^{130}Cs−C$_{10.833}$	−93181	60	−93291	9	−1.8	U				GS2	1.0	03Li.A	∗
^{130}Ba−^{85}Rb$_{1.529}$	41195.8	3.4	41194.3	3.0	−0.4	1	78	78	^{130}Ba	MA8	1.0	03Gu.A	
^{130}La−C$_{10.833}$	−87635	30	−87631	28	0.1	2				GS2	1.0	03Li.A	
^{130}Ce−C$_{10.833}$	−85264	30				2				GS2	1.0	03Li.A	
^{130}Pr−C$_{10.833}$	−76410	69				2				GS2	1.0	03Li.A	∗
^{130}Nd ^{19}F−^{133}Cs$_{1.120}$	32902	130	32800	30	−0.8	U				MA5	1.0	00Be42	∗
^{130}Nd−C$_{10.833}$	−71494	30				2				GS2	1.0	03Li.A	
^{130}Te ^{35}Cl−^{128}Te ^{37}Cl	4711.7	1.8	4711.4	1.1	−0.1	U				C3	2.5	70Ke05	
	4711.57	0.72			−0.1	1	96	80	^{130}Te	H43	1.5	90Dy04	
^{130}Te−^{130}Xe	2712.98	3.02	2716.4	2.1	0.8	1	22	20	^{130}Te	H43	1.5	90Dy04	
^{129}Cs−^{130}Cs$^x_{.794}$ ^{125}Cs$_{.206}$	−1270	40	−1201	17	0.7	U				P22	2.5	82Au01	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{130}Ba(p,t)^{128}Ba	−9482	24	−9521	10	−1.6	1	19	17	^{128}Ba	Win		74De31	*
^{130}Te(d,^{3}He)^{129}Sb	−4550	30	−4519	21	1.0	R				Oak		68Au04	
^{129}I(n,γ)^{130}I	6500.33	0.04	6500.33	0.04	0.0	1	100	90	^{130}I	ILn		89Sa11	Z
^{129}Xe(n,γ)^{130}Xe	9255.3	1.0	9255.64	0.29	0.3	U						71Gr28	Z
	9256.1	0.8			−0.6	U						74Ge05	Z
	9255.57	0.30			0.2	1	96	57	^{130}Xe	Bdn		03Fi.A	
^{129}Xe(^{3}He,d)^{130}Cs	5	20	−1	8	−0.3	1	17	17	^{130}Cs	ChR		81Ha08	
^{130}Ba(d,t)^{129}Ba	−4001	15	−4011	11	−0.7	1	53	51	^{129}Ba	Tal		74Gr22	
^{130}Eu(p)^{129}Sm	1028.0	15.0				3				Arp		02Ma61	
^{130}Cd(β^-)^{130}In	8320	280				3				Bwg		02Di.A	
^{130}In(β^-)^{130}Sn	10249	38				2				Stu		87Sp09	
	9880	90	10250	40	4.1	B				Gsn		90St13	
^{130}In^{m}(β^-)^{130}Sn	10300	37				2				Stu		87Sp09	
^{130}In^{n}(β^-)^{130}Sn	10650	49				2				Stu		87Sp09	
	9880	200	10650	50	3.9	B				Gsn		90St13	
^{130}Sn(β^-)^{130}Sb	2195	35	2153	14	−1.2	–				Stu		77Lu06	*
	2080	40			1.8	–						77Nu01	
	2149	18			0.2	–				Gsn		90St13	*
ave.	2148	15			0.3	1	91	86	^{130}Sb			average	
^{130}Sb(β^-)^{130}Te	5046	100	5060	17	0.1	U						71Ki15	*
	5015	100			0.4	U				Stu		77Lu06	*
	4990	70			1.0	U				Gsn		90St13	*
	5015	45			1.0	1	15	14	^{130}Sb	Stu		95Me16	*
^{130}I(β^-)^{130}Xe	2983	10	2949	3	−3.4	1	10	10	^{130}I			65Da01	
^{130}Cs(β^+)^{130}Xe	2992	20	2981	8	−0.5	–						52Sm41	
	2972	20			0.5	–						75We23	
ave.	2982	14			−0.1	1	35	35	^{130}Cs			average	
^{130}Cs^{x}(IT)^{130}Cs	27	15				2						AHW	*
^{130}La(β^+)^{130}Ba	5660	70	5634	26	−0.4	R				JAE		98Ko66	
*^{130}Sn−C$_{10.833}$	Original –83941(15) for the 1946.88 isomer											01Si.A	**
*^{130}Cs−C$_{10.833}$	M−A=–86716(30) keV for mixture gs+m at 163.25 keV											Ens01	**
*^{130}Pr−C$_{10.833}$	M−A=–71125(29) keV for mixture gs+m at 100#100 keV											Nubase	**
*^{130}Nd ^{19}F−^{133}Cs$_{1.120}$	Tentative result, low statistics											00Be42	**
*^{130}Ba(p,t)^{128}Ba	Not resolved peak. Original uncertainty 16											GAu	**
*^{130}Sn(β^-)^{130}Sb	E$^-$=1490(90), 1150(35) to 702.32, 1047.40 levels											NDS017	**
*^{130}Sn(β^-)^{130}Sb	E$^-$=1415(30), 1112(18) to 702.32, 1047.40 levels											NDS017	**
*	and a 3sigma discrepant 3955(50) from ^{130}Sn^{m} at 1946.88											90St13	**
*^{130}Sb(β^-)^{130}Te	Q=5020(100) from ^{130}Sb^{m} at 4.8											GAu	**
*^{130}Sb(β^-)^{130}Te	Also 4960(25) from ^{130}Sb^{m} at 4.8, discrepant, not used											90St13	**
*^{130}Sb(β^-)^{130}Te	Derived from given average=5008(38) with ^{90}St$_{13}$=4990(70)											GAu	**
*^{130}Cs^{x}(IT)^{130}Cs	Combining isomer ratio of ref.											82Au01	**
*	with ^{130}Cs^{m}(IT)=163.25											NDS89c	**
^{131}Sn−C$_{10.917}$	−82966	34	−83000	23	−1.0	1	45	45	^{131}Sn	MA8	1.0	01Si.A	*
C$_{10}$ H$_{11}$−^{131}Xe	180991.6	3.0	180993.0	1.0	0.2	U				M16	2.5	63Da10	
^{131}Xe−C$_{2}$ ^{35}Cl$_{2}$ ^{37}Cl	1472.65	0.80	1474.4	1.0	1.5	1	73	73	^{131}Xe	H47	1.5	94Hy01	
^{131}Cs−^{133}Cs$_{.985}$	−1419	14	−1406	5	0.9	1	15	15	^{131}Cs	MA1	1.0	99Am05	
^{131}Ba−^{133}Cs$_{.985}$	72	14	71	3	−0.1	1	5	5	^{131}Ba	MA5	1.0	00Be42	
^{131}Ba−C$_{10.917}$	−92955	66	−93059	3	−1.6	U				GS2	1.0	03Li.A	*
^{131}La−C$_{10.917}$	−89930	30				2				GS2	1.0	03Li.A	
^{131}Ce−C$_{10.917}$	−85578	36				2				GS2	1.0	03Li.A	*
^{131}Pr−C$_{10.917}$	−79741	56				2				GS2	1.0	03Li.A	*
^{131}Nd−C$_{10.917}$	−72753	30				2				GS2	1.0	03Li.A	
^{129}Cs−^{131}Cs$_{.328}$ ^{128}Cs$_{.672}$	−1030	30	−871	6	2.1	B				P22	2.5	82Au01	
^{130}Te(n,γ)^{131}Te	5929.7	0.5	5929.38	0.06	−0.6	U						77Ko.A	
	5929.5	0.4			−0.3	U						80Ho29	Z
	5929.38	0.06			0.0	1	100	100	^{131}Te			03To08	
	5930.16	0.19			−4.1	U				Bdn		03Fi.A	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{130}Ba(n,γ)^{131}Ba	7493.5	0.3	7493.50	0.30	0.0	1	100	89 ^{131}Ba			82Ka.A	
^{131}Nd(εp)^{130}Ce	4600	400	4360	40	−0.6	U					78Bo.A	
^{131}Eu(p)^{130}Sm	957.4	8.	939	7	−2.3	o					98Da03	
	939.2	7.				3					99So17	
^{131}In(β^-)^{131}Sn	9184	33	9177	18	−0.2	2			Stu		88Fo05	
	9165	30			0.4	o			Stu		95Me16	
	9174	22			0.1	2			Stu		99Fo01	
^{131}In^m(β^-)^{131}Sn	9547	46	9530	40	−0.4	2			Stu		88Fo05	
	9480	70			0.7	2			Stu		95Me16	
^{131}In^n(β^-)^{131}Sn	13450	163	13270	70	−1.1	2			Stu		88Fo05	
	13230	80			0.5	2			Stu		95Me16	
^{131}Sn(β^-)^{131}Sb	4632	20	4674	11	2.1	–			Stu		84Fo19	*
	4688	14			−1.0	–			Stu		99Fo01	
ave.	4670	11			0.4	1	93	55 ^{131}Sn			average	
^{131}Sb(β^-)^{131}Te	3190	70	3221	21	0.4	U			Stu		77Lu06	
	3200	26			0.8	1	63	63 ^{131}Sb	Stu		99Fo01	
^{131}Te(β^-)^{131}I	2275	10	2234.9	2.2	−4.0	B					61Be20	*
	2278	15			−2.9	B					65De22	*
^{131}I(β^-)^{131}Xe	971.0	0.7	970.8	0.6	−0.2	2					51Ve05	
	970.4	1.2			0.4	2					52Ro16	
^{131}Cs(ε)^{131}Xe	355	10	355	5	0.0	–					54Sa22	
	355	10			0.0	–					56Ho66	
	360	15			−0.3	–					57Mi63	
ave.	356	6			−0.1	1	61	60 ^{131}Cs			average	
^{131}Ba(β^+)^{131}Cs	1370	16	1376	5	0.4	–					76Ge14	
	1371	12			0.4	–					78Va04	
ave.	1371	10			0.6	1	31	25 ^{131}Cs			average	
^{131}La(β^+)^{131}Ba	2960	100	2915	28	−0.5	U					60Cr01	
^{131}Ce(β^+)^{131}La	4020	400	4050	40	0.1	U					66No05	
^{131}Pr(β^+)^{131}Ce	5250	150	5440	60	1.2	U			IRS		93Al03	
^{131}Nd(β^+)^{131}Pr	6560	150	6510	60	−0.3	U			IRS		93Al03	
*^{131}Sn−C$_{10.917}$	M−A=–77242(15) keV for mixture gs+m at 80#30 keV										Nubase	**
*^{131}Ba−C$_{10.917}$	M−A=–86494(30) keV for mixture gs+m at 187.14 keV										NDS948	**
*^{131}Ce−C$_{10.917}$	M−A=–79685(28) keV for mixture gs+m at 61.8 keV										Nubase	**
*^{131}Pr−C$_{10.917}$	M−A=–74202(28) keV for mixture gs+m at 152.4 keV										Nubase	**
*^{131}Sn(β^-)^{131}Sb	Q$^-$=4638(20); and 4796(80) from ^{131}Sn^m at 241.8										NDS948	**
*^{131}Te(β^-)^{131}I	Q$^-$=2457(10) from ^{131}Te^m at 182.25										NDS948	**
*^{131}Te(β^-)^{131}I	Q$^-$=2460(15) from ^{131}Te^m at 182.25										NDS948	**
^{132}Sn−C$_{11}$	−82171	18	−82184	15	−0.7	1	66	66 ^{132}Sn	MA8	1.0	01Si.A	
C$_{10}$ H$_{12}$−^{132}Xe	189740.8	3.3	189746.9	1.0	0.7	U			M16	2.5	63Da10	
^{132}Xe−C ^{13}C ^{35}Cl$_2$ ^{37}Cl	−2803.73	1.40	−2809.3	1.0	−2.7	1	24	24 ^{132}Xe	H47	1.5	94Hy01	
^{132}La−C$_{11}$	−89874	67	−89900	40	−0.4	2			GS2	1.0	03Li.A	*
^{132}Ce−C$_{11}$	−88542	30	−88540	22	0.1	1	54	54 ^{132}Ce	GS2	1.0	03Li.A	
^{132}Ce O−^{142}Sm$_{1.042}$	−5258	32	−5261	22	−0.1	1	48	46 ^{132}Ce	MA7	1.0	01Bo59	*
^{132}Pr−C$_{11}$	−80745	61				2			GS2	1.0	03Li.A	*
^{132}Nd−^{133}Cs$_{.992}$	17147	52	17113	26	−0.7	R			MA5	1.0	00Be42	
^{132}Nd−C$_{11}$	−76690	30	−76679	26	0.4	2			GS2	1.0	03Li.A	
^{132}Ba−^{130}Ba	−1241	4	−1260	3	−1.9	1	10	9 ^{130}Ba	M17	2.5	66Be10	
^{130}Cs^x−^{132}Cs$_{.492}$ ^{128}Cs$_{.508}$	−210	40	−340	17	−1.3	U			P22	2.5	82Au01	
^{131}Xe(n,γ)^{132}Xe	8936.3	1.0	8936.59	0.22	0.3	U					71Ge05	
	8935	2			0.8	U					71Gr28	
	8936.65	0.22			−0.3	1	99	73 ^{132}Xe	Bdn		03Fi.A	
^{132}In(β^-)^{132}Sn	13600	400	14140	60	1.3	U					86Bj01	
	14135	60				2			Stu		95Me16	
^{132}Sn(β^-)^{132}Sb	3115	10	3119	9	0.4	1	88	54 ^{132}Sb	Stu		99Fo01	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{132}Sb(β^-)^{132}Te	5491	20	5509	14	0.9	1	52	46	^{132}Sb	Stu		99Fo01	
^{132}Te(β^-)^{132}I	493	4	518	4	6.2	B						65Iv01	
	517	4			0.2	1	98	94	^{132}Te	Stu		99Fo01	
^{132}I(β^-)^{132}Xe	3596	15	3581	6	−1.0	–						61De17	
	3558	15			1.5	–						65Jo13	
	3580	7			0.1	–				Stu		99Fo01	
ave.	3579	6			0.3	1	96	96	^{132}I			average	
^{132}I^m(β^-)^{132}Xe	3685	10				2						74Di03	
^{132}Cs(β^+)^{132}Xe	2127.7	6.	2124.6	2.1	−0.5	1	12	10	^{132}Cs			87De33	*
^{132}La(β^+)^{132}Ba	4820	100	4690	40	−1.3	U						60Wa03	
	4680	50			0.3	R						67Fr02	
*^{132}La$-$C$_{11}$	M$-$A=–83623(30) keV for mixture gs+m at 188.18 keV											Ens94	**
*^{132}Ce O$-^{142}$Sm$_{1.042}$	Original error (22 keV) increased by 23 for BaF contamination in trap											GAu	**
*^{132}Pr$-$C$_{11}$	M$-$A=–75213(28) keV for mixture gs+m at 0#100 keV											Nubase	**
*^{132}Cs(β^+)^{132}Xe	p$^+$ =0.0042(0.0001) gives E$^+$ =438(6) recalculated											AHW	**
*	to 667.67 level											NDS922	**
^{133}Cs$-^{85}$Rb$_{1.565}$	43500	13	43501.00	0.03	0.1	U				MA5	1.0	00Be42	
	43499.3	1.6			1.1	U				MA8	1.0	02Ke.A	
	43500.9	6.7			0.0	U				MA8	1.0	02Ke.A	
^{133}Cs$-$C$_{11.083}$	−94548.41	0.41	−94548.067	0.024	0.8	U				ST2	1.0	99Ca46	
^{133}La$-$C$_{11.083}$	−91810	120	−91780	30	0.2	U				GS1	1.0	00Ra23	
	−91782	30				2				GS2	1.0	03Li.A	
^{133}Ce$-$C$_{11.083}$	−88471	32	−88485	18	−0.4	2				GS2	1.0	03Li.A	*
^{133}Ce O$-^{142}$Sm$_{1.049}$	−4618	21	−4613	19	0.3	R				MA7	1.0	01Bo59	*
^{133}Pr$-$C$_{11.083}$	−83663	30	−83669	13	−0.2	R				GS2	1.0	03Li.A	
^{133}Nd$-$C$_{11.083}$	−77652	50				2				GS2	1.0	03Li.A	*
^{133}Pm$-$C$_{11.083}$	−70218	54				2				GS2	1.0	03Li.A	*
^{133}Pr$-^{133}$Cs$_{1.000}$	10877	15	10879	13	0.1	2				MA5	1.0	00Be42	
^{133}Cs$-$C$_3$ O$_6$	−64035.786	0.026	−64035.785	0.024	0.1	1	83	83	^{133}Cs	MI2	1.0	99Br47	
^{133}Cs$-$C$_{10}$ H$_{12}$	−188448.445	0.057	−188448.452	0.024	−0.1	1	17	17	^{133}Cs	MI2	1.0	99Br47	
^{133}Cs(γ,n)^{132}Cs	−8986	2	−8986.3	1.9	−0.2	1	90	90	^{132}Cs	MMn		85Ts02	
^{132}Ba(n,γ)^{133}Ba	7189.91	0.36	7189.9	0.4	0.1	1	100	99	^{132}Ba	MMn		90Is07	Z
^{133}Sn(β^-)^{133}Sb	7830	70	7990	25	2.3	B				Stu		83Bl16	
	7990	25				6				Stu		95Me16	
^{133}Sb(β^-)^{133}Te	4002	7				5				Stu		99Fo01	
^{133}Te(β^-)^{133}I	2960	100	2942	24	−0.2	U						68Mc09	
	2876	100			0.7	U						68Pa03	*
	2942	24				4				Stu		99Fo01	
^{133}I(β^-)^{133}Xe	1800	50	1757	4	−0.9	U						59Ho97	
	1760	30			−0.1	U						66Ei01	
	1757	4				3				Stu		99Fo01	
^{133}Xe(β^-)^{133}Cs	428.0	4.	427.4	2.4	−0.2	2						52Be55	
	427.0	3.			0.1	2						61Er04	
	424	11			0.3	U				Stu		99Fo01	
^{133}Ba(ε)^{133}Cs	517.3	1.0	517.5	1.0	0.2	1	99	99	^{133}Ba			67Sc10	*
^{133}La(β^+)^{133}Ba	2230	200	2059	28	−0.9	U						50Na09	
*^{133}Ce$-$C$_{11.083}$	M$-$A=–82392(28) keV for mixture gs+m at 37.1 keV											NDS957	**
*^{133}Ce O$-^{142}$Sm$_{1.049}$	D_M=–4599(16) M=–87150(16) for mixture gs+m at 37.1 keV											GAu	**
*^{133}Nd$-$C$_{11.083}$	M$-$A=–72268(28) keV for mixture gs+m at 127.97 keV											NDS957	**
*^{133}Pm$-$C$_{11.083}$	M$-$A=–65342(33) keV for mixture gs+m at 130.4(1.0) keV											Nubase	**
*^{133}Te(β^-)^{133}I	Q$^-$=3210(100) from ^{133}Te^m at 334.26											NDS86c	**
*	reported as belonging to ground-state, reinterpreted											AHW	**
*^{133}Ba(ε)^{133}Cs	From L/K=0.371(0.007) to 437.01 level; recalculated Q											AHW	**

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
${}^{134}\mathrm{Xe}-\mathrm{C}_{11.167}$	−94634.4	5.4	−94605.5	0.9	2.1	B			ACC	2.5	90Me08	
${}^{134}\mathrm{Xe}-\mathrm{C}\ {}^{13}\mathrm{C}\ {}^{35}\mathrm{Cl}\ {}^{37}\mathrm{Cl}_2$	1381.76	0.60				2			H47	1.5	94Hy01	
${}^{134}\mathrm{La}-\mathrm{C}_{11.167}$	−91456	34	−91486	21	−0.9	2			GS2	1.0	03Li.A	
${}^{134}\mathrm{Ce}-\mathrm{C}_{11.167}$	−91190	130	−91075	22	0.9	U			GS1	1.0	00Ra23	
	−91056	30			−0.6	2			GS2	1.0	03Li.A	
${}^{134}\mathrm{Ce\ O}-{}^{142}\mathrm{Sm}_{1.056}$	−6631	32	−6609	23	0.7	R			MA7	1.0	01Bo59	∗
${}^{134}\mathrm{Pr}-\mathrm{C}_{11.167}$	−84249	61	−84290	40	−0.6	2			GS2	1.0	03Li.A	∗
${}^{134}\mathrm{Nd}-\mathrm{C}_{11.167}$	−81234	30	−81210	13	0.8	R			GS2	1.0	03Li.A	
${}^{134}\mathrm{Pm}-\mathrm{C}_{11.167}$	−71647	62				2			GS2	1.0	03Li.A	∗
${}^{134}\mathrm{Pr}-{}^{133}\mathrm{Cs}_{1.008}$	11029	56	11020	40	−0.2	R			MA5	1.0	00Be42	∗
${}^{134}\mathrm{Nd}-{}^{133}\mathrm{Cs}_{1.008}$	14100	14	14095	13	−0.4	2			MA5	1.0	00Be42	
${}^{131}\mathrm{Cs}-{}^{134}\mathrm{Cs}_{.244}\ {}^{130}\mathrm{Cs}^{x}_{.756}$	−1313	50	−1182	17	1.0	U			P22	2.5	82Au01	
${}^{133}\mathrm{Cs}(\mathrm{n},\gamma){}^{134}\mathrm{Cs}$	6891.540	0.017	6891.540	0.014	0.0	–			MMn		84Ke11	Z
	6891.540	0.027			0.0	–			ILn		87Bo24	Z
	6891.39	0.14			1.1	U			Bdn		03Fi.A	
ave.	6891.540	0.014			0.0	1	100	100 ${}^{134}\mathrm{Cs}$			average	
${}^{134}\mathrm{Sn}(\beta^-){}^{134}\mathrm{Sb}$	7370	90				6			Stu		95Me16	
${}^{134}\mathrm{Sb}(\beta^-){}^{134}\mathrm{Te}$	8400	300	8390	40	0.0	U			Stu		77Lu06	
	8420	120			−0.2	5			Bwg		87Gr.A	
	8390	45			0.1	5			Stu		95Me16	
${}^{134}\mathrm{Sb}^m(\beta^-){}^{134}\mathrm{Te}$	8280	240	8470	100	0.8	5			Stu		77Lu06	
	8510	110			−0.4	5			Bwg		87Gr.A	
${}^{134}\mathrm{Te}(\beta^-){}^{134}\mathrm{I}$	1560	90	1513	7	−0.5	U			Stu		77Lu06	
	1550	30			−1.2	U			Stu		95Me16	
	1513	7				4			Stu		99Fo01	
${}^{134}\mathrm{I}(\beta^-){}^{134}\mathrm{Xe}$	4170	60	4052	8	−2.0	U					61Jo08	
	4175	15			−8.2	B			Stu		95Me16	
	4052	8				3			Stu		99Fo01	
${}^{134}\mathrm{Cs}(\beta^-){}^{134}\mathrm{Ba}$	2058.6	0.4	2058.7	0.4	0.2	1	99	99 ${}^{134}\mathrm{Ba}$			68Hs01	
${}^{134}\mathrm{La}(\beta^+){}^{134}\mathrm{Ba}$	3772	50	3731	20	−0.8	R					65Bi12	
	3692	30			1.3	R					73Al20	
${}^{134}\mathrm{Pr}(\beta^+){}^{134}\mathrm{Ce}$	6190	90	6320	40	1.5	R			Dbn		95Ve08	∗
${}^{134}\mathrm{Nd}(\beta^+){}^{134}\mathrm{Pr}$	2770	150	2870	40	0.7	U					77Ko.B	
${}^{134}\mathrm{Pm}(\beta^+){}^{134}\mathrm{Nd}$	9170	200	8910	60	−1.3	C			Dbn		95Ve08	∗
∗${}^{134}\mathrm{Ce\ O}-{}^{142}\mathrm{Sm}_{1.056}$	Original error (22 keV) increased by 23 for BaF contamination in trap										GAu	∗∗
∗${}^{134}\mathrm{Pr}-\mathrm{C}_{11.167}$	M−A=–78477(28) keV for mixture gs+m at 0#100 keV										Nubase	∗∗
∗${}^{134}\mathrm{Pm}-\mathrm{C}_{11.167}$	M−A=–66739(30) keV for mixture gs+m at 0#100 keV										Nubase	∗∗
∗${}^{134}\mathrm{Pr}-{}^{133}\mathrm{Cs}_{1.008}$	Most certainly gs. Mixture with isomer not completely excluded										00Be42	∗∗
∗${}^{134}\mathrm{Pr}-{}^{133}\mathrm{Cs}_{1.008}$	D_M 11029(16) uu, M−A=–78503(15) keV for mixture gs+m at 0#100 keV										Nubase	∗∗
∗${}^{134}\mathrm{Pr}(\beta^+){}^{134}\mathrm{Ce}$	E^+ =4120(90) to 1048.65 4^+ level										NDS943	∗∗
∗${}^{134}\mathrm{Pm}(\beta^+){}^{134}\mathrm{Nd}$	E^+ =7360(200) to 788.97 4^+ level										NDS934	∗∗
${}^{135}\mathrm{Ce}-\mathrm{C}_{11.25}$	−90779	30	−90849	12	−2.3	U			GS2	1.0	03Li.A	∗
${}^{135}\mathrm{Pr}-\mathrm{C}_{11.25}$	−86897	30	−86888	13	0.3	R			GS2	1.0	03Li.A	
${}^{135}\mathrm{Nd}-\mathrm{C}_{11.25}$	−81800	130	−81819	21	−0.1	o			GS1	1.0	00Ra23	
	−81811	36			−0.2	R			GS2	1.0	03Li.A	∗
${}^{135}\mathrm{Pm}-\mathrm{C}_{11.25}$	−75124	63				2			GS2	1.0	03Li.A	∗
${}^{135}\mathrm{Sm}-\mathrm{C}_{11.25}$	−67480	166				2			GS2	1.0	03Li.A	∗
${}^{135}\mathrm{Cs}-{}^{133}\mathrm{Cs}_{1.015}$	1957	14	1943.3	1.1	−1.0	U			MA1	1.0	99Am05	
${}^{135}\mathrm{Pr}-{}^{133}\mathrm{Cs}_{1.015}$	9080	14	9078	13	−0.1	2			MA5	1.0	00Be42	
${}^{135}\mathrm{Nd}-{}^{133}\mathrm{Cs}_{1.015}$	14144	25	14147	21	0.1	2			MA5	1.0	00Be42	∗
${}^{134}\mathrm{Cs}(\mathrm{n},\gamma){}^{135}\mathrm{Cs}$	8762	1	8762.0	1.0	0.0	1	100	100 ${}^{135}\mathrm{Cs}$	ILn		92Ul.A	
${}^{134}\mathrm{Ba}(\mathrm{n},\gamma){}^{135}\mathrm{Ba}$	6972.17	0.18	6971.96	0.10	−1.2	–			MMn		90Is07	Z
	6971.84	0.17			0.7	–			Ltn		93Bo01	Z
	6973.24	0.22			−5.8	B			BNn		93Ch21	
	6971.87	0.18			0.5	–			Bdn		03Fi.A	
ave.	6971.96	0.10			0.1	1	100	99 ${}^{135}\mathrm{Ba}$			average	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
$^{135}\mathrm{Sb}(\beta^-)^{135}\mathrm{Te}$		8120	50				3			Stu		89Ho08	
$^{135}\mathrm{Te}(\beta^-)^{135}\mathrm{I}$		5970	200	5960	90	0.0	2					85Sa15	
		5960	100			0.0	2			Bwg		87Gr.A	
$^{135}\mathrm{I}(\beta^-)^{135}\mathrm{Xe}$		2780	80	2627	6	−1.9	U					70Ma19	
		2590	50			0.7	U			Stu		76Lu04	
		2627	6			0.1	1	96	94 $^{135}\mathrm{I}$	Stu		99Fo01	
$^{135}\mathrm{Xe}(\beta^-)^{135}\mathrm{Cs}$		1155	10	1165	4	1.0	–					52Be55	
		1167	5			−0.4	–			Stu		99Fo01	
	ave.	1165	4			0.0	1	98	98 $^{135}\mathrm{Xe}$			average	
$^{135}\mathrm{La}(\beta^+)^{135}\mathrm{Ba}$		1200	10				2					71Ba18	
$^{135}\mathrm{Ce}(\beta^+)^{135}\mathrm{La}$		2027	5	2026	5	−0.3	3					76Ga.A	
		2016	13			0.7	3					81Sa09	
$^{135}\mathrm{Pr}(\beta^+)^{135}\mathrm{Ce}$		3720	150	3689	16	−0.2	U					54Ha68	
$^{135}\mathrm{Pm}^m(\beta^+)^{135}\mathrm{Nd}$		6040	150	6290#	120#	1.6	U			Dbn		95Ve08	*
*$^{135}\mathrm{Ce}-\mathrm{C}_{11.25}$	M−A=–84114(28) keV for $^{135}\mathrm{Ce}^m$ at Eexc=445.8 keV											NDS985	**
*$^{135}\mathrm{Nd}-\mathrm{C}_{11.25}$	M−A=–76174(28) keV for mixture gs+m at 65.0 keV											NDS985	**
*$^{135}\mathrm{Pm}-\mathrm{C}_{11.25}$	M−A=–69952(28) keV for mixture gs+m at 50#100 keV											Nubase	**
*$^{135}\mathrm{Sm}-\mathrm{C}_{11.25}$	M−A=–62857(38) keV for mixture gs+m at 0#300 keV											Nubase	**
*$^{135}\mathrm{Nd}-^{133}\mathrm{Cs}_{1.015}$	D_M=14179(14) uu for gs+m mixture at 65.0 keV; M−A=–76185(13) keV											NDS985	**
*$^{135}\mathrm{Pm}^m(\beta^+)^{135}\mathrm{Nd}$	E^+ =4920(150) to mixture ground-state and 198.5 level											95Ve08	**

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
$\mathrm{C}_{10}\ \mathrm{H}_{16}-^{136}\mathrm{Xe}$		217982.	3.9	217982	8	0.0	1	60	60 $^{136}\mathrm{Xe}$	M16	2.5	63Da10	
$^{136}\mathrm{La}-\mathrm{C}_{11.333}$		−92392	87	−92360	60	0.3	2			GS2	1.0	03Li.A	*
$^{136}\mathrm{Nd}-\mathrm{C}_{11.333}$		−85044	30	−85024	13	0.7	R			GS2	1.0	03Li.A	
$^{136}\mathrm{Pm}-\mathrm{C}_{11.333}$		−76405	91	−76430	80	−0.3	2			GS2	1.0	03Li.A	*
$^{136}\mathrm{Sm}-\mathrm{C}_{11.333}$		−71768	30	−71724	13	1.5	R			GS2	1.0	03Li.A	
$^{136}\mathrm{Pr}-^{133}\mathrm{Cs}_{1.023}$		9418	15	9414	13	−0.2	1	77	77 $^{136}\mathrm{Pr}$	MA5	1.0	00Be42	
$^{136}\mathrm{Nd}-^{133}\mathrm{Cs}_{1.023}$		11703	14	11699	13	−0.3	2			MA5	1.0	00Be42	
$^{136}\mathrm{Pm}^m-^{133}\mathrm{Cs}_{1.023}$		20429	100				2			MA5	1.0	00Be42	*
$^{136}\mathrm{Sm}-^{133}\mathrm{Cs}_{1.023}$		25009	15	24998	13	−0.7	2			MA5	1.0	00Be42	
$^{136}\mathrm{Te}(\beta^-\mathrm{n})^{135}\mathrm{I}$		1285	50	1290	40	0.2	1	80	80 $^{136}\mathrm{Te}$			84Kr.B	
$^{136}\mathrm{Xe}(\mathrm{d},^3\mathrm{He})^{135}\mathrm{I}$		−4438	30	−4431	10	0.2	1	11	6 $^{135}\mathrm{I}$	Oak		71Wi04	
$^{136}\mathrm{Xe}(\mathrm{d,t})^{135}\mathrm{Xe}$		−1723	40	−1822	8	−2.5	U			Oak		68Mo21	
$^{135}\mathrm{Ba}(\mathrm{n},\gamma)^{136}\mathrm{Ba}$		9107.74	0.04	9107.74	0.04	0.0	–			MMn		90Is07	Z
		9107.73	0.19			0.1	–			Bdn		03Fi.A	
	ave.	9107.74	0.04			0.0	1	100	99 $^{136}\mathrm{Ba}$			average	
$^{136}\mathrm{Te}(\beta^-)^{136}\mathrm{I}$		5100	150	5070	60	−0.2	–					77Sc21	
		5095	100			−0.2	–			Bwg		87Gr.A	
	ave.	5100	80			−0.3	1	46	26 $^{136}\mathrm{I}$			average	
$^{136}\mathrm{I}(\beta^-)^{136}\mathrm{Xe}$		6960	100	6930	50	−0.3	–					59Jo37	
		6690	150			1.6	B			Stu		76Lu04	
		6925	70			0.0	–			Bwg		87Gr.A	
	ave.	6940	60			−0.2	1	74	74 $^{136}\mathrm{I}$			average	
$^{136}\mathrm{I}^m(\beta^-)^{136}\mathrm{Xe}$		7100	230	7580	110	2.1	2			Stu		76Lu04	
		7705	120			−1.1	2			Bwg		87Gr.A	
$^{136}\mathrm{Cs}(\beta^-)^{136}\mathrm{Ba}$		2548.1	2.0	2548.2	1.9	0.1	2					54Ol05	
		2549	5			−0.2	2					65Re07	
$^{136}\mathrm{La}(\beta^+)^{136}\mathrm{Ba}$		2870	70	2850	50	−0.3	R					59Gi50	
$^{136}\mathrm{Pr}(\beta^+)^{136}\mathrm{Ce}$		5084	50	5141	15	1.1	U					68Zh04	
		5114	75			0.4	U					71Ke07	
		5134	20			0.4	1	53	30 $^{136}\mathrm{Ce}$	IRS		83Al.B	
$^{136}\mathrm{Nd}(\beta^+)^{136}\mathrm{Pr}$		2211	25	2128	17	−3.3	B					75Br16	
$^{136}\mathrm{Pm}(\beta^+)^{136}\mathrm{Nd}$		7850	200	8000	80	0.8	R			IRS		83Al06	*
*$^{136}\mathrm{La}-\mathrm{C}_{11.333}$	M−A=–85935(32) keV for mixture gs+m at 255(9) keV											Nubase	**
*$^{136}\mathrm{Pm}-\mathrm{C}_{11.333}$	M−A=–71091(28) keV for mixture gs+m at 160(130) keV											Nubase	**
*$^{136}\mathrm{Pm}^m-^{133}\mathrm{Cs}_{1.023}$	Slightly contaminated by ground-state, original error (20) increased											00Be42	**
*$^{136}\mathrm{Pm}(\beta^+)^{136}\mathrm{Nd}$	E^-=4732(70) probably from high spin isomer going											AHW	**
*	to several high spin levels around 2100											NDS941	**

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{137}La$-$C$_{11.417}$		-93556	30	-93506	14	1.7	U			GS2	1.0	03Li.A	
^{137}Ce$-$C$_{11.417}$		-92101	85	-92194	14	-1.1	U			GS2	1.0	03Li.A	∗
^{137}Nd$-$C$_{11.417}$		-85438	30	-85433	12	0.2	1	17	17 ^{137}Nd	GS2	1.0	03Li.A	
^{137}Pm$-$C$_{11.417}$		-79608	62	-79521	14	1.4	U			GS2	1.0	03Li.A	∗
^{137}Sm$-$C$_{11.417}$		-73025	69	-73030	50	0.0	–			GS2	1.0	03Li.A	∗
	ave.	-73030	50			0.0	1	78	78 ^{137}Sm			average	
^{137}Pr$-^{133}$Cs$_{1.030}$		8095	15	8090	13	-0.3	1	71	71 ^{137}Pr	MA5	1.0	00Be42	
^{137}Nd$-^{133}$Cs$_{1.030}$		11947	14	11952	12	0.3	1	78	78 ^{137}Nd	MA5	1.0	00Be42	
^{137}Pm$-^{133}$Cs$_{1.030}$		17864	14				2			MA5	1.0	00Be42	
^{137}Sm$-^{133}$Cs$_{1.030}$		24350	78	24360	50	0.1	R			MA5	1.0	00Be42	∗
^{137}I(β^-n)^{136}Xe		1850	30	1851	27	0.0	2					84Kr.B	
^{136}Xe(n,γ)^{137}Xe		4025.5	0.5	4025.53	0.11	0.1	U					77Fo02	Z
		4025.8	0.3			-0.9	U					77Pr07	Z
		4025.53	0.11				2			Bdn		03Fi.A	
^{136}Xe(^{3}He,d)^{137}Cs		1918	12	1916	7	-0.2	1	34	34 ^{136}Xe	ChR		81Ha08	
^{136}Ba(n,γ)^{137}Ba		6905.54	0.10	6905.61	0.08	0.7	–			MMn		90Is07	Z
		6905.70	0.12			-0.8	–			Mtn		95Bo03	Z
		6905.74	0.16			-0.8	U			Bdn		03Fi.A	
	ave.	6905.61	0.08			0.0	1	100	99 ^{137}Ba			average	
^{136}Ce(n,γ)^{137}Ce		7481.3	0.4	7481.54	0.16	0.6	–					81Ko.A	Z
		7481.58	0.17			-0.3	–			Bdn		03Fi.A	
	ave.	7481.54	0.16			0.0	1	100	62 ^{136}Ce			average	
^{137}Te(β^-)^{137}I		7030	300	6940	120	-0.3	3					85Sa15	
		6925	130			0.1	3			Bwg		87Gr.A	
^{137}I(β^-)^{137}Xe		5880	60	5877	27	-0.1	R			Bwg		87Gr.A	
^{137}Cs(β^-)^{137}Ba		1175.55	0.26	1175.63	0.17	0.3	–					78Ch22	∗
		1175.69	0.23			-0.3	–					83Be18	∗
	ave.	1175.63	0.17			0.0	1	100	100 ^{137}Cs			average	
^{137}Ce(β^+)^{137}La		1222.1	1.6				2					81Ar.A	
^{137}Pr(β^+)^{137}Ce		2702	10	2701	9	-0.1	1	87	62 ^{137}Ce			73Bu17	
^{137}Nd(β^+)^{137}Pr		3690	54	3597	16	-1.7	1	9	5 ^{137}Pr			85Af.A	∗
^{137}Pm^m(β^+)^{137}Nd		5690	130	5660	50	-0.3	–			IRS		83Al06	∗
		5650	60			0.1	–			Dbn		95Ve08	∗
	ave.	5660	50			0.0	1	71	70 ^{137}Pm^m			average	
^{137}Sm(β^+)^{137}Pm^m		5900	70	5900	50	0.0	1	53	30 ^{137}Pm^m	Dbn		95Ve08	

∗^{137}Ce$-$C$_{11.417}$	M$-$A=–85665(29) keV for mixture gs+m at 254.29 keV	NDS947∗∗
∗^{137}Pm$-$C$_{11.417}$	M$-$A=–74079(28) keV for mixture gs+m at 150(50) keV	Nubase ∗∗
∗^{137}Sm$-$C$_{11.417}$	M$-$A=–67932(28) keV for mixture gs+m at 180#50 keV	Nubase ∗∗
∗^{137}Sm$-^{133}$Cs$_{1.030}$	Might be a mixture of gs and isomer say authors	00Be42 ∗∗
∗	D_M=24447(14) uu for mixture gs+m at 180#50 keV; M$-$A=–67941(13)	Nubase ∗∗
∗^{137}Cs(β^-)^{137}Ba	E$^-$=513.89(0.26) to ^{137}Ba^m at 661.660	NDS947∗∗
∗^{137}Cs(β^-)^{137}Ba	E$^-$=514.03(0.23) to ^{137}Ba^m at 661.660	NDS947∗∗
∗^{137}Nd(β^+)^{137}Pr	E$^+$ =2592(54) to 75.5 level	NDS ∗∗
∗^{137}Pm^m(β^+)^{137}Nd	E$^+$ =4132(+150$-$115) to ^{137}Nd^m at 519.6	NDS947∗∗
∗^{137}Pm^m(β^+)^{137}Nd	E$^+$ =4110(60) to 11/2$^-$ ^{137}Nd^m at 519.6	NDS947∗∗

^{138}Pr^m$-$C$_{11.5}$		-88896	30	-88872	19	0.8	2			GS2	1.0	03Li.A	
^{138}Nd$-$C$_{11.5}$		-88060	130	-88050	13	0.1	o			GS1	1.0	00Ra23	
		-88060	30			0.3	R			GS2	1.0	03Li.A	
^{138}Pm$-$C$_{11.5}$		-80242	141	-80452	30	-1.5	o			GS1	1.0	00Ra23	∗
		-80454	35			0.1	2			GS2	1.0	03Li.A	∗
^{138}Sm$-$C$_{11.5}$		-76766	30	-76756	13	0.3	R			GS2	1.0	03Li.A	
^{138}Eu$-$C$_{11.5}$		-66291	30				2			GS2	1.0	03Li.A	
^{138}Cs$-^{133}$Cs$_{1.038}$		9157	14	9158	10	0.0	1	49	49 ^{138}Cs	MA1	1.0	99Am05	
^{138}Nd$-^{133}$Cs$_{1.038}$		10093	14	10091	13	-0.2	2			MA5	1.0	00Be42	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{138}Pm$^{m}-^{133}$Cs$_{1.038}$	17721	14				2				MA5	1.0	00Be42	
^{138}Sm$-^{133}$Cs$_{1.038}$	21387	14	21385	13	−0.2	2				MA5	1.0	00Be42	
^{138}Ce$-^{136}$Ce	−1158	20	−1181	17	−0.5	1	12	8	^{136}Ce	M17	2.5	66Be10	
^{137}Ba(n,γ)^{138}Ba	8611.72	0.04	8611.72	0.04	0.0	1	100	99	^{138}Ba	MMn		90Is07	Z
	8611.5	0.15			1.5	U				Ltn		95Bo05	
	8611.63	0.18			0.5	U				Bdn		03Fi.A	
^{138}I(β^-)^{138}Xe	7820	70				3				Bwg		87Gr.A	
^{138}Xe(β^-)^{138}Cs	2700	50	2740	40	0.7	2						72Mo33	
	2830	80			−1.2	2				Trs		78Wo15	
^{138}Cs^{x}(IT)^{138}Cs	40	23				2						82Au01	
^{138}Cs(β^-)^{138}Ba	5388	25	5374	9	−0.6	–				Gsn		81De25	
	5370	15			0.3	–				McG		84He.A	
ave.	5375	13			0.0	1	51	51	^{138}Cs			average	
^{138}Pr(β^+)^{138}Ce	4437	10				2						71Af05	
^{138}Pr^{m}(β^+)^{138}Ce	4801	20	4785	20	−0.8	R						64Fu08	
^{138}Nd(β^+)^{138}Pr	2020	100	1113	19	−9.1	C						61Bo.B	
^{138}Pm(β^+)^{138}Nd	7090	100	7078	30	−0.1	R				IRS		83Al06	
	7080	60			0.0	R				Dbn		95Ve08	
^{138}Pm^{m}(β^+)^{138}Nd	7000	250	7107	18	0.4	U						81De38	*
* ^{138}Pm$-$C$_{11.5}$	M$-$A=–74730(130) keV for mixture gs+m at 30(30) keV											Nubase	**
* ^{138}Pm$-$C$_{11.5}$	M$-$A=–74927(28) keV for mixture gs+m at 30(30) keV											Nubase	**
* ^{138}Pm^{m}(β^+)^{138}Nd	E$^+$ =3900(200) to spin 5 and 6 levels at 1990.5, 2134.3 and 2222.0											NDS935	**
^{139}Nd$-$C$_{11.583}$	−87840	79	−88022	28	−2.3	1	12	12	^{139}Nd	GS2	1.0	03Li.A	*
^{139}Sm$-$C$_{11.583}$	−77704	30	−77703	12	0.0	R				GS2	1.0	03Li.A	
	−77711	30			0.3	R				GS2	1.0	03Li.A	*
^{139}Eu$-$C$_{11.583}$	−70215	30	−70208	14	0.2	R				GS2	1.0	03Li.A	
^{139}Pm$-^{133}$Cs$_{1.045}$	15604	15	15607	14	0.2	1	93	93	^{139}Pm	MA5	1.0	00Be42	
^{139}Sm$-^{133}$Cs$_{1.045}$	21101	14	21099	12	−0.1	2				MA5	1.0	00Be42	
^{139}Eu$-^{133}$Cs$_{1.045}$	28597	16	28595	14	−0.1	2				MA5	1.0	00Be42	
^{138}Cs$^{x}-^{139}$Cs$_{.496}$ ^{137}Cs$_{.504}$	770	40	799	25	0.3	U				P23	2.5	82Au01	
^{138}Ba(n,γ)^{139}Ba	4723.43	0.04	4723.43	0.04	0.0	1	100	99	^{139}Ba	MMn		90Is07	Z
	4723.20	0.14			1.6	U				Bdn		03Fi.A	
^{138}La(d,p)^{139}La	6553	3	6553.4	2.6	0.1	2				Tal		71Du02	
^{139}La(d,t)^{138}La	−2522	5	−2520.8	2.6	0.2	2				Tal		72La20	
^{139}I(β^-)^{139}Xe	6806	23				4				Bwg		92Gr06	
^{139}Xe(β^-)^{139}Cs	5020	60	5057	21	0.6	3				Trs		78Wo15	
	5062	22			−0.2	3				Bwg		92Gr06	
^{139}Cs(β^-)^{139}Ba	4214	4	4213	3	−0.3	2				McG		84He.A	
	4211	5			0.4	2				Gsn		92Pr04	
^{139}Ba(β^-)^{139}La	2307	5	2317.6	2.4	2.1	–						75Fl07	
	2316	4			0.4	–				McG		84He.A	
ave.	2312	3			1.6	1	59	59	^{139}La			average	
^{139}Ce(ε)^{139}La	278	7	279	7	0.1	1	99	98	^{139}Ce			Averag	*
^{139}Pr(β^+)^{139}Ce	2129	3	2129.2	3.0	0.1	1	100	98	^{139}Pr			81Ar.A	
^{139}Nd(β^+)^{139}Pr	2787	50	2832	26	0.9	1	28	26	^{139}Nd			75Vy02	*
^{139}Pm(β^+)^{139}Nd	4450	100	4495	25	0.5	–						77De06	
	4540	40			−1.1	–				IRS		83Al06	
	4470	50			0.5	–				Dbn		95Ve08	
ave.	4507	30			−0.4	1	69	62	^{139}Nd			average	
^{139}Sm(β^+)^{139}Pm	5430	150	5116	17	−2.1	U						82De06	
	5510	150			−2.6	B				IRS		83Al06	*
^{139}Eu(β^+)^{139}Sm	6080	50	6982	17	18.0	C				Dbn		95Ve08	
* ^{139}Nd$-$C$_{11.583}$	M$-$A=–81707(30) keV for mixture gs+m at 231.15 keV											NDS013	**
* ^{139}Sm$-$C$_{11.583}$	M$-$A=–71930(28) keV for ^{139}Sm^{m} at Eexc=457.40 keV											NDS013	**
* ^{139}Ce(ε)^{139}La	Average pK=0.73(0.01) to 165.86 level from 10 references:											AHW	**
*	pK=0.76 (0.04)											54Pr31	**
*	pK=0.73 (0.01)											56Ke23	**
*	pK=0.68 (0.02)											67Ma07	**
*	pK=0.75 (0.01)											68Ad08	**
*	pK=0.69 (0.02)											68Va08	**
*	pK=0.716(0.02)											72Ca07	**

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
*	pK=0.78 (0.02)											72Sc08	**
*	pK=0.726(0.010)											75Ha43	**
*	pK=0.801(0.034)											75Pl06	**
*	pK=0.705(0.020)											76Ha36	**
*^{139}Nd(β^+)^{139}Pr	E$^+$ =1770(50); and 1170(50) from ^{139}Nd^m at 231.15 to 821.98 level											NDS897	**
*^{139}Sm(β^+)^{139}Pm	E$^+$ =4735(+180−130) from ^{139}Sm^m at 457.8 to ^{139}Pm^m at 188.7											NDS897	**
^{140}Nd−C$_{11.667}$	−90448	30				2				GS2	1.0	03Li.A	
^{140}Pm^m−C$_{11.667}$	−83532	30	−83503	14	1.0	R				GS2	1.0	03Li.A	
^{140}Sm−C$_{11.667}$	−81018	30	−81005	13	0.4	R				GS2	1.0	03Li.A	
^{140}Gd−C$_{11.667}$	−66326	30				2				GS2	1.0	03Li.A	
^{140}Cs−^{133}Cs$_{1.053}$	16836	14	16841	9	0.4	–				MA1	1.0	99Am05	
	16857	14			−1.1	–				MA4	1.0	99Am05	
ave.	16847	10			−0.5	1	79	79	^{140}Cs			average	
^{140}Ba−^{133}Cs$_{1.053}$	10150	14	10164	9	1.0	1	37	37	^{140}Ba	MA1	1.0	99Am05	
^{140}Pm^m−^{133}Cs$_{1.053}$	16064	16	16056	14	−0.5	2				MA5	1.0	00Be42	
^{140}Sm−^{133}Cs$_{1.053}$	18557	15	18554	13	−0.2	2				MA5	1.0	00Be42	
^{140}Ce−^{138}Ce	−543	8	−553	11	−0.5	1	28	28	^{138}Ce	M17	2.5	66Be10	
^{138}Ce(t,p)^{140}Ce	8184	15	8176	10	−0.6	–				LAl		72Mu09	
^{140}Ce(p,t)^{138}Ce	−8167	20	−8176	10	−0.4	–				Brk		77Sh06	
^{138}Ce(t,p)^{140}Ce ave.	8178	12	8176	10	−0.2	1	68	68	^{138}Ce			average	
^{139}La(n,γ)^{140}La	5160.97	0.05	5160.98	0.04	0.1	–				MMn		90Is09	Z
	5161.00	0.10			−0.2	–				Bdn		03Fi.A	
ave.	5160.98	0.04			0.0	1	100	59	^{140}La			average	
^{140}Ho(p)^{139}Dy	1093.9	10.				3						99Ry04	
^{140}Xe(β^-)^{140}Cs	4060	60				2				Trs		78Wo15	
^{140}Cs(β^-)^{140}Ba	6212	20	6220	10	0.4	–				Gsn		92Pr04	
	6199	25			0.9	–				Ida		93Gr17	
ave.	6207	16			0.9	1	40	21	^{140}Cs			average	
^{140}Ba(β^-)^{140}La	1060	20	1050	8	−0.5	–						49Be36	
	1050	20			0.0	–						59Bo61	
	1055	30			−0.2	–						65Bu07	
ave.	1055	13			−0.4	1	40	37	^{140}Ba			average	
^{140}La(β^-)^{140}Ce	3760.2	2.0	3762.2	1.8	1.0	1	84	45	^{140}Ce			72Na04	
^{140}Pr(β^+)^{140}Ce	3388	6				2						68Ab17	
^{140}Nd(ε)^{140}Pr	160	60	444	29	4.7	B						72Ba91	
^{140}Pm(β^+)^{140}Nd	6080	100	6045	24	−0.3	U						75Ke09	
	6090	40			−1.1	3				IRS		83Al06	
	6020	30			0.8	3				Dbn		95Ve08	
^{140}Pm^m(β^+)^{140}Nd	6484	70	6470	30	−0.2	B						75Ke09	
^{140}Sm(ε)^{140}Pm	3400	300	2750	40	−2.2	U						87De04	
^{140}Eu(β^+)^{140}Sm	8400	400	8470	50	0.2	U				LBL		91Fi03	
	8470	50				3				Dbn		95Ve08	
^{140}Gd(β^+)^{140}Eu	4800	400	5200	60	1.0	U				LBL		91Fi03	
^{140}Tb(β^+)^{140}Gd	11300	800				3				LBL		91Fi03	*
*^{140}Tb(β^+)^{140}Gd	Lower limit											91Fi03	**
^{141}Pr−C$_{11.75}$	−92374	30	−92347.2	2.6	0.9	U				GS2	1.0	03Li.A	
^{141}Nd−C$_{11.75}$	−90401	30	−90390	4	0.4	U				GS2	1.0	03Li.A	
	−90365	30			−0.8	U				GS2	1.0	03Li.A	*
^{141}Sm−C$_{11.75}$	−81496	62	−81524	9	−0.4	U				GS2	1.0	03Li.A	*
^{141}Eu−C$_{11.75}$	−75048	42	−75069	14	−0.5	U				GS2	1.0	03Li.A	*
^{141}Gd−C$_{11.75}$	−67881	30	−67874	21	0.2	2				GS2	1.0	03Li.A	
	−67867	30			−0.2	2				GS2	1.0	03Li.A	*
^{141}Tb−C$_{11.75}$	−58552	113				2				GS2	1.0	03Li.A	*

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	*F*	Reference	
$^{141}\text{Cs}-^{133}\text{Cs}_{1.060}$		20269	16	20267	11	−0.1	1	50	50	^{141}Cs	MA4	1.0	99Am05	
$^{141}\text{Ba}-^{133}\text{Cs}_{1.060}$		14625	15	14632	9	0.5	–				MA1	1.0	99Am05	
		14631	16			0.1	–				MA4	1.0	99Am05	
	ave.	14628	11			0.4	1	63	63	^{141}Ba			average	
$^{141}\text{Pm}-^{133}\text{Cs}_{1.060}$		13776	15				2				MA5	1.0	00Be42	
$^{141}\text{Sm}-^{133}\text{Cs}_{1.060}$		18692	14	18697	9	0.4	1	44	44	^{141}Sm	MA5	1.0	00Be42	*
$^{141}\text{Eu}-^{133}\text{Cs}_{1.060}$		25164	15	25152	14	−0.8	1	82	82	^{141}Eu	MA5	1.0	00Be42	*
$^{140}\text{Cs}-^{141}\text{Cs}_{.894}\,^{131}\text{Cs}_{.107}$		−970	40	−1046	12	−0.8	U				P23	2.5	82Au01	
$^{141}\text{Cs}(\beta^-\text{n})^{140}\text{Ba}$		735	30	723	13	−0.4	1	18	11	^{141}Cs			84Kr.B	
$^{140}\text{Ce}(\text{n},\gamma)^{141}\text{Ce}$		5428.6	0.6	5428.14	0.10	−0.8	U				BNn		70Ge03	Z
		5428.01	0.20			0.7	–				PTn		80Ba.A	Z
		5428.19	0.12			−0.4	–				Bdn		03Fi.A	
	ave.	5428.14	0.10			0.0	1	100	54	^{141}Ce			average	
$^{141}\text{Ho}(\text{p})^{140}\text{Dy}$		1177.4	8.	1177	7	−0.1	3						98Da03	
		1172.9	20.			0.2	3						99Ry04	*
$^{141}\text{Xe}(\beta^-)^{141}\text{Cs}$		6150	90				2				Trs		78Wo15	
$^{141}\text{Cs}(\beta^-)^{141}\text{Ba}$		5242	15	5249	11	0.4	1	53	36	^{141}Cs	Gsn		92Pr04	
$^{141}\text{Ba}(\beta^-)^{141}\text{La}$		3208	35	3213	9	0.1	–				Gsn		81De25	
		3217	20			−0.2	–				McG		84He.A	
	ave.	3215	17			−0.1	1	26	20	^{141}Ba			average	
$^{141}\text{La}(\beta^-)^{141}\text{Ce}$		2502	4	2502	4	0.0	1	96	95	^{141}La	McG		84He.A	
$^{141}\text{Ce}(\beta^-)^{141}\text{Pr}$		584	3	580.8	1.1	−1.1	–						50Fr58	
		585	4			−1.1	–						52Ko27	
		576.4	2.0			2.2	–						55Jo02	
		581.4	2.0			−0.3	–						68Be06	
		582.2	2.6			−0.5	–						79Ha09	
	ave.	580.6	1.1			0.1	1	92	47	^{141}Pr			average	
$^{141}\text{Nd}(\beta^+)^{141}\text{Pr}$		1816	8	1823.0	2.8	0.9	2						73Bu21	
		1824	3			−0.3	2						76Ga.A	*
$^{141}\text{Pm}(\beta^+)^{141}\text{Nd}$		3730	40	3675	14	−1.4	B						70Ch29	
		3640	70			0.5	U						75Ke09	
$^{141}\text{Sm}(\beta^+)^{141}\text{Pm}$		4580	50	4584	16	0.1	U						77Ke03	*
		4463	60			2.0	U				IRS		83Al06	
		4524	80			0.8	U				IRS		93Al03	*
$^{141}\text{Eu}(\beta^+)^{141}\text{Sm}$		6030	100	6012	14	−0.2	U						77De25	
		5950	40			1.6	–				IRS		83Al06	
		6035	60			−0.4	U						85Af.A	
		5550	100			4.6	B				IRS		93Al03	
		5980	40			0.8	–				Dbn		95Ve08	*
	ave.	5965	28			1.7	1	26	18	^{141}Eu			average	

$*^{141}\text{Nd}-\text{C}_{11.75}$	M−A=–83418(28) keV for $^{141}\text{Nd}^m$ at Eexc=756.51 keV	NDS012	**
$*^{141}\text{Sm}-\text{C}_{11.75}$	M−A=–75825(28) keV for mixture gs+m at 176.0 keV	NDS012	**
$*^{141}\text{Eu}-\text{C}_{11.75}$	M−A=–69858(28) keV for mixture gs+m at 96.45 keV	NDS012	**
$*^{141}\text{Gd}-\text{C}_{11.75}$	M−A=–62840(28) keV for $^{141}\text{Gd}^m$ at Eexc=377.8 keV	NDS012	**
$*^{141}\text{Tb}-\text{C}_{11.75}$	M−A=–54541(34) keV for mixture gs+m at 0#200 keV	Nubase	**
$*^{141}\text{Sm}-^{133}\text{Cs}_{1.060}$	D_M=18694(14) and D_M=18878(14) from $^{141}\text{Sm}^m$ at 175.8	00Be42	**
$*^{141}\text{Eu}-^{133}\text{Cs}_{1.060}$	Slight (< 10%) isomeric contamination cannot be excluded	00Be42	**
$*^{141}\text{Ho}(\text{p})^{140}\text{Dy}$	Ep=1230(20) from $^{141}\text{Ho}^m$ at 66(2)	01Se03	**
$*^{141}\text{Nd}(\beta^+)^{141}\text{Pr}$	Was erroneously quoted 77Ga.A in the 1993 tables	GAu	**
$*^{141}\text{Sm}(\beta^+)^{141}\text{Pm}$	E^+ =3180(50), 3100(50) to 403.85, 438.29 levels	NDS918	**
*	and E^+ =1670(70), 1600(70)	77Ke03	**
*	from $^{141}\text{Sm}^m$ at 175.8 to 2091.66, 2119.0 levels	NDS918	**
$*^{141}\text{Sm}(\beta^+)^{141}\text{Pm}$	Q^+ =4700(80) from $^{141}\text{Sm}^m$ at 175.8	NDS918	**
$*^{141}\text{Eu}(\beta^+)^{141}\text{Sm}$	E^+ =4960(40) to 1.58 level	NDS918	**

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	*F*	Reference
$^{142}\text{Cs}-^{133}\text{Cs}_{1.068}$		25270	16	25276	11	0.4	1	51	51	^{142}Cs	MA4	1.0	99Am05
$^{142}\text{Ba}-^{133}\text{Cs}_{1.068}$		17410	15	17431	7	1.4	–				MA1	1.0	99Am05
		17420	16			0.7	–				MA4	1.0	99Am05
	ave.	17415	11			1.5	1	37	37	^{142}Ba			average
$^{142}\text{Pm}-\text{C}_{11.833}$		−87136	30	−87126	27	0.3	2				GS2	1.0	03Li.A

