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NEANDC (E) 228 «L»

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**RESULTS OF COUPLED CHANNELS CALCULATIONS FOR THE  
NEUTRONS CROSS SECTIONS OF A SET OF  
ACTINIDE NUCLEI**

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**OCTOBER 1982**

**COMMISSARIAT A L'ENERGIE ATOMIQUE  
FRANCE**

CEA - NEANDC (E) 228 "L" - INDC (FR) 56/L - Christian LAGRANGE  
RESULTATS DES CALCULS DE CANAUX COUPLES POUR LES SECTIONS EFFICACES  
DE NEUTRONS D'UN ENSEMBLE DE NOYAUX ACTINIDES.

Sommaire. - Ce rapport rassemble les résultats de calculs récents obtenus pour l'interaction des neutrons avec les noyaux cibles  $^{230,232}\text{Th}$ ,  $^{234,238}\text{U}$ ,  $^{242}\text{Pu}$ ,  $^{246}\text{Cm}$  et  $^{252}\text{Cf}$  à partir du modèle optique en voies couplées. Des tabulations sont données en Annexe des quantités suivantes :

- a) sections efficaces totales, de diffusions élastique et inélastique directes (intégrées et différentielles angulaires), et de formation du noyau composé,
- b) coefficients de transmissions généralisés relatifs à l'état fondamental et utilisés pour le calcul des processus partiels passant par l'intermédiaire d'un noyau composé.

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RESULTS OF COUPLED CHANNELS CALCULATIONS FOR THE NEUTRONS CROSS  
SECTIONS OF A SET OF ACTINIDE NUCLEI.

Summary. - This report gathers recent results of neutrons interactions with the following actinide nuclei :  $^{230,232}\text{Th}$ ,  $^{234-238}\text{U}$ ,  $^{242}\text{Pu}$ ,  $^{246}\text{Cm}$  and  $^{252}\text{Cf}$  from the use of the coupled channels optical model. Tabulations of the following quantities are given in Annexe :

- a) total, direct elastic and inelastic scattering (integrated and differential), and compound nucleus formation cross sections,
- b) ground state generalized transmission coefficients needed to calculate the cross sections of partial compound nucleus processes.

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Ce travail a été effectué dans le cadre du Projet de Recherche Coor-  
donnée AIEA-NDS sur " l'Intercomparaison des Evaluations des Sections  
Efficaces Neutroniques des Actinides ", accord de recherche n° 2072/CF.

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Commissariat à l'Energie Atomique - France

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## I - INTRODUCTION

It has been shown in the previous report [1] that interpolations between results from calculations using deformed and well adapted optical potentials could be very useful for evaluation purposes within the actinide region. Such calculations have just been completed and are available for the following even-even nuclei :  $^{230}\text{Th}$ ,  $^{232}\text{Th}$ ,  $^{234}\text{U}$ ,  $^{238}\text{U}$ ,  $^{242}\text{Pu}$ ,  $^{246}\text{Cm}$ ,  $^{252}\text{Cf}$ . Contrary to previous calculations (for example Ref. [2] for  $^{240}\text{Pu}$  and  $^{242}\text{Pu}$ ) the results presented here take account of the spin-orbit term within the whole energy range from 1 keV to 20 MeV. Calculated quantities are the following ones :

- 1 - total cross sections
- 2 - compound nucleus formation cross sections
- 3 - shape elastic scattering cross sections
- 4 - direct inelastic scattering cross sections to the first and second excited levels
- 5 - Legendre coefficients for the angular distributions corresponding to the scattering mechanisms 3 and 4.
- 6 - Relevant generalized transmission coefficients  $T_{\ell j}(E_n)$  associated to the ground state.

## II - PARAMETRISATION OF THE OPTICAL POTENTIAL

The parameters set used for the above calculations is given in Table I. The coupling basis is  $0+$ ,  $2+$ ,  $4+$  and complex form factors are considered. The geometric parameters are the same for all nuclei and the slight differences between the potential depths arise essentially from the isospin dependence of the optical potential. Thus, differences in the neutron scattering properties of the actinides are essentially attributable to the nuclear deformations (conventional parameters  $\beta_2$  and  $\beta_4$ ). The global parametrization results from consideration of low energy neutron scattering properties (strength functions  $S_0, S_1$  ; scattering radius  $R'$ ) and energy dependence of the total cross sections, as well as a number of elastic and inelastic scattering angular distributions as recently measured at Bruyères-le-Châtel [3]. The calculated values of neutron strength functions and scattering radii are reported in Table 2.

Concerning the Pu isotopes, the present report supersedes the ref. [4]

### III - RESULTS OF THE COUPLED CHANNELS CALCULATIONS

The Annex gathers the results obtained for the above quoted seven actinides and concerning the following quantities :

1/ Cross sections and angular distributions (units are respectively barn and eV).

