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ENDF/B-IV CROSS SECTION MEASUREMENT STANDARDS

B.A MAGURNO



April 1975

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NATIONAL NEUTRON CROSS SECTION CENTER

BROOKHAVEN NATIONAL LABORATORY

ASSOCIATED UNIVERSITIES, INC.

UNDER CONTRACT NO. E(50-1)-16 WITH THE

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UNITED STATES ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

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I. Introduction

This report contains a brief description of the cross sections in the Evaluated Nuclear Data File (ENDF/B) designated as standards by the Normalization and Standards Subcommittee of the Cross Section Evaluation Working Group (CSEWG). The Subcommittee met at Los Alamos Scientific Laboratory (LASL) on March 26-27, 1973 to review the status of and make recommendations regarding the measurements standards cross section to be included in Version IV. The conclusions of this meeting are reflected in the summary documentation.

In most cases, only limited documentation is available at this time. Completed documentation is referenced where available, and detailed summaries of the up-dated standards should be available from the authors in the near future. This report is intended to provide background information at this time for the recently issued library. These data are available on request from the four international neutron data centers^{*}. Each standard described here (excepting carbon) includes at least the File 1 comments (i.e., the Hollorith description appearing on the File (MF=1 MT= 451), the data listing of the reaction considered a standard, and graphical comparisons of the evaluation with selected experimental data.

Table I lists the standards cross sections, the energy range as defined by the Normalization and Standards Subcommittee, MAT number, reaction type, and responsible laboratory. The laboratory for the $\frac{235}{92}$ U(n,f) is listed only as "Task Force", and will be explained in section II-G of this report.

*(See overleaf)

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Neutron Data Centers

* Nuclear Data Section I.A.E.A. Karntner Ring A-1010 Vienna AUSTRIA NEA Neutron Data Compilation Centre B.P. 9 91190 Gif-sur-Yvette FRANCE U.S.S.R. Obninsk Kaluga Region Institute of Physics & Energetics National Neutron Cross Section Center Brookhaven National Laboratory Associated Universities, Inc. Upton, L.I., N.Y. 11973

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TABLE I

<u>Material</u>	<u>MAT#</u>	Reaction Type	Energy Range	LAB
Ън	1269	σ n,n	1 keV - 20 MeV	LASL
		σ _Θ	1 - 20 MeV	
³ Не	1146	σ,,p	1 keV - 50 keV	LASL
6 _{Li}	1271	σ n,α	Thr - 100 keV	LASL
10 _B	1273	σ n,α	Thr - 100 keV	LASL
¹² C	1274	σ _e	l keV - 2 MeV	ORNL.
197 _{Au}	1283	σ n , γ	Thr; 10 keV - 1 MeV	BNL
235 _U	1261	$\sigma_{n,f}$	Thr; 100 keV - 20 MeV	Task Force

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- II Description of Recommended Standards
- A. <u>Hydrogen Total and Differential Elastic Scattering Cross</u> <u>Sections</u>.
 L. Stewart, R.J. LaBauve and P.G. Young, Los Alamos Scientific Laboratory

MAT. No. = 1269.

Recommended Energy Range 1 keV - 20 MeV

The recommended cross section covers the energy range 1 keV-20 MeV. It is the same evaluation as ENDF/B-III, but $\sigma_{\rm T}$ has been regenerated to a higher precision. It should be noted that two new experiments have been carried out since the appearance of the Version-III evaluation, those of Clement et.al.⁽¹⁾ (R.P.I) and Heaton et.al.⁽²⁾(NBS). The Normalization and Standards Subcommittee felt that the new data did not add to the knowledge of the total cross section at the 1% accuracy level. Fig. I shows these two data sets compared with the ENDF/B-IV evaluation.

The total cross section is taken as the sum of the elastic scattering and radiative capture cross sections. The elastic scattering cross section was obtained from a theoretical analysis by Hopkins and Breit. $^{(3)}$ A set of phase shifts obtained by Seamon et.al., $^{(4)}$ was used in this analysis.

The recommended differential elastic scattering covers the energy range 1-20 MeV and was also obtained from the Hopkins and Breit phase shifts.⁽³⁾ Additional low and intermediate energy points were calculated for the Version IV data.

- 1. Clement and Stoler, Nuc. Phys/A 183, 51, 1972.
- Heaton et.al., P.C. 1971. Schwartz et.al., NBS Monograph 138, 1974.
- 3. Hopkins and Breit, Nuc. Data A9, 137, 1971.
- 4. Seamon et.al., Phys. Rev. 165, 1579, 1968.





Β.

³He(n,p) Cross Section

L. Stewart, Los Alamos Scientific Laboratory. MAT. No. = 1146 Recommended Energy Range Thr-50 keV.

This material was transferred from ENDF/B-III with no modifications. The preliminary description below is extracted and reproduced from the Version-III Standards Report BNL 17188.⁽¹⁾

"Although this material contains all of the cross section data for 3 He, only the (n,p) cross section from 1.0×10^{-5} eV to 50.0 keV represents the recommended standard cross section.

Below one keV, the (n,p) cross section was assumed to vary as 1/v and normalized to 5327 barns at 0.0253 eV. This value was obtained from the measurement by Als-Nielsen and Dietrich.⁽²⁾ The thermal cross section is believed to be known to within one percent.

Between 1 keV and 50 keV, the recommended standard cross section was based on the corrected results from a measurement made by Gibbons and Macklin. $^{(3)}$ Below 10 keV, the recommended (n,p) is believed to be known to within 3%. Above 10 keV, the uncertainty in the recommended cross section rapidly increases beyond the desired three percent. Figure II shows the recommended cross section."

- 1. M.K. Drake, BNL 17188 (ENDF-179) July 1972.
- 2. Als-Nielsen and Dietrich, Phys. Rev. 133B, 925, 1904.
- 3. Gibbons and Macklin, Phys. Rev. 114, 571, 1959.
- 4. Batchelor et.al., Rev. Sci. Inst. 27, 1037, 1955.









C.

6 Li(n, α)³H Cross Section

G. M. Hale, D. Dodder, P.G. Young, and L. Stewart, Los Alamos Scientific Laboratory MAT. No. = 1271

Recommended Energy Range Thr.-100 keV; $\sigma_{2200} = 940.00$ b.

The ENDF/B-IV cross section set is based on a multi-level, multi-channel R-MATKIX analysis of the total, elastic, and (n, alpha) cross sections for energies up to 2 MeV and is briefly described in the Hollorith section (MF=1, MT=451) of the Lithium-6 data set on pages 63-66. The $\sigma_{n,\alpha}$ cross section evaluation is plotted in Fig.III, and compared to experimental data. The references are listed immediately following Fig.III. It can be seen from Fig.III, that there is excellent agreement between the experimental data and the evaluation up to 50 keV. Above 50 keV the evaluation lies between the data of Friesenhahn, ⁽¹⁾ and the data sets of Fort, ⁽²⁾ and Coates. ⁽³⁾ The disagreement across the 243 keV resonance precludes the use of this cross section as a standard above 100 keV at this time.

- 1. Friesenhahn et.al., INTEL-RT-7011, 1974.
- 2. M.S. Coates, Priv. Comm., 1973.
- 3. Fort et.al., EANDC-(E)-148 1972.



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REFERENCES FOR EXPERIMENTAL DATA

$\frac{6}{Li(n,t)}$

<u>Yr.</u>	Lab	<u>Author</u>	References
74	GRT	Friesenhahn, et al.	INTEL-RT-7011 (1974)
74	ANL	Foenitz	Priv. Comm. (1974)
73	HAR	Coates	Priv. Comm. (1973)
7.2	CAD	Fort, et al.	EANDC-(E)-148 (1972)
72	HAR	Ciements, et al.	AERE-R-7075 (1972)
67	R3Z	Rendic, et al.	ZFK- <u>130</u> , 143 (1967)
67	ALD	Cox, et al.	J. Nuc. En. <u>21</u> , 271 (1967)
66	ALD	Barry	Conf. Neutron Cross Sections and Tech., Washington D.S. Voll <u>1</u> , 763 (1966)
65	FOA	Conde, et al.	Ark.Fiz. 29, 45 (1965)
65	FOA	Schwartz, et al.	Nuc. Phys. <u>63</u> , 593 (1965)
61	CCP	Mikailina, et al.	Sov. Prog. Nuc. Phys. p.185 (1961)
60	HAM	Bormann, et al.	Zeit. Nat. /A <u>15</u> , 200 (1960)
60	CCP	Perelygin, et al.	At. En. <u>9</u> , 488 (1960)
59	NWU	Pardo, et al.	Bull. Am. Phys. Soc. <u>4</u> , 218 (1959)
59	RIC	Gabbard, et al.	Phys. Rev. <u>114</u> , 201 (1959)
59	LAS	Bame, et al.	Phys. Rev. <u>114</u> , 1580 (1959)
59	ORL	Murray, et al.	Phys. Rev. <u>115</u> , 1707 (1959)
58	NRD	Kern, et al.	Phys. Rev. <u>112</u> , 926 (1958)
57	CCP	Elpidinskii, et al.	At. En./Supp 5, 75 (1957)
56	LAS	Ribe	Phys. Rev. <u>103</u> , 741 (1956)
56	CCP	Gorlov, et al.	Dok. <u>111</u> , 791 (1956)
54	LAS	Frye, Jr.	Phys. Rev. <u>93</u> , 1086 (1954)
54	NWU	Weddell, et al.	Phys. Rev. <u>95</u> , 117 (1954)
52	LAS	Ribe	Phys. Rev. <u>87</u> , 205 (1952)
50	ANL	Blair, et al.	ANL-4515, 7 (1950)

D.

 ${}^{10}B(n,\alpha),(n,\alpha_1\gamma)$ Cross Sections

G.M. Hale, R.A. Nisley and P.G. Young, Los Alamos Scientific Laboratory MAT. No. = 1273

Recommended Energy Range Thr.-100 keV; $\sigma_{2200} = 3836.5$ b.

The ¹⁰B(n, α) cross section (MF=3, MT=107) for ENDF/B-IV, is the sum of ¹⁰B(n, α_0) + ¹⁰B(n, α_1 Y)(MF=3, MT=780, 781). The partial and total cross sections were derived from an R-MATRIX analysis. The analysis is described briefly in the Hollorith section (MF=1, MT=451) of the B-10 data set on pages 70 - 74. The σ_{2200} (n, α_0)=240.51 barns and the $\sigma_{2200}(n, \alpha_1$ Y)=3596.0 bar is yield the σ_{2200} value listed above. The evaluated (n, α), (n, α_1 Y) cross sections are plotted in Fig.IV - V, and compared to selected experimental data. The experimental references are listed immediately following Fig. V. There is excellent agreement in the (n, α) cross section to 100 keV and then the evaluation falls between that of Bichsel⁽¹⁾ and Friesenhaha.⁽²⁾

- 1. Bichsel et.al., Phys. Rev. 108, 1025, 1957.
- 2. Friesenhahn et.al., INTEL-RT.- 7011, 1974.



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REFERENCES FOR EXPERIMENTAL DATA

$\frac{10}{B(n,\alpha)}$

<u>Yr.</u>	Lab	<u>Author</u>	References
74	GRT	Friesenhahn, et al.	INTEL-AT-7011 (1974)
69	LRC	Bogart, et al.	Nuc. Phys./A 125, 463 (1969)
68	ORL	Macklin, et al.	Phys. Rev. <u>165</u> , 1147 (1968)
67	ALD	Cox, et al.	J. Nuc. En. <u>21</u> , 271 (1967)
65	ANL	Mooring, et al.	ANL-6877 (1965)
60	DKE	Bilpuch, et al.	A n. Phys. <u>10</u> , 455 (1960)
57	RIC	Bichsel, et al.	Phys. Rev. <u>108</u> , 1025 (1957)

E. ¹²C Differential Elastic Scattering Cross Section

F.G. Ferey and C.Y. Fu, Oak Ridge National Laboratory MAT. No. - 1274 Recommended Energy Range; 1 keV - 2 MeV

The carbon-12 Differential Elastic Scattering Cross Section below 2 MeV was considered a standard for ENDF/B-III. There were only minor modifications in this energy region from Version III to Version IV. MAT. No. 1274 was incorporated in the Version IV Standards Tape (tape 413) without the scrutiny and recommendations usually afforded a standard material by the Normalization and Standards Subcommittee. Because of the bulk of the file involved, the data set does not appear in the appendices.

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F. ¹⁹⁷Au(n,Y) Cross Section

M. D. Goldberg and S. F. Mughabghab Brookhaven National Laboratory

MAT. No. = 1283

Recommended Energy Range 10 keV-1 MeV; $\sigma_{2200} = 98.8$ b

The Au evaluation has been documented and disseminated in report form; BNL 50439. The part of the evaluation dealing with the capture cross section has been extracted and the salient portion reproduced in the following eleven pages. A detailed plot of the evaluation appears in Fig.VI with selected sets of experimental data. The high energy portion of the curve has been expanded and displayed as Fig.VII. References for the data used on both plots are listed immediately after Fig. VII.

Note that the smooth cross sections in the resolved and unresolved energy regions given in Appendix E page 85 (MF=3, MT=102) are background cross sections and must be added to the cross sections generated from the resonance parameters to complete a resonance profile.

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¹⁹⁷Au(n,γ)¹⁹⁸Au Reaction for ENDF/B-IV*
M.D. Goldberg and S.F. Mughabghab
Brookhaven National Laboratory

The capture cross section in the ENDF/B-IV File below 2 keV is represented by the resonance parameters. In the energy region 2-10 keV, the capture cross section was calculated by using the average resonance parameters specified in File 2 and the code $AVRAGE-4^{(1)}$ which follows the method of Lane and Lynn⁽²⁾ and applies width fluctuation corrections as discussed in their paper. This calculated curve is shown in Fig. 1 compared with the avail-



Figure 1

*Extracted from "Evaluated Neutron Cross Sections of ¹⁹⁷Au" BNL 50439 (ENDF-215) 74, S.F. Mughabghab et al.

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able data in this range and with the ENDF/B-III valves between 1 and 6 keV. (The curve above 10 kev 1s the same as that of Fig. 4.)

For neutron energies greater than 25 keV, a reassessment of the gold capture cross section is required because of the availability of new measurements and because of a reevaluation of the 235 U cross section for ENDF/B-IV. Fig. 2 shows the new 235 U fission cross section between 25 and 100 keV. It can be immediately seen that there is considerable structure in this cross section, with fluctuations of as much as 10% or more within a kilovolt or so. Thus, its use as a standard is quite compromised unless the neutron energy and neutron energy spread are well known and accounted for. In Fig. 3 this cross section is "smeared out" by averaging points in groups of ten (effective "resolution" 5 keV) and compared to a similar curve for the 235 U fission cross section in ENDF/B-III. This plot indicates an average change in the absolute value of the cross section of 5-15%.

Since it would seem that a fluctuating cross section subject to substantial renormalization, does not make a very reliable



Figure 2

Figure 3

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standard, it was decided to perform the gold capture re-evaluation with data not involving ²³⁵U fission standardization. This follows the procedure adopted by Carlson⁽³⁾ and by Poenitz⁽⁴⁾ in evaluations presented at the 1970 EANDC Normalization and Standards Conference held at Argonne National Laboratory and follows the most recent recommendations of the Normalization and Standards Subcommittee of CSEWG (July 1973). Due to an abundance of excellent recent experiments, it was also arbitrarily decided that only data measured since 1960 would be considered.

The capture cross between 10-100 keV is shown in Fig. 4. The following data sets were were plotted: (1) Czirr et al.⁽⁵⁾ (2) LeRigoleur et al.⁽⁶⁾ (3) Fricke et al.⁽⁷⁾ (4) Kompe⁽⁸⁾ (5) Poenitz et al.⁽⁹⁾ (6) Belanova et al.⁽¹⁰⁾ (7) and Bergvist.⁽¹¹⁾ The data of Spitz et al.⁽¹²⁾ Moxon et al.⁽¹³⁾ and Bilpuch et al.⁽¹⁴⁾ were not used.

The capture cross section between 100-1000 keV is shown in Fig. 5. Data sets of Refs. 6-10 were plotted, plus the data sets of Barry. ⁽¹⁵⁾

Inspection of Figs. 4 and 5 show that the various data sets are in quite good agreement with each other within the quoted

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Figure 4

errors. There is a general tendency for the data of Fricke et al. ⁽⁷⁾ (Fig. 4) and Barry⁽¹⁵⁾ (Fig. 5) to be higher than others and for the data of Bergvist⁽¹¹⁾ to be lower; but all are never more than about two standard deviations from the mean. The one point of Belanova et al. ⁽¹⁰⁾ is about three standard deviations low. The evaluated eye-guide in Figs. 4 and 5 was drawn with no explicit weight factors for the various experiments.

For the region above 1 MeV, the only one significant new contribution is that of Lindner.⁽¹⁶⁾ These data should be considered preliminary until published and were measured relative to 235U, but the lack of measured fluctuations in the ²³⁵U fission cross section at these high energies made it worthwhile to see what the new data indicated for gold capture. Fig. 6 shows two independently normalized data sets from Lindner⁽¹⁶⁾ between 0.5 and 3 MeV. The curve between 0.5 and 1 MeV is that of Fig. 5 and above 1 MeV is that of ENDF/B-III. The data up to 2.2 MeV are in excellent agreement with the old evaluation. The two higher energy points are low by about 15% and 20% respectively. It was felt that it was not worthwhile to give these points sufficient weight to seriously distort the ENDF/B-III curve, which represents the best curve through all previous measurements. An added inducement for not trying a serious reassessment of all of the data above 1 MeV was the implications of the effect noted by Devaney. (17) Devaney points out the importance of a multiple reactions correction for reaction cross section measurements above approximately 100 keV. The correction is particularly important for

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Figure 5



Figure 6

- 22 -

radiative capture, even with fairly thin samples. The relevance of this effect to specific gold capture experiments is unknown, but should be determined before the higher energy gold capture data are reevaluated again.

In conclusion, the evaluated curve of ENDF/B-III between 1 and 20 MeV, which included the evaluation of Vaughn and Grench⁽¹⁹⁾ (1.0 - 5.2 MeV) and that of Bogart⁽²⁷⁾ above 5.2 MeV, are adopted for ENDF/B-IV.

It is of interest to calculate the fission spectrum averages of the capture and other reaction cross sections and compare them with experimental measurements. For this purpose, a 252 Cf fission spectrum was represented by a Maxwellian with a temperature of

1.39 MeV, i.e.;

$$\phi(E) = C \sqrt{E} e^{-E/T}$$

was used. (C is a normalizing constant.) The calculated fission spectrum average of the ENDF/B-IV (n, γ) reaction of gold is 81.8 mb. This number is to be compared with an experimental value of 95.5 ± 2.3 mb measured by Pauw and Aten.⁽¹⁹⁾ Since the capture section in the whole energy range 0.100-1.5 MeV is believed to be known to better than 18%, the source of this discrepancy could be due to either the measurement and/or the inadequacy of representing the fission spectrum by a Maxwellian form at low energies. The ²³⁵U fission spectrum average measurements of Fabry⁽²⁰⁾ shed some light on the former explanation. Fabry obtains a value of 88.0 ± 4.5 mb for ¹⁹⁷Au(n, γ)¹⁹⁸Au reaction. With a characteristic temperature T = 1.32 MeV for ²³⁵U, we obtain a fission spectrum

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average of 84.9 mb which is within the stated error of Fabry.⁽²⁰⁾

After the completion of the evaluation of the capture cross section of Au, it was found that two points had been inadvertently omitted from consideration. Both were measured with the same technique at the National Physical Laboratory in England. At 25 keV, Ryves et al.⁽²¹⁾ measured a value of 640 ± 25 mb. This is in excellent agreement with the value of 648 mb read from Fig. 4. At 966 keV, Ro¹ rtson et al.⁽²²⁾ measured a value of 96.2 ± 2.0 mb. This value is approximately 12% higher than the value at this energy from Fig. 5. No changes were made as a result of this discrepancy for the reasons noted above regarding the Devaney⁽¹⁷⁾ wultiple reaction correction effect. In addition the following data sets became available at the time of the writing of the report:

(1) Poenitz⁽²³⁾ data in the energy range 400 - 3500 keV. This is an absolute measurement carried out by a large liquid scintillator for the detection of prompt capture gamma rays. The Grey Neutron Detector, the Black Neutron Detector and a ⁶Li-glass detector were employed to measure and monitor the neutron flux.

(2) Macklin et al.⁽²⁴⁾ data in the energy range from 3 to 550 keV. In this measurement a scintillation detector and a 6 Li neutron monitor were used. The efficiency of the detector was normalized to the 4.9 eV gold resonance by the saturation method. The 6 Li neutron cross section of Uttley, slightly modified, was adopted.

(3) Rimawi and Chrien⁽²⁵⁾ using the iron filtered beam,

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measured the neutron capture cross section of gold at 24.5 keV by the activation method. Assuming a ${}^{10}B(n,\alpha\gamma)^7Li$ cross section of 3.487 b and a total reaction cross section of 5.9175 b for ${}^{10}B$, they obtained a total capture cross section for ${}^{197}Au$ of 0.630 ± 0.006 b. The error indicated is only statistical and does not include the uncertainly in the normalization. These new measurements were plotted and compared with the ENDF/B-IV capture cross section in the pertinent energy regions. Good agreement is noted between the new measurements and the evaluated ENDF/B IV capture cross section.

Finally, it may be noted that preliminary results of the capture cross section of gold between 100 keV and 500 keV were reported by Fort⁽²⁶⁾ in a progress report. A $4\pi\beta\gamma$ detector was used to detect the induced activities. The data are not available at this time. Fort, however, made a comparison between his data and those of LeRigoleur and found reasonable agreement between the two measurements. These new data sets will be considered in the evaluation of the Au(n, γ) cross-section for ENDF/B-V.

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¹⁹⁷Au(n,Y)

<u>Yr.</u>	Lab	Author	References
7°	FEI	Chelnakov, et al.	Jad. Fiz. Iss. <u>13</u> , 6 (1972)
71	GA	Fricke, et al.	Third Conf. Neutron Cross Sec- tions & Tech., Knoxville, Tenn. Vol. <u>I</u> , 252 (1972)
71	LRL	Nagle, et al.	Third Conf. Neutron Cross Sec- tions & Tech., Knoxville, Tenn. Vol. <u>II</u> , 251 (1971)
71	LAS	Drake, et al.	Phys. Lett/B <u>36</u> , 557 (1971)
71	WWA	Brzosko, et al.	Acta Phys. Pol/B <u>2</u> , 489 (1971)
69	KFK	Котре	Nuc. Phys.'A <u>133</u> , 513 (1969)
68	GA	Friesenhahn, et al.	J. Nuc. En. <u>22</u> , 191 (1968)
67	DEB	Peto, et al.	J. Nuc. En. <u>21</u> , 797 (1967)
67	ORL	Macklin, et al.	Phys. Rev. <u>159</u> , 1007 (1967)
67	KFK	Poenitz	Fast Reactor Phys. Symp. Karlsruhe, Vol <u>I</u> , 67 (1967)
66	KFK	Poenitz	J. Nuc. En. <u>20</u> , 825 (1966)
66	KFK	Poenitz	Int. Conf. Nuc. Phys. Paris Vol <u>I.</u> 295 (1966)
65	MUA	Chaubey, et al.	Nuc. Phys. <u>66</u> , 267 (1965)
65	LOK	Grench, et al.	EANDC-(US) 79, 72 (1965)
65	GA	Friesenhahn, et al.	GA-6832 (1965)
65	LOK	Harris, et al.	Nuc. Phys. <u>69</u> , 37 (1965)
64	GA	Haddad, et al.	Nuc. Inst. & Meth. <u>36</u> , 125 (1964)
64	ANL	Cox	Phys. Rrv./B <u>133</u> , 378 (1964)
64	ALD	Barry	J. Nuc. En. <u>18</u> , 491 (1964)
63	FOA	Bergqvist	Ark. Fiz. <u>23</u> , 425 (1963)
63	ORL	Macklin, et al	Nuc. Phys. <u>43</u> , 353 (1963)
63	LEB	Konks, et al.	Zhur Ex. & Theor. Fiz. <u>46</u> , 80 (1963)

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¹⁹⁷Au(n,Y) cont'd

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<u>Yr.</u>	Lab	Author	References
62	LRL	Miskel, et al.	Phys. Rev. <u>128</u> , 2717 (1962)
61	ANL	Meadows, et al.	Nuc. Sci. & Eng. <u>9</u> , 132 (1961)
61	ORL	Gibbons, et al	Phys. Rev. <u>122</u> , 182 (1961)
61	ANL	Cox	Phys. Rev. <u>122</u> , 1280 (1961)
61	ORL	Weston, et al.	Phys. Rev. <u>123</u> , 948 (1961)
61	ORL	Block, et al.	Neut. T.O.F. Conf. Saclay, p. 203 (1961)
60	DKE	Bilpuch, et al.	An. Phys. <u>10</u> , 455 (1960)
60	ORL	Schmitt, et al.	Nuc. Phys. <u>20</u> , 202 (1960)
60	LAS	Diven, et al.	Phys. Rev. <u>120</u> , 556 (1960)
60	CCP	Belanova	At. En. <u>8</u> , 549 (1960)
59	LAS	Bame, et al.	Phys. Rev. <u>113</u> , 256 (1959)
59	ORL	Lyon, et al.	Phys. Rev. <u>114</u> , 1619 (1959)
59	WIS	Johnsrud, et al.	Phys. Rev. <u>116</u> , 927 (1959)
59	HAR	Ferguson, et al.	J. Nuc. En. <u>10</u> , 19 (1959)
58	LRL	Booth, et al.	Phys. Rev. <u>112</u> , 226 (1958)
58	CCP	Kononov, et al.	At. En. <u>5</u> , 564 (1958)

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235 U(n,f) Cross Section Task Force MAT. No. = 1261 Recommended Energy Range; Thr, 100 keV-20 MeV;
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₂₂₀₀(n,f)= 585.4b.

The ²³⁵U evaluation (one of 5 isotopes consilered) stems from the joint effort of experimenters, reactor physicists, and evaluators who met at Brookhaven National Laboratory February 13-15, 1973 (The Big 3 + 2 Task Force Meeting). Guide lines for Version IV cross sections, developed by this Task Force, were meshed with suggestions from the Normalization and Standards Subcommittee of CSEWG to produce the existing ²³⁵U evaluated data set. While many people were involved, the principal investigators of concern were J.R. Smith, (Aerojet Nuclear Corp.), B.R. Leonard Jr. (Battelle Northwest), and G. DeSaussure (Oak Ridge National Laboratory) for 235 U(n.f) cross sections with energies less than 10 keV and L. Stewart, (Los Alamos Scientific Laboratory), H. Alter⁺ (Atomics International), A. Carlson (National Bureau of Standards) and W. Poenitz (Argonne National Laboratory) for 235 U(n, f) cross sections with energies between 10 keV and 3.5 MeV. Above 3.5 MeV, the evaluation and data input were the responsibility of L. Stewart (Los Alamos Scientific Laboratory).

The experimental data for 235 U(n,f) and the methods used for the evaluation are described briefly in the Hollorith section (MF= 1, MT=451) of Appendix F pages 86-91. The errors assigned to the cross sections are taken from File 1 and listed in Table II. Fig. VIII compares the evaluated cross section with experimental data.

^{*} Notes from Big 3 + 2 Task Force kindly supplied by A. Carlson NBS.

⁺ Present Address U.S. Energy and Development Administration, Washington, D.C. 20545.

The high energy portion of the curve has been expanded and is shown in Fig. IX. References for the experimental data sets follow Fig. IX. Note that the smooth cross sections in the resolved and unresolved energy regions given in Appendix F pages 109-111, (MF=3, MT=18) are background cross sections to be added to those generated from the resonance parameters in order to complete the resonance profile.

TABLE 11

Energy Range (MeV)	Assigned Error
.25 - 1.0	4%
1.0 - 1.5	5%
1.5 - 2.0	3%
2.0 - 5.0	4%
5.0 - 7.5	7%

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REFERENCES FOR EXPERIMENTAL DATA

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235 _U	i(n,f)		
<u>Yr.</u>	Lab	Author	References
74	ANL	Poenitz	Nuc. Sci. & Eng. <u>53</u> , 370 (1974)
73	KFK	Kaeppeler	KFK 1772 (1973)
73	SAC	Blons	Nuc. Sci. & Eng. <u>51</u> , 130 (1973)
72	GEL	Knitter, et al.	Z. Physik. <u>257</u> , 108 (1972)
72	BUC	Mihailescu	I.F.ANR-41 (1972)
72	CAD	Szabo, et al.	Private Comm. (1972)
71	LAS	Lemley, et al.	Nuc. Sci. & Eng. <u>43</u> , 281 (1971)
71	GEL	Deruytter, et al.	J. Nuc. En. <u>25</u> , 263 (1971)
71	CAD	Szabo, et al.	Third Conf. Neutron Cross Sections and Tech., Knoxville, Tenn. Vol. <u>II</u> , 573 (1971)
70	LAS	Cramer	LA 4420, 45 (1970)
70	ANL	Poenitz	Neutron Standards & Flux Normali- zation Symp. Argonne Nat. Lab, p. 281 (1970)
70	CAD	Szabo, et al.	Neutron Standards & Flux Normali- zation Symp. Argonne Nat. Lab, p. 257 (1970)
70	HAR	Patrick	J. Nuc. En. <u>24</u> , 269 (1970)
68	ANL	Poenitz	Second Conf. Neutron Cross Sec- tions & Tech., Washington, D.C. Vol. <u>I</u> , 503 (1968)
67	KUR	Mostovaya	I.A.E. 1302 (1967)
66	LAS	Brown, et al.	Conf. Neutron Cross Sections & Tech., Washington, D.C., Vol. <u>II</u> , 971 (1966)
66	LRL	Bowman, et al.	Conf. Neutron Cross Sections & Tech., Washington, D.C., Vol. <u>II</u> , 1004 (1966)
65	ALD	White	J. Nuc. En. <u>19</u> , 325 (1965)
65	ISP	Fraysse, et al.	Phys. & Chem. of Fission, Salzburg Austria, Vol. <u>I</u> , 255 (1965)
65	DUB	Wang, et al.	Phys. & Chem. of Fission, Salzburg Austria, Vol. <u>I</u> , 287 (1965)

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²³⁵U(n,f)

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<u>Yr.</u>	Lab	Author	References
65	SAC	Michaudon, et al.	Nuc. Phys. <u>69</u> , 545 (1965)
64	HAR	Brooks, et al.	Priv. Comm. (1964)
63	LRL	Bowman	Phys. Rev. <u>130</u> , 1482 (1963)
63	CCP	Pankratov	At. En. <u>14</u> , 177 (1963)
62	CCP	Smirenken, et al.	At. En. <u>13</u> , 366 (1962)
61	MOL	Deruytter, et al.	J. Nuc. En. A/B <u>15</u> , 165 (1961)
61	ALD	Moat	J. Nuc. En. <u>14</u> , 85 (1961)
60	CCP	Pankratov, et al.	At. En. <u>9</u> , 399 (1960)
59	ССР	Gorlov, et al.	At. En. <u>6</u> , 453 (1959)
58	ANL	Bollinger, et al.	Priv. Comm. (1958)
58	COL	Melkonian, et al.	Nuc. Sci. & Eng. <u>3</u> , 435 (1958)
58	ССР	Berezin, et al.	At. En. <u>5</u> , 659 (1958)
57	LAS	Smith, et al.	Bull. Am. Phys. Soc. 2, 196 (1957)
57	LAS	Henkel	LA-2122 (1957)
57	HAN	Seppi, et al.	HW53492, 22 (1957)
57	LAS	Diven	Phys. Rev. <u>105</u> , 1350 (1957)
57	HAR	Allen, et al.	Proc. Phys. Soc./A <u>70</u> , 573 (1957)
56	SAC	Ballini, et al.	Priv. Comm. from Netter (1956)
55	SAC	Auclair, et al.	Int. Peaceful Uses of At. En. Conf. Geneva, Vol. <u>IV</u> , 235 (1955)
55	SAC	Szteinsznaider, et al.	Int. Peaceful Uses of At. En. Conf. Geneva, Vol. <u>IV</u> , 245 (1955)
55	CCP	Adamchuk, et al.	Int. Peaceful Uses of At. En. Conf. Geneva, Vol. <u>IV</u> , 216 (1955)
54	HAN	Leonard	H₩-33384, 33 (1954)
54	КАР	Yeater, et al.	KAPL-1109 (1954)
44	LAS	Williams	LA-150 (1944)

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III. Acknowledgements

I would like to express my thanks to P.G. Young and L., Stewart of Los Alamo Scientific Laboratory, and to B.R. Leonard, Jr., of Batelle Northwest Laboratory for their criticisms and recommendations concerning this report. Appendix A Hydrogen - MAT. No. 1269 ENTR' BY L. STEWART, R.J. LABAUVE, AND P.G. YOUNG LOS ALAHOS SCIENTIFIC LABORATORY LOS ALAHOS,NEW MEXICO 07544 October 20,1970

MF=1

MT=451, ATOMIC HASS=1,007825

MF=2

MT=151, SCATTERING LENGTH=1.27565E-12 CM.

HF#3

- HT= 1, TOTAL CROSS SECTIONS --- THE TOTAL CROSS SECTIONS ARE OBTAINED BY ADDING THE ELASTIC SCATTERING AND RADIATIVE CAPTURE CROSS SECTIONS AT ALL ENERGIES. 1.RE-05 EV TO 20 MEV.
- MT= 2, ELASTIC SCATTERING --- FROM AN EXTENSIVE THEORETICAL TREATMENT OF FAST NEUTRON MEASUREMENTS By J. C. HOPKINS(LASL) AND G. BREIT(STATE UNIVERSITY OF NEW YORK), SEE N.D. A9, 145(1971), 1.00-05 EV TO 20 MEV.
- MT#102, RADIATIVE CAPTURE --- THESE CROSS SECTIONS ARE TAKEN FROM THE PUBLICATION OF A, HORLEY HHERE A VALUE OF 332 MB WAS ADOPTED FOR THE TWERMAL VALUE. SEE N.D. A2. 243(1966) ALSO P.C. 1.0E=05 EV TO 20 MEV.
- MT=251, AVERAGE VALUE OF COBINE OF SCATTERING ANGLE IN LAB SYSTEM (PROVIDED BY BNL). 1.0em05 EV TØ 20 Mey.
- HT=252, AVERAGE LOGARITHMIC ENERGY CHANGE PEP COLLISON, TAKEN AS 1, FROM 1.0E=05 EV TO 20 MEV. (PROVIDED BY BNL).
- MT=253, GAHMA, TAKEN AS 1, FROM 1,0E=05 EV TO 20 HEV. (PROVIDED BY BNL).

MF=4

MT= 2, NEUTRON ELASTIC SCATTERING ANGULAR DISTRIBUTIONS IN THE CENTER OF MASS SYSTEM--GIVEN AS NORMALIZED POINTWISE PROBABILITIES,

MF#7

HT= 4, .80001 TO 5 EV FREE GAS SIGMA=20,449 PARNS.

HF=12

MT=102, GAMMA RAY HULTIPLICITIES --- MULTIPLICITY, (REFERRED TO MT=102, HF=3), IS UNITY AT ALL NEUTRON ENERGIES, LP=2 NOW IMFLEMENTED, THEREFORE ALL GAMMA ENERGIES MUST RE CALCULATED,

HF=14

MT0102, GAMMA RAY ANGULAR DISTRIBUTION --- ASSUMED ISOTROPIC At All Neutron Energies, ъ.

1- H- 1 LASL EVAL-AUG70 L.STEHART, H.J.LABAUVE, P.G.YOUNG LA-4574 (1971) DIST-MAY74

•••••••••••••••••• DNA 4148 MOD 2 •••••••••••••••••

AUGUST 1973 COMMENTS AND CHANGES

- 1. RECENT TOTAL MEASUREMENTS BY CLEMENT AND STOLER (RPI) AND BY HEATON ET AL. (NBS) DO NOT INDICATE THE NEED FOR CHANGES AT THIS TIME.
- 2. THE LP=2 FLAG HAS BEEN IMPLEMENTED IN NF=12, MT=102 IN VERSION IV.
- 3. A NEW LISTING HAS BEEN GENERATED FOR THE TOTAL cross section to insure that the summation of the partials is conserved to higher precision.
- 4. THE NORMALIZATION AND STANDARUS SUBCOMMITTEE OF CSEWG REVIEWED THIS FILE IN MARCH, 1973 AND RECOMMENDED NO CHANGES TO THE SCATTERING CROSS SECTION FOR VERSION IV.

> THIS HODIFICATION WAS MADE TO ENABLE THE CURRENT DNA LIRRARY TO CONFORM TO THE ENNF/B-III LIBRARY AND TO ADD PHOTON INTERACTION DATA

THE DATA CORRESPONDS TO THE ENDERDENII EVALUATION WITH THE MAT NUMBER HAVING THE SAME LAST 3 DIGITS.