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{142}Sm$-$^{133}Cs$_{1.068}$		16173	14	16175	6	0.1	1	19	19	^{142}Sm	MA5	1.0	00Be42	
^{142}Eu^{m}$-$^{133}Cs$_{1.068}$		24909	15	24910	13	0.1	2				MA5	1.0	00Be42	
^{142}Eu^{m}$-$C$_{11.833}$		−76063	30	−76067	13	−0.1	R				GS2	1.0	03Li.A	
^{142}Gd$-$C$_{11.833}$		−71884	30				2				GS2	1.0	03Li.A	
^{142}Ce$-$^{140}Ce		3818	3	3805.5	2.6	−1.7	1	12	9	^{142}Ce	M17	2.5	66Be10	
^{140}Cs$-$^{142}Cs$_{.789}$ ^{132}Cs$_{.212}$		−2950	40	−2938	12	0.1	U				P23	2.5	82Au01	
^{141}Cs$-$^{142}Cs$_{.794}$ ^{137}Cs$_{.206}$		−580	40	−660	13	−0.8	U				P23	2.5	82Au01	
^{138}Cs^{x}$-$^{142}Cs$_{.194}$ ^{137}Cs$_{.806}$		550	40	588	25	0.4	U				P23	2.5	82Au01	
^{141}Cs$-$^{142}Cs$_{.496}$ ^{140}Cs$_{.504}$		−663	19	−668	12	−0.1	U				P33	2.5	86Au02	
^{140}Ce(t,p)^{142}Ce		4112	5	4116.0	2.4	0.8	1	23	17	^{142}Ce	LAl		72Mu09	
^{142}Nd(p,t)^{140}Nd		−9150	20	−9364	28	−10.7	B				Osa		71Ya10	∗
^{141}Pr(n,γ)^{142}Pr		5843.14	0.10	5843.15	0.08	0.1	–				MMn		81Ke11	Z
		5843.16	0.12			−0.1	–				Bdn		03Fi.A	
	ave.	5843.15	0.08			0.0	1	100	53	^{141}Pr			average	
^{142}Xe(β^-)^{142}Cs		5040	100				2				Trs		78Wo15	
^{142}Cs(β^-)^{142}Ba		7280	40	7308	11	0.7	U				Bwg		87Gr.A	
		7315	15			−0.5	1	51	42	^{142}Cs	Gsn		92Pr04	
^{142}Ba(β^-)^{142}La		2200	25	2212	5	0.5	U						83Ch39	
		2216	5			−0.9	1	84	54	^{142}Ba	McG		84He.A	
^{142}La(β^-)^{142}Ce		4510	6	4504	5	−1.0	1	77	70	^{142}La	McG		84He.A	
^{142}Pr(β^-)^{142}Nd		2164	2	2162.5	1.5	−0.8	–						66Be12	
		2158	3			1.5	–						75Ra09	
	ave.	2162.2	1.7			0.2	1	82	53	^{142}Pr			average	
^{142}Pm(β^+)^{142}Nd		4800	80	4798	25	0.0	R						60Ma.A	
		4880	80			−1.0	R				IRS		83Al06	
		4880	160			−0.5	U				LBL		91Fi03	
^{142}Sm(β^+)^{142}Pm		2050	70	2164	26	1.6	C						60Ma.A	
^{142}Eu(β^+)^{142}Sm		7400	100	7670	30	2.7	U						82Gr.A	
		7000	300			2.2	U				LBL		91Fi03	
		7673	30				2				Dbn		94Po26	
^{142}Eu^{m}(β^+)^{142}Sm		8150	100	8137	14	−0.1	U						75Ke08	
		8174	50			−0.7	U				IRS		83Al06	
		7480	100			6.6	B				IRS		93Al03	∗
		8150	60			−0.2	U				Dbn		94Po26	
^{142}Gd(β^+)^{142}Eu		4200	300	4360	40	0.5	U				LBL		91Fi03	
^{142}Tb(β^+)^{142}Gd		10400	700	9900#	300#	−0.7	D				LBL		91Fi03	∗
^{142}Dy(β^+)^{142}Tb		7100	200				4				LBL		91Fi03	
∗^{142}Nd(p,t)^{140}Nd		Disagrees strongly with ^{140}Nd$-$C											AHW	∗∗
∗^{142}Eu^{m}(β^+)^{142}Sm		Measured half-life 73.4(0.5) s corresponds to ^{142}Eu^{m}											GAu	∗∗
∗^{142}Tb(β^+)^{142}Gd		Systematical trends suggest ^{142}Tb 500 more bound											GAu	∗∗
^{143}Ba$-$^{133}Cs$_{1.075}$		22268	16	22266	14	−0.1	1	79	79	^{143}Ba	MA1	1.0	99Am05	
^{143}Pm$-$^{133}Cs$_{1.075}$		12567	15	12572	4	0.3	U				MA5	1.0	00Be42	
^{143}Sm$-$^{133}Cs$_{1.075}$		16268	15	16268	4	0.0	U				MA5	1.0	00Be42	
^{143}Sm$-$C$_{11.917}$		−85347	30	−85372	4	−0.8	U				GS2	1.0	03Li.A	∗
^{143}Eu$-$^{133}Cs$_{1.075}$		21947	14	21937	12	−0.7	2				MA5	1.0	00Be42	
^{143}Eu$-$C$_{11.917}$		−79706	30	−79702	12	0.1	R				GS2	1.0	03Li.A	
^{143}Gd$-$C$_{11.917}$		−73012	56	−73250	220	−4.3	C				GS2	1.0	03Li.A	∗
^{143}Tb$-$C$_{11.917}$		−64879	64				2				GS2	1.0	03Li.A	∗
^{141}Cs$-$^{143}Cs$_{.493}$ ^{139}Cs$_{.507}$		−230	40	−200	16	0.3	U				P23	2.5	82Au01	
		−115	22			−1.5	U				P33	2.5	86Au02	
^{142}Cs$-$^{143}Cs$_{.497}$ ^{141}Cs$_{.504}$		647	15	654	16	0.2	1	18	9	^{143}Cs	P33	2.5	86Au02	
^{142}Ce(n,γ)^{143}Ce		5145.9	0.5	5144.84	0.09	−2.1	–						76Ge02	
		5144.78	0.15			0.4	–				Ptn		80Ba.A	Z
		5144.81	0.12			0.2	–				Bdn		03Fi.A	
	ave.	5144.84	0.09			0.0	1	100	67	^{142}Ce			average	
^{142}Nd(n,γ)^{143}Nd		6123.62	0.08	6123.57	0.07	−0.6	–				MMn		82Is05	Z
		6123.41	0.14			1.1	–				Bdn		03Fi.A	
	ave.	6123.57	0.07			0.0	1	100	62	^{142}Nd			average	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{142}Nd(^{3}He,d)^{143}Pm		−1195	5	−1194.0	2.4	0.2	1	23	23	^{143}Pm	McM		80St10	∗
^{143}Cs(β^-)^{143}Ba		6240	70	6264	22	0.3	U				Bwg		87Gr.A	
		6270	25			−0.2	1	76	69	^{143}Cs	Gsn		92Pr04	
^{143}Ba(β^-)^{143}La		4240	50	4251	18	0.2	–						79Sc11	
		4259	40			−0.2	–				Gsn		81De25	
		4210	70			0.6	U				Bwg		87Gr.A	
	ave.	4250	30			0.0	1	34	20	^{143}La			average	
^{143}La(β^-)^{143}Ce		3425	17	3425	15	0.0	1	80	80	^{143}La			84Is09	
^{143}Ce(β^-)^{143}Pr		1460.6	2.	1461.5	1.8	0.4	1	83	67	^{143}Ce			77Ra18	
^{143}Pr(β^-)^{143}Nd		932	2	933.9	1.4	1.0	–						49Fe18	
		935	2			−0.5	–						76Ra33	
	ave.	933.5	1.4			0.3	1	92	84	^{143}Pr			average	
^{143}Sm(β^+)^{143}Pm		3461	40	3443	4	−0.5	U				Dbn		94Po26	
^{143}Eu(β^+)^{143}Sm		5100	50	5281	12	3.6	B						74Ch21	
		5240	70			0.6	U				IRS		83Al06	
		5250	80			0.4	U				IRS		93Al03	
		5236	30			1.5	R				Dbn		94Po26	
^{143}Gd(β^+)^{143}Eu		6010	200				3				IRS		93Al03	∗
∗^{143}Sm−C$_{11.917}$		M−A=–78746(28) keV for ^{143}Sm^m at Eexc=753.99 keV											NDS01b	∗∗
∗^{143}Gd−C$_{11.917}$		M−A=–67934(28) keV for mixture gs+m at 152.6 keV											Ens02	∗∗
∗^{143}Tb−C$_{11.917}$		M−A=–60434(32) keV for mixture gs+m at 0#100 keV											Nubase	∗∗
∗^{142}Nd(^{3}He,d)^{143}Pm		Based on ^{146}Nd(^{3}He,d)^{147}Pm Q=–87.6(0.9)											AHW	∗∗
∗^{143}Gd(β^+)^{143}Eu		Q$^+$ =6160(200) from ^{143}Gd^m at 152.6											NDS91a	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{144}Ba−^{133}Cs$_{1.083}$		25347	15	25348	14	0.1	1	91	91	^{144}Ba	MA1	1.0	99Am05	
^{144}Eu−^{133}Cs$_{1.083}$		21223	17	21212	12	−0.6	1	47	47	^{144}Eu	MA5	1.0	00Be42	
^{144}Eu−C$_{12}$		−81117	30	−81183	12	−2.2	1	15	15	^{144}Eu	GS2	1.0	03Li.A	
^{144}Gd−C$_{12}$		−77037	30				2				GS2	1.0	03Li.A	
^{144}Tb−C$_{12}$		−66955	30				2				GS2	1.0	03Li.A	∗
^{144}Dy−C$_{12}$		−60746	33				2				GS2	1.0	03Li.A	
^{144}Sm−^{144}Nd		1911.9	1.1	1912.2	1.9	0.1	1	49	43	^{144}Sm	H25	2.5	72Ba08	
^{142}Cs−^{144}Cs$_{.592}$ ^{139}Cs$_{.409}$		−60	40	−53	19	0.1	U				P23	2.5	82Au01	
^{143}Cs−^{144}Cs$_{.745}$ ^{140}Cs$_{.255}$		−920	50	−887	28	0.3	U				P23	2.5	82Au01	
^{142}Cs−^{144}Cs$_{.329}$ ^{141}Cs$_{.671}$		290	40	275	15	−0.2	U				P23	2.5	82Au01	
^{143}Cs−^{144}Cs$_{.662}$ ^{141}Cs$_{.338}$		−651	21	−614	27	0.7	1	27	18	^{143}Cs	P33	2.5	86Au02	
^{143}Cs−^{144}Cs$_{.497}$ ^{142}Cs$_{.504}$		−790	50	−687	25	0.8	U				P23	2.5	82Au01	
^{144}Sm(^{3}He,^{6}He)^{141}Sm		−8693	12	−8697	9	−0.3	1	52	49	^{141}Sm	MSU		78Pa11	
^{144}Sm(p,t)^{142}Sm		−10649	15	−10640	6	0.6	1	14	12	^{142}Sm	Ham		73Oe02	
^{143}Nd(n,γ)^{144}Nd		7817.11	0.07	7817.03	0.05	−1.1	–				MMn		82Is05	Z
		7816.93	0.08			1.3	–				ILn		91Ro.A	Z
		7816.94	0.23			0.4	U				Bdn		03Fi.A	
	ave.	7817.03	0.05			0.0	1	100	66	^{144}Nd			average	
^{143}Nd(^{3}He,d)^{144}Pm		−804	5	−790.8	2.2	2.6	1	20	20	^{144}Pm	McM		80St10	∗
^{143}Nd(^{3}He,d)^{144}Pm−^{142}Nd()^{143}Pm		402.7	1.6	403.1	1.5	0.3	1	89	60	^{143}Pm			75Ma04	
^{144}Sm(p,d)^{143}Sm−^{148}Gd()^{147}Gd		−1536	2	−1536.0	2.0	0.0	1	100	100	^{143}Sm			86Ru04	
^{144}Cs(β^-)^{144}Ba		8560	80	8499	26	−0.8	–				Bwg		87Gr.A	
		8462	35			1.1	–				Gsn		92Pr04	
	ave.	8480	30			0.7	1	63	57	^{144}Cs			average	
^{144}Ba(β^-)^{144}La		3055	70	3120	50	1.0	1	49	47	^{144}La	Bwg		87Gr.A	
^{144}La(β^-)^{144}Ce		4300	100	5540	50	12.4	B						79Ik07	
		5435	90			1.2	–				Bwg		87Gr.A	
		5540	100			0.0	o				Kur		02Sh.B	
		5540	100			0.0	–				Kur		02Sh16	
	ave.	5480	70			0.9	1	53	53	^{144}La			average	
^{144}Ce(β^-)^{144}Pr		315.6	1.5	318.7	0.8	2.0	–						66Da04	
		320	1			−1.3	–						76Ra33	
	ave.	318.6	0.8			0.0	1	100	100	^{144}Ce			average	
^{144}Pr(β^-)^{144}Nd		2996	3	2997.5	2.4	0.5	–						59Po77	
		3000	4			−0.6	–						66Da04	
	ave.	2997.4	2.4			0.0	1	100	100	^{144}Pr			average	
^{144}Eu(β^+)^{144}Sm		6330	30	6350	11	0.7	–				IRS		83Al06	
		6287	30			2.1	–				Dbn		94Po26	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{144}Sm(p,n)^{144}Eu		−7110.0	30.	−7133	11	−0.8	–						65Me12	
^{144}Eu(β^+)^{144}Sm	ave.	6315	17	6350	11	2.0	1	40	38	^{144}Eu			average	
^{144}Gd(β^+)^{144}Eu		4300	400	3862	30	−1.1	U						70Ar04	
$*^{144}$Tb−C$_{12}$	M−A=–61971(28) keV for ^{144}Tb^m at Eexc=396.9 keV												Ens01	∗∗
$*^{143}$Nd(^{3}He,d)^{144}Pm	Based on ^{146}Nd(^{3}He,d)^{147}Pm Q=–87.6(0.9)												AHW	∗∗
^{145}Cs−^{133}Cs$_{1.090}$		38588	12	38584	12	−0.4	1	94	94	^{145}Cs	MA8	1.0	03We.A	
^{145}Pm−C$_{12.083}$		−87255	30	−87251	3	0.1	U				GS2	1.0	03Li.A	
^{145}Sm−C$_{12.083}$		−86535	30	−86590	3	−1.8	U				GS2	1.0	03Li.A	
^{145}Eu−^{133}Cs$_{1.090}$		19338	17	19323	4	−0.9	U				MA5	1.0	00Be42	
^{145}Gd−C$_{12.083}$		−78287	30	−78291	20	−0.1	2				GS2	1.0	03Li.A	
		−78294	30			0.1	2				GS2	1.0	03Li.A	∗
^{145}Tb−C$_{12.083}$		−70726	61				2				GS2	1.0	03Li.A	∗
^{145}Dy−C$_{12.083}$		−62575	49				2				GS2	1.0	03Li.A	∗
^{142}Cs−^{145}Cs$_{.490}$ ^{139}Cs$_{.511}$		240	50	151	12	−0.7	U				P23	2.5	82Au01	
^{144}Cs−^{145}Cs$_{.828}$ ^{139}Cs$_{.173}$		450	50	418	27	−0.3	U				P23	2.5	82Au01	
^{143}Cs−^{145}Cs$_{.493}$ ^{141}Cs$_{.507}$		−310	40	−304	25	0.1	U				P23	2.5	82Au01	
^{144}Cs−^{145}Cs$_{.662}$ ^{142}Cs$_{.338}$		320	18	322	26	0.0	1	35	33	^{144}Cs	P33	2.5	86Au02	
^{144}Cs−^{145}Cs$_{.497}$ ^{143}Cs$_{.503}$		600	40	617	27	0.2	U				P23	2.5	82Au01	
^{144}Nd(n,γ)^{145}Nd		5755.3	0.7	5755.29	0.25	0.0	U						75Na.A	
		5756.9	2.0			−0.8	U						77Mc09	
		5755.26	0.25			0.1	1	99	71	^{145}Nd	Bdn		03Fi.A	
^{144}Nd(^{3}He,d)^{145}Pm		−680	5	−683.9	2.2	−0.8	1	19	18	^{145}Pm	McM		80St10	∗
^{144}Nd(^{3}He,d)^{145}Pm−^{143}Nd()^{144}Pm		105.2	1.6	106.9	1.5	1.1	1	87	50	^{144}Pm			75Ma04	
^{144}Sm(n,γ)^{145}Sm		6757.1	0.3	6757.10	0.30	0.0	1	99	71	^{145}Sm			79Wa22	
^{144}Sm(^{3}He,d)^{145}Eu		−2184	4	−2178.0	2.7	1.5	–				Mun		82Sc25	
		−2174	4			−1.0	–						84Ru.A	
	ave.	−2179.0	2.8			0.3	1	92	89	^{145}Eu			average	
^{145}Tm(p)^{144}Er		1740.1	10.				3						98Ba13	
^{145}Cs(β^-)^{145}Ba		7358	70				2				Gsn		81De25	
		7930	75	7360	70	−7.6	C				Bwg		87Gr.A	
		7865	50			−10.1	B				Gsn		92Pr04	
^{145}Ba(β^-)^{145}La		4925	80	5570	110	8.1	C				Bwg		87Gr.A	
^{145}La(β^-)^{145}Ce		4110	80				3				Bwg		87Gr.A	
^{145}Ce(β^-)^{145}Pr		2490	100	2530	40	0.4	2						67Ho19	
		2600	100			−0.7	2						80Ya07	
		2530	50			0.1	2				Bwg		87Gr.A	
^{145}Pr(β^-)^{145}Nd		1805	10	1805	7	0.0	1	50	50	^{145}Pr			59Dr.A	
^{145}Pm(ε)^{145}Nd		143	15	163.4	2.2	1.4	U						59Br65	
		150	5			2.7	1	19	18	^{145}Pm			74To04	
^{145}Sm(ε)^{145}Pm		607	6	616.0	2.4	1.5	–						71My01	
		622	5			−1.2	–						83Vo10	
	ave.	616	4			0.0	1	40	26	^{145}Pm			average	
^{145}Gd(β^+)^{145}Eu		5070	60	5071	19	0.0	R						79Fi07	
		5090	90			−0.2	o				IRS		83Ve.A	
		5070	80			0.0	U				IRS		85Al13	
^{145}Tb^m(β^+)^{145}Gd		6700	200	7050#	120#	1.7	C						86Ve.A	∗
		6400	150			4.3	B				IRS		93Al03	
^{145}Dy(β^+)^{145}Tb		7300	200	7590	70	1.5	U				IRS		93Al03	
$*^{145}$Gd−C$_{12.083}$	M−A=–72181(28) keV for ^{145}Gd^m at Eexc=749.1 keV												Ens01	∗∗
$*^{145}$Tb−C$_{12.083}$	M−A=–65881(28) keV for mixture gs+m at 0#100 keV												Nubase	∗∗
$*^{145}$Dy−C$_{12.083}$	M−A=–58230(30) keV for mixture gs+m at 118.2 keV												NDS934	∗∗
$*^{144}$Nd(^{3}He,d)^{145}Pm	Based on ^{146}Nd(^{3}He,d)^{147}Pm Q=–87.6(0.9)												AHW	∗∗
$*^{145}$Tb^m(β^+)^{145}Gd	E$^+$ =3300(200) to 2382.3 9/2$^-$ level												NDS934	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$^{146}\mathrm{Pm}-\mathrm{C}_{12.167}$		−85289	30	−85304	5	−0.5	U				GS2	1.0	03Li.A	
$^{146}\mathrm{Eu}-{}^{133}\mathrm{Cs}_{1.098}$		21029	15	21020	7	−0.6	1	20	20	^{146}Eu	MA5	1.0	00Be42	
$^{146}\mathrm{Tb}-\mathrm{C}_{12.167}$		−72464	77	−72750	50	−3.8	C				GS2	1.0	03Li.A	*
$^{146}\mathrm{Dy}-\mathrm{C}_{12.167}$		−67150	30	−67155	29	−0.2	1	94	94	^{146}Dy	GS2	1.0	03Li.A	
$^{146}\mathrm{Nd}\,{}^{35}\mathrm{Cl}-{}^{144}\mathrm{Nd}\,{}^{37}\mathrm{Cl}$		5982.8	1.1	5979.76	0.29	−1.1	U				H25	2.5	72Ba08	
$^{145}\mathrm{Cs}-{}^{146}\mathrm{Cs}_{.828}\,{}^{140}\mathrm{Cs}_{.173}$		−580	80	−670	60	−0.5	U				P23	2.5	82Au01	
$^{144}\mathrm{Cs}-{}^{146}\mathrm{Cs}_{.329}\,{}^{143}\mathrm{Cs}_{.671}$		320	50	440	40	0.9	U				P23	2.5	82Au01	
$^{145}\mathrm{Cs}-{}^{146}\mathrm{Cs}_{.662}\,{}^{143}\mathrm{Cs}_{.338}$		−440	30	−360	50	1.0	1	39	38	^{146}Cs	P33	2.5	86Au02	
$^{145}\mathrm{Cs}-{}^{146}\mathrm{Cs}_{.497}\,{}^{144}\mathrm{Cs}_{.503}$		−730	30	−590	40	1.9	1	24	21	^{146}Cs	P33	2.5	86Au02	
$^{146}\mathrm{Sm}(\alpha)^{142}\mathrm{Nd}$		2524.2	4.	2528.4	2.9	1.0	1	49	47	^{146}Sm			87Me08	Z
$^{144}\mathrm{Sm}(^{3}\mathrm{He,p})^{146}\mathrm{Eu}$		2797	12	2793	6	−0.4	1	25	23	^{146}Eu			84Ru.A	
$^{146}\mathrm{Nd}(\mathrm{d},^{3}\mathrm{He})^{145}\mathrm{Pr}$		−3095	10	−3095	7	0.0	1	50	50	^{145}Pr	KVI		79Sa.A	
$^{145}\mathrm{Nd}(\mathrm{n},\gamma)^{146}\mathrm{Nd}$		7565.28	0.10	7565.23	0.09	−0.5	–				MMn		82Is05	Z
		7565.05	0.18			1.0	–				Bdn		03Fi.A	
	ave.	7565.23	0.09			0.1	1	100	72	^{146}Nd			average	
$^{146}\mathrm{Sm}(^{3}\mathrm{He},\alpha)^{145}\mathrm{Sm}$		12161	5	12162	3	0.2	1	37	28	^{146}Sm			86Ru04	*
$^{146}\mathrm{Tm}(\mathrm{p})^{145}\mathrm{Er}$		1126.8	5.	1127	4	0.0	3						93Li18	
		1127.8	10.			−0.1	3				ORp		01Ry01	
$^{146}\mathrm{Tm}^{m}(\mathrm{p})^{145}\mathrm{Er}$		1197.3	5.	1198	4	0.0	3				Dap		93Li18	
		1198.3	10.			−0.1	3				ORp		01Ry01	
$^{146}\mathrm{Cs}(\beta^{-})^{146}\mathrm{Ba}$		9310	60	9380	40	1.2	–				Bwg		87Gr.A	
		9375	50			0.1	–				Gsn		92Pr04	
	ave.	9350	40			0.8	1	93	51	^{146}Ba			average	
$^{146}\mathrm{Ba}(\beta^{-})^{146}\mathrm{La}$		4280	100	4120	40	−1.6	–				Gsn		81De25	
		4030	50			1.9	–				Bwg		87Gr.A	
	ave.	4080	40			1.0	1	90	49	^{146}Ba			average	
$^{146}\mathrm{La}(\beta^{-})^{146}\mathrm{Ce}$		6380	70	6550	50	2.5	–				Trs		82Br23	
		6620	70			−1.0	–				Bwg		87Gr.A	
	ave.	6500	50			1.1	1	88	58	^{146}La			average	
$^{146}\mathrm{Ce}(\beta^{-})^{146}\mathrm{Pr}$		1100	80	1040	40	−0.8	–						54Be10	
		1050	100			−0.1	–						67Ho19	
		951	50			1.7	–						80Ya07	
		1065	100			−0.3	–						81Eb01	
	ave.	1010	40			0.8	1	94	70	^{146}Ce			average	
$^{146}\mathrm{Pr}(\beta^{-})^{146}\mathrm{Nd}$		4150	200	4220	60	0.3	U						54Be10	
		4250	200			−0.2	U						65Ra02	
		4080	100			1.4	–						68Da13	
		4140	100			0.8	–						78Ik03	
	ave.	4110	70			1.5	1	76	76	^{146}Pr			average	
$^{146}\mathrm{Pm}(\beta^{-})^{146}\mathrm{Sm}$		1542	3				2						74Sc06	
$^{146}\mathrm{Eu}(\beta^{+})^{146}\mathrm{Sm}$		3871	10	3880	6	0.9	–						62Fu16	
		3871	20			0.4	–						64Ta11	
		3896	20			−0.8	–				Got		88Sa06	
	ave.	3875	8			0.5	1	52	45	^{146}Eu			average	
$^{146}\mathrm{Tb}(\beta^{+})^{146}\mathrm{Gd}$		8240	150	8320	50	0.6	o				IRS		83Al06	
		7910	150			2.8	B				IRS		93Al03	*
		8310	50			0.3	1	81	81	^{146}Tb	Dbn		94Po26	
$^{146}\mathrm{Dy}(\beta^{+})^{146}\mathrm{Tb}$		5160	100	5220	50	0.6	1	25	19	^{146}Tb	IRS		93Al03	
$*^{146}\mathrm{Tb}-\mathrm{C}_{12.167}$	M−A=–67424(28) keV for mixture gs+m at 150#100 keV												Nubase	**
$*^{146}\mathrm{Sm}(^{3}\mathrm{He},\alpha)^{145}\mathrm{Sm}$	Q−Q(^{148}Gd(^{3}He,α))=–567(5)												AHW	**
$*^{146}\mathrm{Tb}(\beta^{+})^{146}\mathrm{Gd}$	Reported half-life 24.1(0.5)s corresponds to $^{146}\mathrm{Tb}^{m}$												GAu	**
*	Q=8060(100) keV from $^{146}\mathrm{Tb}^{m}$ at estimated Eexc=150#100 keV												GAu	**
$^{147}\mathrm{Cs}-{}^{133}\mathrm{Cs}_{1.105}$		48640	64	48630	60	−0.1	1	79	79	^{147}Cs	MA8	1.0	03We.A	
$^{147}\mathrm{Eu}-{}^{133}\mathrm{Cs}_{1.105}$		21215	16	21222	3	0.4	U				MA5	1.0	00Be42	
$^{147}\mathrm{Tb}-\mathrm{C}_{12.25}$		−75934	34	−75955	13	−0.6	U				GS2	1.0	03Li.A	*
$^{147}\mathrm{Dy}-\mathrm{C}_{12.25}$		−68909	30	−68909	21	0.0	2				GS2	1.0	03Li.A	
		−68908	30			0.0	2				GS2	1.0	03Li.A	*

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{147}Ho$-$C$_{12.25}$		$-$59944	30				2				GS2	1.0	03Li.A	
^{147}Eu$-^{142}$Sm$_{1.035}$		4516	17	4517	6	0.0	1	15	12	^{142}Sm	MA7	1.0	01Bo59	
^{145}Cs$-^{147}$Cs$_{.493}$ ^{143}Cs$_{.507}$		$-$87	22	$-$102	29	$-$0.3	1	27	21	^{147}Cs	P33	2.5	86Au02	
^{147}Eu(α)^{143}Pm		2990.6	10.	2990.3	3.0	0.0	U						62Si14	Z
		2987.2	5.			0.6	1	33	18	^{143}Pm			67Go32	Z
^{146}Nd(n,γ)^{147}Nd		5292.19	0.15	5292.20	0.09	0.1	–				ILn		75Ro16	Z
		5292.19	0.11			0.1	–				Bdn		03Fi.A	
	ave.	5292.19	0.09			0.1	1	100	77	^{147}Nd			average	
^{147}Tb(p)^{146}Gd		$-$1945	18	$-$1948	12	$-$0.2	R						87Sc.A	
^{147}Tm(p)^{146}Er		1058.2	3.3				3						93Se04	
^{147}Tm^m(p)^{146}Er		1118.5	3.9				3				Dap		93Se04	
^{147}Ba(β^-)^{147}La		5750	50	6250#	200#	10.0	D				Bwg		87Gr.A	*
^{147}La(β^-)^{147}Ce		4945	55	5180	40	4.3	B				Bwg		87Gr.A	
		5150	40			0.8	4				Kur		95Ik03	
		5370	100			$-$1.9	4				Kur		02Sh.B	
^{147}Ce(β^-)^{147}Pr		3290	40	3426	20	3.4	B				Bwg		87Gr.A	
		3426	20				3				Kur		95Ik03	
		3380	100			0.5	U				Kur		02Sh.B	
^{147}Pr(β^-)^{147}Nd		2790	100	2697	23	$-$0.9	U						81Ya06	
		2711	28			$-$0.5	2				Kur		95Ik03	
^{147}Nd(β^-)^{147}Pm		894.6	1.0	896.0	0.9	1.4	1	80	58	^{147}Pm			67Ca18	
^{147}Pm(β^-)^{147}Sm		223.2	0.5	224.1	0.3	1.9	–						50La04	
		224.3	1.3			$-$0.1	–						58Ha32	
		224.5	0.4			$-$0.9	–						66Hs01	
	ave.	224.0	0.3			0.4	1	98	56	^{147}Sm			average	
^{147}Eu(β^+)^{147}Sm		1723	3	1721.6	2.3	$-$0.5	1	59	55	^{147}Eu			80Bu04	
^{147}Gd(β^+)^{147}Eu		2185	5	2187.4	2.8	0.5	1	31	18	^{147}Eu			80Vy01	
		2199	17			$-$0.7	U						84Sc18	
^{147}Tb(β^+)^{147}Gd		4700	90	4611	12	$-$1.0	U						83Ve06	*
		4490	60			2.0	B				Got		85Ti01	
		4609	15			0.1	2				GSI		91Ke11	*
^{147}Dy(β^+)^{147}Tb		6334	60	6564	23	3.8	C						85Af.A	*
		6480	100			0.8	U				IRS		85Al08	*

*^{147}Tb$-$C$_{12.25}$ M$-$A=–70707(28) keV for mixture gs+m at 50.6 keV Ens99 **
*^{147}Dy$-$C$_{12.25}$ M$-$A=–63437(28) keV for ^{147}Dy^m at Eexc=750.5 keV NDS928**
*^{147}Ba(β^-)^{147}La Systematical trends suggest ^{147}Ba +500 GAu **
*^{147}Tb(β^+)^{147}Gd E$^+$ =2460(80) to 1152.2 and 1292.3 levels, reinterpreted AHW **
*^{147}Tb(β^+)^{147}Gd Q$^+$ =4660(15) from ^{147}Tb^m at 50.6(0.9) 87Li09 **
*^{147}Dy(β^+)^{147}Tb E$^+$ =6012(60) from ^{147}Dy^m at 750.5 to ^{147}Tb^m at 50.6(0.9) NDS928**
*^{147}Dy(β^+)^{147}Tb Q$^+$ =7180(100) from ^{147}Dy^m at 750.5 to ^{147}Tb^m at 50.6(0.9) NDS928**

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{148}Eu$-^{133}$Cs$_{1.113}$		23315	15	23318	11	0.2	1	53	53	^{148}Eu	MA5	1.0	00Be42	
^{148}Tb$-$C$_{12.333}$		$-$75692	41	$-$75728	15	$-$0.9	U				GS2	1.0	03Li.A	*
^{148}Dy$-^{133}$Cs$_{1.113}$		32394	16	32382	11	$-$0.8	R				MA5	1.0	00Be42	
	ave.	$-$72852	12			0.1	1	93	93	^{148}Dy			average	
^{148}Ho$-$C$_{12.333}$		$-$62282	139				2				GS2	1.0	03Li.A	*
^{148}Eu$-^{142}$Sm$_{1.042}$		6451	17	6450	11	$-$0.1	1	44	36	^{148}Eu	MA7	1.0	01Bo59	
^{148}Nd ^{35}Cl$_2-^{144}$Nd ^{37}Cl$_2$		12703.6	2.1	12706.2	1.8	0.5	1	12	11	^{148}Nd	H25	2.5	72Ba08	
^{148}Sm ^{35}Cl$_2-^{144}$Sm ^{37}Cl$_2$		8721.4	2.6	8723.4	2.1	0.3	1	10	8	^{144}Sm	H25	2.5	72Ba08	
^{148}Nd ^{35}Cl$-^{146}$Nd ^{37}Cl		6725.7	0.9	6726.4	1.8	0.3	1	61	60	^{148}Nd	H26	2.5	73Me28	
^{145}Cs$-^{148}$Cs$_{.392}$ ^{143}Cs$_{.608}$		$-$370	90	$-$370	230	0.0	1	100	100	^{148}Cs	P33	2.5	86Au02	
^{148}Eu(α)^{144}Pm		2703.2	30.	2694	10	$-$0.3	1	11	11	^{148}Eu			64To04	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{148}Gd(α)^{144}Sm	3271.29	0.03	3271.21	0.03	0.0	1	100	89 ^{148}Gd			73Go29	Z
^{148}Sm(p,t)^{146}Sm	−6011	8	−6001.1	3.0	1.2	1	14	12 ^{146}Sm	Min		72De47	
	−6018	15			1.1	U			Ham		74Oe03	
^{148}Gd(p,t)^{146}Gd	−7843	4	−7843	4	−0.1	1	93	91 ^{146}Gd	Liv		86Ma40	
^{148}Nd(d,^{3}He)^{147}Pr	−3726	40	−3754	23	−0.7	R			KVI		79Sa.A	
^{148}Nd(d,t)^{147}Nd	−1072	4	−1075.6	1.6	−0.9	1	17	17 ^{148}Nd	McM		77St22	
^{147}Sm(n,γ)^{148}Sm	8139.8	1.2	8141.41	0.28	1.3	F					69Re04	Z
	8141.1	1.5			0.2	U					70Bu19	Z
	8141.8	0.8			−0.5	–					71Gr37	Z
	8141.3	0.3			0.4	–			Bdn		03Fi.A	
ave.	8141.36	0.28			0.2	1	97	64 ^{148}Sm			average	
^{148}Gd(p,d)^{147}Gd−^{148}Sm()^{147}Sm	−842	2	−842.7	1.2	−0.3	–					86Ru04	
^{148}Gd(d,t)^{147}Gd−^{148}Sm()^{147}Sm	−843	2			0.2	–					86Ru04	
^{148}Gd(^{3}He,α)^{147}Gd−^{148}Sm()^{147}Sm	−842	3			−0.2	–					86Ru04	
^{148}Gd(p,d)^{147}Gd−^{148}Sm()^{147}S ave.	−842.4	1.3			−0.2	1	92	84 ^{147}Gd			average	
^{148}Ba(β^-)^{148}La	5115	60				5			Bwg		90Gr10	
^{148}La(β^-)^{148}Ce	7310	140	7260	50	−0.3	4			Trs		82Br23	∗
	7255	55			0.1	4			Bwg		90Gr10	
	7650	100			−3.9	C			Kur		02Sh.B	
^{148}Ce(β^-)^{148}Pr	2060	75	2140	14	1.1	U			Bwg		87Gr.A	
	2140	14				3			Kur		95Ik03	
^{148}Pr(β^-)^{148}Nd	4800	200	4883	26	0.4	U					79Ik06	
	4965	100			−0.8	U			Bwg		87Gr.A	
	4890	50			−0.1	2					88Ka14	
	4880	30			0.1	2			Kur		95Ik03	
	4930	100			−0.5	U			Kur		02Sh.B	
^{148}Pm(β^-)^{148}Sm	2480	15	2470	6	−0.6	R					62Sc04	
^{148}Eu(β^+)^{148}Sm	3122	30	3040	10	−2.7	B					63Ba32	
	3150	30			−3.7	B					70Ag01	
^{148}Tb(β^+)^{148}Gd	5630	80	5735	14	1.3	F					76Cr.B	∗
	5835	70			−1.4	U					83Ve06	∗
	5710	100			0.3	U			Got		85Sc09	∗
	5390	100			3.5	B			Got		85Ti01	∗
	5760	80			−0.3	U			IRS		93Al03	∗
	5752	40			−0.4	1	12	12 ^{148}Tb	GSI		95Ke05	∗
^{148}Dy(β^+)^{148}Tb	2682	10	2681	10	−0.1	1	95	88 ^{148}Tb	GSI		95Ke05	∗
^{148}Ho^{m}(β^+)^{148}Dy	9400	250	∗			B			IRS		93Al03	

∗^{148}Tb−C$_{12.333}$	M−A=–70462(28) keV for mixture gs+m at 90.1 keV	NDS004∗∗
∗^{148}Ho−C$_{12.333}$	M−A=–57815(30) keV for mixture gs+m at 400#100 keV	Nubase ∗∗
∗^{148}La(β^-)^{148}Ce	E$^-$=5862(100) supposed to go to levels around E=1450(100)	90Gr10 ∗∗
∗^{148}Tb(β^+)^{148}Gd	E$^+$ =4610(80) assumed to ground-state	76Cr.B ∗∗
∗	F: since ^{148}Tb gs 2$^-$, transition to ^{148}Gd gs weak	AHW ∗∗
∗^{148}Tb(β^+)^{148}Gd	E$^+$ =2210(70) from ^{148}Tb^{m} at 90.1 to 2693.3 level	NDS902∗∗
∗	and E$^+$ =4560(80) mainly to 748.5 level. Discrepant, not used	NDS902∗∗
∗^{148}Tb(β^+)^{148}Gd	p$^+$ =0.271(0.10) gives E$^+$ =1920(30) from ^{148}Tb^{m} at 90.1 to 2693.3 level	85Sc09 ∗∗
∗	but assuming 5(5)% side feeding; compare ref.	90Sa32 ∗∗
∗^{148}Tb(β^+)^{148}Gd	KL/β^+=1.54(0.09) to 1863.42 level=>Q$^+$ =5295(45)	85Ti01 ∗∗
∗	but assuming 7(7)% side feeding; compare 1990Sa32	AHW ∗∗
∗^{148}Tb(β^+)^{148}Gd	Q$^+$ =5700(80); and 5910(80) from ^{148}Tb^{m} at 90.1	NDS902∗∗
∗^{148}Tb(β^+)^{148}Gd	Q$^+$ =5750(40); and 5846(50) from ^{148}Tb^{m} at 90.1	NDS902∗∗
∗^{148}Dy(β^+)^{148}Tb	GSI average of E$^+$ =1043(10) and 1036(10) of ref.	91Ke11 ∗∗
∗	to 620.24 level	NDS902∗∗

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{149}Eu−^{133}Cs$_{1.120}$	23849	17	23825	5	−1.4	U			MA5	1.0	00Be42	
^{149}Tb−C$_{12.417}$	−76730	32	−76754	5	−0.8	U			GS2	1.0	03Li.A	∗
^{149}Dy−^{133}Cs$_{1.120}$	33278	109	33199	9	−0.7	U			MA5	1.0	00Be42	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{149}Dy$-$C$_{12.417}$		-72698	30	-72695	9	0.1	1	10	10 ^{149}Dy	GS2	1.0	03Li.A	*
^{149}Ho$-$C$_{12.417}$		-66179	34	-66225	20	-1.4	R			GS2	1.0	03Li.A	*
^{149}Er$-$C$_{12.417}$		-57694	30				2			GS2	1.0	03Li.A	*
^{149}Eu$-^{142}$Sm$_{1.049}$		6909	18	6889	7	-1.1	1	16	11 ^{142}Sm	MA7	1.0	01Bo59	
^{149}Dy$-^{142}$Sm$_{1.049}$		16249	16	16262	10	0.8	1	39	29 ^{149}Dy	MA7	1.0	01Bo59	
^{149}Sm ^{35}Cl$-^{147}$Sm ^{37}Cl		5239.8	0.8	5236.9	1.0	-1.4	1	23	14 ^{149}Sm	M21	2.5	75Ka25	
^{149}Gd(α)^{145}Sm		3102.3	10.	3099	3	-0.3	–					65Ma51	Z
		3096.2	10.			0.3	–			ORa		66Wi12	Z
		3099.1	5.			0.1	–			Dba		67Go32	Z
	ave.	3099	4			0.1	1	58	51 ^{149}Gd			average	
^{149}Tb(α)^{145}Eu		4074.4	3.	4077.5	2.2	1.1	–			Dba		67Go32	Z
		4073.8	7.			0.5	U					74To07	*
		4081.8	5.			-0.8	–					82Bo04	Z
		4082.8	4.			-1.3	–			Daa		96Pa01	
	ave.	4078.1	2.2			-0.3	1	95	84 ^{149}Tb			average	
^{149}Sm(n,α)^{146}Nd		9429	4	9435.5	1.2	1.6	1	9	6 ^{149}Sm	McM		67Oa01	
^{148}Nd(n,γ)^{149}Nd		5038.76	0.10	5038.79	0.07	0.3	–			ILn		76Pi04	Z
		5038.82	0.11			-0.3	–			Bdn		03Fi.A	
	ave.	5038.79	0.07			0.0	1	100	99 ^{149}Nd			average	
^{148}Nd(^{3}He,d)^{149}Pm		455	5	453	3	-0.3	1	47	42 ^{149}Pm	McM		80St10	*
^{149}Sm(d,^{3}He)^{148}Pm		-2064	6	-2066	6	-0.3	2					88No02	
^{148}Sm(n,γ)^{149}Sm		5872.5	1.8	5871.1	0.9	-0.8	1	24	14 ^{149}Sm			70Sm.A	
		5850.8	0.6			33.8	C					82Ba15	
^{149}Er(εp)^{148}Dy		7080	470	6829	30	-0.5	U			LBL		89Fi01	
^{149}La(β^-)^{149}Ce		6450	200	5900#	300#	-2.8	D			Kur		02Sh.B	*
^{149}Ce(β^-)^{149}Pr		4190	75	4360	50	2.3	B			Bwg		87Gr.A	
		4380	60			-0.3	3			Kur		95Ik03	
		4310	100			0.5	3			Kur		02Sh.B	
^{149}Pr(β^-)^{149}Nd		3000	200	3320	80	1.6	2					67Va14	
		3390	90			-0.7	2			Kur		95Ik03	
^{149}Nd(β^-)^{149}Pm		1669	10	1690	3	2.1	1	12	11 ^{149}Pm			64Go08	
^{149}Pm(β^-)^{149}Sm		1072	2	1071	4	-0.7	–					60Ar05	
		1062	2			4.3	–					78Re01	
	ave.	1067	5			0.7	1	49	47 ^{149}Pm			average	
^{149}Eu(ε)^{149}Sm		680	10	695	4	1.5	1	14	13 ^{149}Eu			85Ad.A	
^{149}Gd(ε)^{149}Eu		1308	6	1313	4	0.9	1	48	28 ^{149}Eu	Got		84Sc.B	
^{149}Tb(β^+)^{149}Gd		3635	10	3637	4	0.2	1	19	11 ^{149}Tb	GSI		91Ke06	*
^{149}Dy(β^+)^{149}Tb		3797	13	3781	9	-1.2	1	46	40 ^{149}Dy	GSI		91Ke11	*
^{149}Ho(β^+)^{149}Dy		6043	50	6027	16	-0.3	2			IRS		83Al06	
		6009	20			0.9	2			GSI		91Ke11	
^{149}Er(ε)^{149}Ho		8610	650	7950	30	-1.0	U			LBL		89Fi01	*
*^{149}Tb$-$C$_{12.417}$	M$-$A=–71456(28) keV for mixture gs+m at 35.78 keV											Ens99	**
*^{149}Dy$-$C$_{12.417}$	M$-$A=–65057(28) keV for ^{149}Dy^m at Eexc=2661.1 keV											NDS94b	**
*^{149}Ho$-$C$_{12.417}$	M$-$A=–61621(28) keV for mixture gs+m at 48.80 keV											NDS94b	**
*^{149}Er$-$C$_{12.417}$	M$-$A=–53000(28) keV for ^{149}Er^m at Eexc=741.8 keV											Ens95	**
*^{149}Tb(α)^{145}Eu	E(α)=3999(7) from ^{149}Tb^m at 35.78											NDS94b	**
*^{148}Nd(^{3}He,d)^{149}Pm	Based on ^{146}Nd(^{3}He,d)^{147}Pm Q=–87.6(0.9)											AHW	**
*^{149}La(β^-)^{149}Ce	Systematical trends suggest ^{149}La 550 more bound											CTh	**
*^{149}Tb(β^+)^{149}Gd	E$^+$ =1853(10) from ^{149}Tb^m at 35.78 to 795.82 level											NDS94b	**
*^{149}Dy(β^+)^{149}Tb	Original Q=3812(10) from E$^+$ =1965(10) to 825.16 level corrected											GAu	**
*	to E$^+$ =1950(13) for background substraction											GAu	**
*^{149}Er(ε)^{149}Ho	KLM/β^+=0.68(0.34) from ^{149}Er^m at 741.8 to 4699.7 level											NDS94b	**
^{150}Tb$^m-$C$_{12.5}$		-75850	30				2			GS2	1.0	03Li.A	
^{150}Ho$-^{133}$Cs$_{1.128}$		40150	29	40146	15	-0.1	–			MA5	1.0	00Be42	
	ave.	40132	21			0.7	1	53	53 ^{150}Ho			average	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{150}Ho$-$C$_{12.5}$		−66499	40	−66504	15	−0.1	U				GS2	1.0	03Li.A	∗
^{150}Er$-$C$_{12.5}$		−62060	30	−62086	18	−0.9	1	38	38	^{150}Er	GS2	1.0	03Li.A	
^{150}Nd ^{35}Cl$_2-^{146}$Nd ^{37}Cl$_2$		13672.5	1.8	13674.1	2.5	0.4	1	30	28	^{150}Nd	H25	2.5	72Ba08	
^{150}Sm ^{35}Cl$-^{148}$Sm ^{37}Cl		5404.8	0.6	5403.0	0.9	−1.2	1	39	22	^{150}Sm	M21	2.5	75Ka25	
^{150}Nd$-^{150}$Sm		3617.0	1.2	3615.3	2.4	−0.6	1	62	58	^{150}Nd	H25	2.5	72Ba08	
^{150}Nd$-^{148}$Nd		3988	3	3997.6	2.9	1.3	1	15	10	^{150}Nd	M17	2.5	66Be10	
^{150}Gd(α)^{146}Sm		2804.9	10.	2808	6	0.3	–						62Si14	
		2792.6	18.			0.8	–						65Og01	
	ave.	2802	9			0.7	1	45	39	^{150}Gd			average	
^{150}Tb(α)^{146}Eu		3585.5	5.	3587	5	0.3	1	92	81	^{150}Tb			67Go32	Z
^{150}Dy(α)^{146}Gd		4345.8	5.	4351.3	1.5	1.1	–						67Go32	Z
		4349.5	5.			0.4	–						79Ho10	Z
		4351.3	3.			0.0	–						82Bo04	∗
		4352.4	2.			−0.5	–						82De11	Z
	ave.	4351.2	1.5			0.0	1	99	90	^{150}Dy			average	
^{150}Nd(d,^{3}He)^{149}Pr		−4501	10	−4430	80	7.2	C				KVI		79Sa.A	
^{149}Sm(n,γ)^{150}Sm		7984.9	0.6	7986.7	0.4	3.1	F						69Re04	Z
		7986.7	1.5			0.0	–						70Bu19	Z
		7986.7	0.4			0.1	–				Bdn		03Fi.A	
	ave.	7986.7	0.4			0.1	1	95	64	^{149}Sm			average	
^{150}Lu(p)^{149}Yb		1269.6	4.	1269.6	2.8	0.0	3						84Ho.A	
		1269.6	4.			0.0	3						93Se04	
^{150}Lu^m(p)^{149}Yb		1303.8	15.				3				Oak		00Gi01	
^{150}Ce(β^-)^{150}Pr		3010	90	3480	40	5.2	B				Bwg		87Gr.A	
		3480	40				3				Kur		95Ik03	
^{150}Pr(β^-)^{150}Nd		5690	80	5386	26	−3.8	B				Bwg		87Gr.A	
		5386	26				2				Kur		95Ik03	
		5290	100			1.0	U				Kur		02Sh.B	
^{150}Pm(β^-)^{150}Sm		3454	20				2						77Ho09	
^{150}Eu(β^-)^{150}Gd		978	10	971	4	−0.7	–						63Yo07	∗
		968	4			0.9	–						65Gu03	∗
	ave.	969	4			0.6	1	91	54	^{150}Eu			average	
^{150}Tb(β^+)^{150}Gd		4670	15	4658	8	−0.8	1	31	19	^{150}Tb			76Cr.B	
^{150}Tb^m(β^+)^{150}Gd		5040	100	5115	29	0.7	U				IRS		93Al03	
^{150}Ho(β^+)^{150}Dy		6980	150	7369	15	2.6	B						84Al36	∗
		6560	100			8.1	B				IRS		93Al03	
^{150}Ho(ε)^{150}Dy		6560	100			8.1	B				IRS		93Al03	
		7372	27			−0.1	1	29	27	^{150}Ho			00Ca.A	
		7444	126			−0.6	U						01Ro35	
^{150}Ho^m(β^+)^{150}Dy		7360	50				2				IRS		83Al06	
		6625	120	7360	50	6.1	B				Got		85Sc09	
		7060	80			3.8	C				IRS		93Al03	
^{150}Er(β^+)^{150}Ho		4108	15	4115	14	0.5	1	82	62	^{150}Er	GSI		91Ke11	
∗^{150}Ho$-$C$_{12.5}$		M$-$A=–61948(28) keV for mixture gs+m at –10(50) keV											Nubase	∗∗
∗^{150}Dy(α)^{146}Gd		Recalibrated as in ref.											91Ry01	∗∗
∗^{150}Eu(β^-)^{150}Gd		Q$^-$=1020(10) from ^{150}Eu^m at 42.1											NDS866	∗∗
∗^{150}Eu(β^-)^{150}Gd		Q$^-$=1010(4) from ^{150}Eu^m at 42.1											NDS866	∗∗
∗^{150}Ho(β^+)^{150}Dy		E$^+$ =4550(150) to 1395.0 and 1456.8 levels											82No08	∗∗
^{151}Eu$-^{85}$Rb$_{1.776}$		76520	15	76511.6	2.6	−0.6	U				MA5	1.0	00Be42	
^{151}Tb$-$C$_{12.583}$		−76866	43	−76897	5	−0.7	U				GS2	1.0	03Li.A	∗
^{151}Dy$-$C$_{12.583}$		−73809	30	−73815	4	−0.2	U				GS2	1.0	03Li.A	
^{151}Ho$-$C$_{12.583}$		−68323	33	−68312	13	0.3	U				GS2	1.0	03Li.A	∗
^{151}Er$-$C$_{12.583}$		−62528	30	−62551	18	−0.8	2				GS2	1.0	03Li.A	
		−62540	30			−0.4	2				GS2	1.0	03Li.A	∗
^{151}Tb(α)^{147}Eu		3499.6	5.	3496	4	−0.7	1	58	49	^{151}Tb			67Go32	
^{151}Dy(α)^{147}Gd		4175.7	5.	4179.5	2.6	0.8	2						67Go32	Z
		4181.1	3.			−0.5	2						82Bo04	Z
^{151}Ho(α)^{147}Tb		4696.3	5.	4695.0	1.8	−0.3	3				GSa		79Ho10	∗
		4695.8	3.			−0.3	3						82Bo04	∗
		4693.8	3.			0.4	3						82De11	∗
		4694.9	5.			0.0	3				Daa		96Pa01	∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{151}Eu(p,t)^{149}Eu		−5872	5	−5873	4	−0.3	1	55	53 ^{149}Eu	Min		75Ta12	
^{150}Nd(n,γ)^{151}Nd		5334.55	0.2	5334.55	0.10	0.0	2			ILn		76Pi13	Z
		5334.55	0.11			0.0	2			Bdn		03Fi.A	
^{150}Nd(^{3}He,d)^{151}Pm		1503	5	1501	4	−0.4	1	81	77 ^{151}Pm	McM		80St10	∗
^{150}Sm(n,γ)^{151}Sm		5596.42	0.20	5596.46	0.11	0.2	–			ILn		86Va08	Z
		5596.44	0.13			0.1	–			Bdn		03Fi.A	
	ave.	5596.43	0.11			0.2	1	100	59 ^{151}Sm			average	
^{151}Eu(p,d)^{150}Eu		−5721	9	−5709	6	1.4	1	48	46 ^{150}Eu			82So.B	
^{151}Yb(εp)^{150}Er		9000	300				2					86To12	∗
^{151}Lu(p)^{150}Yb		1241.0	2.8				3					93Se04	
^{151}Lu^m(p)^{150}Yb		1318.8	10.	1318	6	−0.1	o			Daa		99Bi14	∗
^{151}Ce(β^-)^{151}Pr		5270	100				4			Kur		02Sh.B	
^{151}Pr(β^-)^{151}Nd		4170	75	4182	23	0.2	3			Bwg		90Gr10	
		4136	40			1.2	3			Ida		93Gr17	∗
		4210	30			−0.9	3			Kur		95Ik03	
^{151}Nd(β^-)^{151}Pm		2480	50	2442	4	−0.8	U			Kur		95Ik03	
^{151}Pm(β^-)^{151}Sm		1195	10	1187	5	−0.8	1	23	23 ^{151}Pm			64Be10	
^{151}Sm(β^-)^{151}Eu		75.9	0.6	76.6	0.5	1.2	1	81	55 ^{151}Eu			59Ac28	
^{151}Gd(ε)^{151}Eu		463	3	464.2	2.8	0.4	1	86	84 ^{151}Gd			83Vo10	
^{151}Tb(β^+)^{151}Gd		2562	5	2565	4	0.7	–					77Cr05	
		2566	12			−0.1	–					84Sc18	
	ave.	2563	5			0.6	1	66	51 ^{151}Tb			average	
^{151}Er(β^+)^{151}Ho		5130	110	5366	20	2.1	B					98Fo06	
^{151}Lu^m(IT)^{151}Lu		77	5				4			Daa		99Bi14	
∗^{151}Tb−C$_{12.583}$		M−A=–71551(28) keV for mixture gs+m at 99.54 keV										Ens99	∗∗
∗^{151}Ho−C$_{12.583}$		M−A=–63622(28) keV for mixture gs+m at 41.0 keV										NDS972	∗∗
∗^{151}Er−C$_{12.583}$		M−A=–55670(28) keV for ^{151}Er^m at Eexc=2585.5 keV										NDS972	∗∗
∗^{151}Ho(α)^{147}Tb		E=4523.8(5,Z) to ^{147}Tb^m at 50.6(0.9); 4610.8(5,Z) from ^{151}Ho^m at 41.1(0.2										91To08	∗∗
∗^{151}Ho(α)^{147}Tb		E=4521.5(3,Z) to ^{147}Tb^m at 50.6(0.9); 4611.5(3,Z) from ^{151}Ho^m at 41.1(0.2										91To08	∗∗
∗^{151}Ho(α)^{147}Tb		E=4521.2(3,Z) to ^{147}Tb^m at 50.6(0.9); 4607.2(4,Z) from ^{151}Ho^m at 41.1(0.2										91To08	∗∗
∗^{151}Ho(α)^{147}Tb		E(α)=4521(5,Z) to ^{147}Tb^m at 50.6(0.9)										96Pa01	∗∗
∗^{150}Nd(^{3}He,d)^{151}Pm		Based on ^{146}Nd(^{3}He,d)^{147}Pm Q=–87.6(0.9)										AHW	∗∗
∗^{151}Yb(εp)^{150}Er		E(p) estimated 7300(300) to levels around 1700										GAu	∗∗
∗		”Statistical p’s originate from 11/2$^-$ isomer.”										86To12	∗∗
∗^{151}Lu^m(p)^{150}Yb		Derived from ^{151}Lu^m(IT)=77(5)										99Bi14	∗∗
∗^{151}Pr(β^-)^{151}Nd		Two highest Q$^-$=4135(50),4137(40)										AHW	∗∗
C$_{12}$ H$_8$−^{152}Sm		142867.0	5.0	142867.8	2.7	0.1	U			M22	2.5	75Ka25	
^{152}Eu−C$_{12.667}$		−78347	50	−78255.5	2.6	1.8	U			GS2	1.0	03Li.A	∗
^{152}Tb−C$_{12.667}$		−76212	159	−75930	40	1.8	U			GS2	1.0	03Li.A	∗
^{152}Dy−C$_{12.667}$		−75278	30	−75282	6	−0.1	U			GS2	1.0	03Li.A	
^{152}Ho−C$_{12.667}$		−68248	58	−68286	15	−0.7	U			GS2	1.0	03Li.A	∗
^{152}Er−C$_{12.667}$		−64962	30	−64950	11	0.4	R			GS2	1.0	03Li.A	
^{152}Tm−C$_{12.667}$		−55578	79				2			GS2	1.0	03Li.A	∗
^{152}Sm ^{35}Cl$_2$−^{148}Sm ^{37}Cl$_2$		10810.8	2.0	10809.9	1.1	−0.2	U			H25	2.5	72Ba08	
		10807.9	1.4			0.6	1	10	6 ^{152}Sm	M21	2.5	75Ka25	
^{152}Sm ^{35}Cl−^{150}Sm ^{37}Cl		5402.7	0.8	5407.0	0.7	2.1	1	11	8 ^{152}Sm	M21	2.5	75Ka25	
^{152}Dy(α)^{148}Gd		3728.0	8.	3726	4	−0.2	2					65Ma51	Z
		3726.0	5.			0.1	2					67Go32	Z
^{152}Ho(α)^{148}Tb		4506.9	3.	4507.3	1.3	0.1	2					82Bo04	∗
		4508.0	2.			−0.3	2					82De11	Z
		4505.8	3.			0.5	2					82To14	
		4507.9	3.			−0.2	2					87St.A	Z
^{152}Er(α)^{148}Dy		4935.2	5.	4934.4	1.6	−0.1	2					79Ho10	
		4934.6	3.			0.0	2					82Bo04	Z
		4934.3	2.			0.1	2					82De11	Z

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{150}Nd(t,p)^{152}Nd	4125	30	4129	24	0.1	1	67	66	^{152}Nd	Ald		72Ch11	
^{151}Sm(n,γ)^{152}Sm	8257.6	0.8	8257.6	0.6	0.0	1	60	44	^{152}Sm			71Gr22	Z
^{151}Eu(n,γ)^{152}Eu	6306.70	0.10	6306.72	0.10	0.2	1	99	59	^{152}Eu	ILn		85Vo15	Z
	6307.11	0.14			−2.8	B				Bdn		03Fi.A	
^{152}Pr(β^-)^{152}Nd	6350	120				2				Kur		95Ik03	
^{152}Nd(β^-)^{152}Pm	1088	27	1104	19	0.6	–						93Sh23	
	1120	30			−0.5	–				Kur		95Ik03	
ave.	1102	20			0.1	1	85	51	^{152}Pm			average	
^{152}Pm(β^-)^{152}Sm	3600	200	3506	26	−0.5	U						71Da19	
	3520	150			−0.1	U						72Wa04	
	3400	200			0.5	U						75Wi08	
	3500	100			0.1	–						77Ya07	
	3500	40			0.2	–				Kur		95Ik03	
ave.	3500	40			0.2	1	49	49	^{152}Pm			average	
^{152}Pm^m(β^-)^{152}Sm	3603	100	3650	80	0.5	2						71Da19	
	3753	150			−0.7	2						72Wa04	
^{152}Eu(β^+)^{152}Sm	1871	5	1874.3	0.7	0.7	U						58Al99	∗
	1866	5			1.7	U						62Lo10	∗
	1870.8	2.			1.7	–						72Sv02	
	1872.8	1.5			1.0	–						77Mi.A	
ave.	1872.1	1.2			1.8	1	35	20	^{152}Sm			average	
^{152}Eu(β^-)^{152}Gd	1809	10	1819.7	1.2	1.1	U						58Al99	∗
	1827	7			−1.0	U						60La04	
	1806	4			3.4	U						69An18	∗
^{152}Tb(β^+)^{152}Gd	3990	40				3						76Cr.B	∗
^{152}Ho(β^+)^{152}Dy	6690	100	6516	15	−1.7	B				IRS		83Al06	∗
	6270	140			1.8	U						Averag	∗
	6225	90			3.2	B				IRS		93Al03	∗
^{152}Yb(β^+)^{152}Tm	5465	195				3				Got		90Sa.A	
∗^{152}Eu$-$C$_{12.667}$	M$-$A=–72915(35) keV for mixture gs+m+n at 45.5998 and 147.86 keV											NDS969	∗∗
∗^{152}Tb$-$C$_{12.667}$	M$-$A=–70740(29) keV for mixture gs+m at 501.74 keV											NDS969	∗∗
∗^{152}Ho$-$C$_{12.667}$	M$-$A=–63492(28) keV for mixture gs+m at 160(1) keV											NDS969	∗∗
∗^{152}Tm$-$C$_{12.667}$	M$-$A=–51720(54) keV for mixture gs+m at 100#80 keV											Nubase	∗∗
∗^{152}Ho(α)^{148}Tb	E(α)=4389.1(3,Z); and 4455.1(3,Z) from ^{152}Ho^m to ^{148}Tb^m											82Bo04	∗∗
∗	combined with ^{152}Ho^m(IT)-^{148}Tb^m(IT)=160(1)-90.1(0.3)											87St.A	∗∗
∗^{152}Eu(β^+)^{152}Sm	E$^+$ =895(5) fron ^{152}Eu^m at 45.5994											NDS899	∗∗
∗^{152}Eu(β^+)^{152}Sm	E$^+$ =890(5) from ^{152}Eu^m at 45.5994											NDS899	∗∗
∗^{152}Eu(β^-)^{152}Gd	Q$^-$=1855(10) from ^{152}Eu^m at 45.600											NDS969	∗∗
∗^{152}Eu(β^-)^{152}Gd	Q$^-$=1852(4) from ^{152}Eu^m at 45.600											NDS969	∗∗
∗^{152}Tb(β^+)^{152}Gd	E$^+$ =2830(15) 8(4)% to ground-state, 5.2(1)% to 344.28 level											NDS899	∗∗
∗^{152}Ho(β^+)^{152}Dy	E$^+$ =3390(100) from ^{152}Ho^m at 160(1) to 2437.1 8$^+$ level											87St.A	∗∗
∗^{152}Ho(β^+)^{152}Dy	From adopted KLM/β^+=0.97(0.13)											AHW	∗∗
∗	from ^{152}Ho^m at 160(1) to 2437.1 8$^+$ level											87St.A	∗∗
∗	after extra 3(2)% side feeding correction; see ref.											90Sa32	∗∗
∗	p$^+$ =0.52(0.04)/.967 gives KLM/β^+=0.86(0.14)											85Sc09	∗∗
∗	KLM/β^+=1.12(0.10) after 0.967(0.008) side feeding correction											90Sa32	∗∗
∗^{152}Ho(β^+)^{152}Dy	Q$^+$ =6270(90); and 6330(100) from ^{152}Ho^m at 160(1)											87St.A	∗∗

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{153}Eu$-^{85}$Rb$_{1.800}$	80021	16	80008.8	2.6	−0.8	U				MA5	1.0	00Be42	
^{153}Ho$-$C$_{12.75}$	−69814	37	−69801	6	0.3	U				GS2	1.0	03Li.A	∗
^{153}Er$-$C$_{12.75}$	−64942	30	−64937	9	0.2	1	10	10	^{153}Er	GS2	1.0	03Li.A	
^{153}Dy(α)^{149}Gd	3560.0	8.	3559	4	−0.1	–						65Ma51	Z
	3554.9	5.			0.8	–						67Go32	Z
ave.	3556	4			0.6	1	70	48	^{153}Dy			average	
^{153}Ho(α)^{149}Tb	4052.3	5.	4052	4	−0.1	2						68Go.C	∗
	4051.0	5.			0.1	2						71To01	∗
^{153}Er(α)^{149}Dy	4804.5	3.	4802.3	1.4	−0.7	–						82Bo04	Z
	4802.0	2.			0.2	–						82De11	Z
	4802.8	3.			−0.2	–						87Sc.A	Z
	4799.7	4.			0.6	–				Daa		96Pa01	
ave.	4802.3	1.4			−0.1	1	100	78	^{153}Er			average	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{153}Tm(α)^{149}Ho	5252.3	5.	5248.1	1.5	−0.8	U						79Ho10	∗
	5246.1	3.			0.7	3						82Bo04	∗
	5249.2	2.			−0.5	3						82De11	∗
	5247.7	3.			0.1	3						87Sc.A	∗
	5249.5	5.			−0.3	U				Daa		96Pa01	
^{152}Sm(n,γ)^{153}Sm	5867.1	0.4	5868.40	0.13	3.2	F						69Re04	Z
	5868.4	0.3			0.0	–						71Be41	Z
	5868.4	0.7			0.0	U						82Ba15	Z
	5868.40	0.15			0.0	–				Bdn		03Fi.A	
ave.	5868.40	0.13			0.0	1	100	100	^{153}Sm			average	
^{152}Eu(n,γ)^{153}Eu	8550.28	0.12	8550.29	0.12	0.1	1	100	74	^{153}Eu	ILn		85Vo15	Z
^{152}Gd(n,γ)^{153}Gd	6247.27	0.35	6246.94	0.13	−0.9	2				ILn		85Vo15	Z
	6246.89	0.14			0.4	2				ILn		93Sp.A	
	6247.48	0.21			−2.6	B				Bdn		03Fi.A	
^{153}Pr(β^-)^{153}Nd	5720	100				3				Kur		02Sh.B	
^{153}Nd(β^-)^{153}Pm	3336	25				2				Ida		93Gr17	
	3260	100	3336	25	0.8	U				Kur		02Sh.B	
^{153}Pm(β^-)^{153}Sm	1863	15	1881	11	1.2	1	52	52	^{153}Pm	Ida		93Gr17	
^{153}Tb(β^+)^{153}Gd	1573	5	1570	4	−0.7	1	61	58	^{153}Tb			78Cr02	
^{153}Dy(β^+)^{153}Tb	2171	2	2170.5	1.9	−0.3	1	94	52	^{153}Dy			78Gr13	
^{153}Lu^m(IT)^{153}Lu	80	5	80	5	0.0	R						157Ta-4	
	80	5				10						97Ir01	
∗^{153}Ho−C$_{12.75}$	M−A=–64997(28) keV for mixture gs+m at 68.7 keV											NDS982	∗∗
∗^{153}Ho(α)^{149}Tb	E(α)=4013.1(5,Z) from ^{153}Ho^m at 68.7(1.0)											94Xu09	∗∗
∗^{153}Ho(α)^{149}Tb	E(α)=3910(5) to ^{149}Tb^m at 35.78											NDS94b	∗∗
∗^{153}Tm(α)^{149}Ho	E(α)=5114.2(5,Z) contains a 8% 5.6(0.3) lower ^{153}Tm^m(α) branch											87Sc.A	∗∗
∗^{153}Tm(α)^{149}Ho	E(α)=5108.2(3,Z) contains a 8% 5.6(0.3) lower ^{153}Tm^m(α) branch											87Sc.A	∗∗
∗^{153}Tm(α)^{149}Ho	E(α)=5111.2(2,Z) contains a 8% 5.6(0.3) lower ^{153}Tm^m(α) branch											87Sc.A	∗∗
∗^{153}Tm(α)^{149}Ho	E(α)=5110.6(3,Z); and 5103.6(4,Z) for lower ^{153}Tm^m(α) branch											87Sc.A	∗∗

C$_{12}$ H$_{10}$−^{154}Sm	156035.7	4.0	156041.0	2.7	0.5	1	7	7	^{154}Sm	M22	2.5	75Ka25	
^{154}Tb−C$_{12.833}$	−75376	115	−75320	50	0.5	R				GS2	1.0	03Li.A	∗
^{154}Dy−^{133}Cs$_{1.158}$	33903	19	33911	8	0.4	1	19	19	^{154}Dy	MA5	1.0	00Be42	∗
^{154}Ho−C$_{12.833}$	−69348	82	−69398	9	−0.6	U				GS2	1.0	03Li.A	∗
^{154}Tm−C$_{12.833}$	−58480	48	−58432	15	1.0	U				GS2	1.0	03Li.A	∗
^{154}Sm ^{35}Cl−^{152}Sm ^{37}Cl	5427.2	0.4	5426.9	0.9	−0.3	1	86	66	^{154}Sm	M21	2.5	75Ka25	
^{154}Sm−^{154}Gd	1342.8	0.8	1343.7	1.4	0.4	1	47	27	^{154}Sm	M21	2.5	75Ka25	
^{154}Sm−C$_{12}$ H$_9$	−148211.0	8.0	−148216.0	2.7	−0.3	U				M21	2.5	75Ka25	
^{154}Dy(α)^{150}Gd	2946.4	5.	2946	5	−0.1	1	93	81	^{154}Dy			67Go32	Z
^{154}Ho(α)^{150}Tb	4041.3	5.	4041	4	0.0	2						68Go.C	Z
	4041.7	5.			0.0	2						74Sc19	Z
^{154}Ho^m(α)^{150}Tb^m	3819.2	10.	3823	5	0.4	3						71To01	Z
	3824.0	5.			−0.2	3						74Sc19	Z
^{154}Er(α)^{150}Dy	4280.5	5.	4279.9	2.6	−0.1	–						68Go.C	Z
	4279.5	3.			0.2	–						82Bo04	Z
ave.	4279.7	2.6			0.1	1	98	90	^{154}Er			average	
^{154}Tm(α)^{150}Ho	5096.7	5.	5093.8	2.6	−0.6	2						79Ho10	Z
	5092.7	3.			0.4	2						82Bo04	
^{154}Tm^m(α)^{150}Ho^m	5174.8	5.	5171.7	1.6	−0.6	3						79Ho10	Z
	5170.8	3.			0.3	3						82Bo04	Z
	5171.7	2.			0.0	3						82De11	Z
^{154}Yb(α)^{150}Er	5473.4	5.	5474.2	1.7	0.2	2						79Ho10	Z
	5474.7	2.			−0.2	2						82De11	Z
	5473.4	4.			0.2	2				Daa		96Pa01	
^{154}Sm(d,^{3}He)^{153}Pm	−3623	25	−3572	11	2.0	–						76Su.B	
^{154}Sm(t,α)^{153}Pm	10748	20	10748	11	0.0	–				LAl		78Bu18	
^{154}Sm(d,^{3}He)^{153}Pm ave.	−3592	16	−3572	11	1.3	1	48	48	^{153}Pm			average	
^{153}Eu(n,γ)^{154}Eu	6442.2	0.3	6442.23	0.24	0.1	–				ILn		87Ba52	Z
	6442.2	0.4			0.1	–				Bdn		03Fi.A	
ave.	6442.20	0.24			0.1	1	99	73	^{154}Eu			average	
^{153}Gd(n,γ)^{154}Gd	8895.25	0.30	8894.71	0.17	−1.8	–				ILn		85Vo15	Z
	8894.47	0.20			1.2	–				ILn		93Sp.A	Z