The angular distributions are represented by their corresponding Legendre polynomial coefficients. The absolute differential cross sections are :

$$\frac{d\sigma}{d\Omega}(\Omega, E) = \frac{A}{2\pi} \sum_{\ell=0}^{NL} \frac{2\ell+1}{2} B_{\ell}(E) P_{\ell}(u)$$

where :

$$A = \sigma_s(E) \text{ and } B_0 = 1.0$$

with the following meanings :

u : cosine of the scattering angle in the centre of mass system

E : incident neutron energy in the laboratory system

$\sigma_s(E)$  : integrated scattering cross section

$B_{\ell}$  :  $\ell^{\text{th}}$  Legendre polynomial coefficient (tabulated)

$\frac{d\sigma}{d\Omega}(\Omega, E)$  : differential cross section in units of barns per steradian

2/ Neutron transmission coefficients for the ground state. Such quantities are needed to calculate the partial cross sections of compound nucleus processes. In particular it is worthwhile to recall that the present tabulations give only the direct part of the elastic and inelastic neutron cross sections.

REFERENCES

- [1] - Ch. LAGRANGE, "On the usefulness of coupled channel calculations for actinide nuclei", in report *NEANDC(E) 211"L*, *INDC(FR) 41/L (1981)*.
- [2] - Ch. LAGRANGE, J. JARY, *NEANDC(E) 198"L*, *INDC(FR) 30/L (1978)*.
- [3] - G. HAOUAT, J. LACHKAR, Ch. LAGRANGE, J. JARY, J. SIGAUD, Y. PATIN, "Neutron scattering cross sections for  $^{232}\text{Th}$ ,  $^{233}\text{U}$ ,  $^{235}\text{U}$ ,  $^{238}\text{U}$ ,  $^{239}\text{Pu}$  and  $^{242}\text{Pu}$  between 0.6 and 3.4 MeV", *Nucl. Sc. Eng.* 81 n° 4 (August 82), 491.
- [4] - Ch. LAGRANGE, *Note CEA-N-1970*, *NEANDC(E) 179"L*, *INDC(FR) 16/L (1977)*.

$V = V_0 - 0.3 E_n$	$a_0 = 0.63 \text{ fm}$	$r_0 = 1.26 \text{ fm}$
$W_D = \begin{cases} W_{DO} + 0.4 E_n & E_n < 10 \text{ MeV} \\ W_{DO} + 4.0 & E_n > 10 \text{ MeV} \end{cases}$	$a_D = 0.52 \text{ fm}$	$r_D = 1.26 \text{ fm}$
$V_s = 6.2$	$a_s = 0.47 \text{ fm}$	$r_s = 1.12 \text{ fm}$

	$^{230}\text{Th}$	$^{232}\text{Th}$	$^{234}\text{U}$	$^{238}\text{U}$	$^{242}\text{Pu}$	$^{246}\text{Cm}$	$^{252}\text{Cf}$
$V_0$	46.600	46.600	46.42	46.20	46.02	45.4	44.5
$W_{DO}$	3.600	3.600	3.720	3.600	3.51	3.200	3.2
$\beta_2$	0.180	0.190	0.194	0.198	0.204	0.220	0.230
$\beta_4$	0.085	0.071	0.071	0.057	0.051	0.033	0.00

*Optical potential and deformation parameters (Energies and potential depths are in MeV)*

TABLE I



	$^{230}\text{Th}$	$^{232}\text{Th}$	$^{234}\text{U}$	$^{238}\text{U}$	$^{242}\text{Pu}$	$^{246}\text{Cm}$	$^{252}\text{Cf}$
$S_0 \times 10^4$	0.969	0.937	1.036	1.003	0.995	1.093	1.338
* $S_1 \times 10^4$	1.563	1.586	1.875	2.222	2.633	2.927	3.474
$R'$ (fm)	9.332	9.397	9.270	9.240	9.190	9.379	9.643

\* calculated assuming :  $R = 1.26 A^{1/3}$

Neutron strength functions ( $S_0, S_1$ ) and scattering radii calculated at  $E_n = 10$  keV.