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HYDROGEN FREE ATOM CROSS SECTIONS AS GIVEN IN LA-4574

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SECTION . A 400E 47 5, 5005E-0 ENERGY CROSS SECTION ENERGY CROSS ENDE/8 WATERIAL NO. 1269 ENDE/8 MATERIAL NO. 1269 9.5493E+01 RESOLVED SINGLE-LEVEL BREIT-WIGNER MAAMETERS ENERGY CAOSS SPCTION 10-32550.4 RESONANCE DATA Resonance Paraketers TOTAL NEUTPON CROSS SECTION 1,95001+07 ALTADA CAQSS SLCTIONS INCEV, ENGEV CAOSS SECTION ENERGY CPOSS SECTION TALEY, ENGEV CAOSS SECTION 5.0933E-01 NO RESOMANCE PARAMETERS GIVEN FOR THIS MATERIAL 1.90005-07 INTERPOLATION LAN RETWEEN ENERGIES 94%55 description 1 70 134 Ln Y Linear in Ln X SNUT 1-130000AH 1-1300651H

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1-130400K	INTERPLATION LA BEAUER COSINES and Coscolaton 10 al tightam in taulated distribution in the center	1-F390664-F	INTERPOLATION LAN BETWEEN COSIVES INTERPOLATION CESCHENTION 2 PO 21 V LATIA IN Y 2 PO 21 V LATIA IN YNE VABULATEE DISVILUUTION IN THE EENTED	1-130c2.w	thfopdlation Lat BETWEEn Cosines Bage description 2 to 21 y Linear IV x	ABULATC ANGULAS SISTAISUTION IN TH (MCC MU FUU) FUU) MU FICOLAS SALITCE1 - 5,8000 A ALTOBER SALITCE1 - 2,0001 11 L.FORDER OF A-9902E-61 2,0081	1-5330e04M	1x763P0LATIO4 LAN BETWEEN COSIVES #Ange beferation 1 to 11 t linear 14 x	PABULATCO ANGULAR DIATATEUTION IN TH INCET NU FRWU 1.1.2000E-00 5.0270E-22 -0.7027 4 8.2082E-00 5.6075E-12 2.2025 31 1.088E-00 4.6075E-51 2.2025

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1480.ATCO AMGULAR DISTRIBUTION IN THE ELVIRA UP MASS 343224 AF 2.0000E-00 MEV 14025 - Mu - Firu) - Mu - Firu) - Mu - Firu) 1402 - Alebera 9.19375-01 -4.0000E-01 9.15342-01 2.0001E-01 4.0001E-01 9.19705E-02 -9.4000E-01 4.4001E-01 4 - Alebera 9.19392E-01 -2.0000E-01 4.9000E-01 4.0000E-01 4.7000E-01 4.4000E-01 4.4000E-01 4.4000E-01 11 1.7000E-00 4.0000E-01 2.0000E-01 4.9000E-01 4.0000E-01 4.7000E-01 4.4000E-01 4.4000E-01 4.4000E-01 4.4000E-01 7884L3162 2464Lat Distribution in the Geuter of Mass gystem at 1.28886400 HEV 1854 - 1.1884-2.4. 1854 - 1.1884-2.4.2845-1.4.2845-4.4.2845-4.5.24045-4.5.24045-4.4.2445-4.5.2426-4.5.2426-4.5 1.1.1884-2.4.2425-1.7.24846-6.1.4.2435-5.4.4.243645-4.1.4.2426-4.1.4.2426-4.1.4.24045-4.1.40445-4.140445-4.140445-4.14045-4.140445-4.140445-4.140445-4.140445-4.140445-4.140445-4.140445-4.140445-4.140445-4.140445-4.140445-4.140445-4.140445-4.140445-4.140445-4.140445-4.140445-4.140445-4.14045-4.140445-4.1405-4.14045-4.14045-4.14045-4.14045-4.14045-4.14045-4.14045-4.14045-4.14045-4.14065-4804565-4.1406565-4.1406565-4.1406565-4.1406565-4.1406565-4.1406565-4.1406565-4.1406565-4.1406565-4.1406565-4.1406565-4.1406565-4.1406565-4.1406565-4.1406565-4.14065 AMULTO ANOLAT DISTRIBUTION IN THE EENER OF MASS STATEM AF ALBBBELDA MEN 1965 - Concerd Distribution In Thul 1965 - Concerd Destrict Later of thul 1965 - Concerd Destrict Later of thul 11 lemberga Algorital Radiesi Later of Algorital Algorital Algorital Algorital Algorital Algorital Algorital A EADF /8 MATERIAL ND. 1265 CHOF/8 MATCALAL ND. 1269 ChOF/8 WETERILL NO. 2265 ENDERN MATERIAL ND. 1260 ELABTIC SECONDARY NEUTRON ANGULAM DISTRIGITIONS SECONDANT NEUTHON ANGULAR DISTRIBUTIONS ELASTIC SECOVDAPT YEUTROY ANGULAR DISTAIBUTIONS SLCOMDARY NEUTAON ANGULAR DISTRIGUTIONS INTEGPOLATION LAN BETWEEN COSINES Range description 1 to 11 v Lénear 24 k INTERPOLATION LAN BETWEEN COSINES Aange describtion 1 to 11 v linear in x 12754904104 644 054464 6051466 84466 655449494 1 70 11 7 64628 34 7 INFERPOLATION LAN BENNEEN COSINES MANCE DESCRIPTION 1 FO 21 F LINEAR IN X HTORDELV-1 NºORDEC1-1 8-43080*H MTOROSCA-1

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TABULATED ANGULAR DIGTATEUTION IN THE CENTER DE MASS GYGTEM AT 2.4000FC+01 NEV 1961: Mu finu) 1961: Mu finu) 1964: Alexandrad 9.4005Fc+01 a.0000Fc+01 3.9799Fc+01 4.0000Fc+01 9.1020Fc+01 9.4000Fc+02 9.4000Fc+02 1.1000Fc+01 4.0003Fc+01 4.0005Fc+01 8.5009Fc+01 4.0000Fc+01 4.0000Fc+01 4.0000Fc+01 4.0000Fc+01 21 4.0000Fc+01 4.0003Fc+01 4.0003Fc+01 8.5000Fc+01 4.0000Fc+01 4.0000Fc+01 4.0000Fc+01 4.0000Fc+01 7404.ATCO AGOLAM DISTRIDUTION IN YHE EENTEM AF MARS SHETH AF 1,4003F041 HEV 141564 - Aloulam Distribution in Yhe Eentem Aftau) 141564 - Aleman Sister - Alaman Sister-ol - Bithwerd Sister - Alouse - Sister-ol - Alouse - Sister-ol - Alouse 141566666 - Sister - Commens Sister-ol - Sister-ol - Alouse-ol - Alouse-ol - Alouse - Sister-ol - Alouse 1415666667 - Sister - Sister-ol - Sister-ol - Sister-ol - Alouse-ol - Alouse-ol - Alouse - Sister-ol - Alouse 1415666667 - Sister - Sister-ol - Sister-ol - Sister-ol - Alouse-ol - Alouse-ol - Alouse - Sister-ol - Alouse 1415666667667 - Sister-ol - Sister-ol - Sister-ol - Sister-ol - Alouse-ol - Alo MAULATO AKOULAP DIFATIONIN'N'HE CENTE AF 1,2000-01 UF UU 1951-1964-09 3:2720-01 -0.001-01 1400 1951-1964-09 3:2720-01 -0.001-01 1400-01 3:400-01 3:400-01 4:0001-01 4:0001-01 4:0001-01 4:0001-01 4:0001-01 11 3:0001-01 1:0001-01 1:0001-01 1:0001-01 1:0001-01 4:00000-01 4:00000-01 4:00000-01 4:00000-01 ENDE/B MATERIAL ND. 1200 CADF/B MATERIAL VO. 1260 ENDT/8 MATCHIAL ND. 1269 ENDF/B MATERIAL ND. 1200 SECONDARY NEUTROW ANGULAR DISTAIDUTIONS ELASTIC Secondar Neutron Angulan Disvetoutions ELASTIC Secondary Neutrom Axjular Distributions SECONDARY NEUTRON ANGULAT DESFATOUS INTERPOLATION LAM BEPAEEN COSILES VAGE description 4 to 31 v linear in M INTEAPOLATION LAN BETHEEN COSINES Name cesseriation 2 to 22 t linear in x INTERPOLATION LAN BETABEN COTTLES Vario Skingereron 1 to 42 t sevar in K INTEPOLATION LAM BEYKEN COSINED Baher deseripten 1 to 12 V Lingar in X APOROE4-1 1-130000AH HT07064-5 H*DROCE+-1

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INTERPOLATION LAW BETWEEN COSINES RANGE DESCRIPTION 1 TO 12 Y LINEAR IN X TABULATED ANGULAH DISTRIBUTION IN THE CENTER OF HASS SYSTEM AT 1.8200E+01 MEV TADUK 1C ANDUKAN DISTRIDUTUN IN IN LEATER DE MADS STSTEN AT 10200000 TEC INEEX AN FRUI AU FRUI AU FRUI AU FRUI 1 =1.2000E-00 5.4492E-01 -9.0000E-01 5.292E-01 -0.2000E-01 5.2334E-01 -0.0000E-01 5.1034E-01 ~4.0000E-01 5.0527E-01 6 =2.0000E-01 4.0942E-01 -9.0002E-00 4.0001E-01 2.0000E-01 4.0126E-01 4.0900E-01 4.0943E-01 6.0000E-01 4.0905E-01 11 0.0000E-01 4.0042E-01 1.0000E+00 4.0001E-01 ELASTIC SECONDARY NEUTRON ANGULAR DISTRIBUTIONS HTORDGEN-1 ENDE/B HATERIAL NO. 1269 INTERPOLATION LAW BETNEEN COSINES RANGE DESCRIPTION 1 TO 12 Y LINEAR IN X TABULATED ANGULAR DISTRIBUTION IN THE CENTER OF MASS SYSTEM AT 2,000000401 HEV TADEX NU F(NU) 1 -1,0000-00 5,4077-01 -9,0000-01 5,3348-01 -0,0000-01 5,23320-01 -6,00000-01 5,0290-01 -4,0000-01 5,02240-01 6 -2,0000-01 4,06350-01 3,0000-03 4,02100-01 2,00000-01 4,00000-01 4,00000-01 4,00000-01 4,00000-01 4,00000-01 1 8,20000-01 4,07350-01 3,00000-03 4,02000-01 4,00000-01 4,00000-01 4,00000-01 4,00000-01 4,00000-01 4,00000-01 INELASTIC THERMAL NEUTRON SCATTERING LAWS ENDE/B HATERIAL ND. 1269 HTOPOGEN-1 TYPE EFFECTIVE INCEX TOTAL FREE ATOM CROSS SECTION 8,00000+00 OF HASS HODEL TABULATED #.P080E+08 1 ENDEVE MATERIAL NO. 1269 HYDROGEN-1 (N, GANHA) PHOTON HULTIPLICITIES-NEUTRON INDUCED ANOTON ENERGY DISTRIBUTION LAW + DISCRETE INTERPOLATION LAW BETHEEN ENERGIES Range Description 1 to 2 vlikar in X Photon E:RGY 2.2246F80 Hev Level Ewergy 0.00006-00 Hev INDEY ENERGY Photons INDEY ENERGY Photons EV 1 1.0002F.+85 1.0000E+88 2.00002+07 1.0000E+00 HYDROGEN-1 (N.GANNA) PHOTON ANGULAR CISTRIBUTIONS-NEUTRON INDUCED ENDETS HATERIAL NO. 1269 PHOTONS ARE ISOTROPIC

ELASTIC SECONDARY NEUTRON ANGULAR DISTRIBUTIONS

ENDEVB MATERIAL NO. 1269

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HTDROGEN-1

Appendix - B Helium - 3 MAT. No. - 1146

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2-HE- 3 LASL EVAL-1968 L.STEWART DIST-APR74 THIS FILE TRANSFERED FROM ENDF/B-III WITH NO MUDIFICATIONS. . . . CROSS SECTION STANDARD HE-3 (N.P) . THE HE-3 (N,P) CROSS SECTION FOR THIS MATERIAL IS RECOMMENDED . AS A STANDARD FOR NEUTRON ENERGIES FROM THERMAL TO 50 KEV . . . e . . HELIUM-3 FROM AN UNPUBLISHED EVALUATION BY L.STEWART (LASL-1968) THIS EVALUATION OF HE-3 WAS RECOMMENDED BY THE STANDARDS SUBCOMMITTEE (CSEWG) FOR INCLUSION IN ENDF/B AT THE OCT, 1970 MEETING OF CSEWG. DATA CONVERTED TO ENDE/B FORMAT BY M.DRAKE(BNL) AND R.LABAUVE (LASL) AUG1971. MF=1 MT=451, ATOMIC HASS=3,0150 MF = 2 MT#151, SCATTERING LENGTH#0.2821E-12 CM. MF=3 1, TOTAL CROSS SECTIONS --- FROM .90001 EV TO 10.8 KEV MT1 TAKEN AS SUM MT2 + MT103, FROM 10,8 KEV TO 20.0 MT= MEV MT1 EVALUATED USING EXPERIMENTAL DATA FROM REF,6, HT= 2, ELASTIC SCATTERING CROSS SECTIONS --- FROM .00001 EV

- TO 12.8 KEV MT2 TAKEN AS CONSTANT=1.0 B. FROM 10.8 KEV TO 20.0 MEV MT2=MT1-MT103=MT104 HITH EXPERIMENTAL DATA FROM REF.9 AND 11 AS CHECK. NDTE THO REACTIONS HISSING FROM THIS EVALUATION, NAMELY N,N=PRIME,P AND N,2N,2P. EXP. CATA AT 15,4MEV INDICATES NON-ZERO CROSS SECTIONS FOR THESE. INCLUDED 14 MT2 THIS EVAL.
- MY=103, N-P CROSS SECTIONS --- FROM .00001 EV TO 1.42 KEV MT103 TAKEN AS ONE-OVER-V(53278 AT .0253EV)FROM REF.13. FROM 1.42KEV TO 20.6MEV MT 103 IS EVALUATED

USING EXPERIMENTAL DATA FROM HEFS, 1, 4, 5, 8, 10, 11, 12, 14,15,16 COVERING ENERGY RANGES AS FOLLOWS -REF.1 - 12 MEV TO 1.2 MEV REF.4 - 5.8 MEV TO 11. MEV REF.5 - 5.0 KEV TO 11. MEV REF.8 - .48 MEV TO 4.2 MEV REF.10- 3.1 MEV TO 11. MEV ł REF.11- .95 MEV REF.12- 4.0 MEV TO 12. MEV REF.14- 5.0 KEV TO 4.2 MEV REF. 15- 5.0 KEV TO 4.2 MEV REF.16- 14. HEV DATA EXTRAPOLATED TO 20, MEY. MT=104, N=D CPDSS SECTIONS --- THRESHOLD=4,35MEV. ÷ Q=-3.2684 MEY, EVALUATION FROM A DETAILED BALANCE CALCULATION (REF, 13) AND EXPERIMENTAL DATA (REF, 11). MT#251, AVERAGE VALUE OF COSINE OF ELASTIC SCATTERING ANGLE, LABORATORY SYSTEM, OBTAINED FROM DATA HE#4, HT#2, HT=252, VALUES OF XI, GBTAINED FROM DATA HF=4, MT=2 HT=253, VALUES OF GAMMA, OBTAINED FROM DATA MF=4, MT=2 2 HF=4 1 2, ANGULAR DISTRIBUTION OF SECONDARY NEUTRONS FROM \$ MT= ELASTIC SCATTER, EVALUATED FROM EXPERIMENTAL DATA 1 FROM REFS, 2.7, 9, 11, 16, 17 COVERING INCIDENT ENERGIES AS FOLLOWS -INCIDENT ENERGY REFERENCES 1.E-5EV (ISOTROPIC) P.5 NEV (ISOTROPIC) 1.0 MEV 9 2.0 MEV 9 2.6 MEV 11 3,5 MEV 9 5.0 MEV 11 6.0 MEV 9,7(FRUM P+T ELASTIC SCATT) 8.0 MEY 11,7(FROM P+T ELASTIC SCATT) 14.5 MEV 16,17(FROM P+T ELASTIC SCATT) 17.5 MEV 11 20.0 MEV 2(FROM POT ELASTIC SCATT) REFERENCES Ĩ R.BATCHELOR, R.AVES, AND T.H.R. SKYRME, REV. SCI. INSTR. 26, 1037 1. (1955), R.A. VANETBIAN AND E.D. FENCHENKC. SOVIET JOURNAL OF ATOMIC 2.

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HFF1AH-3		TABLE	ST CONTENT	J.			
	DATA TYPE			REACTION	C/	RDS	
	GENERAL INFORMATION			COMMENTS		127	
	RESONANCE PARAMETER	5	TAL	ESONANCE DATA	5	12	
	NEUTRON CROSS SECTIO	N		TOTAL ELASTIC		30 32	
				(N,P) (N,D)		30 13	
				HU BAR		?	
SECONDARY	NEUTRON ANGULAR DIS	TRIBUTIONS		GAHMA Elastic		171	
HEL10H-3		RES	ONANCE DAT	FPS	I	ENDF/8 MAYERIA	L ND, 3146
180TOPE	HEL 1UH-3	NESONA	INGE FARADS	rens .			
NUMBER OF ENERGY RANGE	3 1						
ENERGY RANGE NUMBER	1	RESOLVED SIM	IGLE-LEVEL	BREIT-WIGNER A	PARAMETERS		
UPPER ENERGY LIMIT (EN	1.000E+06						
SPIN SCATTERING LENGTH	(A+) 2.821#E-01						
HENDER OF C STATES	6						
NO RESONANCE PARAMETER	IS GIVEN FOR THIS MAY	TERIAL					
HEL!UH-3		NEUTRO	TOTAL CROSS SEC	1104		ENDF/8 MATERIA	L NO, 1146
INTERPOLATION LAW BETH	EEN ENERGIES			-			
RANGE DESCRIPT 1 TO B1 LN Y LIN	IION Ngaà in la X						
NEUTRON CROSS SECTIONS							
INDEX, ENERGY CROSS EV BA	SECTION ENERGY (IRNS FV	ROBS SECTION	ENERGY	CROSS SECTION	ENERGY	CROSS SECTION	ENERGY GROSS SECTION
1 1,8880E+85 2,67 6 4,2888F+82 4,28	95E+85 1.8850C-84	8.47532+84	2.53000-02	5.3280F+83	1.87802+02	6.2798E+01 2.3378E+01	2.8000E+82 5.1200E+81
11 3,10080483 1.94	00E+21 4,7980E+03	1.24582+81	4,79186+03	1,24492-81	7.18802.83	1.0102[+01	7.1810[+83 1.08992+81
21 8,1700r404 3,74	40E+F8 8.2888E+84	3.74282+88	1,00002+05	3,67882488	2.66882 .85	3.23882-88	3,88682485 3,82682488
31 6,8088E-05 8,77	66E+08 6,5880E+85	2.76002+00	7,80882+85	2,75002+00	7.50802.05	2.76002.00	8,0006E+65 2,7708E+00
41 1,20086+86 3,86	100E-00 1.3000E-06	3.05781+80	1,40000000	3.12002+00	1.50000 +06	2.0700E+00 3.1000E+00	1,10091-86 2,9488E+80 1,6088E+06 3,2888E+80
51 3.8888E+86 2.9	DDE+00 3.5000E+06	2.7980E+00	4.00002+00	2.65P0E+00	2.0000E+06 4.350PE+06	2.57986+88	4,38866+86 2,7518E+88
50 4,5000E+06 2,53 41 7,8000E+06 1,90	97E+00 5.0000E+06	2.4068E+88 1.9682E+88	5,5886[+86 8,5888[+86	2,28002+08	6,0800E+06 8,5000E+06	2.1888£*88 1.7488£*88	6.98802+06 2,08022+00 9.68802+06 1,67802+00
1,2000E+06 1,62	1,0000E+00 1,0000E+07	1,3585E+08 1,2955E+88	1,0708E+07 1,3888E+07	1,49842+88 1,25012+88	1.1000E+07 1.3500E+07	1,43000+00 1,21010+00	1,15886+87 1,38556+88
76 1,500#E+07 1,11 81 2,0008E+07 0,5	1286+00 1,6880E+87	1.05002+00	1,70002-07	.92882-01	1,8000E+07	9.4000E+01	1,98802+07 8,93882-81

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NEUTRON	CROSS S	ECTIO	NS									
INDEX,	ENERGY	CR0	SS SE	CTION	ENERGY	CROSS SECTION	ENERGY	CROSS SECTION	ENERGY	CROSS SECTION	ENERGY	CHOSS SECTION
	EY_		PARNS		EY	BANNS	Ey	BARNS	ËV	BARNS	Ev	BARNS
1	1.0000E	87 4.	6793E-		1,00002-04	8,4732E+04	2.33886+82	3,32786+83	1.07802.00	2 4.17982-81	2.80902+3	2 5,82985+83
11	3.198854	83 1.	4400F	601 601	4.70000402	3,3310[681	1.0000Ea0	4,000000001	7.18885483	0 C.23/0[001	7 4848648	1,026#L0#1
16	1.000E.	84 9.	22885	•eĝ	1.62886+84	3.71686+88	2.420#1+84	4.54980+88	3.63001+84	3.59682+20	5.4000E+0	2.84882+88
21	8,1708E.	ē4 2,	254ØC		8,20002.04	2.25*71+88	1,00002+0:	2.05002+00	2.00001.0	1.32000+00	3,688882+6	1,10001.00
26	3.560004	85 1.	9580E	480	4.00000.05	9.85886-81	4,50002+0	0.51002=P1	5.000RE+0	\$ \$.3000t+01	5,50806+8	9,21002=81
31	0,000024	105 V.	19805	-01	6,50P8E+82	9,11000-01	7,80086+8	9,80002-01	7.30892+0	3 V.03000.01	0,0000E+0	9,01000,01
41	1.28885	36 8.	AGAGE	-P1	1 100002-03	8.45#DE411	Y	0,91002-01	3.978926480	5 D.79002-01	1,19901-0	5 8,0100E+01
46	1.70900	B6 .	5500F	01	1.00000-000	A.45885-81	1.08884480	B.30000-01	2.80805+0	A.2588c-81	2.58002+0	1 7.58802.81
51	3.000004	86 6.	6000E	-01	3.500000000	5.568#E-#1	4.00000-00	4.68000-01	4.35882+8	4.38882-81	4,36808+0	4.38982-01
56	4,5000E4	86 4,	16000	-61	5.00002+00	3.7288E+81	5,58881.00	3,34888-01	6.0000E+0	3.8388E+#1	6,3888E+8	\$ 1,7500E=#1
61	7.68800	66 2.	5700E	01	7,50002+00	2.3988E=81	8,8808g+80	2,22002-01	6.588PE+8	5 8.000000001	9,800BE+8	6 1,9499E+91
50	A' BROBE	20 1,	RADDE	- 21	1,00002+07	1.75000+71	1,0508(-0	1,65002-01	1.10002.8	7 1.50000-01	1,19886+8	7 1,500000401
76	1.508054	A7 1.	12005	- 61	1 48685+03	1,37885481	1.788821.00	1,33002011	219260540	/ 1120005401	1.4040140	7 1,44887.82
81	2.0000E	Ø7 8.	20005	-12	TIONNELODI	Tinductant	TILEDATION		1.00000000		117040L*D	

REACTION & VALUE 7.6449E+85 EV

HELIUM-3

(N.P) NEUTRON CROSS SECTION ENDF/B HATERIAL NO. 1140

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NEUTRON	CROSS SE	CTIONS								
INDEX.	ENEAGY	CROSS SECTION	ENERGY	CROSS SECTION	ENERGY	CROSE SECTION	ENERGY	CROSS SECTION	ENERGY	CROSS SECTION
	EV	BARNS	EV	BARNS	EV	BARNS	εv	BARNS	EV	BARNB
1	1.00002-05	5 1.0000E+80	1.05000-04	1.86800.+88	2.5388E=02	2 1,00002+00	1.8782E+82	1.00002+00	2,80080+82	2 1.0000E+00
6	4,28882+0	2 1,000000+00	6.31881+82	1.00586+86	1,8888dr+0	3 1,000000000	1,42802+83	1,0000E+60	2,1388E+83	1, 88782+80
11	3,19802.0	3 1,00000.00	4.79886.83	1.00086.00	4,79802+0	3 1,00000.00	7.1808E+0	1,00000,000	7.18000.48	1,00002.00
16	1.88802.0	1.00002+00	1.42986+84	1.007000000	2.42000-0	4 1.14902+00	3.63802+8	1,21886+88	3.45566+6	L L 3278E+88
21	8.1782E+8	4 1,4908E+00	8.2000E+84	1.49202+00	1,000000+0	5 1.6208E+60	2.00400.05	1,9100E+00	3,00702+8	3 <u>1</u> ,9200E+00
26	3,900000.00	5 1,0108E+08	4.00001-0	1.9258E+##	4.50082+4	5 1,98982+09	5.0080E+8	5 1,91002+80	5,58086+89	5 <u>1</u> ,8798C+88
31	6.8580E+0	5 1.8518E+88	6.5000r+8	1.8499E+88	7,80892+0	5 1.8410E+00	7,58802.+8	5 8.85282+88	à.0000g+0	5 <u>1,86982+88</u>
36	8.5000E+#	1.9810E+00	9.88888.48	1,9250E+00	9.50000040	5 1.95982+88	1,00800+0/	1.99100.00	1.19886+8	£ 8,0398E+88
41	1.20098.+0	6 2,120BE+00	1.30000+00	2.1718E+##	1.40000000	6 2,2258E+89	1,38802+8	2.31002+00	1.40002+0	\$,330DE+00
46	1.70000.0	6 2.365BE.BB	1.80005+80	2.3590E.00	1.90000.0	6 2.38502+00	2.00000.0	2.37582.00	2.90000.00	6 2.34882+98
51	3.000000+0	5 7.2988E+88	3.56686+60	2.2.200468	4.00000000	6 2.1A202+A0	4.33886.+8	8.12682+80	4.34882+8	\$.1278Z+\$8
56	4.50802+0	5 2.8998E+88	5.00001+00	9.01685+88	5.50000+0	6 1.91382498	6.9888E+8	5 1.8340E+88	4.50000.00	5 1.75482+88
61	7.84992+8	6 1.6649E+90	7.5000r+60	1.509BE+80	8.0000000	6 1.53282+08	8.50882.0	1.46292+00	9.88886.48	<u>i.4938<u></u><u>s</u>+80</u>
46	9.5688646	6 1.36485.+88	1.8668508	1.30285+68	1.85862+8	7 1.24182489	1.10855.08	1.19792488	1.15286+8	1.1688E+88
71	1.2000000	7 1.12182+88	1.25885+8	1.PA25E+88	1.3000000	7 1.04302+00	1.3580F+8	1.00792+00	1.48882.48	7 9.719#E+61
76	1.50801.0	7 9.2400E-01		# . 71 BBF=#1	1.70005+0	7 8.23402.01	1.00075.0	7 7.01906.01	1.90002.0	7 9.45986.81
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INTERPOLATION LAW BETHEEN ENERGIES Range description 1 70 81 LM y Linear in LM X

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ÉLASTIC Neutron gross section ENDFIS HATERIAL NO. 1146

REACTION	N Q VA	LUE	-3,20								
INTERPO RAN 1 TO	LATION Ge 2	LAH Deso Y Li	BETH Rip\ NEJ		. 5	AANDE 0 2 To 28 L	ESCRIPTION N Y LINEAR	IN LN X			
NEUTRON Index:	CROSS ENER FV	9EC1 GV C	10 P	. ON	ENERGY	CROSS SECTION	ENERGY	CROSS SECTION	ENERGY	CROSS SECTION	ENERGY CROSS SECTIO
1	4,3 500 6,0080	E+86 E+86	ŧ	۲۲ و`	4.36772+86	1,00001+03	4.50000.00	2,70002=43	9,000PE+06	1,88886-82	5.5000C+06 3.3000C-02
11	0,5000	2.86	•	2	9.0000E+86	7.1000E-02	9,98882+86	7.25002-02	1.00802+67	7.33000-02	1.8508E+87 7.4489E-82
21 26	1,3500	2+87 2+87 2+87	7.61 6.630	- 12	1,4688g+87 1,9808E+87	7.6158E+82 4.1488E+82	1,20000007 1,36000007 2,00000007	7,58882*82 5,68882*82 5,68882*82	1.0880E+87	7,60000-02 7,42080-82	1,3888[*87 7,6188[*82 1,7888[*87 7,1888[*82
HZ	L104-3	5				NEUTRI	MU BAR	TION		ENDF/8 HATERI	AL NO, 1146
INTERPO RAN 1 TO	GE	DES TES	DETHER Criptic Inear 1	IN ENER In Y	01E5						
NEUTRON Index,	CROSS	SEC'	TIONS Dat	7 A	ENERGY	DATA	ENERGY	GATA	ENERGY	DATA	ENERGY DATA
1 6 11	1,0000 3,5000 1,7900	E-85 E-86 E-87	2.2290 3.9839 7.173	8E-01 8E-01	5.0888E+85 5.0980E+36 2.0880E+87	2.2296E+81 5.8184E-81 6.5345E-81	1,8888E+86 6,8988E+86	2,36298-82 3,32848+81	2.0000E.06 8.0000E.06	2.1171E-81 5.8819E-81	2.6880E+86 2.9618E-82 1.5888E+87 6.6642E-81
нс	L10#-3	,				NEUTR	XI ON CROSS SEC	-		ENDF/8 HAT ER I	AL ND, 1146
1NTER#0 RA ^b 1 To	LAT 10 IGE 1 12	ULAH DES T L	DETHEL CRIPTII INEAR	EN ENER DN En X	GIES						
NEUTRON Incex,	CROSS	B NEC Igy	TIONS DA'	T.A.	ENERGY	DATA	ENERGY	DATA	ENERGY	DATA	ENERGY DATA
1	1,000	E + 05 € + 06 E + 07	5,393 4,076	1E-01 2E-01	5.8680E+8	5,3931E-81 3,3667E-81	1,0000F+00 6,000FE+00	6.5778E-F1 3.1464E-P1	2.0000E+00	5.3269E-01 2.8153E-01	2.0000E+86 4.7507E-81 1.5000L+07 2,2116E-03

(N.D) NEUTRON CROSS SECTION ENDERB HATERIAL NO. 1146

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HEL 10H-0		NEUTRON	GANNA CROSS SECT	NO1.	5	NDF/8 HATERI	AL ND. 1146	
INTERPOLATION LAW BETHEEN EN Range description 1 to 12 y Linear in X	4ERG1ES							
NEUTAON CROSS SECTIONS Incex. Energy data	ENERGY	DATA	ENERGY	DATA	ENERGY	DATA	ENERGY	DATA
1 1,0005405 4,05775-09 6 3,50005-00 4,76285-01 11 1,75005-007 2,91672-01	EV 5.07075.05 1 5.07075.05	4.0577E=81 3.9044E=81 3.2479E=81	€ V 8888€ •86 6 • 8888€ •86	4°-00001-001 0,04010-01	€ \ 2 . Ø907 E • Ø6 8 . Ø997 E • Ø6	4 "5463EeA1 3 ,7447EeB1	2,68865+26 1,58865+26	4,37286-81 3,14762-81
HEL1UM-3	SE	CONDARY NEUTRO	ELASTIC N ANGULAR D	115 TRIBUTIONS	U	NOF/8 HATER!	AL 40. 1146	
	Chintin Chinti		00000000000000000000000000000000000000	4 4 <td>0 0/ 44 0 44 0 4 4 2 0 0 0 0 4 4 0 4 0 4 4 2 0 0 0 0 4 0 0 4 0 4 0 6 0 0 0 4 0 4 0 0 4 0 7 0 6 0 0 0 4 0 4 0 0 4 0 7 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td></td> <td></td> <td></td>	0 0/ 44 0 44 0 4 4 2 0 0 0 0 4 4 0 4 0 4 4 2 0 0 0 0 4 0 0 4 0 4 0 6 0 0 0 4 0 4 0 0 4 0 7 0 6 0 0 0 4 0 4 0 0 4 0 7 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			
INTERPOLATION LAH BETHEEN EI Range deschiption 1 to 12 y Linear in X	VERGI ES							

ENDF/B HATERIAL NO. 1146

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HU = 0.00082-P1 4.00082-01 = 0.00082-P1 4.00082-01 = 0.00082-91 4.00782-01 - 0.00051-01 4.00782-01 0.00082-01 9.00782-01 748U.ATED ANGULAR DISTRIBUTION IN THE CENTER OF MASS SYSTEM AT 1,0883E.00 MEV 110E× HU F(TVU) HU F(TVU) 110E× HU F(TVU) 0.-0,0886E-08 9.436FE-01 -0.0648E-01 -0.0886E-01 7.0307E-01 7.0306E-01 7.0306E-01 4.05026E-01 0.-0,0886E-01 3.0456FE-01 -0.0808E-01 3.0408E-01 -0.0886E-01 7.0306E-01 7.0306E-01 2.05028E-01 0.-0,0886E-01 3.0450E-01 -0.0808E-01 3.0408E-01 -0.0866E-01 7.0306E-01 2.0408E-01 2.05080E-01 1.0528EE-01 0.-0,0886E-01 3.0450E-01 1.0488E-01 3.0408E-01 3.0404E-01 3.0408E-01 2.0408E-01 4.0508E-01 4.0508E-01 1.0528EE-01 0.-0,0886E-01 3.0450E-01 3.0488E-01 3.0408E-01 3.0404E-01 3.0408E-01 4.0408E-01 4.0508E-01 1.0528EE-01 1.0488E-08 4.4128E-01 0.0808E-01 3.0698E-01 3.0508E-01 3.0404E-01 3.0408E-01 4.0508E-01 1.0528E-01 1.0488E-08 4.4128E-01 0.0808E-01 3.0698E-01 3.0508E-01 3.0404E-01 4.0508E-01 1.0508E-01 1.0528E-01 1.14888E-08 4.4128E-01 0.0808E-01 3.0698E-01 3.0508E-01 3.0508E-01 3.0408E-01 4.0508E-01 1.14888E-08 4.4128E-01 0.0808E-01 3.0698E-01 3.0508E-01 3.05096E-01 3.0508E-01 4.0508E-01 1.14888E-08 4.4128E-01 0.0808E-01 3.0698E-01 3.0508E-01 3.0508E-01 3.0508E-01 4.0508E-01 1.14888E-08 4.4128E-01 0.0808E-01 3.0698E-01 7.0508E-01 3.0508E-01 3.0508E-01 4.0508E-01 1.14888E-08 4.4128E-01 0.0808E-01 3.0698E-01 7.0508E-01 3.0508E-01 4.0508E-01 4.0508E-01 1.14888E-08 4.4128E-01 0.0808E-01 3.0698E-01 7.0508E-01 0.07086E-01 4.0508E-01 4.0508E-01 1.14888E-08 4.4128E-01 0.0808E-01 4.0508E-01 7.0508E-01 0.07086E-01 4.0508E-01 4.0508E-01 1.14888E-08 4.4128E-01 0.0808E-01 4.0508E-01 7.0508E-01 0.07086E-01 4.0508E-01 4.0508E-01 4.0508E-01 4.0508E-01 1.148888E-08 4.4128E-01 0.0808E-01 4.0808E-01 7.0508E-01 0.0708E-01 4.0508E-01 4.0508E-01 4.0508E-01 4.0508E-01 1.148888E-08 4.4128E-01 0.0808E-01 7.0608E-01 7.0508E-01 0.0708E-01 4.0508E-01 4.0508E-01 4.0508E-01 4.0508E-01 1.148888E-08 4.4128E-01 0.0808E-01 7.0508E-01 7.0508E-01 0.0708E-01 4.0508E-01 4.0508E-01 4.0508E-01 4.0508E-01 1.148888E-08 4.0418E-01 0.0808E-01 7.0508E-01 7.0508E-01 4.0508E-01 4.0508E-01 4.0508E-01 4.0508E-01 4.0508E-01 4.0508E-0 ENDF/8 MATERIAL ND. 1146 ENDI'N MAYERIAL NO. 1146 ENDER MATERIAL NO. 1146 ENDF/8 MATERIAL NO. 1146 TABULATED ANGULAR DISTRIBUTION IN THE CENTER OF MASS SYSTEM AT 2,00000E401 MEV 110E * 11,0000E-00 4,0000E-01 -0,0000E-01 -0,000E-01 -0,0000E-01 9,9370E-01 0 -3,0000E-01 2,0400E-01 -0,0000E-01 2,0400E-01 -0,0000E-01 9,9370E-01 0 -3,0000E-01 2,0400E-00 -0,0000E-01 2,0400E-01 2,0400E-01 3,0400E-01 1 0,0800E-00 2,0410E-01 2,0000FE-01 2,0000E-01 2,0400E-01 3,0400E-01 1 0,0800E-00 2,0400E-00 2,0000FE-01 2,0400E-01 2,0400E-01 3,0400E-01 1 1,0800E-00 2,0400E-00 2,0000FE-01 2,0400E-01 2,0400E-01 3,0400E-01 1 1,0800E-00 1,0440E-00 6,0000FE-01 3,4720E-01 2,0400E-01 2,0400E-01 1 1,0800E-00 1,0440E-00 6,0000FE-01 3,4720E-01 2,0400E-01 2,0400E-01 1 1,0800E-00 1,0440E-00 6,0000FE-01 3,4720E-01 2,0400E-01 2,0400E-01 2,0400E-01 2,0400E-01 2,0400E-01 2,0400E-01 2,0400E-01 2,0400E-01 2,0400E-01 2,0400E-00 2,0400E-01 2,040E-01 2,0400E-01 2,0400E-CF MASS SYSTEM AT 5.6806E-01 MEV IS \$SOTRUPIC DF MASS SYSTEM AT 1.8000E-11 MEV IS [SOTR3PIC ELASTIC Secondary Neutron Angular Distributions ELASTIC Secondary Neutron Angular Distribuitions SECONDARY NEUTRON ANGULAR DISTRIBUTIONS ELASTIC Secondary Neutron Angular distribuitions INTERPOLATION LAM BETUEEN COSIMES Marce description 170 - y Linear In X Tabulated distribution in the center INTERPOLATION LAW BETHEEN COSIMES Range Jestifition 1906 - Veinem In X Tabulated Distribution in the center INTERPOLATION LAN BETHEEN COSINES Ramge description 1 to 21 y Linear in X INTERPOLATION LAW BETWEEN COSIVES Range description 1 to 21 y Linear in X HELSUN-3 HELIUN-3 HEL1UH-3 нестин-а

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SECONDARY NEUTRON ANGULAR DISTRIBUTIONS
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  INTERPOLATION LAW BETHEEN COSINES
           NANGE DESCRIPTION
1 TO 21 Y LINEAR IN X
 TABULATED ANGULAR DISTRIBUTION IN THE CENTER OF HASS SYSTEM AT 2,6808E+88 HEV
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4 -D.0300E+01 3(450E-01 -40.0000E+01 3(330E-01 -0.0000E+01 3(330E+01 -7,0000E+01 4,0602E+01 4,0000E+01 3(3060E+01
1 0.0000E+01 3(50E-01 -4.0000E+01 2(3370E+01 -0.0000E+01 2,3000E+01 -2,0000E+01 2,3100E+01 4,0000E+01 2,3100E
1 0.0000E+01 3(50E-01 4,0000E+01 2,0070E+01 -0.0000E+01 -2,0000E+01 4,0000E+01 4,0000E+01 4,0000E+01 4,0000E+01
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SECONDARY NEUTRON ANGULAR DISTRIBUTIONS
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           ANGE DESCRIPTION
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  TABULATED ANGULAR DISTRIBUTION IN THE CENTER OF MABS SYSTEM AT 3.588802-80 HEV
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1 -1.00865-88 0.00525-81 -0.05865-51 7.2085-81 0.60865-81 1.02855-81 -7.08865-81 1.01865-81 2.09485-81 2.09485

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           RANGE DESCRIPTION
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  TABULATED ANGULAR DISTRIBUTION IN THE CENTER OF MASS SYSTEM AT 5.888802+84 MEV
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  INTERPOLATION LAW BETWEEN COSINES
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  "ABULATED ANGULAR DISTRIBUTION IN THE CENTER OF MASS SYSTEM AT 6.88886+88 HEV
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Appendix - C Lithium - 6 MAT No. - 1271

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EVAL-APR74 G,M,HALE, D,DODDER, P,YOUNG + 3-LI- 6 LASL DIST-CAY74 TOTAL, ELASTIC, AND (N, ALPHA) CROSS SECTIONS AND ELASTIC ANGULAR DISTRIBUTIONS REPLACED FOR NEUTRON ENERGIES BELOW 2.0 MEV BY G.N. HALE, D.DODDER, P.YOUNG, AND L.STENART AT LASL, APR., 1974, THE NEW DATA RESULT FROM A COUPLED-GHANNEL . R-MATRIX ANALYSIS THAT IS BRIEFLY DESCRIPED BELDA. THE IN, GAMMA) CROSS SECTION FOR THERMAL NEUTRONS WAS ALSO REPLACED, AS DESCRIBED BELOW, . THE THERMAL CROSS SECTIONS ARE AS FOLLOWS, SIGMA = 948,76 BARNS ***=1 TOTAL SIGMA = 8,72124 BARNS ELASTIC N4=5 (N. GAMMA) 117=102 SIGMA = 0,03358 BARNS (N. ALPHA) HT=127 SIGMA 3 948.00 BARNS PHOTON REDOUCTION ACCED BY LABAUVE AND STEWART AT LASL, OCT. 1972. L1-6 EVAL-AUG71 H.E.BATTAT AND R.J.LABAUVE LASL DIST-JAN72 . . CROSS SECTION STANDARD -- LI-6 (N, ALPHA) 3

F = 2 RESONANCE PARAMETERS

HT = 151. SCATTERING RADIUS ONLY.