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{153}Gd(n,γ)^{154}Gd	ave.	8894.71	0.17	8894.71	0.17	0.0	1	100	97 ^{153}Gd			average	
^{154}Pr(β^-)^{154}Nd		7490	100				4			Kur		02Sh.B	
^{154}Nd(β^-)^{154}Pm^m		2687	25				3			Ida		93Gr17	
^{154}Pm^m(IT)^{154}Pm		210	70	120	120	−1.3	B					72Ta13	
		−30	20			7.5	B					90So08	
^{154}Pm(β^-)^{154}Sm		3900	200	3960	40	0.3	U					71Da28	
		4190	170			−1.3	U					72Ta13	
		3940	50			0.5	2					73Pr05	
		3940	200			0.1	U					74Ya07	
		4056	100			−0.9	2			Ida		93Gr17	
^{154}Pm^m(β^-)^{154}Sm		3900	200	4080	110	0.9	2					71Da28	
		4396	180			−1.7	2					72Ta13	
		3880	200			1.0	2					74Ya07	
^{154}Eu(β^-)^{154}Gd		1978	5	1968.8	1.1	−1.8	U					60La04	
		1967	2			0.9	–					77Ra08	
		1975	3			−2.1	–					81Bu.A	
	ave.	1969.5	1.7			−0.4	1	47	27 ^{154}Gd			average	
^{154}Tb(β^+)^{154}Gd		3562	50	3550	50	−0.2	2					70Ag03	
^{154}Ho^m(β^+)^{154}Dy		6000	100	5992	29	−0.1	U			IRS		83Al.A	
		6070	80			−1.0	U			IRS		93Al03	
^{154}Tm^m(β^+)^{154}Er		8232	150	8250	50	0.1	U			Dbn		94Po26	
∗^{154}Tb−C$_{12.833}$	M−A=–70142(43) keV for mixture gs+m+n at 12(7) and 200#150 keV											Nubase	∗∗
∗^{154}Dy−^{133}Cs$_{1.158}$	No contamination observed, but contamination by ^{154}Tb											00Be42	∗∗
∗	cannot be excluded											00Be42	∗∗
∗^{154}Ho−C$_{12.833}$	M−A=–64478(28) keV for mixture gs+m at 238(30) keV											Nubase	∗∗
∗^{154}Tm−C$_{12.833}$	M−A=–54438(32) keV for mixture gs+m at 70(50) keV											Nubase	∗∗
^{155}Tb−C$_{12.917}$		−76431	30	−76495	13	−2.1	U			GS2	1.0	03Li.A	
^{155}Dy−C$_{12.917}$		−74227	30	−74246	13	−0.6	U			GS2	1.0	03Li.A	
^{155}Ho−C$_{12.917}$		−70867	30	−70897	19	−1.0	2			GS2	1.0	03Li.A	
^{155}Er−C$_{12.917}$		−66785	30	−66791	7	−0.2	U			GS2	1.0	03Li.A	
^{155}Tm−C$_{12.917}$		−60814	33	−60801	14	0.4	U			GS2	1.0	03Li.A	∗
^{155}Gd ^{35}Cl−^{153}Eu ^{37}Cl		4345.4	2.4	4341.8	1.2	−0.6	U			H25	2.5	72Ba08	
^{155}Er(α)^{151}Dy		4118.3	5.				3					74To07	Z
^{155}Tm(α)^{151}Ho		4579.3	10.	4572	5	−0.6	4					71To01	∗
		4568.1	10.			0.4	4					71To01	∗
		4570.1	8.			0.2	4					92Ha10	∗
^{155}Yb(α)^{151}Er		5344.1	5.	5337.6	2.3	−1.3	3					79Ho10	
		5336.6	5.			0.2	3					82Bo04	Z
		5331.8	4.			1.4	3					91To08	
		5340.1	4.			−0.6	3			Daa		96Pa01	
^{155}Lu(α)^{151}Tm		5796.9	5.	5802.7	2.6	1.2	11					89Ho12	
		5797.9	5.			1.0	11					91To08	
		5805.1	5.			−0.5	11			Daa		96Pa01	
		5811.2	5.			−1.7	11			Ara		97Da07	
^{155}Lu^m(α)^{151}Tm^m		5723.0	10.	5730.5	2.8	0.7	12					89Ho12	
		5727.1	5.			0.7	12			ORa		91To08	
		5732.2	5.			−0.3	12			Daa		96Pa01	
		5734.2	5.			−0.7	12			Ara		97Da07	
^{155}Lu^n(α)^{151}Tm		7574.9	15.	7584	3	0.2	U					89Ho12	
		7586.2	5.			−0.5	R			Daa		96Pa01	∗
^{154}Sm(n,γ)^{155}Sm		5806.8	0.6	5806.96	0.27	0.3	2					82Ba15	Z
		5807.0	0.3			−0.1	2			ILn		82Sc03	Z
^{154}Eu(n,γ)^{155}Eu		8151.3	0.4	8151.4	0.4	0.3	1	98	92 ^{155}Eu	ILn		86Pr03	
^{154}Gd(n,γ)^{155}Gd		6435.11	0.30	6435.22	0.18	0.4	–			ILn		86Sc25	Z
		6435.29	0.23			−0.3	–			Bdn		03Fi.A	
	ave.	6435.22	0.18			0.0	1	99	50 ^{154}Gd			average	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{155}Ta(p)^{154}Hf	1776	10				3			Arp		98Uu.A	
^{155}Nd(β^-)^{155}Pm	4222	150	4500#	150#	1.9	D			Ida		93Gr17	$*$
^{155}Pm(β^-)^{155}Sm	3224	30				3			Ida		93Gr17	
^{155}Sm(β^-)^{155}Eu	1607	25	1627.2	1.2	0.8	U			Ida		93Gr17	
^{155}Eu(β^-)^{155}Gd	252	5	252.7	1.2	0.1	–					54Le08	
	245	5			1.5	–					58Gl56	
	245	5			1.5	–					59Am16	
ave.	247.3	2.9			1.8	1	17	9 ^{155}Gd			average	
^{155}Dy(β^+)^{155}Tb	2099	6	2094.5	1.9	−0.8	3					63Pe13	
	2094	2			0.2	3					80Bu04	
^{155}Ho(β^+)^{155}Dy	3102	20	3120	22	0.9	R					72To07	
^{155}Lu^m(IT)^{155}Lu	19.9	6.2	20	6	0.0	R					159Ta-4	
	19.9	6.2				11					97Da07	
^{155}Lu^n(IT)^{155}Lu	1781	2	1781.0	2.0	0.0	R					151Tm+4	
	1781	2				11					96Pa01	
$*^{155}$Tm−C$_{12.917}$	M−A=–56627(28) keV for mixture gs+m at 41(6) keV										Ens95	$**$
$*^{155}$Tm(α)^{151}Ho	First assigned to ^{156}Tm^m but belongs to ^{155}Tm gs										94To10	$**$
$*^{155}$Tm(α)^{151}Ho	Doublet from ground-state and isomer, less than 5 keV apart										90Po13	$**$
$*^{155}$Lu^n(α)^{151}Tm	Replaced by authors value for ^{155}Lu^n(IT)										AHW	$**$
$*^{155}$Nd(β^-)^{155}Pm	Systematical trends suggest ^{155}Nd + 330										GAu	$**$
^{156}Tb−C$_{13}$	−75165	40	−75253	5	−2.2	U			GS2	1.0	03Li.A	$*$
^{156}Ho−C$_{13}$	−70082	114	−70160	50	−0.7	o			GS1	1.0	00Ra23	$*$
	−70161	48				2			GS2	1.0	03Li.A	$*$
^{156}Er−C$_{13}$	−68907	30	−68935	26	−0.9	2			GS2	1.0	03Li.A	
^{156}Tm−C$_{13}$	−61044	30	−61020	17	0.8	U			GS2	1.0	03Li.A	
^{156}Yb−C$_{13}$	−57202	30	−57182	12	0.7	R			GS2	1.0	03Li.A	
^{156}Er(α)^{152}Dy	3109.9	70.	3487	25	5.4	C					95Ka.A	
^{156}Tm(α)^{152}Ho	4341.6	10.	4344	7	0.2	3					71To10	
	4345.6	10.			−0.2	3					81Ga36	
^{156}Yb(α)^{152}Er	4813.6	10.	4811	4	−0.3	3					77Ha48	
	4809.6	10.			0.1	3					79Ho10	
	4810.6	4.			0.1	3			Daa		96Pa01	
^{156}Lu(α)^{152}Tm	5593.7	10.	5596	3	0.2	U			GSa		79Ho10	
	5592.7	5.			0.6	3			Dba		92Po14	
	5597.9	4.			−0.5	3			Daa		96Pa01	
^{156}Lu^m(α)^{152}Tm^m	5713.7	5.	5711.4	2.6	−0.4	4			GSa		79Ho10	Z
	5709.7	5.			0.4	4			Dba		92Po14	
	5709.7	8.			0.2	4					92Ha10	
	5711.7	4.			−0.1	4			Daa		96Pa01	
^{156}Hf(α)^{152}Yb	6033.0	10.	6028	4	−0.4	4					79Ho10	
	6027.9	4.			0.2	4			Daa		96Pa01	
^{156}Hf^m(α)^{152}Yb	7987.2	4.	7987	4	0.1	R			Daa		96Pa01	$*$
^{154}Sm(t,p)^{156}Sm	4556	25	4570	9	0.5	1	14	14 ^{156}Sm	Ald		66Bj01	
^{154}Eu(t,p)^{156}Eu	6003	10	6009	5	0.6	1	29	28 ^{156}Eu	LAl		84La06	$*$
^{155}Gd(n,γ)^{156}Gd	8536.8	0.5	8536.39	0.07	−0.8	U			ILn		82Ba28	
	8536.39	0.07			0.0	1	100	61 ^{156}Gd	MMn		82Is05	Z
	8536.04	0.19			1.9	B			Bdn		03Fi.A	
^{155}Gd(α,t)^{156}Tb−^{158}Gd()^{159}Tb	−821.9	3.6	−822	4	0.0	1	100	100 ^{156}Tb	McM		75Bu02	
^{156}Dy(d,t)^{155}Dy	−3184	10				2			Kop		70Gr46	
^{156}Ta(p)^{155}Hf	1028.6	13.	1014	5	−1.2	U			Dap		92Pa05	
	1013.6	5.				3			Dap		96Pa01	
^{156}Ta^m(p)^{155}Hf	1110.2	12.	1114	7	0.3	3			Dap		93Li34	
	1115.2	8.			−0.2	3			Dap		96Pa01	
^{156}Nd(β^-)^{156}Pm	3690	200				3			Kur		02Sh.B	
^{156}Pm(β^-)^{156}Sm	5155	35	5150	30	−0.1	2			Stu		90He11	
	5110	100			0.4	2			Kur		02Sh.B	
^{156}Sm(β^-)^{156}Eu	721	10	723	8	0.2	–					63Gu04	
	721	15			0.1	–					65Wi08	
ave.	721	8			0.2	1	90	86 ^{156}Sm			average	
^{156}Eu(β^-)^{156}Gd	2430	10	2449	5	1.9	–					62Ew01	
	2460	10			−1.1	–					63Th02	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{156}Eu(β^-)^{156}Gd		2450	15	2449	5	0.0	–						64Pe17	
		2478	20			−1.4	U						67Va23	
	ave.	2446	6			0.5	1	68	68	^{156}Eu			average	
^{156}Ho(β^+)^{156}Dy		4400	400	5180	50	1.9	F						76Gr20	
		5050	90			1.4	B						02Iz01	
^{156}Er(β^+)^{156}Ho		1670	70	1140	50	−7.5	B						82Vy06	
^{156}Tm(β^+)^{156}Er		7458	50	7373	29	−1.7	R				Dbn		94Po26	
		7390	100			−0.2	U						95Ga.A	
^{156}Hf^m(IT)^{156}Hf		1959	1	1959.0	1.0	0.0	R						152Yb+4	
		1959	1				5						96Pa01	
$*^{156}$Tb$-$C$_{13}$		M−A=–69968(32) keV for mixture gs+m+n at 54(3)and 88.4 keV											Nubase	**
$*^{156}$Ho$-$C$_{13}$		M−A=–65230(100) keV for mixture gs+m+n at 52.4 and 100#50 keV											Nubase	**
$*^{156}$Ho$-$C$_{13}$		M−A=–65304(28) keV for mixture gs+m+n at 52.4 and 100#50 keV											Nubase	**
$*^{156}$Hf^m(α)^{152}Yb		Replaced by authors value for ^{156}Hf^m(IT)											AHW	**
$*^{154}$Eu(t,p)^{156}Eu		Q=5569(10) to 434.23 3^- level											91Ba06	**
^{157}Ho$-$C$_{13.083}$		−71724	30	−71744	26	−0.7	2				GS2	1.0	03Li.A	
^{157}Er$-$C$_{13.083}$		−68084	30				2				GS2	1.0	03Li.A	
^{157}Tm$-$C$_{13.083}$		−63027	30				2				GS2	1.0	03Li.A	
^{157}Yb$-$C$_{13.083}$		−57389	30	−57372	11	0.6	1	13	13	^{157}Yb	GS2	1.0	03Li.A	
^{157}Lu$-$C$_{13.083}$		−49842	31	−49902	20	−1.9	C				GS2	1.0	03Li.A	*
^{157}Yb(α)^{153}Er		4622.0	7.	4621	6	−0.1	–						77Ha48	
		4623.0	10.			−0.2	–						79Ho10	
	ave.	4622	6			−0.2	1	95	84	^{157}Yb			average	
^{157}Lu(α)^{153}Tm		5097.2	5.	5107.3	2.9	2.0	o				Dba		91Le15	*
		5111.5	5.			−0.8	R				Dba		92Po14	*
^{157}Lu^m(α)^{153}Tm		5128.9	10.	5128.3	2.1	−0.1	U				IRa		79Al16	Z
		5131.8	5.			−0.7	4						79Ho10	Z
		5133.7	5.			−1.0	4						83To01	Z
		5128.9	5.			−0.1	o				Dba		91Le15	
		5118.7	5.			1.9	4						91To09	
		5125.8	6.			0.4	4						92Ha10	
		5132.0	5.			−0.7	4				Dba		92Po14	
		5127.9	4.			0.1	4				Daa		96Pa01	
^{157}Hf(α)^{153}Yb		5869.4	10.	5880	3	1.0	3						73Ea01	Z
		5884.1	5.			−0.8	3						79Ho10	Z
		5879.1	4.			0.2	3				Daa		96Pa01	
^{157}Ta(α)^{153}Lu^m		6277.2	4.	6275	8	−0.6	R				Ara		97Ir01	*
^{157}Ta^m(α)^{153}Lu		6381.9	10.	6377	4	−0.5	9				GSa		79Ho10	
		6375.8	4.			0.2	9				Daa		96Pa01	*
^{157}Ta^n(α)^{153}Lu		7946.9	8.	7948	8	0.0	R				Daa		96Pa01	*
^{156}Gd(n,γ)^{157}Gd		6359.80	0.15	6359.80	0.15	0.0	1	99	59	^{157}Gd	ILn		87Sp.A	Z
^{156}Gd(α,t)^{157}Tb$-^{158}$Gd()^{159}Tb		−616.2	2.0	−613.9	0.8	1.2	1	16	9	^{159}Tb	McM		75Bu02	
^{156}Dy(d,p)^{157}Dy		4748	10	4745	6	−0.3	–				Tal		68Be.A	
		4753	10			−0.8	–				Kop		70Gr46	
	ave.	4751	7			−0.8	1	66	34	^{157}Dy			average	
^{157}Ta(p)^{156}Hf		925.0	17.	935	10	0.6	o				Dap		96Pa01	
		933.0	7.			0.2	R				Ara		97Ir01	*
^{157}Pm(β^-)^{157}Sm		4360	100				3				Kur		02Sh.B	
^{157}Sm(β^-)^{157}Eu		2700	200	2730	50	0.2	U						73Ka23	
		2734	50				2				Ida		93Gr17	
^{157}Eu(β^-)^{157}Gd		1350	20	1363	5	0.7	–						64Sh21	
		1370	20			−0.3	–						66Fu05	
	ave.	1360	14			0.2	1	12	11	^{157}Eu			average	
^{157}Tb(ε)^{157}Gd		60.0	0.3	60.05	0.30	0.2	1	98	94	^{157}Tb			92Ra18	
^{157}Ho(β^+)^{157}Dy		2540	50	2599	25	1.2	R						72To05	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{157}Er(β^+)^{157}Ho		3470	80	3410	40	−0.8	U						75Al.A	
		3805	100			−4.0	F				Dbn		94Po26	∗
^{157}Tm(β^+)^{157}Er		4480	100	4710	40	2.3	B				IRS		93Al03	
		4482	100			2.3	B				Dbn		94Po26	
^{157}Yb(β^+)^{157}Tm		5074	100	5267	30	1.9	B				Dbn		94Po26	
^{157}Lu^m(IT)^{157}Lu		32	2	21.0	2.0	−5.5	o				Dba		91Le15	
		21	2			0.0	R						153Tm+4	
		21	2				5				Dba		92Po14	∗
^{157}Ta^m(IT)^{157}Ta		22	5	22	5	0.0	R						156Hf+1	
		22	5				9						97Ir01	
^{157}Ta^n(IT)^{157}Ta^m		1571	7	1571	7	0.0	R						153Lu+4	
		1571	7				9				Daa		96Pa01	
∗^{157}Lu−C$_{13.083}$		M−A=–46417(28) keV for mixture gs+m at 21.0(2.0) keV											Nubase	∗∗
∗^{157}Lu(α)^{153}Tm		E(α)=4925(5) to ^{153}Tm^m at 43.2(0.2)											89Ko02	∗∗
∗^{157}Lu(α)^{153}Tm		E(α)=4939(5) to ^{153}Tm^m at 43.2(0.2); replaced by ^{157}Lu^m(IT)											NDS982	∗∗
∗^{157}Ta(α)^{153}Lu^m		Replaced by ^{153}Lu^m(IT)											AHW	∗∗
∗^{157}Ta^m(α)^{153}Lu		Reassigned.											97Ir01	∗∗
∗^{157}Ta^n(α)^{153}Lu		Replaced by authors value for ^{157}Ta^n(IT)											AHW	∗∗
∗^{157}Ta(p)^{156}Hf		Use instead ^{157}Ta^m(IT)											AHW	∗∗
∗^{157}Er(β^+)^{157}Ho		E$^+$ =2525(100) to gs yielding 3547(100)											94Po26	∗∗
∗		Rather 24% to 174.53 15% to 391.32 $->$ +258											NDS966	∗∗
∗^{157}Lu^m(IT)^{157}Lu		Derived from ^{157}Lu^m(α)-^{157}Lu(α) difference											NDS966	∗∗
^{158}Ho−C$_{13.167}$		−71101	67	−71059	29	0.6	R				GS2	1.0	03Li.A	∗
^{158}Er−C$_{13.167}$		−70220	110	−70107	27	1.0	U				GS1	1.0	00Ra23	
		−70107	30			0.0	1	81	81	^{158}Er	GS2	1.0	03Li.A	
^{158}Tm−C$_{13.167}$		−63080	110	−63020	27	0.5	U				GS1	1.0	00Ra23	
		−63020	30			0.0	1	81	81	^{158}Tm	GS2	1.0	03Li.A	
^{158}Yb−^{142}Sm$_{1.113}$		34252	22	34251	9	−0.1	–				MA7	1.0	01Bo59	
	ave.	34256	14			−0.4	1	44	30	^{158}Yb			average	
^{158}Lu−C$_{13.167}$		−50720	30	−50687	16	1.1	R				GS2	1.0	03Li.A	
^{158}Dy ^{35}Cl−^{156}Dy ^{37}Cl		3081.4	3.3	3076	6	−0.6	1	54	54	^{156}Dy	H25	2.5	72Ba08	
^{158}Yb(α)^{154}Er		4174.9	10.	4172	7	−0.2	–						77Ha48	
		4164.6	12.			0.6	–						92Ha10	
	ave.	4171	8			0.2	1	79	70	^{158}Yb			average	
^{158}Lu(α)^{154}Tm		4792.2	10.	4790	5	−0.2	3				IRa		79Al16	Z
		4789.5	5.			0.1	3						83To01	Z
^{158}Hf(α)^{154}Yb		5406.0	5.	5404.7	2.7	−0.2	3						79Ho10	Z
		5401.4	5.			0.7	3						83To01	Z
		5406.1	4.			−0.3	3				Daa		96Pa01	
^{158}Ta(α)^{154}Lu		6124.4	8.	6124	4	−0.1	9				Daa		96Pa01	
		6123.3	5.			0.1	9				Ara		97Da07	
^{158}Ta^m(α)^{154}Lu^m		6208.5	6.	6205.0	2.8	−0.6	10						79Ho10	
		6203.4	4.			0.4	10				Daa		96Pa01	
		6205.4	5.			−0.1	10				Ara		97Da07	
^{158}W(α)^{154}Hf		6600.4	30.	6613	3	0.4	U				GSa		81Ho10	∗
		6609.7	30.			0.1	U				Daa		96Pa01	
		6612.7	3.				3				Ara		00Ma95	
^{158}W^m(α)^{154}Hf		8495.5	30.	8502	7	0.2	U				GSa		89Ho12	
		8506.8	24.			−0.2	U				Daa		96Pa01	
		8501.6	7.				3				Ara		00Ma95	
^{158}Dy(p,t)^{156}Dy		−7535	15	−7543	6	−0.5	1	14	14	^{156}Dy	Pri		77Ko04	
^{158}Gd(t,α)^{157}Eu−^{156}Gd()^{155}Eu		−512	5	−512	5	0.1	1	89	89	^{157}Eu	LAl		79Bu05	
^{157}Gd(n,γ)^{158}Gd		7937.39	0.07	7937.39	0.06	0.0	–				MMn		82Is05	Z
		7937.39	0.17			0.0	–				Bdn		03Fi.A	
	ave.	7937.39	0.06			0.0	1	99	70	^{158}Gd			average	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$^{158}\mathrm{Gd(d,t)}^{157}\mathrm{Gd}-{}^{159}\mathrm{Tb()}^{158}\mathrm{Tb}$		195.0	1.5	195.8	0.6	0.5	1	17	16	^{158}Tb	McM		84Bu14	
$^{157}\mathrm{Gd}(\alpha,\mathrm{t})^{158}\mathrm{Tb}-{}^{158}\mathrm{Gd()}^{159}\mathrm{Tb}$		−196.6	1.0	−195.8	0.6	0.8	1	39	37	^{158}Tb	McM		84Bu14	$*$
$^{158}\mathrm{Dy(d,t)}^{157}\mathrm{Dy}$		−2804	10	−2798	6	0.6	–				Tal		68Be.A	
		−2804	10			0.6	–				Kop		70Gr46	
	ave.	−2804	7			0.8	1	66	66	^{157}Dy			average	
$^{158}\mathrm{Pm}(\beta^-)^{158}\mathrm{Sm}$		6120	100				4						02Sh.A	
$^{158}\mathrm{Sm}(\beta^-)^{158}\mathrm{Eu}$		1999	15				3				Ida		93Gr17	
$^{158}\mathrm{Eu}(\beta^-)^{158}\mathrm{Gd}$		3550	120	3490	80	−0.5	2						65Sc19	
		3440	100			0.5	2						66Da06	
$^{158}\mathrm{Tb}(\varepsilon)^{158}\mathrm{Gd}$		1222.1	3.	1219.5	0.9	−0.9	1	10	8	^{158}Tb			85Vo13	$*$
$^{158}\mathrm{Tb}(\beta^-)^{158}\mathrm{Dy}$		952	10	934.9	2.6	−1.7	U						68Sc04	
		933	6			0.3	1	19	16	^{158}Dy			85Vo03	
$^{158}\mathrm{Ho}(\beta^+)^{158}\mathrm{Dy}$		4350	100	4221	27	−1.3	U						61Bo24	$*$
		4230	30			−0.3	2						68Ab14	$*$
$^{158}\mathrm{Er}(\beta^+)^{158}\mathrm{Ho}$		1710	40	890	40	−20.6	F						82Vy06	$*$
$^{158}\mathrm{Tm}(\beta^+)^{158}\mathrm{Er}$		6530	100	6600	30	0.7	–				IRS		93Al03	
		6624	60			−0.4	–				Dbn		94Po26	
	ave.	6600	50			0.0	1	37	19	^{158}Er			average	
$^{158}\mathrm{Lu}(\varepsilon)^{158}\mathrm{Yb}$		8960	200	8800	17	−0.8	U						95Ga.A	
$*^{158}\mathrm{Ho}-\mathrm{C}_{13.167}$		M−A=–66148(29) keV for mixture gs+m+n at 67.200 and 180#70 keV											NDS963	$**$
$*^{158}\mathrm{W}(\alpha)^{154}\mathrm{Hf}$		Original value E=6450(30) (Q=6617.8) recalibrated											89Ho12	$**$
$*^{157}\mathrm{Gd}(\alpha,\mathrm{t})^{158}\mathrm{Tb}-{}^{158}\mathrm{Gd()}$		Value 198.3(1.0) for same; same lab; unused											75Bu02	$**$
$*^{158}\mathrm{Tb}(\varepsilon)^{158}\mathrm{Gd}$		pL=0.689(0.01) to 1187.147 level, recalculated Q											AHW	$**$
$*$		E^+ =780(80) NOT $^{158}\mathrm{Er}(\beta^+)$; reinterpreted											AHW	$**$
$*^{158}\mathrm{Ho}(\beta^+)^{158}\mathrm{Dy}$		E^+ =2890(20), 700(60) to 317.11−637.66 and 2436−2605 levels,											NDS892	$**$
$*$		and E^+ =1300(30), 1850(25)											68Ab14	$**$
$*$		from $^{158}\mathrm{Ho}^m$ at 67.25 to 1920.24−1940.72 and 1441.75 levels,											NDS892	$**$
$*$		E^+ =700(60) NOT $^{158}\mathrm{Er}(\beta^+)$; reinterpreted											AHW	$**$
$*^{158}\mathrm{Er}(\beta^+)^{158}\mathrm{Ho}$		p^+ =0.3(0.1) from annih. γ coinc. to 146.90 level											96Go06	$**$
$*^{158}\mathrm{Er}(\beta^+)^{158}\mathrm{Ho}$		F: Q<1550 from upper limit on p+											75Bu.A	$**$
$^{159}\mathrm{Dy}-\mathrm{C}_{13.25}$		−74285	30	−74260.8	2.9	0.8	U				GS2	1.0	03Li.A	
$^{159}\mathrm{Ho}-\mathrm{C}_{13.25}$		−72365	71	−72288	4	1.1	U				GS2	1.0	03Li.A	$*$
$^{159}\mathrm{Er}-\mathrm{C}_{13.25}$		−69290	30	−69316	5	−0.9	U				GS2	1.0	03Li.A	
$^{159}\mathrm{Tm}-\mathrm{C}_{13.25}$		−65025	30				2				GS2	1.0	03Li.A	
$^{159}\mathrm{Yb}-{}^{142}\mathrm{Sm}_{1.120}$		35035	24	35029	19	−0.3	2				MA7	1.0	01Bo59	
$^{159}\mathrm{Yb}-\mathrm{C}_{13.25}$		−59960	30	−59950	20	0.3	R				GS2	1.0	03Li.A	
$^{159}\mathrm{Lu}-\mathrm{C}_{13.25}$		−53420	61	−53370	40	0.8	2				GS2	1.0	03Li.A	$*$
$^{159}\mathrm{Hf}-\mathrm{C}_{13.25}$		−46044	32	−46005	18	1.2	R				GS2	1.0	03Li.A	
$^{159}\mathrm{Tb}\,{}^{35}\mathrm{Cl}_2-{}^{155}\mathrm{Gd}\,{}^{37}\mathrm{Cl}_2$		8625.64	1.03	8624.9	0.8	−0.3	1	10	7	^{159}Tb	H41	2.5	85Dy04	
$^{159}\mathrm{Tb}\,{}^{35}\mathrm{Cl}-{}^{157}\mathrm{Gd}\,{}^{37}\mathrm{Cl}$		4333.3	1.2	4336.7	0.8	1.1	U				H25	2.5	72Ba08	
		4337.01	0.61			−0.2	1	27	20	^{159}Tb	H41	2.5	85Dy04	
$^{159}\mathrm{Lu}(\alpha)^{155}\mathrm{Tm}$		4534.3	10.	4500	40	−0.8	R				IRa		80Al14	
		4531.3	10.			−0.7	R						92Ha10	
$^{159}\mathrm{Hf}(\alpha)^{155}\mathrm{Yb}$		5221.2	10.	5225.0	2.7	0.4	U						73Ea01	Z
		5226.2	5.			−0.2	4						79Ho10	Z
		5223.0	5.			0.4	4						83To01	Z
		5219.6	6.			0.9	4						92Ha10	
		5229.8	5.			−0.9	4				Daa		96Pa01	
$^{159}\mathrm{Ta}(\alpha)^{155}\mathrm{Lu}^m$		5658.6	5.	5661	9	0.5	R				Daa		96Pa01	
		5661.7	5.			−0.1	R				Ara		97Da07	$*$
$^{159}\mathrm{Ta}^m(\alpha)^{155}\mathrm{Lu}$		5745.8	6.	5745	3	−0.2	10						79Ho10	
		5743.8	5.			0.2	10				Daa		96Pa01	
		5744.8	5.			0.0	10				Ara		97Da07	
$^{159}\mathrm{W}(\alpha)^{155}\mathrm{Hf}$		6444.5	6.	6450	4	1.0	3						81Ho10	$*$
		6441.4	5.			1.8	U				Daa		92Pa05	
		6454.7	5.			−0.8	3				Daa		96Pa01	
$^{158}\mathrm{Gd}(\mathrm{n},\gamma)^{159}\mathrm{Gd}$		5943.07	0.15	5943.09	0.12	0.1	–				ILn		87Sp.A	Z
		5943.1	0.2			0.0	–				Dbn		03Gr13	
	ave.	5943.08	0.12			0.1	1	100	93	^{159}Gd			average	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{158}Gd(α,t)^{159}Tb$-^{164}$Dy()^{165}Ho	−85.7	2.2	−89.0	1.1	−1.5	1	25	13	^{159}Tb	McM		84Bu14	
^{159}Tb(d,t)^{158}Tb$-^{164}$Dy()^{163}Dy	−474.3	1.0	−475.0	0.6	−0.7	1	39	36	^{158}Tb	McM		84Bu14	
^{158}Dy(d,p)^{159}Dy	4608	10	4608.1	2.7	0.0	U				Tal		68Be.A	
	4600	10			0.8	U				Kop		70Gr46	
^{159}Sm(β^-)^{159}Eu	3840	100				2						02Sh.A	
^{159}Gd(β^-)^{159}Tb	969.0	1.5	970.5	0.7	1.0	1	25	17	^{159}Tb			77Bo.A	
^{159}Dy(ε)^{159}Tb	365.9	1.3	365.6	1.2	−0.3	1	81	68	^{159}Dy			68My.A	
^{159}Ho(β^+)^{159}Dy	1837.6	6.	1837.6	2.7	0.0	2						79Ad08	
	1837.6	3.			0.0	2						82Vy02	
^{159}Er(β^+)^{159}Ho	2768.5	2.0				3						84Ka.A	
^{159}Tm(β^+)^{159}Er	3850	100	3997	28	1.5	U				IRS		93Al03	
	3670	100			3.3	B				Dbn		94Po26	
^{159}Yb(β^+)^{159}Tm	5050	200	4730	30	−1.6	U				IRS		93Al03	
	4554	150			1.2	U				Dbn		94Po26	
^{159}Lu(β^+)^{159}Yb	5850	150	6130	40	1.9	U				IRS		93Al03	
	5803	150			2.2	U				Dbn		94Po26	
^{159}Ta^m(IT)^{159}Ta	63.7	5.2	64	5	0.0	R						163Re-4	
	63.7	5.2				10				Ara		97Da07	
∗^{159}Ho$-$C$_{13.25}$	M−A=–67304(28) keV for mixture gs+m at 205.91 keV											NDS945	∗∗
∗^{159}Lu$-$C$_{13.25}$	M−A=–49710(28) keV for mixture gs+m at 100#80 keV											Nubase	∗∗
∗^{159}Ta(α)^{155}Lu^m	Replaced by ^{155}Lu^m(IT)											AHW	∗∗
∗^{159}W(α)^{155}Hf	See ^{158}W(α) remark											AHW	∗∗
^{160}Er$-$C$_{13.333}$	−70916	30	−70917	26	0.0	2				GS2	1.0	03Li.A	
^{160}Tm$-$C$_{13.333}$	−64773	127	−64740	40	0.3	U				GS1	1.0	00Ra23	∗
	−64755	39			0.5	2				GS2	1.0	03Li.A	∗
^{160}Yb$-^{142}$Sm$_{1.127}$	33120	20	33125	17	0.2	2				MA7	1.0	01Bo59	
^{160}Yb$-$C$_{13.333}$	−62440	120	−62448	18	−0.1	U				GS1	1.0	00Ra23	
	−62438	30			−0.3	R				GS2	1.0	03Li.A	
^{160}Lu$-$C$_{13.333}$	−53967	61				2				GS2	1.0	03Li.A	∗
^{160}Hf$-$C$_{13.333}$	−49334	30	−49316	12	0.6	R				GS2	1.0	03Li.A	
^{160}Gd ^{35}Cl$_2-^{156}$Gd ^{37}Cl$_2$	10831.70	1.27	10831.6	0.8	0.0	1	6	4	^{160}Gd	H41	2.5	85Dy04	
^{160}Gd ^{35}Cl$-^{158}$Gd ^{37}Cl	5900.0	0.5	5900.3	0.7	0.3	1	34	27	^{160}Gd	M21	2.5	75Ka25	
	5899.88	0.96			0.2	1	9	7	^{160}Gd	H41	2.5	85Dy04	
^{160}Dy ^{35}Cl$-^{158}$Dy ^{37}Cl	3731.8	2.3	3738.1	2.5	1.1	1	19	18	^{158}Dy	H25	2.5	72Ba08	
^{160}Gd$-^{160}$Dy	1854.5	0.8	1856.6	1.4	1.1	1	46	24	^{160}Gd	H25	2.5	72Ba08	
^{160}Hf(α)^{156}Yb	4892.2	10.	4902.4	2.6	1.0	4						73Ea01	Z
	4905.0	5.			−0.5	4						79Ho10	Z
	4904.0	5.			−0.3	4						83To01	Z
	4901.8	6.			0.1	4						92Ha10	
	4902.8	10.			0.0	4						95Hi12	
	4900.8	6.			0.3	4				Daa		96Pa01	
^{160}Ta(α)^{156}Lu	5449.5	5.				4				Daa		96Pa01	
^{160}Ta^m(α)^{156}Lu^m	5550.9	5.	5548	3	−0.5	5						79Ho10	Z
	5538.7	6.			1.5	5						92Ha10	
	5552.1	5.			−0.8	5				Daa		96Pa01	
^{160}W(α)^{156}Hf	6072.1	10.	6065	5	−0.6	5						79Ho10	
	6063.9	5.			0.3	5				Daa		96Pa01	
^{160}Re(α)^{156}Ta	6704.9	16.	6715	10	0.6	o				Daa		92Pa05	
	6711.1	16.			0.2	R				Daa		96Pa01	
^{158}Gd(t,p)^{160}Gd	4912.0	2.2	4912.7	0.7	0.3	1	10	7	^{160}Gd	McM		89Lo07	
^{160}Gd(p,t)^{158}Gd	−4919	5	−4912.7	0.7	1.3	U				Min		73Oo01	
^{160}Dy(p,t)^{158}Dy	−6924	5	−6926.8	2.3	−0.6	–				Min		73Oo01	
	−6925.1	3.4			−0.5	–				McM		88Bu08	∗
ave.	−6924.8	2.8			−0.7	1	67	66	^{158}Dy			average	
^{160}Gd(t,α)^{159}Eu$-^{158}$Gd()^{157}Eu	−666	5	−666	5	0.0	1	100	100	^{159}Eu	LAl		79Bu05	
^{159}Tb(n,γ)^{160}Tb	6375.45	0.3	6375.21	0.13	−0.8	–						74Ke01	Z
	6375.13	0.15			0.5	–				Bdn		03Fi.A	
ave.	6375.19	0.13			0.1	1	99	94	^{160}Tb			average	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{160}Re(p)^{159}W		1269.1	6.	1278	8	1.5	o				Dap		92Pa05	
		1279.1	9.			−0.1	4				Dap		96Pa01	
^{160}Eu(β^-)^{160}Gd		3900	300	4580#	200#	2.3	D						73Da05	
		4200	200			1.9	D						73Mo18	∗
^{160}Ho(β^+)^{160}Dy		3290	15				2						66Av03	∗
^{160}Tm(β^+)^{160}Er		5600	300	5760	40	0.5	U						75St12	
		5890	100			−1.3	R				IRS		93Al03	
^{160}Lu(β^+)^{160}Yb		7210	240	7900	60	2.9	B						83Ge08	
		7300	100			6.0	B				IRS		93Al03	
∗^{160}Tm−C$_{13.333}$		M−A=–60300(110) keV for mixture gs+m at 70(20) keV											NDS968	∗∗
∗^{160}Tm−C$_{13.333}$		M−A=–60283(28) keV for mixture gs+m at 70(20) keV											NDS968	∗∗
∗^{160}Lu−C$_{13.333}$		M−A=–50270(28) keV for mixture gs+m at 0#100 keV											Nubase	∗∗
∗^{160}Dy(p,t)^{158}Dy		Q−Q(^{164}Dy(p,t)=–1477.9(3.4), see ^{164}Dy(p,t)											AHW	∗∗
∗^{160}Eu(β^-)^{160}Gd		Systematical trends suggest ^{160}Eu 470 less bound											GAu	∗∗
∗^{160}Ho(β^+)^{160}Dy		E^+ =570(15) to 1694.37 4^+ level; and 1045(15)											NDS932	∗∗
∗		from ^{160}Ho^m at 59.98 to 1285.59 and 1286.69 levels											NDS932	∗∗
^{161}Tm−C$_{13.417}$		−66451	30				2				GS2	1.0	03Li.A	∗
^{161}Yb−^{142}Sm$_{1.134}$		34071	19	34068	16	−0.2	2				MA7	1.0	01Bo59	
^{161}Yb−C$_{13.417}$		−62120	110	−62098	17	0.2	U				GS1	1.0	00Ra23	
		−62107	30			0.3	R				GS2	1.0	03Li.A	
^{161}Lu−C$_{13.417}$		−56428	30				2				GS2	1.0	03Li.A	
^{161}Hf−C$_{13.417}$		−49733	30	−49725	24	0.3	1	65	65	^{161}Hf	GS2	1.0	03Li.A	
^{161}Dy ^{35}Cl−^{159}Tb ^{37}Cl		4535.0	1.0	4536.7	1.3	0.7	1	29	15	^{159}Tb	H25	2.5	72Ba08	
^{161}Hf(α)^{157}Yb		4717.0	10.	4698	24	−0.4	–						73Ea01	Z
		4725.2	10.			−0.5	–						82Sc15	Z
		4724.2	5.			−0.5	–						83To01	Z
		4716.4	7.			−0.4	–						92Ha10	
		4721.5	10.			−0.5	–						95Hi12	
	ave.	4721	3			−0.5	1	23	19	^{161}Hf			average	
^{161}Ta^m(α)^{157}Lu^m		5278.9	5.	5353	29	1.5	U						79Ho10	Z
		5280.4	5.			1.5	U						92Ha10	
		5271.2	7.			1.6	U				Daa		96Pa01	
^{161}W(α)^{157}Hf		5923.4	5.	5923	4	−0.1	4						79Ho10	Z
		5922.4	5.			0.1	4				Daa		96Pa01	
^{161}Re^m(α)^{157}Ta^m		6439.3	10.	6430	4	−0.9	8				GSa		79Ho10	
		6425.0	6.			0.8	8				Daa		96Pa01	
		6432.1	7.			−0.3	8				Ara		97Ir01	
^{161}Dy(p,t)^{159}Dy		−6546	5	−6548.5	1.5	−0.5	–				Min		73Oo01	
		−6547.9	2.5			−0.2	–				McM		88Bu08	∗
	ave.	−6547.5	2.2			−0.4	1	43	32	^{159}Dy			average	
^{160}Gd(n,γ)^{161}Gd		5635.4	1.0				2						71Gr42	
^{160}Gd(α,t)^{161}Tb−^{158}Gd()^{159}Tb		678.0	1.0	677.3	0.7	−0.7	1	52	26	^{160}Gd	McM		75Bu02	
^{160}Tb(n,γ)^{161}Tb		7696.3	0.6	7696.6	0.5	0.4	1	83	77	^{161}Tb			75He.C	
^{160}Dy(n,γ)^{161}Dy		6454.40	0.09	6454.39	0.08	−0.2	–				ILn		86Sc16	Z
		6454.34	0.14			0.3	–				Bdn		03Fi.A	
	ave.	6454.38	0.08			0.0	1	100	77	^{160}Dy			average	
^{160}Dy(^{3}He,d)^{161}Ho−^{164}Dy()^{165}Ho		−1406.5	2.0	−1406.5	2.0	0.0	1	100	100	^{161}Ho	McM		75Bu02	
^{161}Re(p)^{160}W		1199.5	6.	1197	5	−0.4	6				Ara		97Ir01	
^{161}Re^m(p)^{160}W		1323.3	7.	1321	5	−0.3	R				Ara		97Ir01	∗
^{161}Er(β^+)^{161}Ho		1980	18	1994	9	0.8	R						84Ka.A	
^{161}Tm(β^+)^{161}Er		3100	200	3310	29	1.1	U						75Ad08	
		3180	100			1.3	U				IRS		93Al03	
^{161}Yb(β^+)^{161}Tm		3850	250	4050	30	0.8	U						81Ad02	
		3585	200			2.3	B				Dbn		94Po26	
^{161}Lu(β^+)^{161}Yb		5300	100	5280	30	−0.2	U				IRS		93Al03	
		5255	150			0.2	U				Dbn		94Po26	∗

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{161}Re^{m}(IT)^{161}Re	123.8	1.3	123.8	1.3	0.0	R					160W+1	
	123.8	1.3				7					97Ir01	
$*^{161}$Tm$-$C$_{13.417}$	M$-$A=–61895(28) keV for mixture gs+m at 7.4 keV										Ens00	$**$
$*^{161}$Dy(p,t)^{159}Dy	Q$-$Q(^{164}Dy(p,t)=–1100.7(2.5)										AHW	$**$
$*^{161}$Re^{m}(p)^{160}W	Replaced by author's result for ^{161}Re^{m}(IT)^{161}Re										AHW	$**$
$*^{161}$Lu(β^{+})^{161}Yb	E^{+} =3866(150) to 367.28 level										NDS008	$**$
^{162}Tm$-$C$_{13.5}$	$-$65942	55	$-$66005	28	$-$1.2	R			GS2	1.0	03Li.A	$*$
^{162}Yb$-^{142}$Sm$_{1.141}$	32524	19	32528	16	0.2	2			MA7	1.0	01Bo59	
^{162}Yb$-$C$_{13.5}$	$-$64210	110	$-$64232	17	$-$0.2	U			GS1	1.0	00Ra23	
	$-$64223	30			$-$0.3	R			GS2	1.0	03Li.A	
^{162}Lu$-$C$_{13.5}$	$-$56758	234	$-$56720	80	0.2	o			GS1	1.0	00Ra23	$*$
	$-$56781	190			0.3	2			GS2	1.0	03Li.A	$*$
^{162}Hf$-$C$_{13.5}$	$-$52756	30	$-$52790	10	$-$1.1	R			GS2	1.0	03Li.A	
^{162}Er ^{35}Cl$_{2}-^{158}$Gd ^{37}Cl$_{2}$	10577.5	2.7	10574.5	2.9	$-$0.4	1	18	16 ^{162}Er	H25	2.5	72Ba08	
^{162}Er ^{35}Cl$-^{160}$Gd ^{37}Cl	4674.6	1.9	4674.2	2.8	$-$0.1	1	36	32 ^{162}Er	H25	2.5	72Ba08	
^{162}Hf(α)^{158}Yb	4417.2	10.	4417	5	0.0	2					82Sc15	
	4420.2	10.			$-$0.3	2					83To01	
	4414.2	9.			0.3	2					92Ha10	
	4416.0	10.			0.1	2					95Hi12	
^{162}Ta(α)^{158}Lu	5003.8	10.	5010	50	0.1	4					86Ru05	
	5007.9	5.			0.0	4					92Ha10	
^{162}W(α)^{158}Hf	5669.9	10.	5677.3	2.7	0.7	U					73Ea01	Z
	5668.0	10.			0.9	U					75To05	Z
	5677.5	5.			0.0	4					81Ho10	Z
	5674.7	4.			0.7	4					82De11	Z
	5681.6	5.			$-$0.8	4			Daa		96Pa01	
^{162}Re(α)^{158}Ta	6240.3	5.				8			Ara		97Da07	
^{162}Re^{m}(α)^{158}Ta^{m}	6274.2	6.	6274	3	0.0	9					79Ho10	
	6278.3	6.			$-$0.7	9			Daa		96Pa01	
	6271.1	5.			0.6	9			Ara		97Da07	
^{162}Os(α)^{158}W	6778.8	30.	6767	3	$-$0.4	U			GSa		89Ho12	
	6785.8	10.			$-$1.8	U			ORa		96Bi07	
	6767.4	3.				4			Ara		00Ma95	
^{160}Gd(t,p)^{162}Gd	3999.5	3.8				2			McM		89Lo07	
^{162}Er(p,t)^{160}Er	$-$7944	51	$-$7945	25	0.0	R			Win		74De31	$*$
^{161}Dy(n,γ)^{162}Dy	8196.99	0.06	8196.99	0.06	0.0	1	100	52 ^{161}Dy	MMn		82Is05	Z
	8193	3			1.3	U			Bdn		03Fi.A	
^{161}Dy(^{3}He,d)^{162}Ho$-^{164}$Dy()^{165}Ho	$-$945.3	3.0	$-$945	3	0.0	1	100	100 ^{162}Ho	McM		75Bu02	
^{162}Er(d,t)^{161}Er	$-$2952	10	$-$2948	9	0.4	2			Kop		69Tj01	
^{162}Gd(β^{-})^{162}Tb	1442	100	1390	40	$-$0.5	R					70Ch02	
^{162}Tb(β^{-})^{162}Dy	2448	100	2510	40	0.6	2					66Fu08	
	2523	50			$-$0.3	2					66Sc24	
	2528	80			$-$0.3	2					77Ka08	
^{162}Tm(β^{+})^{162}Er	4840	50	4859	26	0.4	2					63Ab02	
	4705	70			2.2	2					74De47	
	4900	100			$-$0.4	2			IRS		93Al03	
	4892	50			$-$0.7	2			Dbn		94Po26	
^{162}Lu(β^{+})^{162}Yb	6740	270	6990	80	0.9	U					83Ge08	
	6960	100			0.3	R			IRS		93Al03	
	7111	150			$-$0.8	R			Dbn		94Po26	$*$
$*^{162}$Tm$-$C$_{13.5}$	M$-$A=–61359(28) keV for mixture gs+m at 130(40) keV										Nubase	$**$
$*^{162}$Lu$-$C$_{13.5}$	M$-$A=–52730(130) keV for mixture gs+m+n at 120#200 and 300#200 keV										AHW	$**$
$*^{162}$Lu$-$C$_{13.5}$	M$-$A=–52751(28) keV for mixture gs+m+n at 120#200 and 300#200 keV										AHW	$**$
$*^{162}$Er(p,t)^{160}Er	Not resolved peak. Original uncertainty 28										GAu	$**$
$*^{162}$Lu(β^{+})^{162}Yb	E^{+} =6006(150) to gs and 166.8 unknown ratio										NDS919	$**$

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{163}Tm$-$C$_{13.583}$	$-$67327	30	$-$67349	6	$-$0.7	U				GS2	1.0	03Li.A	
^{163}Yb$-^{142}$Sm$_{1.148}$	33686	19	33687	16	0.1	2				MA7	1.0	01Bo59	
^{163}Yb$-$C$_{13.583}$	$-$63663	30	$-$63666	17	$-$0.1	R				GS2	1.0	03Li.A	
^{163}Lu$-$C$_{13.583}$	$-$58730	110	$-$58820	30	$-$0.8	U				GS1	1.0	00Ra23	
	$-$58821	30				2				GS2	1.0	03Li.A	
^{163}Hf$-$C$_{13.583}$	$-$52911	30				2				GS2	1.0	03Li.A	
^{163}Ta$-$C$_{13.583}$	$-$45780	30	$-$45670	40	3.7	C				GS2	1.0	03Li.A	
^{163}Ta(α)^{159}Lu	4741.5	15.	4749	5	0.5	3						83Sc18	$*$
	4746.7	10.			0.2	3						86Ru05	
	4751.8	7.			$-$0.4	3						92Ha10	
^{163}W(α)^{159}Hf	5520.3	5.	5520	50	0.0	5						73Ea01	Z
	5518.1	5.			0.0	5						79Ho10	Z
	5519.9	3.			0.0	5						82De11	Z
	5518.7	6.			0.0	5				Daa		96Pa01	
^{163}Re(α)^{159}Ta	6017.9	5.	6017	7	$-$0.2	R				Ara		97Da07	$*$
^{163}Re^m(α)^{159}Ta^m	6067.2	6.	6068	3	0.2	9						79Ho10	
	6067.2	7.			0.1	9				Daa		96Pa01	
	6069.2	5.			$-$0.2	9				Ara		97Da07	
^{163}Os(α)^{159}W	6674.1	30.	6680	50	0.1	4						81Ho10	
	6678.2	10.			0.0	4				ORa		96Bi07	
	6676.2	19.			0.0	4				Daa		96Pa01	
^{162}Dy(n,γ)^{163}Dy	6270.98	0.06	6271.01	0.05	0.4	–				MMn		82Is05	Z
	6271.00	0.09			0.1	–				ILn		89Sc31	Z
	6271.14	0.13			$-$1.0	–				Bdn		03Fi.A	
ave.	6271.01	0.05			0.0	1	100	93	^{162}Dy			average	
^{162}Dy(^{3}He,d)^{163}Ho$-^{164}$Dy()^{165}Ho	$-$734.3	1.0	$-$734.1	0.9	0.2	1	77	41	^{164}Dy	McM		75Bu02	
^{162}Er(d,p)^{163}Er	4682	10	4678	5	$-$0.4	1	25	20	^{163}Er	Kop		69Tj01	
^{163}Ho(ε)^{163}Dy	2.56	0.05	2.555	0.016	$-$0.1	–						85Ha12	$*$
	2.60	0.03			$-$1.5	o						86Ya17	
	2.561	0.020			$-$0.3	–						92Ha15	
	2.54	0.03			0.5	–						93Bo.A	$*$
	2.71	0.10			$-$1.5	U						94Ya07	
ave.	2.555	0.016			0.0	1	100	58	^{163}Ho			average	
^{163}Er(β^+)^{163}Ho	1210	6	1210	5	0.0	1	60	59	^{163}Er			63Pe16	
^{163}Tm(β^+)^{163}Er	2439	3				2						82Vy07	
^{163}Yb(β^+)^{163}Tm	3370	100	3431	17	0.6	U						75Ad09	
^{163}Lu(β^+)^{163}Yb	4860	170	4510	30	$-$2.0	B						83Ge08	
	4600	200			$-$0.4	U				IRS		93Al03	
^{163}Re^m(IT)^{163}Re	115.1	4.0	115	4	0.0	R						167Ir-4	
	115.1	4.0				9				Ara		97Da07	

$*^{163}$Ta(α)^{159}Lu	Original assignment to 13 s ^{164}Ta changed to ^{163}Ta	86Ru05	$**$
$*^{163}$Re(α)^{159}Ta	Replaced by author's value for ^{159}Ta^m(IT)	AHW	$**$
$*^{163}$Ho(ε)^{163}Dy	Orig. value 2.60(0.03) corrected to 2.561(0.020) for dynamic effects	87Sp02	$**$
$*$	error 0.020 is statistical only	87Sp02	$**$
$*^{163}$Ho(ε)^{163}Dy	Original 2616<Q<2694 68% CL from ^{163}Dy$_{66}$+(β^-)^{163}Ho$_{66}$+	92Ju01	$**$
$*$	corrected to 2511<Q<2572 68% CL	93Bo.A	$**$

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{164}Tm$-$C$_{13.667}$	$-$66440	30				2				GS2	1.0	03Li.A	$*$
^{164}Yb$-^{142}$Sm$_{1.155}$	32429	19	32436	16	0.4	2				MA7	1.0	01Bo59	
^{164}Yb$-$C$_{13.667}$	$-$65690	104	$-$65511	17	1.7	U				GS1	1.0	00Ra23	
	$-$65493	30			$-$0.6	R				GS2	1.0	03Li.A	
^{164}Lu$-$C$_{13.667}$	$-$58750	110	$-$58660	30	0.8	U				GS1	1.0	00Ra23	
	$-$58661	30				2				GS2	1.0	03Li.A	
^{164}Hf$-$C$_{13.667}$	$-$55620	110	$-$55633	22	$-$0.1	U				GS1	1.0	00Ra23	
	$-$55596	30			$-$1.2	R				GS2	1.0	03Li.A	
^{164}Ta$-$C$_{13.667}$	$-$46466	30				2				GS2	1.0	03Li.A	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{164}Er ^{35}Cl$-^{162}$Er ^{37}Cl	3373.3	1.3	3372.1	2.6	−0.4	1	66	47	^{162}Er	H25	2.5	72Ba08	
^{164}W(α)^{160}Hf	5281.7	5.	5278.5	2.0	−0.6	5						73Ea01	Z
	5274.7	5.			0.8	5						75To05	Z
	5279.0	5.			−0.1	5						79Ho10	
	5279.2	3.			−0.2	5						82De11	Z
	5277.0	6.			0.3	5				Daa		96Pa01	
^{164}Re^{m}(α)^{160}Ta	5922.7	10.	5930	50	0.1	5						79Ho10	
	5928.9	7.			0.0	5				Daa		96Pa01	
^{164}Os(α)^{160}W	6478.3	20.	6477	6	−0.1	U						81Ho10	
	6473.2	10.			0.4	6				ORa		96Bi07	
	6479.4	7.			−0.3	6				Daa		96Pa01	
^{164}Dy(t,α)^{163}Tb	11153	4				2				McM		92Ga15	∗
^{163}Dy(n,γ)^{164}Dy	7658.11	0.07	7658.11	0.07	0.1	1	100	52	^{163}Dy	MMn		82Is05	Z
	7658.90	0.06			−13.1	C						99Fo.A	
	7655.0	0.9			3.5	B				Bdn		03Fi.A	
^{163}Dy(^{3}He,d)^{164}Ho$-^{164}$Dy()^{165}Ho	−331.6	1.4	−330.7	1.1	0.6	1	67	67	^{164}Ho	McM		75Bu02	∗
^{164}Er(d,t)^{163}Er	−2593	10	−2590	5	0.3	1	23	21	^{163}Er	Kop		69Tj01	
^{164}Ir^{m}(p)^{163}Os	1844	9	1836	8	−0.8	5				Jyp		01Ke05	
	1818	14			1.3	5				Arp		02Ma61	
^{164}Tb(β^{-})^{164}Dy	3890	100				2						71Gu18	
^{164}Tm(β^{+})^{164}Er	3985	20	4061	28	3.8	B						67Vr04	∗
	3989	50			1.4	B				IRS		94Po26	∗
^{164}Lu(β^{+})^{164}Yb	6390	140	6380	30	−0.1	U						83Ge08	
	6290	90			1.0	U				IRS		93Al03	∗
	6255	120			1.0	U				Dbn		94Po26	∗
∗^{164}Tm$-$C$_{13.667}$	M$-$A=–61884(28) keV for mixture gs+m at 10(6) keV											Nubase	∗∗
∗^{164}Dy(t,α)^{163}Tb	Q$-^{162}$Dy()^{161}Tb=–123(4)+54$-$584=–653(4)											AHW	∗∗
∗^{163}Dy(^{3}He,d)^{164}Ho$-^{164}$D	See erratum											75Bu02	∗∗
∗^{164}Tm(β^{+})^{164}Er	E^{+} =2940(20) 29 to gs 10 to 91.38 level											NDS016	∗∗
∗^{164}Tm(β^{+})^{164}Er	E^{+} =2944(50) 29 to gs 10 to 91.38 level											NDS016	∗∗
∗^{164}Lu(β^{+})^{164}Yb	Q^{+} =6250(90) partly to 123.31 level											NDS016	∗∗
∗^{164}Lu(β^{+})^{164}Yb	E^{+} =5191(120) partly to 123.31 level											NDS016	∗∗
^{165}Tm$-^{142}$Sm$_{1.162}$	30970	20	30976	7	0.3	1	13	11	^{142}Sm	MA7	1.0	01Bo59	
^{165}Yb$-$C$_{13.75}$	−64721	30				2				GS2	1.0	03Li.A	
^{165}Lu$-$C$_{13.75}$	−60602	30	−60593	28	0.3	2				GS2	1.0	03Li.A	
^{165}Hf$-$C$_{13.75}$	−55360	140	−55430	30	−0.5	U				GS1	1.0	00Ra23	
	−55433	30				2				GS2	1.0	03Li.A	
^{165}Ta$-$C$_{13.75}$	−49191	30	−49227	19	−1.2	R				GS2	1.0	03Li.A	
^{165}W$-$C$_{13.75}$	−41720	30	−41720	27	0.0	1	80	80	^{165}W	GS2	1.0	03Li.A	
^{165}W(α)^{161}Hf	5031.0	5.	5032	30	0.0	–						75To05	Z
	5034.2	10.			0.0	–						84Sc06	∗
ave.	5032	4			0.0	1	36	20	^{165}W			average	
^{165}Re^{m}(α)^{161}Ta^{m}	5631.7	10.	5649	4	1.7	13						78Sc26	∗
	5643.0	10.			0.6	13				GSa		81Ho10	
	5664.5	4.			−3.8	F				Ora		82De11	∗
	5655.4	5.			−1.2	13				Daa		96Pa01	∗
^{165}Os(α)^{161}W	6354.3	20.	6340	50	−0.4	5						78Ca11	
	6317.4	10.			0.4	5						81Ho10	
	6342.1	7.			−0.1	5				Daa		96Pa01	
^{165}Ir^{m}(α)^{161}Re^{m}	6882.1	7.				8				Ara		97Da07	
^{164}Dy(n,γ)^{165}Dy	5716.36	0.20	5715.96	0.05	−2.0	B				ILn		79Br25	Z
	5715.96	0.06			0.0	2				MMn		82Is05	Z
	5715.70	0.30			0.9	U				ILn		90Ka21	Z
	5715.95	0.12			0.1	2				Bdn		03Fi.A	
^{165}Ho(γ,n)^{164}Ho	−7987	2	−7988.8	1.1	−0.9	1	33	33	^{164}Ho	MMn		85Ts01	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{164}Er(n,γ)^{165}Er		6650.1	0.6	6650.1	0.6	−0.1	1	94	56	^{165}Er			70Bo29	Z
^{164}Er(α,t)^{165}Tm−^{168}Er()^{169}Tm		−1298.0	2.0	−1296.9	1.5	0.6	1	58	50	^{165}Tm	McM		75Bu02	
^{165}Ir^{m}(p)^{164}Os		1717.5	7.	1726	11	1.2	R				Ara		97Da07	
^{165}Er(ε)^{165}Ho		370	10	376.3	2.0	0.6	U						63Ry01	
		371	6			0.9	1	12	10	^{165}Er			63Zy01	
^{165}Tm(β^+)^{165}Er		1591.3	2.0	1592.4	1.5	0.5	1	58	48	^{165}Tm			82Vy03	
^{165}Yb(β^+)^{165}Tm		2762	20	2649	28	−5.7	B						67Pa04	
^{165}Lu(β^+)^{165}Yb		4250	140	3840	40	−2.9	B						83Ge08	
		3920	80			−0.9	R				IRS		93Al03	
$*^{165}$W(α)^{161}Hf		Originally assigned ^{168}Re, re-assigned by ref.											92Me10	**
$*^{165}$W(α)^{161}Hf		Original E(α)=4894 recalibrated using their ^{168}Os−^{170}Os results											GAu	**
$*^{165}$Re^{m}(α)^{161}Ta^{m}		Originally assigned to ^{166}Re											AHW	**
$*^{165}$Re^{m}(α)^{161}Ta^{m}		Originally assigned to ^{166}Re											AHW	**
$*^{165}$Re^{m}(α)^{161}Ta^{m}		Due to a high spin isomer											99Po09	**
^{166}Lu−C$_{13.833}$		−60157	108	−60140	30	0.1	U				GS1	1.0	00Ra23	*
		−60141	32				2				GS2	1.0	03Li.A	*
^{166}Hf−C$_{13.833}$		−57860	110	−57820	30	0.4	U				GS1	1.0	00Ra23	
		−57820	30				2				GS2	1.0	03Li.A	
^{166}Ta−C$_{13.833}$		−49488	30				2				GS2	1.0	03Li.A	
^{166}W−C$_{13.833}$		−44957	30	−44973	11	−0.5	R				GS2	1.0	03Li.A	
^{166}Er ^{35}Cl−^{164}Er ^{37}Cl		4040.9	1.4	4042.9	2.1	0.6	1	34	32	^{164}Er	H25	2.5	72Ba08	
^{166}W(α)^{162}Hf		4856.0	5.	4856	4	0.1	3						75To05	Z
		4855.0	10.			0.1	3						79Ho10	Z
		4858.2	8.			−0.2	3						89Hi04	
^{166}Re^{m}(α)^{162}Ta		5637.0	13.	5660	50	0.4	5				Bea		92Me10	
		5669.9	10.			−0.2	5				Daa		96Pa01	
^{166}Os(α)^{162}W		6148.5	20.	6139	4	−0.5	U						77Ca23	
		6129.0	6.			1.6	5						81Ho10	
		6148.5	6.			−1.6	5				Daa		96Pa01	
^{166}Ir(α)^{162}Re		6702.8	20.	6724	6	1.1	U						81Ho10	
		6724.3	6.				7				Ara		97Da07	
^{166}Ir^{m}(α)^{162}Re^{m}		6718.2	11.	6722	5	0.4	8				Daa		96Pa01	*
		6723.3	5.			−0.2	8				Ara		97Da07	
^{166}Pt(α)^{162}Os		7285.9	15.				5				ORa		96Bi07	
^{166}Er(p,t)^{164}Er		−6641	5	−6642.9	1.9	−0.4	1	15	14	^{164}Er	Min		73Oo01	
^{165}Dy(n,γ)^{166}Dy		7043.5	0.4				3						83Ke.A	
^{165}Ho(n,γ)^{166}Ho		6243.64	0.02	6243.640	0.020	0.0	1	100	61	^{166}Ho	MMn		84Ke15	Z
		6243.68	0.13			−0.3	U				Bdn		03Fi.A	
^{166}Ir(p)^{165}Os		1152.0	8.0				6				Ara		97Da07	
^{166}Ir^{m}(p)^{165}Os		1324.1	8.	1324	10	−0.1	R				Ara		97Da07	*
^{166}Tb(β^-)^{166}Dy		4830	100				4						02Sh.A	
^{166}Ho(β^-)^{166}Er		1859	3	1854.7	0.9	−1.4	–						63Fu17	
		1857	3			−0.8	–						66Da04	
		1854.7	1.5			0.0	–						74Gr41	
		1851.6	2.0			1.5	–						83Ra.A	
	ave.	1854.7	1.0			0.0	1	73	39	^{166}Ho			average	
^{166}Tm(β^+)^{166}Er		3043	20	3038	12	−0.3	2						61Gr33	
		3031	20			0.3	2						61Zy02	
		3039	20			−0.1	2						63Pr13	
^{166}Yb(ε)^{166}Tm		280	40	305	14	0.6	U						Averag	*
^{166}Lu(β^+)^{166}Yb		5480	160	5570	30	0.5	U						74De09	
^{166}Ir^{m}(IT)^{166}Ir		171.5	6.1	172	6	0.0	R						165Os+1	
		171.5	6.1				7				Ara		97Da07	
$*^{166}$Lu−C$_{13.833}$		M−A=–56010(100) keV for mixture gs+m+n at 34.37 and 42.9 keV											NDS929	**
$*^{166}$Lu−C$_{13.833}$		M−A=–55995(28) keV for mixture gs+m+n at 34.37 and 42.9 keV											NDS929	**
$*^{166}$Ir^{m}(α)^{162}Re^{m}		Correlated with E(α)=6123 of ^{162}Re^{m}											96Pa01	**
$*^{166}$Ir^{m}(p)^{165}Os		Replaced by author's value for ^{166}Ir^{m}(IT)^{166}Ir											97Da07	**
$*^{166}$Yb(ε)^{166}Tm		From average pK=0.712(0.038) to 82.29(0.02) level											AHW	**
$*^{166}$Yb(ε)^{166}Tm		pK=0.74(0.05) to 82.29 level											63Ja06	**
$*^{166}$Yb(ε)^{166}Tm		pK=0.675(0.059) to 82.29 level											73De22	**