TABLE II

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 230  
(CH.LAGRANGE 1981)

NEUTRON TOTAL CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	2.4565D+01	5.0000D+03	1.7278D+01	1.0000D+04	1.5519D+01
2.0000D+04	1.4206D+01	3.0000D+04	1.3557D+01	4.0000D+04	1.3120D+01
6.0000D+04	1.2501D+01	8.0000D+04	1.2038D+01	1.0000D+05	1.1652D+01
2.0000D+05	1.0425D+01	3.0000D+05	9.4165D+00	4.0000D+05	8.6223D+00
5.0000D+05	7.9930D+00	6.0000D+05	7.5007D+00	8.0000D+05	6.8347D+00
1.0000D+06	6.5012D+00	1.2500D+06	6.4060D+00	1.5000D+06	6.5325D+00
1.7500D+06	6.7658D+00	2.0000D+06	7.0254D+00	2.5000D+06	7.4711D+00
3.0000D+06	7.7483D+00	4.0000D+06	7.8527D+00	5.0000D+06	7.5477D+00
6.0000D+06	7.0527D+00	7.0000D+06	6.5658D+00	8.0000D+06	6.0691D+00
1.0000D+07	5.6125D+00	1.2000D+07	5.5210D+00	1.4000D+07	5.6915D+00
1.6000D+07	5.9448D+00	1.8000D+07	6.1705D+00	2.0000D+07	6.3230D+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 230  
(CH. LAGRANGE 1981)

NEUTRON COMPOUND NUCLEUS FORMATION CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	1.3229D+01	5.0000D+03	6.1487D+00	1.0000D+04	4.5749D+00
2.0000D+04	3.5627D+00	3.0000D+04	3.1738D+00	4.0000D+04	2.9726D+00
6.0000D+04	2.7772D+00	8.0000D+04	2.6902D+00	1.0000D+05	2.6466D+00
2.0000D+05	2.8230D+00	3.0000D+05	2.8259D+00	4.0000D+05	2.8197D+00
5.0000D+05	2.8136D+00	6.0000D+05	2.8150D+00	8.0000D+05	2.8383D+00
1.0000D+06	2.9010D+00	1.2500D+06	3.0186D+00	1.5000D+06	3.1479D+00
1.7500D+06	3.2526D+00	2.0000D+06	3.3116D+00	2.5000D+06	3.3094D+00
3.0000D+06	3.2326D+00	4.0000D+06	3.0848D+00	5.0000D+06	2.9865D+00
6.0000D+06	2.9236D+00	7.0000D+06	2.9078D+00	8.0000D+06	2.7860D+00
1.0000D+07	2.8111D+00	1.2000D+07	2.7403D+00	1.4000D+07	2.6909D+00
1.6000D+07	2.6220D+00	1.8000D+07	2.5690D+00	2.0000D+07	2.5315D+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 230  
(CH. LAGRANGE 1981)

NEUTRON SHAPE ELASTIC SCATTERING CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	1.1335D+01	5.0000D+03	1.1129D+01	1.0000D+04	1.0944D+01
2.0000D+04	1.0643D+01	3.0000D+04	1.0383D+01	4.0000D+04	1.0147D+01
6.0000D+04	9.7231D+00	8.0000D+04	9.3427D+00	1.0000D+05	8.9947D+00
2.0000D+05	7.5599D+00	3.0000D+05	6.5216D+00	4.0000D+05	5.7131D+00
5.0000D+05	5.0731D+00	6.0000D+05	4.5643D+00	8.0000D+05	3.8442D+00
1.0000D+06	3.4139D+00	1.2500D+06	3.1546D+00	1.5000D+06	3.1056D+00
1.7500D+06	3.1938D+00	2.0000D+06	3.3632D+00	2.5000D+06	3.7769D+00
3.0000D+06	4.1234D+00	4.0000D+06	4.3940D+00	5.0000D+06	4.2196D+00
6.0000D+06	3.8177D+00	7.0000D+06	3.3688D+00	8.0000D+06	2.9781D+00
1.0000D+07	2.5399D+00	1.2000D+07	2.5218D+00	1.4000D+07	2.7570D+00
1.6000D+07	3.0798D+00	1.8000D+07	3.3713D+00	2.0000D+07	3.5736D+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 230  
(CH.LAGRANGE 1981)

NEUTRON DIRECT INELASTIC FIRST EXCITED LEVEL

E	S(E)	E	S(E)	E	S(E)
6.0000D+04	7.6577D-04	8.0000D+04	4.6776D-03	1.0000D+05	1.0211D-02
2.0000D+05	4.1738D-02	3.0000D+05	6.8362D-02	4.0000D+05	8.7246D-02
5.0000D+05	1.0020D-01	6.0000D+05	1.1129D-01	8.0000D+05	1.2882D-01
1.0000D+06	1.4719D-01	1.2500D+06	1.7461D-01	1.5000D+06	2.0498D-01
1.7500D+06	2.3377D-01	2.0000D+06	2.5737D-01	2.5000D+06	2.8445D-01
3.0000D+06	2.9025D-01	4.0000D+06	2.7477D-01	5.0000D+06	2.5009D-01
6.0000D+06	2.2094D-01	7.0000D+06	2.1428D-01	8.0000D+06	2.2771D-01
1.0000D+07	2.0188D-01	1.2000D+07	2.0303D-01	1.4000D+07	2.0136D-01
1.6000D+07	1.9506D-01	1.8000D+07	1.8654D-01	2.0000D+07	1.7826D-01