F = 3 SMDOTH I

SMDOTH CROSS SECTIONS

MT=1, TOTAL. BELOW 1.5 MEV, THE DATA ARE BASED ON A COUPLED-CHANNEL R-MATRIX ANALYSIS OF THE TOTAL CROSS SECTION MEASURE-MENTS OF REF. 2, THE (N,ALPHA) MEASUREMENTS OF REF.14 BELOW 400 KEV AND REF.15 AT HIGHER ENERGIES, AND VARIOUS MEASURE-MENTS OF N=611 AND ALPHA-T ELASTIC SCATTERING. THE TOTAL WAS MATCHED BETWEEN 1.5 AND 2.0 MEV TO A GURVE BASED PRI-MARILY ON THE DATA OF FOSTER AND GLASGOW (REF.4) WHICH EXTEND

- 63 -

TO 15 MEV. EXTRAPOLATION TO 23 MEV IS BASED ON THE DATA OF PETERSON (REF.5).

MT=2; ELASTIC, BELOW 1.5 MEV, PREDICTIONS OF THE P-MATRIX ANALYSIS DESCRIBED UNDER MT=1 WERE USED, THESE PREDICTIONS ARE CONSISTENT WITH THE DATA OF REF.16 (BUT SUBSTANTIALLY HIGHER THAN THOSE OF REF.9) BELOW 200 KEV, ADOVE 200 KEV, THEY AGREE WITH THE DATA OF REF.9 AND REF.3, MATCHED BETWEEN 1.5 AND 2 MEV TO A CURVE BASED PRIMARILY UN THE HOPKINS EVALUATION (REF.6) BETWEEN 4 AND 10 MEV. AT 14 MEV, A VALUE OF .800 BARNS INSTEAD OF .265 BARNS (REF.1) WAS USED.

MT = 4. TOTAL INELASTIC. SUM OF MT = 52 AND MT = 91.

MT =24, (N.2M)ALPHA-P. EVALUATION OF REF. 1 TO 15 MEV. E.TRAP-OLATED TO 20 MEV.

HT ±52, (N,N PRIME)GAMMA, DATA OF PRESSEK (REF, 7) TO 7 MEV. Constant cross section of 5 millibarn assumed above 7 meV.

MT = 91, (N.N PRIME)ALPHA-D, REF, 1 UP TO ABOUT 3 MEV. HOP-KINS EVALUATION (REF. 6) CONSIDERED BETWEEN 4 AND 10 MEV. A SOMEWHAT HIGHER VALUE - 433 VERSUS 403 MILLIBARN - THAN IN REF. 1 WAS USED AT 14 MEV. EXTRAPOLATION TO 23 MEV USING DIFFERENCE BETWEEN TOTAL AND OTHER PARTIAL CROSS SECTIONS. THIS CROSS SECTION IS HIGHER THAN THE ROSEN AND STEWART DATA AT ALL ENERGIES WITH THE 14 MEV. POINT 433 MB INSTEAD OF THE MEASURED VALUE OF 315 MB.

MT=102, (N.GAMMA). BELOW 15 KEY, BASED ON A NEW THERMAL MEA-SUREMENT BY JURNEY (REF, 19) OF 38,5 +/- 3 MB, AT HIGHER ENER-GIES, BASED ON THE EVALUATION OF REF, 1.

MT = 103, (N,P). DATA OF PRESSER (REF. 7) TO 7 MEV. REF. 1 FROM 7 TO 15 MEV. E.TRAPOLATED TO 20 MEV.

MT=107, (N,ALPHA), BELOW 1.5 MEV, BASED ON THE P-MATRIX ANALY-SIS DESCRIBED UNDER MT=1. THE EVALUATION AGREES BELOW 50 KEV WITH THE DATA OF REF.14, AND WITH THE RATIO MEASUREMENT OF REF.18, CONVERTED WITH THE VERSION 4 108(N,ALPHA) CROSS SECTION, BETWEEN 50 AND 300 KEV, THE EVALUATED CROSS SECTION IS SUBSTANTIALLY HIGHER THAN THE DATA OF REF.14 (BUT NOT AS HIGH AS THOSE OF REF.12), THE HIGHER (N,ALPHA) CROSS SECTION SEEMS TO BE REQUIRED TO FIT THE TOTAL CROSS SECTION DATA OF REF.2, AND THE ALPHA-T ELASTIC SCATTERING DATA OF REF.17. ABOVE 400 KEV, THE EVALUATION AGREES REASONABLY WELL WITH YHE DATA JF REF.13 AND REF.15, MATCHED RETWEEN 1.5 AND 2 MEV TO THE (N,ALPHA) CROSS SECTION EVALUATION BETWEEN 2 AND 15 MEV OF REF.1. EXTRAPOLATION TO 20 MEV IS BASED ON THE KERN AND KREGER DATA (REF.8) BETWEEN 15 AND 13 MEV. ST = 251, 252, 253 (HURAR, .1, GAMMA), CALCULATED USING ELASTIC ANGULAR DISTRIBUTIONS GIVEN IN FILE 4,

4F = 4 SECONDARY ANGULAR DISTRIBUTIONS

MT=2, ELASTIC, LEGENDRE COEFFICIENTS DETERMINED AS FOLLOWS, BELOW 1.5 MEV, BASED ON THE R-MATRIX ANALYSIS DESCRIGED UNDER MT=1. THESE CREFFICIENTS ARE CONSISTENT WITH ANGULAR DISTRI-RUTIONS OF LAME (REF.9) AND KNITTER (REF.3). MATCHED BETWEEN 1.5 AND 2.5 MEV TO FITS OF THE LANE DATA (REF.7) HAS USED, BASED 4.83 AND 7.5 MEV, FIT OF HOPKINS DATA (REF. 7) HAS USED, BASED CN 14-MEV ELASTIC SCATTERING DATA GIVEN IN BNL-42P, OPTICAL MODEL CALCULATIONS (ABACUS CODE) WERE USFU TO INFER LEGENDRE COEFFICIENTS RETWEEN 10 AND 22 MEV,

MT = 24, (N,2N)ALPHA-P, EVALUATION OF REF, 1. ISOTROPIC IN LAB SYSTEM.

HT = 52, (N,N PRIME)GAMMA. TABULATED DISTRIBUTION, ISOTROPIC IN CM SYSTEM.

MT = 91. (N,N PRIME)ALPHA D, TABULATED DISTRIBUTION (L SYSTEM) OF REF. 1. CONTAINS NEUTRONS FROM FIRST LEVEL (DISCRETE) IN LI-6. EXTRAPOLATED TO 20 Mey.

MF = 5 SECONDARY ENERGY DISTRIBUTIONS

"T = 24, (N.2.)ALPHA D. DISTRIBUTIONS GIVEN IN REF. 1 APPROX-IMATED BY ENDERB LAW 9 WITH THETA EQUAL 20.21 + SORT(E).

HT = 91, (N,N PRIME)ALPHA-D, DISTRIBUTIONS GIVEN IN REF. 1
APPROXIMATED BY ENDF/B LAW 9, THETA VALUES OBTAINED BY
LINEAR INTERPOLATION BETWEEN FOLLOWING POINTS - - E = 1.718 MEV, THETA = 0.05 MEV
E = 4.1 MEV, THETA = 0.75 MEV
E = 20.0 MEV, THETA = 8.40 MEV
THESE DISTRIBUTIONS CONTAIN ONE DISCRETE LEVEL AND DO NOT
ALMAYS CONSERVE ENERGY.

4F=12

MT=52. THE FIRST LEVEL IN LI-6 DECAYS BY PARTICLE EMISSION AND IS THEREFORE INCLUDED IN MT=91, THE SECOND LEVFL IS A GAMMA EMITTER THEREFORE THE ENERGY AND MULTIPLICITY WERE TAKEN FROM REFERENCE 1.

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MT=102 THE ENERGIES AND TRANSITION ARRAYS FOR RADIATIVE CAPTURE HERE TAKEN FROM REFERENCE 11, NOTE THAT THESE ARE DIFFERENT FROM THOSE ATTACHED TO VERSION III AND PREVIOUSLY CIPCULATED.

THE LP FLAG WAS USED TO DESCRIBE THE MT#102 PHOTONS

MF=14

HT=52 THE GAMMA IS ASSUMED ISOTROPIC.

HT2102 THE THO HIGH-ENERGY GAMMAS ARE ASSUMED ISOTROPIC, DATA ON THE 477 KEV GAMMA INDICATE ISOTROPY.

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LITHIUM-6

RESONANCE DATA Resonance parameters ENDEZA MATERIAL NO. 1271

1807NPE------FRACTIONAL ABUNDANGE------ 1.000PE+00 NUMBER OF ENERGY RANGES----- 1

RESOLVED SINGLE-LEVEL BREIT-WIGNER PARAMETERS

NO RESONANCE PARAMETERS GIVEN FOR THIS MATERIAL

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Appendix - D Boron - 10 MAT. No. - 1273

e e 5-B - 10 LASL EVAL-NOV73 G.M.HALE, H.A.NISLEY, P.G.YOUNG DIST-MAY74

B-10 FREE ATOM EVAL,, NOV, 1973, G.M.HALE, K.A.NISLEY, P.G.YOUNG LOS ALAMOS SCIENTIFIC LABORATORY

MF=2 ----- RESONANCE PARAMETERS ----------------

HT=151 EFFECTIVE SCATTERING RADIUS = 0,40937E-12 CM

MF=3 ----- SHOOTH CROSS SECTIONS ------

THE 2200 M/S CROSS SECTIONS ARE AS FOLLOWS, MTei SIGMA = 3838.6 BARNS SIGMA # 2,1058 BARNS MT#2 HT=103 SIGMA = 0,000566 BARNS MT#107 SIGMA = 3836.5 BARNS MT=113 SIGMA # 2.000566 BARNS SIGNA # 0,090566 BARNS MTe700 MT 782 SIGMA # 240.51 BARNS MT#781 SIGMA # 3596.0 BARNS

MT=1 TOTAL CROSS SECTION

- P TO 1 MEV, CALCULATED FROM R-MATRIX PARAMETERS OBTAINED BY FITTING SIMULTANECUSLY DATA FROM THE REACTIONS B10(N,N) B1G(N,ALPHAD), B10(N,ALPHA1), L17(ALPHA,ALPHAZ), AND L17(ALPHA,ALPHA1), TOTAL NEUTRIN CROSS SECTION MEASURE MENTS INCLUDED IN THE FIT ARE THOSE OF D167, THE L17+ALPHA DATA USED IN THE FIT ARE FROM CU67 AND B157.
- LI7+ALPHA DATA USED IN THE FIT ARE FROM CUG7 AND BIS7, 1 TO 20 MEV, SMOOTH CURVE THROUGH HEASUREMENTS OF DI67,8052. TS62,F041,G052, AND C054, CONSTRAINED TO MATCH R-MATRIX FIT AT 1 MEV.

MT=2 ELASTIC SCATTERING CROSS SECTION

0 TO 1 MEV, CALCULATED FROM THE R-MATRIX PARAMETERS Described for MT=1. Experimental flastic scattering Oat, Included in the Fit are those of AS70 and La71.

- 1 TO 7 MEV, SMOOTH CURVE THROUGH MEASUREMENTS OF LA71, PO70, AND HO69, CONSTRAINED TO BE CONSISTENT WITH TOTAL AND Reaction cross section measurements,
- 7 TO 14 MEY, SMOOTH CURVE THROUGH REASUREMENTS OF H069, C069, TE62, VA70, AND VA65,
- 14 TO 20 MEV, OPTICAL HODEL EXTRAPOLATION FROM 14 HEV DATA
- "T#4 INELASTIC GROSS SECTION THRES, TO 20 MEV. SUM CF MT#51-85
- HT=51-61 INELASTIC CROSS SECTIONS TO DISCRETE STATES MT=51 G=-0.717 MEV MT=55 G=-4,774 MEV MT=59 G=-5.923 MEV

-1.740 -5,114 -5,166 52 56 60 -6,029 53 57 -6,133 61 -3.585 -5,183 54 5A THRES, TO 20 MEV, BASED ON (N, NPRIME) MEASUREMENTS OF PO70, CO69, HO69, AND VA70, AND THE (N.XGAMMA) HEASUREPENTS OF DA56, CA60, AND NETO USING A GAMMA-RAY DECAY SCHEME LEDUCED FROM LAGG.ALGG.SEGGA, AND SEGGB. HAUSER-FESHBACH CALCULATIONS WERE USED TO ESTIMATE SHAPES AND RELATIVE MAGNITURES WHERE EXPERIMENTAL DATA WERE LACKING HT=62-85 INELASTIC CROSS SECTIONS TO GROUPS OF LEVELS IN 3.5-HEV WIDE BANDS CENTERED AROUT THE G-VALUES GIVEN BELOW (USED IN LIEU OF MT=91 AND FILE 5) MT=62 0=-6.5 HEV 63 -7.0 MT=77 4=18.5 MEV MT=78 0=-14.5 MEV 79 71 +11,¢ 15.0 -7,5 64 72 -11.5 80 15,5 65 -8.0 73 -12,0 81 16,0 -8 5 -9 5 66 74 -12.5 82 16.5 75 -13,0 83 17.0 67 76 -13,5 84 17.5 68 -10 0 18.0 69 77 -14.9 85 THRES, TO 20 MEY, INTEGRATED CROSS SECTION OBTAINED BY SUB-TRACTI-G THE SUM OF MTE2,51-61,103,134,107,AND 113 FROM HT=1. CROSS SECTION DISTRIBUTED AMONG THE RIMOS WITH AN EVAPORATION MODEL USING A NUCLEAR TEMPERATURE GIVEN BY T=2 9728+SORT(EN) IN MEV, TAKEN FROM IR67. (N,P) CROSS SECTION MT=193 THRES. TO 22 MEV, SU' OF MT1700+703 (N.G) CROSS SECTION MT=104 THRES, TO 20 MEV, BASED ON HE9(D,N)B11 MEASUREMENTS OF SI65 AUD BAGR, AND THE (N,D) MEASUREMENT OF VA65. MT=107 (N.ALPHA) CROSS SECTION @ TO 20 MEV, SUM OF MT=720,721. NT=113 (N.T2ALPHA) CROSS SECTION A TO 2.3 MEV, BASED ON A SINGLE-LEVEL FIT TO THE RESONANCE MEASURED AT 2 MEV BY DA61, ASSUMING L=0 INCOMING NEU-TRONS AND L=2 OUTGOING TRITONS. 2.3 TO 20 MEV, SMOOTH CURVE THROUGH MEASUREMENTS OF FR56 AND WY58, FOLLOWING GENERAL SHAPE OF DA61 MEASUREMENT FROM 4 TO 9 MEV. (H,P) CROSS SECTION TO DISCRETE LEVELS MT=700-703

0 TO 20 MEV, GRUDELY ESTIMATED FROM THE CALCULATIONS OF PO73 AND THE (N,XGAMMA) MEASUREMENTS OF NE70, CROSS Section for MT=700 Assumed Identical To MT=113 BELOW 1 MEV. GAMMA-RAY DECAY SCHEME FOR BE-11 FROM LA66,

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MT=780 (N,ALPHA0) CRESS SECTION

- N TO 1 MEV: CALCULATED FROM THE REMATRIX PARAMETERS DESCRIPTO FOR MT=1. EXPERIMENTAL (NEALPAN) DATA INPUT TO THE FIT WERE THOSE OF MA68 AND DA61, IN ADDITION, TH ANGULAR DISTRIBUTIONS OF VA72 FOR THE INVERSE REACTION WERE INCLUDED IN THE ANALYSIS.
- 1 TO 20 MEV, BASED ON DA61 MEASUREMENTS, HITH SMOOTH EXTRA-Polation from b TC 20 MEV, Da61 MEASUREMENT ABOVE APPROXIMATELY 2 MEV WAS RENORMALIZED BY FACTOR OF 1,4.

MT=781 (N,ALPHA1) CRCSS SECTION

- © TO 1 MEV, GALCULATED FROM THE R-MATRIX PARAMETERS DESCRIBED FOR MT=1. EXPERIMENTAL (N,ALPHA1) DATA IN-CLUDED IN THE FIT ARE THOSE OF FR72.
- CLUDED IN THE FIT ARE THOSE OF FR72. 1 TO 20 MEV, SMOOTH CLRVE THRDUGH MEASUREMENTS OF DAGL AND NE70, WITH SMOOTH EXTRAPOLATION FROM 15 TO 20 MEV, THE DAGL DATA ABOVE APPROXIMATELY 2 MFV WERE PENDRMALIZED BY A FACTOR OF 1.4.

MT=2 ELASTIC ANGULAR DISTRIBUTIONS

- P TO 1 MEV, CALCULATED FROM THE R-MATRIX PARAMETERS DESCRIBED FOR MF=1, MT=1. EXPERIMENTAL AVGLAR DISTRI-BUTIONS INPUT TO THE FIT FOR BOTH THE ELASTIC SCATTER-ING CROSS SECTION AND POLARIZATION WERE OBTAINED FROM THE MEASUREMENTS OF LA71, ASSIGNMENTS FOR RESONANCES ABOVE THE NEUTRON THRESHOLD ARE BASED ON LA71. 1 TO 14 MEV, SMOOTHED REPRESENTATION OF LEGENDRE COEFFI-CIENTS CERIVED FROM THE MEASUREMENTS OF LA71, HA73,
 - P070, H069, C069, VA69, AND VA65, CONSTRAINED TO MATCH THE R-MATRIX CALCULATIONS AT ENEI MEV, 14 TO 20 MEV, OPTICAL MODEL EXTRAPOLATION OF 14-MEV DATA
- HT=51-85 IN_LASTIC ANGULAR DISTRIBUTIONS THRES, TO 20 MEY, ASSUMED ISOTROPIC IN CENTER OF MASS

MF=12 ----- GAMMA RAY MULTIPLICITIES ------

MT=781 0,4776+MEV PHOTON FROM THE (N,ALPHA1) REACTION 0 to 20 MeV, MULTIPLICITY OF 1.0 AT ALL ENERGIES

HE-13 ----- GAMMA-RAY PRODUCTION CROSS SECTIONS ------

MT#4 (N,NGAMMA) CROSS SECTION

THRES. TO 2P MEV. OBTAINED FROM MT=51-61 USING 8-10 DECAY

SCHEME DEDUCED FROM LAGG, ALGS, SEGGA, AND SEGGB. MT#103 (N.PGAMMA) CROSS SECTIONS THRES. TO 20 MEV, OBTAINED FROM AT=701-705 USING BE-17 DECAY SCHEME DEDUCED FROM LA66. MET14 ----- GAEMA RAY ANGULAR DISTRIBUTIONS ------(N,NGAMMA) ANGULAR DISTRIBUTIONS MT=4 THRES, TO 25 HEV, ASSUMED ISOTROPIC HT=123 (P,PGAMMA) ANGULAR DISTRIBUTIONS THRES, TO 20 MEV, ASSUMED ISOTROPIC MT=781 (N,ALPHA1/GAMMA) ANGULAR DISTRIBUTION @ TO 20 HEV, ASSUMED ISOTROPIC D.E. ALGURGER ET AL, PHYS.REV, 143,692 (1966) AL66 A. ASAMI AND M.C. MCXON, J.NUCL, ENERGY 24,85 (1972) R.BARDES AND G.E. OWEN, PHYS.REV. 127,1369 (1963) A570 846Ø RE56 R.L. BECKER AND H.H. BARSCHALL, PHYS.REV. 182.1384 (1956) H.BICHSEL AND T.W.BONNER, PHYS.REV, 178, 1025 (1957) R157 C.K.BOCKFLMAN ET AL., PHYS.REV, 84,49 (1951) B051 D, BOGART AND L.L.NICHOLS, NUCL. PHYS, A125, 463 (1969) B069 c052 J.H. COON ET AL,, PHYS. REV. 88,562 (1952) C.F. COOK AND T.W. BONNER, PHYS. REV. 94,651 (1954) C054 S.A. COX AND F.R. PCNTET, J.NUCL.ENERGY 21.271 (1967) J.A. CODKSON AND J.G.LOCKE, NUCL.PHYS. A146.417(1978) C067 C069 M.S. COATES ET AL., PRIV. COMM. TO L.STEWART (1973) R.Y.CUSSON, THESIS, CALIF. INSTIT. YECH. (1963) C073 CU65 R.B. DAY, PHYS, REV. 102, 767 (1956) DA56 DAGR R.B. DAY AND M.WALT. PHYS. REV. 117, 1338 (1968) E.A. DAVIS ET AL., NUCL, PHYS, 27.448 (1961) DA61 K.M. DIMENT, AERE-R-5224 (1967) n167 D.M. FOSSAN ET AL., PHYS.REV, 123,209 (1961) G.M. FRYE AND J.H. GAMMEL.PHYS.REV, 103,320 (1956) S.J. FRIESENHAHN ET AL., GULFART_A12210 (1972) F061 FR56 FR72 S.L.HAUSLADEN, THESIS, OHIO UNIV, COD-1717-5 (1973) HA73 J.C. HDPKINS, PRIV, COMM. LASL (1969) D.C. IRVING, ORNL-7M-1672 (1967) H069 IR67 T.LAURITSEN AND F.AJZENBERG-SELOVE, NUCL, PHYS, 78, 1(1966) LA66 R.O. LANE ET AL., PHYS, REV. C4, 380 (1971) LA71 R.L.MACKLIN AND J.H.GIBBONS, PHYS, REV, 165, 1147 (1968) MA68 M066 F.P.MOORING ET AL, AUCL PHYS, 82,16 (1966) N.G.NERESON, LA-1655 (1954) NE54 D.O.NELLIS ET AL., PHYS. REV. C1.847 (1970) NE7Ø

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P072 D.PCRTEN ET AL., ANRE 0 45/78 (1972) SE66A P.E. SEGEL AND R.H. SIEMSSEN, PHYS, LFTT.20, 295 (1966) SE66B R.E.SEGEL ET AL., PHYS, REV. 145, 736(1966) SI65 R.H.SIEMSSEN ET AL., NUCL, PHYS, 50, 279 (1965) TE62 K.TESCH, MUCL, PHYS, 37, 412 (1962) TS63 K.TEJKADA AND D.TAMAKA, J.PHYS, SOC, JAPAN 13,61, (1963) VA65 V.VALKOVIC ET AL., PHYS, REV. 139, 331 (1965) VA76 B.VAUCHER ET AL., HYS, REV. 139, 331 (1965) VA72 L.VAN DER ZHAN AND K.W.GEIGER, NUCL, PHYS, A183,615 (1972) WI55 H.B. WILLARD ET AL., PHYS, REV. 98,669(1955) WY58 H.E. WYMATH ET AL., PHYS, REV.112,1264 (1953)

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RESONANCE DATA Resonance Parameters

RESCLIVED SINGLE-LEVEL BREIT-WIGHER PARAMETERS

ISCTOPE-----BORDN-10 FRACTIONAL ARUNDANCL------BORDN-10 NUMBER OF ENERGY RANGES----- 1.8340E-81 1

ENDEZH HAVERIAL NO. 1273

AD RESUMANCE PARAMETERS GIVEN FOR THIS MATERIAL

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NEUTRO	CROSS SE	CTIONS								
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11	3,8008E+8	4 3,4198E+70	4.00000+04	2.0A136+88	5.00000.00	2.68648498	n 60035+64	3 47080400	7 778855-04	4,1037[*#F
16	8.8000E+0	4 2,16836+08	9.08206+04	2.0558[+88	1.00000.00	1.98945088	1.18036+08	1.87855400	1 28801+81	2,30322
21	1.3000E+0	5 1,7334E+00	1.45005+05	1.07485488	1.50000+05	1.4.400488	1 60030-00	1.54.00400	1.60006-0	1.0000L-DI
26	1.80895+8	5 1,4653E+08	1.98885+85	1.42897988	2.00005+0	1.39876488	2 88007.00	1 18476404	1.70805-0:	1,712320.0
31	2,1500E+0	5 1,3188E+#Ø	2.20005+05	1.20975458	2.25886+05	1.24112480	2 30005-05	1 14197-00	2 38445.40	1.3303(.1.0
36	2,4900E+0	5 1,7271E+00	2.45025+85	1.20001088	2.58885405	1.10207488	2 Augute.00	1 1402/1+00	2,30000000	1,24461
41	2.6000E+0	5 1,0979E+08	2.98081+85	1.04897488	3.00001405	1.04145489	1 11646.405	1.10001.00	2.7000L+0:	1.180.7.00
46	3.38686.0	5 9.6934E-01	3.48805+85	9.40850481	3.56664449	9. 1. 2	3 40000-00	1.C1771+00	3.20001-03	
51	3.000000+0	5 8.4986E-01	3.06801	8.70816481	A. 888ar.485		1.400000000	119421-01	3,70000000	
56	4.388886+8	5 8.5824E+01	4.48886.+85	8.43475=81	6. HORDE+07		4.100000000	0.03746481	4,20000400	8,30476-67
41	4.7000E+8	5 9.14878-01	4.75066405	8.08435885	1.83885.435			0.2091E+C1	4,0780E+8	0,2003E+01
66	4,95886.48	5 7.78452-81	5.00000+05	7.40446.081	3.85800+05	7 44486-01	4.05422425	7.9498E+01	4, YEUDLED	0677E-01
71	5.20806.0	5 7.38196-81	5.36800+65	7.04455984	3.48882.4		3.1000E-03	/ . 20/16-01	2,120FL	7,48020-01
76	6. COBBE+0	5 5.49982-01	A.28885485	S doudrail	A 48802-01		5,00002-05	0.3438feb1	2.0000Lat) 5,9305E=01
81	7.88886+8	5 3.40975-81	7 20684-05		2 40000000	4./2036-01	o.orgingage	4.37372+01	0.6080E+3	4,09586+01
66	O. BRAREAR	5 2.A7.8F.81	# 20886-458	3,00242401	140005003	9.98036441	7.8P#UE+03	3,17146-81	7.8882.48	5,0223E+#1
91	9.000000.00	5 2.3008E+81	0.24885485	2+/379L-4A	O' ARBEFAR	2101-2E-01	9.00902.00	2.9898E-01	6,8F8JE+0	2,4085[-01
\$6	1.00000-00	6 2.8374E-81	1 100000000	CICODOL-DI		E.17002-71	A.0886E+82	2.12120-01	9.8°80E+8	5 5°6138E-07
101	1.5860E+8	5 2.41 PAF-A1	1 88445444	7144005487	1.500000000	1.10005-61	1.30806+86	2.00002-01	1. 4000E+00	5 2,2928E+81
100	1.75802+8	6 4.8518F.eft	1 88880.484	2.09792-01	1.00045404	9.91286-81	1.0393E+06	2.05006+01	1.70882.00	4.3510E-01
111	2.46666+0	A 4 93845-81	2.00001-00	2.1540E.41	1.03642480	3.54%8E481	1.708PE+86	3.1958E=01	1,95882+00) 4 .9948E=81
116	2.25685+8	6 3 33856-04	3 30000000	4,43002701	C. TADDEADC	10002-01	5-126.6060	3,01712-01	2,20806+66	5 3,5648E=#1
121	2.38885+8	6 2.74185-81	2 58000-04	3,1300L441	510088E484	2.70296-01	2.40076+86	5,000001457	2,4508E+86	2,02366+01
	2.78885+8	6 3 40005-01	2,55001400	5, 4500E-41	5108485+40	3.62085-01	5.0201E+69	3.17.85.481	2,78866+86	3,2988E-#1
11	3	6 2 80885×84	1 400000-000	3.01188.01	S'DDR.E.	3.38786485	2.708CE+86	3,10472401	2,95886486	3,0268E+81
136	3.3880548	A 0. 18145-54	3 400000-00	5116955-61	STITUTES	2,07482421	7.12862486	2.24476+81	2.28882081	5 2,5128E-81
	4. 00405.40	A 2 20405-04	3148685480	8.2288E001	7.04485.680	s'72264087	3.78802+86	S:1748E+81	3.80020-00	3 2,2728L+81
146	4.88885	1 5 4430F-84	2.2000E-00	2.0007(4=1	4.3888E+84	2,07782+01	4.40006+24	2,56482+81	4.69888.00	5 2,3123E-81
141	5.60805+0	6 4 84485-84	248888F480	5.9300E401	5'5A88E+84	1,78182=81	2,40805+86	1,8180E+01	5,58386+66	\$ 1,5788E+61
114	6.688864649	A 1 30385-81	2.9800E480	1.30986-01	O'GARDEFE	1,43082-81	6.2080E+84	1.37396+81	6 ,4080E+ 8(\$ 1,3578E+#1
141	7.6886548	A B BAABE-82	2,00005-00	1,21005-01	7. DODDEADC	1,87882.81	7,205E+08	9,80332+02	7,4888E+8	• •.1448E+6 2
144	8.4880148	4 4 70000-00		0'b585Eans	e'shenE.Ed	7.37082+82	9.26996+89	7,2316E=82	8,4808E+#4	6,9414E-82
171	9. 48487.48	A & BD845-83	0.0000E000	0.49742002	A'shillend	0.37 082 +83	9.2000E+06	6.2345E+82	7,4888E+8	4,15362-82
474	1.1844646	7 4 81085-83	************	0.0308E#02	7************	2,97588+82	1.0588E+07	5.9045[=82	1.100000+07	5,8489E-#2
101	1.40046-4	7 4 03385-80	A CODDEOD7	2,01096498	7'5288[48	2,04256=02	1.30892+87	3.4798E+82	1,3508E+87	, 8,9355E+82
	1 48405.48	7 8 49445-90	1.47882487	9.8439E-02	1,5800206	3,97582+82	1.5500E+#7	3.82942-82	1,60800000	9,6817E+#2
	1 9888508	7 9,73401902	3.7000E+67	2'2803E+65	1.75882+87	3.23862+82	1.00002+07	5,09085=82	1,87806.+87	4,9431E+82
	*********	1 4414345485	1.90666487	4,6477E+#2	3*66885683	4,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-			