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
C_{13} $H_{11}-^{167}$Er	154040.4	6.2	154027.2	2.7	−0.9	U			M23	2.5	79Ha32	
^{167}Lu$-C_{13.917}$	−61730	34				2			GS2	1.0	03Li.A	∗
^{167}Hf$-C_{13.917}$	−57490	110	−57400	30	0.8	U			GS1	1.0	00Ra23	
	−57400	30				2			GS2	1.0	03Li.A	
^{167}Ta$-C_{13.917}$	−51870	120	−51910	30	−0.3	U			GS1	1.0	00Ra23	
	−51907	30				2			GS2	1.0	03Li.A	
^{167}W$-C_{13.917}$	−45175	30	−45184	21	−0.3	R			GS2	1.0	03Li.A	
^{167}Er ^{35}Cl$-^{165}$Ho ^{37}Cl	4679.5	1.2	4676.2	1.0	−1.1	1	10	6 ^{165}Ho	H25	2.5	72Ba08	
^{167}W(α)^{163}Hf	4661.9	20.	4770	30	2.2	U					89Me02	
	4671.1	13.			2.0	U					91Me05	
^{167}Re^m(α)^{163}Ta	5408.8	3.	5407.0	2.9	−0.6	4			Ora		82De11	∗
	5397.5	10.			0.9	4			ChR		84Sc06	∗
	5392.4	12.			1.2	4			Bea		92Me10	
^{167}Os(α)^{163}W	5983.6	5.	5980	50	0.0	6					81Ho10	Z
	5978.7	2.			0.1	6					82De11	Z
	5996.9	5.			−0.3	6			Daa		96Pa01	
	5979.5	5.			0.0	6			Bka		02Ro17	
^{167}Ir(α)^{163}Re	6507.1	5.	6503	6	−0.8	R			Ara		97Da07	∗
^{167}Ir^m(α)^{163}Re^m	6543.0	10.	6563	4	2.0	8					81Ho10	
	6567.6	11.			−0.4	8			Daa		96Pa01	
	6567.6	5.			−0.8	8			Ara		97Da07	
^{167}Pt(α)^{163}Os	7159.8	10.				5			ORa		96Bi07	
^{167}Er(p,t)^{165}Er	−6427	6	−6429.3	1.9	−0.4	–			Min		73Oo01	
	−6430	5			0.1	–					75St08	
ave.	−6429	4			−0.1	1	26	24 ^{165}Er			average	
^{166}Er(n,γ)^{167}Er	6436.35	0.50	6436.45	0.18	0.2	–					70Bo29	Z
	6436.51	0.40			−0.1	–					70Mi01	Z
	6436.46	0.22			0.0	–			Bdn		03Fi.A	
ave.	6436.46	0.18			0.0	1	99	62 ^{166}Er			average	
^{166}Er(α,t)^{167}Tm$-^{168}$Er()^{169}Tm	−666.5	1.0	−666.5	1.0	0.0	1	99	99 ^{167}Tm	McM		75Bu02	
^{167}Ir(p)^{166}Os	1070.5	6.	1071	5	0.0	6					97Da07	
^{167}Ir^m(p)^{166}Os	1245.5	7.	1246	6	0.1	R					97Da07	∗
^{167}Dy(β^-)^{167}Ho	2350	60				3					77Tu01	
^{167}Ho(β^-)^{167}Er	970	20	1010	5	2.0	U					68Fu07	
^{167}Yb(β^+)^{167}Tm	1954	4	1954	4	0.1	1	91	90 ^{167}Yb			77Kr.A	
^{167}Lu(β^+)^{167}Yb	3130	100	3090	30	−0.4	U					64Ag.A	
^{167}W(β^+)^{167}Ta	5620	270	6260	30	2.4	U			Got		89Me02	
^{167}Ir^m(IT)^{167}Ir	175.3	2.2	175.3	2.2	0.0	R					166Os+1	
	175.3	2.2				7			Ara		97Da07	
∗^{167}Lu$-C_{13.917}$	M$-$A=–57501(28) keV for mixture gs+m at 0#30 keV										Nubase	∗∗
∗^{167}Re^m(α)^{163}Ta	Original assignment to ^{168}Re changed by ref.										92Me10	∗∗
∗^{167}Re^m(α)^{163}Ta	Original assignment to ^{168}Re^m changed by ref.										92Me10	∗∗
∗	original E(α)=5250 recalibrated using their ^{168}Os$-^{170}$Os results										GAu	∗∗
∗^{167}Ir(α)^{163}Re	Replaced by author’s value for ^{163}Re^m(IT)^{163}Re										AHW	∗∗
∗^{167}Ir^m(p)^{166}Os	Replaced by author’s value for ^{167}Ir^m(IT)^{167}Ir										97Da07	∗∗
C_{13} $H_{12}-^{168}$Er	161543.3	5.1	161530.2	2.7	−1.0	1	4	4 ^{168}Er	M23	2.5	79Ha32	
^{168}Lu$-C_{14}$	−61210	89	−61260	50	−0.6	R			GS2	1.0	03Li.A	∗
^{168}Hf$-C_{14}$	−59560	104	−59430	30	1.2	U			GS1	1.0	00Ra23	
	−59432	30				2			GS2	1.0	03Li.A	
^{168}Ta$-C_{14}$	−52020	110	−51950	30	0.6	U			GS1	1.0	00Ra23	
	−51953	30				2			GS2	1.0	03Li.A	
^{168}W$-C_{14}$	−48181	30	−48192	17	−0.4	R			GS2	1.0	03Li.A	
^{168}W(α)^{164}Hf	4506.5	12.				5					91Me05	
^{168}Re(α)^{164}Ta	5063	13				3			Bea		92Me10	∗
^{168}Os(α)^{164}W	5819.0	3.	5818.2	2.9	−0.3	6					82De11	Z
	5800.4	8.			2.2	B					84Sc06	∗
	5812.7	8.			0.7	6					95Hi02	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{168}Ir(α)^{164}Re	6477.5	8.				8				Daa		96Pa01	$*$
^{168}Ir^m(α)^{164}Re^m	6410.9	5.	6410	50	−0.1	6						82De11	
	6379.2	15.			0.6	6				Daa		96Pa01	
^{168}Pt(α)^{164}Os	6990.8	20.	6997	9	0.3	7						81Ho10	
	6998.9	10.			−0.2	7				ORa		96Bi07	
^{168}Yb(p,t)^{166}Yb	−7647	7				2				Min		73Oo01	
^{167}Er(n,γ)^{168}Er	7771.43	0.40	7771.32	0.12	−0.3	–						70Mi01	Z
	7771.05	0.20			1.3	–				ILn		79Br25	Z
	7771.0	0.5			0.6	U						85Va.A	
	7771.45	0.16			−0.8	–				Bdn		03Fi.A	
ave.	7771.31	0.12			0.1	1	100	60	^{168}Er			average	
^{167}Er(α,t)^{168}Tm−^{168}Er()^{169}Tm	−262.3	1.5	−262.3	1.5	0.0	1	100	100	^{168}Tm	McM		75Bu02	
^{168}Yb(d,t)^{167}Yb	−2797	12	−2795	5	0.2	1	18	10	^{167}Yb	Kop		66Bu16	
^{168}Ho(β^-)^{168}Er	2740	100	2930	30	1.9	U						73Ka07	
	2930	30				2						90Ch37	
^{168}Lu(β^+)^{168}Yb	4475	80	4510	50	0.4	2						70Ch28	
	4500	80			0.1	2						83Vi.A	
^{168}Lu^m(β^+)^{168}Yb	4695	100				2						72Ch44	
$*^{168}$Lu−C$_{14}$	M−A=–56922(28) keV for mixture gs+m at 190(110) keV											Nubase	$**$
$*^{168}$Re(α)^{164}Ta	E(α)=4833(13) to 111.7 level											92Me10	$**$
$*^{168}$Os(α)^{164}W	Used for recalibration of other results of same ref.											GAu	$**$
$*^{168}$Ir(α)^{164}Re	Correlated with E(α)=6878 of ^{172}Au											96Pa01	$**$
^{169}Lu−C$_{14.083}$	−62362	31	−62349	6	0.4	U				GS2	1.0	03Li.A	$*$
^{169}Hf−C$_{14.083}$	−58741	30				2				GS2	1.0	03Li.A	
^{169}Ta−C$_{14.083}$	−53960	110	−53990	30	−0.3	U				GS1	1.0	00Ra23	
	−53989	30				2				GS2	1.0	03Li.A	
^{169}W−C$_{14.083}$	−48195	30	−48221	17	−0.9	1	31	31	^{169}W	GS2	1.0	03Li.A	
^{169}Re−C$_{14.083}$	−41188	57	−41210	30	−0.4	1	28	28	^{169}Re	GS2	1.0	03Li.A	$*$
^{169}Tm ^{35}Cl$_2$−^{165}Ho ^{37}Cl$_2$	9793.0	1.1	9791.4	1.4	−0.6	1	24	14	^{165}Ho	H25	2.5	72Ba08	
^{169}Tm ^{35}Cl−^{167}Er ^{37}Cl	5113.2	1.1	5115.2	1.2	0.7	1	18	10	^{167}Er	H25	2.5	72Ba08	
^{169}Re(α)^{165}Ta^p	4989.3	12.				2				Bea		92Me10	
^{169}Re^m(α)^{165}Ta	5189.1	3.				4				Ora		82De11	
	5191.1	10.	5189	3	−0.2	U				ChR		84Sc06	$*$
	5184.0	10.			0.5	U				Bea		92Me10	
^{169}Os(α)^{165}W	5717.6	4.	5716	3	−0.4	2						82De11	
	5699.2	8.			2.1	B						84Sc06	$*$
	5713	8			0.3	2						95Hi02	
	5711.5	8.			0.5	2				Daa		96Pa01	
^{169}Ir(α)^{165}Re	6150.8	8.				13				Ara		99Po09	
^{169}Ir^m(α)^{165}Re^m	6276.0	3.	6257	4	−6.2	B				Ora		82De11	Z
	6258.4	10.			−0.1	U						84Sc.A	
	6267.6	9.			−1.1	12				Daa		96Pa01	
	6254.3	5.			0.6	12				Ara		99Po09	
^{169}Pt(α)^{165}Os	6840.2	15.	6846	13	0.4	6				GSa		81Ho10	
	6860.7	23.			−0.6	6				Daa		96Pa01	
^{168}Er(n,γ)^{169}Er	6002.5	0.7	6003.27	0.15	1.1	U						70Bo29	Z
	6003.5	0.3			−0.8	–						70Mu15	Z
	6003.16	0.18			0.6	–				Bdn		03Fi.A	
ave.	6003.25	0.15			0.1	1	100	92	^{169}Er			average	
^{168}Yb(n,γ)^{169}Yb	6866.8	0.4	6866.98	0.15	0.5	–						68Mi08	Z
	6867.2	0.4			−0.5	–						68Sh12	Z
	6866.97	0.18			0.1	–				Bdn		03Fi.A	
ave.	6866.98	0.15			0.0	1	100	54	^{168}Yb			average	
^{169}Dy(β^-)^{169}Ho	3200	300				3				LBL		90Ch34	
^{169}Er(β^-)^{169}Tm	343.8	3.	351.3	1.1	2.5	1	13	8	^{169}Er			56Bi30	
	347.8	5.			0.7	U						65Du02	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{169}Yb(ε)^{169}Tm	913	12	910	4	−0.3	U					86Ad07	
^{169}Lu(β^+)^{169}Yb	2293	3				2					77Bo31	
^{169}Hf(β^+)^{169}Lu	3365	200	3360	28	0.0	U					69Ar23	
	3250	90			1.2	U					73Me09	
∗^{169}Lu−C$_{14.083}$	M−A=–58075(28) keV for mixture gs+m at 29.0 keV										NDS91a	∗∗
∗^{169}Re−C$_{14.083}$	M−A=–38293(29) keV for mixture gs+m at 145(29) keV										Nubase	∗∗
∗^{169}Re^m(α)^{165}Ta	Original E(α)=5050 recalibrated using their ^{168}Os−^{170}Os results										GAu	∗∗
∗^{169}Os(α)^{165}W	Used for recalibration of other results of same ref.										GAu	∗∗
^{170}Lu−C$_{14.167}$	−61529	42	−61525	18	0.1	R			GS2	1.0	03Li.A	∗
^{170}Hf−C$_{14.167}$	−60400	104	−60390	30	0.1	U			GS1	1.0	00Ra23	
	−60391	30				2			GS2	1.0	03Li.A	
^{170}Ta−C$_{14.167}$	−53810	104	−53830	30	−0.1	U			GS1	1.0	00Ra23	
	−53825	30				2			GS2	1.0	03Li.A	
^{170}W−C$_{14.167}$	−50710	110	−50772	16	−0.6	U			GS1	1.0	00Ra23	
	−50755	30			−0.6	R			GS2	1.0	03Li.A	
^{170}Re−C$_{14.167}$	−41782	30	−41780	28	0.1	2			GS2	1.0	03Li.A	
^{170}Os−C$_{14.167}$	−36454	31	−36423	12	1.0	R			GS2	1.0	03Li.A	
^{170}Er ^{35}Cl−^{168}Er ^{37}Cl	6046.9	1.8	6044.2	1.6	−0.6	1	13	10 ^{170}Er	H25	2.5	72Ba08	
^{170}Yb ^{35}Cl−^{168}Yb ^{37}Cl	3806.0	7.6	3815	4	0.5	U			H27	2.5	74Ba90	
^{170}Os(α)^{166}W	5533.5	10.	5539	3	0.6	4					72To06	Z
	5541.6	4.			−0.6	4					82De11	Z
	5523.2	8.			2.0	B					84Sc06	∗
	5533.4	8.			0.7	4					95Hi02	
	5537.5	10.			0.2	4			Bka		02Ro17	
^{170}Ir(α)^{166}Re^p	5955.4	10.				8			Bka		02Ro17	
^{170}Ir^m(α)^{166}Re^m	6175.4	10.	6230	11	1.1	U					78Sc26	Z
	6172.7	5.			1.1	U			Ora		82De11	Z
	6147.9	10.			1.6	U			Daa		96Pa01	
	6229.9	11.				6			Daa		96Pa01	∗
^{170}Pt(α)^{166}Os	6703.0	8.	6708	4	0.6	6					81Ho10	
	6705.0	10.			0.3	6					82En03	
	6708.1	6.			0.0	6			ORa		96Bi07	
	6711.2	11.			−0.3	6			Jya		97Uu01	
	6723.5	14.			−1.1	6			Bka		01Ro.B	
^{170}Au(α)^{166}Ir	7174.1	11.	7168	21	−0.1	U			Jya		02Ke.C	
^{170}Au^m(α)^{166}Ir^m	7277.5	6.	7271	17	−0.1	U			Jya		02Ke.C	
	7226.3	15.			0.9	U			Ara		02Ma61	
^{170}Er(p,α)^{167}Ho	7036	5				2			NDm		83Ta.A	
^{170}Er(^{18}O,^{20}Ne)^{168}Dy	4710	140				2					98Lu08	
^{170}Er(p,t)^{168}Er	−4785	5	−4778.7	1.5	1.3	U			Min		73Oo01	
^{170}Yb(p,t)^{168}Yb	−6861	6	−6855	4	1.0	1	38	37 ^{168}Yb	Min		73Oo01	
^{170}Er(d,^{3}He)^{169}Ho	−3107	20				2					76Su.A	
^{169}Tm(n,γ)^{170}Tm	6595.	2.5	6591.97	0.17	−1.2	U					66Sh03	
	6592.1	1.5			−0.1	U					70Or.A	
	6591.7	0.9			0.3	U			BNn		96Ho12	Z
	6591.95	0.17			0.1	1	99	52 ^{170}Tm	Bdn		03Fi.A	
^{170}Au(p)^{169}Pt	1473.8	15.				7			Jyp		02Ke.C	
^{170}Au^m(p)^{169}Pt	1749.5	8.	1748	6	−0.2	7			Jyp		02Ke.C	
	1745.4	10.			0.3	7			Arp		02Ma61	
^{170}Ho(β^-)^{170}Er	3870	50				2					78Tu04	
^{170}Ho^m(β^-)^{170}Er	3970	60				2					78Tu04	
^{170}Tm(β^-)^{170}Yb	970	2	968.3	0.8	−0.8	–					54Po26	
	967.3	1.			1.0	–					69Va17	
ave.	967.8	0.9			0.6	1	78	48 ^{170}Tm			average	
^{170}Lu(β^+)^{170}Yb	3467	20	3459	17	−0.4	2					60Dz02	
	3410	50			1.0	2					65Ha30	
∗^{170}Lu−C$_{14.167}$	M−A=–57267(29) keV for mixture gs+m at 92.91 keV										Ens02	∗∗
∗^{170}Os(α)^{166}W	Used for recalibration of other results of same ref.										GAu	∗∗
∗^{170}Ir^m(α)^{166}Re^m	Correlated with ^{166}Re E(α)=5533										96Pa01	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
$^{171}\mathrm{Lu}-\mathrm{C}_{14.25}$		-62132	41	-62086.9	3.0	1.1	U			GS2	1.0	03Li.A	∗
$^{171}\mathrm{Hf}-\mathrm{C}_{14.25}$		-59570	104	-59510	30	0.6	U			GS1	1.0	00Ra23	∗
		-59508	31				2			GS2	1.0	03Li.A	∗
$^{171}\mathrm{Ta}-\mathrm{C}_{14.25}$		-55550	104	-55520	30	0.3	U			GS1	1.0	00Ra23	
		-55524	30				2			GS2	1.0	03Li.A	
$^{171}\mathrm{W}-\mathrm{C}_{14.25}$		-50650	110	-50550	30	0.9	U			GS1	1.0	00Ra23	
		-50549	30				2			GS2	1.0	03Li.A	
$^{171}\mathrm{Re}-\mathrm{C}_{14.25}$		-44284	30				2			GS2	1.0	03Li.A	
$^{171}\mathrm{Os}-\mathrm{C}_{14.25}$		-36796	30	-36815	20	-0.6	–			GS2	1.0	03Li.A	
	ave.	-36801	21			-0.7	1	90	90 ^{171}Os			average	
$^{171}\mathrm{Yb}\,^{35}\mathrm{Cl}_2-^{167}\mathrm{Er}\,^{37}\mathrm{Cl}_2$		10178.0	1.7	10177.8	1.4	0.0	1	10	7 ^{167}Er	H27	2.5	74Ba90	
$^{171}\mathrm{Yb}\,^{35}\mathrm{Cl}-^{169}\mathrm{Tm}\,^{37}\mathrm{Cl}$		5061.9	1.7	5062.6	1.0	0.2	1	5	4 ^{169}Tm	H27	2.5	74Ba90	
$^{171}\mathrm{Os}(\alpha)^{167}\mathrm{W}$		5365.8	10.	5371	4	0.5	2					72To06	
		5365.8	10.			0.5	2					78Sc26	
		5393.4	15.			-1.5	2					79Ha10	
		5367.9	8.			0.3	2					95Hi02	
		5374.0	9.			-0.4	2			Daa		96Pa01	
$^{171}\mathrm{Ir}(\alpha)^{167}\mathrm{Re}^m$		5854.2	10.				5			Bka		02Ro17	∗
$^{171}\mathrm{Ir}^m(\alpha)^{167}\mathrm{Re}$		6159.2	3.	6160.2	2.5	0.3	9					82De11	∗
		6159	5			0.2	9					92Sc16	∗
		6180	11			-1.8	9			Daa		96Pa01	∗
$^{171}\mathrm{Pt}(\alpha)^{167}\mathrm{Os}$		6608.1	4.	6610	50	0.0	7					81De22	Z
		6606.8	5.			0.0	7					81Ho10	Z
		6604.8	11.			0.1	7			Jya		97Uu01	
$^{171}\mathrm{Au}^m(\alpha)^{167}\mathrm{Ir}^m$		7163.9	6.				8			Ara		97Da07	
$^{171}\mathrm{Yb(p,t)}^{169}\mathrm{Yb}$		-6599	5	-6603	4	-0.7	1	54	54 ^{169}Yb	Min		73Oo01	
$^{170}\mathrm{Er}(\mathrm{n},\gamma)^{171}\mathrm{Er}$		5681.5	0.5	5681.6	0.4	0.1	–					71Al01	
		5681.6	0.5			-0.1	–			Bdn		03Fi.A	
	ave.	5681.6	0.4			0.1	1	98	69 ^{171}Er			average	
$^{170}\mathrm{Er}(\alpha,\mathrm{t})^{171}\mathrm{Tm}-^{168}\mathrm{Er}()^{169}\mathrm{Tm}$		817.9	1.0	817.8	0.9	-0.1	1	81	59 ^{170}Er	McM		75Bu02	
$^{170}\mathrm{Yb}(\mathrm{n},\gamma)^{171}\mathrm{Yb}$		6614.3	0.6	6614.5	0.6	0.3	1	88	77 ^{170}Yb			72Wa10	Z
		6616.6	0.4			-5.3	B			Bdn		03Fi.A	
$^{170}\mathrm{Yb}(\alpha,\mathrm{t})^{171}\mathrm{Lu}-^{174}\mathrm{Yb}()^{175}\mathrm{Lu}$		-1156.2	2.0	-1156.5	1.7	-0.2	1	74	69 ^{171}Lu	McM		75Bu02	
$^{171}\mathrm{Au(p)}^{170}\mathrm{Pt}$		1452.6	17.	1452	18	0.0	R			Arp		99Po09	
$^{171}\mathrm{Au}^m\mathrm{(p)}^{170}\mathrm{Pt}$		1702.1	6.	1702	9	-0.1	R					97Da07	
$^{171}\mathrm{Ho}(\beta^-)^{171}\mathrm{Er}$		3200	600				2			LBL		90Ch34	
$^{171}\mathrm{Er}(\beta^-)^{171}\mathrm{Tm}$		1490	2	1490.7	1.2	0.4	1	38	31 ^{171}Er			61Ar15	
$^{171}\mathrm{Tm}(\beta^-)^{171}\mathrm{Yb}$		96.5	1.0	96.5	1.0	0.0	1	94	93 ^{171}Tm			57Sm73	
$^{171}\mathrm{Lu}(\beta^+)^{171}\mathrm{Yb}$		1479.3	3.	1478.6	1.9	-0.2	1	41	31 ^{171}Lu			77Bo32	
$^{171}\mathrm{Re}(\beta^+)^{171}\mathrm{W}$		5670	200	5840	40	0.8	U			Got		87Ru05	
$^{171}\mathrm{Au}^m(\mathrm{IT})^{171}\mathrm{Au}$		250	16	250	16	0.0	R					170Pt+1	
		250	16				9					99Po09	
$*^{171}\mathrm{Lu}-\mathrm{C}_{14.25}$	M$-$A=–57840(33) keV for mixture gs+m at 71.13 keV											NDS027	∗∗
$*^{171}\mathrm{Hf}-\mathrm{C}_{14.25}$	M$-$A=–55480(100) keV for mixture gs+m at 21.93 keV											NDS027	∗∗
$*^{171}\mathrm{Hf}-\mathrm{C}_{14.25}$	M$-$A=–55420(28) keV for mixture gs+m at 21.93 keV											NDS027	∗∗
$*^{171}\mathrm{Ir}(\alpha)^{167}\mathrm{Re}^m$	Correlated with ^{175}Au E(α)=6412											02Ro17	∗∗
$*^{171}\mathrm{Ir}^m(\alpha)^{167}\mathrm{Re}$	E(α)=5925.2(3,Z) to 92 level											92Sc16	∗∗
∗	this 92 level 11/2$^-$ above 9/2$^-$ 5.9 s state											NDS007	∗∗
$*^{171}\mathrm{Ir}^m(\alpha)^{167}\mathrm{Re}$	E(α)=5925(5) to 92 level											92Sc16	∗∗
$*^{171}\mathrm{Ir}^m(\alpha)^{167}\mathrm{Re}$	E(α)=5945(11) followed by 92 γ											96Pa01	∗∗
$^{172}\mathrm{Hf}-\mathrm{C}_{14.333}$		-60555	30	-60552	26	0.1	2			GS2	1.0	03Li.A	
$^{172}\mathrm{Ta}-\mathrm{C}_{14.333}$		-55105	30				2			GS2	1.0	03Li.A	
$^{172}\mathrm{W}-\mathrm{C}_{14.333}$		-52770	110	-52710	30	0.6	U			GS1	1.0	00Ra23	
		-52708	30				2			GS2	1.0	03Li.A	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{172}Re$-$C$_{14.333}$	−44702	221	−44580	60	0.6	U				GS1	1.0	00Ra23	*
	−44587	62			0.2	R				GS2	1.0	03Li.A	*
^{172}Yb ^{35}Cl$_2$$-$^{168}Er ^{37}Cl$_2$	9906.7	1.7	9911.4	1.4	1.1	1	10	7	^{168}Er	H27	2.5	74Ba90	
^{172}Yb ^{35}Cl$-$^{170}Yb ^{37}Cl	4568.5	2.0	4569.7	0.6	0.2	U				H27	2.5	74Ba90	
^{172}Os(α)^{168}W	5226.8	10.	5227	7	0.0	4						71Bo06	
	5227.8	10.			−0.1	4				Daa		96Pa01	
^{172}Ir(α)^{168}Re	5990.6	10.	5850#	100#	−14.1	F						92Sc16	*
^{172}Ir^{m}(α)^{168}Re	6129.3	3.	6129.2	2.6	0.0	4						82De11	*
	6129.1	5.			0.0	4						92Sc16	*
	6123.0	12.			0.5	U				Daa		96Pa01	*
^{172}Pt(α)^{168}Os	6464.8	4.				7						81De22	Z
^{172}Au(α)^{168}Ir	7023.6	10.	7030	50	0.2	8						93Se09	
	7042.1	9.			−0.2	8				Daa		96Pa01	
^{172}Hg(α)^{168}Pt	7525	12				8						99Se14	
^{170}Er(t,p)^{172}Er	4034	4	4036	4	0.4	1	89	87	^{172}Er			80Sh14	
^{171}Yb(n,γ)^{172}Yb	8020.3	0.7	8019.46	0.14	−1.2	–						71Al14	Z
	8020.1	0.5			−1.3	–						75Gr32	
	8019.67	0.35			−0.6	–				ILn		85Ge02	Z
	8019.27	0.17			1.1	–				Bdn		03Fi.A	
ave.	8019.45	0.14			0.1	1	100	73	^{171}Yb			average	
^{171}Yb(α,t)^{172}Lu$-$^{174}Yb()^{175}Lu	−791.9	2.0	−791.9	2.0	0.0	1	100	100	^{172}Lu	McM		75Bu02	
^{172}Er(β^-)^{172}Tm	888	5	891	5	0.5	1	83	70	^{172}Tm			62Gu03	
^{172}Tm(β^-)^{172}Yb	1870	10	1880	6	1.0	1	30	30	^{172}Tm			66Ha15	
^{172}Hf(ε)^{172}Lu	350	50	338	25	−0.2	R						79To18	
^{172}Ta(β^+)^{172}Hf	4920	180	5070	40	0.9	U						73Ca10	
^{172}W(β^+)^{172}Ta	3210	100	2230	40	−9.8	C						74Ca.A	
*^{172}Re$-$C$_{14.333}$	M$-$A=–41640(200) keV for mixture gs+m at 0#100 keV											Nubase	**
*^{172}Re$-$C$_{14.333}$	M$-$A=–41533(28) keV for mixture gs+m at 0#100 keV											Nubase	**
*^{172}Ir(α)^{168}Re	E(α)=5510(10) to 89.7+123.2+136.3 level											92Sc16	**
*^{172}Ir(α)^{168}Re	Considers 349.2 level uncertain											NDS942	**
*^{172}Ir(α)^{168}Re	E(α)=5510(10) correlated with E(α)=6260 of ^{186}Au											02Ro17	**
*^{172}Ir^{m}(α)^{168}Re	E(α)=5828.2(3,Z) followed by 162.1 γ-ray											92Sc16	**
*^{172}Ir^{m}(α)^{168}Re	E(α)=5828(5) followed by 162.1 γ-ray											92Sc16	**
*^{172}Ir^{m}(α)^{168}Re	E(α)=5822(12) to 162.1 level											NDS942	**
^{173}Hf$-$C$_{14.417}$	−59487	30				2				GS2	1.0	03Li.A	
^{173}Ta$-$C$_{14.417}$	−56270	104	−56250	30	0.2	U				GS1	1.0	00Ra23	
	−56250	30				2				GS2	1.0	03Li.A	
^{173}W$-$C$_{14.417}$	−52340	104	−52310	30	0.3	U				GS1	1.0	00Ra23	
	−52311	30				2				GS2	1.0	03Li.A	
^{173}Re$-$C$_{14.417}$	−46910	110	−46760	30	1.4	U				GS1	1.0	00Ra23	
	−46757	30				2				GS2	1.0	03Li.A	
^{173}Os$-$C$_{14.417}$	−40169	30	−40192	16	−0.8	1	29	29	^{173}Os	GS2	1.0	03Li.A	
^{173}Ir$-$C$_{14.417}$	−32463	110	−32498	15	−0.3	U				GS2	1.0	03Li.A	*
^{173}Yb ^{35}Cl$_2$$-$^{169}Tm ^{37}Cl$_2$	9898.3	1.2	9897.7	1.0	−0.2	1	11	8	^{169}Tm	H27	2.5	74Ba90	
^{173}Os(α)^{169}W	5057.2	10.	5055	6	−0.2	–						71Bo06	
	5055.2	7.			−0.1	–				GSa		84Sc.A	
ave.	5056	6			−0.2	1	97	69	^{169}W			average	
^{173}Ir(α)^{169}Re^{m}	5544.4	10.				3						92Sc16	
^{173}Ir^{m}(α)^{169}Re	5930.4	5.	5941.8	2.5	2.3	–						67Si02	*
	5947.1	4.			−1.3	–						82De11	*
	5937	10			0.5	–				GSa		84Sc.A	*
	5944.8	5.			−0.6	–						92Sc16	*
	5951.9	13.			−0.8	–				Daa		96Pa01	*
	5927.3	20.			0.7	U				Ara		01Ko.B	
ave.	5941.8	2.5			0.0	1	100	72	^{169}Re			average	
^{173}Pt(α)^{169}Os	6359.1	8.	6350	50	−0.1	3						79Ha10	Z
	6352.3	3.			0.1	3						81De22	Z
	6382.9	10.			−0.6	U				GSa		84Sc.A	
	6372.6	9.			−0.4	3				Daa		96Pa01	
^{173}Au(α)^{169}Ir	6830.2	6.	6836	5	1.0	12				Ara		99Po09	
	6847.6	8.			−1.4	12				Ara		01Ko44	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$^{173}\mathrm{Au}^m(\alpha)^{169}\mathrm{Ir}^m$	6896.8	10.	6896	3	0.0	11				GSa		84Sc.A	
	6909.1	9.			−1.4	11				Daa		96Pa01	
	6891.6	4.			1.1	11				Ara		99Po09	
	6900.8	6.			−0.7	11				Ara		01Ko44	
$^{173}\mathrm{Hg}(\alpha)^{169}\mathrm{Pt}$	7381	11				7						99Se14	
$^{172}\mathrm{Yb}(\mathrm{n},\gamma)^{173}\mathrm{Yb}$	6367.3	0.4	6367.3	0.3	0.0	–						71Al01	Z
	6367.2	0.6			0.2	–				Bdn		03Fi.A	
ave.	6367.3	0.3			0.1	1	98	70	$^{172}\mathrm{Yb}$			average	
$^{172}\mathrm{Yb}(\alpha,\mathrm{t})^{173}\mathrm{Lu}-^{174}\mathrm{Yb}()^{175}\mathrm{Lu}$	−595.6	1.0	−595.6	1.0	0.0	1	100	100	$^{173}\mathrm{Lu}$	McM		75Bu02	
$^{173}\mathrm{Ta}(\beta^+)^{173}\mathrm{Hf}$	3670	200	3020	40	−3.3	U						73Re03	
$^{173}\mathrm{W}(\beta^+)^{173}\mathrm{Ta}$	4000	300	3670	40	−1.1	U						80Vi.A	
$*^{173}\mathrm{Ir}-\mathrm{C}_{14.417}$	M−A=–30113(70) keV for mixture gs+m at 253(27) keV											Nubase	**
$*^{173}\mathrm{Ir}^m(\alpha)^{169}\mathrm{Re}$	E(α)=5660.0(5,Z) to 136.2 level											92Sc16	**
$*^{173}\mathrm{Ir}^m(\alpha)^{169}\mathrm{Re}$	E(α)=5676.2(4,Z) to 136.2 level											92Sc16	**
$*^{173}\mathrm{Ir}^m(\alpha)^{169}\mathrm{Re}$	E(α)=5666(10) followed by 136.0 E_1 γ (and 90.6)											84Sc.A	**
*	136.2 γ: M_1E_2 instead (90 not mentioned)											92Sc16	**
$*^{173}\mathrm{Ir}^m(\alpha)^{169}\mathrm{Re}$	E(α)=5674(5) to 136.2 level											92Sc16	**
$*^{173}\mathrm{Ir}^m(\alpha)^{169}\mathrm{Re}$	E(α)=5681(13) to 136.2 level											92Sc16	**
$^{174}\mathrm{Ta}-\mathrm{C}_{14.5}$	−55546	30				2				GS2	1.0	03Li.A	
$^{174}\mathrm{W}-\mathrm{C}_{14.5}$	−53940	104	−53920	30	0.2	U				GS1	1.0	00Ra23	
	−53921	30				2				GS2	1.0	03Li.A	
$^{174}\mathrm{Re}-\mathrm{C}_{14.5}$	−46930	104	−46890	30	0.4	U				GS1	1.0	00Ra23	
	−46885	30				2				GS2	1.0	03Li.A	
$^{174}\mathrm{Os}-\mathrm{C}_{14.5}$	−42880	110	−42938	12	−0.5	U				GS1	1.0	00Ra23	
	−42919	30			−0.6	R				GS2	1.0	03Li.A	
$^{174}\mathrm{Ir}-\mathrm{C}_{14.5}$	−33127	72	−33139	30	−0.2	R				GS2	1.0	03Li.A	*
$^{174}\mathrm{Yb}\,^{35}\mathrm{Cl}-^{172}\mathrm{Yb}\,^{37}\mathrm{Cl}$	5430.3	1.1	5430.7	0.4	0.1	U				H27	2.5	74Ba90	
$^{174}\mathrm{Os}(\alpha)^{170}\mathrm{W}$	4872.2	10.				5						71Bo06	
$^{174}\mathrm{Ir}(\alpha)^{170}\mathrm{Re}$	5624.1	10.				3						92Sc16	*
$^{174}\mathrm{Ir}^m(\alpha)^{170}\mathrm{Re}$	5817.6	6.	5817	4	−0.1	3						67Si02	*
	5816.4	5.			0.1	3						92Sc16	*
$^{174}\mathrm{Pt}(\alpha)^{170}\mathrm{Os}$	6176.3	10.	6184	5	0.7	5						79Ha10	Z
	6185.7	5.			−0.4	5						81De22	Z
$^{174}\mathrm{Au}(\alpha)^{170}\mathrm{Ir}$	6700.3	10.	6699	7	−0.1	9				GSa		84Sc.A	
	6698.3	10.			0.1	9				Daa		96Pa01	*
$^{174}\mathrm{Au}^m(\alpha)^{170}\mathrm{Ir}^m$	6778	10	6784	8	0.6	7				GSa		84Sc.A	*
	6793.5	13.			−0.7	7				Daa		96Pa01	
$^{174}\mathrm{Hg}(\alpha)^{170}\mathrm{Pt}$	7235.6	11.	7233	6	−0.2	7						97Uu01	
	7232	8			0.1	7						99Se14	
	7231	14			0.1	7				Bka		01Ro.B	
$^{173}\mathrm{Yb}(\mathrm{n},\gamma)^{174}\mathrm{Yb}$	7464.63	0.06	7464.63	0.06	0.1	1	100	57	$^{173}\mathrm{Yb}$	MMn		82Is05	Z
	7464.58	0.35			0.2	U				ILn		87Ge01	Z
	7465.5	0.4			−2.2	U				Bdn		03Fi.A	
$^{173}\mathrm{Yb}(\alpha,\mathrm{t})^{174}\mathrm{Lu}-^{174}\mathrm{Yb}()^{175}\mathrm{Lu}$	−202.1	1.0	−202.1	1.0	0.0	1	100	100	$^{174}\mathrm{Lu}$	McM		75Bu02	
$^{174}\mathrm{Tm}(\beta^-)^{174}\mathrm{Yb}$	3080	100	3080	40	0.0	2						64Ka16	
	3080	50			0.0	2						67Gu12	
$^{174}\mathrm{Ta}(\beta^+)^{174}\mathrm{Hf}$	3845	80	4106	28	3.3	B						71Ch26	
$*^{174}\mathrm{Ir}-\mathrm{C}_{14.5}$	M−A=–30761(36) keV for mixture gs+m at 193(11) keV											Nubase	**
$*^{174}\mathrm{Ir}(\alpha)^{170}\mathrm{Re}$	E(α)=5275(10) to 224.7 level											92Sc16	**
$*^{174}\mathrm{Ir}^m(\alpha)^{170}\mathrm{Re}$	E(α)=5478(6) to 210.4 level											92Sc16	**
$*^{174}\mathrm{Ir}^m(\alpha)^{170}\mathrm{Re}$	E(α)=5478(5), 5316(10) to 210.4, 370.2 levels											92Sc16	**
$*^{174}\mathrm{Au}(\alpha)^{170}\mathrm{Ir}$	E(α)=6538 correlated with ^{170}Ir E(α)=5817											02Ro17	**
*	and with ^{178}Tl α's											02Ro17	**
$*^{174}\mathrm{Au}^m(\alpha)^{170}\mathrm{Ir}^m$	E(α)=6626, 6470, 6435 to ground-state, 152.7, 190.0 levels											84Sc.A	**
*	Last two E(α) orig. assgnd to ^{175}Au											01Ko.B	**

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{175}Lu ^{37}Cl$-^{142}$Nd ^{35}Cl$_2$	61249.5	2.5	61245.7	2.0	−0.6	1	11	6	^{142}Nd	H31	2.5	77So02	
^{175}Ta$-$C$_{14.583}$	−56350	120	−56260	30	0.7	U				GS1	1.0	00Ra23	
	−56263	30				2				GS2	1.0	03Li.A	
^{175}W$-$C$_{14.583}$	−53290	104	−53280	30	0.1	U				GS1	1.0	00Ra23	
	−53283	30				2				GS2	1.0	03Li.A	
^{175}Re$-$C$_{14.583}$	−48630	104	−48620	30	0.1	U				GS1	1.0	00Ra23	
	−48619	30				2				GS2	1.0	03Li.A	
^{175}Os$-$C$_{14.583}$	−43120	110	−43054	15	0.6	U				GS1	1.0	00Ra23	
	−43024	30			−1.0	R				GS2	1.0	03Li.A	
^{175}Ir$-$C$_{14.583}$	−35828	30	−35887	21	−2.0	1	50	50	^{175}Ir	GS2	1.0	03Li.A	
^{175}Lu ^{35}Cl$-^{173}$Yb ^{37}Cl	5507.3	1.4	5511.1	1.4	1.1	1	15	12	^{173}Yb	H27	2.5	74Ba90	
^{175}Ir(α)^{171}Re	5709.0	5.	5400	30	−62.5	B						67Si02	*
	5709.2	5.			−62.5	B						92Sc16	*
^{175}Pt(α)^{171}Os	6179	5	6178.1	2.6	−0.2	–						79Ha10	*
	6178.1	3.			0.0	–						82De11	*
ave.	6178.3	2.6			−0.1	1	100	90	^{175}Pt			average	
^{175}Au(α)^{171}Ir	6562.3	15.				6				Bka		02Ro17	*
^{175}Au^m(α)^{171}Ir^m	6590.9	10.	6584	5	−0.7	8				Ora		75Ca06	
	6775.8	10.			−19.2	F						84Sc.A	*
	6588.8	9.			−0.5	8				Daa		96Pa01	
	6579.6	6.			0.7	8				Ara		01Ko44	
^{175}Hg(α)^{171}Pt	7039.2	20.	7060	50	0.3	8				GSa		84Sc.A	
	7071.0	24.			−0.3	8				Daa		96Pa01	
	7058.7	11.			0.0	8				Jya		97Uu01	
^{174}Yb(n,γ)^{175}Yb	5822.35	0.07	5822.35	0.07	0.1	1	100	53	^{175}Yb	MMn		82Is05	Z
	5822.5	0.4			−0.4	U				Bdn		03Fi.A	
^{174}Hf(n,γ)^{175}Hf	6708.4	0.5	6708.5	0.4	0.3	–						71Al01	Z
	6708.8	0.6			−0.4	–				Bdn		03Fi.A	
ave.	6708.6	0.4			−0.1	1	99	86	^{175}Hf			average	
^{175}Tm(β^-)^{175}Yb	2385	50				2						66Wi04	
^{175}Yb(β^-)^{175}Lu	466	3	470.1	1.3	1.4	–						55De18	
	468	5			0.4	–						55Mi90	
	471	3			−0.3	–						56Co13	
	467	3			1.0	–						62Ba32	
ave.	468.0	1.6			1.3	1	60	47	^{175}Yb			average	
^{175}Ir^p(IT)^{175}Ir	100	20	72	17	−1.4	1	74	50	^{175}Ir			84Sc.A	
*^{175}Ir(α)^{171}Re	E(α)=5392.8(5,Z) to 189.8 level											95Hi02	**
*^{175}Ir(α)^{171}Re	E(α)=5393(5) to 189.8 level											95Hi02	**
*^{175}Pt(α)^{171}Os	E(α)=6037(10), 5963.0(5,Z) to ground-state, 76.4(0.5) level											84Sc.A	**
*^{175}Pt(α)^{171}Os	E(α)=5959.2(3,Z) to 76.4(0.5) level											84Sc.A	**
*^{175}Au(α)^{171}Ir	Analysis of data of ref											02Ro17	**
*^{175}Au^m(α)^{171}Ir^m	F: Belong to ^{174}Au !											01Ko.B	**
^{176}Lu ^{37}Cl$-^{143}$Nd ^{35}Cl$_2$	61067.2	1.4	61069.2	2.0	0.6	1	34	20	^{143}Nd	H31	2.5	77So02	
^{176}Ta$-$C$_{14.667}$	−55143	33				2				GS2	1.0	03Li.A	
^{176}W$-$C$_{14.667}$	−54420	104	−54370	30	0.5	U				GS1	1.0	00Ra23	
	−54366	30				2				GS2	1.0	03Li.A	
^{176}Re$-$C$_{14.667}$	−48380	110	−48380	30	0.0	U				GS1	1.0	00Ra23	
	−48377	30				2				GS2	1.0	03Li.A	
^{176}Os$-$C$_{14.667}$	−45150	110	−45190	30	−0.4	U				GS1	1.0	00Ra23	
	−45194	30				2				GS2	1.0	03Li.A	
^{176}Ir$-$C$_{14.667}$	−36328	30	−36351	22	−0.8	–				GS2	1.0	03Li.A	
ave.	−36334	27			−0.6	1	65	65	^{176}Ir			average	
^{176}Yb ^{35}Cl$_2-^{172}$Yb ^{37}Cl$_2$	12088.9	2.4	12090.4	1.1	0.2	U				H27	2.5	74Ba90	
^{176}Yb ^{35}Cl$-^{174}$Yb ^{37}Cl	6656.3	1.4	6659.7	1.0	1.0	1	9	9	^{176}Yb	H27	2.5	74Ba90	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{176}Hf ^{35}Cl$-$^{174}Hf ^{37}Cl		4314.21	0.86	4312.5	1.9	−0.8	1	76	75	^{174}Hf	H37	2.5	77Sh12	
^{176}Ir(α)^{172}Re		5237.3	8.				2						67Si02	
^{176}Pt(α)^{172}Os		5890.1	5.	5885.2	2.1	−0.9	3						79Ha10	Z
		5881.4	4.			1.0	3						82Bo04	Z
		5887.3	3.			−0.6	3						82De11	Z
		5874.8	8.			1.3	3				Daa		96Pa01	
^{176}Au(α)^{172}Ir		6574.2	10.	6558	7	−1.6	5				Ora		75Ca06	∗
		6541.5	10.			1.6	5						84Sc.A	∗
^{176}Au^m(α)^{172}Ir^m		6436.6	10.	6433	5	−0.3	5				Ora		75Ca06	∗
		6428.4	10.			0.5	5				GSa		84Sc.A	∗
		6433.4	6.			−0.1	5				Ara		01Ko44	∗
^{176}Hg(α)^{172}Pt		6924.7	10.	6897	6	−2.8	C				GSa		84Sc.A	
		6907.3	20.			−0.5	U				Daa		96Pa01	
		6897.0	6.				8				Ara		99Po09	
^{176}Yb(p,α)^{173}Tm		7628.8	4.4				2				NDm		78Ta10	
^{176}Hf(p,t)^{174}Hf		−6397	5	−6391.7	1.7	1.1	1	12	12	^{174}Hf	Min		73Oo01	
^{175}Lu(n,γ)^{176}Lu		6287.96	0.15	6287.98	0.15	0.1	1	100	77	^{175}Lu	ILn		91Kl02	Z
		6289.78	0.24			−7.5	B				Bdn		03Fi.A	
^{176}Tm(β^-)^{176}Yb		4120	100				2						67Gu11	∗
^{176}Lu(β^-)^{176}Hf		1194.1	1.0	1190.2	0.8	−3.9	1	58	36	^{176}Hf			73Va11	∗
^{176}Ta(β^+)^{176}Hf		3110	100	3210	30	1.0	U						71Be10	
∗^{176}Au(α)^{172}Ir	E(α)=6260(10) coinc. with E(γ)=168.4(0.5)												75Ca06	∗∗
∗^{176}Au(α)^{172}Ir	E(α)=6228(10) to 168.4(0.5) γ												84Sc.A	∗∗
∗^{176}Au(α)^{172}Ir	E(α)=6260 correlated with ^{172}Ir E(α)=5510												02Ro17	∗∗
∗^{176}Au^m(α)^{172}Ir^m	E(α)=6286 correlated with ^{172}Ir^m E(α)=5828												02Ro17	∗∗
∗^{176}Au^m(α)^{172}Ir^m	E(α)=6115(6) coinc. with 175.1 γ of ref												84Sc.A	∗∗
∗	E(α)=6119+E(γ)=175.1 misassigned to ^{177}Au by ref												84Sc.A	∗∗
∗^{176}Tm(β^-)^{176}Yb	E$^-$=2000(100), 1150(100) to 2053.4, 3050 levels												NDS905	∗∗
∗^{176}Lu(β^-)^{176}Hf	Q$^-$=1317(1) to ^{176}Lu^m at 122.855(0.009)												91Kl02	∗∗
^{177}Ta$-$C$_{14.75}$		−55559	30	−55528	4	1.0	U				GS2	1.0	03Li.A	
^{177}W$-$C$_{14.75}$		−53420	110	−53360	30	0.6	U				GS1	1.0	00Ra23	
		−53357	30				2				GS2	1.0	03Li.A	
^{177}Re$-$C$_{14.75}$		−49620	104	−49670	30	−0.5	U				GS1	1.0	00Ra23	
		−49672	30				2				GS2	1.0	03Li.A	
^{177}Os$-$C$_{14.75}$		−45020	104	−45035	17	−0.1	U				GS1	1.0	00Ra23	
		−45012	30			−0.8	R				GS2	1.0	03Li.A	
^{177}Ir$-$C$_{14.75}$		−38810	110	−38699	21	1.0	U				GS1	1.0	00Ra23	
		−38699	30			0.0	2				GS2	1.0	03Li.A	
^{177}Pt$-$C$_{14.75}$		−31545	30	−31531	16	0.5	1	29	29	^{177}Pt	GS2	1.0	03Li.A	
^{177}Ir(α)^{173}Re		5127.1	10.	5080	30	−0.9	F						67Si02	∗
^{177}Pt(α)^{173}Os		5654.6	6.	5642.8	2.7	−1.9	–						79Ha10	Z
		5640.7	3.			0.8	–						82Bo04	Z
	ave.	5643.3	2.7			−0.2	1	99	55	^{177}Pt			average	
^{177}Au(α)^{173}Ir		6292.5	10.	6297	5	0.4	2				Daa		75Ca06	
		6292.5	20.			0.2	U				GSa		84Sc.A	
		6296.5	10.			0.0	2				Daa		96Pa01	
		6298.6	6.			−0.3	2				Ara		01Ko44	
^{177}Au^m(α)^{173}Ir^m		6251.5	10.	6260	4	0.9	–				Ora		75Ca06	
		6260.8	10.			0.0	–				GSa		84Sc.A	∗
		6259.7	9.			0.1	–				Daa		96Pa01	∗
		6263.8	6.			−0.6	–				Ara		01Ko44	
	ave.	6260	4			0.0	1	100	72	^{173}Ir^m			average	
^{177}Hg(α)^{173}Pt		6732.4	8.	6740	50	0.1	4						79Ha10	
		6747.8	10.			−0.2	4						91Ko.A	
		6730.3	9.			0.1	4				Daa		96Pa01	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{177}Tl(α)^{173}Au		7067.0	7.				11				Ara		99Po09	
^{177}Tl^{m}(α)^{173}Au^{m}		7660.4	13.				10				Ara		99Po09	
^{177}Hf(p,t)^{175}Hf		−6071	5	−6066.6	1.9	0.9	1	14	14	^{175}Hf	Min		73Oo01	
^{176}Yb(n,γ)^{177}Yb		5565.1	1.0	5566.40	0.22	1.3	U						72Al19	Z
		5566.40	0.22				2				Bdn		03Fi.A	
^{176}Yb(α,t)^{177}Lu−^{174}Yb()^{175}Lu		674.1	1.0	673.8	1.0	−0.3	1	91	91	^{176}Yb	McM		75Bu02	
^{176}Lu(n,γ)^{177}Lu		7071.2	0.4	7072.99	0.16	4.5	B						71Ma45	Z
		7073.1	0.4			−0.3	–						72Mi16	Z
		7072.85	0.17			0.8	–				Bdn		03Fi.A	
	ave.	7072.89	0.16			0.7	1	99	57	^{177}Lu			average	
^{176}Hf(n,γ)^{177}Hf		6385.8	0.8	6383.4	0.7	−3.0	1	69	58	^{176}Hf	Bdn		03Fi.A	
^{177}Tl(p)^{176}Hg		1162.6	20.	1162	21	0.0	R				Arp		99Po09	∗
^{177}Tl^{m}(p)^{176}Hg		1969.2	10.				9				Arp		99Po09	
^{177}Lu(β^-)^{177}Hf		497	2	500.6	0.7	1.8	–						55Ma12	
		497.1	1.0			3.5	–						62El02	
	ave.	497.1	0.9			3.9	1	65	43	^{177}Lu			average	
^{177}Ta(β^+)^{177}Hf		1166	3				2						61We11	
^{177}Au^{m}(IT)^{177}Au		210	30	216	26	0.2	1	77	73	^{177}Au^{m}			01Ko44	∗
^{177}Au^{n}(IT)^{177}Au^{m}		240.8	0.5				2						01Ko44	
^{177}Tl^{m}(IT)^{177}Tl		807	18	807	18	0.0	R						176Hg+1	
		807	18				10						99Po09	

∗^{177}Ir(α)^{173}Re	Final state uncertain: possibly to 214.7 5/2$^-$ level	95Hi02	∗∗
∗^{177}Au^{m}(α)^{173}Ir^{m}	Followed by 175.1(0.5) γ	84Sc.A	∗∗
∗	Gamma belongs to E(α)=6116 of ^{176}Au	01Ko44	∗∗
∗	Yet E(α)=6118 correlated with E(α)=5672 of ^{173}Ir^{m}	02Ro17	∗∗
∗^{177}Au^{m}(α)^{173}Ir^{m}	E(α) correlated with ^{173}Ir E(α)=5681(13)	96Pa01	∗∗
∗	Also correlated with ^{181}Tl E(α)=6180	96To01	∗∗
∗	Doubts correctness of latter remark	AHW	∗∗
∗^{177}Tl(p)^{176}Hg	Replaced by ^{177}Tl^{m}(IT)	AHW	∗∗
∗^{177}Au^{m}(IT)^{177}Au	Auth. say 157.9+x, estimate x from ref.	AHW	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{178}W−C$_{14.833}$		−54152	30	−54124	16	0.9	U				GS2	1.0	03Li.A	
^{178}Re−C$_{14.833}$		−48800	110	−49010	30	−1.9	U				GS1	1.0	00Ra23	
		−49011	30				2				GS2	1.0	03Li.A	
^{178}Os−C$_{14.833}$		−46790	104	−46749	18	0.4	U				GS1	1.0	00Ra23	
		−46710	30			−1.3	R				GS2	1.0	03Li.A	
^{178}Ir−C$_{14.833}$		−38950	110	−38918	21	0.3	U				GS1	1.0	00Ra23	
		−38888	30			−1.0	2				GS2	1.0	03Li.A	
^{178}Pt−C$_{14.833}$		−34300	110	−34351	12	−0.5	U				GS1	1.0	00Ra23	
		−34333	30			−0.6	R				GS2	1.0	03Li.A	
^{178}Hf ^{35}Cl−^{176}Hf ^{37}Cl		5239.5	1.3	5240.2	0.7	0.2	1	5	4	^{176}Hf	H27	2.5	74Ba90	
^{178}Pt(α)^{174}Os		5583.3	5.	5573.4	2.6	−1.9	4						79Ha10	Z
		5569.9	3.			1.2	4						82Bo04	Z
		5568.4	13.			0.4	U						94Wa23	
^{178}Au(α)^{174}Ir		6117.7	20.				4				GSa		86Ke03	
^{178}Hg(α)^{174}Pt		6578.1	6.	6577	5	−0.1	6						79Ha10	
		6576.1	9.			0.2	6				Daa		96Pa01	
^{178}Tl(α)^{174}Au		7017.0	5.				10				Bka		02Ro17	∗
^{178}Pb(α)^{174}Hg		7790.4	14.				8				Bka		01Ro.B	
^{176}Yb(t,p)^{178}Yb		3865	10				2				Phi		82Zu02	
^{176}Lu(t,p)^{178}Lu^{m}		4482	5	4492.6	2.9	2.1	1	34	34	^{178}Lu^{m}	LAl		81Gi01	
^{177}Hf(n,γ)^{178}Hf		7626.2	0.3	7625.96	0.18	−0.8	–				ILn		86Ha22	Z
		7625.80	0.22			0.7	–				Bdn		03Fi.A	
	ave.	7625.94	0.18			0.1	1	100	67	^{177}Hf			average	
^{178}Lu^{m}(IT)^{178}Lu		120	3	123.8	2.6	1.3	1	76	66	^{178}Lu^{m}	McM		93Bu02	
^{178}Ta(β^+)^{178}Hf		1937	15				2						61Ga05	∗