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 230  
(CH.LAGRANGE 1981)

NEUTRON DIRECT INELASTIC SECOND EXCITED LEVEL

E	S(E)	E	S(E)	E	S(E)
2.00000+05	1.39720-05	3.00000+05	5.91640-04	4.00000+05	2.31240-03
5.00000+05	5.50500-03	6.00000+05	1.02300-02	8.00000+05	2.33090-02
1.00000+06	3.90140-02	1.25000+06	5.81630-02	1.50000+06	7.39750-02
1.75000+06	8.55680-02	2.00000+06	9.32350-02	2.50000+06	1.00330-01
3.00000+06	1.02030-01	4.00000+06	9.92000-02	5.00000+06	9.15090-02
6.00000+06	8.31930-02	7.00000+06	7.49150-02	8.00000+06	7.72690-02
1.00000+07	5.95980-02	1.20000+07	5.58760-02	1.40000+07	5.22150-02
1.60000+07	4.79950-02	1.80000+07	4.36950-02	2.00000+07	3.96510-02

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 230  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.0000E+03	LMAX= 3	9.5870D-04	9.7390D-07	3.4746D-07	0.0	0.0	0.0
ELAB= 5.0000E+03	LMAX= 3	5.0185D-03	2.3809D-05	7.3095D-07	0.0	0.0	0.0
ELAB= 1.0000E+04	LMAX= 3	1.0302D-02	9.8662D-05	6.2103D-07	0.0	0.0	0.0
ELAB= 2.0000E+04	LMAX= 3	2.1153D-02	3.9731D-04	3.6796D-06	0.0	0.0	0.0
ELAB= 3.0000E+04	LMAX= 3	3.2119D-02	8.9426D-04	1.0921D-05	0.0	0.0	0.0
ELAB= 4.0000E+04	LMAX= 3	4.3036D-02	1.5767D-03	2.7824D-05	0.0	0.0	0.0
ELAB= 6.0000E+04	LMAX= 3	6.4389D-02	3.4826D-03	9.1805D-05	0.0	0.0	0.0
ELAB= 8.0000E+04	LMAX= 3	8.4906D-02	6.0553D-03	2.1445D-04	0.0	0.0	0.0
ELAB= 1.0000E+05	LMAX= 3	1.0453D-01	9.2245D-03	4.1103D-04	0.0	0.0	0.0
ELAB= 2.0000E+05	LMAX= 3	2.0670D-01	3.4690D-02	3.3077D-03	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	2.7838D-01	6.5100D-02	1.0534D-02	1.0620D-03	-3.2263D-06	0.0
ELAB= 4.0000E+05	LMAX= 5	3.3478D-01	9.7581D-02	2.2763D-02	3.1000D-03	-1.0509D-05	0.0
ELAB= 5.0000E+05	LMAX= 5	3.7993D-01	1.2870D-01	4.0441D-02	6.9545D-03	-7.2036D-06	0.0
ELAB= 6.0000E+05	LMAX= 6	4.1651D-01	1.5747D-01	6.3416D-02	1.3214D-02	7.9931D-05	7.6218D-05
ELAB= 8.0000E+05	LMAX= 6	4.7057D-01	2.0844D-01	1.2220D-01	3.4515D-02	9.7632D-04	4.4199D-04
ELAB= 1.0000E+06	LMAX= 8	5.0698D-01	2.5539D-01	1.8976D-01	6.8528D-02	4.5744D-03	1.7132D-03
		1.2914D-04	1.6511D-05	0.0	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 230  
(CH. LAGRANGE 1931)

LEGENDRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.2500E+06 LMAX= 8  
5.4092D-01 3.1622D-01 2.6921D-01 1.2521D-01 1.6831D-02 5.7577D-03  
5.7399D-04 7.9337D-05 0.0 0.0 0.0 0.0

ELAB= 1.5000E+06 LMAX= 8  
5.7531D-01 3.6034D-01 3.2976D-01 1.0759D-01 4.0639D-02 1.3747D-02  
1.7566D-03 2.6788D-04 0.0 0.0 0.0 0.0

ELAB= 1.7500E+06 LMAX= 9  
6.1570D-01 4.4153D-01 3.7089D-01 2.4421D-01 7.4008D-02 2.5749D-02  
4.0406D-03 7.0510D-04 7.3917D-05 0.0 0.0 0.0