INTERPOLATION LAW BETWEEN ENERGIES RAFSE DESCRIPTION 1 YO 96 LN Y LINEAR IN LN X

RANGE DESCRIPTION 96 TO 193 Y LINEAR IN K

REACTION & VALUE 2.7988E+84 EV

80R0N=19

(NIALPHA) NEUTRON CROSS SECTION

ENDEVB HATERIAL NO. 1273

Appendix - E Gold - 197 MAT. No. 1283

3

c

TILE=2 RESONANCE PARAMETERS GIVEN THAN STREAMETERS 4T=151 RESOL/ED RESONANCE PARAMETERS GIVEN FROM 1, gE-@5EV TO 2, CKEV BASED ON REF1 AND THE REFERENCES GIVEN THER AND A ROUND LEVEL.SOME OF THE RESUMANCE SPIN ASSIGNME S FROM REF2. UNRESOLVED RESONANCE PARAMETERS GIVEN FROM 2, g to 12 KEV. NEUTAMM CROSS-SECTION FROM 10, 9REV-2, 3MEV REF 3-7, FROM 2.3-15.3MEV BASED MAINLY ON FOSTENS DATA(REF8) AND RE 9-12, FROM 15, 0-20, JMEV DATA IN REF 12-13 WAS USED. TT=2 ELASTIC CROSS-SECTION FROM 10, 9REV-2, 3MEV REF 3-7, FROM 2.3-15.3MEV BASED MAINLY ON FOSTENS DATA(REF8) AND RE 9-12, FROM 15, 0-20, JMEV DATA IN REF 12-13 WAS USED. TT=2 ELASTIC CROSS-SECTION SOUTH FAIL IN REF 22-24. T0TAL INCLASTIC SUM OF ALL THE DISCRETE LEVEL EXCITA- TJON CROSS-SECTION, DATA ARE IN REF 22-24. T1=4 TOTAL INCLASTIC SUM OF ALL THE DISCRETE LEVELS XHERE GISTAT LEVEL, IN AU-190 DATA IN REF 22-24. T1=2 GROSS-SECTION, DATA ARE IN REF 22-24. T1=3 (SIXTH LEVEL) IN AU-190 DATA IN REF 22-24. T1=4 TOTAL CROSS-SECTION TO THE FORMATION 'N 10, 30, 90 MALIZER T0 THE VERTHENTAL DATA ON INOLVIDUAL LEVELS WHERE AVAILABLE(REF 20-28.) T1=51-64 CHOSS-SECTION S	79-AU-197	7 GNL	EVAL	- APR7	4.5	F.NU	GHAA		A . PI	RINCE.	M.D.GO
 AT=151 RESOL/ED RESONANCE PARAMETERS GIVEN FROM 1.8E-85EV TO 2.0KEV BASED ON REF1 AND THE REFERENCES GIVEN THER AND A BOUND LEVEL.SOME OF THE RESONANCE SPIN ASSIGNME S FROM REF2. UNRESOLVED RESONANCE PARAMETERS GIVEN FROM 2.2 TO 12 KEV. TIE=3 TOTAL CROSS-SEC/IONS TIE=4 TOTAL CROSS-SEC/ION FROM 10.9KEV=2.3MEV REF 3-7.FROM 2.3=15.3MEV 0ASED MAINLY ON FCSTEMS DATA(REF8) AND RE 9-12.FROM 15.0-22.3MEV DATA IN REF 12-13 WAS USED. TIE2 ELASTIC CROSS-SECTION BY SUBTRACTING SJM OF ALL NON- ELASTIC CROSS-SECTIONS (REF14=21) FROM TOTAL CROSS- SECTION TE4 TOTAL INELASTIC SUM OF ALL THE DISCRETE LEVEL EXCITA- TION CROSS-SECTION, DATA ARE IN REF 22-24. TIE16 (N.3N) CROSS-SECTION, DATA ARE IN REF 22-24. TIE26 GROSS-SECTION, FOR THE FORMATION AF 10.3HEUR METASTABL (SIXTH LEVEL) IN AU-196 DATA IN REF 22-24. TIE51-64 CHOSS-SECTIONS FOR THE FORMATION OF DISCRETE LEVELS. MODEL CALCULATIONS USING COMMUC-1 (REF 25) NORMALIZE TO THE EXPERIMENTAL DATA ON INDIVIDUAL LEVELS KHERE AVAILABLE(REF 26-28) TIE91 INELASTIC SCATTERING CROSS-SECTION TO THE CONTINUUM O LEVELS OBTAINED BY USING COMMUC-1 AND NGRALIZING IT TO THE DIFFERENCE BETWEEN NON-ELASTIC(REF14=21) AND TI SUM OF DISCRETE INELASTIC AND (N.AFARTICLE) CROSS-SECTION FROM 10.0KEV TO 1.3MEV DATA USED IN THE FINAL EVALUATI WERE THOSE HHIGH JON ON USE U-235 AS A SIMARD(REF2) 371.0NLY DATA PUBLISHED SINCE 19AW CONSIDERED. ABOVE 1.0MEV ONLY ONE 4EM DATA STICKFF40HMAS CONSIDERED. ABOVE 1.0MEV ONLY ONE 4E	FILE=2	RESONANCE P	ARAHE	ERS	_				•.7 3		3761.4
 NARESOLVED RESONANCE PARAMETERS GIVEN FROM 2.2 TO 12 KEV. TILESS NEUTRAM CROSS-SECTION FROM 10.7KEV-2.3MEV REF 3-7.FROM 2.3-15.0MEV BASED MAINLY ON FOSTEMS DATA(REFB) AND RE 9-12.FROM 15.0-22.0MEV DATA IN REF 12-13 WAS USED. NT=2 ELASTIC CROSS-SECTION BY SUBTACTING SJM OF ALL NÚMELASTIC CROSS-SECTION BY SUBTACTING SJM OF ALL NÚMELASTIC CROSS-SECTION S(REF14-21) FROM TOTAL CROSS-SECTION SAND THE CONTINUUM CROSS-SECTION TO ALL INELASTIC SUM OF ALL THE DISCRETE LEVEL EXCITATION (N.3N) CROSS-SECTION. DATA ARE IN REF 22-24. NT=16 (N.2N) CROSS-SECTION, DATA ARE IN REF 22-24. NT=17 (N.3N) CROSS-SECTION. DATA ARE IN REF 22-24. NT=26 CROSS-SECTION, FOR THE FORMATION OF DISCRETE LEVELS. MODEL CALCULATIONS USING COMMUC-I (REF 25) NORMALIZE TO THE EXPERIMENTAL DATA ON INDIVIDUAL LEVELS WHERE AVAILABLE(REF 20-28) NT=91 INELASTIC SCATTERING CROSS-SECTION TO THE CONTINUUM O LEVELS OBTAINED BY USING COMMUC-I AND NCHALIZINC IT TO THE DISCRETE INELASTIC AND (N.PARTIGLE) CROSS-SECTION FROM 1.ME-252 VIO 1000 SCENES. NT=162 CAPTURE CROSS-SECTION FROM 1.ME-252 VIO 1000 SCENES. NT=162 CAPTURE CROSS-SECTION FROM 1.ME-255 VIO 1000 SCENES. NT=162 CAPTURE CROSS-SECTION FROM 1.ME 2000 SIDERED. AND IN OF DISCRETE INELASTIC AND NOT USE U-235 AS A STANDARD (REF23) NO TI WAS DECIDED TO RETAIN THE EMOF/B-111(MATT 1100 SUING THE MADE TO NARD (REF23) NOLY DATA PUBLISMED SINCE 1940 CONSIDERED. AND IN AND CREMENTIAL DATA STANDARD CRENCHIANDIN SIZE USING THE COLUDED THE EVALUATION BY AUGHI AND CRENCHIANDIN SIZE USING THE COLUDED THE EVALUATION BY AUGHI AND CRENCHIANDIN SIZE USING THE COLUDED THE EVALUATION BY AUGHI AND CRENCHIANDIN SIZE USING THE COLUDED THE EVALUATION BY AUGHI AND CRENCHIANDIN SIZE USING THE COLUDED THE ENDELAR DISTRIBUTI	MT≊151	RESOLVED RE To 2.0KEV E AND A BOUND	SONANI BASED LEVEL	CE PA DN RE	RAME F1 4 E OF	TERS	HE A Reti	GIVEI LFERI DNANI	N FRI Ences Ce st	DM 1.0 5 give Pin As	E-85EV N THER Signme
 KEV. NEUTRAM CROSS-SEC/IONS AT=1 TOTAL CROSS-SECTION FROM 10.9KEV-2.3MEV REF 3-7.FROM 2.3-15.0MEV 0ASED MAINLY ON FCSTERS DATA(REF0) AND RE 9-12.FROM 15.0-22.0MEV DATA IN REF 12-13 WAS USED. MT=2 ELASTIC CROSS-SECTION BY SUBTACTING SJM OF ALL NGM-ELASTIC CROSS-SECTION BY SUBTACTING SJM OF ALL NGM-ELASTIC CROSS-SECTION S(REF14-21.) FROM TOTAL CROSS-SECTION MT=4 TOTAL INELASTIC SUM OF ALL THE DISCRETE LEVEL EXCITATION (N.3N) CROSS-SECTION. DATA ARE IN REF 22-24. MT=16 (N.2N) CROSS-SECTION. DATA ARE IN REF 22-24. MT=17 (N.3N) CROSS-SECTION. DATA ARE IN REF 22-24. MT=26 CROSS-SECTION: FOR THE EXCITATION OF DISCRETE LEVELS. MODEL CALCULATIONS USING COMMUC-I (REF 25) NORMALIZE TO THE EXPERIMENTAL DATA ON INDIVIDUAL LEVELS WHERE AVAILABLE(REF 20-28.) MT=91 INELASTIC SCATTERING CROSS-SECTION TO THE CONTINUUM O LEVELS OBTAINED BY USING COMMUC-I AND NORMALIZINC IT TO THE DISCRETE INELASTIC AND (N.PARIGLE) CROSS-SECTION FROM 1.ME-255V TO 10KEV CALCULAT D. FROM RESONANCE PAMAMETERS FROM 10.0KEV TO 1.0MEV DATA USED IN THE FINAL EVALUATI WERE THOSE WHICH DID NOT USE U-235 AS A STANARD(REF22) 37.0.LY DATA PUBLISHED SINCE 1940 CONSIDERED. AND IT WAS DECIDED TO RETAIN THE ENDF/B-111(MATE 1106 HUICH INCLUDED THE EVALUATION BY AUGHI AND GRENCHI1.0 5.2MEV ONLY ONE NEW BATA STICKEF400HAS CONSIDERED. AND IT WAS DECIDED TO RETAIN THE ENDF/B-111(MATE 1105 USING THE ANDULAR DISTRIBUTION OF FILE4. MICH INCLUDED THE EVALUATION BY AUGHI AND GRENCHI1.0 5.2MEV. AND THAT OF BOGART ABOVE 5.2MEV(REF41) T=173 (N.ALPHA) CROSS SECTION BASED ON THE DATA OF REF 23. T=251-253 CALCULATED USING THE ANGULAR DISTRIBUTION OF FILE4. MT#2 USING THE COULATION BY AUGHI AND GRENCHI1.0 5.2MEV. AND ABOVE DASED ON THE AND AFT ABOVE SECTION BASED ON THE DATA OF REF 23. T=264 ANGULAP COSS SECTION BASED ON THE DATA OF REF 23. T=2651-253 CALCULATED USING THE ANGULAR DISTRIBUTION OF FILE4. MT#2 USING THE COOL DUMYS(REF 42) T=264 ANGUL		UNRESOLVED	RESON	ANCE	PARA	METE	RS	61VE	V FR(DH 2.€	TO 12
 TOTAL CROSS-SECTION FROM 10, 9kEV-2, 3MEV REF 3-7, FROM 2'3-15, 3MEV 0ASED MAINLY ON FCSTERS DATA(REF0) AND RE 9-12, FROM 15, 0-20, 3MEV DATA IN REF 12-13 WAS USED, 1T=2 ELASTIC CROSS-SECTION BY SUBTRACTING SJM OF ALL NON- ELASTIC CROSS-SECTION BY SUBTRACTING SJM OF ALL NON- ELASTIC CROSS-SECTION NOT ALL THE DISCRETE LEVEL EXCITA- TION CROSS-SECTION, DATA ARE IN REF 22-24. NT=16 (N,2N) CROSS-SECTION, DATA ARE IN REF 22-24. NT=26 CROSS-SECTION, DATA ARE IN REF 22-24. NT=26 CROSS-SECTION, FOR THE FORMATION of 10,3MUUR METASTABL (SIXTH LEVEL) IN AU-196 DATA IN REF 22-24. NT=51-64 CROSS-SECTIONS OF THE EXCITATION OF DISCRETE LEVELS, MODEL CALCULATIONS USING COMMNUC-I (REF 25) NORMALIZE TO THE EXPERIMENTAL DATA ON INDIVIDUAL LEVELS WHERE AVAILABLE(REF 20-28) NT=91 INELASTIC SCATTERING CROSS-SECTION TO THE CONTINUUM ON LEVELS OBTAINED BY USING COMMUC-I AND NORMALIZING IT TO THE DIFFERENCE BETWEEN NON-ELASTIC(REF14-21) AND TI SUM OF DISCRETE INELASTIC AND (N, PARTICLE) CROSS-SECM OF ROM RESONANCE PARAMETERS FROM 10,0KEV TO 1.3MEV DATA USED IN THE FINAL EVALUATI WERE THOSE WHICH DID NOT USE U-235 AS A STANDARD(REF2) 37).OLV DATA PUBLISHED SINCE 1946 CONSIDERED, ABOVE 1.0MEV ONLY ONE WEH DATA SFT(KEF40) WAS CONSIDERED AND IT WAS DECIDED TO RETAIN THE ENDF/D-111(MATE 1106 HICH INCLUDED THE EVALUATION BY AUGH: AND GRENCH(1,1) 5.2MEV) AND THAT OF BOGART ABOVE 5.2MEV(REF41) T=107 (N,ALPHA) CROSS SECTION BASED ON THE DATA OF REF 23. T=251-253 CALCULATED USING THE ANGULAR DISTRIBUTION OF FILE4. MT2 USING THE COCE DUMMY5(REF 42) ILE=4 ANGULAR DISTRIBUTION OF SECONDARY NEUTRONS T=22 ELASTIC SCATTERING BASED ON THE EXPERIMENTAL DATA IN REF 44-50 UPTO 6.05MEV, FROM 9.7MEV AND ABOVE BASED (MODEL CALULATED USING THE ANGULAR DISTRIBUTION OF FILE4. MT2 USING THE COCE DUMMY5(REF 42) ILE=4 ANGULAR DISTRIBUTION OF SECONDARY NEUTRONS 	FILE=3	NEUTRON CRO	SS-SE	:/10N	s						
 10 TOTAL CROSS-SECTION FOR THE TANDER ON TREATERS DATA (REFB) AND RE 9-12.FROM 15.0-20.3MEY DATA IN REF 12-13 WAS USED. 17 2 ELASTIC CROSS-SECTION BY SUBTRACTING SJM OF ALL NOM- ELASTIC CROSS-SECTION S(REF14-21) FROM TOTAL (ROSS- SECTION TTe4 TOTAL INCLASTIC SUM OF ALL THE DISCRETE LEVEL EXCITA- TION CROSS-SECTION, DATA ARE IN REF 22-24. 17 (N, 3N) CROSS-SECTION, DATA ARE IN REF 22-24. 17 (N, 3N) CROSS-SECTION, DATA ARE IN REF 22-24. 17 (N, 3N) CROSS-SECTION, DATA ARE IN REF 22-24. 17 (N, 3N) CROSS-SECTION, DATA ARE IN REF 22-24. 17 (N, 3N) CROSS-SECTION, DATA ARE IN REF 22-24. 17 (N, 3N) CROSS-SECTION, DATA ARE IN REF 22-24. 17 (N, 3N) CROSS-SECTION, DATA ARE IN REF 22-24. 17 (N, 3N) CROSS-SECTION, DATA ARE IN REF 22-24. 17 (N, 3N) CROSS-SECTION, DATA ARE IN REF 22-24. 17 (N, 3N) CROSS-SECTION, DATA ARE IN REF 22-24. 17 (N, 3N) CROSS-SECTION, SING COMMNUC-1 (REF 25) NORMALIZE TO THE EXPERIMENTAL DATA ON INDIVIDUAL LEVELS WHERE AVAILABLE (REF 20-28) 17 (N EXPERIMENTAL DATA ON INDIVIDUAL LEVELS WHERE AVAILABLE (REF 20-28) 17 (N E DIFFERENCE BETWEEN NON-ELASTIC (REF14-21) AND TI SUM OF DISCRETE INELASTIC AND ON-EMALIZINC IT TO THE DIFFERENCE BETWEEN NON-ELASTIC (REF14-21) AND TI SUM OF DISCRETE INELASTIC AND (N, PARTICLE) CROSS-SECM. 17 (N E CROSS-SECTION FROM 1, NE-NSEV TO 10KEV CALCULA D FROM RESONANCE PARAMETERS FROM 10,0KEV TO 1.0MEV DATA USED IN THE FINAL EVALUATI WERE THOSE WHICH DID NOT USE UP-275 AS A STANDARD(REF2' 37), ONLY DATA PUBLISHED SINCE 1946 CONSIDERED. ABOVE 1.0MEV ONLY ONE WEH DATA SFT(KEF40) WAS CONSIDERI AND IT WAS DECIDED TO RETAIN THE ENDF/D-111(MATE 1106 HUICH INCLUDED THE EVALUATION BY AUGH: AND GRENCH(1,1) 5.2MEV) AND THAT OF BOGART ABOVE 5.2MEV(REF41) 17=107 (N, ALPHA) CROSS SECTION BASED ON THE DATA OF REF 23. 17=251-253 CALCULATED USING THE ANDULAR DISTRIBUTION OF FILE4. MTR2 USING THE COCE DUMMY5(REF 42) 18=4 ANGUL		Total 00055			 0.0 M	10.0	4 F 14 -	2 3 10		E 7_7	FEOM
 9-12.FROM 15.0-22.OMEY DATA IN REF 12-13 WAS USED, HT=2 ELASTIC CROSS-SECTION BY SUBTRACTING SJM OF ALL NON- ELASTIC CROSS-SECTIONS (REF14-21) FROM TOTAL CROSS- SECTION HT=4 TOTAL INELASTIC SUM OF ALL THE DISCRETE LEVEL EXCITA- TION CROSS-SECTION, DATA ARE IN REF 22-24. HT=17 (N, 3N) CROSS-SECTION, DATA ARE IN REF 22-24. HT=26 GROSS-SECTION FOR THE FORMATION of 10, 3HRUR METASTABL (SIXTH LEVEL) IN AU-190 DATA IN REF 22-24. HT=51-64 GROSS-SECTIONS USING COMMNUC-I (REF 25) NORMALIZE TO THE EXPERIMENTAL DATA ON INDIVIDUAL LEVELS WHERE AVAILABLE(REF 26-28) HT=91 INELASTIC SCATTERING CROSS-SECTION TO THE CONTINUUM O LEVELS OBTAINED BY USING COMMUC-I AND NDRMALIZINC IT TO THE EXPERIMENTAL DATA ON INDIVIDUAL LEVELS WHERE AVAILABLE(REF 26-28) HT=122 CAPTURE CROSS-SECTION FROM 1, ME-METICE) CROSS-SECM OF DISCRETE INELASTIC CAPD (N, PARTICLE) CROSS-SECM OF DISCRETE INELASTIC AND (N, PARTICLE) CROSS-SECM OF DISCRETE INELASTIC AND (N, PARTICLE) CROSS-SECM OF DISCRETE INELASTIC AND (N, PARTICLE) CROSS-SECM OF ADM RESONANCE PARAMETERS FROM 10,0KEV TO 1.0MEV DATA USED IN THE FINAL EVALUATI WERE THOSE WHICH DID NOT USE U-235 AS A STANDARD(REF2 37), ONLY DATA PUBLISHED SINCE 19AW CONSIDERED, ABOVE 1.0MEV ONLY ONE NEW DATA SET(KEF40)WAS CONSIDERI AND IT WAS DECIDED TO RETAIN THE ENDF/B-111(MAT= 1166 WHICH INCLUDED THE EVALUATION BY AUGHT AND GRENCH(1,0) 5.2MEV) AND THAT OF BOGART ABOVE 5.2MEV(REF41) HT=173 (N,AP A) CROSS SECTION BASED ON THE DATA OF REF 23. T=251-253 CALCULATED USING THE ANGULAR DISTRIBUTION OF FILE4, MT=2 USING THE COCE DUMMYS(REF 42) ILE=4 ANGULAR DISTRIBUTION OF SECONDARY NEUTRO'S T=2 ELASTIC SCATTERING BASED ON THE FXPERIMENTAL DATA IN REF 44-50 UPTO 6.05MEV, FROM 9.2MEV AND ABOVE BASED (MODEL CALCULATED USING THE ANGULAR DISTRIBUTION OF FILE4, MT=2 USING THE CODE OUNMYS(REF 42) ILE=4 ANGULAR DISTRIBUTION OF SECONDARY NEUTRO'S 		2"3-15 8MEV	AASEI	MA P	NLY	ON F	STF	RS D	TAIF	25581	AND RE
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ABOVE 1.0MEV ONLY ONE WEH DATA SFT(KEF40)WAS CONSIDER AND IT WAS DECIDED TO RETAIN THE EWDF/B-III(MAT# 1106 WHICH INCLUDED THE EVALUATION BY VAUGHU AND GRENCH(1.0 5.2MEV) AND THAT OF BOGART ABOVE 5.2MEV(REF41) T=193 (N,ALPHA) CROSS SECTION BASED ON THE DATA OF REF 23. T=207 (N,ALPHA) CROSS SECTION BASED ON THE DATA OF REF 23. T=251-253 CALCULATED USING THE ANGULAR DISTRIBUTION OF FILE4. MT#2 USING THE CODE DUMMYSCREF 42) ILE=4 ANGULAR DISTRIBUTION OF SECONDARY NEUTRONS T=2 ELASTIC SCATTERING BASED ON THE EXPERIMENTAL DATA IN REF 44-50 UPTO 6.05MEV, FROM 9.2MEV AND ABOVE BASED ON MODEL CALCULATIONS USING BASEL-2(REF 43) AND THE		371. ONLY DA	TA PUB	LISH	ED S	INCE	194	0 COV	SIDE	RED.	
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THE LISTNE THE COUL DUBRITICKER 427 ILE=4 ANGULAR DISTRIBUTION OF SECONDARY NEUTRONS THE ELASTIC SCATTERING BASED ON THE EXPERIMENTAL DATA IN REF 44-50 UPTO 6.05MEV, FROM 9.2MEV AND ABOVE BASED (MODEL CALCULATIONS USING ABACLE-2(REF 43) AND THE	1=251-253	CALCULATED	USING 105100	THE	ANG	ULAR Sider		IN IRD	1100	OF F:	[LE4]
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		MODEL CALCU	ATTON	S USI		ABACI	5-21	REF	431	AND TH	iF

OPTICAL MODEL PARAMETERS GIVEN IN REF44, (N,2N) ANGULAR DISTRIBUTION ASSUMED TO BE ISCTROPIC MT=16 MTs17 (N. 31.) ANGULAR DISTRIBUTION ASSUMED TO BE ISOTROPIC FILE=5 ENERGY DISTRIBUTION OF SECONDARY NEUTRONS MT=16,17,26 ENERGY DISTRIBUTION GIVEN BY CONBINATION OF A TEMP-ERATURE AND A PRE-EQU: BRIUM EMISSION MODEL BASED ON CATA IN REF 51,52 NT=91 A TEMPERATURE MODEL USING THE PARAMETERS IN REF 53. REFERENCES 1.S.F.HUGMABGHAB AND D.I.GARBER BNL-325,38D EDN, VCL 1(1973) 2.A.LOTTIN AND A. JAIN CONF ON NUCLEAR STRUCTURE STUDY WITH NEUTRONS, BUCAPEST, 1972 P34 AND PRIVATE COMMUNICATION. 3.K.K.SETH, PHYS.LETTERS, 16, 306(1965) 4.W.BILPUCH, PRIVATE COMMUNICATION(1959) 5. J.F. WHALEN, ANL-7210, 16(1966) 6.M. HALT AND R.L. BECKER, PHYS. REV, 89, 1271 (1953) 7.R.B. DAY, PRIVATE COMMUNICATION (1965) 8.0.G.FOSTER JR. PRIVATE COMMUNICATION (1967) 9.M.WALT PHYS.REV, 98, 677 (1955) 10, J.H. COON, PHYS. REV, 88, 562(1952) 11. J.P. CONMER. PHYS. REV, 109, 1268(1958) 12. J.M. PE (RSON, PHYS, REV, 117.927 1958) 13.J.M.PE RSON, PHYS. REV, 120, 521 (1960) 14.J.R.B TER, PHYS, REV, 98, 1214(1995) 15.J.R.8 STER, PHYS, REV, 104, 1319(1956) 16.M.H.M GREGOR, PHYS, REV. 108, 726(1957) 17, M, WAL 'HYS.REV,93,1062(1954) 18.E.R.C /ES_PHYS.REV.89,343(1953) VES, PHYS, REV, 97, 1205(1955) 19.E.R.L 20.D.D.PHILLIPS, PHYS, REV, 88, 600 (1952) 21.R.C.ALLEN ET AL. PHYS. REV. 104, 731(1956) 22.J.A. TENES ET AL PRIVATE COMMUNICATION (• 23.R.J.PRESTWOOD AND B.P.BAYHURST, PHYS.REV, 121, 1438(1961) 24.H.LISKIEN, EALOC(E), 1570(1)(MARCH 1973) 25.C.L.DUNFORD, AI-AEC-12931:1970) 26.J.A.M.DEVILLIERS ET.AL.ZEIT.FUR PHYSIK,163.323,1965 27.E.BARNARD ET.AL.NUCL.PHYS.A107.612(1968) 28. J.A. NELSON ET. AL. PHYS, REV C3, 307(1971) 29. J.B.CZIRR, M.L. STELYS, UCRL-74447(REV, 1)(JUNE1973) 30.C.LERIGOLEUR ET.AL. CONTRIBUTION TO KARLSHUHE HEETIG AND PRIVATE COMMUNICATION(MAY1973) 31. M. P. FRICKE ET. AL, PROC, NUCLEAR DATA FOR REACTORS CONF PAPER CH-26143(1978) 32.D. KDHPE, NUCL PHYS. A133, 513(1969) 33.W.P.POENITE ET.AL.J.NUCL.EN.22,505(1968) 34, T.S. BELANOVA ET. AL. AT. EN. 19, 3(1965) 35.T.S.BELANOVA ET, AL.J. NUCL. EN. 20,411(1966) 36. J.B. BARRY J. NUCL . EN. 18, 491(1964) 37.1.8ERG

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50.J.A.M. DEVILLIERS ET.AL. ZEIT.F. PHYSIK, 103, 323(1965)
51.V.B. ANUFRIEKKD, SOVY. J. NUCL, PHYS. A172, 223(1971)
53.A. GILBERT AND A.G.W. CAMERON, CAN, J. PHYS, 43, 1446(1965)

				454.404			
1	-2.5588E+#1	2.00086+08	1.76425-81	5.24286.42	1004886-81		
5	4.98656+80	2.00082+38	1.39245-41	1.42485-62	1.24882+41	8.88885+28	
3	4.645CE+81	1.60282+08	1.24136-64	1.38666-64	1.24886-81	#. 8848T+##	
	3.8588Fe81	1.088885+68	1.14485-41	A. ABBRC	1.42885.61		
	6.83885481	2.000000+00	4.68485404	6.AR88F-82	1.33885-81		
Ā	7.84805461		1.44986	1.47525-22	1 NARREAR1		
ž	1.67855+62	2.48886.08	1.27485.44	T.AR865183	1.28885-81	9.86387+28	
	1 22305+62	2.88885+58	1 24485-01		1 34885-81	1.00447-08	
ē	1.44285+82	1.88886.08	1.28665-41	A.96865-83	1.5488E+81		
18	1.91385+#2	2.28888.488	1.42485.441	2.26365-62	1.28885.481		
11	1.6298E+#2	1.80086+88	1.82085-01	5.6888E+82	1.30000-01	P. 0208E+30	
12	1.44982482	2.88882+88	1.14386-81	9.3568E-63	1.84986+81	4.8268F-P8	
13	1.9838E+82	1.80886+08	1.74886-01	4.400BE-02	1.38692-81	10+33860 F	
14	2.69395+62	2.86886+68	1.24486+81	5.AB887-64	1.24885+81	2.00307+28	
15	2.48566+82	2.88885.+88	1.72886.81	7.28885.82	1.00000.001	7.8224E+#8	
58	2.54785+82	1.00000.00	1.24825-41	8.00005-04	1.24486-81	3.08485+88	
17	2.624EE+22	1.00200.00	2.5348E .A.	1.33865-01	1.28886.+81	4.88947.48	
58	2.75506+82	2.88885+88	1.80285-81	A.2888E-83	1.85886+81	3.08241.00	
19	2,93*46+82	2.888882.88	5.1188E+#1	3.6588E-81	1.4409E×81	*. ********	
28	3.2958E+82	2.0000€+00	1.79486-41	4.56882.+82	1.3488E-81	E. 6998E+F8	
31	3.3100E+82	1.62882+08	2.00888-41	4.2688E-82	1.388#E=#1	*. CROAC+CO	
22	3,5508E+82	2.69885+88	1.64266.41	3,92085-02	1.2588E-#1	8,00002-00	
23	3,7870E+82	2.80886+88	1.92885-81	8.4888E+82	1.84876-01	#,08781+20	
24	3.7510E+82	1.08082+08	1.43986-81	1.39886-22	1.36886-81	9.0808T+20	
25	3,81586+82	2.00000+00	1.65186-81	6.1188E+C2	1.69882-81	8.8898E+28	
26	4,000000002	2,000000+00	1.60866+31	2.50886.02	1.4888E-81	8,08882+28	
27	4,48986+82	1,98691+08	4,2888E+51	2.66502-01	1.3280E+81	0.8988E+00	
28	4.58986+82	2.880884468	1,72086-81	6,2888E-82	1,100EE+01	8,9888E+48	
29	4,77882=82	2,88888498	4,38882-81	3,20006-01	1,3788E=81	A, 88492+CB	
38	4 ,9888E+8 2	1.00000.00	1,6788E-#1	5,78882-82	1,3000E-01	# : 68582 +28	
31	4 .948 8E+82	2.00002+00	1,60000-01	2,7898E÷82	1,3388E-81	8,888 <u>85</u> •PB	
32	9,3418E+#2	2,888882+08	1.07885-81	5,5888E+82	1,27886-51	8,00002+08	
33	5,48686+82	1.00002+98	1,00802-81	3.3888E-82	1,27885-81	P, 93932+08	
34	5,7918E+02	2.88888.+08	5.28682-81	5.70002-01	1,500000-01	A, 88995+20	
35	5,88982+82	1,88002+00	2.02885-81	1.4708E-81	1.130CE-01	41+32850.4	
36	5,8788E+82	1,00080+00	1.09846-81	8,58802-82	1.34886-81	8,88882+88	
37	6,82888-82	2,88882.00	3,69882-81	2,24886-81	1,4000E-01	9,0111E-00	
	4 48396.80	A 44485-04					

TOTAL

	60L2-197
0L0-197 1.0888E+88	ISOTOPE
2	NUMBER OF ENERGY RANGES
1	ENERGY RANGE NUMBER
1.08085-85	LC 'R ENERGY LINIT (EV)
2.2888E+83	UPPER ENERGY LINIT (EV)
1.50082.00	NUCLEAR SPIN
9.888PE-81	SPIN SCATTERING LENGTH (A+)-+
3	AUFBER OF L STATES

INDEX ENERGY (EV) J VALUE

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RESONANCE DATA ENGY/8 MATERIAL NO. 1203 Resonance Parameters

F155104

RESOLVED SINGLE-LEVEL BREIT-HIGHER PARAMETERS

REBONANCE WIDTHS (EV) NEUTRON RADIATION

- 81 -

19	6.24086482	1.8828E+28	1.70845+01	4.00001-02	1.5102Fa01	3.88385+88
	4 54445.00					
40	0.50405465	T. BECEL-DE	1.00001-01	5.5CD01+01	7.30005-61	- FEEDEL-DE
41	0,3873E+#2	2,00000.+20	6,3000Er01	4.8000E-01	1,5000E-01	4,00000000
42	6.56785+82	4.88285+28	1.32485-81	A. A888F-23	1.24886+81	1.0000E+00
	4				4 44445 - 44	0 30438.00
40	0,03901+02	1.00000000	1,3/301-01	1.33000-02	1.2-8-2-61	FILL DOCTOR
44	6.9562E-Ø2	1.68086.00	8.33888-81	6.6700E-F1	1.6380E-01	9:00000:00
48	4 00801-02	3 60455-98		9 14Par	1 44885-31	3.00000.00
	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2,00000000	8.00B0C-01	. JODDEPDI		- it can be a constructed at the second seco
46	7,1508E##2	5.85665+58	2,67886-81	1.17592-01	1.7000E+01	2.0008E+PD
47	7.3849Ee82	2.0008E+08	1.32086-01	A.0888E-83	1,248888401	7.8088E+78
	7 80005-82			4 37895-01	1 84895	3 88485+79
40	7,33762-02	1.00002-00	3.01002-01	2/20E-D1	1.9-0-0-01	
49	7,73828+82	1,00000-00	6.93005-01	4.7502E+01	1,250/E-01	*,000BE+20
58	7.8432E+82	2.0000E+38	2.8282E-01	1.288886-01	1.6000E=01	2.0038C+30
	7.84805402	7.8882F+88	1 25485-41	1 78885-01	1 47885-61	8.0008F+38
			S.C. DUL DA			
72	0,13366+85	1.00001-00	1,40886-81	5.52205465	1*34Bof.eD1	
43	8.19586482	2.8888E+88	3.888885-81	2.3000F-01	1.98886+61	*.22342+78
	1 38605-03	3 10465-04		6 START OF	1	
	0,23002-02	2.86086-08	7.000000-01	2. JOBSC	1.9/002.001	PIDDOCLOUD
	0,64582+82	1.889856+68	1.700FE-81	2,35845-02	1,47892+31	3,8848E+56
44	8.79785+82	5.8828E+88	1.72386~81	3.47835522	1.38682=21	7.02022+#0
	9 10405430	3 BORST-28	40400-01	4 14885-81	1 40385-01	9.99985458
	- SETELEDE	2,000000000	5.00000-01	A TTOPE T		
98	9.6133E+82	1,90906+00	2.62585-91	1,09986-81	1,9180E-#1	1,99586+36
59	9.6428E+#2	2.00002+92	4.8080E-81	3.3198E+91	1.4988E-01	7,000BE+08
4.3	9.68695482	2.00005+00	2 07485-84	4.21485-81	1.49825-81	A. 20205-028
°1	443365465	2.00-01-00	0.25805481	* ABBDF - PI	1.34845463	W10000E-00
42	1,82246+83	1,8888E+88	1.2538E-01	1,3888E-#3	1,240°E-01	**85985+58
A3	1.83965+83	1.08886+28	1.68855+81	4.48895-82	1.24000-01	\$.8828E+88
	4 44345.43					
	7*B#36F±33	1.000000000	0.10801-01		**5200F+01	A COODL - CO
47	1.84398+83	3,39601+99	1.3848E-81	4.49986-9 3	1,248PE+01	9,00-EE+00
44	1 67776 483	•	4 84825-81	5 44885-61	1 74486-01	3.00287+20
e/	1,04535463	2.00001+00	3.2007L 01	3,70881-81	1,440-6-71	*10000E-LD
68	1,12848+83	1,00006+00	1.4680E-81	2,28886,402	1,243°E+01	0,0920E+79
67	1.1284F##3	2.9828E+88	1.61#8E-#1	3.7888E-62	1.74888+#1	8.8828E+08
	1 136.5.83	3 08485+38		1 10447-01	1 #1085-81	
			4.70002-01			
71	1,17/32483	5,00000000	1,95886.81	8.8888L-00	1'Semmerant	H. CC485-00
72	1.16386003	2.888882+08	A.3288E+81	2.9356E-01	1.4889E+81	9,53382+88
13	1 28705493	2.08885+48		3.48886.01	1 46885-61	0.6828F+PE
		2,00000000	2.00000-01	3,0000		
74	1,21036+83	2,03036+88	1,76886-61	3,28886-82	1,24806481	2 ⁶ 2808595950
75	1.2233E+83	1.00082-00	7.#8##E-#1	9.6 998 E-01	1,4882-61	2,8888E+P8
	1 34546483		3 67055-44	13425-01	1 24885-81	a. 40355+28
	TING TO THE T	1,000000000	2.37802-81	11000000000		
37	1,28176+83	1.00000-00	6.0000E-01	4,9900E-01	1,41006401	# 20 0 DF - 50
76	1.23822+#3	2.00888E+88	1.39082-61	£.5000E÷22	1.24000-01	A 66956+88
*9	1.31478+83	2.68485+88	3 77485-01	9 388F	1.24885081	0.0000P+08
	1 14445.41					6.08386484
	1,35005000	1,00000.000	0.4CB01-#1	1.04005-01	1,3000001	
81	1,3358E+#3	5'00006+90	2,4980E-01	£,2500E-01	1,24896-81	3 * 6 8 6 6 E + 6 6
82	1.3543E0#3	1.02886+89	7.2888E=81	5.9208E-01	1.20000-01	*,#####E+##
43	1 30005403	3 88885+88	4	9 48885-02	1 94885-41	1.02005400
			7.30805-81			
6 -	1,38/7E##3	1,00000.000	3.91002481	Z, 8780E+81	7450855087	· · · · · · · · · · · · · · · · · · ·
85	1.39582083	2. 82482+8 2	1.568885-81	3.2008E-02	11248888-81	A,8899E+88
	1 49431 483		7	* 1144F_41		
	1.41055483	1,000001.000	2.02005-81	510700CaD7	1.2.00	
87	1,43662493	5,68285+95	3.5080E-81	4,2890E-01	1,24985401	*************
68	1,4985E483	2,008882+01	4.1080E-81	2,7788E581	1,33805-01	r,8998£+08
	1.44928483	2.88888488	1.41087.454	3. 78885.82	1.24888.004	8.88988.08
	1 49475447	A GROAT A		4 49985.0-		
	4 19793E=83	1, BBCBLVBB	2.048PL-81	1.0000Leg1		PICESPE-CO
91	<u>⇒.49₽4£+\$3</u>	2,0000E+80	1.1480E* 88	2,8358[+88	1,29846481	9100005+68
82	3F483	4 . 的复数声艺中情情	1.54485484	5.9480F182	1.24882-(1	2.0030E+08
73	T'F GARGebo	1.00002+00	2,74082401	2.2500E-05	7'54886481	A CORRECT AND
94	1,59232483	2,000000+88	3.0000E-61	1,588866-81	1.5000E-01	A 1 BBS#E+60
45	1.56955483	1.88882+88	1.36885.04	1.2000	1.2488E+A1	A. 8888E+AB
	4 69845444		4 43445-44		4 4005-04	
	*********	1,00000-00	0,40001-01		**************************************	
97	1,59332+83	2,6888E+88	1.8300E-^\	2'SCORE-05	1,24805-61	# 1 B B # C E + C D
98	1.6144E+83	2.66888[+88	2.8088E=01	1.6088E-D1	1,14800-01	F,0000E+80
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ENERGY RANGE NUM LOVER ENERGY LIM UPPER ENERGY LIM NUCLEAR SPIN EFFECTIVE SCATTE NUMBER OF L STAT	BER IT (EV) IT (EV) PING RADIUS ES		- 8858E - 6 - 8658E - 6 - 5658E - 6 - 6656E - 6	2 UNRI 13 14 16 12 2	SOL VED	8 I N G	iLE-LEVI	L BR
L VALUE				Ø 2				
				AVERAGE	RESONA	NÇE	WIDTHS	(Ev)
LEVEL SPACING	J=VALUE	DEG	OF FREED	0 N	UTRON		RADIAT	104
4,3298E+01 2,5988E+01	1.0708E+08 2.07 08E +08		1.0000E+ 1.0000E+	88 9. 88 5.	8728E-8 4398E-8	3	1,2988 1,2582	E=01 E=01
L VALUE				1				
				AVERAGE	RESONA	NCE	W10THS	(EV)

		AVI	ERAGE RESONANCE	WIDTHS (EV)
LEVEL SPACING	JEVALUE DER	OF FREEUDH	ASUTRON	RADIATION
1,296CE+82 4,328CE+81 2,5983E+81 1,698CE+81	0.02986+80 1.87086+80 2.87986+80 3.67986+80	1.0030£+85 2.0580£+55 2.0580£+55 1.0580£+55	5.1840E-83 1.7280E-83 1.0340E-83 7.4808E-84	1.27000-01 1.25000-01 1.25000-01 1.25000-01 1.25000-01

R

1.6417E-833 1.642E-833 1.642E-833 1.782E-833 1.734E-833 1.734E-833 1.734E-833 1.811E-833 1.811E-833 1.832E-833 1.832E-833 1.832E-833 1.833E-833 1.833E-833 1.833E-833 1.833E-833 1.833E-833 1.833E-833 1.933E-833 1.933E-833 1.933E-833 1.933E-833 1.933E-833 1.933E-833 1.933E-833 1.933E-833 1.933E-833 1.935FE-833 1.935FE-835FE-833 1.935FE-835 1.935FE-835 1.935FE-835 1.