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$^{178}\mathrm{W}(\varepsilon)^{178}\mathrm{Ta}$	91.3	2.				3						67Ni02	
$^{178}\mathrm{Re}(\beta^+)^{178}\mathrm{W}$	4660	180	4760	30	0.6	U						70Go20	
$*^{178}\mathrm{Tl}(\alpha)^{174}\mathrm{Au}$	And a stronger E(α)=6704; both correlated with ^{174}Au E(α)=6538											02Ro17	**
$*^{178}\mathrm{Ta}(\beta^+)^{178}\mathrm{Hf}$	E$^+$ =890(10) to gs and 93.18 level ratio 2.7 to 1											NDS886	**
$\mathrm{C}_{14}\,\mathrm{H}_{11}-^{179}\mathrm{Hf}$	140260.3	1.8	140259.2	2.3	−0.2	1	26	26	^{179}Hf	M23	2.5	79Ha32	
$^{179}\mathrm{W}-\mathrm{C}_{14.917}$	−52964	76	−52930	17	0.5	U				GS2	1.0	03Li.A	*
$^{179}\mathrm{Re}-\mathrm{C}_{14.917}$	−50010	30	−50012	26	−0.1	2				GS2	1.0	03Li.A	
$^{179}\mathrm{Os}-\mathrm{C}_{14.917}$	−46220	104	−46184	19	0.3	U				GS1	1.0	00Ra23	
	−46176	30			−0.3	R				GS2	1.0	03Li.A	
$^{179}\mathrm{Ir}-\mathrm{C}_{14.917}$	−40910	104	−40878	12	0.3	U				GS1	1.0	00Ra23	
	−40852	30			−0.9	R				GS2	1.0	03Li.A	
$^{179}\mathrm{Pt}-\mathrm{C}_{14.917}$	−34710	110	−34637	10	0.7	U				GS1	1.0	00Ra23	
	−34625	30			−0.4	R				GS2	1.0	03Li.A	
$^{179}\mathrm{Au}-\mathrm{C}_{14.917}$	−26811	31	−26787	18	0.8	1	33	33	^{179}Au	GS2	1.0	03Li.A	
$^{179}\mathrm{Hg}-^{208}\mathrm{Pb}_{.861}$	1900	34	1936	29	1.1	1	74	74	^{179}Hg	MA6	1.0	01Sc41	
$^{179}\mathrm{Hf}\,^{35}\mathrm{Cl}-^{177}\mathrm{Hf}\,^{37}\mathrm{Cl}$	5544.4	0.7	5545.59	0.22	0.7	U				H27	2.5	74Ba90	
$^{179}\mathrm{Pt}(\alpha)^{175}\mathrm{Os}$	5370	10	5416	10	4.6	F						66Si08	*
	5416	10				3						79Ha10	*
	5382	3			11.3	F						82Bo04	*
$^{179}\mathrm{Au}(\alpha)^{175}\mathrm{Ir}^p$	5981.8	5.	5980	5	−0.4	1	98	76	$^{175}\mathrm{Ir}^p$			68Si01	Z
$^{179}\mathrm{Hg}(\alpha)^{175}\mathrm{Pt}$	6431.0	5.	6344	30	−1.7	–				ISa		79Ha10	Z
	6418.7	9.			−1.5	–				Daa		96Pa01	
ave.	6428	4			−1.7	1	36	26	^{179}Hg			average	
$^{179}\mathrm{Tl}(\alpha)^{175}\mathrm{Au}$	6710.2	20.	6718	8	0.4	7						83Sc24	
	6718.4	18.			0.0	7				Daa		96Pa01	
	6719.4	10.			−0.2	7				Ara		98To14	
$^{179}\mathrm{Tl}^m(\alpha)^{175}\mathrm{Au}^m$	7364.5	20.	7374	8	0.4	8						83Sc24	
	7366.0	20.			0.4	8				Daa		96Pa01	
	7378.1	10.			−0.4	8				Ara		98To14	
$^{179}\mathrm{Hf}(\mathrm{t},\alpha)^{178}\mathrm{Lu}-^{178}\mathrm{Hf}()^{177}\mathrm{Lu}$	−72	2	−73.7	1.9	−0.9	1	89	89	^{178}Lu	McM		93Bu02	
$^{178}\mathrm{Hf}(\mathrm{n},\gamma)^{179}\mathrm{Hf}$	6099.02	0.10	6098.99	0.08	−0.3	–				ILn		89Ri03	Z
	6098.95	0.12			0.3	–				Bdn		03Fi.A	
ave.	6098.99	0.08			0.0	1	100	66	^{178}Hf			average	
$^{179}\mathrm{Ta}(\varepsilon)^{179}\mathrm{Hf}$	129	16	105.6	0.4	−1.5	U						61Jo15	*
	105.61	0.41			0.0	1	99	88	^{179}Ta			01Hi06	
$^{179}\mathrm{Re}(\beta^+)^{179}\mathrm{W}$	2710	50	2717	29	0.1	R						75Me20	
$*^{179}\mathrm{W}-\mathrm{C}_{14.917}$	M−A=–49225(29) keV for mixture gs+m at 221.926 keV											Ens94	**
$*^{179}\mathrm{Pt}(\alpha)^{175}\mathrm{Os}$	F: part of double line (with ^{180}Pt); E(α)=5150(10) to 102.3 level											AHW	**
$*^{179}\mathrm{Pt}(\alpha)^{175}\mathrm{Os}$	E(α)=5195(10) to 102.3 1/2$^-$ level											NDS948	**
$*^{179}\mathrm{Pt}(\alpha)^{175}\mathrm{Os}$	F: part of double line (with ^{180}Pt)											AHW	**
$*^{179}\mathrm{Pt}(\alpha)^{175}\mathrm{Os}$	E(α)=5161(3) to 102.3 level, recalibrated as in ref.											91Ry01	**
$*^{179}\mathrm{Ta}(\varepsilon)^{179}\mathrm{Hf}$	As corrected by ref.											76He.B	**
$\mathrm{C}_{14}\,\mathrm{H}_{12}-^{180}\mathrm{Hf}$	147356.6	4.8	147350.4	2.3	−0.5	U				M23	2.5	79Ha32	
$^{180}\mathrm{W}-\mathrm{C}_{15}$	−53299	30	−53296	4	0.1	U				GS2	1.0	03Li.A	
$^{180}\mathrm{Re}-\mathrm{C}_{15}$	−49209	30	−49211	23	−0.1	2				GS2	1.0	03Li.A	
$^{180}\mathrm{Os}-\mathrm{C}_{15}$	−47650	104	−47621	22	0.3	U				GS1	1.0	00Ra23	
	−47626	30			0.2	R				GS2	1.0	03Li.A	
$^{180}\mathrm{Ir}-\mathrm{C}_{15}$	−40800	104	−40771	23	0.3	U				GS1	1.0	00Ra23	
	−40765	30			−0.2	2				GS2	1.0	03Li.A	
$^{180}\mathrm{Pt}-\mathrm{C}_{15}$	−36900	104	−36969	12	−0.7	U				GS1	1.0	00Ra23	
	−36918	30			−1.7	R				GS2	1.0	03Li.A	
$^{180}\mathrm{Au}-\mathrm{C}_{15}$	−27496	30	−27479	23	0.6	1	57	57	^{180}Au	GS2	1.0	03Li.A	
$^{180}\mathrm{Hg}-^{208}\mathrm{Pb}_{.865}$	−1569	22	−1538	15	1.4	–				MA6	1.0	01Sc41	
ave.	−1544	16			0.4	1	85	85	^{180}Hg			average	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{180}Hf ^{35}Cl$_2$−^{176}Hf ^{37}Cl$_2$		11036.1	3.0	11041.5	0.8	0.7	U				H27	2.5	74Ba90	
^{180}Hf ^{35}Cl−^{178}Hf ^{37}Cl		5798.4	0.7	5801.28	0.19	1.6	U				H27	2.5	74Ba90	
^{180}Pt(α)^{176}Os		5257.1	10.	5240	30	−2.0	F						66Si08	∗
		5279	3			−14.0	F						82Bo04	∗
^{180}Au(α)^{176}Ir		5845	30	5840	18	−0.2	–						86Ke03	∗
		5857	30			−0.6	–				Lvn		93Wa03	∗
	ave.	5851	21			−0.5	1	75	41	^{180}Au			average	
^{180}Hg(α)^{176}Pt		6258.4	5.	6258	4	0.0	2						79Ha10	Z
		6258.4	5.			0.0	2				Lvn		93Wa03	Z
^{180}Tl(α)^{176}Au		6709.4	10.				6				Ara		98To14	∗
^{180}Pb(α)^{176}Hg		7375.2	10.	7415	15	4.0	F				GSa		86Ke03	∗
		7394.6	40.			0.5	U				ORa		96To08	
		7415.1	15.				9				Ara		99To11	
^{180}Hf(t,α)^{179}Lu−^{178}Hf()^{177}Lu		−669	5	−669	5	0.0	1	100	100	^{179}Lu	McM		92Bu12	
^{179}Hf(n,γ)^{180}Hf		7387.3	0.4	7387.78	0.15	1.2	–						74Bu22	Z
		7387.8	0.6			0.0	–						90Bo52	Z
		7387.85	0.17			−0.4	–				Bdn		03Fi.A	
	ave.	7387.77	0.15			0.1	1	100	84	^{180}Hf			average	
^{180}W(d,t)^{179}W		−2155	15				2				Kop		72Ca01	
^{180}Lu(β^-)^{180}Hf		3148	100	3100	70	−0.5	2						71Gu02	
		3058	100			0.4	2						71Sw01	
^{180}Ta(β^-)^{180}W		705	15	708	4	0.2	–						51Br87	
		712	15			−0.2	–						62Ga07	
	ave.	709	11			0.0	1	16	13	^{180}W			average	
^{180}Re(β^+)^{180}W		3830	60	3805	22	−0.4	R						67Go22	
		3790	40			0.4	R						67Ho12	
∗^{180}Pt(α)^{176}Os	F: part of double line (with ^{179}Pt); E(α)=5140(10)												AHW	∗∗
∗^{180}Pt(α)^{176}Os	F: part of double line (with ^{179}Pt)												AHW	∗∗
∗^{180}Pt(α)^{176}Os	E(α)=5161(3) recalibrated as in ref.												91Ry01	∗∗
∗^{180}Au(α)^{176}Ir	E(α)=5685(10) to 40(30) level												93Wa03	∗∗
∗^{180}Au(α)^{176}Ir	E(α)=5647(10,Z) to 80(30) level												93Wa03	∗∗
∗^{180}Tl(α)^{176}Au	Highest E(α); not necessarily gs to gs												98To14	∗∗
∗^{180}Pb(α)^{176}Hg	F: tentative reassignment of their ^{181}Pb												AHW	∗∗
^{181}Re−C$_{15.083}$		−49915	30	−49932	14	−0.6	R				GS2	1.0	03Li.A	
^{181}Os−C$_{15.083}$		−46670	110	−46760	30	−0.8	U				GS1	1.0	00Ra23	∗
		−46756	34				2				GS2	1.0	03Li.A	∗
^{181}Ir−C$_{15.083}$		−42330	104	−42375	28	−0.4	U				GS1	1.0	00Ra23	
		−42372	30			−0.1	2				GS2	1.0	03Li.A	
^{181}Pt−C$_{15.083}$		−36880	104	−36903	16	−0.2	U				GS1	1.0	00Ra23	
		−36900	30			−0.1	2				GS2	1.0	03Li.A	
^{181}Au−C$_{15.083}$		−30030	110	−29921	21	1.0	U				GS1	1.0	00Ra23	
		−29920	30			0.0	R				GS2	1.0	03Li.A	
^{181}Hg−^{208}Pb$_{.870}$		−1929	40	−1868	17	1.5	1	17	17	^{181}Hg	MA6	1.0	01Sc41	
^{181}Tl−^{133}Cs$_{1.361}$		114936	11	114937	10	0.1	–				MA8	1.0	03We.A	
	ave.	114939	10			−0.2	1	92	92	^{181}Tl			average	
^{181}Ta ^{35}Cl−^{179}Hf ^{37}Cl		5128.6	2.1	5129.7	2.3	0.2	1	19	12	^{179}Hf	H35	2.5	80Sh06	
^{181}Pt(α)^{177}Os		5133.7	20.	5150	5	0.8	U						66Si08	
		5150.1	5.				3						95Bi01	
^{181}Au(α)^{177}Ir		5750.1	5.	5751.3	2.9	0.2	3						68Si01	Z
		5751.9	5.			−0.1	3						79Ha10	Z
		5735	4			4.1	C				IRa		92Sa03	
		5752	5			−0.1	3				ORa		95Bi01	∗
^{181}Hg(α)^{177}Pt		6288	5	6284	4	−0.7	–						79Ha10	∗
		6283	10			0.1	–						86Ke03	∗
		6269.3	13.			1.2	–				Daa		96Pa01	∗
	ave.	6285	4			−0.2	1	99	83	^{181}Hg			average	
^{181}Tl(α)^{177}Au		6319.9	20.	6324	9	0.2	–						92Bo.D	
		6326.1	10.			−0.2	–				Ara		98To14	∗
	ave.	6325	9			−0.1	1	98	96	^{177}Au			average	
^{181}Tl^m(α)^{177}Au^n		6714.7	20.	6724	9	0.5	3				GSa		84Sc.A	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{181}Tl^{m}(α)^{177}Au^{n}		6727.0	10.	6724	9	−0.2	3			Ara		98To14	
^{181}Pb(α)^{177}Hg		7374.3	10.	7210	50	−3.3	F					86Ke03	∗
		7203.5	15.			0.2	5			ORa		89To01	
		7224.9	20.			−0.3	5			Ara		96To01	∗
^{181}Ta(p,t)^{179}Ta		−5738	5	−5736.2	2.1	0.4	1	18	12 ^{179}Ta	Min		73Oo01	
^{180}Hf(n,γ)^{181}Hf		5695.2	0.6	5694.80	0.07	−0.7	U					71Al22	
		5694.80	0.07			0.0	1	100	84 ^{181}Hf			02Bo41	
		5695.58	0.20			−3.9	B			Bdn		03Fi.A	
^{181}Ta(γ,n)^{180}Ta		−7580	5	−7576.8	1.3	0.6	U			McM		79Ba06	
		−7579	2			1.1	–			McM		81Co17	
^{181}Ta(d,t)^{180}Ta		−1317.7	1.8	−1319.5	1.3	−1.0	–			NDm		79Ta.B	
^{181}Ta(γ,n)^{180}Ta	ave.	−7576.8	1.3	−7576.8	1.3	0.0	1	99	97 ^{180}Ta			average	
^{180}Ta^{m}(n,γ)^{181}Ta		7651.8	0.5	7652.08	0.19	0.6	2			MMn		81Co17	Z
		7652.13	0.20			−0.2	2			ILn		84Fo.A	Z
^{180}W(d,p)^{181}W		4468	15	4456	6	−0.8	1	15	9 ^{181}W	Kop		72Ca01	
^{181}Hf(β^-)^{181}Ta		1023	8	1029.8	2.1	0.8	–					52Fa14	
		1020	5			2.0	–					53Ba81	
	ave.	1021	4			2.1	1	25	16 ^{181}Hf			average	
^{181}W(ε)^{181}Ta		184	12	188	5	0.3	–					66Ra03	
		190	6			−0.4	–					83Se17	
	ave.	189	5			−0.2	1	72	69 ^{181}W			average	
^{181}Os(β^+)^{181}Re		2990	200	2960	30	−0.2	U					67Go25	∗
∗^{181}Os−C$_{15.083}$	M−A=–43450(100) keV for mixture gs+m at 48.9 keV											Nubase	∗∗
∗^{181}Os−C$_{15.083}$	M−A=–43529(28) keV for mixture gs+m at 48.9 keV											Nubase	∗∗
∗^{181}Au(α)^{177}Ir	E(α)=5626(5) to gs; favored 5479(5) to 148.0 level											NDS933	∗∗
∗^{181}Hg(α)^{177}Pt	E(α)=6147.0(10,Z), 6005.0(5,Z) to ground-state and 147.7 level											NDS933	∗∗
∗^{181}Hg(α)^{177}Pt	E(α)=6136.6(10,Z), 6005.6(10,Z) to ground-state and 147.7 level											NDS933	∗∗
∗^{181}Hg(α)^{177}Pt	E(α)=5986(13) to 147.7 level											NDS933	∗∗
∗^{181}Tl(α)^{177}Au	The 6180 line is correlated with the 6110 line from ^{177}Au^{m}											96To01	∗∗
∗	in contradiction with mass-spectrometric data for ^{181}Tl and ^{165}Ta											GAu	∗∗
∗^{181}Pb(α)^{177}Hg	F: This α-line not found in same reaction; see ^{180}Pb											96To01	∗∗
∗^{181}Pb(α)^{177}Hg	Seen in correlation with ^{177}Hg E(α)=8580											96To01	∗∗
∗^{181}Os(β^+)^{181}Re	E$^+$ =1750(200) from ^{181}Os^{m} at 48.9(0.2) to 263.0 level											95Ro09	∗∗
^{182}Re−C$_{15.167}$		−48311	65	−48790	110	−7.4	F			GS2	1.0	03Li.A	∗
^{182}Os−C$_{15.167}$		−47883	30	−47890	23	−0.2	1	61	61 ^{182}Os	GS2	1.0	03Li.A	
^{182}Ir−C$_{15.167}$		−41942	30	−41924	23	0.6	1	56	56 ^{182}Ir	GS2	1.0	03Li.A	
^{182}Pt−C$_{15.167}$		−38870	104	−38829	17	0.4	U			GS1	1.0	00Ra23	
		−38860	30			1.0	R			GS2	1.0	03Li.A	
^{182}Au−C$_{15.167}$		−30420	110	−30382	22	0.3	U			GS1	1.0	00Ra23	
		−30412	30			1.0	R			GS2	1.0	03Li.A	
^{182}Hg−C$_{15.167}$		−25297	30	−25310	10	−0.4	R			GS2	1.0	03Li.A	
^{182}Hg−^{208}Pb$_{.875}$		−4893	19	−4881	10	0.7	2			MA6	1.0	01Sc41	
		−4898	21			0.8	2			MA6	1.0	01Sc41	
^{182}Pt(α)^{178}Os		4928.5	30.	4952	5	0.8	U					63Gr08	
		4948.9	20.			0.2	U					66Si08	
		4952.0	5.				4					95Bi01	
^{182}Au(α)^{178}Ir		5529	10	5526	4	−0.3	3					79Ha10	∗
		5525.5	5.			0.1	3			ORa		95Bi01	∗
^{182}Hg(α)^{178}Pt		5998.1	5.	5997	5	−0.2	3					79Ha10	Z
		5990.2	13.			0.5	3					94Wa23	
^{182}Tl(α)^{178}Au		6550.2	10.				5					86Ke03	
		6186.2	20.	6550	50	7.3	C					92Bo.D	∗
^{182}Pb(α)^{178}Hg		7076.8	10.	7066	6	−1.1	7					86Ke03	
		7074.8	15.			−0.6	7					87To09	
		7050.2	10.			1.5	7			ARa		99To11	
		7066.6	10.			−0.1	7			Jya		00Je09	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{180}Hf(t,p)^{182}Hf		3931	6				2			McM		83Bu03	
^{180}W(t,p)^{182}W		6265	5	6264	4	−0.2	–			LAl		76Ca10	∗
^{182}W(p,t)^{180}W		−6261	10	−6264	4	−0.3	–			Min		73Oo01	
^{180}W(t,p)^{182}W	ave.	6264	4	6264	4	−0.1	1	74	74 ^{180}W			average	
^{181}Ta(n,γ)^{182}Ta		6063.0	0.4	6062.94	0.11	−0.2	–					71He13	Z
		6063.1	0.5			−0.3	–					77St15	Z
		6063.1	0.5			−0.3	–			MMn		81Co17	Z
		6062.95	0.2			−0.1	–			ILn		83Fo.B	
		6062.89	0.14			0.3	–			Bdn		03Fi.A	
	ave.	6062.93	0.11			0.0	1	100	60 ^{182}Ta			average	
^{182}W(d,t)^{181}W		−1809	10	−1808	5	0.1	1	22	22 ^{181}W	Kop		72Ca01	
^{182}Ta(β^-)^{182}W		1809	5	1814.3	1.7	1.1	–					64Da15	
		1813	3			0.4	–					67Ba01	
	ave.	1811.9	2.6			0.9	1	42	40 ^{182}Ta			average	
^{182}Re^m(β^+)^{182}W		2860	20				2					63Ba37	
^{182}Re^m(IT)^{182}Re		60	100				3					63Ba37	
^{182}Os(ε)^{182}Re^m		848	15	778	30	−4.6	B					70Ak02	∗
^{182}Ir(β^+)^{182}Os		5700	200	5560	30	−0.7	U					72We.A	
^{182}Pt(β^+)^{182}Ir		2900	200	2882	26	−0.1	U					72We.A	
^{182}Au(β^+)^{182}Pt		6850	200	7869	26	5.1	C					72We.A	
^{182}Hg(β^+)^{182}Au		4950	200	4725	22	−1.1	U					72We.A	
∗^{182}Re−C$_{15.167}$		M−A=–44972(29) keV for mixture gs+m at 60(100) keV										Nubase	∗∗
∗^{182}Au(α)^{178}Ir		E(α)=5353(10) to 55(1) level										NDS	∗∗
∗^{182}Au(α)^{178}Ir		E(α)=5403(5), 5352(5) to ground-state, 54.4 level										95Bi01	∗∗
∗^{182}Tl(α)^{178}Au		No ^{182}Tl α seen following ^{186}Bi(α)										97Ba21	∗∗
∗^{180}W(t,p)^{182}W		Q−Q(^{170}Y(t,p))=112(5,Ca), Q(170)=–6153(4)										AHW	∗∗
∗^{182}Os(ε)^{182}Re^m		pK=0.47(0.07) to 726.98 level above Rem, recalculated Q										AHW	∗∗
^{183}W O−C$_2$ ^{35}Cl$_5$		100858.0	2.7	100874.2	0.9	2.4	F			H29	2.5	77Sh04	
		100873.6	0.8			0.5	1	53	52 ^{183}W	H48	1.5	03Ba49	
^{183}Re−C$_{15.25}$		−49151	30	−49180	9	−1.0	U			GS2	1.0	03Li.A	
^{183}Os−C$_{15.25}$		−46879	61	−46870	50	0.1	2			GS2	1.0	03Li.A	∗
^{183}Ir−C$_{15.25}$		−43160	104	−43154	27	0.1	U			GS1	1.0	00Ra23	
		−43145	30			−0.3	1	81	81 ^{183}Ir	GS2	1.0	03Li.A	
^{183}Pt−C$_{15.25}$		−38440	107	−38403	17	0.3	U			GS1	1.0	00Ra23	
		−38400	32			−0.1	–			GS2	1.0	03Li.A	∗
	ave.	−38398	23			−0.3	1	55	55 ^{183}Pt			average	
^{183}Au−C$_{15.25}$		−32440	104	−32407	11	0.3	U			GS1	1.0	00Ra23	
		−32371	30			−1.2	R			GS2	1.0	03Li.A	
^{183}Hg−C$_{15.25}$		−25537	35	−25550	9	−0.4	U			GS2	1.0	03Li.A	∗
^{183}Hg−^{208}Pb$_{.880}$		−5009	19	−5004	9	0.3	–			MA6	1.0	01Sc41	
		−5002	19			−0.1	–			MA6	1.0	01Sc41	
	ave.	−5002	11			−0.2	1	60	60 ^{183}Hg			average	
^{183}Tl−^{133}Cs$_{1.376}$		112286	11	112291	10	0.4	1	91	91 ^{183}Tl	MA8	1.0	03We.A	
^{183}W O$_2$−^{178}Hf ^{37}Cl		30455.7	5.0	30450.8	2.3	−0.4	U			H35	2.5	80Sh06	
^{183}W O$_2$−^{180}W ^{35}Cl		24509	6	24495	4	−0.9	1	8	8 ^{180}W	H28	2.5	77Sh04	
^{183}W ^{35}Cl−^{181}Ta ^{37}Cl		5177.2	1.2	5177.3	1.8	0.0	1	36	34 ^{181}Ta	H35	2.5	80Sh06	
^{183}W O$_2$ ^{37}Cl−^{182}W ^{35}Cl$_2$		20045.6	1.8	20045.26	0.13	−0.1	U			H28	2.5	77Sh04	
^{183}Pt(α)^{179}Os		4846.1	30.	4823	9	−0.8	U					63Gr08	
		4835.9	20.0			−0.6	2					66Si08	
		4819.4	10.0			0.3	2			ORa		95Bi01	
^{183}Au(α)^{179}Ir		5462.6	5.	5465.6	3.0	0.6	3					68Si01	Z
		5465.5	5.			0.0	3					82Bo04	Z
		5449.3	10.			1.6	C					84Br.A	
		5468.8	5.			−0.6	3					95Bi01	
^{183}Hg(α)^{179}Pt		6043.4	6.	6039	4	−0.7	2					76To06	
		6036.2	5.			0.6	2					79Ha10	Z

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{183}Tl^{m}(α)^{179}Au	6593.4	15.	6583	14	−0.7	1	79	44 ^{179}Au	GSa		80Sc09	
^{183}Tl^{m}(α)^{179}Au^{p}	6485.1	10.	6484	9	−0.1	2			GSa		80Sc09	
	6482.0	15.			0.1	2					87To09	
^{183}Pb(α)^{179}Hg	6928	7				2					02Je09	*
^{183}Pb^{m}(α)^{179}Hg	7029	20	7022	4	−0.3	U			GSa		84Sc.A	*
	7026.9	10.			−0.5	2			GSa		86Ke03	
	7034	10			−1.2	2			ORa		89To01	*
	7018	5			0.8	2			Jya		02Je09	*
^{182}Ta(n,γ)^{183}Ta	6934.18	0.20				2			ILn		83Fo.B	
^{182}W(n,γ)^{183}W	6191.6	2.0	6190.82	0.09	−0.4	U					67Sp03	Z
	6190.1	1.5			0.5	U					70Or.A	
	6190.76	0.12			0.5	–			Ltn		93Pr.A	
	6190.89	0.13			−0.5	–			Bdn		03Fi.A	
ave.	6190.82	0.09			0.0	1	100	98 ^{182}W			average	
^{183}Hf(β^-)^{183}Ta	2010	30				3					67Mo13	
^{183}Re(ε)^{183}W	556	8				2					69Ku03	
^{183}Ir(β^+)^{183}Os	3450	100	3470	60	0.2	R					70Be.A	*
*^{183}Os−$C_{15.25}$	M−A=–43582(28) keV for mixture gs+m at 170.71 keV										NDS924	**
*^{183}Pt−$C_{15.25}$	M−A=–35752(28) keV for mixture gs+m at 34.50 keV										Ens93	**
*^{183}Hg−$C_{15.25}$	No isomer observed										Nubase	**
*^{183}Pb(α)^{179}Hg	E(α)=6775(7), 6570(10) to ground-state, 217 level										02Je09	**
*^{183}Pb^{m}(α)^{179}Hg	E(α)=6868(20), 6715(20) to ground-state, 171.4 isomer										02Je09	**
*^{183}Pb^{m}(α)^{179}Hg	Original assignment to ^{182}Pb changed										AHW	**
*^{183}Pb^{m}(α)^{179}Hg	E(α)=6874(15), 6712(10) to ground-state, 171.4 isomer										02Je09	**
*^{183}Pb^{m}(α)^{179}Hg	E(α)=6860(11), 6698(5) to ground-state, 171.4 isomer										02Je09	**
*^{183}Ir(β^+)^{183}Os	Q$^+$ =3190(100) mainly to 258.35 level										NDS924	**
^{184}Ir−$C_{15.333}$	−42460	110	−42520	30	−0.6	U			GS1	1.0	00Ra23	
	−42524	30				2			GS2	1.0	03Li.A	
^{184}Pt−$C_{15.333}$	−40120	104	−40078	19	0.4	U			GS1	1.0	00Ra23	
	−40068	30			−0.3	1	42	42 ^{184}Pt	GS2	1.0	03Li.A	
^{184}Au−$C_{15.333}$	−32540	104	−32548	24	−0.1	U			GS1	1.0	00Ra23	*
	−32557	37			0.2	R			GS2	1.0	03Li.A	*
^{184}Hg−$C_{15.333}$	−28230	110	−28287	11	−0.5	U			GS1	1.0	00Ra23	
	−28296	30			0.3	–			GS2	1.0	03Li.A	
ave.	−28280	17			−0.4	1	39	39 ^{184}Hg			average	
^{184}Hg−^{204}Pb$_{.902}$	−3986	20	−3972	11	0.7	1	29	29 ^{184}Hg	MA6	1.0	01Sc41	
^{184}Hg−^{208}Pb$_{.885}$	−7620	19	−7624	11	−0.2	1	32	32 ^{184}Hg	MA6	1.0	01Sc41	
^{184}Tl−$C_{15.333}$	−18196	126	−18130	50	0.5	1	18	18 ^{184}Tl	GS2	1.0	03Li.A	*
^{184}W O_2−^{181}Ta ^{35}Cl	23917.5	2.8	23912.0	1.8	−0.8	U			H35	2.5	80Sh06	
^{184}W ^{35}Cl−^{182}W ^{37}Cl	5676.3	2.2	5677.12	0.30	0.1	U			H28	2.5	77Sh04	
^{184}Pt(α)^{180}Os	4579.8	20.	4602	9	1.1	B					63Gr08	
	4600.2	20.			0.1	2					66Si08	
	4602.2	10.			0.0	2					95Bi01	
^{184}Au(α)^{180}Ir	5218.6	15.	5234	5	1.0	U			ISa		70Ha18	*
	5233.9	5.				3					95Bi01	*
^{184}Hg(α)^{180}Pt	5658.2	15.	5662	4	0.2	2					70Ha18	
	5662.2	5.			−0.1	2					76To06	
	5662.2	10.			0.0	2			Lvn		93Wa03	Z
^{184}Tl(α)^{180}Au	6299.4	5.	6290	50	−0.3	–					76To06	Z
	6292.9	10.			−0.1	–					80Sc09	Z
ave.	6298	4			−0.2	1	85	82 ^{184}Tl			average	
^{184}Pb(α)^{180}Hg	6765.4	10.	6774	4	0.9	–					80Du02	
	6779.6	10.			−0.5	–					80Sc09	
	6773.6	10.			0.1	–					84Sc.A	
	6781.6	10.			−0.7	–					87To09	
	6773.6	6.			0.2	–			Jya		98Co27	
	6772.5	10.			0.2	–			Ara		99To11	
ave.	6774	4			0.1	1	99	84 ^{184}Pb			average	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{184}Bi(α)^{180}Tl	8024.8	50.				7			GSa		02An.A	
^{183}W(n,γ)^{184}W	7411.2	0.5	7411.60	0.26	0.8	–					74Gr11	Z
	7411.8	0.3			−0.7	–					75Bu01	Z
	7411.15	0.16			2.8	B			Bdn		03Fi.A	
ave.	7411.64	0.26			−0.2	1	99	94 ^{184}W			average	
^{184}Hf(β^-)^{184}Ta	1340	30				3					73Wa18	
^{184}Ta(β^-)^{184}W	2866	26				2					73Ya02	
^{184}Ir(β^+)^{184}Os	5100	250	4645	28	−1.8	U					70Be.A	∗
	4300	100			3.5	B					73Ho09	
	4285	70			5.1	B					89Po09	
^{184}Au(β^+)^{184}Pt	6380	50	7013	29	12.7	C					84Da.A	∗
^{184}Hg(β^+)^{184}Au	3760	30	3970	24	7.0	C					84Da.A	
∗^{184}Au−C$_{15.333}$	M−A=–30280(100) keV for mixture gs+m at 68.46 keV										Nubase	∗∗
∗^{184}Au−C$_{15.333}$	M−A=–30292(28) keV for mixture gs+m at 68.46 keV										Nubase	∗∗
∗^{184}Tl−C$_{15.333}$	M−A=–16899(102) keV for mixture gs+m at 100#100 keV										Nubase	∗∗
∗^{184}Au(α)^{180}Ir	E(α)=5172(15) from ^{184}Au^m at 68.6(0.1)										94Ib01	∗∗
∗	transition to ground-state in ^{180}Ir										95Bi01	∗∗
∗^{184}Au(α)^{180}Ir	E(α)=5187(5) from ^{184}Au^m at 68.6(0.1)										94Ib01	∗∗
∗^{184}Ir(β^+)^{184}Os	Q$^+$ =4720(250) to 383.77 level										AHW	∗∗
∗^{184}Au(β^+)^{184}Pt	Q$^+$ =6450(50) from ^{184}Au^m at 68.6(0.1)										94Ib01	∗∗
^{185}Os−C$_{15.417}$	−46037	31	−45957.7	1.4	2.6	U			GS2	1.0	03Li.A	
^{185}Ir−C$_{15.417}$	−43340	110	−43300	30	0.3	U			GS1	1.0	00Ra23	
	−43302	30				2			GS2	1.0	03Li.A	
^{185}Pt−C$_{15.417}$	−39334	112	−39380	40	−0.4	U			GS1	1.0	00Ra23	∗
	−39381	44				2			GS2	1.0	03Li.A	∗
^{185}Au−C$_{15.417}$	−34213	115	−34211	28	0.0	o			GS1	1.0	00Ra23	∗
	−34224	69			0.2	R			GS2	1.0	03Li.A	∗
^{185}Hg−C$_{15.417}$	−28070	107	−28101	17	−0.3	U			GS1	1.0	00Ra23	
	−28088	44			−0.3	R			GS2	1.0	03Li.A	∗
^{185}Hg−^{208}Pb$_{.889}$	−7373	29	−7345	17	1.0	R			MA6	1.0	01Sc41	
^{185}Tl−C$_{15.417}$	−21353	145	−21210	60	1.0	U			GS2	1.0	03Li.A	∗
^{185}Re ^{35}Cl−^{183}W ^{37}Cl	5678.7	1.0	5682.1	1.0	1.4	1	15	15 ^{185}Re	H28	2.5	77Sh04	
^{185}Re(α,^{8}He)^{181}Re	−26480	14	−26484	14	−0.3	2			INS		90Ka19	
^{185}Pt(α)^{181}Os	4542.0	10.0	4440	50	−1.9	F			ORa		91Bi04	∗
^{185}Au(α)^{181}Ir	5180.2	5.	5180	5	0.0	3					68Si01	∗
	5182.9	15.			−0.2	U					70Ha18	Z
	5179	10			0.1	3			ORa		91Bi04	∗
^{185}Hg(α)^{181}Pt	5777	15	5774	5	−0.2	3					70Ha18	∗
	5775	5			−0.2	3			ORa		76To06	∗
	5761	15			0.9	3					76Gr.A	∗
^{185}Tl^m(α)^{181}Au	6143.3	5.				4			ORa		76To06	Z
	6145.6	15.	6140	50	0.0	U			GSa		80Sc09	Z
^{185}Pb(α)^{181}Hg	6693	15	6695	5	0.1	U			GSa		80Sc09	∗
	6695	5				2			ISn		02An15	∗
^{185}Pb^m(α)^{181}Hg^p	6622.9	20.	6550	5	−3.7	F			Ora		75Ca06	
	6679.7	20.			−6.5	B					80Sc09	
	6550.0	5.				4			ISn		02An15	
^{185}Bi^m(α)^{181}Tl	8258.9	30.	8234	19	−0.8	1	39	33 ^{185}Bi^m			01Po05	∗
^{184}W(n,γ)^{185}W	5753.7	0.3	5753.69	0.30	0.0	1	98	93 ^{185}W	BNn		87Br05	Z
	5754.62	0.24			−3.9	B			Bdn		03Fi.A	
^{185}Re(d,t)^{184}Re−^{187}Re()^{186}Re	−310	4	−310	4	0.0	1	100	100 ^{184}Re	Roc		76El12	
^{184}Os(n,γ)^{185}Os	6625.4	0.9	6624.53	0.28	−1.0	U					74Pr15	
	6624.52	0.28			0.0	1	100	100 ^{184}Os	Bdn		03Fi.A	
^{185}Bi^m(p)^{184}Pb	1606.8	16.	1614	15	0.4	1	83	67 ^{185}Bi^m			01Po05	∗
	1568.6	50.			0.9	U					02An.A	
^{185}Ta(β^-)^{185}W	2013	20	1994	14	−1.0	2					69Ku07	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{185}W(β^-)^{185}Re		432.6	1.0	432.5	0.9	−0.1	1	75	68	^{185}Re			67Wi19	
^{185}Os(ε)^{185}Re		1012.7	1.0	1012.8	0.4	0.1	–						67Sc15	
		1012.8	0.5			0.0	–						70Sc06	
	ave.	1012.8	0.4			0.0	1	100	100	^{185}Os			average	
^{185}Au(β^+)^{185}Pt		4707	40	4820	50	2.7	F						86Da.A	
^{185}Tl^m(IT)^{185}Tl		452.8	2.				5						77Sc03	
$*^{185}$Pt$-$C$_{15.417}$		M−A=–36590(100) keV for mixture gs+m at 103.4 keV											NDS952	**
$*^{185}$Pt$-$C$_{15.417}$		M−A=–36631(28) keV for mixture gs+m at 103.4 keV											NDS952	**
$*^{185}$Au$-$C$_{15.417}$		M−A=–31820(90) keV for mixture gs+m at 100#100 keV											Nubase	**
$*^{185}$Au$-$C$_{15.417}$		M−A=–31829(28) keV for mixture gs+m at 100#100 keV											Nubase	**
$*^{185}$Hg$-$C$_{15.417}$		M−A=–26112(28) keV for mixture gs+m at 103.8(1.0) keV											Nubase	**
$*^{185}$Tl$-$C$_{15.417}$		M−A=–19664(31) keV for mixture gs+m at 452.8(2.0) keV											Nubase	**
$*^{185}$Pt(α)^{181}Os		F: Assignment to gs or isomer at 103.2 uncertain											91Bi04	**
$*^{185}$Au(α)^{181}Ir		E(α)=5069(10), 4826(10) to ground-state, 243.3level											91Bi04	**
$*$		unh. E(α)=5069(10) to gs or very low level; from coinc.											95Bi01	**
$*^{185}$Hg(α)^{181}Pt		E(α)=5653.4(15,Z), 5576.4(15,Z) to ground-state, 79.41 level											NDS996	**
$*$		and E(α)=5376.4(15,Z) from ^{185}Hg^m at 103.8 to 380.92 level											NDS952	**
$*^{185}$Hg(α)^{181}Pt		E(α)=5653(5), 5569(5) to ground-state, 79.41 level;											NDS996	**
$*$		and 5371(10) from ^{185}Hg^m at 103.8 to 380.92 level											NDS952	**
$*^{185}$Hg(α)^{181}Pt		E(α)=5365(15) from ^{185}Hg^m at 103.8 to 380.92 level											NDS952	**
$*^{185}$Pb(α)^{181}Hg		E(α)=6485(15) to 64 level											02An15	**
$*^{185}$Pb(α)^{181}Hg		E(α)=6486(5),6288(5) to 64, 269 levels											02An15	**
$*^{185}$Bi^m(α)^{181}Tl		E(α)=8030 of same authors from only one event											96Da06	**
$*^{185}$Bi^m(p)^{184}Pb		Average by authors of Ep=1618(11), and 1585(9) of ref.											96Da06	**
$*^{185}$Au(β^+)^{185}Pt		Information about correctness insufficient											GAu	**
^{186}W O$-$C ^{13}C ^{35}Cl$_4$ ^{37}Cl		104592.7	3.2	104610.6	1.9	2.2	F				H29	2.5	77Sh04	$*$
^{186}Ir$-$C$_{15.5}$		−42063	30	−42054	18	0.3	2				GS2	1.0	03Li.A	$*$
^{186}Pt$-$C$_{15.5}$		−40656	30	−40649	23	0.2	1	61	61	^{186}Pt	GS2	1.0	03Li.A	
^{186}Au$-$C$_{15.5}$		−34029	30	−34047	23	−0.6	1	56	56	^{186}Au	GS2	1.0	03Li.A	
^{186}Hg$-$C$_{15.5}$		−30660	104	−30638	12	0.2	U				GS1	1.0	00Ra23	
		−30630	30			−0.3	R				GS2	1.0	03Li.A	
^{186}Hg$-^{204}$Pb$_{.912}$		−6065	20	−6054	12	0.6	2				MA6	1.0	01Sc41	
^{186}Tl$-$C$_{15.5}$		−21814	275	−21680	200	0.5	o				GS1	1.0	00Ra23	$*$
		−21675	198				2				GS2	1.0	03Li.A	$*$
^{186}Tl$^m-^{133}$Cs$_{1.398}$		110842.1	9.2				2				MA8	1.0	03We.A	
^{186}W ^{35}Cl$-^{184}$W ^{37}Cl		6382.0	1.4	6383.0	1.7	0.3	1	23	23	^{186}W	H28	2.5	77Sh04	
^{186}Pt(α)^{182}Os		4323.2	20.	4320	18	−0.2	1	79	39	^{182}Os			63Gr08	
^{186}Au(α)^{182}Ir		4907	15	4912	14	0.3	1	87	44	^{182}Ir			90Ak04	$*$
^{186}Hg(α)^{182}Pt		5206.2	15.	5205	11	−0.1	3						70Ha18	
		5204.2	15.			0.1	3						96Ri12	
^{186}Tl^m(α)^{182}Au		5891.9	7.	6001	22	2.2	U						77Ij01	
^{186}Pb(α)^{182}Hg		6458.2	20.	6470	6	0.6	3						74Le02	Z
		6470.1	10.			0.0	3						80Sc09	Z
		6474.7	10.			−0.5	3						84To09	Z
		6476.5	15.			−0.4	3				ORa		97Ba25	
		6459.2	15.			0.7	3				Jya		97An09	
^{186}Bi(α)^{182}Tl		7760	20	7757	12	−0.2	6				Ara		97Ba21	$*$
		7755	15			0.1	6				GSa		02An.A	$*$
^{186}Bi^m(α)^{182}Tl^p		7349.3	25.	7423	5	2.9	C				GSa		84Sc.A	
		7420.9	20.			0.1	U				Ara		97Ba21	
		7422.9	5.				8				GSa		02An.A	
^{186}W(p,t)^{184}W		−4474	5	−4463.1	1.6	2.2	1	10	10	^{186}W	Min		73Oo01	
^{186}W(t,α)^{185}Ta		11430	20	11412	14	−0.9	R				LAl		80Lo10	
^{185}Re(n,γ)^{186}Re		6179.8	0.8	6179.36	0.18	−0.6	–				Tal		69La11	Z
		6178.6	1.5			0.5	U						70Or.A	
		6179.34	0.18			0.1	–				Bdn		03Fi.A	
	ave.	6179.36	0.18			0.0	1	99	85	^{186}Re			average	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	*F*	Reference	
^{186}Ta(β^-)^{186}W	3901	60				2						69Mo16	
^{186}Re(β^-)^{186}Os	1064	2	1069.3	0.9	2.6	–						56Jo05	
	1071.5	1.3			−1.7	–						56Po28	
	1076	3			−2.2	–						64Ma36	
	1064	3			1.8	–						68An11	
ave.	1069.4	1.0			−0.1	1	80	64	^{186}Os			average	
^{186}Ir(β^+)^{186}Os	3831	20	3827	17	−0.2	R						63Em02	
^{186}Au(β^+)^{186}Pt	5950	200	6150	30	1.0	U						72We.A	
^{186}Hg(β^+)^{186}Au	3250	200	3176	24	−0.4	U						72We.A	
^{186}Tl^n(IT)^{186}Tl^m	373.9	0.5				3				Lvn		91Va04	
∗^{186}W O−C ^{13}C ^{35}Cl$_4$ ^{37}Cl	See ^{183}W O−C$_2$ ^{35}Cl$_5$ in same reference											AHW	∗∗
∗^{186}Ir−C$_{15.5}$	M−A=–39181(28) keV for mixture gs+m at 0.8 keV											Nubase	∗∗
∗^{186}Tl−C$_{15.5}$	M−A=–20030(180) keV for mixture gs+m+n at 250(160) and 620(160) keV											Nubase	∗∗
∗^{186}Tl−C$_{15.5}$	M−A=–19900(29) keV for mixture gs+m+n at 250(160) and 620(160) keV											Nubase	∗∗
∗^{186}Au(α)^{182}Ir	E(α)=4653(15) to 152.3 3$^-$ level											95Sa42	∗∗
∗^{186}Bi(α)^{182}Tl	E(α)=7158(20) followed by E(γ)=444											02An.A	∗∗
∗^{186}Bi(α)^{182}Tl	E(α)=7152(15), 7085(15) followed by E(γ)=444, 520											02An.A	∗∗
^{187}Ir−C$_{15.583}$	−42458	30	−42637	7	−6.0	C				GS2	1.0	03Li.A	
^{187}Pt−C$_{15.583}$	−39500	110	−39410	30	0.8	U				GS1	1.0	00Ra23	
	−39413	30				2				GS2	1.0	03Li.A	
^{187}Au−C$_{15.583}$	−35470	114	−35432	27	0.3	U				GS1	1.0	00Ra23	∗
	−35441	30			0.3	1	81	81	^{187}Au	GS2	1.0	03Li.A	
^{187}Hg−C$_{15.583}$	−30188	109	−30186	15	0.0	U				GS1	1.0	00Ra23	∗
	−30155	36			−0.9	1	17	17	^{187}Hg	GS2	1.0	03Li.A	∗
^{187}Hg−^{208}Pb$_{.899}$	−9210	20	−9196	15	0.7	1	56	56	^{187}Hg	MA6	1.0	01Sc41	
^{187}Hg^m−^{208}Pb$_{.899}$	−9152	19	−9133	21	1.0	R				MA6	1.0	01Sc41	∗
^{187}Tl−C$_{15.583}$	−24120	107	−24094	9	0.2	U				GS1	1.0	00Ra23	
	−23928	109			−1.5	U				GS2	1.0	03Li.A	∗
ave.	−23704	21			−1.4	1	15	15	^{187}Tl^m			average	
^{187}Tl^m−^{133}Cs$_{1.406}$	109151	24	109200	8	2.0	F				MA8	1.0	03We.A	∗
^{187}Pb−C$_{15.583}$	−16072	45	−16082	9	−0.2	U				GS2	1.0	03Li.A	∗
^{187}Pb−^{133}Cs$_{1.406}$	116844	14	116853	9	0.6	1	40	40	^{187}Pb	MA8	1.0	03We.A	
^{187}Pb^m−^{133}Cs$_{1.406}$	116871	14	116865	11	−0.4	1	67	67	^{187}Pb^m	MA8	1.0	03We.A	
^{187}Re O$_2$−^{184}W ^{35}Cl	25797.4	3.5	25798.5	1.3	0.1	U				H28	2.5	77Sh04	
^{187}Re ^{35}Cl−^{185}Re ^{37}Cl	5744.2	1.2	5748.2	1.1	1.3	1	12	10	^{187}Re	H28	2.5	77Sh04	
^{187}Au(α)^{183}Ir	4792.7	20.	4770	30	−0.5	1	38	19	^{183}Ir			68Si01	∗
^{187}Hg(α)^{183}Pt	5229.9	20.	5230	14	0.0	1	49	31	^{183}Pt	ISa		70Ha18	∗
^{187}Hg^m(α)^{183}Pt	5293.4	20.	5289	16	−0.2	1	64	49	^{187}Hg^m	ISa		70Ha18	∗
^{187}Tl^m(α)^{183}Au	5643	20	5653	7	0.5	2						76To06	∗
	5661.5	10.			−0.8	2						80Sc09	∗
	5645.1	12.			0.7	2				Lvn		85Co06	∗
^{187}Pb(α)^{183}Hg	6393.0	10.	6395	6	0.2	–						75Ca06	∗
	6398.4	10.			−0.3	–						81Mi12	∗
	6395.0	19.			0.0	–				GSa		80Sc09	
ave.	6396	7			−0.1	1	84	44	^{187}Pb			average	
^{187}Pb^m(α)^{183}Hg^p	6213.1	20.	6208	7	−0.2	o				Ora		74Le02	
	6213.1	10.			−0.5	2				Ora		75Ca06	
	6223.3	10.			−1.5	o				GSa		80Sc09	
	6205.9	10.			0.2	2						81Mi12	
	6202.9	15.			0.4	2				Jya		99An36	
^{187}Bi(α)^{183}Tl	7778.7	15.	7789	14	0.7	1	79	69	^{187}Bi	ORa		99Ba45	
^{187}Bi(α)^{183}Tl^m	7139.0	10.	7146	6	0.7	–						84Sc.A	
	7153.3	8.			−0.9	–				ORa		99Ba45	
ave.	7148	6			−0.3	1	96	66	^{183}Tl^m			average	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$^{187}\mathrm{Bi}^m(\alpha)^{183}\mathrm{Tl}$		7749.1	10.	7890	15	14.1	F						84Sc.A	∗
		7890.1	15.				2				ORa		99Ba45	
$^{186}\mathrm{W}(\mathrm{n},\gamma)^{187}\mathrm{W}$		5466.3	0.3	5466.54	0.11	0.8	–				BNn		87Br05	Z
		5467.22	0.15			−4.5	B						92Be17	∗
		5466.59	0.12			−0.4	–				Bdn		03Fi.A	
	ave.	5466.55	0.11			−0.1	1	100	68	$^{186}\mathrm{W}$			average	
$^{186}\mathrm{Os}(\mathrm{n},\gamma)^{187}\mathrm{Os}$		6291.1	1.0	6290.0	0.6	−1.1	–						74Pr15	Z
		6289.4	0.8			0.8	–				Bdn		03Fi.A	
	ave.	6290.1	0.6			−0.1	1	92	56	$^{187}\mathrm{Os}$			average	
$^{187}\mathrm{W}(\beta^-)^{187}\mathrm{Re}$		1314	2	1310.9	1.3	−1.5	–						69Na03	
		1310	2			0.5	–						70He14	
	ave.	1312.0	1.4			−0.7	1	82	68	$^{187}\mathrm{W}$			average	
$^{187}\mathrm{Re}(\beta^-)^{187}\mathrm{Os}$		2.64	0.05	2.469	0.004	−3.4	U						67Hu05	
		2.667	0.020			−9.9	U						92Co23	
		2.70	0.09			−2.6	U						93As02	
		2.460	0.011			0.8	–						99Al20	
		2.470	0.004			−0.3	–						01Ga01	
	ave.	2.469	0.004			0.0	1	100	76	$^{187}\mathrm{Re}$			average	
$^{187}\mathrm{Os}(^{3}\mathrm{He},\mathrm{t})^{187}\mathrm{Ir}$		−1521	6				2				INS		90Ka27	
$^{187}\mathrm{Au}(\beta^+)^{187}\mathrm{Pt}$		3600	40	3710	40	2.7	C						83Gn01	
$^{187}\mathrm{Hg}^m(\mathrm{IT})^{187}\mathrm{Hg}$		54	21	59	16	0.2	R						187Hgm-x	
		54	21			0.2	1	60	51	$^{187}\mathrm{Hg}^m$	MA6		01Sc41	∗
$^{187}\mathrm{Tl}^m(\mathrm{IT})^{187}\mathrm{Tl}$		330	5	335	3	1.0	1	48	38	$^{187}\mathrm{Tl}$			77Sc03	
∗$^{187}\mathrm{Au}-\mathrm{C}_{15.583}$	M−A=–32980(100) keV for mixture gs+m at 120.51 keV												NDS911	∗∗
∗$^{187}\mathrm{Hg}-\mathrm{C}_{15.583}$	M−A=–28090(100) keV for mixture gs+m at 59(16) keV												Nubase	∗∗
∗$^{187}\mathrm{Hg}-\mathrm{C}_{15.583}$	M−A=–28060(28) keV for mixture gs+m at 59(16) keV												Nubase	∗∗
∗$^{187}\mathrm{Hg}^m-^{208}\mathrm{Pb}_{.899}$	Use instead their difference between gs and m lines												GAu	∗∗
∗$^{187}\mathrm{Tl}-\mathrm{C}_{15.583}$	M−A=–22121(28) keV for mixture gs+m at 335(3) keV												Nubase	∗∗
∗$^{187}\mathrm{Tl}^m-^{133}\mathrm{Cs}_{1.406}$	F: contamination from ground-state not resolved												03We.A	∗∗
∗$^{187}\mathrm{Pb}-\mathrm{C}_{15.583}$	M−A=–14965(41) keV for mixture gs+m at 11(11) keV												Nubase	∗∗
∗$^{187}\mathrm{Au}(\alpha)^{183}\mathrm{Ir}$	Assignment uncertain												NDS	∗∗
∗$^{187}\mathrm{Hg}(\alpha)^{183}\mathrm{Pt}$	E(α)=5035(20) to 84.62 level												NDS924	∗∗
∗$^{187}\mathrm{Hg}^m(\alpha)^{183}\mathrm{Pt}$	E(α)=4870(20) to 316.7(0.5) level												NDS924	∗∗
∗$^{187}\mathrm{Tl}^m(\alpha)^{183}\mathrm{Au}$	E(α)=5510(20) to 12.4(0.4) level												NDS924	∗∗
∗$^{187}\mathrm{Tl}^m(\alpha)^{183}\mathrm{Au}$	E(α)=5528(10) to 12.4(0.4) level												NDS924	∗∗
∗$^{187}\mathrm{Tl}^m(\alpha)^{183}\mathrm{Au}$	E(α)=5512(12) to 12.4(0.4) level												NDS924	∗∗
∗$^{187}\mathrm{Pb}(\alpha)^{183}\mathrm{Hg}$	E(α)=6190(10) to 67.4(0.3) level												NDS87c	∗∗
∗$^{187}\mathrm{Pb}(\alpha)^{183}\mathrm{Hg}$	E(α)=6194(10),5993(10) to 67.4,275.5 levels												NDS87c	∗∗
∗$^{187}\mathrm{Bi}^m(\alpha)^{183}\mathrm{Tl}$	T=300(60) us not 700 us												99Ba45	∗∗
∗$^{186}\mathrm{W}(\mathrm{n},\gamma)^{187}\mathrm{W}$	Only statistical error 0.04 keV given. ,Z recalibrated												GAu	∗∗
∗$^{187}\mathrm{Hg}^m(\mathrm{IT})^{187}\mathrm{Hg}$	Original error (7 keV) increased by 20 for isomer+gs lines in trap												01Sc41	∗∗
$^{188}\mathrm{Au}-\mathrm{C}_{15.667}$		−34750	104	−34676	22	0.7	U				GS1	1.0	00Ra23	
		−34674	30			−0.1	2				GS2	1.0	03Li.A	
$^{188}\mathrm{Hg}-\mathrm{C}_{15.667}$		−32500	104	−32423	12	0.7	U				GS1	1.0	00Ra23	
		−32428	30			0.2	1	17	17	$^{188}\mathrm{Hg}$	GS2	1.0	03Li.A	
$^{188}\mathrm{Hg}-^{208}\mathrm{Pb}_{.904}$		−11330	20	−11316	12	0.7	–				MA6	1.0	01Sc41	
	ave.	−11318	15			0.1	1	72	72	$^{188}\mathrm{Hg}$			average	
$^{188}\mathrm{Tl}-\mathrm{C}_{15.667}$		−23827	110	−23990	40	−1.5	U				GS1	1.0	00Ra23	∗
		−23994	38			0.1	2				GS2	1.0	03Li.A	∗
$^{188}\mathrm{Pb}-\mathrm{C}_{15.667}$		−19070	110	−19126	11	−0.5	U				GS1	1.0	00Ra23	
		−19144	30			0.6	R				GS2	1.0	03Li.A	
$^{188}\mathrm{Os}\,^{35}\mathrm{Cl}-^{186}\mathrm{W}\,^{37}\mathrm{Cl}$		4426	3	4424.2	1.4	−0.2	U				H22	2.5	70Mc03	
$^{188}\mathrm{Pt}(\alpha)^{184}\mathrm{Os}$		4015.7	10.	4008	5	−0.7	–						63Gr08	
		4000.3	10.			0.8	–						78El11	
		3990.1	15.			1.2	–						79Ha10	
	ave.	4005	7			0.6	1	65	64	$^{188}\mathrm{Pt}$			average	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{188}Hg(α)^{184}Pt		4710.4	20.	4705	17	−0.2	1	69	58 ^{184}Pt			79Ha10	
^{188}Pb(α)^{184}Hg		6110.3	10.	6109	3	−0.1	2					74Le02	Z
		6109.2	10.			0.0	2					77De32	Z
		6120.5	15.			−0.8	2			GSa		80Sc09	Z
		6110.5	5.			−0.3	2					81To02	Z
		6109.3	10.			0.0	2			Lvn		93Wa03	Z
		6100.0	8.			1.1	2			Jya		03Ke04	
^{188}Bi(α)^{184}Tl		7274.5	25.	7255	7	−0.8	U			GSa		80Sc09	∗
		7255.2	7.				2			Lvn		97Wa05	∗
^{188}Bi^m(α)^{184}Tl^n		6968.5	20.	6963	6	−0.3	U			GSa		80Sc09	
		6963.5	6.				3			Lvn		97Wa05	
^{188}Po(α)^{184}Pb		8087.4	25.	8082	13	−0.2	2					99An52	
		8080.2	15.			0.1	2					01Va.B	
^{188}Os(p,t)^{186}Os		−5802	5	−5797.8	0.6	0.8	U			Min		73Oo01	
		−5803	4			1.3	U			McM		75Th04	
^{187}Re(n,γ)^{188}Re		5871.77	0.3	5871.75	0.12	−0.1	2					72Sh13	Z
		5871.75	0.13			0.0	2			Bdn		03Fi.A	
^{187}Os(n,γ)^{188}Os		7989.6	0.3	7989.56	0.15	−0.1	–					83Fe06	Z
		7989.58	0.17			−0.1	–			Bdn		03Fi.A	
	ave.	7989.58	0.15			−0.2	1	100	80 ^{188}Os			average	
^{188}W(β^-)^{188}Re		349	3				3					64Bu10	
^{188}Ir(β^+)^{188}Os		2833	10	2808	7	−2.5	–					62Wa20	
		2781	20			1.4	–					69Ya02	
		2827	30			−0.6	–					70Ag03	
	ave.	2823	9			−1.7	1	65	64 ^{188}Ir			average	
^{188}Pt(ε)^{188}Ir		525	10	505	7	−2.0	1	52	36 ^{188}Ir			78El11	
^{188}Au(β^+)^{188}Pt		5520	30	5522	21	0.1	R					84Da.A	
^{188}Hg(β^+)^{188}Au		2040	20	2099	23	3.0	C					84Da.A	
^{188}Tl^n(IT)^{188}Tl^m		268.8	0.5				4			Lvn		91Va04	
∗^{188}Tl−C$_{15.667}$	M−A=–22180(100) keV for mixture gs+m at 30(40) keV											GAu	∗∗
∗^{188}Tl−C$_{15.667}$	M−A=–22335(28) keV for mixture gs+m at 30(40) keV											GAu	∗∗
∗^{188}Bi(α)^{184}Tl	E(α)=7005(25) to 117.0(0.5) level											84Sc.A	∗∗
∗^{188}Bi(α)^{184}Tl	E(α)=6987(6) followed by 117.0(0.5) E$_1$ γ-ray											84Sc.A	∗∗
∗	An E(α)=7029(7) 3 times weaker exists too											97Wa05	∗∗
C$_{14}$ H$_{21}$−^{189}Os		206188.3	6.2	206178.2	1.6	−0.7	U			M23	2.5	79Ha32	
^{189}Au−C$_{15.75}$		−36080	140	−36052	22	0.2	U			GS1	1.0	00Ra23	∗
		−36045	31			−0.2	2			GS2	1.0	03Li.A	
		−36058	30			0.2	2			GS2	1.0	03Li.A	∗
^{189}Hg−C$_{15.75}$		−31793	113	−31810	40	−0.2	U			GS1	1.0	00Ra23	∗
		−31796	46			−0.3	1	61	61 ^{189}Hg	GS2	1.0	03Li.A	∗
^{189}Hg^m−^{208}Pb$_{.909}$		−10501	20	−10498	19	0.1	1	93	93 ^{189}Hg^m	MA6	1.0	01Sc41	
^{189}Tl−C$_{15.75}$		−26497	139	−26412	12	0.6	U			GS1	1.0	00Ra23	∗
		−26313	93			−1.1	U			GS2	1.0	03Li.A	∗
^{189}Pb−C$_{15.75}$		−19206	99	−19190	40	0.1	U			GS1	1.0	00Ra23	∗
		−19193	37				2			GS2	1.0	03Li.A	∗
^{189}Pb(α)^{185}Hg		5954.2	10.	5870	40	−8.1	o			Ora		72Ga27	∗
		5943.9	10.			−7.1	U			Ora		74Le02	∗
^{189}Bi(α)^{185}Tl		7267.4	10.	7269.8	2.8	0.2	6			Ora		74Le02	∗
		7272.5	10.			−0.3	6			GSa		84Sc.A	∗
		7269.2	5.			0.1	6			Lvn		85Co06	∗
		7270.8	15.			−0.1	U			Jya		97An09	∗
		7268.1	6.			0.3	6			Lvn		97Wa05	
		7271.5	5.			−0.3	6			Jya		02Hu14	∗
^{189}Bi^m(α)^{185}Tl		7362.1	20.	7451	6	1.8	C					84Sc.A	
		7499.0	30.			−1.6	U					93An19	
		7458.2	40.			−0.2	U			ORa		95Ba75	
		7458.2	15.			−0.5	6			Jya		97An09	
		7450.0	6.			0.2	6			Lvn		97Wa05	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{189}Po(α)^{185}Pb		7701	15				3				GSa		99An52	∗
^{188}Os(n,γ)^{189}Os		5920.6	0.5	5920.3	0.5	−0.7	1	98	78	^{189}Os	ILn		92Br17	
		5922.0	0.4			−4.3	B				Bdn		03Fi.A	
^{189}W(β^-)^{189}Re		2500	200				3						65Ka07	
^{189}Re(β^-)^{189}Os		1000	20	1007	8	0.4	R						63Cr06	
		1015	20			−0.4	R						65Bl06	
^{189}Pt(β^+)^{189}Ir		1950	20	1970	14	1.0	1	49	29	^{189}Ir			71Pl08	
^{189}Au(β^+)^{189}Pt		3160	300	2901	23	−0.9	U						75Un.A	
^{189}Hg(β^+)^{189}Au		4200	200	3950	40	−1.2	C						75Un.A	
^{189}Hg^m(IT)^{189}Hg		100	50	80	30	−0.4	1	47	39	^{189}Hg	MA6		01Sc41	
^{189}Tl^m(β^+)^{189}Hg		5460	200	5310	30	−0.7	U						75Un.A	
∗^{189}Au−C$_{15.75}$	M−A=–33490(100) keV for mixture gs+m at 247.23 keV												Ens92	∗∗
∗^{189}Au−C$_{15.75}$	M−A=–33341(28) keV for ^{189}Au^m at Eexc=247.23 keV												Ens92	∗∗
∗^{189}Hg−C$_{15.75}$	M−A=–29570(100) keV for mixture gs+m at 90(40) keV												Nubase	∗∗
∗^{189}Hg−C$_{15.75}$	M−A=–29573(28) keV for mixture gs+m at 90(40) keV												Nubase	∗∗
∗^{189}Tl−C$_{15.75}$	M−A=–24540(100) keV for mixture gs+m at 283(6) keV												Nubase	∗∗
∗^{189}Tl−C$_{15.75}$	M−A=–24369(28) keV for mixture gs+m at 283(6) keV												Nubase	∗∗
∗^{189}Pb−C$_{15.75}$	M−A=–17870(90) keV for mixture gs+m at 40#30 keV												Nubase	∗∗
∗^{189}Pb−C$_{15.75}$	M−A=–17858(29) keV for mixture gs+m at 40#30 keV												Nubase	∗∗
∗^{189}Pb(α)^{185}Hg	E(α)=5730.1(10,Z) possibly from ground-state, and to 26.1 level												NDS952	∗∗
∗^{189}Pb(α)^{185}Hg	E(α)=5720(10) possibly from ground-state, and to 26.1 level												NDS952	∗∗
∗^{189}Bi(α)^{185}Tl	E(α)=6670.1(10,Z) to ^{185}Tl^m at 452.8(2.0)												NDS952	∗∗
∗^{189}Bi(α)^{185}Tl	E(α)=6675(10) to ^{185}Tl^m at 452.8(2.0)												77Sc03	∗∗
∗^{189}Bi(α)^{185}Tl	E(α)=7115.6(15,Z) and 6671.6(5,Z) to ^{185}Tl^m at 452.8(2.0)												77Sc03	∗∗
∗^{189}Bi(α)^{185}Tl	E(α)=7120(15), 6670(15) to ground-state and 452.8 isomer												NDS952	∗∗
∗^{189}Bi(α)^{185}Tl	E(α)=6674(5) to ^{185}Tl^m at 452.8(2.0)												77Sc03	∗∗
∗^{189}Po(α)^{185}Pb	E(α)=7264(15) to 280(1) level												99An52	∗∗
^{190}Au−C$_{15.833}$		−35213	106	−35300	17	−0.8	U				GS2	1.0	03Li.A	∗
^{190}Hg−C$_{15.833}$		−33670	107	−33678	17	−0.1	U				GS1	1.0	00Ra23	
^{190}Hg−^{208}Pb$_{.913}$		−12361	20	−12361	17	0.0	1	73	73	^{190}Hg	MA6	1.0	01Sc41	
^{190}Tl−C$_{15.833}$		−26125	123	−26120	50	0.0	U				GS1	1.0	00Ra23	∗
		−26118	66			−0.1	R				GS2	1.0	03Li.A	∗
^{190}Pb−C$_{15.833}$		−21940	104	−21918	13	0.2	U				GS1	1.0	00Ra23	
		−21905	30			−0.4	R				GS2	1.0	03Li.A	
^{190}Bi^m−^{133}Cs$_{1.429}$		123800	27	123856	10	2.1	F				MA8	1.0	03We.A	∗
^{190}Os ^{35}Cl−^{188}Os ^{37}Cl		5557	3	5558.9	0.6	0.3	U				H22	2.5	70Mc03	
^{190}Os−C$_{14}$ H$_{21}$		−205897.8	5.8	−205878.6	1.6	1.3	U				M23	2.5	79Ha32	
^{190}Pt(α)^{186}Os		3238.3	20.	3251	6	0.6	–						61Pe23	
		3248.5	20.			0.1	–						63Gr08	
	ave.	3243	14			0.5	1	15	15	^{190}Pt			average	
^{190}Pb(α)^{186}Hg		5699.8	10.	5697	5	−0.2	3						74Le02	Z
		5697.0	5.			0.1	3						81El03	Z
^{190}Bi(α)^{186}Tl		6862.2	5.				3				Lvn		91Va04	∗
^{190}Bi^m(α)^{186}Tl^m		6967.9	5.	6967	4	−0.2	3				Lvn		91Va04	∗
^{190}Bi^m(α)^{186}Tl^n		6589.0	10.	6593	5	0.4	R						74Le02	
^{190}Po(α)^{186}Pb		7643.2	20.	7693	7	2.5	F				GSa		88Qu.A	
		7651.4	40.			1.0	U				ORa		96Ba35	
		7691.2	10.			0.2	4				ORa		97Ba25	
		7695.3	10.			−0.2	4				GSa		00An14	∗
^{190}Os(p,t)^{188}Os		−5234	5	−5230.7	0.5	0.7	U				Min		73Oo01	
		−5237	4			1.6	U				McM		75Th04	
^{190}Pt(p,t)^{188}Pt		−7150	10	−7161	7	−1.1	1	43	23	^{190}Pt	Ors		78Ve10	
^{190}Os(t,α)^{189}Re		11796	10	11796	8	0.0	2				McM		76Hi08	
^{189}Os(n,γ)^{190}Os		7791.8	1.0	7792.26	0.19	0.5	U				BNn		79Ca02	Z
		7792.31	0.19			−0.2	1	100	78	^{190}Os	Bdn		03Fi.A	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{190}Pt(p,d)^{189}Pt		−6693	11	−6687	10	0.5	1	84	80	^{189}Pt	Ors		80Ka19	
^{190}W(β^-)^{190}Re		1270	70				3						76Ha39	
^{190}Re(β^-)^{190}Os		3090	300	3140	150	0.2	2						55At21	
		3190	300			−0.2	2						69Ha44	
		3140	210			0.0	2						64Fl02	$*$
^{190}Ir(β^+)^{190}Os		2000	200	1955.1	1.2	−0.2	U						60Ka14	$*$
^{190}Au(β^+)^{190}Pt		4442	15				2						73Jo11	
^{190}Hg(β^+)^{190}Au		2105	80	1511	23	−7.4	C						74Di.A	
^{190}Tl(β^+)^{190}Hg		7000	400	7040	50	0.1	U						75Un.A	
^{190}Tl^m(β^+)^{190}Hg		6975	300	7170#	70#	0.7	D						76Bi09	$*$
^{190}Bi(β^+)^{190}Pb		8700	500	9510	180	1.6	F						76Bi09	$*$
^{190}Bi^n(IT)^{190}Bi^m		273	1				4						01An11	
$*^{190}$Au$-$C$_{15.833}$		M$-$A=–32701(28) keV for mixture gs+m at 200#150 keV											Nubase	$**$
$*^{190}$Tl$-$C$_{15.833}$		M$-$A=–24270(100) keV for mixture gs+m at 130#80 keV											AHW	$**$
$*^{190}$Tl$-$C$_{15.833}$		M$-$A=–24264(28) keV for mixture gs+m at 130#80 keV											AHW	$**$
$*^{190}$Bi$^m-^{133}$Cs$_{1.429}$		F: contamination from ground-state not resolved											03We.A	$**$
$*^{190}$Bi(α)^{186}Tl		E(α)=6716(5), 6507(5), 6431(5) to ground-state, 215.2, 293.7 levels											91Va04	$**$
$*^{190}$Bi^m(α)^{186}Tl^m		E(α)=6819(5), 6734(5), 6456(5) to levels 0, 89.5, 373.9 above ^{186}Tl^m											91Va04	$**$
$*^{190}$Po(α)^{186}Pb		Ea=7545(15) same work as in 2000An14											97An09	$**$
$*^{190}$Re(β^-)^{190}Os		E$^-$=1600(200) from isomer at 210(60) to several levels around 1750											NDS90a	$**$
$*^{190}$Ir(β^+)^{190}Os		p+$<$0.00006 to 1163.19 and 955.37 levels, level at 1872.15 fed											AHW	$**$
$*^{190}$Tl^m(β^+)^{190}Hg		Systematical trends suggest ^{190}Tl^m 200 less bound											GAu	$**$
$*^{190}$Bi(β^+)^{190}Pb		F: E$^+$ =5700(300) to at least about 2000 level											AHW	$**$
^{191}Au$-$C$_{15.917}$		−36180	88	−36300	40	−1.3	1	20	20	^{191}Au	GS2	1.0	03Li.A	$*$
^{191}Hg$-$C$_{15.917}$		−32811	51	−32843	24	−0.6	1	23	23	^{191}Hg	GS2	1.0	03Li.A	$*$
^{191}Hg$-^{208}$Pb$_{.918}$		−11414	29	−11409	24	0.2	1	70	70	^{191}Hg	MA6	1.0	01Sc41	
^{191}Tl$-$C$_{15.917}$		−28340	130	−28214	8	1.0	U				GS1	1.0	00Ra23	$*$
		−28234	30			0.7	U				GS2	1.0	03Li.A	
		−28192	31			−0.7	U				GS2	1.0	03Li.A	$*$
^{191}Pb$-$C$_{15.917}$		−21770	110	−21740	40	0.3	U				GS1	1.0	00Ra23	$*$
		−21735	42				2				GS2	1.0	03Li.A	$*$
^{191}Bi$-^{133}$Cs$_{1.436}$		121552.1	8.6	121557	8	0.6	1	86	86	^{191}Bi	MA8	1.0	03We.A	
^{191}Pb^m(α)^{187}Hg^m		5403.4	20.				2				Ora		74Le02	
^{191}Bi(α)^{187}Tl		6780.8	5.	6778	3	−0.5	–				Lvn		85Co06	Z
		6785	10			−0.7	–				ORa		98Bi.A	
		6782	10			−0.4	–				Jya		99An36	
	ave.	6782	4			−0.8	1	64	62	^{187}Tl			average	
^{191}Bi(α)^{187}Tl^m		6440.0	5.	6443.7	2.2	0.7	–						67Tr06	Z
		6455.0	10.			−1.1	U						74Le02	Z
		6445.9	5.			−0.4	–				Lvn		85Co06	Z
		6447	10			−0.3	U				ORa		98Bi.A	
		6458.5	20.			−0.7	U				RIa		99Ta20	
		6445	10			−0.1	U				Jya		99An36	
		6443.2	3.			0.2	–				Jya		03Ke04	
	ave.	6443.0	2.3			0.3	1	88	75	^{187}Tl^m			average	
^{191}Bi^m(α)^{187}Tl		7022.8	5.	7018.6	2.6	−0.8	2				Lvn		85Co06	Z
		7023.4	10.			−0.5	U				ORa		98Bi.A	
		7016.2	20.			0.1	U				RIa		99Ta20	
		7017.2	3.			0.5	2				Jya		03Ke04	
^{191}Po(α)^{187}Pb		7470.8	20.	7501	11	1.5	F				GSa		93Qu03	$*$
		7493.2	15.			0.5	1	54	38	^{191}Po	Jya		02An19	
^{191}Po(α)^{187}Pb^m		7487.1	15.	7490	5	0.2	U				ORa		97Ba25	
		7491.2	5.			−0.2	1	95	62	^{191}Po	Jya		02An19	$*$
^{191}Po^m(α)^{187}Pb		7535	5				2				Jya		02An19	$*$
^{191}Ir(p,t)^{189}Ir		−5903	15	−5914	13	−0.7	1	71	71	^{189}Ir	McM		78Lo07	
^{190}Os(n,γ)^{191}Os		5758.67	0.16	5758.72	0.11	0.3	–				ILn		91Bo35	Z
		5758.81	0.15			−0.6	–				Bdn		03Fi.A	
	ave.	5758.74	0.11			−0.2	1	100	79	^{191}Os			average	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{191}Ir(d,t)^{190}Ir		−1769.3	0.4				2						95Ga04	∗
^{191}Os(β^-)^{191}Ir		313.3	3.	312.7	1.1	−0.2	–						48Sa18	
		314.3	2.			−0.8	–						51Ko17	
		316.3	3.			−1.2	–						58Na15	
		314.3	3.			−0.5	–						60Fe03	
		318.3	3.			−1.9	–						63Pl01	
	ave.	315.1	1.2			−2.0	1	84	63	^{191}Ir			average	
^{191}Au(β^+)^{191}Pt		1830	50	1890	40	1.2	1	55	54	^{191}Au			76Vi.A	
^{191}Hg(β^+)^{191}Au		3180	70	3220	40	0.5	1	33	25	^{191}Au			76Vi.A	
^{191}Tl^m(β^+)^{191}Hg		5140	200	4609	24	−2.7	U						75Un.A	
∗^{191}Au−C$_{15.917}$		M−A=–33568(28) keV for mixture gs+m at 266.2 keV											Ens99	∗∗
∗^{191}Hg−C$_{15.917}$		M−A=–30499(28) keV for mixture gs+m at 128(22) keV											Nubase	∗∗
∗^{191}Tl−C$_{15.917}$		M−A=–26250(90) keV for mixture gs+m at 297(7) keV											Nubase	∗∗
∗^{191}Tl−C$_{15.917}$		M−A=–25964(28) keV for ^{191}Tl^m at Eexc=297(7) keV											Nubase	∗∗
∗^{191}Pb−C$_{15.917}$		Possibly contaminated by isomerism											00Ra23	∗∗
∗^{191}Pb−C$_{15.917}$		M−A=–20226(28) keV for mixture gs+m at 40(50) keV											AHW	∗∗
∗^{191}Po(α)^{187}Pb		F: probably mainly ^{189}Bi^m											97Ba25	∗∗
∗^{191}Po(α)^{187}Pb^m		E(α)=7334(10), 6960(15) to ground-state, 375(1) superseded by 2002An19											99An10	∗∗
∗^{191}Po^m(α)^{187}Pb		E(α)=7376(5), 6888(5) to ^{187}Pb^m and 494(1) above											02An19	∗∗
∗^{191}Po^m(α)^{187}Pb		E(α)=7378(10), 6888(15) superseded by 2002An19											99An10	∗∗
∗^{191}Ir(d,t)^{190}Ir		Feeds ground-state											96Ga30	∗∗
^{192}Hg−C$_{16}$		−34440	104	−34366	17	0.7	U				GS1	1.0	00Ra23	
		−34342	30			−0.8	R				GS2	1.0	03Li.A	
^{192}Hg−^{208}Pb$_{.923}$		−12826	20	−12816	17	0.5	2				MA6	1.0	01Sc41	
^{192}Tl−C$_{16}$		−27815	121	−27780	30	0.3	U				GS1	1.0	00Ra23	∗
		−27775	34				2				GS2	1.0	03Li.A	
^{192}Pb−C$_{16}$		−24280	104	−24215	14	0.6	U				GS1	1.0	00Ra23	
		−24185	30			−1.0	R				GS2	1.0	03Li.A	
^{192}Bi−C$_{16}$		−14783	128	−14540	40	1.9	B				GS1	1.0	00Ra23	∗
		−14489	59			−0.9	R				GS2	1.0	03Li.A	∗
^{192}Bi^m−^{133}Cs$_{1.444}$		122143.5	9.6				2				MA8	1.0	03We.A	
^{192}Os ^{35}Cl−^{190}Os ^{37}Cl		5984	3	5983.7	2.3	0.0	1	9	9	^{192}Os	H22	2.5	70Mc03	
^{192}Pb(α)^{188}Hg		5221.0	5.				2						79To06	Z
^{192}Bi(α)^{188}Tl		6376.0	5.				3				Lvn		91Va04	∗
^{192}Bi^m(α)^{188}Tl^m		6484.9	5.	6483	4	−0.4	3				Lvn		91Va04	∗
^{192}Bi^m(α)^{188}Tl^n		6212.6	5.	6214	4	0.3	R						67Tr06	∗
^{192}Po(α)^{188}Pb		7319.8	7.	7319	5	−0.1	3				Lvn		93Wa04	
		7364.6	35.			−1.3	U				RIa		95Mo14	
		7349.4	30.			−1.0	U				RIa		97Pu01	
		7319.8	11.			0.0	o				Jya		01Ke06	
		7318.8	8.			0.1	3				Jya		03Ke04	
^{192}Os(p,t)^{190}Os		−4835	5	−4835.0	2.1	0.0	–				Min		73Oo01	
		−4837	4			0.5	–				McM		75Th04	
	ave.	−4836	3			0.4	1	46	45	^{192}Os			average	
^{192}Pt(p,t)^{190}Pt		−6629	7	−6630	5	−0.2	1	62	58	^{190}Pt	Ors		80Ka19	
^{192}Os(t,α)^{191}Re		10993	10				2				McM		76Hi08	
^{191}Ir(n,γ)^{192}Ir		6198.1	0.2	6198.11	0.11	0.1	–				ILn		91Ke10	
		6198.14	0.13			−0.2	–				Bdn		03Fi.A	
	ave.	6198.13	0.11			−0.1	1	100	64	^{192}Ir			average	
^{192}Pt(p,d)^{191}Pt		−6448	6	−6442	3	1.1	1	25	31	^{191}Pt	Ors		80Ka19	
^{192}Pt(p,d)^{191}Pt−^{194}Pt()^{193}Pt		−307	3	−308.8	2.7	−0.6	1	81	69	^{191}Pt	Ors		78Be09	
^{192}Ir(β^-)^{192}Pt		1456.7	4.	1459.7	1.9	0.7	–						65Jo04	
		1453.3	3.			2.1	–						77Ra17	
	ave.	1454.5	2.4			2.1	1	60	59	^{192}Pt			average	
^{192}Au(β^+)^{192}Pt		3514	20	3516	16	0.1	2						66Ny01	
		3520	25			−0.1	2						74Di.A	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	*F*	Reference	
^{192}Hg(β^+)^{192}Au	1745	30	765	22	−32.7	F						74Di.A	$*$
^{192}Tl(β^+)^{192}Hg	6380	200	6140	40	−1.2	C						75Un.A	
^{192}Tl^p(IT)^{192}Tl	200	50	180	40	−0.4	U				Lvn		91Va04	
$*^{192}$Tl−C$_{16}$	M−A=–25830(100) keV for mixture gs+m at 160(50) keV											Nubase	$**$
$*^{192}$Bi−C$_{16}$	M−A=–13700(110) keV for mixture gs+m at 140(40) keV											GAu	$**$
$*^{192}$Bi−C$_{16}$	M−A=–13426(31) keV for mixture gs+m at 140(40) keV											GAu	$**$
$*^{192}$Bi(α)^{188}Tl	E(α)=6245(5), 6060(5) to ground-state, 184.6 level											91Va04	$**$
$*^{192}$Bi^m(α)^{188}Tl^m	E(α)=6348(5), 6253(5), 6081(10), 6052(5) to ground-state and											91Va04	$**$
$*$	to levels 103.1, 268.8, 302.4 above ^{188}Tl^m											91Va04	$**$
$*^{192}$Bi^m(α)^{188}Tl^n	E(α)=6050(5) to level 33.6 above ^{188}Tl^n											GAu	$**$
$*^{192}$Hg(β^+)^{192}Au	F: most probably due to backscattering of 2.5 MeV Au positons											AHW	$**$
^{193}Au−C$_{16.083}$	−35736	96	−35850	11	−1.2	U				GS2	1.0	03Li.A	$*$
^{193}Hg−C$_{16.083}$	−33288	53	−33335	17	−0.9	1	10	10	^{193}Hg	GS2	1.0	03Li.A	$*$
^{193}Hg−^{208}Pb$_{.928}$	−11673	29	−11668	17	0.2	1	32	32	^{193}Hg	MA6	1.0	01Sc41	
^{193}Tl−C$_{16.083}$	−29691	171	−29330	120	2.1	o				GS1	1.0	00Ra23	$*$
	−29328	119				2				GS2	1.0	03Li.A	$*$
^{193}Pb−C$_{16.083}$	−23865	125	−23830	50	0.3	o				GS1	1.0	00Ra23	$*$
	−23846	66			0.3	2				GS2	1.0	03Li.A	$*$
^{193}Bi−C$_{16.083}$	−16980	110	−17040	10	−0.5	U				GS1	1.0	00Ra23	
	−17025	30			−0.5	R				GS2	1.0	03Li.A	
^{193}Bi−^{133}Cs$_{1.451}$	120147	11	120149	10	0.2	2				MA8	1.0	03We.A	
^{193}Bi(α)^{189}Tl	6304.5	5.				3				Lvn		85Co06	Z
^{193}Bi(α)^{189}Tl^m	6017.8	5.	6021	3	0.7	3						67Tr06	Z
	6024.6	10.			−0.3	3						74Le02	Z
	6023.7	5.			−0.5	3				Lvn		85Co06	Z
^{193}Bi^m(α)^{189}Tl	6617.4	10.	6613	5	−0.4	4						74Le02	
	6611.9	5.			0.2	4				Lvn		85Co06	Z
^{193}Po(α)^{189}Pb	7096.4	5.	7093	4	−0.6	3				Lvn		93Wa04	
	7089.2	6.			0.7	3				Jya		96En02	
^{193}Po^m(α)^{189}Pb^m	7143.3	10.	7154	4	1.0	4						77De32	
	7152.5	5.			0.3	4				Lvn		93Wa04	
	7159.7	6.			−0.9	4				Jya		96En02	
^{193}At(α)^{189}Bi	7556.9	20.	7490	6	−3.3	o				Jya		95Le15	
	7490	6				7				Jya		98En.A	
^{192}Os(n,γ)^{193}Os	5583.5	2.	5583.41	0.20	0.0	U						78Be22	
	5583.40	0.20			0.1	1	100	82	^{193}Os			79Wa04	
	5584.01	0.16			−3.7	B				Bdn		03Fi.A	
^{193}Ir(t,α)^{192}Os−^{191}Ir()^{190}Os	−661	4	−653.2	2.1	1.9	1	28	28	^{192}Os	LAl		82La22	
^{192}Ir(n,γ)^{193}Ir	7772.0	0.2	7771.92	0.20	−0.4	1	99	64	^{193}Ir			85Co.B	Z
^{192}Pt(n,γ)^{193}Pt	6247	3	6255.5	1.9	2.8	1	38	37	^{192}Pt			68Sa13	
^{193}Os(β^-)^{193}Ir	1132	5	1141.2	2.3	1.8	1	21	18	^{193}Os			58Na15	
^{193}Pt(ε)^{193}Ir	56.6	0.3	56.79	0.30	0.6	1	99	65	^{193}Pt			83Jo04	
^{193}Au(β^+)^{193}Pt	1355	20	1083	11	−13.6	B						76Di15	
^{193}Hg(β^+)^{193}Au	2340	20	2343	14	0.2	–						76Di15	
	2341	30			0.1	–						58Br88	$*$
ave.	2340	17			0.2	1	71	58	^{193}Hg			average	
$*^{193}$Au−C$_{16.083}$	M−A=–33143(29) keV for mixture gs+m at 290.19 keV											Ens98	$**$
$*^{193}$Hg−C$_{16.083}$	M−A=–30937(28) keV for mixture gs+m at 140.76 keV											Ens99	$**$
$*^{193}$Tl−C$_{16.083}$	M−A=–27470(100) keV for mixture gs+m at 369(4) keV											Nubase	$**$
$*^{193}$Tl−C$_{16.083}$	M−A=–27134(28) keV for mixture gs+m at 369(4) keV											Nubase	$**$
$*^{193}$Pb−C$_{16.083}$	M−A=–22160(100) keV for mixture gs+m at 130#80 keV											Nubase	$**$
$*^{193}$Pb−C$_{16.083}$	M−A=–22147(28) keV for mixture gs+m at 130#80 keV											Nubase	$**$
$*^{193}$Hg(β^+)^{193}Au	E$^-$=1170(30) from ^{193}Hg^m at 140.76 to 290.1 level											NDS90c	$**$