ELAB= 2.0000E+06 LMAX= 9  
6.5902D-01 4.9398D-01 3.9780D-01 2.8867D-01 1.1112D-01 4.0617D-02  
7.7482D-03 1.5261D-03 1.8894D-04 0.0 0.0 0.0

ELAB= 2.5000E+06 LMAX= 11  
7.3561D-01 5.7053D-01 4.3964D-01 3.4520D-01 1.7810D-01 7.3848D-02  
1.9436D-02 4.7033D-03 7.8924D-04 9.8067D-05 9.4250D-06 0.0

ELAB= 3.0000E+06 LMAX= 11  
7.8854D-01 6.2300D-01 4.7939D-01 3.7876D-01 2.2752D-01 1.0667D-01  
3.5032D-02 1.0661D-02 2.2759D-03 3.5064D-04 4.3421D-05 0.0

ELAB= 4.0000E+06 LMAX= 14  
8.4306D-01 6.9363D-01 5.5253D-01 4.3127D-01 2.7501D-01 1.6412D-01  
7.6106D-02 3.2200D-02 1.0171D-02 2.2723D-03 4.2803D-04 6.9430D-05  
1.0191D-05 2.1621D-06 0.0 0.0 0.0 0.0

ELAB= 5.0000E+06 LMAX= 15  
8.6211D-01 7.3136D-01 6.0419D-01 4.7636D-01 3.4540D-01 2.1253D-01  
1.1727D-01 6.3851D-02 2.7481D-02 8.5004D-03 2.8810D-03 4.2967D-04  
6.5222D-05 1.0793D-05 1.4503D-06 0.0 0.0 0.0

ELAB= 6.0000E+06 LMAX= 15  
8.6476D-01 7.4454D-01 6.3249D-01 5.1136D-01 3.8507D-01 2.5708D-01  
1.5628D-01 1.3992D-01 9.2755D-02 2.2251D-02 6.9869D-03 1.8091D-03  
3.5039D-04 7.3509D-05 1.2727D-05 0.0 0.0 0.0

ELAB= 7.0000E+06 LMAX= 16  
8.6097D-01 7.4469D-01 6.4534D-01 5.3685D-01 4.1899D-01 3.0139D-01  
1.9000D-01 1.3992D-01 9.2755D-02 4.6640D-02 1.8357D-02 5.7148D-03  
1.3512D-03 3.1607D-04 6.3161D-05 1.1100D-05 0.0 0.0

ELAB= 8.0000E+06 LMAX= 17  
8.4564D-01 7.2347D-01 6.3249D-01 5.3685D-01 4.3413D-01 3.2979D-01  
2.3357D-01 1.7485D-01 1.3146D-01 7.7877D-02 3.5761D-02 1.3187D-02  
3.7150D-03 9.6642D-04 2.2348D-04 4.8082D-05 9.6426D-06 0.0



RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 230  
(CH.LAGRANGE 1901)

LEGENDRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.0000E+07	LMAX= 18						
		8.4517D-01	7.0743D-01	6.0926D-01	5.3334D-01	4.5985D-01	3.8522D-01
		3.1433D-01	2.5679D-01	2.1615D-01	1.6311D-01	9.8995D-02	4.7724D-02
		1.8415D-02	6.3171D-03	1.8812D-03	4.7706D-04	1.1847D-04	2.3468D-05
ELAB= 1.2000E+07	LMAX= 19						
		8.5741D-01	7.1131D-01	5.9961D-01	5.2282D-01	4.6071D-01	4.0746D-01
		3.5786D-01	3.1279D-01	2.7362D-01	2.2870D-01	1.6406D-01	9.7473D-02
		4.0159D-02	2.0834D-02	7.7034D-03	2.4226D-03	7.1653D-04	1.9009D-04
		4.3267D-05	0.0	0.0	0.0	0.0	0.0
ELAB= 1.4000E+07	LMAX= 21						
		8.8336D-01	7.5136D-01	6.3846D-01	5.5216D-01	4.8423D-01	4.3255D-01
		3.8691D-01	3.4665D-01	3.0633D-01	2.6370D-01	2.0619D-01	1.4040D-01
		8.2456D-02	4.2615D-02	1.8904D-02	7.2385D-03	2.5615D-03	7.5857D-04
		2.1959D-04	6.1803D-05	1.5037D-05	0.0	0.0	0.0
ELAB= 1.6000E+07	LMAX= 22						
		9.0673D-01	7.9627D-01	6.9315D-01	6.0410D-01	5.2686D-01	4.6905D-01
		4.1738D-01	3.7269D-01	3.2826D-01	2.8297D-01	2.2941D-01	1.6816D-01
		1.0970D-01	6.4348D-02	3.3329D-02	1.5234D-02	6.2934D-03	2.1831D-03
		7.3151D-04	2.1557D-04	6.3991D-05	1.5680D-05	0.0	0.0
ELAB= 1.8000E+07	LMAX= 23						
		9.2297D-01	8.3097D-01	7.4132D-01	6.5704D-01	5.7909D-01	5.1158D-01
		4.5207D-01	3.9934D-01	3.4885D-01	2.9866D-01	2.4510D-01	1.8686D-01
		1.2901D-01	8.3105D-02	4.8761D-02	2.5840D-02	1.2260D-02	4.9939D-03
		1.9121D-03	6.3509D-04	2.0323D-04	6.6189D-05	1.8089D-05	0.0
ELAB= 2.0000E+07	LMAX= 24						
		9.3337D-01	8.5481D-01	7.7800D-01	7.0200D-01	6.2587D-01	5.5450D-01
		4.8379D-01	4.2865D-01	3.7184D-01	3.1650D-01	2.6074D-01	2.0364D-01
		1.4777D-01	1.0059D-01	6.4626D-02	3.8543D-02	2.0748D-02	9.7843D-03
		4.2022D-03	1.5707D-03	5.5494D-04	1.8245D-04	6.1595D-05	1.7015D-05