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RESONANCE DATA ENDF/8 MATERIAL NO. 1283 Resonance parameters

UNRESOLVED SINGLE-LEVEL BREIT-HIGNER PARAMETERS

LEC LEG	CROXS BE	CTIONS								
INCEX.	ENERGY	CROSS SECTION	ENERGY	TROSS SECTION	ENERGY	CRUSS SECTION	ENERGY	CROSS SECTION	ENERGY	CROSS SECTION
	A	BARNP	L L V	EARNS	A	4 4 4 4 4 9 9 9 9 9	3 80000.00	1 4 08345-23	4 0000(+0)	1 1 4430C+82
i,	1,8230548	5 B.YEBBLOOD	C'EDENF-DO	D'PONRE-23	240003200	13.05.02			0 00001-0	
•	3,00000000	3 0	0.00001-03	1,21026001	1 DBSSE	1.31 31 31 31	d bepet - s		1 Tagat AA	0.000000000
- 11	1,05%61+6	19~10101-01	7*00665+05	1,22586+00	1,10000.00	1,14-02-00	1.20041-0	1.0000-00	1.30000-00	9,90001-01
10	1,4880E+8	9,7500E+01	1,70002+84	0.900BE+01	1'CB00E+B.	0.26586.51	1, 2031+0	G**8305-07	1,00001-0	,,00001-01
21	1,90096+6	4 7,70006-01	2,46666+64	7.35002+01	5'70005.00.	1,19006401	S'SHBSE+C	0.40865-81	2,3000.00	0,0200E+01
50	2,4888E+6	04 0.6408E-81	5.2000E+04	4,9000E=01	5.08026.8	0.39005-01	5.1800E+0	4 0.2360E-01	2.00001-0	0,00002-01
31	5' 88855#8	4 9,9700 <u>C</u> -01	2,46665-84	3,84882+81	2'5400E+0	3.00006401	3,40000.40	4 3,40865-61	3.00000	5,300000-01
36	3,8890E+P	04 9,1250E-01	1.000000-01	5,01000-01	4,20000-0	4.890HE-81	4,40000.00	4.7980E-01	4,6020,00	A PAUNTANT
41	4,86806+6	84 4,390BC-81	2.0000E+04	4,49886+81	3,55885+5	4.40086-01	2,4000E+0	4 4.3188E-01	2.0000L0E	4 4.2300F-01
46	2,9986[+1	64 9,1700E-81	0,00006+04	4.0800E-D1	0,38086+8	. 3.98n0(-31	1.0000E+1	4 3,7250E+01	, 20001.00	1,57505-01
51	9,99966+9	84 3,4188E-01	4,588864.84	3,30006-01	6*39999, 9	3.24066-41	0.2005E+0	4 3,2000E-01	1,03000.+8	5 3,13202-01
96	1,108000+4	85 J.07882+01	1.20001+0	5 3,0100E-01	1.30886+0	2.95006+61	1,400000+0	5 2.90005-01	1.90005.0	5 2.6300[-01
61	1.600960	85 2.7908E+81	1.70006+0	5 2,7300E+01	1,8000E+P	2,68000-01	1.9083E+8	5 2.6200T+P1	5.00001-0	5 2.9790E-01
66	2.1000E+4	35 2.5108E-01	2,2888£+6	5 2,45PDE+01	5.20000.00	2.41C0E-01	2.400PE+0	5 2,3900E-01	2.50001.00	5 2,3000E-01
71	2,66866*	\$5 2,2508€∽8 <u>1</u>	2.78886.48	\$ 2,28 40E +81	5'9888EP8	5 2,16085-01	2,90000+8	5 2.12000-01	3,88886+8	2,69666-61
76	3,288860	05 1,9800E-01	3,40002+0	1.8900E=01	3,00006+0	5 1,81382-91	3,80006+0	5 1.7128E+01	4.80281.48	5 1.6580[-81
81	4,20802+	05 1.6P00E-01	4,40806+8	5 1.54P0E-01	4,68800000	5 1,44002-01	4,80006+0	5 1.4300E-01	5.00895+0	5 1,4000E-01
86	5,2000E+0	05 1,3500E-01	5,4000E+8	1.31006-01	5,60000000	5 1,26000-01	5,60006+0	5 1.2308E-01	6.0000E+0	5 1.20086-01
91	6.5380241	85 1.11882-81	7.880BE+8	5 1.04P8E+61	7,589852+0	5 1.00002-01	8,07076+8	5 9,50006-02	6,5088E+8	5 9,88885-82
96	9.000000	85 8,90006-82	9,58666*6	5 8,70F0E.02	1,000000000	6 8,4458E+P2	1,100000+0	6 0.1730E+02	1,2000E+0	6 7,95386-82
191	1.300254	86 T.7538E+92	1.40002+0	5 7.5288g+#2	1.50000000	6 7,26186-82	1.000020+0	9 9 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	1,7086E+0	6 6,6818ۥ82
106	1.000000.0	86 6.368CL-P2	1.98580.00	5.04685-82	2.00000.00	0 1,717dg=02	2.1900E+B	6 5.3860E+02	2.2000[.0	6 5,05686-02
511	2.30806+	86 4,73288-82	2.40001-00	6 4.4298E-82	2.50886-8	6 4,89882-82	2.65882+8	6 3.88P8E-92	2.78000.*8	6 3.55P8E-82
110	2.89886+	80 3.31986-82	2.96605+8	5 3.0700F+02	3.000000.00	6 2.84882+82	3.20836+8	6 2.4098E=P2	3.4080E+0	6 2,19725+82
121	3.68882	86 1.99886-82	3.889.85+8	1.87PDE-02	4.00000.+0	6 1.78000-02	4.20006+0	6 1,71000+02	4,40002+0	6 1,66002-02
120	4.68801.	86 1.61806-82	4.46684+8	5 1.57005-02		6 1.54885-82	5.20876.0	6 1.52006-02	5.4888848	6 1,49206-22
131	5.8000E ·	86 1.4308E-02	8.0808648	A 1.27985-82	1 DBBBS -	7 1.14000-02	1.3000000	7 9.88PBE-P3	2.20801-8	7 8.70006-03

INTERPOLATION LAW BETWEEN ENERGIES RAMGE DESCRIPTION 1 TO 95 Y LINEAR IN X VELTHON CROSS BECTIONS RANGE DESCRIPTION 95 to 135 LN Y LINEAR IN LN X

REACTION & VALUE 6.5127E+R6 EV

GOLD-197

(N.GAMMA) NEUTRON CROSS SECTION

ENDEVE MATERIAL ND. 1283

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Appendix - F Uranium - 235 MAT, No. - 1261

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92-U -235 LASL.AI EVAL-MAR74 L,STEHART, H,ALTER, R,HUNTER DIST-JUL74 REV-JUN75 PRINCIPAL EVALUATORS- L,STEHART LASL, H,ALTEH AI, R,HUNTER LASL

CONTRIBUTING EVALUATORS

NU-BAA--B.R. LEONARD RNW, L. SYEWART AND RAY HUNTER LASL, HUHMEL ANL, F.P.YIELDS--R.SCHENTER HEDL, FISSION PROD. SUBCOMMITTEE DELAYED NEUTRON DATA-- S.A.COX(ANL) RADIDACTIVE DECAY DATA--C,H.REICH ANC RESOLVED RESONANCE DATA--J.R. SHITH ANC, R. GWIN, R. PEELE, AN G.DESAUSSURE ORNL UNRESOLVED RESONANCE DATA-- R.PEELLE(ORNL) AND M.BHAT(BNL)

SHOOTH DATA

THERMAL RANGE C.LUBITH KAPL, J.HARDY BAPL, 9.R.LEONARD 9NW B2 EV -25 KEV--R.GHIN, G.DESAUSSURE ORNL, R.BLOCK RPI, J.R. SMITH ANC 25 KEV-1 MEV A.CARLSON NBS, W.POENITZ ANL, L.STEWART LASL, M.ALTER 1 MEV-20 MEV--R.HUNTER, L.STEWART LASL, H.ALTER INELASTIC SCAT--L.STEWART, R.HUNTER LASL SECONDARY NEUTRON (15T.-L.STEWART, R.HUNTER LASL GAMMA PRODUCTION--R.HUNTER, L.STEWART LASL

ND FORMAL REPORT AVAILABLE DESCRIBING THIS EVALUATION

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MF = 1
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NT=452 NU=BAR TOTAL

NORMALIZED TO CF-252---SUGGESTED BY THERHAL TASK FORCE

MT=453

INDUCED REACTION BRANCHING RATIOS

NO DATA GIVEN

MT=454 FISSION PRODUCT YIELD DATA

FISSION PRODUCT YIELD DATA FOR ENDE/8-1V 8/74.

RECOMMENDEL

VALUES ARE GIVEN FROM THE YIELDS SUBCOMMITTEES OF THE DECAY HEAT TASK FORCE, MEMBERS OF THE SUBCOMMITTEES INCLUDE N.WALKER(CH). P.ALINE, N. DUDEY, R.LARSEN, H. MAECK, H. MCELROY, B. RIDER, T. ENGLAND(CH) A, WAHL AND K, WOLFSBERG, FINAL DIRECT YIELDS WERE GENERATED BY B. RIDER USING METHODS DESCRIBED IN NEDO-12154 REV.1 JAN.74, ENDF/B File PREP, AND MODIFICATIONS WERE MADE BY R.SCHENTER R/74, PEAK CHAIN YIELOS ARE GIVEN AS A=YCHAIN(PERCENT)= ELA8=2.53E-02 EV 872.55, 883.62, 894.84, 983.91: 915,92, 925,96, 936.37, 946.42, 956.46, 966.25, 975,96, 985,78, 996,12,1446,38,1215.44,1824.28, 1933.14,1312.83,1324.25,1336.79,1347.68,1336,08,1366.27,1376.27, 1386.82,1396.48,1406,32,1415,89,1425,93,1435,97,1445.45,1453.93, 1462.99,1472.27 A=YCHAIN(PERCENT)= ELAB=5.00E+05 EV 872.41, 883.59, 894,56, 905,57, 915,59, 925,72, 936,10, 946.19, 956.38, 966.09, 975,96, 985,87, 995,70,1706,24,1915,42,1024,59, 1933.29,1042,31,1313,23,1324,65,1336,47,1347,62,1356,28,1366,24, 1376.16,1386,47,1396,33,1486,02,1415,99,1425,46,1435,70,1445,27, 1453.75.1462.90.1472.37 A-YCHAIN(PERCENT)= ELAB#1.40E+07 EV 872.41, 863.32, 893,97, 904,60, 914,81, 925,12, 935,21, 945,20, 955.85, 965.11, 975,47, 984,88, 995.18,1705,21,1014,42,1023,93, 1033.09,1042.28,1272,18,1282,37,1292,96,1303,44,1314,04,1324,63, 1335.48,1346.28,1355,38,1365,02,1374,92,1385,09,1394,83,1404.43, 1414,57,1424,88,1433,90,1443,23,1453,05,1462,37

HT#455 DELAYED NEUTRON YIELDS EVALUATION BY S.A.COX(ANL),L.STEWART(LASL),B.HUTCHINS(GEBRDO) AND N.C.PAIK(WARD) SEE REPORT ANL/NDM-5 BY S.A.CLY(ANL)

MT=456

PROMPT NU-BAR

NORMALIZED TO CF-252, SUGGESTED BY THERMAL TASK FORCE

MT#457

SPONTANEOUS RADIOACTIVE DECAY DATA

EVALUATION BY C.W.REICH (ANC) FEB74 REFERENCES Q(ALPHA)= 1973 REVISION OF WAPSTRA-GOVE MASS TABLES HALF-LIFE N.E. HOLDEN, CHART OF THE NUCLIDES (1973) AND PRIVATE COMMUNICATION (JAN., 1974) GAMMA-RAY ENERGIES AND RELATIVE INTENSITIES - L.A. KROGER, PH.D. THESIS (UNIV. OF WYOMING, 1971) SEE

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ALSO, USAEC REPORT ANCR+1016, P.75 (1971). OTHER+ A, ARTNA+COHEN, NUCLEAR DATA B 6, NO.3, 287. (1971). NOTE AVG. E-ALPHA = 4468. KEV. THIS VALUE INCLUDES CONTRIBUTIONS FROM THE KINETIC ENERGY OF THE ALPHA PARTICLE AND THE RECOIL ENERGY OF THE DAUGHTER NUCLEUS.

MF = 2

RESOLVED RESONANCE REGION RESOLVED RESONANCE REGION REMAINS UNCHANGED FROM ENDF/B-3, ANC REPORT BY J.R.SMITH

UNRESOLVED RESONANCE DATA--R. PEELLE (ORNL), M. BHAT (BNL)

82 EV-25 KEV

PARAMETERS ARE GIVEN AT 120 ENERGY POINTS. LOCAL-AVERAGE PA-PARAMETERS ARE CONSTANT OVER THE RANGE FOR POWAVE RESONANCES, RAMETERS ARE CONSTANT OVER THE RANGE FOR FOR FNOF/Rediting For SPINS 2-5, AND HAVE THE SAME VALUES GIVEN FOR ENDFIG-111. S-WAVE LOCAL-AVERAGE PARAMETERS (J=3,4), THE GAMMA_RAY WIDTHS HERE KEPT AT THE ENDE/8-111 VALUE OF 35 MV, WHILE THE HIDTHS HERE VARIED TO PRODUCE A FIT TO THE APPARENT GROSS STRUCTURE IN THE CROSS SECTIONS EVALUATED BY LOOKING AT THE FEATURES COMMON TO SEVERAL EXPERIMENTAL MEASUREMENTS, FITS WERE PRODUCED USING THE CODE UR. THE S-WAVE POTENTIAL SCAT-TERING RADIUS WAS TAKEN AS ,95663X10-12 CH, GIVING A POTEN-TIAL SCATTERING CROSS SECTION OF 11.5 8, JUST AS IN THE RESOLVED RANGE, TO PRODUCE ACCEPTABLE 5 PERCENT AGREEMENT WITH AVERAGE SIGHA TOTALS, THE CROSS SECTIONS INPUT TO THE FIT WERE ADJUSTED TO YIELD THE EVALUATED AVERAGE CAP, AND FIS, CROSS SECTIONS GIVEN BELOW, IF THE CROSS SECTIONS ARE LINEARLY INTERPOLATED BETWEEN THE POINTS GIVEN, IF A PHOCESSING CODE LINEARLY INTERPOLATES PARAMETERS BETWEEN THESE EVERGY POINTS. THE RESULTING AVERAGE FIS, CROSS SECTIONS ARE TOO HIGH, FOR DECINAL INTERVALS BY UP TO ,7 PERCENT AND CAP, CROSS SECTIONS AVERAGED OVER THESE INTERVALS ARE TOO LO BY UP TO 1.3 PERCENT, INTEGRAL CROSS SECTIONS UP TO 1 KEV ARE HI AND LO BY 0.3 AND 0,7 PERCENT AND THE INTEGRALS FROM 1 KEV UP ARE HI AND LO BY 0.16 AND G'24 PERCENT, THE EVALUATED AVERAGE FIS, CROSS Sections were normalized to a 2200 M/SEC Value of 304.5 D, AND HAVE A SHAPE DETERMINED BY COMBINING DATA FROM REFERENCES 27-31 IN APPROPRIATE ENERGY RANGES. AVERAGE (UNIT WEIGHT) CAP. CROSS SECTIONS WERE COMBINED FROM REFERENCES 28,30 AND THE EVALUATED AVERAGE CROSS SECTIONS GIVEN BELOW ARE 31. TAKEN FROM REFERENCE, REF. 32.

ELO EMI FIS. CAP. ELO EMI FIS. CAP. ELO EMI FIS. CAP.

ANGULAR DISTRIBUTIONS ELASTIC SCATTERING ANGULAR DATA TAKEN FROM EVALUATION OF REFERENCE 22, HUNTER.---ANGULAR DISTRIBUTION DATA FOR NONISOTROPIC INELASTIC LEVELS (MT=61=66) BASED PRIMARILY ON

BASED ON REFERENCES 1 AND 14 THROUGH 19 AS RECOMMENDED BY U-235 TASK FORCE, ABOVE 1 MEY ALPHA CURVE SMOUTHLY EXTRAPOLATED TO 20 MEV. ---CAPTURE CROSS SECTION DERIVED AS THE PRODUCT OF THE FISSION CROSS SECTION WITH ALPHAGGABOVE 0.5 MEV TOTAL CROSS SECTION TAKEN FROM SPLINE FIT TO DATA OF REFERENCES 20 AND 21, BETWEEN 25 KEV AND 0.5 KEV A SMOOTH CURVE WAS FIT TO THE TOTAL CROSS SECTION OF ENDF/B-3. MF # 4

SHOOTH DATA THERMAL DATA---THERMAL TASK FORCE 1 EV TO 82 EV J. R. SMITH 80 EV TO 85 KEV PECLO PHAT 82 EV TO 25 KEV PEELLE, BHAT 25 KEY TO 100 KEY BIG THREE PLUS THO TASK FORCE 100KEY TO 1 MEV---FISSION CROSS SECTION TAKE" AS CURVE SUGGESTED BY U-235 TASK FORCE AND CSENG STANDARDS AND SUGGESTED BY U-233 TASM FUNCE AND USENG STANDARDS AND NOPMALIZATION SUBCOMMITTEE, IN THIS ENERGY REGION DATA TAKEN FROM REFERENCES 1 THROUGH 9, DATA DF REF.4 SEARO (71) RAISED BY 1,04, BETWEEN 1 AND 6 MEY CURVE DRAWN THROUGH DATA OF REFERENCES 3, 5, AND 7 THROUGH 11, HITH HEAVY WEIGHT GIVEN TO REF. 11, ABOVE 6 MEY CURVE DRAWN THROUGH DATA OF REFERENCES 7, 8, 12 AND 13 DATA OF DEFENSION AND A DEFENSION OF THE SEARCH SEA 7, 8, 12 AND 13, DATA OF REFS, 12 AND 13 NGRMALIZED TO 2,152 BARNS AT 14,0 MEV.---ALPHA CURVE BETHEEN 13 KEV AND 10 MEV

MF a 3

.... THE SHAPES OF THESE CROSS SECTIONS ARE BASED ON THE 19-BORON (N,ALPHA) REACTIONS AS GIVEN IN ENDF/B-111, OVERALL UNCER-TAINTIES IN THE EVALUATED AVERAGE CROSS SECTION ARE ESV ATED AS 3 PERCENT IN FIS, AND 8 PERCENT IN CAP, AS GETAILED IN THE COMPLETED DOCUMENTATION, THE CONTRIBUTIONS TO THESE UNCERTAIN THE CONTRIBUTIONS TO THESE UNCERTAIN-TIES WHICH ARE HIGHLY CORRELATED OVER THE WHOLE ENERGY RANGE ARE 2 PERCENT FOR FIS. AND 7 PERCENT FOR CAPT. FOR ADDITIONAL DETAILS SEE REF 32 OR THE DOMPLETE DOCUMENTATION REPORT.

.08	.10	25,65	15,70	0,7 0,8	11,11	4,91	5,	5.	3.80	1,42
.10	.15	22,50	12,80	0,8 0.9	8,25	4,15	6,	7.	3,41	1,40
.15	.20	19,50	11.00	8.9 1.0	7,55	5,05	7,	θ,	3,15	1,33
.20	. 25	21,50	12.70	1.0 1.5	8.37	3,40	8,	9.	3.01	1,45
. 25	.30	19,50	7,10	1,5 2,0	6,57	2,56	9,	12,	3.05	1,25
.30	.40	13,12	6,56	2,0 2,5	5,49	2,20	10,	15.	2.65	1,08
.48	.5g	13,59	4,83	2,5 3,0	5,15	1,74	15,	22.	2.31	,90
.5ø	. 62	15,22	A,62	3,0 4,0	4,75	1,62	20,	25.	2.19	.87
.60	.79	11.50	4.67	4,8 5,8	4,27	1,53				

(KEV)	(8)	(8)	(KEV)	(8)	(8)	(KEV)	(8)	(B)
18 .10	25	15.70	0.7 0.8	11,11	4.91	5, 5,	3.80	1.42
0,1	22 [°] 50	12,80	0,8 0,9	8,25	4,15	6, 7,	3.41	1,40
5 .20	19,50	11.00	0.9 1.0	7,55	5,75	7, 8,	3.15	1,33
0.2	21,50	10,70	1,0 1,5	8,37	3 40	8, 9,	3.01	1,45
5.30	19,50	7,10	1,5 2,6	6,57	2,56	9, 12,	3.05	1,25
10 .42	13,12	6,56	2,0 2,5	5,49	2,20	10, 15,	2.65	1,08
8 .52	13,59	4,83	2,5 3,0	5,15	1,74	15, 20.	2.31	,90
9 .62	15.22	4.62	3.0 4.0	4.75	1.62	20. 25.	2.19	.87

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WORK OF KAHMERDIEHER, REF. 23: ALL INCLASTIC DATA BELOW 5 MEV TAKEN TO BE ISOTROPIC, ANGULAR DISTRIBUTIONS FOR ALL OTHER NEUTRON REACTIONS ARE ASSUMED ISOTROPIC, EXCEPT FOR DIRECT INTERACTION GROSS SECTIONS ABOVE 4 MEV FOR HT#61-66.

MF = 5

ENERGY DISTRIBUTIONS

FISSION--THERMAL-- T=1,323 MEV AS RECOMMENDED BY THERMAL TAS Force.-IAT 14 MEV-- T=1,59 AS APPROXIMATED FROM SLOPE OF PU-239 DATA" EXCEPT FOR DISCRETE INELASTIC, ALL INELASTIC, (N, 2N) ETC, REPRESENTED BY TEMPERATURE MODELS.

NOTE HT=19-21 SHOULD BE USED IN PLACE OF MT=18 IF RESULTS ARE SENSITIVE TO FISSIONS CAUSED BY NEUTRONS OF 6 MEY OR GREATER,

MF 8 12-15

GAMMA PRODUCTION

la de la companya de la construcción de la companya de la companya de la construcción de la construcción de la

DATA TAKEN FROM STEWART, REF. 24" CRUSS SECTIONS BASED ON NEUTRON FILES (MF#2, 3) AND CALCULATED MULTIPLICITIES BELOW 1.09 MEV. AROVE 1.09 MEV DATA BASED ON URAKE, REF. 25, AND NELLIS, REF. 26,

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ENDEZB MATERIAL ND, 1261

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RESONA	NCE DATA
RESONANCE	PARAMETERS

RESOLVED SINGLE-LEVEL BREIT-HIGNER PARAMETERS

	RESONANCE HICTHS (EV)						
INCEX	ENERGY (EV)	J VALUE	TOTAL	NEUTRON	RADIATION	F15510*	
1	-1,4908E+02	3.50000+00	2,37686-21	3,68205-03	2.70006-02	2,3700E-01	
5	2,90075-01	3,5008E+00	1.35888-21	3.91572-96	3.4222E-22	9.98286+72	
3	1,14892-80	3.9000E+00	1.50821-01	1,91612-25	3 4628E-82	1,1628E-21	
4	2.8358E+8P	3.5000E+80	4,4696E-02	7,66852-26	3,4874E-02	9,8148E-73	
5	2,9283E+8P	3.50092+30	2,2000E-01	6,8932E.96	2,82006-82	2.2008E-01	
6	3,1478E+8c	3,5000E+00	1.3961E-21	2,24056-05	3.32106-02	1 f . 57E-21	
7	3,6290E+00	3,50006+00	8.4379E+22	4,5594E-85	3,3696E+82	5 . 37E-12	
8	4.8482E+8P	3,5020E+00	3,9592E-g2	6,8352E-85	3,5945E-82	3,5878E-P3	
9	5,44822+88	3.5000E+00	9,61286-02	3.30112-00	6,2382E-82	3.01176-02	
19	5,60000.00	3.50006.00	6.4192E-01	3,33196-85	2.020PE-02	4 2189E-F1	
11	6,2182E+82	3.5000E+H0	2.3298E-01	6.37952-05	4,3459E+02	1.8736E-#1	
12	6,3820E+02	3,500000-00	4.4788E-22	2.6834E-84	3.4972E-02	9,54808-93	
15	7.87725+82	3,5000€+00	5.3934E-02	1.2660E-04	3,5574E-02	2.6233E-P2	
14	8.7610E+EP	3,5000E+00	1.23296-01	1.1234E-03	3.1172E-02	9,10002-72	
15	9,28622+89	3.5008E+80	1.10766-01	1,6364E-04	3,5602E+22	7,50036-02	
10	9,7302E+00	2,20006+50	2.69052-01	5.3020E-05	3.28030-02	2,37886-21	
17	1,0182E+01	3,50082+80	1.00566-01	6.1898E-85	3.80076-02	6,250BE-72	
18	1,0800E+01	3,5000E+00	9.3529E-01	9.33322-25	6,7000E-02	A,6828E-01	
19	1,16665-01	3.50000+00	4.72772-02	6.2744E-04	4,8400E-82	6,2500E-03	
26	1.2396E+01	3.50A0E+00	6.3262E-02	1.20220-23	3,4500E-02	2,75022-22	
57	1,28616+81	3,9000E •00	1.1955E-01	5.3076E-05	3.3000E-62	A,6200E-72	
22	1,3275E#Ø1	3.5888E+08	1,5144E-01	3.9358E-25	2,8600E-02	1,22886-71	
23	1.3788E+21	3,58284-00	1.2394E-01	3.70132-05	3.0400E-65	9,35286-22	
24	1,3996E+01	3,50006.00	4,9654E-21	5.3723E.04	2.6000E-02	4,7888E-91	
25	1.4544E+01	3,5000E+20	5.0215E-02	1,15175-24	3.5200E-02	2.0900E-P2	
20	1,54866+81	3,5000E+00	7 88376+62	2,3727E-04	3, 530°E-85	4,3388E-22	
27	1,088E+01	3.50306+30	5,8361E-C2	3,68996-94	3,1383E-82	1,8617E-02	
28	1,6667E+81	3,500DE+00	1,33276-01	2,7388E-84	3 2185E-82	1.00096-01	
29	1.8852E+81	3,50000+00	1,6038E-21	3,4491E-04	3,5e.2E-82	1,2500E-11	
30	1,89622.01	3.5000E+00	1,05126-01	1,15822-24	5,838°E-82	5,50006-02	
71	1.9297E+01	3.5000E+83	9.81945-22	5.1936E-03	3,48215=82	6.8179E-#2	
	2.0132E-01	3.50002+00	2.40096-01	A.7714E-07	1,3912E-02	2.2609E-01	
33	2,02006+01	3.500BE+02	5.0013E-22	1.30346-05	• 9282E • 02	7.2808E-24	
34	2,06101+01	3,5000E+00	8,4191E-02	1,91178-24	4,84825-82	4,35152-22	
35	2,10/2E+01	3,5000E+30	7.3903E-02	1.5027E-03	4,8342E-82	3.1658E-22	
36	5°543AE+BI	3.52086+08	7.54366-02	4.3754E-24	3,2670E+82	4.23.8E=*2	
37	2,3412E+01	3,9000E+00	3.2204E-02	7.8372E-84	2.65000-02	5,00006-03	
38	2,3829E+01	3,5000€+00	2.25865-61	A,5577E-84	4,3000E-02	1,42206-/1	

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	2.40455481	3 BADAE.20		4 44167-04	1 .0085-07	A. 70805-42
40	2 43796+91	3.50006490	1 49156-01	49585.04	3.100-0-07	6.5420E-12
21	2.42005.01	3 50225+00	A 53485-01	A 76245-04	3 40000-22	8.95/02-2
42	2 55905401	3 50906-00	3 85665-01	5 \$4555.04	2 60035-02	1.69295.01
43	2 44885481	3 92996.00	4 03/85-34	4 73995-84	1 24 286 - 82	4.48295-71
	2 49495-81	1 50000-00	3 63306-01	A 64384.05	3.20070-02	10000000-21
16	7 74435484	1 60005420	2,00072-01	6,50351-05	4 900000000	2,20001-11
		3,00.00000	1,12576-82	8,51391405	20000-02	A SOUCE PE
		3.30001-00	1.20676 21	6.7.7.	3,20000-02	8,00001-22
14	2.05401.01	3,70001+00	6.5031E-82	3.1104 -25	• 94.65F + 65	5-20-65-55
40	2,0301E.001	3,500002+00	1.47172-01	1.0004 - 24	3.1782E-82	1,1738E-71
47	2,07122+01	3,52001.00	1 3004E-21	20005-97	2 BLBNE - 05	0,2042E-35
78	2, 9844E481	3.50001-00	6.1 7/L-C2	1.77*E-E	3.700CE+82	5 BOSE 5
71	3.09901601	3,70002400	1.00236-01	5.2/32E-04	4.52441462	192426-21
24	S DECRET	5,50002.00	3,4532L-02	5,32371-04	3.52541422	110/315-72
23	3.28/0E+01	3,9000L+20	2.4052E-CS	1,82336-83	772-1-02	6 82/6E=12
22	3,39201001	3.30005+00	9.0899E-22	9.02421-03	3.1801L-82	7,31396-72
55	3,4372E+01	3,5882[+86	8,7253E-02	2.25272.03	4,3182E-82	4.1846
56	3,4850E+01	3.50000.00	1.1610E-01	£.0997E-23	3,8247E+02	7.4/53E-12
97	3,51876+01	3,5002E+88	1,8350E-01	3.5004E-03	3,1402E-02	6,5598E-72
50	3,93886+01	3,58000000	6,9157E-31	1.56752-03	4,0223E-62	6,5220E-21
99	3,6400E+01	3,5200E•08	1.54816+88	1.1994E-04	- 8855E-85	1,50000-70
00	3.7503E+01	3,50866+68	1.5422E+80	1.66385-24	4,0002E+02	1,50386×28
61	3.830eE+01	3,5080E+89	3,p834E+31	3.3992[-04	4,2191E-82	7 :6581E-71
62	3,9418E+81	3,5080E+80	9.5523E-D2	2.5233E+83	3,4498E+82	5,85120+72
63	3.99806+81	3.50986+00	1,5024E-01	2.3637(-84	3.3177E-02	1.1682E+/1
64	4,0536E+01	3.5000E.0g	2.09382-01	.8029(.B4	3,4323E-82	1,74086-21
65	4,1350E+01	3.5898E+88	4,4564E-01	6.44845-84	4.5838(-82	4.000000-21
66	4,1590E+01	3.5000E+30	1.6522E-21	2.23*16-04	3.8987E-02	1.34001-71
67	4,1873E+B1	3,5900E+06	4.1233E+22	1,2325 - 83	2.8951[-02	1.12496-22
48	4,22386+91	3.3320[+86	1,45452-01	4,47226-04	4,8248E+82	9.6768E-72
69	4,24986+01	3,50000+00	6.134 E-32	3.4518E-84	4.43226+82	1.66786+22
78	4,33950+81	3,50006+09	7.0754E-22	7.54496-84	4.5888E+82	2.41206+72
71	<.3008E+81	3,20066+00	1.10200-01	2.88965-84	4.10366-02	6.89045-72
72	4.3970E+01	3,98006•00	2.5234E-E1	3.4547E+34	1.7509E-02	2.32596-21
73	4,40886+81	3,98026+08	1.7584E-D1	A.3800E-84	4.5978E+02	1,29821-21
74	4.4950E+01	3.50002.00	5.3576E-01	7.5700E-04	3.0739E-02	5.84266+21
75	4.5790E+01	3.50866.00	1.34198-81	1.87916-84	4.0807E=02	9-31936-92
76	4.6790E.81	3.58886+68	1.52886-81	8.236-1.84	3,70000-02	1.15006-01
77	4.78112+81	3.5000E+00	1.39445-01	9.36597-84	4.20805-02	9.70205.22
78	4.7978E+81	3.90005+00	D. 39485-02	9.88345-04	4.87135.82	4.72986.22
	4.8388E+81	3.50000+80	1.65776+01	7.78945-84	2.47156-82	1 . 482AF -71
ėØ –	4.8.302.001	3.5000E+02	6.5691E+#2	6.9861F+24	2.5431E+82	3.9569E-22
81	4.9300E+81	3.5808E+80	2.4018E-01	1.7075E-84	2.000000-02	2.28005-71
12	4.94185+81	3.5000E+06	A. 1013F-02	1.81325-83	4.9913E+62	1.78875-22
-3	5.810AE+01	3.50005+00	5.4353E=02	3.15656-64	3.10946+82	2.29435-22
84	5.06666481	3.5000£+00	1.50AAF=02	0.4363F-84	3. 24386+82	4.29705-22
85	3.8988Fe01	3.5000F+88	3.78485+84	49555-94	3 #8835+82	1. ARGAC-21
26	5.12655+81	3.58087+86	1 88841.84	3.54486-63	5 0745 02	1.33836-21
87	5.14306+91	3.90005.00	7 43445-82	3.49495.84	3 34546-82	4. 55445-22
	5.2221F+81	3.588866+88	1 41815-84	S SEVAC-03	3 4002Fe82	3.38366-01
īδ	5.34366+81	3.30006+04	1.33546-04	5.37296-04	3 34435 ##2	1.01546-21
	5.41326.001	3.36005.04	1 58916-84	9.14105-04	4 40005 -01	1.00000-01
	5.9864648	3.50000.00	1.11176-04	1.10096-01	4.45395=02	4.94615-23
	5.58486481	3.5000E+84	2.91396+0	9.35405103	3 87105-02	2.10285-01
	5 48705404	3.50065+00	4 00305-01		1 44485-43	2710-0C-01
	5 44985-01	1 1000C-00	1,70/70-01	A 07845'01	1 4475-02	1 66330-02
0.5	5 78000484	1 80005-08	1,17941-01	4 4 38 3C 43	1 910/LPD2	ALGOL-OL
V7	5 88805-01	5.5000L+00	C. 2113L-01	L.16721-03	3.50006-02	1:07002-01
¥0		3,20005+00	0,2339L-82	1,57392-83	3,23176082	3,10056-22
7/	5 09486401	3.50001-00	1.30331-01	1.33201403	A 00000-02	1:04021-01
*0	2,9700C Pr1	0.2008[+08	2.77271-81	Z.702/E-04	4.50095-05	211300E-P1

j

	A	T 84486.46			1	
1	4 #8396-01	T Reger	2,33132-01	1,12071-03	3.40001-002	5158805463
181	6 4430F+04	1.10702-00	1,20406-01	42945 04	A	• • • • • • • • • • • • • • • • • • •
101	6 18786-61	1 60000-30	1.23346-63	3.02/0100	J'ABOOL ON	5135452-02
	A	3 83205.30	9,30232-01	2,27601.00	3,800001-822	7:0000L=*1
103	6 34685481		3,301/6-91		5.00000-02	3100V0E-01
10	4 2000C-01	3.30000.000	4,00200-21	2,0103E-84	O BARREARS	+*0E00F=31
125	0,30201-01	3.30032+00	2. 0001-01	9.28965-87	4.8080L-82	5' PROBE-01
100	-,3320E+01	4.28081+68	2,9010E-91	1,028YE-04	2*000RE+85	2,0000E-01
10/	0,30901-01	3.200BE+08	6.2187E-01	1.8744E-03	C.0300E-02	3.000BE-51
160	0,4392.01	3,20081+08	4,75498-82	1.2447E-83	3.9888E-82	7,30005-23
184	0,34986-91	3.50082+90	9,6423E-02	6,23270+04	2.8688E+65	416588E-35
119	0,04026-01	3,36085+65	8,9449E-82	4,49485-84	4,5280E-02	4,42085-65
111	0,/24/6-01	3.20005-00	9,0081E-62	0,04305-03	4.1000E-02	1 400BE-55
112	0,84481481	3.28000+00	2.7834E-81	3,7041E-00	7.9286E=02	2,00086-01
113	0,8538E+81	3.5080E+02	1.60116-01	1,76365-84	¢.8988E=82	1,0000E-01
114	0,9293E+B1	3.500BE+08	2,8072E-01	7,1530E,84	4.6900E-02	1,6809E-/1
115	7,8484E+81	3,30000+00	1.72726-01	2,7156E-83	5.0000E-82	1,2030E-91
116	7,8750E+81	3, 3 880E+88	2,3741E-g1	2.4091E-p3	3.5300E-02	2:0000E-71
117	7,1618E+01	3.5000E+20	1,60296-01	2,91366-04	4,000000-02	1,20005-01
118	7,2390E+01	3.5000E+30	1.3861E~01	2,61196-03	3.10001-02	1,05886-01
119	7,2910E+81	3.5000[+00	3.60376-01	3,6717E-84	4.03036-02	3,28000-71
120	7,4544E+81	3.3008E.00	1.0167E-01	2,7287E-83	3.800PE-02	6,8937E-02
121	7,5170E+01	3.5800E+90	2.7289E-21	8:68332104	5.680FE-82	2,40806-01
122	7,5541E+01	3.5000E+00	2.3336E-e1	1,36216-83	3.2800E-82	2.88286-21
123	7.6750E+81	3.58802+00	1.1611E-21	1.8732E-84	3.4000E-02	9,00000-22
124	7,74926+01	3,5088E+26	1.12996-01	9.8681E-84	4.80205-82	7.2808E-72
125	7.0117E+81	3.50000.+00	1.4022E-01	1.2245E-83	4.78886-82	1.000000-01
126	7,96725+61	3.3000E.08	1.29796-81	7.85571.04	4	A.5840F-72
127	8,6357E+01	3.50800+00	1.7484E-01	8.38511-04	4.00000-02	1.3400E-01
128	8,1434E+81	3.30000-03	1.3204E-01	1.8433E-83	4.1200E-02	9.88-0E2
129	8,3590E+01	3.50006+00	1.1827E-01	1.17036-03	4.8308E-02	6.91200-22
138	6,6889E+81	3.50002+00	0.0120E+02	7,19586-84	5.2000E-82	2.740CE2
		- +				