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{194}Au$-$C$_{16.167}$	-34768	114	-34635	11	1.2	U				GS2	1.0	03Li.A	$*$
^{194}Hg$-$C$_{16.167}$	-34527	30	-34561	13	-1.1	1	20	20	^{194}Hg	GS2	1.0	03Li.A	
^{194}Hg$-^{208}$Pb$_{.933}$	-12766	19	-12777	13	-0.6	1	50	50	^{194}Hg	MA6	1.0	01Sc41	
^{194}Tl$-$C$_{16.167}$	-28825	178	-28800	150	0.1	o				GS1	1.0	00Ra23	$*$
	-28800	145				2				GS2	1.0	03Li.A	$*$
^{194}Pb$-$C$_{16.167}$	-25980	104	-25988	19	-0.1	U				GS1	1.0	00Ra23	
^{194}Bi$-$C$_{16.167}$	-17159	136	-17170	50	-0.1	o				GS1	1.0	00Ra23	$*$
	-17175	88			0.1	2				GS2	1.0	03Li.A	$*$
^{194}Bi$^{m}-^{133}$Cs$_{1.459}$	120900	54				2				MA8	1.0	03We.A	$*$
^{194}Pb(α)^{190}Hg	4737.9	20.	4738	17	0.0	1	67	40	^{194}Pb			87El09	
^{194}Bi(α)^{190}Tl	5918.3	5.				3				Lvn		91Va04	$*$
^{194}Bi^{n}(α)^{190}Tl^{m}	6015.7	5.				3				Lvn		91Va04	$*$
^{194}Po(α)^{190}Pb	6991.5	10.	6987	3	-0.4	4						67Si09	Z
	6990.9	7.			-0.5	4						67Tr06	Z
	6984.4	5.			0.5	4						77De32	Z
	6986.3	6.			0.1	4				Lvn		93Wa04	
	6993.4	4.			-1.6	B				Jya		96En02	
^{194}At(α)^{190}Bi	7290.6	20.				4				Jya		95Le15	
^{194}At^{m}(α)^{190}Bi^{m}	7351.9	20.	7347	14	-0.3	4						84Ya.A	
	7341.7	20.			0.3	4				Jya		95Le15	
^{193}Ir(n,γ)^{194}Ir	6067.0	0.4	6066.79	0.11	-0.5	2						82Ra.A	
	6066.9	0.2			-0.6	2						98Ba85	
	6066.71	0.14			0.6	2				Bdn		03Fi.A	
^{194}Pt(p,d)^{193}Pt	-6142	3	-6132.9	1.7	3.0	1	33	28	^{193}Pt	Ors		78Be09	$*$
^{194}Os(β^-)^{194}Ir	96.6	2.				3						64Wi07	
^{194}Ir(β^-)^{194}Pt	2254	4	2233.8	1.7	-5.0	B						76Ra33	
^{194}Ir^{n}(β^-)^{194}Pt	2600	70				2						68Su02	
^{194}Au(β^+)^{194}Pt	2465	20	2501	10	1.8	–						56Th11	
	2509	15			-0.5	–						60Ba17	
	2485	30			0.5	–						70Ag03	
ave.	2492	11			0.8	1	83	83	^{194}Au			average	
^{194}Hg(ε)^{194}Au	40	20	69	14	1.5	1	47	30	^{194}Hg			81Ho18	
$*^{194}$Au$-$C$_{16.167}$	M$-$A=–32192(29) keV for mixture gs+m+n at 107.4 and 475.8 keV											NDS96a	$**$
$*^{194}$Tl$-$C$_{16.167}$	M$-$A=–26700(100) keV for mixture gs+m at 300#200 keV											Nubase	$**$
$*^{194}$Tl$-$C$_{16.167}$	M$-$A=–26677(28) keV for mixture gs+m at 300#200 keV											Nubase	$**$
$*^{194}$Bi$-$C$_{16.167}$	M$-$A=–15870(100) keV for mixture gs+m+n at 110(70) and 230#80 keV											GAu	$**$
$*^{194}$Bi$-$C$_{16.167}$	M$-$A=–15885(28) keV for mixture gs+m+n at 110(70) and 230#80 keV											GAu	$**$
$*^{194}$Bi$^{m}-^{133}$Cs$_{1.459}$	Original error 16 uu increased for 3+ and 10- possible contamination											03We.A	$**$
$*^{194}$Bi(α)^{190}Tl	E(α)=5799(5), 5645(5) to ground-state, 151.3 level											91Va04	$**$
$*^{194}$Bi^{n}(α)^{190}Tl^{m}	E(α)=5892(5), 5781(5) to levels 0, 112.2 above ^{190}Tl^{m}											91Va04	$**$
$*^{194}$Pt(p,d)^{193}Pt	Q$-$Q(^{196}Pt(p,d))=–445(3)											AHW	$**$

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{195}Hg$-$C$_{16.25}$	-33283	62	-33280	25	0.1	U				GS2	1.0	03Li.A	$*$
^{195}Hg$-^{208}$Pb$_{.938}$	-11362	28	-11380	25	-0.6	1	79	79	^{195}Hg	MA6	1.0	01Sc41	$*$
^{195}Tl$-$C$_{16.25}$	-30320	200	-30226	15	0.5	U				GS1	1.0	00Ra23	$*$
	-30209	40			-0.4	R				GS2	1.0	03Li.A	
	-30264	33			1.2	R				GS2	1.0	03Li.A	$*$
^{195}Pb$-$C$_{16.25}$	-25423	150	-25458	25	-0.2	o				GS1	1.0	00Ra23	$*$
	-25461	70			0.0	2				GS2	1.0	03Li.A	$*$
^{195}Bi$-$C$_{16.25}$	-19320	100	-19349	6	-0.3	U				GS1	1.0	00Ra23	
	-19537	128			1.5	U				GS2	1.0	03Li.A	$*$
^{195}Bi$-^{133}$Cs$_{1.466}$	119258.2	6.0				2				MA8	1.0	03We.A	
^{195}Bi(α)^{191}Tl	5832.5	5.				3				Lvn		85Co06	Z
^{195}Bi(α)^{191}Tl^{m}	5542.9	10.	5535	5	-0.8	3						74Le02	Z
	5533.3	5.			0.4	3				Lvn		85Co06	Z
^{195}Bi^{m}(α)^{191}Tl	6228.1	5.	6232	3	0.7	4						67Tr06	Z
	6238.4	10.			-0.6	4						74Le02	Z
	6233.7	5.			-0.4	4				Lvn		85Co06	Z

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{195}Po(α)^{191}Pb	6763.1	8.	6746	3	−2.1	U					67Si09	Z
	6747.4	5.			−0.2	3					67Tr06	Z
	6744.6	5.			0.3	3			Lvn		93Wa04	
	6752.8	14.			−0.4	3			Jya		96Le09	
^{195}Po^m(α)^{191}Pb^m	6850.8	10.	6842	3	−0.9	3					67Si09	
	6839.4	5.			0.5	3					67Tr06	Z
	6839.6	5.			0.5	3			Lvn		93Wa04	
	6852.8	10.			−1.1	3			Jya		96Le09	
^{195}At(α)^{191}Bi^m	7095.8	20.	7099	3	0.2	U			Jya		95Le15	
	7105	20			−0.3	U			RIa		99Ta20	
	7098.9	3.				3			Jya		03Ke04	∗
^{195}At^m(α)^{191}Bi	7340.9	30.	7372	4	1.1	U					83Le.A	∗
	7371.5	30.			0.0	U			Jya		95Le.A	
	7403	30			−1.0	o			RIa		99Ta20	
	7372.5	4.0				2			RIa		03Ke04	∗
^{195}Rn(α)^{191}Po	7694.1	11.				2			Jya		01Ke06	
^{195}Rn^m(α)^{191}Po^m	7713.5	11.				3			Jya		01Ke06	
^{194}Ir(n,γ)^{195}Ir	7231.86	0.06				3			ILn		87Co08	Z
^{194}Pt(n,γ)^{195}Pt	6105.06	0.12	6105.04	0.12	−0.1	1	100	94 ^{194}Pt	ILn		81Ho.B	Z
	6109.17	0.13			−31.7	F			Bdn		03Fi.A	
^{195}Os(β^-)^{195}Ir	2000	500				4					57Ba08	
^{195}Ir^m(IT)^{195}Ir	100	5				4					NDS993	
^{195}Ir^m(β^-)^{195}Pt	1230	20	1207	5	−1.1	U					73Ja10	
^{195}Au(ε)^{195}Pt	226.8	1.0	226.8	1.0	0.0	1	100	100 ^{195}Au			Averag	∗
^{195}Hg(β^+)^{195}Au	1510	50	1570	23	1.2	1	21	21 ^{195}Hg			71Fr03	∗
^{195}Pb^m(IT)^{195}Pb	202.9	0.7				3			Oak		91Gr12	
^{195}Bi(β^+)^{195}Pb	4850	550	5690	24	1.5	B			Oak		91Gr12	
∗^{195}Hg−C$_{16.25}$	M−A=–30914(28) keV for mixture gs+m at 176.07 keV										NDS993	∗∗
∗^{195}Hg−^{208}Pb$_{.938}$	Corrected 40(20) keV for isomeric mixture R=0.3(0.2) E=176.07 keV										01Sc41	∗∗
∗^{195}Tl−C$_{16.25}$	M−A=–28000(100) keV for mixture gs+m at 482.63 keV										NDS993	∗∗
∗^{195}Tl−C$_{16.25}$	M−A=–27708(31) keV for ^{195}Tl^m at Eexc=482.63 keV										NDS993	∗∗
∗^{195}Pb−C$_{16.25}$	M−A=–23580(100) keV for mixture gs+m at 202.9 keV										Ens99	∗∗
∗^{195}Pb−C$_{16.25}$	M−A=–23615(28) keV for mixture gs+m at 202.9 keV										Ens99	∗∗
∗^{195}Bi−C$_{16.25}$	M−A=–17999(28) keV for mixture gs+m at 399(6) keV										Nubase	∗∗
∗^{195}At(α)^{191}Bi^m	Correlated with E(α)=6313 of ^{191}Bi^m										03Ke04	∗∗
∗^{195}At^m(α)^{191}Bi	E(α)=7190(30) to 148.7(0.5) level										03Ke04	∗∗
∗^{195}At^m(α)^{191}Bi	Correlated with α of 12 s ^{191}Bi ground-state										95Le15	∗∗
∗^{195}At^m(α)^{191}Bi	E(α)=7105(30) to 148.7(0.5) level										03Ke04	∗∗
∗^{195}At^m(α)^{191}Bi	E(α)=7221(4) and 7075(4) to 148.7(0.5) level										03Ke04	∗∗
∗^{195}Au(ε)^{195}Pt	Average pK=0.179(0.006) to 129.78 level from the following references:										AHW	∗∗
∗	pK=0.195(0.015) to 129.78 level										65De20	∗∗
∗	pK=0.166(0.020) to 129.78 level										68Ja11	∗∗
∗	pK=0.160(0.017) to 129.78 level										73Go05	∗∗
∗	pK=0.183(0.009) to 129.78 level										80Sa11	∗∗
∗	pK=0.176(0.012) to 129.78 level										82Be.A	∗∗
∗^{195}Hg(β^+)^{195}Au	Assuming 511 γ is annihil. of β^+ to ground-state and 61.44 level										AHW	∗∗
^{196}Hg−^{208}Pb$_{.942}$	−12178	20	−12174	3	0.2	U			MA6	1.0	01Sc41	
^{196}Tl−C$_{16.333}$	−29188	126	−29519	13	−2.6	U			GS2	1.0	03Li.A	∗
^{196}Tl−^{133}Cs$_{1.474}$	109845	13				2			MA8	1.0	03We.A	∗
^{196}Pb−^{208}Pb$_{.942}$	−5228	22	−5232	15	−0.2	2			MA6	1.0	01Sc41	
^{196}Pb−C$_{16.333}$	−27200	104	−27226	15	−0.2	U			GS1	1.0	00Ra23	
	−27232	30			0.2	R			GS2	1.0	03Li.A	
^{196}Bi−C$_{16.333}$	−19313	150	−19333	26	−0.1	o			GS1	1.0	00Ra23	∗
	−19325	30			−0.3	2			GS2	1.0	03Li.A	
	−19361	54			0.5	2			MA8	1.0	03We.A	∗

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{196}Bi(α)^{192}Tl^{p}	5260.6	5.				3			Lvn		91Va04	
^{196}Po(α)^{192}Pb	6662.2	8.	6657	3	−0.7	3					67Si09	Z
	6653.7	5.			0.6	3					67Tr06	Z
	6658.4	8.			−0.2	3					71Ho01	Z
	6656.7	5.			0.0	o			Lvn		85Va03	Z
	6656.7	5.			0.0	3			Lvn		93Wa04	
	6653.1	18.			0.2	U			Ara		95Le04	
	6657.1	10.			0.0	U			Jya		96Le09	
^{196}At(α)^{192}Bi	7202.3	7.	7200	50	−0.1	4					67Tr06	
	7187.0	25.			0.2	U			Jya		95Le15	
	7200.2	30.			−0.1	U			RIa		95Mo14	
	7191.0	7.			0.1	o			Jya		96En01	
	7195.1	5.			0.0	4			Jya		00Sm06	
^{196}At^{m}(α)^{192}Bi^{m}	7023.6	15.				3			Jya		96En01	$*$
^{196}Rn(α)^{192}Po	7583.1	35.	7617	9	0.9	o			RIa		95Mo14	
	7648.4	30.			−1.1	U			RIa		97Pu01	
	7616.7	9.				4			Jya		01Ke06	
^{195}Pt(n,γ)^{196}Pt	7921.96	0.20	7921.92	0.13	−0.2	–			ILn		81Ho.B	Z
	7921.92	0.17			0.0	–			Bdn		03Fi.A	
ave.	7921.94	0.13			−0.1	1	100	94 ^{195}Pt			average	
^{196}Ir(β^-)^{196}Pt	3150	60	3210	40	1.0	2					66Vo05	
	3250	50			−0.8	2					67Mo10	
^{196}Ir^{m}(β^-)^{196}Pt	3418	20				2					65Bi04	
^{196}Au(β^+)^{196}Pt	1498	7	1507.4	3.0	1.3	1	18	17 ^{196}Au			63Ik01	
^{196}Au(ε)^{196}Pt	1490	10			1.7	U					62Wa16	
^{196}Au(β^-)^{196}Hg	685	4	687	3	0.4	1	61	31 ^{196}Au			62Li03	
$*$^{196}Tl$-$C$_{16.333}$	M$-$A=–26991(28) keV for mixture gs+m at 394.2 keV										NDS981	$**$
$*$^{196}Tl$-$^{133}Cs$_{1.474}$	Q=110268(13) uu M$-$A=–27103(12) keV for ^{196}Tl^{m} at Eexc=394.2 keV										Ens98	$**$
$*$^{196}Bi$-$C$_{16.333}$	M$-$A=–17850(100) keV for mixture gs+n at 270(3) keV										Nubase	$**$
$*$^{196}Bi$-$C$_{16.333}$	Q=120182(15) uu for ^{196}Bi^{m}$-$^{133}Cs$_{1.474}$, M(^{196}Bi^{m})=–17868(14) keV at										03We.A	$**$
$*$	167(3) keV; error increased for 3+ and 10- possible contamination										03We.A	$**$
$*$^{196}At^{m}(α)^{192}Bi^{m}	Correlated with E(α)=7550 of ^{200}Fr(α)										96En01	$**$
^{197}Hg$-$C$_{16.417}$	−32868	98	−32787	3	0.8	U			GS2	1.0	03Li.A	$*$
^{197}Hg$-$^{208}Pb$_{.947}$	−10664	30	−10677	4	−0.4	U			MA6	1.0	01Sc41	
^{197}Tl$-$C$_{16.417}$	−30450	30	−30425	18	0.8	R			GS2	1.0	03Li.A	
^{197}Pb$-$C$_{16.417}$	−26520	110	−26569	6	−0.4	U			GS1	1.0	00Ra23	
	−26609	30			1.3	U			GS2	1.0	03Li.A	
	−26543	30			−0.9	U			GS2	1.0	03Li.A	$*$
^{197}Pb^{m}$-$^{133}Cs$_{1.481}$	113799.6	6.0				2			MA8	1.0	03We.A	
^{197}Bi$-$^{208}Pb$_{.947}$	982	22	975	9	−0.3	R			MA6	1.0	01Sc41	
^{197}Bi$-$C$_{16.417}$	−21466	243	−21136	9	1.4	U			GS1	1.0	00Ra23	$*$
	−21187	31			1.7	U			GS2	1.0	03Li.A	
^{197}Bi$-$^{133}Cs$_{1.481}$	118870	26	118890	9	0.8	R			MA8	1.0	03We.A	$*$
^{197}Po$-$C$_{16.417}$	−14434	145	−14340	50	0.6	o			GS1	1.0	00Ra23	$*$
	−14305	90			−0.4	R			GS2	1.0	03Li.A	$*$
^{197}Au(α,^{8}He)^{193}Au	−26919	9	−26920	9	−0.1	1	92	86 ^{193}Au			89Ka04	
^{197}Bi^{m}(α)^{193}Tl	5890.8	10.	5898	5	0.7	o			Ora		72Ga27	
	5889.7	10.			0.8	3			Ora		74Le02	Z
	5899.6	5.			−0.4	3			Lvn		85Co06	Z
^{197}Po(α)^{193}Pb	6420.7	10.	6412	4	−0.9	3					67Si09	Z
	6410.1	5.			0.3	3					67Tr06	Z
	6409.4	9.			0.2	3					71Ho01	Z
^{197}Po^{m}(α)^{193}Pb^{m}	6510.1	5.	6515.8	2.6	1.1	4					67Tr06	Z
	6511.4	9.			0.5	U					71Ho01	Z
	6518.0	3.			−0.7	4					82Bo04	Z
^{197}At(α)^{193}Bi	7103.0	5.	7100	50	0.0	3					67Tr06	Z
	7100.5	5.			0.1	o			Jya		96En01	
	7104.5	5.			0.0	3			Jya		99Sm07	
^{197}At^{m}(α)^{193}Bi^{m}	6846.2	10.	6846	5	0.0	5			Lvn		86Co12	
	6846.2	5.			0.0	5			Jya		99Sm07	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{197}Rn(α)^{193}Po		7411.8	20.	7410	50	0.0	U			RIa		95Mo14	
		7410.8	7.				4			Jya		96En02	
^{197}Rn^m(α)^{193}Po^m		7523.1	30.	7509	7	−0.5	U			RIa		95Mo14	
		7508.7	7.				5			Jya		96En02	
^{196}Pt(n,γ)^{197}Pt		5846.4	0.4	5846.29	0.27	−0.3	–					78Ya07	Z
		5846.0	0.9			0.3	–			ILn		81Ho.B	Z
		5846.6	0.5			−0.6	–			BNn		83Ca04	Z
		5846.0	0.7			0.4	–			Bdn		03Fi.A	
	ave.	5846.36	0.27			−0.3	1	99	93 ^{196}Pt			average	
^{197}Au(γ,n)^{196}Au		−8080	5	−8072.4	2.9	1.5	–			McM		79Ba06	
		−8072	7			−0.1	–					79Be.A	
	ave.	−8077	4			1.2	1	52	52 ^{196}Au			average	
^{196}Hg(n,γ)^{197}Hg		6785.3	1.5	6785.6	1.5	0.2	1	97	84 ^{197}Hg	BNn		78Zg.A	Z
^{197}Pt(β^-)^{197}Au		719.0	0.6	718.7	0.6	−0.6	1	97	94 ^{197}Pt			71Pr03	
^{197}Pb^m(IT)^{197}Pb		319.31	0.11				3					Ens01	
$*^{197}$Hg$-$C$_{16.417}$		M$-$A=–30467(28) keV for mixture gs+m at 298.93 keV										NDS95b	**
$*^{197}$Pb$-$C$_{16.417}$		M$-$A=–24405(28) keV for ^{197}Pb^m at Eexc=319.31 keV										Ens01	**
$*^{197}$Bi$-$C$_{16.417}$		M$-$A=–19650(90) keV for mixture gs+m at 690(110) keV										Nubase	**
$*^{197}$Bi$-^{133}$Cs$_{1.481}$		Q=118887(12) uu M=–19690(11) keV corrected –16(22) keV for										03We.A	**
*		possible contamination from ^{197}Bi^m										03We.A	**
$*^{197}$Po$-$C$_{16.417}$		M$-$A=–13330(110) keV for mixture gs+m at 230#80 keV										Nubase	**
$*^{197}$Po$-$C$_{16.417}$		M$-$A=–13210(32) keV for mixture gs+m at 230#80 keV										Nubase	**
^{198}Hg$-$C$_{16.5}$		−33231.56	0.43	−33231.0	0.4	1.4	1	71	71 ^{198}Hg	ST2	1.0	02Bf02	
^{198}Pb$-^{208}$Pb$_{.952}$		−5748	23	−5739	16	0.4	2			MA6	1.0	01Sc41	
^{198}Pb$-$C$_{16.5}$		−27990	104	−27966	16	0.2	U			GS1	1.0	00Ra23	
		−27951	30			−0.5	R			GS2	1.0	03Li.A	
^{198}Bi$-$C$_{16.5}$		−21063	162	−20790	30	1.7	o			GS1	1.0	00Ra23	*
		−20794	30				2			GS2	1.0	03Li.A	
^{198}Bi$^n-$C$_{16.5}$		−20222	30				2			GS2	1.0	03Li.A	
^{198}Po$-^{208}$Pb$_{.952}$		5616	24	5616	19	0.0	1	61	61 ^{198}Po	MA6	1.0	01Sc41	
^{198}Po$-$C$_{16.5}$		−16600	104	−16611	19	−0.1	U			GS1	1.0	00Ra23	
^{198}Hg ^{35}Cl$-^{196}$Hg ^{37}Cl		3885.91	1.66	3886	3	0.1	1	57	57 ^{196}Hg	H33	2.5	80Ko25	
^{198}Po(α)^{194}Pb		6312.8	5.	6309.3	2.1	−0.7	–					67Si09	Z
		6305.7	5.			0.7	–					67Tr06	Z
		6301.2	8.			1.0	–					71Ho01	Z
		6311.1	3.			−0.6	–					82Bo04	Z
		6307.7	5.			0.3	–			Lvn		93Wa04	
	ave.	6309.3	2.1			0.0	1	100	60 ^{194}Pb			average	
^{198}At(α)^{194}Bi		6887.5	5.	6893.0	2.2	1.1	3					67Tr06	Z
		6904.9	7.			−1.7	3			Ora		75Ba.B	Z
		6893.3	3.5			−0.1	3			Lvn		92Hu04	*
		6892.5	4.			0.2	3			Jya		96En01	
^{198}At^m(α)^{194}Bi^n		6990.0	5.	6995.4	2.4	1.1	4					67Tr06	Z
		6997.5	10.			−0.2	4					80Ew03	Z
		6997.6	4.			−0.5	4			Lvn		92Hu04	
		6996.6	4.			−0.3	4			Jya		96En01	
^{198}Rn(α)^{194}Po		7344.7	10.	7349	4	0.5	5					84Ca32	
		7353.8	5.			−0.9	5			Lvn		95Bi17	
		7344.7	6.			0.8	5			Jya		96En02	
^{198}Pt(^{14}C,^{16}O)^{196}Os		6130	40				3			BNL		83Bo29	
^{198}Pt(t,α)^{197}Ir		10885	20				3			LAl		83Ci01	
^{198}Pt(p,d)^{197}Pt		−5332	3				2			Ors		78Be09	*
^{197}Au(n,γ)^{198}Au		6512.35	0.11	6512.33	0.09	−0.2	–			ILn		79Br26	Z
		6512.32	0.16			0.1	–			Bdn		03Fi.A	
	ave.	6512.34	0.09			−0.1	1	100	97 ^{197}Au			average	
^{198}Au(β^-)^{198}Hg		1372.3	0.7	1372.3	0.5	0.1	–					65Ke04	
		1372.8	1.2			−0.4	–					65Pa08	
	ave.	1372.4	0.6			−0.1	1	74	70 ^{198}Au			average	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{198}Tl(β^+)^{198}Hg	3460	80				2						61Gu02	
^{198}Bi^n(IT)^{198}Bi^m	248.5	0.5				3				Lvn		92Hu04	
∗^{198}Bi−C$_{16.5}$	M−A=–19350(100) keV for mixture gs+m+n at 280(40) and 530(40) keV											Nubase	∗∗
∗^{198}At(α)^{194}Bi	E(α)=6755(4), 6539(10), 6360(10) to ground-state, 218, 396 levels											92Hu04	∗∗
∗^{198}Pt(p,d)^{197}Pt	Q−Q(^{196}Pt(p,d))=365(3,Be)											AHW	∗∗
^{199}Hg−C$_2$ ^{35}Cl$_5$	124023.43	0.53	124016.5	0.4	−5.2	B				H34	2.5	80Ko25	
	124017.21	0.37			−1.2	1	49	43	^{199}Hg	H48	1.5	03Ba49	
^{199}Hg−^{183}W O	23144.4	0.9	23142.4	0.9	−1.5	1	43	39	^{183}W	H48	1.5	03Ba49	
^{199}Tl−C$_{16.583}$	−30123	30				2				GS2	1.0	03Li.A	
^{199}Pb−C$_{16.583}$	−27028	137	−27083	28	−0.4	U				GS2	1.0	03Li.A	∗
^{199}Bi−C$_{16.583}$	−22328	31	−22328	13	0.0	R				GS2	1.0	03Li.A	
	−22263	30			−2.2	R				GS2	1.0	03Li.A	∗
^{199}Po−C$_{16.583}$	−16250	145	−16334	25	−0.6	U				GS1	1.0	00Ra23	∗
	−16327	38			−0.2	R				GS2	1.0	03Li.A	
	−16340	38			0.2	R				GS2	1.0	03Li.A	∗
^{199}Bi^m(α)^{195}Tl	5598.7	6.				4						66Ma51	
^{199}Po(α)^{195}Pb	6074.1	2.				3						68Go.B	Z
^{199}Po^m(α)^{195}Pb^m	6190.7	5.	6183.2	1.9	−1.5	4						67Si09	Z
	6177.5	5.			1.1	4						67Tr06	Z
	6182.2	3.			0.3	4						68Go.B	Z
	6183.5	3.			−0.1	4						82Bo04	Z
^{199}At(α)^{195}Bi	6775.1	5.	6780	50	0.1	3						67Tr06	Z
	6781.3	3.			0.0	3				Ora		75Ba.B	Z
^{199}Rn(α)^{195}Po	7133.7	15.	7130	50	0.0	4						80Di07	
	7132.7	10.			0.0	4						82Hi14	
	7138.8	10.			−0.1	4						84Ca32	
	7112.2	15.			0.4	4				Jya		96Le09	
^{199}Rn^m(α)^{195}Po^m	7205.1	15.	7205	6	0.0	4						80Di07	
	7205.1	10.			0.0	4						82Hi14	
	7204.1	10.			0.1	4						84Ca32	
	7205.1	15.			0.0	4				Jya		96Le09	
^{199}Fr(α)^{195}At	7812.3	40.				4						99Ta20	∗
^{199}Hg(p,t)^{197}Hg	−6658	8	−6667	3	−1.1	1	16	16	^{197}Hg	Ors		82Be21	
^{198}Pt(^{18}O,^{17}F)^{199}Ir	−8240	41				3						95Zh10	
^{198}Pt(n,γ)^{199}Pt	5556.0	0.5				3				BNn		83Ca04	Z
^{198}Au(n,γ)^{199}Au	7584.27	0.15	7584.25	0.15	−0.1	1	98	72	^{199}Au	ILn		79Br26	Z
^{198}Hg(n,γ)^{199}Hg	6665.2	0.5	6663.9	0.3	−2.6	1	48	28	^{199}Hg	CRn		75Lo03	
^{199}Au(β^-)^{199}Hg	453.0	1.0	452.0	0.6	−1.0	1	33	28	^{199}Au			68Be06	
^{199}Tl(β^+)^{199}Hg	1420	150	1488	28	0.5	U						75Ma05	
^{199}Pb(β^+)^{199}Tl	2870	110	2830	40	−0.4	U						70Do.A	
^{199}Bi^m(IT)^{199}Bi	667	5	667	4	0.0	3						80Br23	
	667	5			0.0	3						85St02	
∗^{199}Pb−C$_{16.583}$	M−A=–24961(28) keV for mixture gs+m at 429.5(2.7) keV											Nubase	∗∗
∗^{199}Bi−C$_{16.583}$	M−A=–20071(28) keV for ^{199}Bi^m at Eexc=667(4) keV											Nubase	∗∗
∗^{199}Po−C$_{16.583}$	M−A=–14980(100) keV for mixture gs+m at 312.0(2.8) keV											Nubase	∗∗
∗^{199}Po−C$_{16.583}$	M−A=–14909(35) keV for ^{199}Po^m at Eexc=312.0(2.8) keV											Nubase	∗∗
∗^{199}Fr(α)^{195}At	Reassigned to E(α) to isomer											AHW	∗∗
^{200}Hg−C ^{13}C ^{35}Cl$_5$	120707.97	1.22	120707.8	0.4	−0.1	U				H34	2.5	80Ko25	
^{200}Hg−^{208}Pb$_{.962}$	−9205	28	−9213.3	1.3	−0.3	U				MA6	1.0	01Sc41	
^{200}Pb−C$_{16.667}$	−28179	30	−28173	12	0.2	R				GS2	1.0	03Li.A	
^{200}Bi−C$_{16.667}$	−21888	57	−21868	26	0.3	R				GS2	1.0	03Li.A	∗
^{200}Po−C$_{16.667}$	−18170	104	−18201	15	−0.3	U				GS1	1.0	00Ra23	
	−18204	30			0.1	R				GS2	1.0	03Li.A	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{200}Hg ^{35}Cl$-^{198}$Hg ^{37}Cl	4508.80	0.48	4507.1	0.4	−1.4	1	11	7 ^{200}Hg	H33	2.5	80Ko25	
^{200}Po(α)^{196}Pb	5979.8	5.	5981.3	2.0	0.3	3					67Si09	Z
	5980.0	3.			0.5	3					67Tr06	Z
	5983.4	3.			−0.6	3					70Ra14	Z
^{200}At(α)^{196}Bi	6594.9	5.	6596.4	1.4	0.3	3					67Tr06	Z
	6596.9	2.			−0.3	3			Ora		75Ba.B	Z
	6596.1	2.			0.1	3			Lvn		92Hu04	
^{200}At^m(α)^{196}Bi	6708.3	5.	6709.0	2.6	0.2	3			Ora		75Ba.B	Z
	6709.5	3.			−0.1	3			Lvn		92Hu04	
^{200}At^m(α)^{196}Bi^m	6542.8	5.	6542.4	1.4	−0.1	4					67Tr06	Z
	6542.9	2.			−0.2	4			Ora		75Ba.B	Z
	6542.1	2.			0.2	4			Lvn		92Hu04	
^{200}At^m(α)^{196}Bi^n	6439.5	5.	6439.1	2.3	−0.1	4					67Tr06	∗
	6438.5	5.			0.1	4			Ora		75Ba.B	∗
	6433.8	5.			1.1	o			Lvn		87Va09	∗
	6439.2	3.			0.0	4			Lvn		92Hu04	∗
^{200}Rn(α)^{196}Po	7043.5	2.5				4			Lvn		93Wa04	
	7042.1	12.	7043.5	2.6	0.1	U			Ara		95Le04	
	7039.0	10.			0.4	U			Jya		96Le09	
^{200}Fr(α)^{196}At	7653.4	30.	7620	50	−0.7	U			RIa		95Mo14	
	7620.7	9.				5			Jya		96En01	
^{200}Fr^m(α)^{196}At^m	7704.4	15.				4			Jya		96En01	∗
^{198}Pt(t,p)^{200}Pt	4356	20				3					81Ci01	
^{199}Hg(n,γ)^{200}Hg	8029.1	0.3	8028.40	0.12	−2.3	B			BNn		67Sc30	Z
	8029.6	0.5			−2.4	B			CRn		75Lo03	Z
	8028.51	0.18			−0.6	–			ILn		79Br25	Z
	8028.37	0.17			0.2	–			Bdn		03Fi.A	
ave.	8028.44	0.12			−0.3	1	97	82 ^{200}Hg			average	
^{200}Au(β^-)^{200}Hg	2220	100	2240	50	0.2	2					59Ro53	
	2200	100			0.4	2					60Gi01	
	2260	70			−0.4	2					72He36	
^{200}Au^m(β^-)^{200}Hg	3202	50				2					72Cu07	
^{200}Tl(β^+)^{200}Hg	2450	10	2456	6	0.6	2					57He43	
	2459	7			−0.4	2					62Va10	
∗^{200}Bi$-$C$_{16.667}$	M−A=–20338(28) keV for mixture gs+m at 100#70 keV										Nubase	∗∗
∗^{200}At^m(α)^{196}Bi^n	E(α)=6536.7(5,Z) from ^{200}At^n 230.9 above ^{200}At^m										92Hu04	∗∗
∗^{200}At^m(α)^{196}Bi^n	E(α)=6535.8(5,Z) from ^{200}At^n 230.9 above ^{200}At^m										92Hu04	∗∗
∗^{200}At^m(α)^{196}Bi^n	E(α)=6301(5); 6535(5) from ^{200}At^n 230.9 above ^{200}At^m										92Hu04	∗∗
∗^{200}At^m(α)^{196}Bi^n	E(α)=6306(5); 6538(3) from ^{200}At^n 230.9 above ^{200}At^m										92Hu04	∗∗
∗^{200}Fr^m(α)^{196}At^m	Correlated with ^{196}At^m E(α)=6880(15); 2 cases only										96En01	∗∗
^{201}Hg$-^{185}$Re O	22440	5	22432.7	1.4	−1.0	U			H48	1.5	03Ba49	
^{201}Hg$-$C$_2$ ^{35}Cl$_4$ ^{37}Cl	128995.43	0.61	128988.9	0.6	−4.3	B			H34	2.5	80Ko25	
^{201}Pb$-$C$_{16.75}$	−27418	198	−27115	24	1.5	U			GS2	1.0	03Li.A	∗
^{201}Bi$-$C$_{16.75}$	−22935	30	−22991	16	−1.9	R			GS2	1.0	03Li.A	
	−22995	30			0.1	R			GS2	1.0	03Li.A	∗
^{201}Po$-$C$_{16.75}$	−17760	190	−17740	6	0.1	U			GS1	1.0	00Ra23	∗
	−17649	30			−3.0	B			GS2	1.0	03Li.A	
^{201}Po^m$-$C$_{16.75}$	−17305	30	−17285	6	0.7	U			GS2	1.0	03Li.A	
^{201}At$-$C$_{16.75}$	−11573	31	−11583	9	−0.3	U			GS2	1.0	03Li.A	
^{201}Hg ^{35}Cl$-^{199}$Hg ^{37}Cl	4972.65	0.37	4972.4	0.6	−0.2	1	38	34 ^{201}Hg	H33	2.5	80Ko25	
	4971.8	1.0			0.4	1	14	13 ^{201}Hg	H48	1.5	03Ba49	
^{201}Bi(α)^{197}Tl	4500.3	6.				4					66Ma51	∗
^{201}Po(α)^{197}Pb	5793.9	5.	5798.9	1.7	1.0	4					67Tr06	Z
	5799.4	2.			−0.2	4					68Go.B	Z
	5800.4	4.			−0.4	4					70Ra14	Z
^{201}Po^m(α)^{197}Pb^m	5898.9	5.	5903.7	1.7	0.9	3					67Tr06	Z
	5904.4	2.			−0.4	3					68Go.B	Z
	5903.8	4.			0.0	3					70Ra14	Z
^{201}At(α)^{197}Bi	6470.7	3.	6473.2	1.6	0.8	4					67Tr06	Z
	6476.2	5.			−0.6	4					74Ho27	Z
	6474.0	2.			−0.3	4			Ora		75Ba.B	Z

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{201}Rn(α)^{197}Po	6860.5	2.5	6860	50	0.0	4				Lvn		93Wa04	
	6863.8	7.			−0.1	4				Ara		95Le04	
^{201}Rn^{m}(α)^{197}Po^{m}	6906.8	5.	6909.8	2.2	0.6	5						67Va17	Z
	6909.9	2.5			0.0	5				Lvn		93Wa04	
	6915.9	7.			−0.8	5				Ara		95Le04	
^{201}Fr(α)^{197}At	7538.0	15.	7520	50	−0.4	4						80Ew03	
	7510.8	7.			0.1	4				Jya		96En01	
^{201}Pt(β^-)^{201}Au	2660	50				2						63Go06	
^{201}Pb(β^+)^{201}Tl	1900	40	1924	27	0.6	R						79Do09	
∗^{201}Pb−C$_{16.75}$	M−A=–25225(28) keV for mixture gs+m at 629.14 keV											Ens94	∗∗
∗^{201}Bi−C$_{16.75}$	M−A=–20573(28) keV for ^{201}Bi^{m} at Eexc=846.34 keV											NDS942	∗∗
∗^{201}Po−C$_{16.75}$	M−A=–16330(100) keV for mixture gs+m at 424.1(2.5) keV											Nubase	∗∗
∗^{201}Bi(α)^{197}Tl	E(α)=5240(6) from ^{201}Bi^{m} at 846.34											NDS942	∗∗
^{202}Hg−C ^{13}C ^{35}Cl$_4$ ^{37}Cl	125976.01	1.32	125974.9	0.6	−0.4	1	4	4	^{202}Hg	H34	2.5	80Ko25	
^{202}Pb−C$_{16.833}$	−27823	30	−27841	9	−0.6	–				GS2	1.0	03Li.A	∗
ave.	−27839	17			−0.1	1	26	26	^{202}Pb			average	
^{202}Bi−C$_{16.833}$	−22282	30	−22258	22	0.8	2				GS2	1.0	03Li.A	
^{202}Po−C$_{16.833}$	−19270	104	−19242	16	0.3	U				GS1	1.0	00Ra23	
	−19243	30			0.0	R				GS2	1.0	03Li.A	
^{202}Hg ^{35}Cl$_2$−^{198}Hg ^{37}Cl$_2$	9774.87	1.06	9774.2	0.7	−0.3	1	6	5	^{202}Hg	H33	2.5	80Ko25	
^{202}Hg ^{35}Cl−^{200}Hg ^{37}Cl	5266.76	0.43	5267.1	0.6	0.3	1	29	25	^{202}Hg	H33	2.5	80Ko25	
^{202}Po(α)^{198}Pb	5700.9	2.	5701.0	1.7	0.1	3						68Go.B	Z
	5701.6	3.			−0.2	3						70Ra14	Z
^{202}At(α)^{198}Bi	6355.8	3.	6353.7	1.4	−0.7	3						63Ho18	Z
	6351.7	3.			0.7	3						67Tr06	Z
	6353.2	5.			0.1	3						74Ho27	Z
	6353.9	2.			0.0	3				Ora		75Ba.B	Z
	6354	5			−0.1	3				Lvn		92Hu04	∗
^{202}At^{m}(α)^{198}Bi^{m}	6259.9	2.	6258.9	1.2	−0.5	4						63Ho18	Z
	6256.8	3.			0.7	4						67Tr06	Z
	6257.2	5.			0.3	4						74Ho27	Z
	6259.0	2.			0.0	4				Ora		75Ba.B	∗
	6260.0	5.			−0.2	4				Lvn		92Hu04	∗
^{202}Rn(α)^{198}Po	6771.0	3.	6773.5	1.9	0.8	2						67Va17	Z
	6775.3	2.5			−0.7	2				Lvn		93Wa04	
	6773.4	7.			0.0	2				Ara		95Le04	
^{202}Fr(α)^{198}At	7397.7	15.	7389	5	−0.6	4						80Ew03	∗
	7382.5	11.			0.6	4				Lvn		92Hu04	∗
	7389.6	6.			−0.1	4				Jya		96En01	∗
^{202}Fr^{m}(α)^{198}At^{m}	7382.5	11.	7387	5	0.4	5				Lvn		92Hu04	∗
	7388.6	6.			−0.2	5				Jya		96En01	
^{202}Ra(α)^{198}Rn	8019.1	60.				6				Jya		96Le09	
^{202}Hg(d,^{3}He)^{201}Au−^{206}Pb()^{205}Tl	−979.9	3.1	−980	3	0.0	1	100	100	^{201}Au			94Gr07	
^{201}Hg(n,γ)^{202}Hg	7754.9	0.5	7753.92	0.21	−2.0	B				BNn		75Br02	Z
	7756.4	0.5			−5.0	B				CRn		75Lo03	Z
	7753.93	0.22			−0.1	1	95	52	^{201}Hg	Bdn		03Fi.A	
^{202}Au(β^-)^{202}Hg	3500	300	2950	170	−1.8	2						67Wa23	
	2700	200			1.2	2						72Bu05	
^{202}Pb(ε)^{202}Tl	55	20	50	15	−0.3	1	54	46	^{202}Tl			54Hu61	
^{202}At^{n}(IT)^{202}At^{m}	391.7	0.2				5				Lvn		92Hu04	
∗^{202}Pb−C$_{16.833}$	M−A=–23747(28) keV for ^{202}Pb^{m} at Eexc=2169.83 keV											NDS973	∗∗
∗^{202}At(α)^{198}Bi	E(α)=6228(5), 6070(10), 5929(10) to ground-state, 164, 303 levels											92Hu04	∗∗
∗^{202}At^{m}(α)^{198}Bi^{m}	Assignment to ^{202}At^{m} by ref. Recalibrated ,Z											92Hu04	∗∗
∗^{202}At^{m}(α)^{198}Bi^{m}	E(α)=6135(5); and 6277(5) from Atn(α)Bin, ^{202}At^{n}(IT)Atm=391.7(0.2)											92Hu04	∗∗
∗	and ^{198}Bi^{n}(IT)Bim=248.5(0.5)											92Hu04	∗∗
∗^{202}Fr(α)^{198}At	E(α)=7251(10) has a doublet structure											92Hu04	∗∗
∗^{202}Fr(α)^{198}At	E(α)=7237(8), is a doublet											92Hu04	∗∗
∗^{202}Fr(α)^{198}At	^{202}Fr E(α)'s in correlation with At daughters											96En01	∗∗
∗^{202}Fr^{m}(α)^{198}At^{m}	E(α)=7237(8), is a doublet											92Hu04	∗∗

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{203}Pb$-$C$_{16.917}$	$-$26594	30	$-$26609	7	$-$0.5	U				GS2	1.0	03Li.A	
^{203}Po$-$C$_{16.917}$	$-$18581	30	$-$18580	28	0.0	2				GS2	1.0	03Li.A	
^{203}At$-^{208}$Pb$_{.976}$	9690	25	9730	13	1.6	–				MA6	1.0	01Sc41	
ave.	9730	13			0.0	1	100	100	^{203}At			average	
^{203}At$-$C$_{16.917}$	$-$13042	30	$-$13058	13	$-$0.5	R				GS2	1.0	03Li.A	
^{203}Fr$-^{133}$Cs$_{1.526}$	145205	17				2				MA8	1.0	03We.A	
^{203}Tl ^{35}Cl$-^{201}$Hg ^{37}Cl	4995.23	1.49	4992.0	1.3	$-$0.9	1	12	11	^{203}Tl	H36	2.5	85De40	
^{203}Po(α)^{199}Pb	5496	5				3						68Go.B	*
^{203}At(α)^{199}Bi	6210.3	1.	6210.1	0.8	$-$0.2	2						63Ho18	Z
	6208.7	3.			0.5	2						67Tr06	Z
	6209.4	2.			0.4	2						68Go.B	Z
	6211.7	3.			$-$0.5	2				Ora		75Ba.B	
^{203}Rn(α)^{199}Po	6628.6	5.	6629.8	2.3	0.3	4						67Va17	Z
	6630.2	2.5			$-$0.1	4				Lvn		93Wa04	
	6630	10			0.0	U				Jya		95Uu01	
^{203}Rn^{m}(α)^{199}Po^{m}	6679.5	3.	6680.3	1.6	0.3	5						67Va17	Z
	6680.9	2.5			$-$0.2	5				Lvn		93Wa04	
	6683.9	7.			$-$0.5	5				Ara		95Le04	
	6679.8	3.			0.2	5				Jya		96Le09	
^{203}Fr(α)^{199}At	7275.6	5.	7260	50	$-$4.0	U						67Va20	Z
	7281.7	10.			$-$2.6	U						80Ew03	Z
	7263.4	10.			$-$0.8	U				Jya		94Le05	
^{203}Ra(α)^{199}Rn	7729.6	20.				5				Jya		96Le09	
^{203}Ra^{m}(α)^{199}Rn^{m}	7768.4	20.				5				Jya		96Le09	
^{203}Tl(p,t)^{201}Tl	$-$6240	15				2				Yal		71Ki01	
^{202}Hg(d,p)^{203}Hg$-^{204}$Hg()^{205}Hg	325	5	326	4	0.2	1	53	47	^{205}Hg	Pit		72Mo12	
^{203}Tl(p,d)^{202}Tl	$-$5630	20	$-$5625	15	0.3	1	54	54	^{202}Tl	Yal		71Ki01	
^{203}Au(β^-)^{203}Hg	2040	60	2126	3	1.4	U						94We02	
^{203}Hg(β^-)^{203}Tl	489.2	2.	492.1	1.2	1.4	–						54Th17	
	493.2	2.			$-$0.6	–						55Ma40	
	493.2	3.			$-$0.4	–						58Ni28	
ave.	491.6	1.3			0.4	1	92	84	^{203}Hg			average	
^{203}Pb(ε)^{203}Tl	980	20	975	6	$-$0.3	1	10	10	^{203}Pb			65Le07	
^{203}Bi(β^+)^{203}Pb	3260	50	3247	22	$-$0.3	1	20	18	^{203}Bi			58No30	
^{203}At(β^+)^{203}Po	5060	200	5144	29	0.4	U						87Se04	
*^{203}Po(α)^{199}Pb	E(α)=5383.8(3,Z) to 4(4) level											NDS	**
^{204}Hg$-$C ^{13}C ^{35}Cl$_3$ ^{37}Cl$_2$	131776.05	1.25	131775.9	0.4	$-$0.1	1	2	1	^{204}Hg	H34	2.5	80Ko25	
^{204}Hg$-$C$_{17}$	$-$26505.90	0.39	$-$26506.1	0.4	$-$0.4	1	87	87	^{204}Hg	ST2	1.0	02Bf02	
^{204}Pb$-^{208}$Pb$_{.981}$	$-$4047	21	$-$4052.09	0.17	$-$0.2	U				MA6	1.0	01Sc41	
^{204}Po$-$C$_{17}$	$-$19689	30	$-$19682	12	0.2	R				GS2	1.0	03Li.A	
^{204}At$-$C$_{17}$	$-$12748	30	$-$12749	26	0.0	–				GS2	1.0	03Li.A	
ave.	$-$12752	27			0.1	1	94	94	^{204}At			average	
^{204}Hg ^{35}Cl$_2-^{200}$Hg ^{37}Cl$_2$	11066.85	0.55	11068.1	0.5	0.9	1	13	7	^{200}Hg	H33	2.5	80Ko25	
^{204}Hg ^{35}Cl$-^{202}$Hg ^{37}Cl	5800.67	0.53	5801.0	0.7	0.3	1	26	21	^{202}Hg	H33	2.5	80Ko25	
^{204}Pb(α,^{8}He)^{200}Pb	$-$28043	13	$-$28040	13	0.3	2				INS		90Ka10	
^{204}Po(α)^{200}Pb	5484.6	1.5	5484.8	1.4	0.2	3						69Go23	*
	5486.3	3.			$-$0.5	3						70Ra14	Z
^{204}At(α)^{200}Bi	6069.9	3.	6069.8	1.5	0.0	2						63Ho18	Z
	6066.2	3.			1.2	2						67Tr06	Z
	6071.3	3.			$-$0.5	2				Ora		75Ba.B	
	6072.0	3.			$-$0.7	2						81Va27	Z
^{204}Rn(α)^{200}Po	6544.3	3.	6545.5	1.9	0.4	4						67Va17	Z
	6547.5	2.5			$-$0.8	4				Lvn		93Wa04	
	6537.4	7.			1.1	4				Ara		95Le04	
^{204}Fr(α)^{200}At	7170.4	5.	7171.3	2.5	0.2	4						67Va20	Z

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{204}Fr(α)^{200}At		7169.4	5.	7171.3	2.5	0.4	4					74Ho27	Z
		7170.6	5.			0.1	4			Lvn		92Hu04	*
		7179.0	6.			−1.3	4			Jya		94Le05	
		7167.8	7.			0.5	4			Ara		95Le04	
^{204}Fr^m(α)^{200}At		7218.8	8.	7221	4	0.3	U			Lvn		92Hu04	
^{204}Fr^m(α)^{200}At^m		7108.2	5.	7108.1	2.1	0.0	4					74Ho27	Z
		7105.5	3.			0.9	4			Bka		82Bo04	Z
		7108.4	5.			−0.1	4			Lvn		92Hu04	*
		7115.6	7.			−1.1	4			Jya		94Le05	*
		7114.7	7.			−0.9	4			Ara		95Le04	
^{204}Ra(α)^{200}Rn		7638.1	12.	7636	8	−0.2	5			Ara		95Le04	
		7638.1	25.			−0.1	o			Jya		95Le15	
		7634.0	10.			0.2	5			Jya		96Le09	
^{204}Pb(p,t)^{202}Pb		−6835	10	−6837	8	−0.2	1	66	66 ^{202}Pb	Yal		71Ki01	
^{204}Hg(d,^{3}He)^{203}Au−^{206}Pb()^{205}Tl		−1582.0	3.0	−1582.0	3.0	0.0	1	100	100 ^{203}Au			94Gr07	
^{204}Hg(d,t)^{203}Hg		−1242	5	−1235.2	1.7	1.4	1	12	11 ^{203}Hg	Ald		70An14	
^{203}Tl(n,γ)^{204}Tl		6656.0	0.3	6656.10	0.29	0.3	1	94	76 ^{203}Tl	MMn		74Co21	Z
		6654.88	0.14			8.7	B			Bdn		03Fi.A	
^{204}Pb(p,d)^{203}Pb		−6165	10	−6170	6	−0.5	–			Yal		71Ki01	
^{204}Pb(d,t)^{203}Pb		−2160	20	−2137	6	1.1	–			Ald		67Bj01	
^{204}Pb(p,d)^{203}Pb	ave.	−6171	9	−6170	6	0.1	1	51	51 ^{203}Pb			average	
^{204}Au(β^-)^{204}Hg		4500	300	3940#	200#	−1.9	F					67Wa23	*
^{204}Tl(β^-)^{204}Pb		764.24	0.31	763.76	0.18	−1.5	–					67Pa08	
		763.47	0.22			1.3	–					68Wo02	
	ave.	763.73	0.18			0.2	1	97	78 ^{204}Tl			average	
^{204}At(β^+)^{204}Po		6220	160	6458	26	1.5	U					86Ve.B	
^{204}Fr^n(IT)^{204}Fr^m		276.1	0.5				5					Nubase	
*^{204}Po(α)^{200}Pb	Printing error in ref.: ^{204}Po not ^{206}Po. ,Z corrected											AHW	**
*^{204}Fr(α)^{200}At	E(α)=7031(5), 6916(8) to ground-state, 113 level											92Hu04	**
*^{204}Fr^m(α)^{200}At^m	E(α)=6969(5); and 7013(5) from ^{204}Fr^n 276.1 above ^{204}Fr^m to ^{200}At^n											95Bi.A	**
*	230.9 above ^{200}At^m											92Hu04	**
*^{204}Fr^m(α)^{200}At^m	E(α)=7020(7) from ^{204}Fr^n 276.1 above Frm to ^{200}At^n 230.9 above ^{200}At^m											95Bi.A	**
*^{204}Au(β^-)^{204}Hg	F: reported 4 s activity does not exist											NDS87a	**