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 230  
(CH. LAGRANGE 1931)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 6.0000E+04	LMAX= 3	2.9151D-01	3.6809D-02	-8.0462D-04	0.0	0.0	0.0
ELAB= 8.0000E+04	LMAX= 3	2.4189D-01	3.9178D-02	-2.0593D-03	0.0	0.0	0.0
ELAB= 1.0000E+05	LMAX= 3	2.3124D-01	3.7575D-02	-3.1706D-03	0.0	0.0	0.0
ELAB= 2.0000E+05	LMAX= 3	2.1184D-01	2.2806D-02	-9.0433D-03	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	1.9385D-01	-2.1690D-02	-1.5345D-02	2.8121D-03	-1.6124D-04	0.0
ELAB= 4.0000E+05	LMAX= 5	1.8114D-01	-4.5167D-02	-1.9891D-02	5.5579D-03	-4.3161D-04	0.0
ELAB= 5.0000E+05	LMAX= 5	1.6788D-01	-6.5343D-02	-2.3229D-02	8.9683D-03	-8.7585D-04	0.0
ELAB= 6.0000E+05	LMAX= 6	1.5330D-01	-8.1597D-02	-2.3505D-02	1.0391D-02	-1.6900D-03	4.4857D-04
ELAB= 8.0000E+05	LMAX= 6	1.2383D-01	-9.7978D-02	-2.6202D-02	1.1962D-02	-3.2598D-03	1.6869D-03
ELAB= 1.0000E+06	LMAX= 8	9.4753D-02	-9.6271D-02	-2.7514D-02	6.5867D-03	-3.2597D-03	4.0855D-03
		-3.2549D-04	6.0491D-05	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	6.6296D-02	-8.1082D-02	-2.9308D-02	-7.8297D-03	-1.4518D-03	8.2224D-03
		-9.0055D-04	2.3167D-04	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 8	4.9520D-02	-6.3929D-02	-3.2425D-02	-2.4263D-02	3.6803D-03	1.2332D-02
		-1.8487D-03	6.1219D-04	0.0	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	4.3010D-02	-4.0996D-02	-3.6160D-02	-3.6176D-02	1.1546D-02	1.4514D-02
		-2.5328D-03	1.4395D-03	-1.2075D-04	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	4.5589D-02	-3.5280D-02	-3.8567D-02	-3.9365D-02	2.1936D-02	1.4654D-02
		-3.1742D-03	2.6007D-03	-2.8039D-04	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 230  
(CH. LAGRANGE 1961)

LEGENRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENRE COEFFICIENTS ARE IN THE ORDER 1,2,...6 AND NEXT LINE 7,8..... 12