ENDEVE MATERIAL NO. 1261

1

U.	RAP 108-235			RESONANCE I	CE DATA PARAMETERS		
ISCTOPI FRACTIC NUMBER	DHAL ABUNDANCI OF ENERGY RAI	GES	UM-235 88E+88 2				
ENERGY LOWER F LPPER S Aucleaf Effects Aumber	RANGE NUMBER INERGY LIMIT INERGY LIMIT Spin	EV} 0.20 E\} 2.30 RADIUG 9.56	2 UN9 00E+01 0RE+04 00E+00 63E-01 2	SOLVED SINGL	E-LEVEL OREIT.	NIGHER DARLWETERS	
L VALUE							
			DEGREES OF	FREEDOM USED	1N THE WIDTH	DISTRIBUTION	
		J-VALUE J-VALUE	COMPETITIVE 0,00002000	NEUTRON 1,0000E+00	RADIATION 2.2008E+00	FISSION 2,0000E+08	
			AVE	AGE RESONANCE	KIDTHS (EV)		
x NCE 1234567898123456789812 1111111111111111111111111111111111		LEVEL SPAt ING 1.08385.00 1.08365.00 1.08365.00 1.08365.00 1.08365.00 1.08365.00 1.08565.00 1.0855.00	CO.NECTIVE C. OBDETENE C. OBD	¥UUTTON 9.32786-65 8.46062-85 9.45326-85 8.46021-85 8.46221-85 8.46221-85 8.46221-85 8.46221-85 9.45321-85 9.45321-85 9.45321-85 9.45321-85 9.45321-85 9.45421-85 8.4685-85 8.4695-85 8.4795-85 8.4705-85 8.47	HablatIon 50001-02 50000	F155:0N 3.23885-01 3.44965-01 2.49285-02 4.9285-02 4.9285-02 4.9285-02 4.92965-02 4.99955-02 4.9995	
273456789012 27855789012	6,20065482 6,30005432 6,60005482 6,60005482 7,13005482 7,23005482 7,23005482 7,55045482 7,55045482 7,55045482 7,70005482 8,80055482	1.2000E+00 1.2000E+00 1.2000E+00 1.0000E+00 1.0000E+00 1.0000E+00 1.0000E+00 1.0000E+00 1.0000E+00 1.0000E+20 1.0000E+20	6.040c.640 6.040c.640 9.0405.4000 9.0405.4000 9.0405.4000 9.0405.4000 9.0405.4000 9.0405.4000 9.0405.4000 9.0405.4000 9.0405.4000 9.0405.4000 9.0405.400000000000000000000000000000000	1,00255-24 9,96785-25 1,19685-24 1,86415-24 8,67595-25 9,86285-25 1,1695-24 1,33785-24 1,19365-24 1,19365-24 1,05125-24 1,05125-25	3.5208E=02 3.5208E=02 3.5208E=02 3.5208E=02 3.5208E=02 3.5208E=02 3.5508E=02 3.5508E=02 3.5808E=02 3.5808E=02 3.5808E=02	6 - 35 38E - 81 1 - 75 54 - 82 1 - 75 3 E - 81 3 - 75 1 E - 81 4 - 26 37 E - 81 4 - 16 56 E - 81 1 - 98 28 E - 81 3 - 98 28 E - 81 3 - 98 28 E - 81 3 - 98 28 E - 81	

- 95 -

33	9,1888E+82	1.0008E+00	e.8687E.86	1,81806-24	3,5000E+e2	2,11796+71
34	9,93806+82	1.000000+02	2.000PE+02	1,84576-24	3,50000-02	1.37265-21
35	1.0A50F+03	1.28286+98	9.9225-93	1.11530-24	3.54086-42	3.36291-44
34	1 1 8 8 2 6 + 8 3	1.20005-02	0 4000-433	1.21435-24	3.50005-02	5.35405-04
	22025-23	1 38325-00	0.00000.000	A 74341-28	5 58636-02	3.28766-04
37	1,22000-00	1.20000-000	P. 3000E - 80	0,70242-27	3.56666-64	
30	1.30000-03	1.00000-400	r.00002+00	9,03041-03	3.30000.402	2103012011
39	1,40001.403	1.0000E-38	5.5000E+65	1,24461-24	3-250-1-65	0.02216+21
42	1.4388E+63	1.2008E+32	P.8288£+80	1,30566-8-	3,52821-82	2,47346+21
41	1.4580E+83	1.8000E+20	P. 8084E+92	1,12216.04	3.30000.+65	6,3519E-21
42	1.4AP8F+83	1.28205.00	3.02005-00	1 1 10 15 - 24	1.5288F-02	A. 27045-01
1	48886+83	1. PREPE + 33	0 00000.000	4.482.5-25	B0001	1.04715-1.
	1.400000-000	100000-000	1 40001 E401	0100216463	3.36000-02	1.04/11-01
- 44	1.30020-00	1.00201.00	4*950NE+05	7.008E-22	3.50011-02	1,23426-61
45	1,54501.083	1.00081+00	5.86866.065	8.61446-25	3.54901-22	4.4664E+21
45	1,598£E+83	1.00286+02	9.020PE+82	1,81955-24	3.5000E*02	5,38145+21
47	1.73886+83	1.88626+38	7.83891.087	9.50545-25	3.500825-82	5,37432+81
46	1.90P2E+83	1.2420E+22	8.00025+30	9.42748+25	3.50000-22	3.05256+21
40	·	1. BEFEFADA	8.30826+32	1.12305-24	3.50000-02	4.35765.5.
	3 39895483	28285-12	0 00000-31	4 87745-24		3 94445-3
	2100000	1.000000-000			3.90000012	
51	5.19h6F+01	1.00.01+50	6.96655+65	8,71828+02	3.920rt-22	5.42646+57
92	2,32PBE+#3	1.480020408	8.8689E+95	9,0730E+25	3.50806-62	5,18776-01
93	2.52826+43	1.2822E+22	2.80005+82	9.61271-25	3.99886++2	5.42396-01
44	2.73885+83	1.2828F+80	P. 22305+83	A. 42525-25	1.50026-02	5.31175.001
	3 33835.03	1 00305 10	3 3344- 03	O BIRDE VE	- B2020-03	4
	1 1 1 1 1 1 1	1 20005	a anale. aa	0 37805-25	3,50000-01	A 50571-7.
20	3,30000003	1.00000.000	F. 60800 PD:	¥43304[***3	3, 31 000-02	4 7 4 4 7 4 4 7 4 4
27	3,	1.05055-05	6.560ME+80	0.03216-05	3, 30802 .22	0,/3516-51
58	,7588E+B3	1.00001.05	9,05095+0.	V,2006L-C5	2.2000F-655	D, 3334E+21
	4,18PCL-03	1.28081+#3	P.888PE+01	9,72372-25	5.52826-62	3,0834[=21
62	4,3P80E+33	1.00006+28	8.839°E+22	1,10616-24	3.50006-02	6,03928-01
61	4.4P8BE+83	1.28086+82	8.22636+87	9.86511-25	3.52886-02	5.25636-21
42	4 A2005+83	1.28885.492	2.08825-03	0.15745-P5	1.50805-02	3.33307+24
	4 03895	4 286ac. 11	3 3430- 43	0 56747-25	1 6939r-03	S STATE-4
	The second s	1.0000000000	C'OLDEFOCL	0,00/96-09	3. 500000002	2103216401
	3.80DCL-B3	7.0006r-96	L'ECROF.655	7,90471.405	3.96865-02	0101146-1
e5	5,12P2E+P3	1.20020+88	2.000°E+02	n,375gE-25	3.92695-82	2.208AE-1
65	5,22826.03	1.38406+36	\$.8586E+86	8,8593E-25	3,50656-02	3, 254E-21
87	5,25006+03	1.20205+22	2.308PE-82	8,39966-25	3.50020-02	5,3535E-21
68	5.3200E+03	1.20202+38	6.20661-85	8.0355E-25	3.50006.02	6,21186-01
49	5.63826+83	1.70226+28	0.00000.000	9.62435-25	3.58986-82	9.12826-21
78	5 ASANFOAS	1.00001+30	0.02025-00	0.20145-25	3.50086402	6.84955-04
	5 79895-03	1 20206.30	0 0000.00	8 0404F-25	\$ 52026-02	3.28850-0.
11		1.000000000	C, OCCILOUC	OFFEEE	3.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	5165352671
72	5. YUPUE-03	1.00001+35	6-969.E+95	1,3332E-F4	3.200-1-55	5.01105-01
73	6,0200E+#3	1.09866+36	6'0655E+65	1,2338£-24	3.50006-02	1,24816281
74	6.120PE+83	1.2002E+32	2.0000E+27	1,0203E-04	3.50008-02	3.00151-01
75	6.45PPE+83	1.0000E+20	0.00001.37	9.31226-25	3.57826-62	4,39926-21
76	A. 82P2E - 83	1.28006+22	2.80025+82	8.28255-25	3.50000 -02	4,32916-21
97	7. 39825+93	1.08286+00	2.22001.002	O. RAGAL-25	1.50000-02	5.63285-21
	2000F+03	1.25205+30	a aneve-ac	0.34195-24	1.62995-02	3.30415-04
18	10005-03				50000-000	3 64035.44
	B. LEPEL PDA	1,00000-00	L'EDELFOR.	9112476-03	3.30000-02	2100455-01
69	8,30922+03	1.96996+96	0.0007E+07	1.06636-04	3.50000+02	1,45785-01
61	8,50P0E+03	1,0820E+82	P.2000E+82	1.11158-24	3.50000-02	2,78620-21
82	8.70FME+03	1.00000.000	0.00000.02	1.15656-24	3.5000E-02	2.99226-2:
P3	9.8348E+#3	1.30002.+83	8.98885+82	7.53256-25	3.5000E-H2	4.3771E+01
	A 2000E-03	1.00005+00	3 38945+33	1 84835-24	1 60005-02	3.83245-04
	. 04495474	30000-00	0.0000000000	D 43436-0	3 50000-00	2.81755-1
	1,Depocede	1,000000-20	C.DCOCF+35	7192921-65	3.30001-82	2401/22401
e6	1,14001-04		0.000°E+80	1,0069E-14	3. 3root-02	
87	1,17521+84	1,085864488	5.6565E+65	5,0284E-05	2.2000E+05	2+2043E=P1
8 ⁶	1,19806+04	1,20006+30	0.000°E+24	1,1050E-24	3,52006-02	7,18926+31
89	1.22882.404	1.08306+70	3.80821.82	8.9174E-25	3.52826+22	3,4036E+21
98	1.22876+84	1.70206+70	8.00076+97	1.3199E-24	3.52886-02	2183126+34
61	23645+64	1 2920F+00	0.00025.03	0.06745-25	3.52025-02	2.17565-24
	4 0300E404	. 20005-00	0.000011.007	4 04475-05	- B330C-03	2 BeaDFer.
¥£	1.5/002-0-	T CONCEARD	L + RDR F = 91	0150035-53	3.300005-65	

113	2.1700E+04	1.3000E+00	P.2002E+07	A, 8157E+25	3,52886-82	5,08476=71
111	2.22005+04	1,0000E+00	P. 20885+82	1,8128E-24	3.50896-02	7,2994E=#1
112	2.2388E+84	1.0000E-00	0.80001.000	1.26516-24	3.50000-02	1.0014[070
113	2.24886+84	1.20205.90	9.00205+02	9.42256-85	3.50886-22	5.0834[=7:
114	2,28836.84	1,80086.08	8.00001+02	8.68776-65	3.50006-02	4,72156-01
115	2.3288E+84	1.000000.000	e.eeeer+ee	7.01202-25	3.50000-02	2.35976-21
115	2.34PRE+84	1.000000.000	0.000000+00	8.62 AE-05	3.52002-92	2.99426-7
117	2.42886+64	1. 30325 • 38	8.00065.002	9.41236-95	3.588866-02	8.13236+21
118	2.4488E+84	1.30086+38	0.40000+40	9.9743Fed5	3.528865-22	5.69385-01
110	2.46825+04	1. PR20E+H0	0.03005+00	7.95 47.85	1.50000-02	5.86176+21
128	2 58881+84	1 88885+38	8 4244 494	A 55036-25	3.50886-02	4.71285-21
1	E	1,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	8,810×[+00	0,0002-00	3170000 110	-,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
			DEGREES OF	FREEDCH USED	IN THE HIDTH	DISTRIBUTION
		J-VALUE	CONPETITIVE	NEUTRON	RADIATION	FISSION
		4. PRORE + 40	P.0300F+02	1.80005-00	A.0008E+00	1.28386+03
			AVE	AGE RESONANC	E WIDTHS (FV)	
INCER	ENERGY (EV)	LEVEL S. ACING	COMPETITIVE	NEUTRON	RADIATION	F15510N
I	8.2998E+81	1.00005+20	P. 4883C+80	0.32786-25	3.58000-02	1.01556+21
ž	8.65986+01	1.00006+20	P. #20PF+82	1.0334E-24	3.528865-82	1.16986-81
3	9.1000E+01	1.00000-30	P. 388Pr+82	1.051:6-24	3.50000-02	9.45986-82
4	9,5500E+01	1.90006+00	P.80895-86	1.86815-24	3.50001-02	1,07836+82
5	1 920PE+82	1.00000000	6.00876+00	9,9782E+25	3,52886-65	8.4644E=P2
6	1,10886+82	1.200000+00	P.8289E+28	1.87645-94	3,50886-32	1.31+#E+#1
,	1.20406+02	1.8030E+88	P.000FE+07	8,7963E-25	3,50886-02	1.4975[-01
â	1.80000+02	1.008825+20	8.20825+00	0.02778-25	3.50000-02	1.21956-01
ě	2.40005+02	1.000000400	0.00000.000	1.31816+84	3.56586-e2	1.53476-01
10	2.68835+82	1.000000+00	P. 00085+82	2.10035-2.	3.50000-02	3.43476+01
11	2.8000E+82	1.98886+88	A. 20021-22	1.32556-24	3.50000-02	3.7665E-P1
12	2.998885+82	1.000000+00	8.00000+00	1.00405-24	3.57086+22	2.79555-81
13	3. POPPE-02	1.000000.00	8.86866.60	8.84525-85	3.50005-02	1.04:75-01
14	3.15886.+82	1.988865+08	2.00000.000	9.931AE-25	3.58886-62	1.10216-01
15	3.32806+02	1.0000€+00	8.0660F+23	.#255E+24	3.50800-02	9.2A22E-02
14	3.45000-02	1.0600E+08	A. ABAPE+82	1.053AE-24	3. 50206 - 62	1 14115-01
12	3.60000.082	1.88686+88	A. 00001-002	0.16446985	3.50887-02	1.78795-01
16	4.50406+82		8.988PF+82	0.38357-05	3.50000-02	2.75836+21
10	5.23665.62	1.000000000	3.00000-000	1.19745-64	1.50086-02	2.58746-01
20	5.45885+82	1.20205+00	8 3888F+88	1. 174 35 484	1.52005-02	2.7.27
	A 13885+82	1 30005+00	A GP881-03	1 BOAL PA	58885-02	5.71265-84
e 1	++++++++++	2	0.0000E-00	*********	3.00012465	A ACOL CI

	4 *******	1 20025-00				
	1,33000-04	1.000000000	D.Brb.L.pr	1,02000-04	3,50000000	214040544
12	1.30002-04	1.00001-20	0,000r[•00	9,1-/31-05	3.9000E-E2	
	T	1.00000-000	P, BREAE+5-	8,71752-85	3.30005-02	3'081AF-11
40	1,50000-04	1.9000E+35	6,80665-55	9.52626-85	3.50006-02	8.30490-01
47	1,51P0E+04	1.0008E+20	P,8088E.02	7,29242-25	3,500PE-02	3,75916+01
98	1,6480E+84	1.0008E+00	8,8088E+88	9,6541[+25	3,52882-22	3,56996+71
99	1,75002-04	1.0000E+00	8,0000E+02	8,26228-05	3.5980E-E2	2.2150/-01
: 20	1.76825+04	1.20086+20	P. 00001+07	9.8444 2+25	3.50000-02	3.40946-01
- C#1	1.8400E+84	1.3888E+02	P. E80PF+02	8.94 72 - 25	3.50000-02	5.956BE-21
182	1.97800+04	1.20025+00	8.90001+82	7.91446-85	3.5000E-02	7.12765-21
123	1.938BE+04	1.20085+02	2.88886.482	6.65917-25	3.9088E-22	5.14716-01
104	1.99006+04	1.00005000	0.00000400	7.472.6-25	1.52005+02	5.613.6.01
125	2 BCAPF+34	1 10005-00	2 2022r+02	8 191AF-25	1.53886-02	8.26435-2
100	2 02005+84	1.000000.000	8 0800-402	0.00.10-05	53925-92	4.78975.00
	2.84835+84	1.000000+00	3.08385+88	8.40845-25	1.52825-02	2.20021-01
	3 10006404	40335440	a ada2r+d3	1 81 84E - F 1	800PF-02	2.43455-04
100	2 10000-00	1.000000-00	P. 000 - 00	1 ADDAGE - VE	3,300000-91	2 53745-2-
157	2.12761.00	1.00000-00	r, opert er	1.44246463	3,50000-07	2.00.01.01
770	4.1706L-0-	1.00000.00	4.960L-64	8181971 429	3,50000-00	5.050/5-01
111	5.55607+64	1,28301+00	6.498HE+65	1.0120E-YA	3.30901-65	7,29941-91
112	2,2300E+04	1.0000E+00	0.800fE+80	1,20516-24	3.36866-65	1.08146*78
113	2.2480E+04	1.90000.00	P.0089E+07	9,4225E-P5	3,50000-02	5,0834[=7]
114	2.28000.04	1,8000E+80	0.0000[+02	8,6872E-05	3.5000£-02	4,72156-P1
115	2.3280E+84	1,000000000	e.000PE+00	7, #129E-23	3,5000E-02	2,35976-21
115	2.34PRE+84	1,00000.000	8.000000000	8.62 BE-05	3.52002-92	2,99426-7
117	2.4280E+@4	1,30800-38	8.00066.00	9.4123E-P5	3.58886-02	\$,13236-21
118	2.44P0E+04	1,30080+=0	P. 3200E+82	9.9763E .d5	3,528865-22	5.69386-01
119	2.46PRE+04	1. P030E+#0	P.030PF+8P	7.95.12.85	3.50000-02	5.8617E -?
128	2,50001+04	1,00002+00	8.0200E+80	8,5593E-25	3,50886-92	4,7128E-01

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22	6,2888E-80	1,00000-00	8.08076.08	1.00256-64	3.50006+02	1,03926+81
23	6.3788E+#2	1,30936+98	8.01000.007	1.07.85-84	3,50886-62	1,89316-81
24	6,4288E+82	1.00005+00	2.02076+82	1,21536-24	3.5000E-22	7,93416+92
25	6,5288E•82	1.00002-00	6.02000.055	1.80415-24	3,5200E-22	8,1877E-#2
20	6,6080E+@2	1,78296+82	8.26836+88	9.7168E-25	3.58886-65	2,61376-71
27	7,1280E+#2	1,23296+98	6.0000E+02	1,1046E-24	3.5002E-02	3,99456-01
25	7,2988E+02	1,0008E+00	8,8282[+89	1.18996-24	3,52021-02	1,3383[+?1
29	7,4088E+82	1,6232E+88	6.99855.85	1.3376E-24	3.5200[+02	9,51326+72
30	7,55898+82	1,2020E+89	5.05636+35	1.19345+84	3.5202[-02	1,28765+01
31	7,72866+82	1,22002.00	2.2220E-82	1,0512E-24	3.53000-02	1,9522[+?1
32	58+39956, B	1.90806-30	e.eeoee.ee	8,23536-25	3,5200E-62	1,1284[+81
33	9,13801+82	1.20306+30	P.000P1+04	1,01006-24	3.52082-22	1,4589[-71
34	9,9388E+g2	1. PBBBE+ BB	0.0F0CE+07	.,87JgE-29	3,5200E-22	6.854BE+P2
35	1,88576+93	1.800000+00	9.8658E+86	1,11736-24	3.52386+82	1.1276E-01
36	1,1880E+#3	1.00000-00	2.000PC-02	1,21426-24	3.57286-62	2.0837E-01
37	1,22386.03	1.3030E+30	8.0000E+86	B,7624E+05	3.25006-55	1,03166-81
38	1,38PPE+03	1.20306+20	P.8080E+07	9,8564E-25	3.52882-02	2 1916-01
39	1,4088E+63	1.200E+22	P.0002E+80	1,84468-24	3.52886-02	3.0148E-01
48	1,4300E+03	1.782DE+00	6,06650+55	1,36568+24	3.50886-22	1,23726-01
41	1,45906+83	1.5020E+30	6,86655+65	1,12210-24	3.5000E-02	3,18106-01
43	1.43886+83	1.80006+30	P.8003E+07	1,13910-04	3.500PE-02	3,23205+21
43	1.4800E+83	1.0000E+00	6°863C+65	6.48716-85	3.52000-02	e,2499E+22
44	1.5080E-83	1.70206+30	6*86666+65	7,20886-25	3-2288-85	9,07132-22
45	1,545PE+83	1.##8BE+23	8,888PE+er	8,61442-25	5.5008E-02	1,42216-71
40	1,9400E+B3	1.00000.+00	5°°9°°E	1.0105E-24	3.35006-65	2,27176-71
47	1,7368E+8J	1.00005+30	P.828PE+82	9,52542-05	3.5080E-02	2,26635+81
48	1.93696+83	1.3000E+30	P.000PE+82	9,4274E-25	3.50826-92	1,45976-01
49	1,9180E+03	1.88555+56	6.5693E+85	1,12398-24	3.50026-65	5*5054E+bJ
	2,800PE+0J	1.00206+20	P.0027E+22	1.0774E-24	3.5282E-02	1,27415-P1
51	2,1080E+83	1.2000E+20	8.9665[.85	6,51e2E-05	3.58666-65	1-28245=21
22	2,30F2E+03	1.2830E+29	9.0007E-07	9,0730E-25	3.5565E-C2	1,/2925-01
	2.50021-03	1.98866+33	0,6200[.02	9,61271	3.50002-02	5*/144E=51
22	2.7000000	1.00001.000	6.BRONE+BS	8,4728L+67	3.50001-02	2.000000
	3,20006+03	1.40001400	5.00005+05	V,8045L-C5	3.50000-02	2.04696-21
20	3,30000-003	1.00000-00	C. 000000000	9,33696-65	3.36506-62	2 1 1 4 4 6 7 × 1
	3 40000 03	1.00000-00	C. 808: E+07	0,03210-03	3.30000-02	2.20045441
20	3,75002+03	1. FECEL-20	0,2007E+00	9,2000L-07	3.50000-02	211100-01
22	4,10000000	1.00001-00	5.9685E+95	9,78371+85	3.90001-02	1,042/6401
	- SCHOL-BS	1.00001-20	R'BRAKE +S'	1,10016-0	3.37000-02	2101905 -11
01	4 40000-403	1.00001-00	P.0882E082	9.00411-77	3.70000-02	2.02/91-21
	4,01000000		0,200 (opr	9,17/0L-07	3.50000-02	1.03/30001
	S 93585497	4 28995440	r,0000E+0r	0,33/32-23	3, 50000-02	1,74022-71
45	5.10005403	A PROPERTOR	0,00011+07	8.37805-25	3.588825+02	1.84410+21
44	5 20806-03	1.04005.00	C.0000/2000	17005-25	1.52286-02	1.50420-71
	6 35401.403	4 39346+33	3 40001 - 80	a 10045-20	1 Bager aug	1 78455-31
	5 10805-01	1.00121-00	a population	3 04755-28		1 10346-04
40	5 40000-03	1.000000.000	0,000L+0r	0 43/35-65	3,300000-02	A 5444C401
70	5 45600-03	1,000000000	0 000CE-01	9 02422-09	3,300000-02	2 24725-7
	5 70002-003	1.00000.000	C. 2001. L. 00	V.2733L-07	3,50000-02	2120321-1
45	5 03885+83	1 30395.495	D.20000.000	1 33725-24	3.300000-02	1 100000-001
13	6.0200E+03	1.20405+00	0 0102LAG	1.26546#44	3.52825-02	0.27305-22
74	A.1000E+03	1.20205+30	0.00025-02	00375-24	3.520EF-02	1.47485-21
75	6.4500F +== 3	1.28385.000	8.30031.407	9.31225-05	3.508002	1.46646-31
76	6.80885.033	1.38666+84	2.02825.497	8.81716-25	3.5000E-02	2.12715-24
77	7.00005.03	1.28886.00	3.08375.00	0.8604F=25	3.52001-02	2.81556-21
14	7.20805+83	1.20305+00	8 9800r.82	0.34195+85	1.50006-02	1.09035-01
10	8.10885+43	1.20005+00	8.03885483	0.12495-64	1.50886+#2	1.33465+2-
A 8	A. 3282F+#3	1.88885+88	P 00000402	1.26435-24	3.50000-02	9.20.05.02
	8.5200E+#3	1.28585+33	2.00001-00	1.11.45-24	1.5800E-#2	9.28756 .75

PEGREES OF FREEDOW USED IN THE HIDTH DISTRIBUTION COMPETITIVE NEUTRON RADIATION FISSION P.8280E+84 1.8872E+20 0.0888E+84 2.3828E+72 J-VALUE 2.88886+88

 $\begin{array}{c} 15675-26\\ 7,53256-25\\ 1,2027,-26\\ 9,45-1,2256\\ 1,2026-27\\ 1,2526-27\\ 1,12502-24\\ 0,92745-25\\ 1,12502-24\\ 0,92745-25\\ 1,82925-24\\ 0,92745-25\\ 1,82925-24\\ 0,92745-25\\ 1,82925-24\\ 0,92745-25\\ 1,2755-25\\ 0,$

3.34271_42 3.5248E-62 3.5248E-62 3.5248E-62 3.5248E-62 3.5248E-62 3.5248E-62 3.5248E-62 3.5288E-62 3.5288E-62 3.5288E-62 3.5288E-62 3.5288E-62 3.5288E-62 3.5288E-62 3.5288E-62

P.00005.00 P.00025.00 P.00025.00 P.00025.00 P.00025.00

P.88892.82 P.28892.42 P.88882.42 P.88882.42 P.88882.42

P.820PE.82 P.200PE.22 P.200PE.32 P.200PE.32 P.200PE.32 P.200PE.32 P.200PE.22 P.200PE.22 P.200PE.22

P.8882E.82 P.8882E.82 P.8882E.82 P.8882E.82 P.8882E.82

P.37262E+87 P.3727E+87 P.3727E+87

0.0007E+07 0.0007E+07 0.0007E+07 0.0007E+07

P. 4000E+02

P.3004F.65

1 4

8.7388E+83 9.8388E+83 9.2388E+83

1,84925.84 1,92975.84 1,92975.84 1,99075.85 2,82935.85 2,82935.85 2,82935.85 2,82935.85 2,82935.85 2,12965.85 2,12965.85 2,22855.85 2,2485

2,2077(.084 2,3272E.024 2,3472E.024 2,4207E.024 2,4472E.024 2,4684E.024 2,4684E.024 2,9277E.034

L VALUE-----

1.00306.00

1.7070E-20 1.0070E-20

1.0000E+00 1.0000E+30 1.0000E+30 1.7000E+00 1.7000E+00 1.7000E+00 1.7000E+00

1.7000E+30 1.7000E+30 1.7000E+30 1.000E+30 1.000E+30 1.000E+30 1.000E+30 1.000E+30 1.7000E+30 1.7000E+30 1.7000E+30

1,80021.50 1,80021.50 1,80021.50 1,80021.50 1,80021.50 1,80021.50 1,80021.50 1,80021.50 1,80231.50

1.5274E=21 2.1895E=71 1.7652E=72 1.7652E=72 1.7442E=21 1.2621E+21 2.5945E+11 1.7615E=21 1.4156E=21 1.4156E=21

1,4161-21 1,12211-41 45651-21 2,59461-71 1,82951-21 1,82951-21 1,86351-21 1,724751-21 1,724751-21 1,724751-21 1,724751-21 1,724751-21 1,724751-21 1,724751-21 1,724751-21 1,70421-21 1,90521-21 1,905221-21 1,905221-21

1,4223E+21 1,3143E+21 1,2499E+21 1,3452E-01 3,6372E-01 5,4199E-01 2,6475E-01 1,5739E-01

1.18235-21 1,49722+21 2,8110E+P1 2,8962E+P1 2,3528E+P1

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AVERAGE RESONANCE MIDTHS (EV)

INCEX	ENERGY (EV)	LEVEL SPACING	COMPETITIVE	NEJYRON	RADIATION	FISSION		
1	8,23806+91	1.16285+38	2.000PE+80	2,32000-04	3.5000E-22	3,3230E-21		
2	8.69895-01	1,16886+80	8.08005.00	2.32-01-24	3.52806-22	3,32305-21		
3	9.13895-01	1,16702+30	8.00001.20	2,32025-24	3.57875-22	3,3220E++1		
4	9.550vE+01	1,16705+00	0.20002.00	2,32000-24	3.52022-02	3.32786-71		
5	1.02095.02	1.16002.00	e.0200g+00	2.32C8E-P4	3.52835-65	3,32086-01		

6	1.13886+82	1.16286+28	e.20005+80	2.32788-24	3.5200E-02	3,32286-21
7	1.23885.02	1.14206+30	2.92925.000	2.32000-24	1.5280E-92	3.3220E-*1
	1 83796 482	1 14896439	1 41906 - 23	2 32205-24	1 10825+02	3.32785+21
	1,0,1,1,1,1,1	1.100000000		2 72005-44	43985-92	1 10166-04
	5.426.05	1.10000-72	P.BEBTE-CE	2102000000	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1 32126-24
12	5.0565F .04	1.10201-02	H.95841.65	2,32200-14	3.90000-02	3132 300 - 01
11	5.09b5E+04	1.10284.92	P.8727[+00	2.32.86-24	3.570CE-02	2.25206-61
12	2,97822+82	1.1629E+>2	P.8722E+02	2,3228E-24	3.52026-22	3,3230E+?
13	3.02025+02	1.16326+23	0.22225+50	2.32326-24	.,528PE-02	3,52206+21
::	1 15425 + 22	1 14205 + 33	3 49925.02	2.32505-24	- 52881-02	3.32306+21
12	3.10536-01	111000000000		3 13946-04	62885-42	1 10100-04
12	3,30000.00	1.100000-00	0.66611465	2102101-14	53385-43	
16	2.42656685	1.10066.025	F.8884E.C?	2,32.82-24	3.90000-92	3195906-61
17	3,67076+32	1,1638E+22	6,35965+66	2,3200E-24	3.500PE=02	2,32966+51
10	4.5°02E+02	1.1628E+PB	P.2007E+20), 3200E-2 4	3.520PE-02	3,32226-21
10	5.2202E+02	1.16206+02	8.02035.002	2.32.eE-24	3.90020-02	3,3278E+01
- 2	5.65835+22	1.1628E+22	2	2.32268-24	3.5PB0E-02	3.52386***
5.	4 13036+07	1.14886.442	2.12075+92	2.32785+24	1.52025-22	3.32286-21
		1.10000-00		2 12006-04	1 A2035-02	1.32105-04
22	0.2. HOL . DC	1.16-20-er	r.800/1-0/	2,32000-04	3.50000-00	3 37450-00
23	0.37886+84	1.1020L+32	5.899556+85	5.957BF 5	3.72002-04	3132200 -71
24	6.4303E+62	1.1670E+22	6°8684E+95	2,32286-74	3.5rbrE+22	2,35586+64
75	A. 5287E+02	1.16886+98	P. 2302E+20	2.3228E+24	3.50000-02	3,3228E-21
20	6.628CE+22	1.16886.+68	P. 12945+83	7.3228E-84	3.50045-92	3.52302+01
	7 1 3 8 4 5 4 6 2	1 14305-00	0 00000000	2.32285-24	3 # BBBF +#2	3.32285+34
~~	/,10PEL-04	1.100000000	F. 600001-00	3 33005-04		3 53 105-0.
Sa	7.27571-94	1.100000000	F. BEBLE-DI		3.550000000	100000000
2 ¥	7.4302E+04	1.10006-20	0.BABLE+95	CIJCEBE-E4	3130000-00	3,32001-01
32	7.5582E+22	1.1608E+20	60955+85	2,3273E-24	3.50001-02	2,32366-1
31	7.73P8E+Ø2	1.16866.55	P.0222[+82	2,32086-04	3.95006-65	2,32385+31
32	8.82P2E+02	1.1628E+30	P.0207E+02	2.32688-24	3.57892-62	3,32202+71
33	9.128aE+22	1.16886+28	P.0287F+8P	2.32082-24	3,52886-65	3,32200-01
	0 01015412	1688F432	8 99995-92	2.32286-24	1.52885-02	3.32225+24
		1.10000-00		2 1200F-94	SPREC-02	1 11100-04
32	1.055-1.5	1,10000-26	C'BLOCT	2132100-04	3.90000-02	3 30100-01
30	1.190PE+03	1.10/21+30	5.05016+01	5-25-56-64	3.30000-022	3,32,01,401
37	1,22026-03	1.168BE•22	9.03950+66	2,32C2E=24	3.5PB8E+92	3,32306-01
38	1.3APRE-03	1.16882.02	5.6555E+5b	2,3220E-24	3.5200E-#2	3,32300-21
39	1.42846-83	1.10586+38	P.6383E+63	2,3200E-24	3.52006-02	3.J220E+01
40	1.43226+03	1.16886.+22	P.0292F+87	2.3228E-24	3.500000-02	3,5230E-P1
	49446.003	1.16666.+33	0.00005+32	2.32385-84	1.5200E-22	3.32186+21
14	4.005.403	14305403	0.05000.000	2.32205-04	1.62005-02	3.32286+21
	1	1,100000000	F . CCCCC . DF	0 1000-34		1 30306-0.
43	1.49MHE+03	1.10001.440	N. 96666.00	2. 32000 -04	3.900000-02	3,32,000 - 1
44	1,52886+83	1.16206+20	5.05066+05	5-25586-54	3.20016-84	313540FeL1
45	1.5452E+Ø3	1,16782+77	2.2892E+P?	2,3220E-04	3.50000-02	3,32306-71
44	1.59026+03	1.14205	2.02825+82	2.320BE-04	3.52026+02	3,3278E-01
47	72025-03	1.1620F+22	P. 398PF+92	2.32285-24	3.5PBPE-22	3.32386-71
	01925-03	1 14205+10	0.03005+03	2.32585+24	3.50026-02	3.32/05-01
10		11100000000	1	3 33946-24	* SPRAF-02	3.39386+21
47	1,91000-03	1.100000000	r.00011-00	2 32405-04	3 - 3995 - 02	3.32146-91
20	5.000 CE +C2	1.10001.00	H-55055-00	2.32000-14		7 3002000000
51	2.1288E+83	1.10P01+20	5.955LE005	5.25.05-64	3.50000-02	3,32660
52	2,3P80E+Ø3	1.1678E+33	P.000P[+02	2,322BE-24	3.50021-02	2.25386+53
<u>63</u>	2.50F8E+03	1.16286+68	8.00076+02	2.32CBE-04	3.50886-22	3,32200-01
	2.72885.443	1.14886.003	P. 48905+88	2.32?BE+24	3.47006-02	3,32206+21
-	7 33935483	1 16225493	0 00000400	2.32005-04	1.5888E-#2	3.32865-21
33	3,20000-90	1.10000	PIBEOR EVEN		5 59935-93	1 32455-04
50	3.3382E+03	1,10366+66	L'5585E+65	2. SCOLLER	3.90000-02	3.54001-01
37	3.4280E+03	1.10381.00	H . 329 - E . 27	2.32FBL-24	3.70000-02	1 1040F-51
98	3,75PAE•Ø3	1.16000.020	8.028PE+6*	2,3206E+P4	3.9000E-02	2.253RE+51
59	4.1280E+g3	1.16282+38	P.0207E-22	2,3200E-04	3.5280E-65	3,3280E-61
60	4.3200E-03	1.16086-20	P.80981+P2	2,32CBE-24	3.5000E-82	3,32386-21
61	4.42006-03	1.16886.00	P. 88898 + 82	2.32C6E-24	3,5000E-22	3,32286-21
43	A RAGAL AS	1.16885.39	0.00000.00	2.32885-24	1.5288E-#2	3.32085-01
100	4 00005-03	1 14305400		12745-24	* 5888E=02	3.32005024
63	4. YOUNE 03	1.10.00.30	r.00001.000			1 Sandt-4-
64	2.03PPE+03	1,1678L+32	*.800PE+82	213228L-24	3.30001-82	J JOSEFEL
65	5.12PPE+Ø3	1.1600E+20	6.00055.00	2,3200E+24	3.20005+85	3.32206-01