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{205}Tl−^{133}Cs$_{1.541}$		120129	11	120126.1	1.4	−0.3	U			MA8	1.0	03We.A	
^{205}Bi−C$_{17.083}$		−22559	30	−22611	8	−1.7	U			GS2	1.0	03Li.A	
^{205}Po−C$_{17.083}$		−18773	30	−18797	21	−0.8	2			GS2	1.0	03Li.A	
^{205}Fr−^{133}Cs$_{1.541}$		144293.8	9.7	144293	8	−0.1	2			MA8	1.0	03We.A	
^{205}Tl ^{35}Cl−^{203}Tl ^{37}Cl		5031.43	1.07	5033.4	0.6	0.7	–			H36	2.5	85De40	
		5032.88	1.01			0.4	–			H42	1.5	93Si05	
	ave.	5032.5	1.3			0.7	1	19	13 ^{205}Tl			average	
^{205}Po(α)^{201}Pb		5324.1	10.				3					67Ti04	
^{205}At(α)^{201}Bi		6016.3	4.	6019.5	1.7	0.8	3					63Ho18	Z
		6020.5	2.			−0.5	3					68Go.B	Z
		6018.9	5.			0.1	3					74Ho27	Z
^{205}Rn(α)^{201}Po		6386.6	3.	6390	50	0.0	5					67Va17	Z
		6386.6	6.			0.0	5					71Ho01	Z
		6385.7	2.5			0.0	5			Lvn		93Wa04	
^{205}Fr(α)^{201}At		7056.5	5.	7054.9	2.7	−0.3	3					67Va20	Z
		7052.2	5.			0.5	3					74Ho27	Z
		7057.3	5.			−0.5	3					81Ri04	Z
		7052.9	7.			0.3	3			Ara		95Le04	
^{205}Ra(α)^{201}Rn		7506.7	20.	7490	50	−0.4	F					87He10	*
		7496.6	25.			−0.2	o			Jya		95Le15	
		7486.4	20.				5			Jya		96Le09	
^{205}Ra^m(α)^{201}Rn^m		7501.7	10.	7517	20	1.5	B			Ara		95Le04	
		7522.1	25.			−0.2	o			Jya		95Le15	
		7517.0	20.				6			Jya		96Le09	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{204}Hg(d,p)^{205}Hg		3443	5	3444	4	0.2	1	53	53	^{205}Hg	Ald		70An14	
^{205}Tl(d,t)^{204}Tl		−1288.7	0.6	−1288.7	0.5	0.0	1	61	57	^{205}Tl	Mun		90Li40	
^{204}Pb(n,γ)^{205}Pb		6731.53	0.15	6731.67	0.11	1.0	–				ILn		83Hu13	Z
		6731.80	0.16			−0.8	–				Bdn		03Fi.A	
	ave.	6731.66	0.11			0.2	1	98	79	^{204}Pb			average	
^{205}Pb(ε)^{205}Tl		41.4	1.1	50.5	0.5	8.3	B						78Pe08	
^{205}Bi(β^+)^{205}Pb		2701.4	10.	2708	7	0.7	–						62Bo25	
		2715.4	10.			−0.7	–						62Pe08	
	ave.	2708	7			0.0	1	100	100	^{205}Bi			average	
$*^{205}$Ra(α)^{201}Rn	F: possibly mixture with ^{205}Ra^m(α)^{201}Rn^m												87He10	∗∗
^{206}Bi$-$C$_{17.167}$		−21429	30	−21501	8	−2.4	U				GS2	1.0	03Li.A	
^{206}Po$-$C$_{17.167}$		−19471	30	−19519	9	−1.6	U				GS2	1.0	03Li.A	
^{206}At$-$C$_{17.167}$		−13305	30	−13333	22	−0.9	R				GS2	1.0	03Li.A	
^{206}Pb ^{35}Cl$_2$$-$^{202}Hg ^{37}Cl$_2$		9722.09	0.57	9722.4	1.2	0.3	1	73	70	^{206}Pb	H36	2.5	85De40	
^{206}Pb ^{35}Cl$-$^{204}Pb ^{37}Cl		4370.72	1.17	4371.78	0.15	0.4	U				H36	2.5	85De40	
		4371.29	0.81			0.4	1	1	1	^{204}Pb	H42	1.5	93Si05	
^{206}Po(α)^{202}Pb		5327.4	4.	5326.9	1.3	−0.1	2						67Ti04	Z
		5327.4	1.5			−0.3	2						69Go23	∗
		5325.1	3.			0.6	2						70Ra14	Z
^{206}At(α)^{202}Bi		5888.4	2.	5888.4	1.9	0.0	3						68Go.B	∗
		5888.4	5.			0.0	3						81Va27	∗
^{206}Rn(α)^{202}Po		6381.8	3.	6383.8	1.6	0.7	4						67Va17	Z
		6384.6	3.			−0.2	4						71Go35	Z
		6384.8	2.5			−0.4	4				Lvn		93Wa04	
^{206}Fr(α)^{202}At		6925.9	7.	6923	4	−0.4	4						67Va20	∗
		6918.9	7.			0.6	4						74Ho27	∗
		6924.0	7.			−0.1	4				ORa		81Ri04	∗
		6924.8	7.			−0.2	4				Lvn		92Hu04	∗
^{206}Fr^n(α)^{202}At^n		7068.8	5.	7068	4	−0.2	6						81Ri04	Z
		7067.1	5.			0.2	6				Lvn		92Hu04	∗
^{206}Ra(α)^{202}Rn		7416.3	5.	7415	4	−0.2	3						67Va22	Z
		7414.3	10.			0.1	3						87He10	
		7412.2	10.			0.3	o				Jya		95Le15	
		7406	15			0.6	o				Jya		95Uu01	
		7412.2	10.			0.3	3				Jya		96Le09	
^{206}Ac(α)^{202}Fr		7944.6	30.				5				Jya		98Es02	
^{206}Ac^n(α)^{202}Fr^m		7903.8	30.				6				Jya		98Es02	
^{204}Pb(α,d)^{206}Bi		−15798.	11.5	−15793	8	0.5	R				Pit		76Da20	
^{205}Tl(n,γ)^{206}Tl		6503.7	0.4	6503.8	0.4	0.3	1	93	84	^{206}Tl	MMn		74Co21	Z
		6502.87	0.27			3.5	B				Bdn		03Fi.A	
^{205}Tl(^{3}He,d)^{206}Pb		1761.7	1.4	1760.3	0.5	−1.0	1	12	12	^{205}Tl	Mun		90Li40	
^{205}Pb(n,γ)^{206}Pb		8086.66	0.06	8086.67	0.06	0.1	1	99	81	^{205}Pb			96Ra16	Z
^{206}Pb(d,t)^{205}Pb		−1831.2	0.5	−1829.43	0.06	3.5	U				Mun		90Li40	
^{206}Bi(ε)^{206}Pb		3753	10	3758	8	0.5	2						74Go20	
^{206}At(β^+)^{206}Po		5687	150	5762	22	0.5	U						77Li16	
^{206}Fr^n(IT)^{206}Fr^m		531	2				7						81Ri04	
$*^{206}$Po(α)^{202}Pb	Printing error in ref.: ^{206}Po not ^{211}Po. ,Z corrected												AHW	∗∗
$*^{206}$At(α)^{202}Bi	E(α)=5702.8(2,Z) to 72.4 level												NDS	∗∗
$*^{206}$At(α)^{202}Bi	E(α)=5773.8(5,Z), 5702.8(5,Z) to ground-state, 72.4 level												NDS973	∗∗
$*^{206}$Fr(α)^{202}At	E(α)=6793.1(5,Z); correction –2 for being a doublet												AHW	∗∗
$*^{206}$Fr(α)^{202}At	E(α)=6786.3(5,Z); correction –2 for being a doublet												AHW	∗∗
$*^{206}$Fr(α)^{202}At	E(α)=6791.3(5,Z); correction –2 for being a doublet												AHW	∗∗
$*^{206}$Fr(α)^{202}At	E(α)=6792(5); correction –2 for being a doublet												AHW	∗∗
$*^{206}$Fr^n(α)^{202}At^n	E(α)=6930(5) and 6792(7) combined with E(γ)'s 531, 391.7												92Hu04	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference
^{207}Pb ^{35}Cl$-^{205}$Tl ^{37}Cl		4417.32	1.40	4419.4	0.5	1.0	1	7	6 ^{205}Tl	H42	1.5	93Si05
^{206}Fr$^{x}-^{207}$Fr$_{.498}$ ^{205}Fr$_{.502}$		930	90	∗			U			P24	2.5	82Au01
^{207}Po(α)^{203}Pb		5216.0	2.5	5215.8	2.5	0.0	1	96	59 ^{207}Po	Dba		70Af.A
^{207}At(α)^{203}Bi		5872.5	3.	5872	3	0.0	1	100	82 ^{203}Bi			69Go23 Z
^{207}Rn(α)^{203}Po		6256.3	3.	6251.1	1.6	−1.6	3					67Va20 Z
		6247.3	3.			1.3	3					71Go35 Z
		6250.4	2.5			0.3	3			Lvn		93Wa04
^{207}Fr(α)^{203}At		6907.8	5.	6900	50	−0.2	–					67Va20 Z
		6895.8	5.			0.0	–					74Ho27 Z
		6900.9	5.			−0.1	–					81Ri04 Z
	ave.	6901.5	2.9			−0.1	1	98	97 ^{207}Fr			average
^{207}Ra(α)^{203}Rn		7273.8	5.	7270	50	0.0	5					67Va22 Z
		7268.7	10.			0.1	5					87He10
		7276.7	12.			−0.1	5			Jya		95Uu01
^{207}Ra^{m}(α)^{203}Rn^{m}		7463.5	10.	7468	8	0.3	6					87He10
		7474.7	15.			−0.4	o			Jya		95Le15
		7475.7	15.			−0.5	6			Jya		96Le09
^{207}Ac(α)^{203}Fr		7864.3	25.	7840	50	−0.4	o			Jya		94Le05
		7844.9	25.				3			Jya		98Es02
^{205}Tl(t,p)^{207}Tl		4880	15	4874	5	−0.4	1	13	13 ^{207}Tl	Ald		69Ha11
^{206}Pb(n,γ)^{207}Pb		6737.85	0.15	6737.78	0.09	−0.5	–			MMn		81Ke11 Z
		6737.72	0.18			0.3	–			ILn		83Hu13 Z
		6737.74	0.17			0.2	–			Bdn		03Fi.A
	ave.	6737.78	0.10			0.0	1	97	89 ^{207}Pb			average
^{207}Hg(β^-)^{207}Tl		4815	150				2					81Jo.B
^{207}Tl(β^-)^{207}Pb		1431	8	1418	5	−1.6	1	46	45 ^{207}Tl			67Da10
^{207}Po(β^+)^{207}Bi		2907	10	2909	7	0.2	1	43	41 ^{207}Po			58Ar56
^{207}Rn(β^+)^{207}At		4617	70	4610	30	−0.1	R					75Ze.A
^{208}Pb$-^{133}$Cs$_{1.564}$		124532.0	5.6	124525.2	1.3	−1.2	U			MA8	1.0	03We.A
^{208}Po$-$C$_{17.333}$		−18710	31	−18754.3	1.9	−1.4	U			GS2	1.0	03Li.A
^{208}Pb ^{35}Cl$-^{206}$Pb ^{37}Cl		5136.93	0.41	5136.88	0.13	−0.1	1	4	2 ^{206}Pb	H42	1.5	93Si05
^{207}Fr$-^{208}$Fr$_{.498}$ ^{206}Fr$^{x}_{.502}$		−890	60	∗			U			P24	2.5	82Au01
^{208}Po(α)^{204}Pb		5216.3	2.	5215.3	1.3	−0.5	2					69Go23 Z
		5214.0	3.			0.5	2					70Ra14 Z
		5215.1	2.			0.1	2					89Ma05
^{208}At(α)^{204}Bi		5750.6	3.	5751.0	2.2	0.2	3					69Go23 Z
		5751.6	3.			−0.2	3					81Va27 Z
^{208}Rn(α)^{204}Po		6269.3	4.	6260.7	1.7	−2.1	4					55Mo69Z
		6260.0	3.			0.2	4					71Go35 Z
		6257.5	5.			0.6	4					74Ho27
		6258.7	2.5			0.8	4			Lvn		93Wa04
^{208}Fr(α)^{204}At		6778.3	5.	6790	40	0.1	–					67Va20 Z
		6767.7	5.			0.3	–					74Ho27 Z
		6767.7	5.			0.3	–					81Ri04 Z
	ave.	6771.2	2.9			0.3	1	76	70 ^{208}Fr			average
^{208}Ra(α)^{204}Rn		7273.1	5.				5					67Va22 Z
^{208}Ac(α)^{204}Fr		7720.8	15.	7730	50	0.1	5			Jya		94Le05
		7769.7	40.			−0.9	5			JAa		96Ik01
^{208}Ac^{m}(α)^{204}Fr^{n}		7892.1	20.	7899	14	0.3	6			Dba		94An01
		7910.4	20.			−0.6	6			Jya		94Le05
		7871.7	50.			0.5	6			JAa		96Ik01
^{207}Pb(n,γ)^{208}Pb		7367.95	0.15	7367.87	0.05	−0.5	–			MMn		81Ke11 Z
		7367.96	0.10			−0.9	–					81Su.A Z
		7367.81	0.11			0.5	–			ILn		83Hu13 Z
		7367.774	0.098			1.0	–					98Be19 Z
		7367.92	0.16			−0.3	–			Bdn		03Fi.A
	ave.	7367.87	0.05			0.0	1	99	89 ^{208}Pb			average

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{208}Tl(β^-)^{208}Pb	4989.7	7.	4999.0	1.7	1.3	U						48Ma29	
	4997.7	10.			0.1	U						54El24	
^{209}Bi−^{133}Cs$_{1.571}$	128937.6	4.7	128933.7	1.6	−0.8	U				MA8	1.0	03We.A	
^{209}Fr−^{226}Ra$_{.925}$	−27584	36	−27551	16	0.9	–				MA3	1.0	92Bo28	
ave.	−27550	16			−0.1	1	99	99	^{209}Fr			average	
^{209}Bi ^{35}Cl−^{207}Pb ^{37}Cl	7454.13	1.51	7451.9	0.8	−0.6	U				H36	2.5	85De40	
^{208}Fr−^{209}Fr$_{.498}$ ^{207}Fr$_{.502}$	720	60	640	50	−0.5	1	12	9	^{208}Fr	P24	2.5	82Au01	
^{209}Bi(α)^{205}Tl	3137.0	2.2	3137.2	0.8	0.1	1	12	10	^{209}Bi			03De11	
^{209}Po(α)^{205}Pb	4974	5	4979.2	1.4	1.0	2						66Ha29	*
	4980.0	2.			−0.4	2						69Go23	*
	4979.3	2.			0.0	2						89Ma05	*
^{209}At(α)^{205}Bi	5757.2	2.	5757.1	2.0	0.0	1	100	100	^{209}At			69Go23	Z
^{209}Rn(α)^{205}Po	6157.5	3.	6155.5	2.0	−0.6	3						71Go35	Z
	6154.2	2.5			0.5	3				Lvn		93Wa04	
^{209}Fr(α)^{205}At	6777.7	5.	6777	4	0.0	2						67Va20	Z
	6777.3	5.			0.0	2						74Ho27	Z
^{209}Ra(α)^{205}Rn	7147.0	5.	7144	4	−0.6	6						67Va22	Z
	7141	5			0.6	6				GSa		03He06	*
^{209}Ac(α)^{205}Fr	7733.3	15.	7730	50	−0.1	3						68Va04	
	7738.4	20.			−0.2	3				Dba		94An01	
	7729.2	15.			0.0	3				Jya		94Le05	
	7728.2	40.			0.0	U				JAa		96Ik01	
	7725.1	10.			0.1	3				GSa		00He17	
^{209}Th(α)^{205}Ra	8238.0	50.				6				JAa		96Ik01	
^{209}Bi(p,t)^{207}Bi	−5864.8	2.0	−5864.9	2.0	0.0	1	98	97	^{207}Bi	MSU		76Be.B	*
^{208}Pb(d,p)^{209}Pb	1700	10	1712.7	1.3	1.3	U						67Mu16	
	1718	4			−1.3	1	11	11	^{209}Pb	Pit		72Ko03	*
^{209}Bi(γ,n)^{208}Bi	−7460	2	−7459.8	1.9	0.1	2				McM		79Ba06	
^{209}Bi(d,t)^{208}Bi	−1201	5	−1202.5	1.9	−0.3	2				ANL		64Er06	
^{209}Pb(β^-)^{209}Bi	644.6	1.2	644.0	1.1	−0.5	1	91	87	^{209}Pb			72Be44	
^{209}Rn(β^+)^{209}At	3928	40	3951	21	0.6	R						74Vy01	
*^{209}Po(α)^{205}Pb	E(α)=4876.8(5,Z) 80% to 2.3 level											NDS	**
*^{209}Po(α)^{205}Pb	E(α)=4882.8(2,Z) 80% to 2.3 level											NDS	**
*^{209}Po(α)^{205}Pb	E(α)=4882.6(2.0), 4622(5) to ground-state(+80% 2.3), 262.8 level											89Ma05	**
*^{209}Ra(α)^{205}Rn	E(α)=7003(10) to ground-state, 6625(5) to 387.0 level											03He06	**
*^{209}Bi(p,t)^{207}Bi	Q−Q(^{208}Pb(p,t))=–241(2,Be), Q(Pb)=–5623.82(0.20)											AHW	**
*^{208}Pb(d,p)^{209}Pb	Q−Q(^{209}Bi(d,p))=–662(4),Q(Bi)=2380.01(0.14)											AHW	**
^{210}Fr−^{226}Ra$_{.929}$	−27198	24	−27198	24	0.0	1	98	98	^{210}Fr	MA3	1.0	92Bo28	
^{209}Fr−^{210}Fr$_{.498}$ ^{208}Fr$_{.502}$	−770	50	−765	29	0.0	U				P24	2.5	82Au01	
^{210}Pb(α)^{206}Hg	3792.4	20.				2						62Ka27	
^{210}Bi(α)^{206}Tl	5042.8	2.	5036.4	0.8	−3.2	B						60Wa14	*
	5037.3	1.1			−0.8	1	50	34	^{210}Bi			76Tu.A	*
^{210}Po(α)^{206}Pb	5407.53	0.07	5407.45	0.07	0.0	1	100	98	^{210}Po			73Go39	Z
^{210}At(α)^{206}Bi	5630.9	1.5	5631.2	1.0	0.2	3						69Go23	*
	5631.4	1.3			−0.2	3						81Va27	*
^{210}Rn(α)^{206}Po	6162.1	3.	6158.9	2.2	−1.0	3						55Mo69	Z
	6155.9	3.			1.0	3						71Go35	Z
^{210}Fr(α)^{206}At	6699.9	5.	6650	30	−1.0	B						67Va20	
^{210}Ra(α)^{206}Rn	7156.6	5.	7152	4	−0.9	5						67Va22	Z
	7147	5			0.9	5				GSa		03He06	*
^{210}Ac(α)^{206}Fr	7607.2	8.	7610	50	0.0	5						68Va04	
	7607.2	10.			0.0	5				GSa		00He17	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{210}Th(α)^{206}Ra		8052.7	17.				4				Jya		95Uu01	
		7962.0	50.	8053	17	1.8	B				JAa		96Ik01	∗
^{209}Bi(n,γ)^{210}Bi		4604.5	0.3	4604.63	0.08	0.4	–						71Mo03	
		4604.68	0.14			−0.3	–				MMn		83Ts01	Z
		4604.63	0.10			0.0	–				Bdn		03Fi.A	
	ave.	4604.64	0.08			0.0	1	100	86	^{209}Bi			average	
^{210}Pb(β^-)^{210}Bi		63.5	0.5	63.5	0.5	0.0	1	100	98	^{210}Pb			67Ha03	
^{210}Bi(β^-)^{210}Po		1160.5	1.5	1161.3	0.8	0.5	–						62Da03	
		1161.5	1.5			−0.1	–						67Hs01	
	ave.	1161.0	1.1			0.3	1	52	50	^{210}Bi			average	
^{210}At(ε)^{210}Po		3870	30	3981	8	3.7	B						63Sc15	
∗^{210}Bi(α)^{206}Tl	E(α)=4685.3(2,Z), 4648.3(2,Z) to 265.83, 304.90 levels												NDS	∗∗
∗	Their ^{214}Bi(α) may be high too												AHW	∗∗
∗^{210}Bi(α)^{206}Tl	E(α)=4946(1), 4909(1) from ^{210}Bi^m at 271.31												NDS921	∗∗
∗	to 265.83, 304.90 levels												NDS909	∗∗
∗^{210}At(α)^{206}Bi	E(α)=5523.8, 5464.8, 5441.8(1.5,Z) to ground-state, 59.90, 82.82 lvls												NDS909	∗∗
∗^{210}At(α)^{206}Bi	E(α)=5524.1, 5465.3, 5442.8(1.3,Z) to ground-state, 59.90, 82.82 lvls												NDS909	∗∗
∗^{210}Ra(α)^{206}Rn	E(α)=7003(10) to ground-state, 6447(5) to 574.9 level												03He06	∗∗
∗^{210}Th(α)^{206}Ra	Low energy; may be escape												96Ik01	∗∗
^{211}Fr−^{226}Ra$_{.934}$		−28200	25	−28196	23	0.2	1	82	81	^{211}Fr	MA3	1.0	92Bo28	
^{207}Fr−^{211}Fr$_{.327}$ ^{205}Fr$_{.673}$		−930	100	−600	50	1.3	U				P24	2.5	82Au01	
^{208}Fr−^{211}Fr$_{.394}$ ^{206}Fr$^x_{.606}$		−260	50	∗			U				P24	2.5	82Au01	
^{210}Fr−^{211}Fr$_{.498}$ ^{209}Fr$_{.502}$		580	50	617	26	0.3	U				P24	2.5	82Au01	
^{211}Bi(α)^{207}Tl		6749.5	0.7	6750.3	0.5	1.2	–						61Ry02	Z
		6751.1	0.6			−1.2	–						71Gr17	Z
	ave.	6750.4	0.5			−0.1	1	100	58	^{211}Bi			average	
^{211}Po(α)^{207}Pb		7594.7	0.5				2						62Wa18	Z
^{211}Po^m(α)^{207}Pb		9056.8	5.				2						82Bo04	
^{211}At(α)^{207}Bi		5979.4	2.	5982.4	1.3	1.5	2						69Go23	Z
		5981.6	3.			0.3	2						82Bo04	∗
		5985.9	2.			−1.7	2						85La17	Z
^{211}Rn(α)^{207}Po		5967.9	2.	5965.4	1.4	−1.2	2						55Mo69	Z
		5963.1	2.			1.2	2						71Go35	Z
^{211}Fr(α)^{207}At		6660.3	5.	6660	5	0.0	1	99	82	^{207}At			67Va20	Z
^{211}Ra(α)^{207}Rn		7045.3	5.	7043	4	−0.5	4						67Va22	Z
		7040	5			0.5	4				GSa		03He06	∗
^{211}Ac(α)^{207}Fr		7624.8	8.	7620	50	−0.1	2						68Va04	
		7616.7	10.			0.1	2				GSa		00He17	
^{211}Th(α)^{207}Ra		7942.9	14.				6				Jya		95Uu01	
^{211}Pb(β^-)^{211}Bi		1378	8	1367	6	−1.4	1	47	42	^{211}Bi			65Co06	
∗^{211}At(α)^{207}Bi	Recalibrated as in ref.												91Ry01	∗∗
∗^{211}Ra(α)^{207}Rn	Average of E(α)=6907(5) and several branches to known levels												03He06	∗∗
^{212}Fr−^{226}Ra$_{.938}$		−27631	28	−27632	28	0.0	1	97	97	^{212}Fr	MA3	1.0	92Bo28	
^{209}Fr−^{212}Fr$_{.563}$ ^{205}Fr$_{.437}$		−1270	70	−1205	22	0.4	U				P24	2.5	82Au01	
^{206}Fr^x−^{212}Fr$_{.139}$ ^{205}Fr$_{.861}$		340	130	∗			U				P24	2.5	82Au01	
^{207}Fr−^{212}Fr$_{.163}$ ^{206}Fr$^x_{.837}$		−1150	70	∗			U				P24	2.5	82Au01	
^{212}Bi(α)^{208}Tl		6207.22	0.04	6207.262	0.028	2.9	o				BIP		61Ry02	Z
		6207.09	0.08			2.1	o				BIP		69Gr28	∗
		6207.262	0.028				2				BIP		72Go.A	∗
^{212}Bi^m(α)^{208}Tl		6458.1	30.				3						78Ba44	
^{212}Po(α)^{208}Pb		8953.85	0.31	8954.12	0.11	1.1	–						71De52	Z
		8954.25	0.12			−0.4	–						74Hu15	Z
	ave.	8954.12	0.11			0.0	1	100	92	^{212}Po			average	
^{212}Po^m(α)^{208}Pb		11874.6	20.	11865	12	−0.5	2						62Pe15	
		11859.3	15.			0.4	2						75Fr.B	
^{212}At(α)^{208}Bi		7829.0	9.	7824	7	−0.5	3						70Re02	
		7817.8	10.			0.6	3						96Li37	
^{212}At^m(α)^{208}Bi		8049.3	10.	8050	6	0.1	3						68Va18	
		8052.3	9.			−0.2	3						70Re02	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{212}At^{m}(α)^{208}Bi		8049.2	10.	8050	6	0.1	3					96Li37	
^{212}Rn(α)^{208}Po		6392.3	5.	6385.0	2.6	−1.4	3					55Mo69	Z
		6382.5	3.			0.9	3					71Go35	Z
^{212}Fr(α)^{208}At		6531.3	3.	6528.9	1.8	−0.8	2					66Va.A	Z
		6528.0	3.			0.3	2					81Va27	
		6527.5	3.			0.5	2					82Bo04	∗
^{212}Ra(α)^{208}Rn		7030.0	5.	7031.6	1.7	0.3	5					67Va22	Z
		7034.0	5.			−0.4	5					74Ho27	Z
		7032.2	2.			−0.3	5					82Bo04	Z
		7028	5			0.7	5			GSa		03He06	∗
^{212}Ac(α)^{208}Fr		7521.2	8.	7520	50	0.0	2					68Va04	
		7515.1	10.			0.1	2			GSa		00He17	
^{212}Th(α)^{208}Ra		7952.3	10.				6					80Ve01	
^{212}Pa(α)^{208}Ac		8429.4	30.				6			JAa		97Mi03	
^{212}Pb(β^-)^{212}Bi		569.3	2.5	569.9	1.9	0.2	–					48Ma30	
		576.6	5.			−1.3	–					58Se71	
	ave.	570.8	2.2			−0.4	1	73	46 ^{212}Pb			average	
^{212}Bi(β^-)^{212}Po		2256	3	2252.1	1.7	−1.3	–					48Fe09	
		2250.5	2.5			0.6	–					48Ma30	
	ave.	2252.8	1.9			−0.3	1	80	73 ^{212}Bi			average	
∗^{212}Bi(α)^{208}Tl	E(α)=6089.86(0.08,Z), 6050.57(0.07,Z) to ground-state, 39.857 level											NDS925	∗∗
∗^{212}Bi(α)^{208}Tl	E(α)=6089.883(0.037,Z), 6050.837(0.028,Z) to ground-state, 39.857 lvl											72Go.A	∗∗
∗^{212}Fr(α)^{208}At	E(α)=6341(3) (recalibrated as in ref.) to 63.70 level											91Ry01	∗∗
∗^{212}Ra(α)^{208}Rn	E(α)=6898(5) to ground-state, 6269(5) to 635.1 level											03He06	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{207}Fr$-^{213}$Fr$_{.324}$ ^{204}Fr$_{.676}$		−2540	330	−2100	60	0.5	U			P24	2.5	82Au01	
^{208}Fr$-^{213}$Fr$_{.279}$ ^{206}Fr$^{x}_{.721}$		−700	60	∗			U			P24	2.5	82Au01	
^{209}Fr$-^{213}$Fr$_{.327}$ ^{207}Fr$_{.673}$		−670	60	−700	40	−0.2	U			P24	2.5	82Au01	
^{209}Fr$-^{213}$Fr$_{.196}$ ^{208}Fr$_{.804}$		−980	60	−930	40	0.3	1	7	6 ^{208}Fr	P24	2.5	82Au01	
^{211}Fr$-^{213}$Fr$_{.330}$ ^{210}Fr$_{.670}$		−830	60	−744	26	0.6	U			P24	2.5	82Au01	
^{212}Fr$-^{213}$Fr$_{.498}$ ^{211}Fr$_{.502}$		270	50	317	28	0.4	U			P24	2.5	82Au01	
^{213}Bi(α)^{209}Tl		5982.6	6.				2					64Gr11	
^{213}Po(α)^{209}Pb		8537.1	5.	8536.1	2.6	−0.2	–					64Va20	Z
		8536.5	3.			−0.1	–					82Bo04	Z
	ave.	8536.6	2.6			−0.2	1	95	93 ^{213}Po			average	
^{213}At(α)^{209}Bi		9254.2	12.	9254	5	0.0	2					70Bo13	
		9254.2	5.			0.0	2			Lvn		87De.A	
^{213}Rn(α)^{209}Po		8245.1	8.	8243	5	−0.3	3					67Va20	
		8240.0	10.			0.3	3					70Va13	
		8242	10			0.1	3			GSa		00He17	∗
^{213}Fr(α)^{209}At		6904.0	5.	6904.9	1.8	0.2	–					67Va20	Z
		6908.0	5.			−0.6	–					74Ho27	Z
		6904.6	2.			0.2	–					82Bo04	Z
	ave.	6904.9	1.8			0.0	1	100	100 ^{213}Fr			average	
^{213}Ra(α)^{209}Rn		6860.3	5.	6861	4	0.2	4					67Va22	∗
		6862.4	5.			−0.2	4					76Ra37	∗
^{213}Ra^{m}(α)^{209}Rn		8630.4	5.				4					76Ra37	
^{213}Ac(α)^{209}Fr		7505.2	8.	7500	50	−0.1	2					68Va04	
		7497.0	10.			0.0	o			GSa		00He17	
		7497.0	5.			0.0	2			GSa		02He.A	
^{213}Th(α)^{209}Ra		7841.5	10.	7840	50	−0.1	7					68Va18	
		7836.5	10.			0.0	7					80Ve01	
^{213}Pa(α)^{209}Ac		8393.9	15.				4			GSa		00He17	
^{213}Bi(β^-)^{213}Po		1430	10	1423	5	−0.7	1	29	22 ^{213}Bi			68Va17	
∗^{213}Rn(α)^{209}Po	E(α)=8088(10), 7550(15) to ground-state, 540.3 level											00He17	∗∗
∗^{213}Ra(α)^{209}Rn	E(α)=6730.7, 6623.7, 6520.7(3,Z) to ground-state, 110.1, 214.7 levels											NDS918	∗∗
∗^{213}Ra(α)^{209}Rn	E(α)=6731.9, 6624.9, 6523.9(5,Z) to ground-state, 110.1, 214.7 levels											NDS918	∗∗

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{214}Ra$-^{133}$Cs$_{1.609}$	152235	22	152236	10	0.0	R			MA8	1.0	03We.A	
^{214}Bi(α)^{210}Tl	5621.3	3.0				2					91Ry01	*
^{214}Po(α)^{210}Pb	7833.54	0.06	7833.46	0.06	0.0	1	100	98 ^{214}Po			71Gr17	Z
^{214}At(α)^{210}Bi	8987.2	4.				2					82Bo04	Z
^{214}At^{m}(α)^{210}Bi	9046.4	8.				2					82Ew01	
^{214}At^{n}(α)^{210}Bi	9220.8	5.				2					82Ew01	*
^{214}Rn(α)^{210}Po	9212.6	20.	9208	9	−0.2	2					70To07	
	9207.5	10.			0.1	2					70Va13	
^{214}Fr(α)^{210}At	8585.5	8.	8589	4	0.4	4					68Va18	*
	8590.9	5.			−0.5	4					70To18	*
	8583.8	10.			0.5	4					89An.A	
^{214}Fr^{m}(α)^{210}At	8711.7	8.	8712	4	0.0	4					68Va04	Z
	8711.7	5.			0.0	4					70To18	*
^{214}Ra(α)^{210}Rn	7271.7	5.	7273	3	0.4	4					67Va22	Z
	7275.6	5.			−0.4	4					74Ho27	Z
	7273.2	10.			0.0	4			GSa		00He17	*
^{214}Ac(α)^{210}Fr	7351.7	5.	7350	3	−0.3	2					68Va04	Z
	7347.6	10.			0.3	2					89An13	
	7347.6	10.			0.3	o			GSa		00He17	*
	7349.6	5.			0.1	2			GSa		02He.A	
^{214}Th(α)^{210}Ra	7828.6	10.	7826	7	−0.3	6					68Va18	
	7823.5	10.			0.3	6					80Ve01	
^{214}Pa(α)^{210}Ac	8270.9	15.				6			GSa		00He17	
^{214}Pb(β^-)^{214}Bi	1024	20	1019	11	−0.3	1	32	31 ^{214}Bi			52Be78	*
^{214}Bi(β^-)^{214}Po	3260	30	3270	11	0.3	–					56Da06	
	3275	15			−0.4	–					60Lu07	
ave.	3272	13			−0.2	1	69	69 ^{214}Bi			average	
*^{214}Bi(α)^{210}Tl	Recommended to replace the following E(α):										91Ry01	**
*	E(α)=5510.5(1.0)										34Le01	**
*	E(α)=5515.8(3.0)										60Wa14	**
*^{214}At^{n}(α)^{210}Bi	E(α)=8782(5) to 271.2 level										NDS	**
*^{214}Fr(α)^{210}At	E(α)=8425.5, 8352.5(8,Z) to ground-state, 72.7 level										NDS81c	**
*^{214}Fr(α)^{210}At	E(α)=8428.3, 8360.3(5,Z) to ground-state, 72.7 level										NDS81c	**
*^{214}Fr^{m}(α)^{210}At	E(α)=8546.8, 8477.8(5,Z) to ground-state, 72.7 level										NDS81c	**
*^{214}Ra(α)^{210}Rn	E(α)=7137(10), 6505(15) to ground-state, 641.9 level										00He17	**
*^{214}Ac(α)^{210}Fr	E(α)=7210(10), 7080(15) to ground-state, 138.6 level										00He17	**
*^{214}Pb(β^-)^{214}Bi	E$^-$=670(20) to 351.92 level, and another branch										NDS	**
^{215}Bi$-^{133}$Cs$_{1.617}$	154654	16				2			MA8	1.0	03We.A	
^{215}Po(α)^{211}Pb	7526.45	0.8	7526.3	0.8	−0.1	1	99	94 ^{211}Pb			71Gr17	Z
^{215}At(α)^{211}Bi	8178.5	4.				2					82Bo04	Z
^{215}Rn(α)^{211}Po	8834.7	20.	8839	8	0.2	3					69Ha32	
	8839.8	8.			−0.1	3					70Va13	
^{215}Fr(α)^{211}At	9543.0	15.	9540	7	−0.2	3					70Bo13	
	9532.7	10.			0.8	3					74No02	
	9547.1	10.			−0.6	3					84De16	
^{215}Ra(α)^{211}Rn	8862.7	5.	8864	3	0.3	3					68Va18	Z
	8865.5	5.			−0.2	3					70To18	Z
	8865.3	10.			−0.1	3			GSa		00He17	
^{215}Ac(α)^{211}Fr	7748.4	5.	7744	4	−0.8	2					68Va04	Z
	7746	10			−0.2	o			GSa		00He17	*
	7740.3	5.			0.8	2			GSa		02He.A	
^{215}Th(α)^{211}Ra	7664.9	8.	7665	6	0.1	5					68Va18	
	7667.0	10.			−0.1	5					89He03	
	7664	15			0.1	5			GSa		00He17	*
^{215}Pa(α)^{211}Ac	8238.6	15.	8240	50	0.1	3					79Sc09	
	8244.7	15.			−0.1	3			GSa		00He17	
*^{215}Ac(α)^{211}Fr	E(α)=7602(10), 7026(15), 6960(15) to ground-state, 583.2, 652.82 lvls										NDS915	**
*^{215}Th(α)^{211}Ra	E(α)=7520(15), 7387(15), 7336(15) to ground-state, 133.6, 192.4 lvls										00He17	**

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{216}Bi$-^{133}$Cs$_{1.624}$	159852	12				2				MA8	1.0	03We.A	
^{216}Po(α)^{212}Pb	6906.44	0.5	6906.3	0.5	−0.1	1	99	54	^{212}Pb			71Gr17	Z
^{216}At(α)^{212}Bi	7949.7	3.	7950	3	0.0	1	100	100	^{216}At			82Bo04	Z
^{216}Rn(α)^{212}Po	8199.2	10.	8200	7	0.1	2						61Ru06	
	8201.2	10.			−0.1	2						70Va13	
^{216}Fr(α)^{212}At	9175.3	12.				4						70Bo13	
^{216}Ra(α)^{212}Rn	9525.8	8.				4						73No09	
^{216}Ac(α)^{212}Fr	9243.3	8.	9235	6	−1.0	2						70To18	Z
	9223.1	10.			1.2	2				GSa		00He17	
^{216}Ac^m(α)^{212}Fr	9280.0	5.	9279	4	−0.2	2						70To18	Z
	9284	10			−0.5	o				GSa		00He17	∗
	9278.2	5.			0.2	2				GSa		02He.A	
^{216}Th(α)^{212}Ra	8070.7	8.	8071	6	0.0	6						68Va18	
	8071	10			0.0	6				GSa		00He17	∗
^{216}Th^m(α)^{212}Ra	10099.4	20.	10113	12	0.6	6						83Hi08	
	10107.4	40.			0.1	6						93An07	
	10120.8	15.			−0.5	6				GSa		00He17	
^{216}Pa(α)^{212}Ac	8013.7	20.	8097	15	1.7	B						79Sc09	
	8110.5	50.			−0.3	U				JAa		98Ik01	
	8097	15				3				GSa		00He17	∗
∗^{216}Ac^m(α)^{212}Fr	E(α)=9110(10), 9026(15), 8586(15) to ground-state, 82.4, 542.2 levels											00He17	∗∗
∗^{216}Th(α)^{212}Ra	E(α)=7923(10), 7302(15) to ground-state, 618.3 level											00He17	∗∗
∗^{216}Pa(α)^{212}Ac	E(α)=7948(15), 7815(15) to ground-state, 133.6 level											00He17	∗∗
^{217}Po(α)^{213}Pb	6660.3	4.				4						77Vy02	Z
^{217}At(α)^{213}Bi	7200.3	3.	7201.3	1.2	0.4	–						60Vo05	Z
	7200.3	2.			0.5	–						62Wa28	Z
	7204.6	5.			−0.6	–						64Va20	Z
	7193.1	5.			1.6	–				Dba		77Vy02	Z
	7204.0	2.			−1.3	–				Bka		82Bo04	
ave.	7201.4	1.2			−0.1	1	99	78	^{213}Bi			average	
^{217}Rn(α)^{213}Po	7887.5	4.	7887.1	2.9	−0.1	2						61Ru06	Z
	7886.9	4.			0.1	2						82Bo04	Z
^{217}Fr(α)^{213}At	8471.5	8.	8469	4	−0.3	3						70Bo13	
	8468.4	5.			0.2	3				Lvn		87De.A	
^{217}Ra(α)^{213}Rn	9159.1	8.	9161	6	0.2	4						70To07	
	9163.2	10.			−0.2	4						70Va13	
^{217}Ac(α)^{213}Fr	9831.6	10.				2						73No09	
^{217}Ac^m(α)^{213}Fr	11843.8	17.				2						85De14	
^{217}Th(α)^{213}Ra	9424.1	10.	9433	4	0.9	5						68Va18	
	9424.1	20.			0.5	U						73Ha32	
	9421.1	15.			0.8	U						00Ni02	
	9442	15			−0.6	U				GSa		00He17	∗
	9435.6	5.			−0.5	5				GSa		02He29	∗
^{217}Pa(α)^{213}Ac	8486.7	10.	8489	4	0.2	3						68Va18	
	8489.8	15.			−0.1	U						79Sc09	
	8486.7	50.			0.0	U				JAa		98Ik01	
	8490.8	15.			−0.1	U				GSa		00He17	
	8489.3	5.			−0.1	3				GSa		02He29	∗
^{217}Pa^m(α)^{213}Ac	10351	20	10349	5	−0.1	U						79Sc09	
	10330.8	50.			0.4	U				JAa		98Ik01	
	10346.1	15.			0.2	o				GSa		00He17	
	10349.1	5.				3				GSa		02He29	∗
^{217}U(α)^{213}Th	8155.6	20.				8						00Ma65	
∗^{217}Th(α)^{213}Ra	E(α)=9268(15), 8731(15), 8459(15) to ground-state, 546.35, 822.7 lvls											00He17	∗∗
∗^{217}Th(α)^{213}Ra	E(α)=9261(5), 8725(5), 8455(5) to ground-state, 546.35, 822.7 levels											02He29	∗∗
∗^{217}Pa(α)^{213}Ac	E(α)=8337(5), 7873(5), 7728(5), 7710(5) to gs,466.1,612.5,634.3 lvls											02He29	∗∗
∗^{217}Pa^m(α)^{213}Ac	Average of 5 E(α)'s to known levels											02He29	∗∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{218}Po(α)^{214}Pb		6114.76	0.09	6114.68	0.09	0.0	1	100	99	^{214}Pb			71Gr17	Z
^{218}At(α)^{214}Bi		6874	3				2						58Wa.A	∗
^{218}Rn(α)^{214}Po		7265.0	5.	7262.5	1.9	−0.5	–						56As38	Z
		7262.4	2.			0.1	–						82Bo04	Z
	ave.	7262.7	1.9			−0.1	1	96	94	^{218}Rn			average	
^{218}Fr(α)^{214}At		8014.0	2.				3						82Bo04	Z
^{218}Fr^m(α)^{214}At		8099.9	5.	8100	4	0.1	3						82Ew01	Z
		8100.9	5.			−0.1	3						99Sh03	
^{218}Ra(α)^{214}Rn		8549.1	8.	8546	6	−0.4	3						70To07	
		8541.0	10.			0.5	3						70Va13	
^{218}Ac(α)^{214}Fr		9377.4	15.				5						70Bo13	
^{218}Th(α)^{214}Ra		9861.5	20.	9849	9	−0.6	5						73Ha32	
		9846.1	10.			0.3	5						73No09	
^{218}Pa(α)^{214}Ac		9794.1	20.	9815	10	0.4	F						79Sc09	∗
		9815	10				3				GSa		00He17	∗
^{218}U(α)^{214}Th		8786.6	25.				7						92An04	
∗^{218}At(α)^{214}Bi	E(α)=6696.3(3.0,Z) to 53.20 level												NDS	∗∗
∗^{218}Pa(α)^{214}Ac	E(α)=9614(20) probably pile-up with e$^-$												00He17	∗∗
∗^{218}Pa(α)^{214}Ac	E(α)=9544(10) to 91.8 level												00He17	∗∗
^{219}At(α)^{215}Bi		6390.9	50.	6324	15	−1.3	U						53Hy83	
^{219}Rn(α)^{215}Po		6946.21	0.3	6946.1	0.3	−0.1	1	100	95	^{215}Po			71Gr17	Z
^{219}Fr(α)^{215}At		7448.7	2.0	7448.5	1.8	−0.1	3						68Ba73	Z
		7448.2	4.			0.1	3						82Bo04	Z
^{219}Ra(α)^{215}Rn		8138.0	3.				4						94Sh02	
^{219}Ac(α)^{215}Fr		8826.5	10.				4						70Bo13	
^{219}Th(α)^{215}Ra		9514.1	20.				4						73Ha32	
^{219}Pa(α)^{215}Ac		10084.6	50.				3						87Fa.A	
^{219}U(α)^{215}Th		9860.4	40.				6						93An07	
^{210}Fr$-^{220}$Fr$_{.159}$ ^{208}Fr$_{.841}$		−2930	60	−2930	40	0.0	1	9	7	^{208}Fr	P24	2.5	82Au01	
^{211}Fr$-^{220}$Fr$_{.240}$ ^{208}Fr$_{.761}$		−4850	70	−4890	40	−0.2	1	5	4	^{208}Fr	P24	2.5	82Au01	
^{212}Fr$-^{220}$Fr$_{.321}$ ^{208}Fr$_{.679}$		−5450	60	−5410	40	0.2	1	7	4	^{208}Fr	P24	2.5	82Au01	
^{212}Fr$-^{220}$Fr$_{.263}$ ^{209}Fr$_{.738}$		−3730	60	−3776	28	−0.3	U				P24	2.5	82Au01	
^{213}Fr$-^{220}$Fr$_{.352}$ ^{209}Fr$_{.649}$		−5170	50	−5146	12	0.2	U				P24	2.5	82Au01	
^{212}Fr$-^{220}$Fr$_{.193}$ ^{210}Fr$_{.808}$		−3160	60	−3050	30	0.7	U				P24	2.5	82Au01	
^{220}At(α)^{216}Bi		6053.3	6.				3						89Bu09	
^{220}Rn(α)^{216}Po		6404.75	0.10	6404.67	0.10	0.0	1	100	56	^{216}Po			71Gr17	Z
^{220}Fr(α)^{216}At		6799.0	2.	6800.7	1.9	0.9	–						68Ba.A	∗
		6811.6	5.			−2.2	–						74Ho27	∗
	ave.	6800.7	1.9			0.0	1	100	100	^{220}Fr			average	
^{220}Ra(α)^{216}Rn		7593.3	10.	7592	6	−0.1	3						61Ru06	
		7595.3	10.			−0.3	3						70Va13	
		7598.3	20.			−0.3	3				Dbb		90An19	
		7587.2	10.			0.5	3				GSa		00He17	
^{220}Ac(α)^{216}Fr		8347.1	10.	8348	4	0.1	5						70Bo13	
		8348	5			0.0	5						97Sh09	∗
^{220}Th(α)^{216}Ra		8953.1	20.				5						73Ha32	
^{220}Pa(α)^{216}Ac		9829.1	50.				3						87Fa.A	
∗^{220}Fr(α)^{216}At	E(α)=6675.2, 6631.0, 6570.2(2,Z) to ground-state, 45.0, 106.9 levels												NDS869	∗∗
∗^{220}Fr(α)^{216}At	E(α)=6687.5, 6642.5, 6583.5(2,Z) to ground-state, 45.0, 106.9 levels												NDS869	∗∗
∗^{220}Ac(α)^{216}Fr	E(α)=7792, 7855 to 409.3, 349.3 levels												NDS971	∗∗
^{211}Fr$-^{221}$Fr$_{.159}$ ^{209}Fr$_{.841}$		−3080	60	−3099	24	−0.1	U				P24	2.5	82Au01	
^{221}Rn(α)^{217}Po		6146.8	3.				3						77Vy02	Z
^{221}Fr(α)^{217}At		6457.3	2.0	6457.8	1.4	0.2	–						62Wa28	∗
		6458.5	2.0			−0.4	–						68Le07	∗
	ave.	6457.9	1.4			−0.1	1	99	79	^{217}At			average	
^{221}Ra(α)^{217}Rn		6883.7	5.	6880.4	2.0	−0.7	3						61Ru06	∗
		6881.3	3.			−0.3	3						95Ch74	∗

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{221}Ra(α)^{217}Rn		6878.3	3.	6880.4	2.0	0.7	3						97Li23	*
^{221}Ac(α)^{217}Fr		7786.2	10.	7780	50	−0.1	4						70Bo13	
		7782.1	5.			0.0	4				Lvn		87De.A	
		7791.3	15.			−0.2	4						92An.A	
^{221}Th(α)^{217}Ra		8628.5	5.	8626	4	−0.5	5						70To07	Z
		8626.0	10.			0.0	5						70Va13	Z
		8626.4	10.			−0.1	5				Dbb		90An19	
		8614.2	10.			1.1	5				GSa		00He17	
^{221}Pa(α)^{217}Ac		9247.7	30.				3						89Mi17	
*^{221}Fr(α)^{217}At	E(α)=6341.1(2,Z), 6125.1(3,Z) to ground-state, 217.6 level												NDS916	**
*^{221}Fr(α)^{217}At	E(α)=6341.3(2,Z), 6127.2(3,Z) to ground-state, 217.6 level												NDS916	**
*^{221}Ra(α)^{217}Rn	E(α)=6761.2, 6668.2, 6613.2, 6591.2(5,Z) to gs, 89, 152, 176 levels												NDS916	**
*^{221}Ra(α)^{217}Rn	E(α)=6610(3,Z) to 149.2 level												97Li23	**
*^{221}Ra(α)^{217}Rn	E(α)=6754, 6662, 6607(..) to ground-state, 93.02, 149.2 level												97Li23	**
^{222}Fr$-^{226}$Ra$_{.982}$		−7410	25	−7401	23	0.4	1	82	82	^{222}Fr	MA3	1.0	92Bo28	
^{213}Fr$-^{222}$Fr$_{.096}$ ^{212}Fr$_{.904}$		−1940	60	−1921	25	0.1	U				P24	2.5	82Au01	
^{222}Rn(α)^{218}Po		5590.39	0.3	5590.3	0.3	0.0	1	100	99	^{218}Po			71Gr17	Z
^{222}Ra(α)^{218}Rn		6680.0	5.	6679	4	−0.2	1	71	65	^{222}Ra			56As38	Z
^{222}Ac(α)^{218}Fr		7137.5	2.				4						82Bo04	Z
^{222}Ac^m(α)^{218}Fr^p		7140.3	20.				5						72Es03	
^{222}Th(α)^{218}Ra		8127.7	10.	8127	5	−0.1	4						70To07	
		8130.7	8.			−0.5	4						70Va13	
		8126.7	15.			0.0	4						92An.A	
		8120.6	10.			0.6	4				GSa		00He17	
^{222}Pa(α)^{218}Ac^m		8697.0	30.	8697	13	0.0	7						70Bo13	
		8696.7	15.			0.0	7				GSa		95Ho.C	
^{213}Fr$-^{223}$Fr$_{.087}$ ^{212}Fr$_{.913}$		−1900	60	−1919	25	−0.1	U				P24	2.5	82Au01	
^{223}Fr(α)^{219}At		5431.6	80.	5562	3	1.6	U						55Ad10	
		5562	3				3						01Li44	
^{223}Ra(α)^{219}Rn		5978.9	0.3	5978.99	0.21	0.3	–				Orm		62Wa18	*
		5979.1	0.3			−0.4	–				BIP		71Gr17	*
	ave.	5979.00	0.21			0.0	1	100	95	^{219}Rn			average	
^{223}Ac(α)^{219}Fr		6783.2	1.0				4						69Le.A	*
^{223}Th(α)^{219}Ra		7568	10	7567	4	−0.1	5						87El02	*
		7567.4	10.			−0.1	5				Dbb		90An19	*
		7566.1	5.			0.1	5						92Li09	*
^{223}Pa(α)^{219}Ac		8345.0	10.	8330	50	−0.4	5						70Bo13	
		8350.0	15.			−0.5	U				Dbb		90An19	
		8339.9	15.			−0.3	U				GSa		95Ho.C	
		8321.6	5.			0.1	5				Jya		99Ho28	
^{223}U(α)^{219}Th		8940.9	40.				5						91An10	
*^{223}Ra(α)^{219}Rn	E(α)=5747.0(0.4,Z), 5715.7(0.3,Z), 5606.7(0.3,Z)												62Wa18	**
*	to 126.77, 158.64, 269.48 levels												NDS018	**
*^{223}Ra(α)^{219}Rn	E(α)=5747.0(0.40,Z), 5716.23(0.29,Z), 5606.73(0.30,Z)												71Gr17	**
*	to 126.77, 158.64, 269.48 levels												NDS018	**
*^{223}Ac(α)^{219}Fr	E(α)=6661.6, 6646.7, 6563.7(1.0,Z) to ground-state, 15.0, 98.58 lvls												NDS924	**
*^{223}Th(α)^{219}Ra	E(α)=7324(10) to 113.8, 7285(10) 55% to 140.0, 26% to 152.0 level												92Li09	**
*^{223}Th(α)^{219}Ra	E(α)=7290(10) 55% to 140.0, 26% to 152.0 level												92Li09	**
*^{223}Th(α)^{219}Ra	E(α)=7318(5), 7293(5), 7281(5) to 113.8, 140.0, 152.0 levels												92Li09	**
^{223}Fr$-^{224}$Fr$_{.747}$ ^{220}Fr$_{.253}$		−620	70	−700	50	−0.5	U				P34	2.5	86Au02	
^{222}Fr$-^{224}$Fr$^x_{.496}$ ^{220}Fr$_{.505}$		10	70	*			U				P24	2.5	82Au01	
^{223}Fr$-^{224}$Fr$^x_{.747}$ ^{220}Fr$_{.253}$		−410	70	*			U				P24	2.5	82Au01	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
$^{223}\mathrm{Fr}-^{224}\mathrm{Fr}^{x}_{.664}\ ^{221}\mathrm{Fr}_{.336}$		−110	70	*			U				P24	2.5	82Au01	
$^{224}\mathrm{Ra}(\alpha)^{220}\mathrm{Rn}$		5788.93	0.15	5788.85	0.15	0.0	1	100	56	$^{220}\mathrm{Rn}$			71Gr17	Z
$^{224}\mathrm{Ac}(\alpha)^{220}\mathrm{Fr}$		6326.9	0.7				2						69Le.A	*
$^{224}\mathrm{Th}(\alpha)^{220}\mathrm{Ra}$		7304.7	10.	7298	6	−0.6	4						61Ru06	
		7304.7	10.			−0.6	4						70Va13	
		7300.7	20.			−0.1	U						89An13	
		7286.4	10.			1.2	4				GSa		00He17	
$^{224}\mathrm{Pa}(\alpha)^{220}\mathrm{Ac}$		7695.2	10.	7694	4	−0.2	6						70Bo13	*
		7692.6	10.			0.1	F				Dbb		90An19	*
		7680	15			0.9	U				GSa		95Ho.C	
		7693.3	5.			0.1	6						96Li05	*
$^{224}\mathrm{U}(\alpha)^{220}\mathrm{Th}$		8624.3	15.	8620	12	−0.3	6						91An10	
		8612.1	20.			0.4	6						92To02	
$^{224}\mathrm{Fr}(\beta^{-})^{224}\mathrm{Ra}$		2830	50				2						75We23	
$*^{224}\mathrm{Ac}(\alpha)^{220}\mathrm{Fr}$		E(α)=6213.8, 6207.0, 6141.7, 6059.8(0.7,Z)											69Le.A	**
*		to ground-state, 7.1, 73.5, 156.9 levels											NDS860	**
$*^{224}\mathrm{Pa}(\alpha)^{220}\mathrm{Ac}$		E(α)=7490(10) to 68.71 level											NDS971	**
$*^{224}\mathrm{Pa}(\alpha)^{220}\mathrm{Ac}$		F: intensities in contradiction with ref.											96Li05	**
$*^{224}\mathrm{Pa}(\alpha)^{220}\mathrm{Ac}$		E(α)=7488(5), 7375(5) to 68.71, 184.21 levels											NDS971	**
$^{224}\mathrm{Fr}^{x}-^{225}\mathrm{Fr}_{.747}\ ^{221}\mathrm{Fr}_{.253}$		50	80	*			U				P24	2.5	82Au01	
$^{224}\mathrm{Fr}^{x}-^{225}\mathrm{Fr}_{.498}\ ^{223}\mathrm{Fr}_{.502}$		190	80	*			U				P24	2.5	82Au01	
$^{225}\mathrm{Ra}(\alpha)^{221}\mathrm{Rn}$		5097	5				2						00Li37	
$^{225}\mathrm{Ac}(\alpha)^{221}\mathrm{Fr}$		5936.1	2.	5935.1	1.4	−0.5	–						67Ba51	Z
		5934.5	2.			0.3	–						67Dz02	Z
	ave.	5935.2	1.4			−0.1	1	99	80	$^{221}\mathrm{Fr}$			average	
$^{225}\mathrm{Th}(\alpha)^{221}\mathrm{Ra}$		6920.7	3.	6921.4	2.1	0.2	4						61Ru06	*
		6922.1	3.			−0.2	4						87Li.A	*
$^{225}\mathrm{Pa}(\alpha)^{221}\mathrm{Ac}$		7392.5	5.				5				Lvn		87De.A	
		7383.5	19.	7390	50	0.2	U						00Sa52	
$^{225}\mathrm{U}(\alpha)^{221}\mathrm{Th}$		8012.7	20.	8014	7	0.1	6				Dbb		89An13	
		8022.9	20.			−0.4	6						89He13	
		8021.9	15.			−0.5	6						92To02	
		8013.0	20.			0.1	6						94Ye08	
		8010	10			0.4	6				GSa		00He17	*
$^{225}\mathrm{Np}(\alpha)^{221}\mathrm{Pa}$		8786.5	20.				4						94Ye08	
$^{225}\mathrm{Fr}(\beta^{-})^{225}\mathrm{Ra}$		1820	30				2						75We23	*
$^{225}\mathrm{Ra}(\beta^{-})^{225}\mathrm{Ac}$		360	10	356	5	−0.4	1	23	18	$^{225}\mathrm{Ac}$			55Ma.A	
		360	30			−0.1	U						55Pe24	
$*^{225}\mathrm{Th}(\alpha)^{221}\mathrm{Ra}$		E(α)=6800.2, 6746.2, 6503.2, 6480.2, 6443.2(3,Z)											61Ru06	**
*		to ground-state, 53.2, 299.2, 321.4, 359.0 levels											NDS90c	**
$*^{225}\mathrm{Th}(\alpha)^{221}\mathrm{Ra}$		E(α)=6799.3, 6745.3, 6504.3, 6483.3, 6447.3(3,Z)											87Li.A	**
*		to ground-state, 53.2, 299.2, 321.4, 359.0 levels											NDS90c	**
$*^{225}\mathrm{U}(\alpha)^{221}\mathrm{Th}$		E(α)=7868(15), 7621(15) to ground-state, 250.9 level											00He17	**
$*^{225}\mathrm{Fr}(\beta^{-})^{225}\mathrm{Ra}$		E^{-}=1640(10). 28%to 225.2 level (ref.)											89An02	**
*		but lower levels also fed directly											NDS906	**
$^{133}\mathrm{Cs}-^{226}\mathrm{Ra}_{.588}$		−109487	9	−109489.0	1.5	−0.2	U				MA3	1.0	92Bo28	
		−109500	13			0.8	U				MA4	1.0	99Am05	
$^{223}\mathrm{Fr}-^{226}\mathrm{Fr}_{.493}\ ^{220}\mathrm{Fr}_{.507}$		−800	80	−930	100	−0.7	U				P24	2.5	82Au01	
$^{225}\mathrm{Fr}-^{226}\mathrm{Fr}_{.796}\ ^{221}\mathrm{Fr}_{.204}$		−570	100	−680	100	−0.5	U				P24	2.5	82Au01	
$^{225}\mathrm{Fr}-^{226}\mathrm{Fr}_{.498}\ ^{224}\mathrm{Fr}^{x}_{.502}$		−260	90	*			U				P24	2.5	82Au01	
$^{226}\mathrm{Ra}(\alpha)^{222}\mathrm{Rn}$		4870.70	0.25	4870.62	0.25	0.0	1	100	99	$^{222}\mathrm{Rn}$			71Gr17	Z
$^{226}\mathrm{Ac}(\alpha)^{222}\mathrm{Fr}$		5496.1	5.	5536	21	0.8	1	18	18	$^{222}\mathrm{Fr}$			75Va.A	Z
$^{226}\mathrm{Th}(\alpha)^{222}\mathrm{Ra}$		6448.5	3.0	6450.9	2.2	0.8	–						56As38	*
		6454.8	3.6			−1.1	–				Dba		75Va.A	
	ave.	6451.1	2.3			−0.1	1	94	59	$^{226}\mathrm{Th}$			average	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{226}Pa(α)^{222}Ac	6986.9	10.				5					64Mc21	
^{226}U(α)^{222}Th	7747.4	30.	7701	4	−1.5	U					73Vi10	*
	7706.6	15.			−0.4	5					90An22	
	7701.6	5.			−0.1	5			Jya		99Gr28	
	7691.4	10.			0.9	o			GSa		00He17	
	7696.5	10.			0.4	5			GSa		01Ca.B	
^{226}Np(α)^{222}Pa	8189.1	20.	8200	50	0.2	8					90Ni05	
	8205.5	20.			−0.2	8					94Ye08	
^{226}Fr(β^-)^{226}Ra	3704	100				2					87Ve.A	
^{226}Ac(β^-)^{226}Th	1115	7	1113	5	−0.3	–					68Va17	
ave.	1115	6			−0.3	1	55	41 ^{226}Th			average	
*^{226}Th(α)^{222}Ra	E(α)=6334.6(3,Z), 6224.6(3,Z) to ground-state, 111.12 level										NDS878	**
*^{226}U(α)^{222}Th	E(α)=7430(30) to 2^+ level at 183.3(0.3)										94Ye08	**
^{225}Fr$-^{227}$Fr$_{.708}$ ^{220}Fr$_{.292}$	−410	130	−530	100	−0.4	U			P24	2.5	82Au01	
^{224}Fr$^x-^{227}$Fr$_{.493}$ ^{221}Fr$_{.507}$	−220	80	*			U			P24	2.5	82Au01	
^{227}Ac(α)^{223}Fr	5042.27	0.14				2					86Ry04	Z
^{227}Th(α)^{223}Ra	6146.60	0.10	6146.60	0.10	0.0	1	100	95 ^{223}Ra	BIP		71Gr17	*
^{227}Pa(α)^{223}Ac	6581.5	3.	6580.4	2.1	−0.4	5					63Su.A	
	6579.3	3.			0.4	5					90Sh15	*
^{227}U(α)^{223}Th	7230	30	7211	14	−0.6	6					69Ha32	*
	7206	16			0.3	6					91Ho05	
^{227}Np(α)^{223}Pa	7815.0	20.	7816	14	0.1	6					90Ni05	
	7818.0	20.			−0.1	6					94Ye08	
^{226}Ra(n,γ)^{227}Ra	4561.43	0.27				2			ILn		81Vo03	Z
^{227}Fr(β^-)^{227}Ra	2476	100				3					75We23	
^{227}Ac(β^-)^{227}Th	45.5	1.0	44.8	0.8	−0.7	–					55Be20	
	43.5	1.5			0.8	–					59No41	
ave.	44.9	0.8			−0.1	1	99	95 ^{227}Th			average	
*^{227}Th(α)^{223}Ra	E(α)=6038.01(0.15,Z), 5977.72(0.10,Z), 5756.89(0.15,Z)										71Gr17	**
*	to ground-state, 61.424, 286.182 levels										NDS018	**
*^{227}Pa(α)^{223}Ac	E(α)=6463, 6421, 6355 (all errors 3 keV, estimated by evaluator)										90Sh15	**
*	to ground-state, 42.4, 50.7, 110.06 levels										NDS018	**
*^{227}U(α)^{223}Th	E(α)=6860(30) to 247(1) level										NDS	**
^{224}Fr$^x-^{228}$Fr$_{.491}$ ^{220}Fr$_{.509}$	−540	320	*			D			P24	2.5	82Au01	*
^{228}Th(α)^{224}Ra	5520.17	0.22	5520.08	0.22	0.0	1	100	56 ^{224}Ra			71Gr17	Z
^{228}Pa(α)^{224}Ac	6266.7	3.	6264.5	1.5	−0.7	3					58Hi.A	*
	6264.7	3.			−0.1	3					93Sh07	*
	6263.5	2.			0.5	3					94Ah03	*
^{228}U(α)^{224}Th	6803.6	10.				5					61Ru06	
^{228}Pu(α)^{224}U	7949.7	20.				7			Dbb		94An02	
^{228}Ra(β^-)^{228}Ac	46.7	2.	45.8	0.7	−0.4	3					61To10	
	45.7	1.			0.1	3					72He.A	
	45.7	1.0			0.1	3					95So11	
^{228}Pa(ε)^{228}Th	2109	15	2152	4	2.9	U					73Ku09	
*^{224}Fr$^x-^{228}$Fr$_{.491}$ ^{220}Fr	Systematical trends suggest ^{228}Fr 880 less bound										GAu	**
*^{228}Pa(α)^{224}Ac	E(α)=6119.2(3,Z), 6106.2(3,Z), 6079.2(3,Z) to 37.2, 51.9, 78.4 levels										93Sh07	**
*^{228}Pa(α)^{224}Ac	E(α)=6118(3) to 37.2 level										93Sh07	**
*^{228}Pa(α)^{224}Ac	E(α)=6117(2) to 37.1 level										94Ah03	**
^{229}Fr$-^{133}$Cs$_{1.722}$	201262	40				2			MA8	1.0	03We.A	
^{229}Ra$-^{133}$Cs$_{1.722}$	197782	21	197769	20	−0.6	1	91	91 ^{229}Ra	MA8	1.0	03We.A	
^{229}Th(α)^{225}Ra	5167.4	1.2	5167.6	1.0	0.1	–			Kum		71BaB2	*
	5168.2	2.			−0.3	–					87He28	Z
ave.	5167.6	1.0			0.0	1	99	95 ^{225}Ra			average	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{229}Pa(α)^{225}Ac	5835.6	5.	5835	4	−0.2	1	71	64 ^{225}Ac			63Su.A	*
^{229}U(α)^{225}Th	6475.5	3.				5					61Ru06	Z
^{229}Np(α)^{225}Pa	7012.7	20.	7010	50	0.0	6					68Ha14	
	7015.8	23.			0.0	6					00Sa52	
^{229}Pu(α)^{225}U	7592.9	30.	7600	50	0.1	7			Dbb		94An02	
	7598.0	10.			0.0	7			GSa		01Ca.B	
^{229}Ra(β^-)^{229}Ac	1760	40	1810	30	1.2	1	64	56 ^{229}Ac			75We23	*
^{229}Ac(β^-)^{229}Th	1140	150	1170	30	0.2	U					73Ch24	*
	1090	50			1.5	1	44	44 ^{229}Ac			75We23	*
*^{229}Th(α)^{225}Ra	E(α)=4978.3(1.2,Z), 4967.3(1.2,Z), 4845.1(1.2,Z)										71Gr17	**
*	to 100.60, 111.60, 236.25 levels										71Gr17	**
*^{229}Th(α)^{225}Ra	E(α)= 4979.3(2,Z), 4968.3(2,Z), 4845.1(2,Z)										87He28	**
*	to 100.60, 111.60, 236.25 levels										NDS906	**
*	calibrated with 71BaB2 value for 4845										AHW	**
*^{229}Pa(α)^{225}Ac	E(α)=5670.2, 5630.2, 5615.2, 5580.2, 5536.2 (all 3,Z)										63Su.A	**
*	to 64.70, 105.06, 120.80, 155.65, 199.85 levels										NDS	**
*^{229}Ra(β^-)^{229}Ac	E$^-$ to ground-state										NDS	**
*^{229}Ac(β^-)^{229}Th	E$^-$ to ground-state										NDS	**
^{230}Ra$-^{133}$Cs$_{1.729}$	200530	13				2			MA8	1.0	03We.A	
^{230}Ra$-^{226}$Ra$_{1.018}$	11225	35	11189	13	−1.0	U			MA3	1.0	92Bo28	
^{230}Th(α)^{226}Ra	4770.1	1.5	4770.0	1.5	0.0	1	99	99 ^{226}Ra			66Ba14	Z
^{230}Pa(α)^{226}Ac	5439.5	0.7	5439.4	0.7	0.0	1	99	86 ^{226}Ac			66Ba14	Z
^{230}U(α)^{226}Th	5992.8	0.7				2					66Ba14	Z
^{230}Np(α)^{226}Pa	6778.1	20.				6					68Ha14	
^{230}Pu(α)^{226}U	7175.0	15.	7180	8	0.3	6					90An22	
	7180.1	17.			0.0	6			Jya		99Gr28	
	7182.2	10.			−0.2	6			GSa		01Ca.B	
^{230}Th(p,t)^{228}Th$-^{232}$Th()^{230}Th	−492.5	0.5	−492.5	0.5	−0.1	1	99	60 ^{230}Th			94Le22	
^{230}Th(d,t)^{229}Th	−541	6	−536.6	2.3	0.7	–					90Bu17	
	−525	6			−1.9	–			ANL		67Er02	*
ave.	−533	4			−0.9	1	28	27 ^{229}Th			average	
^{230}Ra(β^-)^{230}Ac	710	300				3					80Gi04	*
^{230}Ac(β^-)^{230}Th	2700	100	2940	300	2.4	B					80Gi04	
^{230}Pa(ε)^{230}Th	1310.3	3.	1310.5	2.8	0.1	1	90	87 ^{230}Pa			70Lo02	
^{230}Pa(β^-)^{230}U	561	15	560	5	−0.1	R					70Lo02	
*^{230}Th(d,t)^{229}Th	Q=–525(6) to ^{229}Th^m at 0.0035(0.0010)										94He08	**
*^{230}Ra(β^-)^{230}Ac	E$^-$=500(200) to 211.8 level										NDS935	**
^{231}Pa(α)^{227}Ac	5150.4	1.5	5149.9	0.8	−0.4	–					69Le.A	*
	5149.8	1.0			0.1	–					76Ba99	*
ave.	5150.0	0.8			−0.1	1	99	96 ^{227}Ac			average	
^{231}U(α)^{227}Th	5576.9	3.	5576.3	1.7	−0.2	2					94Li12	*
	5576	2			0.1	2					97Mu08	
^{231}Np(α)^{227}Pa	6368.4	8.				6					73Ja06	
^{231}Pu(α)^{227}U	6838.6	20.				7					99La14	
^{231}Pa(p,t)^{229}Pa	−4133	2	−4133.1	1.6	0.0	–					98Le15	
	−4133	3			0.0	–					91Gr13	*
ave.	−4133.0	1.7			−0.1	1	97	93 ^{229}Pa			average	
^{230}Th(n,γ)^{231}Th	5118.00	0.20	5118.02	0.20	0.1	1	98	84 ^{231}Th	ILn		87Wh01	Z
^{231}Ac(β^-)^{231}Th	2100	100				2					60Ta19	
^{231}Th(β^-)^{231}Pa	389.2	2.	391.6	1.5	1.2	1	55	51 ^{231}Pa			75Ho14	
*^{231}Pa(α)^{227}Ac	E(α)=5015.9(1.5,Z) to 46.35 level										NDS	**
*^{231}Pa(α)^{227}Ac	E(α)=4736.2(1.0,Z) to 330.04 level										NDS	**
*^{231}U(α)^{227}Th	E(α)=5471(3), 5456(3), 5404(3) to 9.3, 24.4, 77.7 levels										94Li12	**
*^{231}Pa(p,t)^{229}Pa	Q=–4145(3) to 11.6 level										98Le15	**