ELAB= 2.5000E+06	LMAX= 11	7.22600-02	-4.56860-03	-3.01560-02	-2.51550-02	4.38440-02	8.27330-03		
		-2.55110-03	5.63600-03	-7.81200-04	3.22830-04	-5.52750-06	0.0		
ELAB= 3.0000E+06	LMAX= 11	1.12120-01	2.72180-02	-5.55790-03	-1.86090-03	6.11770-02	-2.66120-03		
		1.49270-04	8.69620-03	-1.30040-03	1.12110-03	-1.31600-05	0.0		
ELAB= 4.0000E+06	LMAX= 14	1.74180-01	7.05820-02	3.93650-02	2.64560-02	7.43400-02	-1.60250-02		
		-1.16530-03	5.04840-03	-2.79490-04	5.72850-03	-4.42890-05	3.16700-04		
		2.20000-05	4.25320-06	0.0	0.0	0.0	0.0		
ELAB= 5.0000E+06	LMAX= 15	2.04420-01	8.43700-02	3.87730-02	3.16680-02	5.75600-02	-1.29360-02		
		-1.75910-02	-1.96360-02	4.84220-03	1.36330-02	-3.32940-04	1.92160-03		
		1.33110-04	4.45970-05	6.28320-06	0.0	0.0	0.0		
ELAB= 6.0000E+06	LMAX= 15	2.30550-01	8.01340-02	1.33590-02	1.75460-02	2.15650-02	-1.87180-02		
		-3.56530-02	-6.43640-02	1.04390-02	1.47260-02	-3.67150-04	6.41810-03		
		4.01070-04	2.53430-04	4.38210-05	0.0	0.0	0.0		
ELAB= 7.0000E+06	LMAX= 16	2.56750-01	7.44120-02	-2.55910-03	1.13900-03	-4.82140-03	-2.64700-02		
		-3.78860-02	-5.08460-02	5.35220-03	2.26210-03	1.85810-03	1.31940-02		
		6.74910-04	8.57150-04	2.06780-04	3.85460-05	0.0	0.0		
ELAB= 8.0000E+06	LMAX= 17	2.60420-01	7.82070-02	-1.06470-02	-7.73680-03	-1.84850-02	-3.26830-02		
		-3.11870-02	-4.70980-02	2.07610-03	-1.39650-02	4.38260-04	2.01610-02		
		-3.64520-04	1.77980-03	5.57630-04	1.16520-04	3.39450-05	0.0		
ELAB= 1.0000E+07	LMAX= 18	3.16750-01	1.11270-01	4.64200-03	-9.73280-03	-2.53610-02	-4.04760-02		
		-3.53660-02	-5.32390-02	-1.46850-02	-1.51460-02	1.16940-02	1.74580-02		
		-1.96970-03	7.13330-03	3.32450-03	8.34280-04	3.94640-04	7.50700-05		
ELAB= 1.2000E+07	LMAX= 19	3.72330-01	1.60570-01	3.01340-02	1.29870-02	-1.35760-02	-2.85420-02		
		-2.75660-02	-3.89690-02	-1.25320-02	-4.33910-03	1.07340-02	-3.57290-04		
		-3.81580-03	1.51150-02	8.04070-03	2.60320-03	1.89360-03	4.54780-04		
		1.51720-04	0.0	0.0	0.0	0.0	0.0		
ELAB= 1.4000E+07	LMAX= 21	4.19950-01	2.04400-01	6.47650-02	4.43240-02	1.00900-02	-2.37800-03		
		-1.02070-02	-1.77400-02	-4.85010-03	-2.94130-04	1.26140-02	-4.09660-03		
		-5.76250-04	1.71390-02	9.42560-03	5.78530-03	5.98500-03	1.43700-03		
		7.79130-04	2.32810-04	6.30060-05	0.0	0.0	0.0		

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 230  
(CH.LAGRANGE 1931)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7.8..... 12

ELAB= 1.6000E+07	LMAX= 22										
		4.5940D-01	2.4077D-01	9.6757D-02	7.0065D-02	3.7941D-02	2.7784D-02				
		1.7940D-02	8.9657D-03	1.5265D-02	1.1695D-02	2.2597D-02	5.1403D-03				
		-6.6582D-04	5.3568D-03	3.4228D-03	1.0151D-02	1.2069D-02	3.5288D-03				
		2.7700D-03	8.5314D-04	3.2617D-04	8.4906D-05	0.0	0.0				
ELAB= 1.6000E+07	LMAX= 23										
		4.9301D-01	2.6855D-01	1.1871D-01	8.1902D-02	5.2861D-02	4.4668D-02				
		3.8231D-02	2.8453D-02	3.1416D-02	2.1824D-02	2.5635D-02	8.6427D-03				
		-5.2516D-03	-9.5431D-03	-5.4975D-03	1.1604D-02	1.5082D-02	6.2970D-03				
		6.2251D-03	2.2076D-03	9.7773D-04	3.3851D-04	9.8622D-05	0.0				
ELAB= 2.0000E+07	LMAX= 24										
		5.1987D-01	2.8789D-01	1.3681D-01	8.8937D-02	5.8819D-02	4.9959D-02				
		4.5990D-02	3.7123D-02	3.7957D-02	2.6573D-02	2.4545D-02	9.2210D-03				
		-5.3523D-03	-1.3841D-02	-1.1336D-02	5.4515D-03	1.0437D-02	9.2038D-03				
		1.2163D-02	4.2642D-03	2.6428D-03	9.1874D-04	3.7773D-04	1.1155D-04				