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66	5.20002+83	1.16086+88	0.00001+00	2.32085-24	3,50000-02	3,32800-01
67	5,25886+83	1.1688E+88	8.00000.000	2.32285-84	3,58882-62	3,32000+21
48	1.30A0E+B3	1.16786+80	8.8888£+##	2.32008-64	55655-22	3,32722=21
49	5.6088E+#3	1.16882-88	2.38886.082	2.320AE+84	3.56086-62	3,32200+71
94	5 65885+83	1.10005+80	6.68885.689	2.32048-24	3. 32006-22	3.32286.81
	8 7000F+03	1.16885.488	3.0000-00	2.32585+24	3. 98285 -82	3.32286+2
	8 98886483	1 14805400	3 0809-480	2.32000024	1 43385	3.32286.024
	4 43445443	4.14805.00	a abaar.as	2. 32005-04		3.32786-2.
12	4 10005403	1 14845-18	8 88887-84	2.32885-44	3 8888E+02	3.32481.0
	4 48865 483	1.14885+38	A 48887-82	2.12005-04		1.32326-21
	A BORAC + BI	1 14205-00	0 44801-90	2.32045-84	1 48626-22	1.32206+24
	7 80805 +03	1.14885+88	A. ARRACARA	2.32005-04	1.48888-02	3.32225+8+
	7 22805+83	1.16866.00	8.00000-00	2.32045-24	5.5600E-02	3.32326-24
	A 1288E443	1 14895400	3 38686488	2.32046-84	3. C. B.B.B.F. + 0.2	3.32286.01
	10405-03	1 14861.480		3 33605-84	. BRARE-02	3.32200-0.
80	0.3000C-0-	1.10000-00		2 32000-24	- 63/8E-02	1 33395.34
	8,9000L-03	1.10002-00	D'E427F40C	2 32000-04	3.90000-02	3 33445-21
	8.7000L+0J	1.10000-000	C, DDDC1-00	2,32081-04	3.500000-02	3 33385-31
83	A DEDHE-03	1.10000-00	C. COB#1 700	2,32002-04	3.90000-02	3,32000-01
	9.20802-83	2.10000400	0.00016-00	2.32000-04	3.50000-04	3.72001-01
	1.04705-04	1.10000.000	p, gopol 402	2 32401-24	5.3000 - 02	3 32405-24
	1.1 POL	1.10000-00	r, 20002-000	C136101-04	3.90000.02	1 30305-04
8/	1.1/000-04	1.10000-00	0,00001.000	21J2785-64	3.30000.02	3 33000-01
80	1.19802-8	1.10000-00	5.00021400	2102582-04	3.36666.64	1 30395-14
57	1.20000-0	1,10000-02	F. 00001-01	C13200L-14	3.330000-32	J BOARDAR
48	1,22001-04	1,10000-00	L'BORLE-RO	2,322BE-C-	3, 20001-02	3 3200E F1
- 11	1.23566	1.10000-00	C.8585[+34	2132585-04	3.500000-02	3,32001-01
92	1.27046-04	1.10001-00	8.8000E+06	5'756BE-54	3.50001-02	3,32001-11
• 3	1,33021.00	1.10000.000	e.scort.or	2132CBE-04	3, 30000 -22	3,32051-01
	1.30000	1.100000000	0.000000000	2132081-04	3.300-1-12	1 12205-021
	1.4400-07	1.10000-000	9.8000L488	2 BOOK - 24	3.30000-02	3 32226-21
	1,5000000	1 14005-00	0.00001+80	2.32505-84	83085-02	3,39326-2-
	1,21000-04	1.14005400	A 39886+99	2 32000-24	5.5000C -02	1.33305-2.
40	1,0-00-04	1 14005-00		2 32000-04	- Keast-a2	1.33146-64
	1,75000.004	1,100000-000	r.00001+0r	2 322682-24	3,00000-00	3. 32405-21
100	1 / DEGE - B-	1.10000-00	0.000-E+0C	CI JEDEL-LA	3,500000-02	3 13 200
121	1,04082+84	1.10081-80	6.888 E+02	2.32.05.06	3.70000-00	3, J220L 021
155	1.9200.004	1,10000-00	B. BEDEFEDD	2.32581-64	3.30000-02	3 32200 001
183	1.93466-04	1.10001-80	8.600LE+05	2.920BE-04	3.300000-02	3,32065-01
111	1,99886484	1,10000.000	8.85805+88	2,32581-24	3.70001-24	3.32105-04
765	2.00000-04	1 14405.00		2 32000-14	5.50000-02	3 32200-24
180	2 0 C C C C C	1 14896.40	0.000CL+07	2 1200E P4	3.5CCDC-02	3 33285-81
163		1.1000000000	0,00001000		52000-02	1.33395.03.
110	2.10000004	1.10000.000	r,000002.00	2102101-04	3.300000-02	1 32305-04
1.00	2.120DL B	1.10000.000	0.000CL.0C	2102281-24	3,300000-00	3 33395-34
110	2.1/682-84	1.10000-00	0.00000-00	2102001-14	3,30000-02	1 30105-01
111	2.22522084	1.15000.400	C. 000000400	1 12005-21	3.35555552	3 33 32 5001 421
115	2,23701-04	1.100000400	C. 000FE+02	2 HOLEBEAR	3,30000-01	3 33795-04
113	2,24001-04	1,100000-000	r.000rE+0r	2 3200E-04	3,30000-02	3 32705-01
114	2,2000L-84	1.10000.000	C.000rE+00	C BOART-OA	3,70000,902	3 33326-9-1
115	2.32002-84	1 16505-405	0.00005.000	2 32502 54	3.30004-07	3.32325-01
110	2,34806-04	1.10000-00	1.000cF+00	3 33565-84	3.50000-22	3.33345-01
117	2 2001 - 0-	1.100000400	0.000rt+00	2 32005-04	- #300t-02	3 33335-21
110	2,44055444	1.100000000	a adder.co	2.32005-24		3.32225-0-
119	2,4000004004	1.100000-00	0.000rE+07	2102101-04	5.50000	1 33200-1
120	5,24686+84	7.7000F+00	.**********	A LOCUBE-24	3.24866-85	0200E-01

DEGREES OF FREECON USED IN THE WIDTH DISTRIBUTION

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		J-VALUE	COMPETITIVE	NELTRON	ANDIATION	F15510N
		3.2828E+22	5.51515.55	2.06021-70	2.2722E+27	1.48726.13
			**EP	AGE RESONANCE	WICTHS (EV)	
INCEX	ENERGY (EV)	LEVEL SPACING	COMPETITIVE	NELTRON	RADIATION	FISSION
1	8,22921-01	1.00220+22	\$. 222PE+E2	2.200gE-74	3.52076-02	1,27728+51
2	8.6523E+81	1.25956+32	5.2722E+88	2.000000-24	3.52826+22	1,2728[=[1
3	9.1292E-81	1.0002E+20	6.6565E+95	2.00301-24	3.92025-22	1.47286-01
<u>.</u>	8.55655+87	1.78201-22	5.56652.655	2,00221+**	3.50001-02	1,07001-21
2	1.00000002	1.000000+70	7,3767[+22	2,00701+44	3.5/076-02	1.27566-21
7	1.22826.082	1.2000E+22	2.38825+72	2.22285-24	3.40000-02	1.27786-21
é	1.83946-22	1.28935-22	2.23556.02	2.00225-24	3.5228E-22	1.272 48-01
9	2,42826+82	1.78225.22	2.82975.82	2.2828E+24	3.578885-92	1.67705-7:
12	2.6287E+B2	1.48825.422	1.22226+32	2.2220E-24	3.5287E+22	1,27826-01
11	50+32626'5	1.70305+70	4.95906+55	5-56286-54	3.52225-65	1,2728[•21
12	58+344542	1.20236+23	5.59950+55	5-9558E-54	3.25555-55	1,4772E=P1
13	3.22005+92	1.26286+38	+ 9555E+85	2,88086-24	3.72622-02	1,27206-01
	3,17826-82	1.00000-02	5.95666.55	2,00301-04	3.300000-82	1.07700-01
19	1 44995493	1.20205-22	3 12227499	2.5228.24	3.50825-02	1.77227.21
17	3.62975.22	1.20285+22	2.02225+02	2.20028-24	3.57826-02	1.27326+41
18	4.54PgE+02	1.39235•35	2.32935.5	2.88286+24	3.50826-92	1,47285-71
19	5.22825 . 22	1. 48386 . 38	2.27291+27	2.40086-24	3.57826-02	1,27785+21
23	5.65PPE+22	1.28226+22	2.2437555.5	2.000002-24	3.5282[-02	1. 7382-71
21	6,1287E+22	1.70025+30	5.5565E*8C	2,00000-24	1.5282E-65	1,27725-71
22	6,22326+82	1.25066+23	2.82875+82	5-30.08 -54	3.5-246-22	1.27222-21
-3	6.32P2E 02	1.26956+25	5*5506E+55	2,88586-74	3.52826+2	1.27725-01
24	6.47P0E+82	1.79726-72	5.66566.56	2,82085-04	3.94666-62	1-27825-21
25	0.92891482	1.00201+22	7,078FE+27	2,82286+24	3.50001-02	1.47266+??
20	7 13836+32	1 20225-12	2 0330-437	2.20.01-44	3.52886-02	1.27225 21
24	7.25726+22	1.20822+20	2.22225+82	2-82CRE-/4	3.50076-02	1.27227+71
29	7.438-6.82	1.78725+28	1.22805+22	2.88081-24	3.52025-02	1, 47 225 - 21
32	7,552-2-02	1.00000.000	2.28882.+22	2,08285-74	3.52826-82	1.27385-1
31	7.77826+92	1.2860E+23	2.92666+55	2,82286+24	3.52926-22	1,27225-71
12	8.8*021+02	1.20206-22	P.27891427	2,80096+24	3.5/201-22	1.2778E-71
13	8.1995E+03	1.99566+99	5.9857E+02	2,20205-24	3.57885-62	1.273PE-21
	9.97986+32	1,48225+22	5.5595E+55	5.59286+54	3.52666-02	1.27305-21
	1.00022-03	1 30205-10	3 12020-00	2.00171-24	3.52026+02	1.27705-21
37	1.22826+83	1.70206+20	2.28885+82	2.82595-24	3.57676-02	1 . 27285 - 1
36	1.33826+23	1.30000 .20	2.28001+87	2.20205-24	3.52026-92	1.27386-72
39	1.43826+83	1.28285-28	2.20002+22	2.00505-74	3.52846-22	1.27785-71
42	1.43026+23	1.302080.70	P.2287E+22	2,80000-74	3.52828-92	1.27795-21
41	1,49826-83	1.26582+38	P. 0888E+27	2,03026-24	3.52006-22	1.27486-71
42	1.4682E+03	1.0000E+00	5.9585E+95	2,0000E-24	3-25855-65	1.27786-71
43	1.458PE+#3	1.000000-20	8.2889E+87	2.82C2E-24	3.5266E-22	1.27222-01
	1.52001-03	1.00001*30	P,2020E+20	2.252251-74	3.50000-02	27106-71
43	1 59325-03	1.00205+02	3 32025437	2.0000000-04	3.50000-22	1.27385 -2
47	1.72P2E-03	1.00206+22	2.22875+82	2.02506-74	3.50076-02	1.27286-7
48	1.92896+83	1.32206+90	2.28895487	2.00205-24	3.50828-02	1,27386-31
49	1.91825.083	1.30000+38	P.2P0PE+P2	2.00000-24	3.52826-02	1,27761-01
50	5 92621 +93	1.30205+28	2.0007-+02	2.02006-24	3,53002+02	1.27825-01
91	2.12022-03	1.20206+02	9.8000E - 62	2,88288-24	3.53886-82	1.27885-71
52	2.328PE+03	1.20266+25	P. 88888E+27	2,02021-04	3.5-826-02	1,27885-71
53	2.52882+23	1.70002-22	5-55256-55	2.82206-24	3.22076-22	1,27205-1
54	2.77PPE+03	1.0000E+22	P.2PBPE+22	2-C222E-14	3-2006-65	1.2770E 21

44	3.20006+03	1.00806.000	2 30005-02	2.00005-24	1.8200F++2	1.21265.01
	1.12035.001	1 40006	0 100PF-02	2.88246+24	53895-07	1.27285-2-
	1 44405 441	1 0000000000		3 84205-34	T English	4 39345-34
2/	3. BREE BS	1,20001-00	STRDE+D1	2.00201-24	3.36076-24	1,47,221 72
50	3,/9866+83	1.00201.00	P.BUDDE-DC	5 . 682.66 - 44	2.34861-55	1,47281.001
59	4,12PCE+03	1.00000.00	0.0000r+82	2.22026-24	3,50826+82	1,27006-01
ÀØ.	4.30000.003	1.000000-000	2.00000.02	2.88396-64	1.50055-02	1.27 485 +2-
41	4 44435-43	1 003/05 - 00	2 00005-93	3 83305-44	3 84425-02	27127-14
	4 40000 -01	1,000000-00	r ppert pr	2,00000-24	53000001	1 3739501
04	. ODNEC-03	1.00001.006	6 BUBSEACS	2.00000	3. 30000 -22	1,6/065071
63	4.9PROE • 83	1.P0P21+32	P.0208E+07	2.86CBE+54	3.50000-22	1.27288+P1
64	2.0086E-03	1.00000.00	8.06075+07	2,0008E-24	3.50000-02	1.27720+21
65	5.128AE•83	1.08000+30	P.0000F+07	2.08CBE-24	3.50676-02	1.27205-71
44	5.2288E+83	1.30801+02	1.02225.02	2.88286-24	1.5CREE-22	1.27225-2-
¥7	5.25866+83	1.0020-+02	0 0000-000	2.88525-24	3.52886-82	.2778=+2
Å B	5 1000-01	1 99995-93	0 0000 000	2 89205-64		27106-3-
	J.JEDEL-E.	1.000000-000	. SCOOLACT	2 DUILEL	319000	
89	2.056MF+63	1,00001.000	6 020 C+S/	S'SECSFeca	3,50000-02	1.6/002.001
74	5.6500E+0.	1.0000E•20	8.00000000	2,60202=24	3.5000E-02	1,27228+21
71	5.7000E+23	1.00302+30	P.at201+2"	2.88286-84	3,58808=82	1.27826-21
72	5.98866+03	1.38205+00	P. #PROF+P2	3.882AE+24	3.50000-62	1.27.586+2+
	4 33895+03	99345-13	0.0000-000	1 43395-24	3 BRORE-02	27105-3
	0.00000000	1.200000-00	P.Brecter.	2.00000-04		1107001-01
7	0.13000-000	1.00001-02	N. BORNEOD	2.0000L-04	3.00000-02	1.2/201-01
75	6.49PHL+03	1.00486.00	0.00655.001	5'695BF-L4	3 SCORE CC	1.47381-21
76	6.8382E+B3	1,80006+00	P,00071+07	2.0LJ8E-24	3-22006-65	27 JUE - P
,,	7.006BE+03	1.0000£+20	8,98686+36	2,00205-24	3,52006-02	1,27286+71
78	7.20805+83	1.0000E+00	P. 29291+32	2.00C0E-P4	3.52886-02	1.27286-21
	A.1388F+83	1.000000-000	3.00001.000	2.000000-24	3.52888-02	1.27855-21
	1 10005-01	1 00005-00	0 00000.00	3 83565-24	52005-02	1.27105-4-
60	0100102-00	1.00000-00	F. CODFLOOD	2,000 BL-C4	3.900. 2-00	1157562-61
P1	6.526PE-8-	1.00000+20	P.84696+56	2,9078L P	3.50002-04	1.47201-71
62	8,7202E+03	1.P008E+00	2.0000E+07	5'65500-6=	2.2cBoE+85	1.278FE-51
#3	9.0884E+83	1.2000E+20	P.000/E+02	2,00286-04	3.52000-02	1,27385+21
84	9.228826+83	1.000000-30	2.00001-022	2.00001-24	3.52802-02	1.2728E+21
<u>.</u>	1.0402E-04	1.00306+00	8.00005+02	2.00F0E-24	3.50000-02	1.27285-21
14	1. 4005+04	1.8838545	3 9308 +03	2.00005+24	3.52825-22	4.27705421
	1 10005-04	1 00000-00		2 46905-94	2 23885 - 22	22005-24
0/	1 17000-04	1.00000-00	L'BODLF PL	0 00000-074	3.300000-00	110/061001
80	1.14605-04	1. CEDELAND	N. BORCFORD	2,00000	3.90000-02	1.47CEL PT1
89	1,2000E+84	1,000000+00	2.00826+87	2,00C0E+24	3.50000-022	1.47386-01
80	1,22001+04	1,0000E+20	8.e807 E+ 82	2,82000-24	3,54892^82	1,2722E=21
91	1.23886+84	1.00005+00	8.95885(72	2.88CAE+84	3.42806+92	1.27288=01
62	1.22085+84	1.50006+00	P	2.88006+24	1.528CE-02	1.27285=21
	1 11005-04	1 33335-40	1	3 88305-84	1 - 30.00 - 43	1 23436-44
45	1,00000-00-	1.00001-00	E'BBBLFARC	Z, DUCDL-L-	3.300000-000	
44	1.30000-04	1.00000-000	0.000FE+DC	S' DRADE -E -	3.30005-02	1,2/001-01
45	4480E+84	1.9208L+88	P.SEBEC+OC	5'88665-64	3.95885-55	1.47288-01
98	1,52896+84	1,00000+00	0.00001400	5-86686-54	3.20036-65	1,27356021
\$7	1,51886+84	1.0000E+00	₽, <u>0</u> 008£≈00	2,00C0E-24	3.5000E-02	1,27886+01
98	1.64088+84	1.38386+88	3.82895-08	2.8808E+24	3.500000-02	1,27386+01
60	1.75005+04	1.00000000	8. 4000C+12	2.00005-24	3.50000-002	1.27336-01
	1 14005404	1 00005400		3 00008-04		1 29105-0.
180	1,70000-04	1.00000-00	N.900-E-0C	21000000-04	3190040-02	1,0/000-01
101	1.84006+04	1.00001+00	0.0000E+8P	S*ROLDE-C+	3.30005-65	1.47205-71
162	1,928@E+8*	1.0000£•P0	P.809PE+88	2,60066-04	3.5080E-02	1,27885+01
103	1,930EE.04	1.0000£•00	P.8827E+27	2,000005-04	3,58886-82	1,27286-21
184	1.99886.01	1,000000+00	8.00007+87	2.80C8E+24	3.50006-62	1.2782E-2:
125	2.88882.+84	1.00000.00	2.08800+00	2.00COL-04	3.50000-02	1.27286-21
	2.02085.04	1.00005.00	8 00000.000	3.8400F-24	1.90005-02	1.27085-01
100	2 04805404	1 00005407	0.000000000	5 #8cot-P4	BARGE	22425-4
187	C+0400C+84	T'0000F*88	o'Rencfohn	CADULUL	J. JUBBL-CC	141/000-01
106	2,1000E+8*	1.0000E+08	0.000E+92	5.0000E-04	2.2000E-05	1,47366-81
109	2.12002+04	1.0000E+00	0.00006+00	2.00C0E-04	3.500FE-02	1,270EE=21
110	2.1768E+84	5.000086+00	8.93085098	2.00008-04	3.98886+#2	1.27288-21
445	2.22445.44	1.0000F+00	0.00000+00	2.02005-24	3. 5000F-c2	1.27005-21
	2 21005404	1.00805405	0 000000000	2 80005-04	1.588864-42	1.2938Fade
114	2 24805 404	1 0000000000	T DECOLPDE	2 800000-04	* 500000-02	1 29145-7-
113	2,24000.404	7 000000400	r.upudeadu		3.90000-92	2 8/00LPC1
114	4.40FUL-84	5. • DE DE • 00	A*BRARE+BA	<**************	3420805465	7441ReFet1
115	2,3288E+84	1. 900E-00	3.38802+92	2.08086-24	3,50000-02	1,2780F+P1
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116	2.3420E-91	1,8998E+80	0.0000000000	2.82026-24	3,90006-02	1.2738E=81
117	2,42826+6+	1.2998E+88	P. BABDE+02	2,20038-24	3,50801-92	1,2720E-21
118	2,4488E+84	1,00305+38	6.C000E+02	2,00036+04	3.50000-02	1,2788E=01
119	2,46P8E+84	1,92002+88	0.0000E+80	2.08002-24	3,50000-02	1,2778E=01
120	2,528GE+84	1.20002+80	6.000000000	2.800bl+.4	2.39666-05	1,2730E-01

OFGREES OF FREEDOM USED IN THE MIDTH DISTRIBUTION

JEVALUE	COMPETITIVE	NEUYRON	RADIATION	F15510N
4,9088E+88	8.000PE-80	2,00002120	3.3988E+8F	2.0000E+00

			AVER	AGE RESONANCE	NEDTHS (EV)	
				4/Euglion	8.01.17104	£16510.
THOPY	2.320 - 2.20	LEVEL SPACING	CLAPE I IVE	ACOTHON	* B1005-07	2 4133104
-	8.20PUL-01	1 30005-00	P.BERCLOP	2.000000-04	3,300000-022	2.000000-01
÷.	0 10320-04	1 93595-00	F. 000-E-0F	2,000000-04	3.500001-02	2 84325-3-
	n Semar.at	1 20205.00	a angee. 30	2102102-24	3150000-02	2 84325-34
2	1 00005402	1 36305400	0.00001000		3,30000000000	2 84325-34
	1,00000-000	4 30236 -00	C. DPDDLODC	2+00101-04	3190000-02	2,00002001
-	1 10000 - 04	1,00000000	60000E-00	2, UDEBE-C4	3,30002-02	2 00001001
4	1,600-66-06	1.69(35.00	C. 0000000000	2180606464	3.30000-02	2 000000001
	1, 10005-00	1,00000000	F. 6001 E. 60		3.50000-02	2 84 405 - 14
	2. 4000L-06	1.000001-000	2.0200L-00	2.00000-004	3.500001-02	2,0000.00
10	2,000000000	1,00000-20	E, 20071-00	2 00000 -04	3,500000-00	2,000000-01
11	2 0400 - 402	1.00000-000	0,0000°E+00	2.000000-04	52025-02	2.86725691
13	3.02005-002	1.000000-00	0.000000403	2.72345-24	3. 32685 492	2.66.105931
14	3 13000402	1 99095+40	0.00000-00	2.42705.024	1.58805-02	2.84386-01
15	3.39305+92	1.2028F+40	0.00000+30	2.60CgF+24	3. 90005-02	2.66325+3
16	3 45.05+22	1.000000-000	3.00001400	2.88C4F+24	3.52025+02	2.86305-01
15	3 60645-02	1.00006.00	a apazr.aa	2.38005-24	1.50000-02	2.84805-81
1 A	4.50865+02	1.82385+49	8.09000007	2.00005-04	1.53035-02	2.86585861
iš	5.2882E+82	1.000000000	A 02035 + AP	2.0000F-24	3.5202F-02	2.8430E+21
	5.6588E+82	1.080000.000	8.00002+00	2.00000-04	3.50000-02	2.86386-01
21	6.1800E-02	*.0800E+d0	9.00005.000	2.88082+24	3,5000E-02	2.84385+21
12	6.2000E+02	1.08222+00	4.08062+02	2-88C8E-24	3.50002+22	2.86385=91
23	6.388eE+#2	1.040gE+40	P.0000E000	2.0820E-24	3.50000-02	2.06/2E=01
24	6.431 DE+02	1.20P8E+00	0.00002+00	2.8328E-24	3.5000E-02	2,86/86-71
25	6.5280E+62	1.000000+00	8.888PE+82	2.0020E-74	3-5888E-42	2.86.500-01
26	6.0200E+22		P. 8388E+87	2.03036-24	3.52026-65	2.86786-71
27	7.10P2E-02	1,02302+00	0.000PE+22	2.0000E-24	3.57002-02	2.8638E=#1
28	7,2500E+02	1,99885+98	8.0288E+86	2.8000E4	3.5700[-22	2,0620E+01
25	1.4700E+62	1,20085+00	0.000FE+8P	2.8808E-24	3.50885-82	2,8678E-01
30	7,55BBE+62	1.P800E-00	P.688PE+8P	2,70008-04	3.5208E-02	2.86305-31
31	7.78PGE+82	1,0888E+53	8,82821.+82	2,280025-24	3.57082-02	3.8630E-E1
32	8.8333E+02	1.28PGE+00	P,07826+07	2,88C8E-24	3.5000E-72	2,6378E-01
33	9,1283E+D2	1.306DE+00	0.00002-00	2,88086-24	3.50002-02	2,86300-01
34	9,9388E+62	1.20266+20	0.0000E•PP	2,08282-24	3.5008E+02	2.86306-01
35	1,8853E+03	1.0008E-24	0.0002E+00	2,00000-04	3.5000E-02	2.06965-61
36	1,1802£+03	1.0000E+30	P.8889E+8P	2,00000-04	3.50005-02	2,8630E=21
37	1.2200E+03	1,0000E+00	P.8288E+81	2.00000-04	3.52002-02	2.8630E+31
38	1,3073E+03	1.00085+80	8.000FE-80	2,00C6E=24	3.568BE-02	2.86.98E-01
39	1.40036+03	1.00006.000	8.0060E+00	5.0050E-64	3.5000E-02	2.8678E+C1
49	1.43B8E+03	1.0880E+#8	P,000FE+00	2,0028E+84	3.50006-05	2,06300-01
41	1.45P0E+03	1.2000E+09	5.9000E+95	2,0030E-24	3-24006-55	2,06,02,01
12	1.401.01.62	I.OHDEE+00	2.00000000	2.00008-04	3,30005-65	2,0000E=11
# 3	1,46406483	1.00006+00	N. BABLE + BS	210000E-24	3.5/082-02	2.0600E*V1

- 104 -

44	1.50806+43	1.86886+12	8.88825491	2.88081-24	3.50086-02	2.86386-01
65	1.54506+63	1.00000.+00	8.45697+80	2.00000-04	3,58882-82	2.06786-81
46	1.59886+63	1.89902-00	P. 2000E-00	2.00291-24	3,50000-02	2,00000-01
47	1.788AE+#5	1.00001.000	3,0020[+00	2,000000-34	3,52882-92	2,86386+81
48	1,9080E+03	1.09062+40	H. BRODEOOR	2,88082-84	3.5000E-22	2,86402-01
49	1.9188E+#3	1.000021400	P.00071-00	2,80002-04	3.58885+65	5.8998E+61
50	2,CORAE+03	1.98886+93	P.0800E.07	2,000000-04	3,5000E+02	2.46295-21
- 51	2.10PDE+0.	1.00085+00	8.88886+8*	2,09286-24	3.5000E-65	5'995KE-11
52	2.32PRE+83	1.00001+00	H'BHBHE+38	5,00084.404	3.50001-04	2.00000-01
53	5.20DNE+83	1.00001+00	0.000000002	5'00101-54	3.00000-01	2100001-01
	5 /21HE-83	1.00001-00	4,0000E+00	2.00201-04	3.30000-02	2.000000001
	3,23806+83	1.00001-00	. OBBAE+RS	2,00001-14	3.300000-02	2,00000001
70	2.30982-93	1.00000-00	E 187801400	CIDUCUL-C+	3.90000-02	2 84385-81
- 24	3,40002-03	1.00001+00	1.000FL-0C	2 00 00 00 004	3,500000-02	2.84385-24
38	A 10000-003	1.88585+48	0.0000L-00	2.0000000004	1.50885-02	2.06286.001
	4.3000F+03	1.000000+00	B.COPPEAR	2.00205+24	3.52866-82	2.06000-21
63	4.400CE+83	1.30206+28	3.00000.000	2.88682-24	3.5788602	2.0600E-01
42	4.888865+83	1.20006+90	8.36665.65	2.08281-24	3.5000E-02	2,86385=21
63	4.90006+03	1.38035+22	P. 4882E+22	2.88205-94	3.53886-82	2,86386-01
64	5.0000E+03	1,0002E+00	P.0022E+2P	2,80306-24	1,588880 - 82	2.06882.01
65	5,10000.003	1.8009E+00	8,888UE+8H	2.8888E+84	3.50088-02	2.8600E=01
66	5,2080E+83	1,280925+00	P.0000E+02	2,88086-04	3.50026-02	2.86286-01
67	5,29M0E+03	1.000000+40	0.0000E+00	2,00001-24	3.55855-02	2.86786-91
68	3,328^E+83	1.0000E+00	6.000PE+03	2,82205-24	3.50885-02	2.0.20[=01
69	5,608×E+03	1.0200E+00	6.8686E+83	2,00000-01	3.20805-05	2.0622E-01
76	5.03901.00	1.00001+00	6.6980E.60	2.00001-004	3.56861-82	2.00356-01
71	5,708Pt+03	1.00001-20	8.8666E+65	2100202-04	3,57401-01	2 84885-44
72	5,90000-03	1.00001-30	S SHOLFODA		3,300-0-02	2.000000000
23	6, 20002-00	1.00000.000	a coorteer	2.000000-04	3.50000.00	2.84305-04
7.1	6,10M0L+03	1 000000-00	6.0000rtepr	2.00045-24	1.90036-02	2.84381-41
75	6 0000E403	1 20205+00	6 4000L+04	2.00005-04	3.52925-02	2.46385+44
22	7.006.02.003	1.000000+00	0.00000000	2.00225-24	3.50086-92	2.86301-01
78	7.20005+83	1.20005+20	3.00001+80	2.08805.4	3.50866+02	2,8678[+01
79	8.10PEL+03	1. PODGE+ .2	8.29892.03	2.00086-04	3.5088665	2,06286-01
68	8.30922+03	1.00001+00	P.0809E.00.	2,0008E-24	3,50000-02	2.8638E-P1
81	8.58P8E+03	1.00001+00	6.05966.95	2.00008-04	3.59886-02	2,8830E+P1
82	8,7000E+03	1.20006+00	£.2000E+02	2,0000E-04	3,4984[+22	2,86002-01
ē3.	9,00P0E+03	1.00000+00	6*86966*64	2,3070E-24	3,3-202-07	2,86388+81
64	9.200000-63	1.2000E+00	0.8000E+82	2.00002-24	3.50886-02	5-90366-61
85	1.04096.04	1.0000E.00	8.66662+60	2.0000E-24	3.50835-62	2.00395+01
66	14005+04	1,000000+90	0.9586E+66	2, BBCBE-14	3,50035-25	5,0000Eabl
87	1.17021+04	1,0000000000	N*8888E+8C	2 000000-04	3.50001-22	2.84386-9-
64	1,19886-64	1,00010000	0,000-L-0r	2.000000-74	3.50000-02	2.86200-01
	1.20000000	1.00001.000	0.00207490	2.000000-04	1.58066+02	2.8428
01	1.23805+84	1.00295.00	5.08021.08	2.00000-04	3.52006-02	2.06205+05
62	1.27886+84	1.2808E.08	6.60001+00	2.000005-04	3.500PE-02	2.06701-01
63	1.33005+04	1.00005+00	0.00005-00	2.00000-24	3.50000-02	2.86272-01
64	1.36802+04	1. POCEE+RC	2.02005+02	2.88086-24	3.50286-02	2.86385-01
95	1.448gE+04	1.00000	C.0908E.00	2.000000-04	3.5200E-02	2,86386+91
45	1,5380E+04	1,70000.000	P.OPOPE.JP	2.00001-24	3.5000E-02	2.86301-91
97	1.510PE+84	1,00086+00	P.00000+07	5°8675-64	3.50000-02	2,86386-01
98	1,64986+84	1,00306+00	2,0002[+07	2,00002-24	3.50000-02	2,06385-01
99	1,750AE+84	1,0920E+00	8,0008E+00	2.0000E-84	3,50002-02	2.0600E-21
168	1,7600E+94	1.00000.00	P.8888C+87	2.00000-04	3.50606-92	2.00406-41
161	1,8470E+04	1.0008E+00	6'8669E+85	2.02285-64	3.30395-82	2.000000-01
165	1,9200E+04	1,08086488	P.800PE+0P	2,0000E-04	3.24026-85	2.000000-01
162	1,9380E+6+	1,000BE+80	r,80002+66	5,00035-64	3.2005-35	Stosepfes/

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1,99886+84	1,0000E+00	P.8000E+02	2,00385-24	3.5000E-22	2,86382-01
2. 8086E+84	1.00000.000	8.87885+52	2.000000-24	3.5000E-02	2.06005-01
2.8288E+24	1.88885+28	8.000**+82	2.23586-84	3.5000E-H2	2.8678E+01
2.0480E+84	1. PB00E+22	8.0002F+32	2.00225-24	3.5060E-02	2.8630E-91
2,1P88E-84	1.38386+38	P. 0838E+ **	2.00000-24	3.20065-02	2.86301+21
2.12886+84	1.00002+00	8 88865+82	2.00C0E-24	3.50002-02	2.86305-01
2.1700E+04	1.08026+20	P.0882C+03	2.92005-24	3.58085-82	2.06305-01
2.2288E+84	1.88882.*26	50+31000, S	2. 20CPE-24	3.5200E-02	2.86385-21
2.2300E.084	1.30802-30	P.0629F+B2	2.022CE4	3.50000-02	2.06201-01
2.24535+84	1.000000-000	P. 69867 . 87	2.8808E+24	3.5009E-02	2.84J0F+01
2,28882.+84		P.0027F+03	2 801 BE - 84	3.5700E-02	2.8638E+8+
2.32805+84	1.3300E+00	0.00015.00	2.500-5-24	3.50000-42	2.84305-01
2.3488E+84	1.20006+30	A. 43885+95	2 0808E-04	3.5000F+02	2.06386-01
2.4288E+84	1.288865+88	0.00001+02	2.380aE-24	1.50886-42	2.86085+01
2.4488E+84	1.0000E+30	8.02801 • B2	2.00005-24	3.58886-42	2.86385-81
2 45881 +24	1 88235+50	P 0392r+00	30005-24	1.52805-42	2.86325-01
2.58885+44	1.000000400	8.00001.00	2.00005-04	3.5P80E-02	2.86385-01
	1,99785-84 2,8285-84 2,9286-84 2,9286-84 2,1286-84 2,1286-84 2,1286-84 2,2286-84 2,2286-84 2,2535-84 2,24535-84 2,24535-84 2,24535-84 2,24545-84 2,24545-84 2,24545-84 2,24545-84 2,24545-84 2,24545-84 2,24545-84 2,34555-84 2,34555-845555-84555-84555-84555-845555-84555-845555-845555-84555-845555-84555-845555-845555-845555-845555	1,9985-04 1,08005-20 2,8785-04 1,0805-20 2,8285-24 1,0805-20 2,9285-24 1,0805-20 2,1985-94 1,0805-20 2,1985-94 1,0805-20 2,1985-94 1,0805-20 2,27855-94 1,0805-20 2,2855-94 1,0805-20 2,28655-94 1,0805-20 2,28765-94 1,0805-20 2,38765-94 1,0905-20 2,38765-94 1,0905-20 2,38765-94 1,0905-20 2,38765-94 1,0905-20 2,39765-94 1,0905-20 2,49765-94 1,0905-20 2,49765-94 1,0905-20 2,49765-94 1,0905-20 2,49765-94 1,0905-20 2,49765-94 1,0905-20 2,49765-94 1,090	1,99862-04 1,08002-00 P,08022-02 2,80082-04 1,08002-00 P,08022-02 2,82862-04 1,08002-02 P,08027-02 2,92862-04 1,0802-02 P,08027-02 2,19082-04 1,0802-02 P,08022-02 2,19082-04 1,08022-02 P,08022-02 2,29082-04 1,08022-02 P,08022-02 2,28082-04 1,08022-02 P,08022-02 2,49022-04 1,08022-02 P,08022-02 2,49022-04 1,08022-02 P,08022-02 2,49022-04 1,08022-02 P,08022-02 2,49022-04 1,08022-00 P,08022-00 2,49022-04 1,08022-00 P,08022-00	1,99085-04 1,08885-08 0,0807+07 2,08385-24 2,0805-04 1,08885-08 0,0807+07 2,08355-24 2,0465-04 1,0886-08 0,0807+07 2,0855-0 2,1465-04 1,0885-08 0,0807+07 2,0855-0 2,1405-04 1,0885-09 0,0807+07 2,0855-0 2,2855-04 1,0885-09 0,0807+07 2,0855-0 2,2855-04 1,0885-08 0,0807+07 2,0855-0 2,2855-04 1,0885-08 0,0857+00 2,0855-0 2,2855-04 1,0885-08 0,0857+00 2,0855-0 2,2855-04 1,0885-08 0,0857+00 2,0855-0 2,2855-04 1,0885-08 0,0857+00 2,0855-0 2,2855-04 1,0885-08 0,0857+07 2,0855-0 2,2855-04 1,0885-08 0,0857+07 2,0855-0 2,2855-04 1,0885-08 0,0857+07 2,0855-0 2,3405-04 1,0885-08 0,0857+07 2,0855-0 2,3405-04 1,0885-08 0,0857+07 2,0855-0 2,3405-04 1,0885-08 0,0857+07 2,0855-0 2,3405-04 1,0885-09 0,0857+07 2,0855-0 2,3405-04 1,0885-09 0,0857+07 2,0855+0 2,3405-04 1,0885-00 0,0857+07 2,0855+0 2,3405-04 1,0885-00 0,0857+07 2,0855+0 2,3405-04 1,0885-00 0,0857+07 2,0855+0 2,3405-04 1,0885-00 0,0857+07 2,0855+0 2,4955-04 1,0885-00 0,0857+07 2,0855+0 2,4955-04 1,0885-00 0,0857+07 2,0855+0 2,4955-04 1,0885-00 0,0857+07 2,0855+0 2,4955-04 1,0885+00 0,0857+07 2,0855+0 2,4955+04 1,0885+00 0,0857+07 2,0855+0 2,4955+04 1,0885+00 0,0857+07 2,0855+0 2,4955+04 1,0885+00 0,0857+07 2,0855+0 2,4955+04 1,0855+00 0,0855+00 0,0007+00 0,0007+0 2,4955+04 1,0855+00 0,0857+07 2,0955+0 2,4955+04 1,0855+00 0,0857+07 2,0955+0 2,4955+04 1,0855+00 0,0007+00 0,0007+00 0,0007+00 0,0007+0000000000	1,99865-84888055-88 P.86975-82 2.60355-24 3.58885-22 2,88855-84888055-88 P.86975-82 2.60355-24 3.58885-22 2,84855-8488805-88 P.86975-82 2.69755-24 3.58885-22 2,84855-8488855-89 P.86975-83 2.49855-14 3.58885-12 2,19855-8488855-89 P.86975-83 2.49855-14 3.58885-12 2,19855-8488855-89 P.86975-83 2.49855-14 3.58885-12 2,19855-8488855-89 P.86975-83 2.49855-14 3.58885-12 2,19855-8488855-89 P.86955-83 2.49855-14 3.58885-12 2,28555-8488855-89 P.86955-83 2.49855-14 3.58885-12 2,28555-8488855-89 P.86955-83 2.49855-14 3.58885-12 2,28555-8488855-89 P.86955-83 2.49855-14 3.58885-12 2,28555-8488855-89 P.86955-87 2.88855-87 3.48855-14 3.58855-12 2,28555-8488855-89 P.86955-87 2.98055-74 3.58885-12 2,28555-8488855-89 P.86957-87 2.98055-74 3.58885-12 2,28565-8488855-89 P.86957-87 2.98055-74 3.58855-12 2,28565-8488855-89 P.86957-87 2.98055-74 3.58855-12 2,38765-8488855-89 P.86957-87 2.98055-74 3.58855-12 2,38765-8488855-89 P.86957-87 2.98055-74 3.58855-12 2,38765-8488855-89 P.86957-87 2.98055-74 3.58855-12 2,48855-8488855-89 P.89057-87 2.98055-74 3.58855-12 2,48855-8488855-89 P.89057-89 2.98055-74 3.58855-12 2,48855-8488855-80 P.89057-80 2.98055-74 3.58855-12 2,48855-8488855-80 P.89057-80 2.98055-74 3.58855-12 2,48855-8488855-80 P.89057-80 2.98055-74 3.58855-12 2,48855-8488855-80 P.89057-80 2.98057-84 3.98755550 2.980575-84 3.98755550 2.980575-84 3.98755550 2.980575550 3.980575550 3.980575550 3.980575550 3.980575550 3.980575550 3.980575550 3.980575550 3.9805755550 3.980575