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
C_{18} $H_{16}-{}^{232}Th$		87142.4	2.	87145.2	2.1	0.6	1	18	18	^{232}Th	M20	2.5	73Br06	
C_{24} $H_{16}-{}^{232}Th$ ^{37}Cl ^{35}Cl		152393.4	1.8	152389.9	2.1	−0.8	1	23	23	^{232}Th	M20	2.5	73Br06	
^{232}Th(α)^{228}Ra		4081.6	1.4				2						89Sa01	∗
^{232}U(α)^{228}Th		5413.63	0.09				2				BIP		72Go33	∗
^{232}Pu(α)^{228}U		6716.0	10.				6						73Ja06	
^{232}Ac(β^-)^{232}Th		3700	100				2						90Be.B	
^{232}Pa(β^-)^{232}U		1344	20	1337	7	−0.3	3						63Bj01	
		1336	8			0.1	3						71Ka42	
∗^{232}Th(α)^{228}Ra	E(α)=4012.3(1.4), 3947.2(2.0) to ground-state, 63.823 level												NDS973	∗∗
∗^{232}U(α)^{228}Th	E(α)=5320.12(0.14,Z), 5263.36(0.09,Z) to ground-state, 57.759 level												NDS973	∗∗
^{233}U(α)^{229}Th		4908.4	1.2	4908.5	1.2	0.2	1	94	68	^{229}Th	Kum		68Ba25	Z
^{233}Np(α)^{229}Pa		5628.5	50.				2						50Ma14	
^{233}Pu(α)^{229}U		6416.3	20.				6						57Th10	
^{233}Am(α)^{229}Np^p		6898	17				8						00Sa52	
^{233}Cm(α)^{229}Pu		7468.5	10.				8				GSa		01Ca.B	
^{232}Th(n,γ)^{233}Th		4786.69	0.25	4786.39	0.09	−1.2	–						74Ke13	Z
		4786.34	0.10			0.5	–				Bdn		03Fi.A	
	ave.	4786.39	0.09			0.0	1	100	93	^{233}Th			average	
^{233}Th(β^-)^{233}Pa		1245	3	1243.1	1.4	−0.6	1	22	15	^{233}Pa			57Fr.A	∗
^{233}Pa(β^-)^{233}U		568	4	570.1	2.0	0.5	–						54Br37	
		568	5			0.4	–						55On05	
		568	5			0.4	–						63Bl03	
	ave.	568.0	2.6			0.8	1	58	48	^{233}U			average	
∗^{233}Th(β^-)^{233}Pa	PrvCom to ref.												58St50	∗∗
^{234}U(α)^{230}Th		4857.4	1.0	4857.7	0.7	0.4	–						55Go.A	Z
		4860.4	2.			−1.3	–						67Ba43	Z
	ave.	4857.9	0.9			−0.2	1	57	36	^{234}U			average	
^{234}Pu(α)^{230}U		6310.1	5.				3						60Ho.A	∗
^{234}Am(α)^{230}Np^p		6572.6	20.				8						90Ha02	
^{234}Cm(α)^{230}Pu		7365.2	10.				7				GSa		01Ca.B	
^{234}U(d,t)^{233}U		−579	6	−587.4	2.1	−1.4	1	12	11	^{233}U	ANL		67Er02	
^{234}Th(β^-)^{234}Pa^m		192	2	195.1	1.0	1.5	3						55De40	
		193	2			1.0	3						63Bj02	
		198.	1.5			−1.9	3						73Go40	
^{234}Pa^m(IT)^{234}Pa		78	3				4						NDS	
^{234}Np(β^+)^{234}U		1812	10	1810	8	−0.2	2						67Ha04	
		1805	15			0.3	2						67Wa09	
∗^{234}Pu(α)^{230}U	With correction like in ref.												91Ry01	∗∗
$^{235}U-C_{18}$ H_{18}		−96932.8	3.8	−96920.7	2.0	1.3	U				M20	2.5	73Br06	
C_{18} $H_{20}-{}^{235}U$		112584.2	4.8	112570.7	2.0	−1.1	U				M20	2.5	73Br06	
^{235}U(α)^{231}Th		4678	2	4678.3	0.7	0.1	–						60Ba44	
		4681	3			−0.9	–						60Vo07	
		4675.5	3.0			0.9	–						64Sc27	
		4677	3			0.4	–						66Ga03	
	ave.	4677.9	1.3			0.3	1	29	17	^{235}U			average	
^{235}Np(α)^{231}Pa		5197.2	2.0	5194.0	1.5	−1.6	1	56	42	^{231}Pa	Bka		73Br12	∗
^{235}Pu(α)^{231}U		5951.5	20.				3						57Th10	
^{235}Am(α)^{231}Np^p		6552	100				8						99Sa.D	
^{234}U(n,γ)^{235}U		5297.1	0.5	5297.49	0.23	0.8	–						72Ri08	Z
		5297.4	0.3			0.3	–						77Ko15	Z
	ave.	5297.32	0.26			0.6	1	81	50	^{234}U			average	

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{235}Th(β^-)^{235}Pa		1470	80	1920	70	5.7	B						89Yu01	
^{235}Pa(β^-)^{235}U		1410	50				2						68Tr07	
^{235}Np(ε)^{235}U		123.5	2.	124.2	0.9	0.4	–						58Gi05	
		123.6	1.			0.6	–						72Mc25	
	ave.	123.6	0.9			0.7	1	91	86	^{235}Np			average	
$*^{235}$Np(α)^{231}Pa		E(α)=5105.2(3), 5097.2(3), 5050.8(2,Z), 5024.8(2,Z), 4924.8(2,Z)											AHW	**
*		to gs and levels at 9.21, 58.57, 84.21, 183.50											NDS018	**
^{236}U(α)^{232}Th		4573.1	1.0	4573.1	0.9	0.0	1	78	69	^{232}Th			78Ba.C	
^{236}Pu(α)^{232}U		5867.15	0.08				3						84Ry02	Z
^{235}U(n,γ)^{236}U		6545	2	6545.45	0.26	0.2	U						70Ka22	
		6545.1	0.5			0.7	–						74Ju.B	Z
		6545.4	0.5			0.1	–						75We.A	Z
	ave.	6545.2	0.4			0.6	1	54	32	^{236}U			average	
^{236}Pa(β^-)^{236}U		3350	100	2900	200	−4.5	B						63Wo04	
		2900	200				2						68Tr07	
^{236}Np^m(IT)^{236}Np		60	50				5						NDS915	
^{236}Np^m(β^-)^{236}Pu		525	10	537	6	1.2	4						56Gr11	
		544	8			−0.9	4						69Le05	
^{237}Np(α)^{233}Pa		4956.7	1.5	4958.3	1.2	1.0	–				Kum		68Ba25	*
		4959.9	3.			−0.5	–						69Va06	
	ave.	4957.3	1.3			0.7	1	77	75	^{233}Pa			average	
^{237}Pu(α)^{233}U		5747	5	5748.4	2.3	0.3	1	21	15	^{233}U			93Dm02	
^{237}Am(α)^{233}Np^p		6146.2	5.				4						75Ah05	Z
^{236}U(n,γ)^{237}U		5125.9	0.5	5125.8	0.5	−0.3	1	83	83	^{237}U	BNn		79Vo05	Z
^{237}Pa(β^-)^{237}U		2250	100				2						74Ka05	
C_{18} $H_{22}-^{238}$U		121366.0	2.4	121362.5	2.0	−0.6	1	12	12	^{238}U	M20	2.5	73Br06	
C_{24} $H_{20}-^{238}$U $^{35}Cl_2$		168010.8	1.4	168007.0	2.0	−1.1	1	34	34	^{238}U	M20	2.5	73Br06	
^{238}U(α)^{234}Th		4271.5	5.	4269.7	2.9	−0.3	2						57Ha08	Z
		4265.1	5.			0.9	2						60Vo07	Z
		4272.9	5.			−0.6	2						61Ko11	Z
^{238}Pu(α)^{234}U		5593.20	0.2	5593.20	0.19	0.4	1	90	76	^{238}Pu			71Gr17	Z
^{238}Am(α)^{234}Np		6041.7	30.				3						72Ah04	
^{238}Cm(α)^{234}Pu		6611.5	50.	6620	40	0.2	4						48St.A	*
		6632.0	50.			−0.2	4						52Hi.A	
^{238}U(n,α)^{235}Th		8700	50				2						81Wa11	
^{237}Np(n,γ)^{238}Np		5488.32	0.20				2				BNn		79Io01	Z
^{238}Pa(β^-)^{238}U		3460	60				2						85Ba57	*
$*^{238}$Cm(α)^{234}Pu		PrvCom to ref.											58St50	**
$*^{238}$Pa(β^-)^{238}U		Reports result from thesis											82Gi.A	**
^{239}Pu(α)^{235}U		5244.60	0.25	5244.51	0.21	−0.4	1	68	44	^{239}Pu			79Ry.A	*
^{239}Am(α)^{235}Np		5924.6	2.0	5922.4	1.4	−1.1	2				Bka		71Go01	*
		5920.2	2.0			1.1	2						75Ah05	*
^{239}Cf(α)^{235}Cm^p		7760.1	25.				10						81Mu12	
^{238}U(n,γ)^{239}U		4806.55	0.30	4806.38	0.17	−0.6	2				ANL		72Bo46	Z
		4806.30	0.21			0.4	2				ILn		79Br25	Z
^{238}Pu(n,γ)^{239}Pu		5646.7	0.5	5646.2	0.3	−1.0	1	38	24	^{238}Pu			75Ma.A	Z
^{239}Np(β^-)^{239}Pu		722.5	1.0	722.5	1.0	0.0	1	98	98	^{239}Np			59Co63	
$*^{239}$Pu(α)^{235}U		E(α)=5156.59(0.25,Z) to 0.08 level											NDS	**
$*^{239}$Am(α)^{235}Np		E(α)=5824.6(4,Z), 5775.6(2,Z), 5733.6(2,Z) to gs, 49.10, 91.6 levels											NDS033	**
$*^{239}$Am(α)^{235}Np		E(α)=5772.7(2,Z) to 49.10 level											NDS033	**

Item		Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{240}Pu(α)^{236}U		5255.88	0.15	5255.75	0.14	−0.3	1	90	59	^{236}U			72Go33	Z
^{240}Am(α)^{236}Np^{p}		5468.9	1.0				3						70Go42	Z
^{240}Cm(α)^{236}Pu		6397.8	0.6				4				Kum		71BaB2	*
^{240}Cf(α)^{236}Cm		7718.9	10.				8						70Si19	
^{239}Pu(n,γ)^{240}Pu		6534.1	1.0	6534.20	0.23	0.1	–						70Ch.A	
		6534.3	0.4			−0.3	–						74Ju.B	Z
		6534.2	0.4			0.0	–						75We.A	Z
	ave.	6534.24	0.27			−0.1	1	73	41	^{239}Pu			average	
^{240}U(β^-)^{240}Np^{m}		386	20	380	22	−0.3	R						53Kn23	
^{240}Np^{m}(IT)^{240}Np		20	15				3						81Hs02	
^{240}Np(β^-)^{240}Pu		2199	30	2188	15	−0.4	2						51Or.A	
^{240}Np^{m}(β^-)^{240}Pu		2210	20	2208	21	−0.1	R						59Bu20	
^{240}Am(ε)^{240}Pu		1395	35	1385	14	−0.3	R						72Ah07	
*^{240}Cm(α)^{236}Pu	E(α)=6290.5, 6247.7(0.6,Z) to ground-state, 44.63 level												NDS915	**
^{241}Pu(α)^{237}U		5139.6	3.	5140.0	0.5	0.1	–						68Ah01	*
		5139.3	1.2			0.6	–				Kum		68Ba25	*
	ave.	5139.3	1.1			0.6	1	18	17	^{237}U			average	
^{241}Am(α)^{237}Np		5637.81	0.12	5637.82	0.12	0.1	1	100	98	^{237}Np			71Gr17	*
^{241}Cm(α)^{237}Pu		6182.8	2.0	6185.2	0.6	1.2	U						67Ba42	*
		6185.2	0.6			0.0	–				Kum		71BaB2	*
		6185.0	2.0			0.1	–						75Ah05	*
	ave.	6185.2	0.6			0.0	1	99	94	^{237}Pu			average	
^{241}Cf(α)^{237}Cm^{p}		7459.0	5.				9						70Si19	
^{241}Es(α)^{237}Bk^{p}		8064.1	30.	8250	20	6.2	C				GSa		85Hi.A	*
		8250.2	20.				11				GSa		96Ni09	
^{240}Pu(n,γ)^{241}Pu		5241.3	0.7	5241.521	0.030	0.3	U						75Ma.A	
		5241.52	0.03			0.0	1	100	62	^{241}Pu	ILn		98Wh01	Z
^{241}Am(d,t)^{240}Am		−388	15	−390	14	−0.1	2				Kop		76Gr19	
^{241}Np(β^-)^{241}Pu		1360	100	1300	70	−0.6	2						59Va32	
		1250	100			0.5	2						66Qa02	
^{241}Pu(β^-)^{241}Am		20.8	0.2	20.78	0.13	−0.1	–						56Sh31	
		20.7	0.3			0.3	–						99Dr13	
		20.78	0.20			0.0	–						99Ya.A	
	ave.	20.77	0.13			0.1	1	100	98	^{241}Am			average	
^{241}Cm(ε)^{241}Am		767.5	1.2	767.4	1.2	−0.1	1	95	95	^{241}Cm			89Su.A	*
*^{241}Pu(α)^{237}U	E(α)=4896.6(3,Z), 4853.6(3,Z) to 159.96, 204.19 levels												NDS869	**
*^{241}Pu(α)^{237}U	E(α)=4896.3(1.2,Z), 4853.3(1.2,Z) to 159.96, 204.19 levels												NDS869	**
*^{241}Am(α)^{237}Np	E(α)=5485.56(0.12,Z), 5442.80(0.13,Z) to 59.54, 102.96 levels												NDS	**
*^{241}Cm(α)^{237}Pu	E(α)=6080.6(2,Z), 5926.6(2,Z) to ground-state, 155.45 level												NDS869	**
*^{241}Cm(α)^{237}Pu	E(α)=5939.0(0.6,Z), 5884.7(0.6,Z) to 145.54, 201.18 levels												NDS869	**
*^{241}Cm(α)^{237}Pu	E(α)=5938.7(2,Z), 5884.7(2,Z) to 145.54, 201.18 levels												NDS869	**
*^{241}Es(α)^{237}Bk^{p}	C: new data of same group (next item) is much safer												96Ni09	**
*^{241}Cm(ε)^{241}Am	Q(ε)=5.5(1.2) to 636.86 level												AHW	**
^{242}Pu(α)^{238}U		4987.3	2.0	4984.5	1.0	−1.4	–						53As.A	*
		4989.5	3.0			−1.7	U						56Ko67	*
		4982.9	1.2			1.4	–				Kum		68Ba25	*
	ave.	4984.1	1.0			0.4	1	93	54	^{238}U			average	
^{242}Am(α)^{238}Np		5587.5	0.5	5588.50	0.25	2.0	U						79Ba67	*
		5589.9	0.8			−1.8	U						90Ho02	*
^{242}Cm(α)^{238}Pu		6215.63	0.08				2						71Gr17	Z
^{242}Cf(α)^{238}Cm		7516.9	4.				5						70Si19	Z
^{242}Es(α)^{238}Bk^{p}		7982.2	30.	8053	20	2.4	C				GSa		85Hi.A	
		8053.2	20.				11				GSa		96Ni09	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{241}Pu(n,γ)^{242}Pu	6309.5	0.7	6309.7	0.7	0.3	1	96	61	^{242}Pu			72Ma.A	
^{241}Am(n,γ)^{242}Am	5537.64	0.1				2				ILn		88Sa18	Z
^{242}Np(β^-)^{242}Pu	2700	200				2						79Ha26	
∗^{242}Pu(α)^{238}U	E(α)=4904.6, 4860.6(2,Z) to ground-state, 44.916 level											NDS029	∗∗
∗^{242}Pu(α)^{238}U	E(α)=4905.2(3,Z), 4863.2(3,Z) to ground-state, 44.916 level											NDS029	∗∗
∗^{242}Pu(α)^{238}U	E(α)=4900.4(1.2,Z), 4856.1(1.2,Z) to ground-state, 44.916 level											NDS029	∗∗
∗^{242}Am(α)^{238}Np	E(α)=5206.6(0.5,Z), 5141.4(0.5,Z) from ^{242}Am^m to 342.439, 407.59 lvls											NDS029	∗∗
∗^{242}Am(α)^{238}Np	E(α)=5208.3(0.8,Z), 5144.3(0.9,Z) from ^{242}Am^m to 342.40, 407.58 lvls											90Ho02	∗∗
^{243}Am(α)^{239}Np	5438.8	1.0	5438.8	1.0	0.0	1	98	96	^{243}Am	Kum		68Ba25	∗
^{243}Cm(α)^{239}Pu	6168.8	1.0				2						69Ba57	∗
^{243}Bk(α)^{239}Am	6874.4	4.				3						66Ah.A	Z
^{243}Cf(α)^{239}Cm^p	7178	10				5						67Fi04	∗
^{243}Es(α)^{239}Bk	8072.1	10.				10						89Ha27	
^{243}Es(α)^{239}Bk^p	8031.4	3.				11						89Ha27	
	8027.3	20.	8031	3	0.2	U				GSa		93Ho.A	
^{243}Fm(α)^{239}Cf	8689.1	25.				11						81Mu12	
^{242}Pu(n,γ)^{243}Pu	5034.2	3.	5034.2	2.6	0.0	1	75	75	^{243}Pu			76Ca25	
^{243}Pu(β^-)^{243}Am	578	10	579.4	2.9	0.1	–						69Ho10	
	580	10			−0.1	–						77Dr07	
ave.	579	7			0.1	1	17	13	^{243}Pu			average	
∗^{243}Am(α)^{239}Np	E(α)=5275.2(1.0,Z), 5233.3(1.0,Z) to 74.66, 117.84 levels											NDS	∗∗
∗^{243}Cm(α)^{239}Pu	E(α)=5785.7(1.0,Z), 5742.8(1.0,Z) to 285.46, 330.13 levels											NDS	∗∗
∗^{243}Cf(α)^{239}Cm^p	Unhindered E(α)=7060(10); there is a weaker E(α)=7170(10)											AHW	∗∗
^{244}Pu(α)^{240}U	4665.6	1.0				2						69Be06	Z
^{244}Cm(α)^{240}Pu	5901.74	0.05				2				BIP		71Gr17	∗
^{244}Bk(α)^{240}Am	6778.8	4.				3						66Ah.B	∗
^{244}Cf(α)^{240}Cm	7327.1	2.	7328.9	1.8	0.9	5						67Fi04	Z
	7336.4	4.			−1.8	5						67Si08	Z
^{244}Es(α)^{240}Bk^p	7696.4	20.				7						73Es02	
^{244}Pu(t,α)^{243}Np^p	12405	10				2						79Fl02	
^{244}Pu(d,t)^{243}Pu	234	5	236	4	0.4	1	69	65	^{244}Pu	ANL		76Ca25	
^{243}Am(n,γ)^{244}Am^m	5277.90	0.07				2				ILn		84Vo07	Z
^{244}Am^m(IT)^{244}Am	85.0	1.0	88.6	1.7	3.6	F						84Ho02	∗
^{244}Am(β^-)^{244}Cm	1427.3	1.0				3						62Va08	∗
∗^{244}Cm(α)^{240}Pu	E(α)=5804.77(0.05,Z), 5762.16(0.03,Z) to ground-state, 42.82 level											NDS904	∗∗
∗^{244}Bk(α)^{240}Am	E(α)=6667.5(4,Z), 6625.5(3,Z) to ground-state, 42.82 level											NDS904	∗∗
∗^{244}Am^m(IT)^{244}Am	F: value in Fig. 1 only, no source no error											AHW	∗∗
∗^{244}Am(β^-)^{244}Cm	E$^-$=387(1) to 1040.18 level											NDS86b	∗∗
^{245}Cm(α)^{241}Pu	5623	1				2				Kum		75Ba65	
^{245}Bk(α)^{241}Am	6454.7	4.	6454.5	1.4	0.0	2						74Po08	∗
	6454.5	1.5			0.0	2						75Ba25	∗
^{245}Cf(α)^{241}Cm	7257.5	2.0	7258.5	1.9	0.5	2						67Fi04	
	7265	5			−1.3	2						96Ma72	
^{245}Es(α)^{241}Bk	7909.4	3.				3						89Ha27	
^{245}Es(α)^{241}Bk^p	7858.5	1.				4						89Ha27	
^{245}Fm(α)^{241}Cf^p	8285.5	20.				11						67Nu01	
^{245}Md^m(α)^{241}Es^p	8824.3	20.				13				GSa		96Ni09	∗
^{244}Pu(d,p)^{245}Pu	2558	15	2546	14	−0.8	2				ANL		75Er.A	∗
^{245}Pu(β^-)^{245}Am	1257	30	1206	15	−1.7	R						68Da02	
∗^{245}Bk(α)^{241}Am	E(α)=6349.0, 6309.0, 6146.0, 5886.0 (all 4,Z)											91Ry01	∗∗
∗	to ground-state, 41.18, 205.88, 471.81 levels											NDS945	∗∗
∗^{245}Bk(α)^{241}Am	E(α)=6347.8, 6307.8, 6146.8, 5885.8 recalibrated as in ref.											91Ry01	∗∗
∗	to ground-state, 41.18, 205.88, 471.81 levels											NDS929	∗∗
∗^{245}Md^m(α)^{241}Es^p	Second E(α) 8635(20)											96Ni09	∗∗
∗^{244}Pu(d,p)^{245}Pu	Q=2252(15) to 306 level											NDS	∗∗

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux		Lab	F	Reference	
^{246}Cm(α)^{242}Pu	5474.9	2.	5475.1	0.9	0.1	–				Kum		66Ba07	*
	5475.2	1.			−0.1	–						84Sh31	*
ave.	5475.1	0.9			0.0	1	99	99	^{246}Cm			average	
^{246}Cf(α)^{242}Cm	6861.6	1.				3						77Ba69	*
^{246}Es(α)^{242}Bk^p	7492.0	4.				5						89Ha27	
^{246}Fm(α)^{242}Cf	8371.4	20.	8378	12	0.3	6						66Ak01	
	8376.5	20.			0.1	6						67Nu01	
	8386.7	20.			−0.4	6				GSa		96Ni09	
^{246}Md(α)^{242}Es	8884.7	20.				12				GSa		96Ni09	
^{244}Pu(t,p)^{246}Pu	2085	20	2071	15	−0.7	1	57	54	^{246}Pu	LAl		79Br19	
^{246}Cm(d,t)^{245}Cm	−196	6	−200.4	1.5	−0.7	U				ANL		67Er02	
^{246}Pu(β^-)^{246}Am^m	374	10	371	9	−0.3	1	89	46	^{246}Pu			56Ho23	
^{246}Am^m(IT)^{246}Am	30	10				2						84So03	
^{246}Am^m(β^-)^{246}Cm	2420	20	2406	15	−0.7	1	57	57	^{246}Am^m			56Sm85	
^{246}Bk(ε)^{246}Cm	1350	60				2						89Sc.A	
*^{246}Cm(α)^{242}Pu	E(α)=5385.3(2,Z), 5342.3(2,Z) to ground-state, 44.54 level											NDS025	**
*^{246}Cm(α)^{242}Pu	E(α)=5385.6(1,Z), 5342.6(1,Z) to ground-state, 44.54 level											NDS025	**
*^{246}Cf(α)^{242}Cm	E(α)=6750.0(1.0,Z), 6708.2(1.0,Z) to ground-state, 42.13 level											NDS	**
^{247}Cm(α)^{243}Pu	5354.6	4.	5353	3	−0.3	1	71	63	^{247}Cm			71Fi01	*
^{247}Bk(α)^{243}Am	5889.6	5.				2						69Fr01	*
^{247}Cf(α)^{243}Cm^p	6399.6	5.				4						84Ah02	Z
^{247}Es(α)^{243}Bk^p	7443.8	1.				5						89Ha27	
^{247}Fm(α)^{243}Cf	8060.8	50.	8213	18	3.0	U				Dba		67Fl15	
	8213	18				6						89He03	*
^{247}Fm^m(α)^{243}Cf	8314.9	30.	*			F						67Fl15	*
	8260.0	30.	*			F				GSa		97He29	*
^{247}Md^m(α)^{243}Es^p	8567.0	25.	8564	16	−0.1	12						81Mu12	
	8562.9	20.			0.1	12				GSa		93Ho.A	
^{246}Cm(d,p)^{247}Cm	2931	8	2931	4	0.0	1	25	24	^{247}Cm	ANL		67Er02	
^{247}Cf(ε)^{247}Bk	646	6				3						56Ch.A	
*^{247}Cm(α)^{243}Pu	E(α)=5267.3(4,Z), 5212.3(4,Z), 4870.3(4,Z) to gs, 58.1, 402.6 level											NDS928	**
*^{247}Bk(α)^{243}Am	E(α)=5794, 5710, 5688(5,Z) to gs, 84.0, 109.2 levels											NDS928	**
*^{247}Fm(α)^{243}Cf	E(α)=8060(15) summed with e$^-$											AHW	**
*^{247}Fm^m(α)^{243}Cf	Only one case											97He29	**
*^{247}Fm^m(α)^{243}Cf	Not found in later work on ^{251}No decay											01He35	**
^{248}Cm(α)^{244}Pu	5161.81	0.25	5161.73	0.25	0.0	1	100	68	^{248}Cm			77Ba69	Z
^{248}Cf(α)^{244}Cm	6361.2	5.				3						84Ah02	*
^{248}Es(α)^{244}Bk	7165.8	20.	7160#	50#	−0.3	F						84Li.A	
^{248}Es(α)^{244}Bk^p	7020.4	5.				5						89Ha27	
^{248}Fm(α)^{244}Cf	8009.4	30.	8002	11	−0.2	6						66Ak01	
	7999.3	20.			0.2	6						67Nu01	
	8002.3	15.			0.0	6						85He.A	
^{248}Md(α)^{244}Es^p	8497.3	30.				9						73Es01	
^{248}Cm(p,t)^{246}Cm	−2894	15	−2887	5	0.5	1	10	10	^{248}Cm	ANL		74Fr01	
^{248}Cm(d,t)^{247}Cm	49	8	44	5	−0.6	1	35	23	^{248}Cm	ANL		67Er02	
^{248}Bk^m(β^-)^{248}Cf	870	20				4						78Gr10	
*^{248}Cf(α)^{244}Cm	E(α)=6257.8(5,Z), 6216.8(5,Z) to ground-state, 42.97 level											NDS86c	**
^{249}Bk(α)^{245}Am	5520.4	2.0	5525.0	2.3	2.3	5						66Ah.A	*
	5526.1	1.0			−1.1	5				Kum		71BaB2	*
^{249}Cf(α)^{245}Cm	6296.0	0.7				3				Kum		71BaB2	*
^{249}Es(α)^{245}Bk^p	6881.3	5.	6886.0	1.9	0.9	4						70Ah01	Z
	6886.8	2.			−0.4	4						89Ha27	
^{249}Fm(α)^{245}Cf^p	7663.3	20.	7658	15	−0.3	4						73Es01	
	7650.1	23.			0.3	4				GSa		85He06	
^{249}Md(α)^{245}Es^p	8161.3	20.	8163	14	0.1	5						73Es01	
	8157.3	20.			0.3	U				GSa		85He22	
	8165	20			−0.1	5				GSa		01He35	*

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
^{249}Md^m(α)^{245}Es^q	8212.2	20.				7			GSa		01He35	
^{248}Cm(n,γ)^{249}Cm	4713.37	0.25				2			ILn		82Ho07	Z
^{249}Bk(β^-)^{249}Cf	125	2	124.0	1.4	−0.5	4					59Va02	
	123	2			0.5	4					74Gl10	
∗^{249}Bk(α)^{245}Am	E(α)=5431.8, 5412.8, 5384.8(all 2,Z) to gs, 19.20, 47.07 levels										NDS929	∗∗
∗^{249}Bk(α)^{245}Am	E(α)=5437.1(1.0,Z) to ground-state. Energies of higher branches										71BaB2	∗∗
∗	rather different from ref, calibrated with same ground-state α										75Ba27	∗∗
∗^{249}Cf(α)^{245}Cm	E(α)=6193.8(0.7,Z), 5813.3(1.0,Z) to ground-state, 388.18 level										NDS929	∗∗
∗^{249}Md(α)^{245}Es^p	E(α)=8022(20) partly sum with conversion electrons										01He35	∗∗
^{250}Cf(α)^{246}Cm	6129.1	0.6	6128.44	0.19	−1.1	2			Kum		71BaB2	
	6128.44	0.2			0.4	2					86Ry04	Z
^{250}Fm(α)^{246}Cf	7540.7	30.	7557	12	0.5	4					66Ak01	
	7561.1	30.			−0.1	4					73Es01	
	7560.1	15.			−0.2	4					77Be36	
	7556.0	35.			0.0	4					81Mu06	
^{250}Md(α)^{246}Es^p	7947.4	30.	7959	17	0.4	7					73Es01	
	7964.7	20.			−0.3	7					85He22	
^{248}Cm(t,p)^{250}Cm	2064	10				2					73Ba72	
^{251}Cf(α)^{247}Cm	6175.8	1.0				2			Kum		71BaB2	∗
^{251}Es(α)^{247}Bk	6593.5	5.	6596.7	2.6	0.6	3					70Ah01	∗
	6597.8	3.			−0.4	3					79Ah03	∗
^{251}Fm(α)^{247}Cf	7425.1	2.0				4					73Ah02	∗
^{251}Md(α)^{247}Es^p	7672.5	20.				7					73Es01	
^{251}No(α)^{247}Fm^p	8739.5	20.	8757	9	0.8	8			Bka		67Gh01	
	8732.4	15.			1.6	U			GSa		89He03	
	8762.9	20.			−0.3	o			GSa		97He29	
	8760.9	20.			−0.4	8			GSa		01He35	
^{251}No^m(α)^{247}Fm^q	8619.6	30.				8			GSa		97He29	∗
^{251}Cm(β^-)^{251}Bk	1420	20				4					78Lo13	
^{251}Bk(β^-)^{251}Cf	1093	10				3					84Li05	
∗^{251}Cf(α)^{247}Cm	E(α)=5680.1(1.0,Z) to 403.6(1.0) level										NDS926	∗∗
∗^{251}Es(α)^{247}Bk	E(α)=6488.5(5,Z), 6458.5(5,Z) to ground-state, 29.9 level										NDS926	∗∗
∗^{251}Es(α)^{247}Bk	E(α)=6492.8(3,Z), 6462.8(3,Z) to ground-state, 29.9 level										NDS926	∗∗
∗^{251}Fm(α)^{247}Cf	E(α)=7305.7(3,Z), 6833.7(2,Z) to ground-state and 480.4 level										NDS926	∗∗
∗^{251}No^m(α)^{247}Fm^q	Only 2 cases. See ^{255}Rf^m(α)										97He29	∗∗
∗^{251}No^m(α)^{247}Fm^q	Not found in later work on ^{251}No decay										01He35	∗∗
^{252}Cf(α)^{248}Cm	6216.95	0.04				2					86Ry04	Z
^{252}Es(α)^{248}Bk^p	6739.5	3.				4					73Fi06	∗
^{252}Fm(α)^{248}Cf	7152.7	2.				4					84Ah02	∗
^{252}No(α)^{248}Fm	8545.9	20.	8550	6	0.2	U					67Gh01	
	8551.0	6.			−0.2	7					77Be09	
	8542.8	15.			0.5	7					85He.A	
^{252}Lr(α)^{248}Md^p	9163.8	20.				11			GSa		01He35	
^{252}Es(ε)^{252}Cf	1260	50				3					73Fi06	∗
∗^{252}Es(α)^{248}Bk^p	E(α)=6632.1(3,Z), 6522.1(3,Z) to 0, 70.64 above ^{248}Bk^p										NDS898	∗∗
∗^{252}Fm(α)^{248}Cf	E(α)=7038.9(2,Z), 6998.1(2,Z) to ground-state, 41.53 level										NDS902	∗∗
∗^{252}Es(ε)^{252}Cf	pK to 969.83 level, recalculated for non-unique first forbidden or										AHW	∗∗
∗	allowed transition; unique first forbidden would give 1440(100)										AHW	∗∗
^{253}Cf(α)^{249}Cm	6127.3	5.	6126	4	−0.3	3					66Rg01	∗
	6124.6	5.			0.3	3					68Be21	∗
^{253}Es(α)^{249}Bk	6739.24	0.05				5					71Gr17	Z

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
$^{253}\mathrm{Fm}(\alpha)^{249}\mathrm{Cf}$	7199	3				4					67Ah02	*
$^{253}\mathrm{No}(\alpha)^{249}\mathrm{Fm}$	8419	20	8421	8	0.1	5			Bka		67Gh01	*
	8419	30			0.1	5					67Mi03	*
	8430	20			−0.4	5					85He.A	*
	8420	10			0.1	5					01He.A	*
$^{253}\mathrm{Lr}(\alpha)^{249}\mathrm{Md}$	8941.6	20.	8937	9	−0.2	6			GSa		85He22	
	8935.6	10.			0.1	6			GSa		01He35	
$^{253}\mathrm{Lr}^m(\alpha)^{249}\mathrm{Md}^m$	8862.4	20.	8862	9	0.0	7			GSa		85He22	
	8862.4	10.			0.0	7			GSa		01He35	
$*^{253}\mathrm{Cf}(\alpha)^{249}\mathrm{Cm}$	E(α)=5981(5,Z) to 48.74 level										NDS902	**
$*^{253}\mathrm{Cf}(\alpha)^{249}\mathrm{Cm}$	E(α)=5978.4(5,Z), 5920.4(5,Z) to 48.74, 110.16 levels										NDS902	**
$*^{253}\mathrm{Fm}(\alpha)^{249}\mathrm{Cf}$	E(α)=7083.2(4,Z), 6943.2(3,Z), 6846.2(3,Z), 6673.2(3,Z)										67Ah02	**
*	to ground-state and levels at 144.98, 243.13, 416.8										NDS99a	**
$*^{253}\mathrm{No}(\alpha)^{249}\mathrm{Fm}$	E(α)=8010(20) to 280.3 level										01He.A	**
$*^{253}\mathrm{No}(\alpha)^{249}\mathrm{Fm}$	E(α)=8010(30) to 280.3 level										01He.A	**
$*^{253}\mathrm{No}(\alpha)^{249}\mathrm{Fm}$	E(α)=8021(20) to 280.3 level										01He.A	**
$*^{253}\mathrm{No}(\alpha)^{249}\mathrm{Fm}$	E(α)=8011(10) to 280.3 level										01He.A	**
$^{254}\mathrm{Cf}(\alpha)^{250}\mathrm{Cm}$	5926.9	5.				3					68Be21	Z
$^{254}\mathrm{Es}(\alpha)^{250}\mathrm{Bk}$	6615.7	1.5				6					72BaD2	*
$^{254}\mathrm{Es}(\alpha)^{250}\mathrm{Bk}^n$	6531.6	1.5				7					72BaD2	Z
$^{254}\mathrm{Es}^m(\alpha)^{250}\mathrm{Bk}$	6699.9	2.0				5					73Ah04	*
$^{254}\mathrm{Fm}(\alpha)^{250}\mathrm{Cf}$	7306.8	5.	7307.5	1.9	0.2	3			Bka		64As01	Z
	7307.6	2.			−0.1	3					84Ah02	*
$^{254}\mathrm{No}(\alpha)^{250}\mathrm{Fm}$	8229.8	20.	8226	13	−0.2	5					67Gh01	
	8240.0	30.			−0.5	5					67Mi03	
	8215.6	20.			0.5	5					85He22	
$^{254}\mathrm{Lr}(\alpha)^{250}\mathrm{Md}^p$	8595.6	20.	8596	14	0.0	9					85He22	
	8595.6	20.			0.0	9					01Ga20	
$^{254}\mathrm{Es}^m(\beta^-)^{254}\mathrm{Fm}$	1172	2				4					62Un01	
$*^{254}\mathrm{Es}(\alpha)^{250}\mathrm{Bk}$	E(α)=6415.4(1.5,Z) to 97.493 level										NDS898	**
$*^{254}\mathrm{Es}^m(\alpha)^{250}\mathrm{Bk}$	E(α)=6558.9(2,Z), 6383.9(2,Z) to 35.587, 211.822 levels										NDS898	**
$*^{254}\mathrm{Fm}(\alpha)^{250}\mathrm{Cf}$	E(α)=7192.3(2,Z), 7150.3(2,Z) to ground-state, 42.721 level										NDS019	**
$^{255}\mathrm{Es}(\alpha)^{251}\mathrm{Bk}$	6439.3	3.0	6436.3	1.3	−1.0	4					66Rg01	*
	6435.6	1.5			0.5	4			Kum		71BaB2	*
$^{255}\mathrm{Fm}(\alpha)^{251}\mathrm{Cf}$	7237.0	4.	7239.7	1.8	0.7	3					64As01	*
	7240.4	2.			−0.3	3					75Ah01	*
$^{255}\mathrm{Md}(\alpha)^{251}\mathrm{Es}$	7901.8	5.	7905.9	2.6	0.8	4					70Fi12	*
	7910.7	5.			−1.0	4					71Ho16	*
	7905.4	4.			0.1	4			ARa		00Ah02	*
$^{255}\mathrm{No}(\alpha)^{251}\mathrm{Fm}$	8442	6				5					71Di03	*
	8422	20	8442	6	1.0	U			GSa		98Ho13	*
$^{255}\mathrm{Lr}(\alpha)^{251}\mathrm{Md}^p$	8563.6	18.	8555	15	−0.5	9					76Be.A	*
	8442.7	50.			2.3	F			Bka		95Gh04	*
	8532.6	30.			0.8	9					01Ga20	*
$^{255}\mathrm{Rf}(\alpha)^{251}\mathrm{No}$	9042	20	9058	9	0.8	9			Bka		69Gh01	*
	9053	15			0.3	o			GSa		85He06	*
	9064	20			−0.3	o			GSa		97He29	*
	9062	10			−0.4	9			GSa		01He35	*
$^{255}\mathrm{Rf}^m(\alpha)^{251}\mathrm{No}^m$	8864.3	15.				9			GSa		97He29	*
$*^{255}\mathrm{Es}(\alpha)^{251}\mathrm{Bk}$	E(α)=6303(3,Z) to 35.7(0.3) level										NDS902	**
$*^{255}\mathrm{Es}(\alpha)^{251}\mathrm{Bk}$	E(α)=6299.3(1.5,Z) to 35.7(0.3) level										NDS	**
$*^{255}\mathrm{Fm}(\alpha)^{251}\mathrm{Cf}$	E(α)=7121.5, 7018.5(4,Z) to ground-state, 106.30 level										NDS902	**
$*^{255}\mathrm{Fm}(\alpha)^{251}\mathrm{Cf}$	E(α)=7126.8, 7021.8(2,Z) to ground-state, 106.30 level										NDS902	**
$*^{255}\mathrm{Md}(\alpha)^{251}\mathrm{Es}$	E(α)=7323.5(5,Z) to 461.40 level										NDS99a	**
$*^{255}\mathrm{Md}(\alpha)^{251}\mathrm{Es}$	E(α)=7332.3(5,Z) to 461.40 level										NDS99a	**
$*^{255}\mathrm{Md}(\alpha)^{251}\mathrm{Es}$	E(α)=7327(4) to 461.40 level										NDS99a	**
$*^{255}\mathrm{No}(\alpha)^{251}\mathrm{Fm}$	E(α)=8312(9), 8121(6) to gs and 191(2)										NDS99a	**
$*^{255}\mathrm{Lr}(\alpha)^{251}\mathrm{Md}^p$	E(α)=8429(18); and a more intense 8370(18) branch										76Be.A	**
$*^{255}\mathrm{Lr}(\alpha)^{251}\mathrm{Md}^p$	One case in a questionable ^{279}Ea decay chain										AHW	**

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference
*^{255}Lr(α)^{251}Md^{p}	E(α)=8400(30); and a more intense 8360(30) branch										76Be.A **
*^{255}Rf(α)^{251}No	E(α)=8700(20) to 203 level										01He35 **
*^{255}Rf(α)^{251}No	E(α)=8766(15), 8715(15) to 142, 203 levels,										01He35 **
*^{255}Rf(α)^{251}No	E(α)=8905(20), 8739(20) to ground-state, 203 level										01He35 **
*^{255}Rf(α)^{251}No	E(α)=8722(10) to 203(3) level										01He35 **
*^{255}Rf^{m}(α)^{251}No^{m}	Tentative assignment; correlateds with ^{251}No^{m}										97He29 **
*	not found in later work on ^{251}No decay										01He35 **
^{256}Fm(α)^{252}Cf	7027.3	5.				3					68Ho13 Z
^{256}Md(α)^{252}Es	7896.6	16.				4					93Mo18
^{256}No(α)^{252}Fm	8578.3	12.	8581	5	0.3	5					81Be03
	8582.3	6.			−0.1	5					90Ho03
^{256}Lr(α)^{252}Md^{p}	8787.6	20.	8777	13	−0.5	4					71Es01
	8761.1	25.			0.6	4					76Be.A
	8777.4	20.			0.0	4					76Di.A
^{256}Rf(α)^{252}No	8952.1	23.	8930	20	−1.0	o			GSa		85He06
	8929.8	20.				8			GSa		97He29
^{256}Db(α)^{252}Lr^{p}	9157.4	20.				13			Gsa		01He35
^{256}Lr^{p}(IT)^{256}Lr	100	70				5					AHW *
*^{256}Lr^{p}(IT)^{256}Lr	L X−rays following α rays seen by ref.										77Be36 **
^{257}Fm(α)^{253}Cf	6862.7	2.	6863.5	1.4	0.4	4			Bka		67As02 *
	6864.4	2.			−0.4	4					82Ah01 *
^{257}Md(α)^{253}Es	7557.6	1.				6					93Mo18 *
^{257}No(α)^{253}Fm	8451.8	30.	8466	21	0.5	5					70Es02
	8480	30			−0.5	5			GSa		96Ho13 *
^{257}Lr(α)^{253}Md^{p}	9020.8	20.	9009	9	−0.6	4					71Es01
	9001.3	12.			0.7	4					76Be.A
	9014.0	15.			−0.4	4			GSa		97He29
^{257}Rf(α)^{253}No	9044.0	15.				6			GSa		97He29
^{257}Rf(α)^{253}No^{m}	8913.0	15.	8915	11	0.2	7			ORb		73Be33
	8918.1	15.			−0.2	7			GSa		97He29
^{257}Rf^{m}(α)^{253}No	9142.5	20.	9157	7	0.7	U			Bka		69Gh01
	9158.8	15.			−0.1	o			ORb		73Be33
	9155.8	8.			0.2	6			ORb		90Be.A
	9163.9	15.			−0.4	6			GSa		97He29
^{257}Db(α)^{253}Lr	9112.1	20.	9230	15	5.9	F			GSa		85He22
	9230	15				7			GSa		01He35 *
^{257}Db^{m}(α)^{253}Lr^{m}	9305.1	20.	9308	10	0.2	o			GSa		85He22
	9308.2	10.				8			GSa		01He35
*^{257}Fm(α)^{253}Cf	E(α)=6518.5(2,Z) to 241.01 level										NDS99a**
*^{257}Fm(α)^{253}Cf	E(α)=6756.5(3,Z), 6520.5(2,Z) to gs, 241.01 level										NDS99a**
*^{257}Md(α)^{253}Es	E(α)=7440(2), 7074(1) to ground-state, 371.4 level										93Mo18**
*^{257}No(α)^{253}Fm	E(α)=8340(20); one event only; may be summing with e^{-}										AHW **
*^{257}Db(α)^{253}Lr	E(α)=9074(10) partly sum with conversion e^{-}										01He35 **
^{258}Md(α)^{254}Es	7266.8	5.	7271.3	1.9	0.9	7					70Fi12 *
	7272	2			−0.4	7					93Mo18 *
^{258}Lr(α)^{254}Md	8870	50	8900	20	0.6	F					76Be.A *
	8900	20				5					88Gr30 *
^{258}Db(α)^{254}Lr^{p}	9445.7	15.	9446	12	0.0	11					85He22
	9531.0	50.			−1.7	U			GSa		97Ho14
	9446.8	20.			0.0	11					01Ga20
*^{258}Md(α)^{254}Es	E(α)=6713(5) to 447.9 level										93Mo18**
*^{258}Md(α)^{254}Es	E(α)=6763(4), 6718(2) to 403.8, 447.9 levels										93Mo18**
*^{258}Lr(α)^{254}Md	E(α)=8648(10) is concident with X(L) not X(K) $->$ E(γ)=90(50)										AHW **
*^{258}Lr(α)^{254}Md	E(α)=8752 found as sum energies α-rays and conversion electrons										AHW **
*^{258}Lr(α)^{254}Md	Mass assignment confirmed										92Gr02 **

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	F	Reference	
$^{259}\mathrm{No}(\alpha)^{255}\mathrm{Fm}^{p}$	7617.8	10.	7635	4	1.7	5					73Si40	*
	7638.2	4.			−0.7	5					93Mo18	*
$^{259}\mathrm{Lr}(\alpha)^{255}\mathrm{Md}^{p}$	8582.8	20.	8574	9	−0.4	6					71Es01	
	8571.6	10.			0.2	6					92Ha22	
	8577.7	29.			−0.1	U					92Kr01	
$^{259}\mathrm{Rf}(\alpha)^{255}\mathrm{No}^{p}$	8999.2	20.	9021	12	1.1	7					69Gh01	
	9030	20			−0.4	7					81Be03	*
	9034.7	20.			−0.7	7			GSa		98Ho13	
$^{259}\mathrm{Db}(\alpha)^{255}\mathrm{Lr}$	9618.8	20.				10					01Ga20	
$^{259}\mathrm{Sg}(\alpha)^{255}\mathrm{Rf}$	9834	30				10					85Mu11	*
$*^{259}\mathrm{No}(\alpha)^{255}\mathrm{Fm}^{p}$	Favored E(α); highest seen 7685(10)										73Si40	**
$*^{259}\mathrm{No}(\alpha)^{255}\mathrm{Fm}^{p}$	Or E(favored)=7551(4) if Coriolis mixed										NDS902	**
$*^{259}\mathrm{Rf}(\alpha)^{255}\mathrm{No}^{p}$	E(α)=8870(20); partly sum E(α)=8770(20) with e^-										AHW	**
$*^{259}\mathrm{Sg}(\alpha)^{255}\mathrm{Rf}$	E(α)=9620(30) probably to 9/2 63(10) above 7/2 ground-state										AHW	**
$*^{259}\mathrm{Sg}(\alpha)^{255}\mathrm{Rf}$	E(α)=9030(50) maybe unhindered to $^{255}\mathrm{Rf}^{p}$ Nm level at 660(60)										AHW	**
$^{260}\mathrm{Lr}(\alpha)^{256}\mathrm{Md}^{p}$	8155.0	20.				6					71Es01	
$^{260}\mathrm{Db}(\alpha)^{256}\mathrm{Lr}^{p}$	9283.1	20.	9278	10	−0.2	6					70Gh02	
	9262.8	17.			0.9	6					77Be36	
	9289.2	20.			−0.5	6			GSa		95Ho04	*
	9285.1	20.			−0.3	6			GSa		02Ho11	*
$^{260}\mathrm{Sg}(\alpha)^{256}\mathrm{Rf}$	9923.0	30.				9					85Mu11	
$*^{260}\mathrm{Db}(\alpha)^{256}\mathrm{Lr}^{p}$	Event #2. Also event #3 E(α)=9200										95Ho04	**
$*^{260}\mathrm{Db}(\alpha)^{256}\mathrm{Lr}^{p}$	Two events E(α)=9156 and 9129										02Ho11	**
$^{261}\mathrm{Rf}(\alpha)^{257}\mathrm{No}$	8652.8	20.	8650	19	−0.1	o			GSa		96Ho13	
	8632.6	50.			0.3	6			PSa		01Tu.B	
	8652.8	20.			−0.1	6			GSa		02Ho11	
$^{261}\mathrm{Rf}^{m}(\alpha)^{257}\mathrm{No}^{p}$	8409.1	20.	8409	15	0.0	8			Bka		70Gh01	
	8388.8	30.			0.7	8			GSa		98Tu01	*
	8429.5	30.			−0.7	8			Dba		00La34	
$^{261}\mathrm{Db}(\alpha)^{257}\mathrm{Lr}^{p}$	9069.2	20.				6					71Gh01	
$^{261}\mathrm{Sg}(\alpha)^{257}\mathrm{Rf}^{p}$	9709.0	30.	9703	17	−0.2	8					85Mu11	
	9700.0	20.			0.1	8					95Ho03	
$^{261}\mathrm{Bh}(\alpha)^{257}\mathrm{Db}$	10562.1	25.				8					89Mu09	
$*^{261}\mathrm{Rf}^{m}(\alpha)^{257}\mathrm{No}^{p}$	In addition 60% E(α)=8380(30)										98Tu01	**
$^{262}\mathrm{Db}(\alpha)^{258}\mathrm{Lr}^{p}$	8794.5	20.	8805	12	0.5	7					71Gh01	
	8815.8	20.			−0.5	7					88Gr30	
	8804.7	20.			0.0	7			GSa		99Dr09	
$^{262}\mathrm{Bh}(\alpha)^{258}\mathrm{Db}$	10216.2	25.	10300	25	3.4	B					89Mu09	*
	10300.0	25.				12			GSa		97Ho14	
$^{262}\mathrm{Bh}^{m}(\alpha)^{258}\mathrm{Db}$	10531.1	25.	10610	50	1.5	B					89Mu09	*
	10605.3	25.				12			GSa		97Ho14	
$*^{262}\mathrm{Bh}(\alpha)^{258}\mathrm{Db}$	B: not highest line, see ref.										97Ho14	**
$*^{262}\mathrm{Bh}^{m}(\alpha)^{258}\mathrm{Db}$	B: not highest line, see ref.										97Ho14	**
$^{263}\mathrm{Rf}(\alpha)^{259}\mathrm{No}^{p}$	8022	40	8022	29	0.0	7					93Gr.C	
	8022	40			0.0	7					99Ga.A	
$^{263}\mathrm{Db}(\alpha)^{259}\mathrm{Lr}^{p}$	8484.3	27.				8					92Kr01	
$^{263}\mathrm{Sg}(\alpha)^{259}\mathrm{Rf}^{q}$	9200.2	40.	9180	30	−0.4	11					74Gh04	
	9149.2	60.			0.6	11					94Gr08	
$^{263}\mathrm{Sg}^{m}(\alpha)^{259}\mathrm{Rf}^{p}$	9393.1	40.	9391	18	0.0	9					74Gh04	
	9391.1	20.			0.0	9			GSa		98Ho13	

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	*F*	Reference	
^{264}Bh(α)^{260}Db^{p}	9767.3	20.				8			GSa		95Ho04	*
^{264}Hs(α)^{260}Sg	10870	210	10591	20	−1.3	U					87Mu15	*
	10590.5	20.				10					95Ho.B	
*^{264}Bh(α)^{260}Db^{p}	Three more events in ref. E(α)=9365, 9514 and 9113										02Ho11	**
*^{264}Hs(α)^{260}Sg	Q(α)=11000(+100–300) from T(1/2), one event only										87Mu15	**
^{265}Sg(α)^{261}Rf	8904.7	30.	9080	50	3.5	F			GSa		96Ho13	*
	9077.3	30.				7			GSa		98Tu01	
^{265}Sg(α)^{261}Rf^{p}	8945.3	60.	8980	30	0.5	F			Dba		94La22	*
	8975.7	30.				8			GSa		98Tu01	*
^{265}Hs(α)^{261}Sg	10586.2	15.				9			GSa		99He11	
^{265}Hs(α)^{261}Sg^{p}	10524.2	25.	10459	15	−2.6	o			GSa		87Mu15	
	10468.3	20.			−0.5	o			GSa		95Ho03	
	10459.2	15.				10			GSa		99He11	
^{265}Hs^{m}(α)^{261}Sg	10890.8	15.				9			GSa		99He11	
^{265}Hs^{m}(α)^{261}Sg^{q}	10712.0	20.	10734	15	1.1	o			GSa		95Ho03	
	10733.4	15.				10			GSa		99He11	
*^{265}Sg(α)^{261}Rf	F: this event is distrusted, see ref.										02Ho11	**
*^{265}Sg(α)^{261}Rf^{p}	Average but probably due to several groups, see ref.										98Tu01	**
*^{265}Sg(α)^{261}Rf^{p}	Strongest group; may be unhindered one. There is a 100 higher E(α)										98Tu01	**
^{266}Sg(α)^{262}Rf	8762.0	50.	8880	30	2.4	F			Dba		94La22	*
	8904.1	40.			−0.5	6			GSa		98Tu01	
	8853.4	50.			0.6	6			GSa		02Tu05	
^{266}Bh(α)^{262}Db^{p}	9432	50				9			Bka		00Wi15	
^{266}Hs(α)^{262}Sg	10335.9	20.				8			GSa		01Ho06	
^{266}Mt(α)^{262}Bh	10995.7	25.				13			GSa		97Ho14	
^{266}Mt^{m}(α)^{262}Bh^{m}	11269.7	50.	11920	50	13.0	F			GSa		84Mu07	*
	11168.1	30.			25.0	F					89Mu16	
	11918.6	50.				13			GSa		97Ho14	*
*^{266}Sg(α)^{262}Rf	Average of two groups										02Tu05	**
*^{266}Mt^{m}(α)^{262}Bh^{m}	One E(α) only; may be gs										AHW	**
*^{266}Mt^{m}(α)^{262}Bh^{m}	One E(α)=11739, one 11306; several smaller										AHW	**
^{267}Bh(α)^{263}Db^{p}	8965	30	8970	26	0.2	10			Bka		00Wi15	
	8985	50			−0.3	10			Bka		02Tu05	
^{267}Hs(α)^{263}Sg^{m}	9970	40	10020	18	1.2	10			Dba		95La20	
	10032.6	20.			−0.6	10			GSa		98Ho13	
^{267}Ea(α)^{263}Hs^{p}	11776.5	50.				13					95Gh04	
^{268}Mt(α)^{264}Bh^{p}	10395.5	20.	10432	20	1.8	o			GSa		95Ho04	*
	10432.1	20.				10			GSa		02Ho11	*
*^{268}Mt(α)^{264}Bh^{p}	Two events E(α)=10221 coinc. E(γ)=93 and 10259; event #3 E(α)=10097										95Ho04	**
*	could be decay of an isomer with lifetime=171 ms										02Ho11	**
*^{268}Mt(α)^{264}Bh^{p}	Average of event 1995Ho04 E(α)=10259 and present 10294										02Ho11	**
^{269}Hs(α)^{265}Sg^{p}	9369.6	30.	9330	16	−1.3	9			GSa		96Ho13	*
	9288.4	50.			0.8	9					01Tu.B	*
	9318.7	20.			0.5	9			GSa		02Ho11	
^{269}Ea(α)^{265}Hs^{m}	11280.1	20.				10					95Ho03	
*^{269}Hs(α)^{265}Sg^{p}	Event number 2 only; first event rejected, see ref.										02Ho11	**
*^{269}Hs(α)^{265}Sg^{p}	Three events E(α)=9180, 9110, 8880										01Tu.B	**
^{270}Hs(α)^{266}Sg	9298.0	30.				7					01Tu.B	*
^{270}Ea(α)^{266}Hs	11196	50				9			GSa		01Ho06	
^{270}Ea^{m}(α)^{266}Hs	12333	50				9			Gsa		01Ho06	
*^{270}Hs(α)^{266}Sg	Also E(α)=8970										01Tu.B	**

Item	Input value		Adjusted value		v_i	Dg	Sig	Main flux	Lab	*F*	Reference
^{271}Ea(α)^{267}Hs	10869.8	20.				11			GSa		98Ho13
^{271}Ea^{m}(α)^{267}Hs	10899.2	20.				11			GSa		98Ho13
^{272}Eb(α)^{268}Mt^{p}	10981.9	20.	11192	20	10.5	B			GSa		95Ho04 *
	11192.0	30.				12			GSa		02Ho11 *
*^{272}Eb(α)^{268}Mt^{p}	B: one event only; E(K) in coinc. may explain discrepancy										GAu **
*^{272}Eb(α)^{268}Mt^{p}	Two events Ea=11008 and 11046										02Ho11**
^{273}Ea(α)^{269}Hs	9875.0	20.	11370	50	74.6	F			GSa		96Ho13 *
	11519.1	60.			–3.0	B			Dba		96La12
	11367.9	20.				10			GSa		02Ho11
*^{273}Ea(α)^{269}Hs	F: this event is distrusted, see ref.										02Ho11**
^{277}Ec(α)^{273}Ea	11622.2	30.				11			GSa		96Ho13
	11821.0	30.	11620	30	–6.6	F			GSa		96Ho13 *
^{277}Ec(α)^{273}Ea^{p}	11334.0	20.				12			GSa		02Ho11
*^{277}Ec(α)^{273}Ea	F: this event is distrusted, see ref.										02Ho11**
^{281}Ea(α)^{277}Hs	8957.8	180.				4			Dba		99Og10
^{284}Ec(α)^{280}Ea	9302.3	50.				9			Dba		01Og01
^{285}Ec(α)^{281}Ea	8793.7	50.				5			Dba		99Og10
^{287}Ee(α)^{283}Ec	10435.8	20.				13			Dba		99Og07
^{288}Ee(α)^{284}Ec	9968.8	50.				10			Dba		01Og01
^{289}Ee(α)^{285}Ec	9846.6	50.				6			Dba		99Og10
^{292}Eg(α)^{288}Ee	10707.0	50.				11			Dba		01Og01