			DEGREES OF	FREEDDH USED	IN THE WIGTH	DISTRIBUTION
		J-VALUE	COMPETITIVE	NEUTRON	RADIATION	FISSION
		5.00002+00	0.00002-03	1,0800E+88	8-0000E-02	1,00402+00
			AVE	AGE RESONANC	VIDTHS (EV)	
INCET	ENERGY (EV)	LEVEL SPACING	COMPETITIVE	NEUTRON	RADIATION	FISSION
1	8,226gE+91	1.1289E•00	P.0082E+8P	2.240gE-24	3.500002	1.43486+01
2	3,6580E+01	1,1280E+88	8.28092.07	2.2400E-24	3.5000E-62	1,4328E+81
3	9.10BBE+01	1,1200E+00	96+37899.9	2.24CBE-24	3.5000E-02	1,43000-01
- Ā	9,5588E+81	1,1200E+20	4,0009E+02	2,2400E+24	3.50800 +02	1,43386-01
3	1,00000+02	1.12001+00	P. CPOCE-00	2,24C0E+C4	3.52066-82	1,4338E+01
ర	1,18886-82	1.1200E+30	8.8300E+00	2,2400E+04	3.58886-02	1.43886-81
7	1,20886+02	1.1208E+88	8.000°E+00	2.2400E-24	3.58685-62	1,4300E-21
8	1,80PRE+02	1.1286E+60	P.0000E+08	2,24085-84	3,50P0E+32	1,4332E=01
9	2.40P0E+02	1.1220E-00	P.8888E+38	2,24086-04	3.5000E+g2	1.43288+91
19	2,4000E-02	1.12082+33	P. 8COPE-80	2.2408[~24	5,5000E+p2	1.43082-01
11	5.0464E+B5	1.1200E+89	8.968FE+8P	2.242BE+24	3.58885-62	1,43305-01
12	2,90806+02	1.1200E+00	0,0C00E+80	2,24086-24	3.50000-22	1.4338E-01
13	3,80A0E+02	1,12002+00	8.00000-50	2.24080-24	3.50805-02	1,43005-31
14	3,15000+82	1.1280E+09	0.2500E+00	2,24CBE+24	3.50835-65	1,4308E+01
15	3,3000E+02	1.1288E+08	0.0000E+03	2.2408E-84	3,50005+65	1.4300E+01
10	3.4506E+02	1.1200E-66	0.86866+84	2.24C0E-94	3.5000E-02	1,4300E-01
17	3,6888E+82	1.120PE+80	6°36666+63	2,24-9E-84	3.500000-22	1,43085+81
18	4.50PDE+04	1,12821+00	6.3000E+05	2.2458E+24	3, 2000E - 22	1,4370E-21
19	2.56885.085	1,12081+68	P.000PE+02	2.24686484	2.2000E-05	1,43205-01
28	7,67P8L+02	1,12002-00	0,0000E+02	2 2+C8F+6+	3.20005+85	1, 3201-01
21	0.1008L-02	1,12000+00	B. BARRE . BU	2.7458L4%4	3.20005-82	1, 3306-01
22	6,20006+82	1,12006+98	8,8000E+80	5*5408F+64	3.20011-05	1 - 300E - 61
23	6. JUPPE • 02	1.12001+88	8.8886C+86	2.2482E+04	3.500000-02	1.43382+01
24	6.4000E+92	1,12191+20	6°6666E+66	2.24#8E=84	3.508PE-02	1,43385+01
25	6,5080E+22	1.12006-00	0.0000E+02	2.24CBE+04	3.5888E.92	1.433BE=31
26	6.60002.004	1.12081.00	0.0000E+20	2,2408E+04	3.500PE-02	1. JONE-51
21	7,1000L 02	1,12006-00	N.8024E-88	2027081004	3.90001042	1. 3005-01
40	7.67881.486	1,12001+00	0.00002400	216-091004	545000L-82	1,-3306-91
24	7	1.12001-00	r.00002-00	21241.05404	3.30005.002	1.73000-01
36	7.335667.464	1,12001-00	0,00000E+80	2 24085-84	3.90001-83	1.43000-01
31	1,1000C+02	1.10000-00	r,0000-L-00	2027005784	3.500000082	11-3001-01
32	0,00656+85	1,12086+80	N BDR.C+06	2,24086404	3.00006.085	1,73286-01

33	A 1000E+02	1220. 410	0.03005+03	2 24005 .04	1 5203F=02	4.4300Fear
34	0.0480F+42	4.12886+32	0.0000-L+00	3. 34:05 . 74	3.5200F+42	4.43.005.004
	1.0650[+03	1.12005+00	C 000001-00	2.24001 -04	1.50000-02	43106-01
36	1.1000E+0J	1.12006+40	2.00005-02	2.24005-24	1.500BE+02	1.43.30F=21
37	1.2200E+03	1.12086+00	8.82826+30	2.24525-74	1.99896-92	1 43785-01
36	1.30805+03	1.12006+00	C.0200c.007	2.24505-24	1.50806-02	1.43.00-01
39	1.43801+83	1.12886+86	.0007	2.24025-24	3.58822-02	1.43101-71
40	1.43006+03	1,12086.00	P.8P8PE+87	2.24005-24	3,50076+02	1.4322E=31
41	1.45000-03	1.1200E+80	0.000FE+2?	2,24000-04	3,50086-02	1,43206-001
42	1.46002+03	1.120gE+00	8.0860E+92	2.24085-24	3,5688E+v2	1,43768-21
43	1.480PE+03	1.1200E+00		2.24005-24	3,50882-02	1,43206+81
44	1.50000+03	1,128000+00	P.0200E+02	2.24006-04	3.5000E-22	1,43206-21
45	1.5458E+03	1.12000+00	*.000FE+0P	2.24285-24	3,50002~62	1,43786-71
46	1.59086+03	1.122000+00	P.0007E+32	2.24786-74	3.5002E-22	1,43286-91
47	1.70000.+03	1,1200E+00	0.000E+02	2,24085-24	3,50026-02	1,4320E-01
48	1,9300E+03	1.1200E+20	N.826FE+27	2,24000-44	3.50086-02	1,43305-01
49	1,91436.93	1.1200E+P0	0.000NE+05	2.24C0E-24	3,50006-22	1,43326-01
58	2,000000+03	1.1200E+00	7.000FE+07	2 .24 28E-24	3,58882-62	1.4320E-01
31	2,10996+03	1.1270E+00	0.000000402	2,24006-24	3,50000-02	1,43726-01
52	2,32026•03	1.1208[•00	0.20BPE+82	2,24728-94	3.50000-02	1,43781+01
53	2,5800E+93	1.12000+00	P.800PE+92	2.24CEE-24	3,50000-02	1,43228-01
54	2,70806+83	1.12006+80	2.70075+83	2 24CBE-24	3,52886-82	1,43325+21
55	3.20036+03	1.12000+00	2,00000+07	2,24525-24	3,50000-02	1,43308=31
56	3,37825.83	1.12000.00	8.8987E+92	2.24F0E-24	3.52038-02	1,43985-21
57	3,4280E•03	1.1200E+00	9.020CE+07	2.24CBE+04	3.5000E-02	1,43225-01
58	3,7990£+83	1.1270E+00	8.000PE+0P	2.2420E-24	3.5000E-02	1,4300E+P1
99	4,1200E+93	1.1220E+00	0.0002E+32	2,24685-74	3.57076-72	1,4320E+21
62	4.398PE+83	1,12000+30	6.946L+85	2.2470E-24	3.50000-02	1,43288-81
61	4,4np0E+p3	1,12000+00	6.00060.00	2,2408E-04	3.50026-02	1.4328E-P1
62	4,8202E-23	1,1200E+30	P.3889E+82	2,2408E-24	3.5000E-02	1,43286+01
63	4,900eE+e3	1,1200E+00	0,0C2PE+02	2,24C9E-04	3.5000E-02	1,4332E-01
64	5,0000E+03	1.12008+30	#.866PE+#3	2,24086-24	3,52002-02	1,43885-01
65	5,1000E+93	1.1270E+90	A.0007E+00	2,24006-24	3.57082.92	1,43386+01
66	5.2000E+03	1.12200.00	6.000L+BC	2.24C6E-24	3.5000E-02	1.43286-01
e7	5,25P0E+03	1,1200E+00	6.8586E+85	2,24FBE-24	3.50886+65	1.43206-01
68	5.30ppE+#3	1.12006+00	P.0007E+80	2,24FBE+C4	3.57886-82	1.43026-01
69	5.6000E - 03	1,12000+00	8,80855+86	2.240BE-24	3.5200E-62	1.43705-01
78	5.65PPE+33	1.12006+00	6.600PE+00	2.24CDE-24	3.5000E-22	1.43326-61
71	5.7000E+03	1.12086+28	P.0200E+8c	2.2400E-04	3,50086-02	1,43285-91
72	5,90PRE+03	1.12~9E+09	P.0P0E1+02	2,24FBE=24	3-5-802-02	1, 320E 11
73	6.0990E-03	1,12-0E+00	5°6060E+56	2,2400E-24	3.5008E 402	1.4300E-01
74	6.1309E • 03	1,12006+90	6.0000E+30	2,24765+24	2.200PE+02	1,43785-01
75	5,49P8E+03	1.124ØE•PØ	0.00001+00	2,240BE-54	3.50000-02	1.43286-51
26	6.80P2E+03	1.12006+00	6.66805+66	2,2400E-84	3.50000-02	1,43205-01
17	7,0000E+03	1.1200L-00	6.000.E+01	2,24006-04	3.90001+02	1,43300.421
78	7,20006-03	1.12001.00	0.000×E+04	2,24006	3.90005-02	1,43006-01
	8,1000E-00	1,12061.00	N*DADLE+NR	2,240BF-64	3.90001-72	1, 43, 105, -01
80	5.36PHE-03	1,12001-00	N'9605E+06	2,24505+64	3.90001-62	1,43406481
51	9,50002.003	1.12021.020	P.OrbrE.or	2 241.01-64	3.900000-02	1443401401
02	0,/DUNE=03	1,12001-00	0,023-200	2,24001-04	3,50000-02	1493361901
03	A' MAMAF 02	1,12001+30	R. 5000.5+05	2.240Pt - 64	3.70001-02	1.73001-01
55	¥. COURT +03	1.12001.000	P.800P[+0P	2.2.000-024	3.50001-02	1 3002 01
82	1.04001404	1.12001+00	N. 8000E-07	2,24298.464	3.90001-02	1. 4300E-01
	1,24006404	1,12081+28	P.020PE+07	2,24225+84	3.90001-02	1. 0301-01
	141/000-24	1,12000-00		2 240 5-74	3.90001-02	43100-01
-0	1 19PCL - 04	1.12000-00	n.20Er[+00	2 24852 - 04	3.90000-02	4 43105-34
67	1 22005 404	1 12205-00	C'EDDLFACU	2 24045-04	3.63885-02	1 43386-01
70	1 27805-04	1 12605400	5,0000E-06	2127505-24	- 62035-02	4.43385-0-
71	1,23000-04	112000-00	n'Repartons	2169101-09	3.9000000000	1 47 80
٧¢	1,67886.004	1,12201-000	N 9000E+85	2 2 E BE - KA	3.20001.085	1,-3066-01

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43	1.33686+04	1,12802+00	0.000PE+0P	2.2409E=84	3.50885+02	1.43085-81
44	1,3600E-04	1,12000.00	8.00001+02	2.24085+84	3.50801.002	1.43305-01
45	1,44802+84	1.1280E+08	0.00001+00	2.24086-24	3.50686-02	1.43005-01
\$6	1,50F4E+84	1.12000+00	B.866Pr+6P	2.2408E-04	1.58881.02	1.41085-01
\$7	1,51086-84	1.12001.00	0.00305+00	2.24000-04	3.50085.002	1.43085401
98	1.64085+84	1.1280E+08	8.00001+00	2.24085-04	3.9888F+07	4.45.866 - 8.
99	1,7500E+84	1,12806+00	8.88895.000	2.24005-24	3.58886.+02	43395-04
120	1,7656E+84	1.12886+08	8.08005+80	2.24045-84	1.80865-02	1.43445.01
181	1,8488E+04	1.1200E-00	4.00001+00	2.24Cat -84	1.58885-02	4.43886-84
192	1,92086+84	1-12005+00	8.00021+000	2.24005-84	3.56666.02	1.43886-81
183	1,93888484	1.12005+00	0.00001.00	2.248aF-24	3. 5000F-02	1.43080-04
184	1,99886+84	1,1200E+00	P.0087E+03	2.24000-04	3.5888602	1.45086-0
125	2,800BE+84	1.1200E+00	8.08601.080	2.24005-84	3.588865482	1.43007.00
196	2,8280[+84	1,1200E+00	6.00007.000	2.24805-84	1.50886-02	1.43206-04
127	2,84885+84	1.12000.000	0.00001.000	2.24CaF=R4	3.48885-42	1.43485+4
178	2,100000+04	1,12086+00	0.0000.000	2.24046+84	1.50005-02	4.43205-44
129	2,12896+84	1.12608+#0	8.08881.00	2.24045+84	3.50000-02	1.41000-0.
110	2.17PBE+04	1,12000+40	8.00001-000	2.24045+24	1.53886.42	4. 41045-0.
111	2.22005+04	1.12000-00	8.00005+00	2.24045+04	1	4.43385-01
112	2,23000+04	1.12000+00	0.00000.000	2.24046-04	3.50885+02	1.4330-01
113	2.24000-04	1.12006+00	0.00000.00	2.24045-04	3.00000-02	1 430000-001
114	2.28886.+94	1.12082+00	8.00000.00	2.2404 -04	5.5000C-01	1 1 10001 101
iis	2.32896+04	1.12000.400	0.00000400	2 24PaF=F4	3.80400-02	1 43395-04
116	2.340eE+64	1.12006+00	0.00001.000	2.24045+24	7.50000-02	1.43465-41
117	2.4200E+84	1.1208E+00	8.00000.00	2.240.05	3.500000-02	47305-0
118	2.4490E+64	1.12085+00	8.00000-00	2.24005-24	1.50005-02	1 43304-34
119	2.46P0E+84	1.12006+00	8.05005.00	2.24005+24	3.50000-02	1.43305-0.
120	2.53802+84	1.12006+00	9.46800.488	2.24046-04	1.90005-02	1.43907-0.
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RATERIA DI ALLE 1,92500000 (144) RANGE DESCRIPTION ENERGIES RANGE DESCRIPTION ENERGIES RANGE DESCRIPTION ENERGIES RANGE DESCRIPTION ENERGIES RANGE DESCRIPTION ENERGIES RANGE DESCRIPTION ENERGY ENOS SECTION LUCY ENOS					15.48 .										
NHEERPLATION LAW SETVECT CLEGGIES PAVGE DESCRIPTION PAVGE DESCRIPTION PAVGE DESCRIPTION PAVGE DESCRIPTION 1 TO 97 LN Y LINEAR IN LX 97 TO 478 Y LINEAR IN LX 478 TO 618 Y LINEAR IN LX VELTOR CORSS SECTION NEEROY CORSS SECTION ENERGY CORSS SE	2	Y U YA	UL	1,929	ofeba E	v									
PANCE DESCRIPTION PANCE DESCRIPTION PANCE DESCRIPTION 170 97 10 97 0.00 10.00 <	NTERPO	ATION	LAH	SETHEET	N ENERG	IES									
1 TO 37 UN Y LINKAR IN LNX 97 TO 478 Y LINKAR IN LNX 478 TO TO 10 IF TUNKAR IN LNX 478 TO TO 10 IF TUNKAR IN LNX 1000000000000000000000000000000000000	RAN		DESC	RIPTIO	N		RA	NGE	DE	SCRIPTION		RANGE	DESCRIPTIO	N	
Kurtow CAUSS SECTIONS ENERGY DAMES EV DAMES <td>1 70</td> <td>57</td> <td>LN Y</td> <td>LINEAR</td> <td>a th Ln</td> <td>x</td> <td>57 T</td> <td>0 478</td> <td>۴ ۱</td> <td>LINEAR IN</td> <td>x</td> <td>478 10 8</td> <td>10 Y LINEAR I</td> <td>N LN X</td> <td></td>	1 70	57	LN Y	LINEAR	a th Ln	x	57 T	0 478	۴ ۱	LINEAR IN	x	478 10 8	10 Y LINEAR I	N LN X	
DEFERRING DEFERRING CARDING ENERGY CARDING ENERGY CARDING ENERGY CARDING DATA 1 1.0007L-000 3.13102-04 1.0007L-02 3.3007-03 1.0007L-02 3.7007L-02 3	EUTODN	CROSS	SECT	LONS									-	-	
EV PARKS	NCEX.	ENER	3 Y C	ROSS SI	CT10N	ENERGY	CROS	s Scc71	οn.	ENERGY	CROSE SACTION	C			
1 1.4000C+05 3.110C+04 1.000F+02 3.500F+02 3.500F+02 3.500F+02 3.500F+02 3.500F+02 4.600F+02 4.700F+02 4.700F+02 4.700F+02 5.700F+02 5.7		E۷		BARN	5	EV	E B	ARNS	DN	FU	BARNS SECTION	LNENGY	CHUSS SECTION	ENERGY	CROSS SECTIO
6 2.8886f.e2 2.5386f.e2 3.9886f.e2	1 :		E-85	3.1310	E+84	1,000000-0	33.1	234E+03		5.06005+83	1.38326083	1.8000510	2 9.66735402	· Saget-a-	BARNS
11 - 90020-02 3.50000-02 3.50000-02 3.5000-02 3.50000-00 3.50000-0	6	2,0000	6.02	0,66871	-85	2.5300E.0	2 5.8	540E+02	1	3,00000.00	5,31998+82	3.50000.0	2 4.86337+82	4.00005-0	2 4.49612482
10	11	5000	-02	1.1096	E+02	5.24006+0	2 3,9	2912+02	: :	5.5888E+8	3,70392+82	6.808PE-8	2 3.48492+02	4.5000E+8	2 3.33301+#2
<pre>56 1,00000001 2,0000000 2,0000000 2,0000000 2,00000000</pre>	10		-02	3.1704	L002	7.50022+0	2 3 0	4756+02		8,8886E+8	2,91752+02	8.50002-0	2 2.68726+02	9,0000E+8	2.76726+82
33 2 8334 81 1.778 1.87 2.2334 81 1.778 1.87 2.4334 81 1.835 82 2.4334 82 1.9334 82 1.9346 82 1.945 82 82 334 84 1.945 82 1.945 82 82 334 84 1.945 82 1.945	26	1.4060	Falls	2.010404	+82	1,000000-0		3246405		1,10000000	2,38226482	1.20020-0	1 2,25256+02	1,30800-8	1 2,1413E+02
36 3.8334.01 1.9087.02 3.8334.01 1.9087.02 2.8334.01 1.9087.02 3.8334.01 1.9087.02 3.8334.01 1.9087.02 3.8334.01 1.9087.02 3.8334.01 1.9087.02 3.8334.01 1.9087.02 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8334.01 1.9087.01 3.8487.01 1.4487.01 1.4487.01 1.4487.01 1.4487.01 1.4487.01 1.4487.01 1.4487.01 1.4487.01 1.9987.00 <	31 3	2.6334	61	1.7701	eno	2.03346-0	1 1	7402-02		1,000000000	1,90020-02	1.708PE-0	1 1,85616+02	1,88862-8	1 1.81562+82
4 . 334.201 1.15.05.00 2 . 4.0027.01 . 0.0071.00 . 4.0027.01 . 0.0071.00 . 0.0007.00 . 10.0017.01 . 0.	36	3.0334	E 01	1.9182		3.23341-0	1 1 1 2	4955482		3.43345-04	1 63025-02	2.033-6-8	1 1.91466+02	2,8334E+6	1 1.9642E+#2
<pre>46 5.4422Lp1 6.P43ILe1 0.2492Lp1 6.339ILe1 0.4972Lp1 6.2537e1 7.243FLp1 5.001141 7.402Le1 7.402Le</pre>	41 3	0334	E-01	1,1516		4.20126-0	11.0	4866+82		4.64997-0	V.15867484	5.04025-0	1 1,37012402	3,83346.09	1 1,2603E+02
<pre>11 7,0422681 3,62652681 2,24022681 3,24022681 3,538762 0,24022681 3,53442681 0,24022681 3,53442681 0,2402588 1 0,0402581 3,2208584 1,000000000000000000000000000000000000</pre>	46	5,8492	- P1	6,94311		5.2492E-B	1 6.5	3912-81		6.64927-8	6,2223r+81	7.84425-0	1 5.93645431	7 44925-0	1 7,40091-01
<pre>36 9,4022c81 0,7236c81 1,0000ce82 0,01000c2 1,000ce01 1,000ce01 1,000ce01 1,000ce01 1,000ce01 1,000ce01 1,000ce01 1,000ce02 3,000ce01 1,000ce01 1,000ce02 3,000ce02 3,000ce01 1,000ce01 1,000ce00 1,000ce01 1,000ce002 3,000ce02 3,000ce01 1,000ce00 1,000c</pre>	51	.6492	-01	5.62651	•Ø1	8.2492E-B	1 5,5	659E+01		8,6492E+81	5,59832*01	9.0492E-8	1 5.76445481	9.44925-0	1 3,70311-01
1, 000 400 - 000 -	50	,0492	E-01	0,9238	• 61	1,00002+0	0 6.8	1166+01		1,0000E+00	1,18562+01	1.05500+0	0 1.14301+01	1.07306.00	1.0648F+81
 a. 3. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	61		E • 80	V.2988		1.1820E+8	9-1.9	2*0E*01	. :	1,200¢E+0	-2,35702+21	1.21876+8	8+2,500000+01	1.2360E+8	-2.5000E+61
76 2.34401-007.10001-00 1.01004-007.24001-00 1.00004-007.24004-00 2.00001-00 3.00001-00		.7278		3 57060	- 01	1.3640548	<u></u>	1402+01		1,4558E+80	-6.2100E-00	1.54506+0	0=6.2728E=82	1,6368E+84	8-4.6400E+00
3. 2.7595 c em-1.0005 c c.9005 c c.2.0007 c c.2.0007 c c.2.0057 c em-1.0007 c c.2.0057 c em-1.0005 c em-1.00005 c em-1.0005 c em-1.000	76	3440	Cello_	7.0000	- 81	2 4550040		0FCL-00		1,4040E+0+	2.14006-00	5.0006E+6	3=2.1400E+00	2.1820E+0	3-1,4300E400
<pre>66 3,2356±80-1.10061-81 3,01001-80 3,44001-80 1,45001-80 3,1001-81 2,0001-81 2,0206±80-1,22061-80 3,05206±80-1.2006±80 3,04000±80 3,45001-80 3,45001-80 3,0001-80 3,0001-80 3,0001-80 3,0001-80 3,0001-80 3,0001-80 4,0000±80 4,0001-80 4,00001-80 4,00001-</pre>	61	2.7459	E+89-	4.29881	6+86	2 8000540	0.1.0	7001-00		2.2425248	-41,/90%E*PE	5.03466.0	8-3,57282+80	5,6916E+B	0-4,2988E+88
11 3,27306.007-1.4206.00 3,34406.00 3,4406.00 3,4506.00 3,4007.00 3,027.000.00 3,4207.00 40 3,4207.00 3,42	86	2.9450		7.1000	-01	3.01807+0	ñ 1.s		i :	1.0728F+80	3.500000-01	2.03501.00	P 7:1000E+01	2,9278L+0	8-7,1000E-01
06 3,95206.00 2,50076.00 3,50076.00	91	3,2730	E+80-	1,43000	- 88 - I	3.3640E+0	0 2.1	4P0E+00		3.4550F+04	6.50802480	3.40.3240	0 7.10000000	3.21000-00	3-3,21001-00
<pre>161 3, 0,0076 c00-3, 30006 c00 4,0070 c00 4,000 c00-3,7000 c00-4,000 c,0000 c00 4,000 c00 4,0000 c00 4,000 c00 4,000 c00 4,000 c00 4,000 c00 4,000 c00</pre>	96	3,5820	E-00	2,50800	E+80	3,63602.0	0 0.0	OPOLOOO	Ε.	3.69192.0		3.72701.0	6-9.1900CA00	3 81865-8	0 0,0000L+00
100 4,0406-007-2,1406-00 4,0356-00-1,70076-00 4,7776-007-1,4007-00 4,7057-00	161	3,9694	E+øø-	3000	-80	4.000000-0	6.4.4	6466468		4.09105+04	-3,7688E+08	4.18206.00	043.1400F+00	4.34446+#	2.2000fina
<pre>111 4.0300 mm / 1001 001 4.0307 mm / 1001 001 5.7376 mm / 10001 001 5.7376 mm / 10000 001 5.7376 mm / 10000 0</pre>	160	,5458	E 🛉 🛛 🖓 =	2,14986	+00	4,63666+6	0-1,7	9465+86		4,72782+00	-1,43002+00	4,78252.0	0 0,00000:+00	4.60000+80	7.10000.001
<pre>1.1. **********************************</pre>	416	.0300	1.400 Faile-	2 44000		4.65576+8	0.7.1	8686+81		4,89106+84	-1,43080+08	4,9896640	P+2.1400E+00	4,9450E+#	8+2.86P8E+88
<pre>126 5.00071407 1.4007140</pre>	121	5 3000	F_0/1_	7 40000		2.841CE+8	2.0	6F01-00		2,14286+8	-2,50086+08	3.10206+8	0=2:1400E+03	5,27306+00	P-1.0700E+00
<pre>11 4, 353CE 00 - 1,700CE 00 4, 200E 00 4, 200E 00 4, 200E 00 4, 410CE 0, 200E 00 6, 0.430E 00 1,430C 00 6, 0.430E 00 - 1,700CE 00 4, 200E 00 4, 200E</pre>	126	5.0800	E • 6 P	1.44081	L . BB	A 0500000		2701+01		1,0778E484	2 70002400	5.72776.0	0+1.4300E+00	5,6160E+04	7 F, POPOE.00
136 6.34302e40, 5.0002e40 6.0002e40 7.0002e40 6.07755e40.5.7000e40 6.002e40 7.1887e40 6.002e40 7.0002e40 7	121	6.2550	E+00-	1.79001	E+88	6.20100+0	a a.a	3805 688		A. 41 800 400	B BOBGTARG	0.104FE+0	0 1.43005400	6,2100E+0	2-1,79886+88
141 7,1822680 6,7806148 7,201648 7,201648 7,1578648 7,158748 6-7,558648 6,78748 7,114148 7,18748 7,18748 7,187	136	6.5450	E+80.	5.00001	+20	6.63686+8	0	ADDE +00		6.7276100	3 7.000400	A ALAGE 40	T 2 14000000000	6,4V10L+0	0-5,0000E+00
<pre>C14 B,3626.00-3,03056.40 B,4530f.40 D,20056.40 B,20076.40 B,2</pre>	141	1828	600	0,0000	488	7.29196+8	0-3-5	7886+88		7.81802+01	-3.93886488	R. GOGEFAD	And. 200 35 000	0, VD 3 1 E P B	* *,0000E+00
<pre>111 9,10005c00 2,5005c01 9,17005c00 1,0075c01 9,5175c0 2,5007c07 9,55075c0 1,5005c07 9,55575c0 1,5075c0 2,51055c0 2,51055</pre>	\$16	8,3638	E+00-	3,93000	-70	8.45301+8	0.3	000E+00		8,92506+0	0.00000.00	9.0150548	0 2.14307.004	0.0528146	2400L+00
<pre>100</pre>	121	1060	E .00	2,5000	601	9.1798E+8	0 1.0	RFDE +01	. '	9,233FE.00	0,00000++00	9.36PPE.0	P 0.0200E.00	9.43206+0	0 1.0000F.01
<pre>10</pre>	150	00510		1,1430		9,5857E+D		076E+01	. '	9,54102+86	6,21006000	9.7040E+0	# 8,0000C+00	9.75986-66	-2.1400C+00
<pre>1.10007160 0.1000700 1.000700 1.000700 1.100700 01.1100700 01.20000-01 1.001100 0.00000-01 1.0007000 1.000700 1.000700 1.000700 1.000700 1.000700 1.000700 1.000</pre>	101	0430		2 . 4000		1.00072+0	1-2.5	940E - 88		1,0174E+0	D,0000E+00	1.8267E+8:	1 P.0000E.00	1,83396+0	2.14896.00
1,354r.85 r.867 r.9087.87 r.9187.87	171	1.6992	Fed.	8.0000	reno Fedia	1.0024640	1-7-1	000E-01		1,0720E+0	-7,10002-01	1.00116.0	1-3,60000-01	1,8937E+8	1-5,7000E-01
111 .2149E401 .1350E401 .2200E40 .2200E40 .2200E40 .2200E40 .2200E40 .2000E40 .2000E400 .2000E40 .2000	176	1.1554		2.0000		1.1862048		0805+80		1,1409640	2,75000000	1.14456+8	1 2.00000-00	1,1401E+0	1 2,9000E+60
166 1,437 test 5,7100 test 1,442 test 5,7100 test 1,442 test 4,7100 test 1,601 test 5,7100 test 1,427 test 3,7500 test 1,500 te	181	.2145	-01	1.13500	•Ø1	1.22000.00	1 1.0	AFAF ARI		1.23386489	8 8000F100	1.2000200	1 9.40002.000	1.20910+0	7,4300E+00
111 .47376483,57066-00 1.40016-02-3,00086-01 1.50076-01-7,0000-00 1.50110-0.6,0007-00 1.50276-02	186 3	4357	E+Ø1	5,71000	+88	1.44127.08	1 5.7	1001-00		1.44445+01	4.7.000.000	1 4441540	1 -5 500001-00	1,4207140	2.0058E+B6
196 1,92736-88 6,76966-68 1,9495-63 8,06766-60 1,9495-66 1,4598-68 1,9585-68 3,98066-69 1,9776-64 1,97766-64 1,9776-64 1,9776-64 1,9776-64 1,9776-64 1,9776-64 1,9776-64 1,9776-64 1,9776-64 1,9776-64 1,9776-64 1,9776-64 1,9776-64 1,9776-64 1,9776-64 1,9776-64 1,977666-64 1,977666-64 1,977666-64 1,	191 :	L. 4737	E+#1-	3,57806	E+88	2.49016+0	1-5.6	000C-01		1.50001+01	-7.14002+01	1.5001740	1 3.08081.00	1,904/1-0	1-7,38086+60
211 1,3010_01-4,5080F.000 1,50F0Fe01-1,2180F.00 1,0480Fe01 0,8080Fe0 1,0457F01 2,3808Fe0 1,0237F01-3,580FF0 201 1,0304Fe01-4,5080F.00 1,033F011-4,380F600 1,0491Fe04-0,4380Fe00 1,0545F014-2900Fe30 1,0586F01,0587 211 1,0727F01 0,080FF00 1,053F011-4,380FF00 1,0490Fe01 3,0380Fe00 1,0545F014,2900Fe30 1,780Fe0 3,576Fe0 211 1,7947F01-7,180FF01 1,738F010 1,2775F017,1808Fe01 1,7364F01 4,2908Fe00 1,7455F01 4,0587 221 1,7947F01-7,180FF01 1,738F010 1,7275F017,1808Fe01 1,7364F01 4,0587F00 1,0587F00 1,7455F01 221 1,7547F01-7,180FF01 1,753F01-0,076F010 1,7275F01-1,4380Fe00 1,7365F01 3,0587F00 1,789F00 221 1,7547F01-7,180FF01 1,753F01-0,076F010 1,7275F01-1,35760F00 1,7855F01 3,0587F00 1,789F00-0,7,789F00-0,7,789F00 221 1,6536F01 2,6680F00 1,8777F01 2,1487F00 1,63105F01 3,3780F00 1,0807F00 1,7897F00 1,9837F00 3,7786F0 231 1,6536F01 2,6680F00 1,8777F01 2,1487F00 1,63105F01 3,3780F00 1,0807F00 1,7707F00 1,9707F00 1,9707F00 1,9707F00 1,9837F00 1,0857F00 1,0857F00 1,0007F00 1,0707F00 1,0707F00 1,0707F00 1,0707F00 1,0707F00 1,0707F00 1,0857F00 1,0857F00 1,0007F00 1,0707F00 1,0707F00 1,0707F00 1,0707F00 1,0857F00 1,0857F00 1,0857F00 1,0857F00 1,0957F00 1,0857F00 1,0007F00 1,0707F00 1,0707F00 1,0707F00 1,0857F00 1,0857F00 1,0857F00 1,0857F00 1,0857F00 1,0957F00 1,0707F00 1,0707F00 1,0707F00 1,0707F00 1,0707F00 1,0707F00 1,0857F00 1,0857F00 1,0857F00 1,0857F00 1,0857F00 1,0857F00 1,0857F00 1,0707F00 1,0707F00 1,0857F00	196	1,5273	E+01	, 09.086		1,5455E+8	1 0,0	00413400		1,55456+01	-1.43082+00	1.56366+0	1=3.58000+00	1.57276+4	
470 1,03072***********************************	261		E+01-	4.50000	600 C	1.59296+0	1-1.2	1000.00		1,66802+01	P,86885+P8	1.01626+0	1 2,00001+00	1.0273E+8	-3.5688F+68
1.0252-01 2.70000-00 1.0035400 1.437000-00 1.7273607-01 3.037000-00 1.00455-01 4.270000-00 1.78000-01 3.57000-0 210 1.7011-01 3.65000-00 1.71310-01 1.43700-00 1.72736-01 7.10000-01 1.7364(-00 1.00000-00 1.7455-01 0.00000-0 221 1.7545640-7.10000-00 1.76374-01 0.0000-00 1.72727-001-1.43000-00 1.73105-010-1.00000-00 1.79000-01-7.10000-0 231 1.64356500 2.66000-00 1.87727-01 2.14800-00 1.63455-00 3.57800+00 1.00000-00 1.70000-00 1.00000-01 1.00000-01 231 1.64356500 2.66000-00 1.87727-01 2.14800-00 1.03455-00 3.0000-00 1.00000-00 1.00000-00 1.00000-00 3.97000-00 231 1.64356500 2.66000-00 1.87727-01 2.14800-00 1.03455-00 7.0000-00 1.00000-00 1.77000-00 1.000000-00 1.00000-00000-00000-00000-00000-00000-0000	#f0 1	4937	19819 14819	*,45000		1.6436E+8	1-6.4	300E+60		1,64916+@	-6,43002+80	1.05456+0	1+4,2900E+20	1,66366+8	1 8.0608E+00
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226 1,0801E+81 8,0000E+80 1,0273e-01 2,0000E+80 1,0200E+80 3,5700E+80 1,0451E+01 3,9300E+80 1,7890E+80+7,1800E+8 231 1,0655E+81 2,0680E+80 1,0273e-01 2,1400E+80 1,0305E+80 1,0405E+80 1,0405E+80 1,0405E+80 1,05700E+80 1,0405E+8 231 1,0551E+81 2,0680E+80 1,035E+80 2,0405E+80 1,4305E+80 1,0405E+80 1,0405E+80 1,0405E+80 1,0405E+80 1,0405E+80	221	7545		7 .0000	5.81	1,/101640	1.1.1	3706-00		1,72732+0	7,10000-01	1.7364E+0;	1 0.00065.00	1,7455E+0	0,00000.00
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