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 230  
(CH.LAGRANGE 1781)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 2.0000E+05	LMAX= 3	1.7355D-01	9.1603D-02	8.7574D-03	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	3.8721D-01	1.9036D-01	1.6977D-02	1.1017D-03	-1.5546D-04	0.0
ELAB= 4.0000E+05	LMAX= 5	4.3805D-01	2.0304D-01	1.6062D-02	8.6094D-05	-2.5119D-04	0.0
ELAB= 5.0000E+05	LMAX= 5	4.5399D-01	1.9865D-01	1.2644D-02	-1.2509D-03	-2.9642D-04	0.0
ELAB= 6.0000E+05	LMAX= 6	4.6154D-01	1.8174D-01	6.2221D-03	-3.7053D-03	-2.6785D-04	9.6945D-05
ELAB= 8.0000E+05	LMAX= 6	4.4462D-01	1.4570D-01	-6.1598D-03	-5.8892D-03	1.5875D-04	1.7848D-04
ELAB= 1.0000E+06	LMAX= 8	4.2019D-01	9.8696D-02	-2.2331D-02	-7.0122D-03	1.8305D-03	1.6827D-04
		-9.4307D-05	7.7976D-06	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	3.8576D-01	4.1439D-02	-3.4348D-02	-3.8331D-03	3.6347D-03	-3.5101D-05
		-1.9153D-04	2.2259D-05	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 8	3.5172D-01	-7.7297D-03	-3.8079D-02	3.4292D-03	5.2809D-03	-5.8093D-04
		-3.0118D-04	4.7041D-05	0.0	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	3.2320D-01	-3.9232D-02	-3.0001D-02	1.4150D-02	5.5975D-03	-1.6515D-03
		-1.7826D-04	9.3987D-05	-3.4155D-05	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	3.0426D-01	-5.1375D-02	-1.3794D-02	2.4537D-02	4.2490D-03	-2.8533D-03
		3.6386D-05	1.2787D-04	-7.0014D-05	0.0	0.0	0.0
ELAB= 2.5000E+06	LMAX= 11	2.8818D-01	-4.2903D-02	2.5084D-02	3.6840D-02	-3.6417D-03	-5.2106D-03
		9.9603D-04	1.3955D-05	-1.9301D-04	5.1392D-05	-1.0131D-06	0.0
ELAB= 3.0000E+06	LMAX= 11	2.8384D-01	-2.4594D-02	4.9114D-02	3.2793D-02	-1.4032D-02	-4.7852D-03
		2.4401D-03	-7.1650D-04	-3.5787D-04	1.7539D-04	-4.1466D-06	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 230  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2...6 AND NEXT LINE 7,8..... 12

ELAB= 4.0000E+06	LMAX= 14	2.8217D-01	4.1013D-03	5.0628D-02	2.9350D-03	-1.9322D-02	3.3223D-03				
		2.4270D-05	-4.1456D-03	1.7999D-04	5.4089D-04	-7.8802D-05	7.8622D-05				
		3.2433D-06	-3.5721D-09	0.0	0.0	0.0	0.0				
ELAB= 5.0000E+06	LMAX= 15	2.8276D-01	2.2964D-02	3.6562D-02	-2.3582D-02	-1.3473D-02	-2.1340D-03				
		-1.0836D-02	-7.1647D-04	3.2181D-03	-5.9456D-04	-3.3135D-04	4.2600D-04				
		1.7277D-05	1.3264D-05	2.2744D-06	0.0	0.0	0.0				
ELAB= 6.0000E+06	LMAX= 15	2.8430D-01	4.1668D-02	2.9168D-02	-3.9035D-02	-1.0461D-02	-1.5371D-02				
		-1.3877D-02	1.6277D-02	5.7620D-03	-5.0852D-03	-2.8789D-04	1.1273D-03				
		-2.1947D-05	6.1237D-05	1.0324D-05	0.0	0.0	0.0				
ELAB= 7.0000E+06	LMAX= 16	2.9186D-01	6.7481D-02	3.4930D-02	-3.3233D-02	-1.1752D-03	-1.5876D-02				
		-8.3973D-03	2.7886D-02	2.9435D-03	-8.5978D-03	1.3183D-03	1.5480D-03				
		-2.3442D-04	1.6248D-04	4.1877D-05	1.1926D-05	0.0	0.0				
ELAB= 8.0000E+06	LMAX= 17	2.8763D-01	9.3138D-02	4.3945D-02	-2.3817D-02	1.1640D-02	-1.1524D-02				
		-3.9266D-03	2.7046D-02	-4.9934D-03	-7.9382D-03	5.3091D-03	1.2413D-03				
		-1.0713D-03	3.3994D-04	6.7040D-05	3.5293D-05	1.1371D-05	0.0				
ELAB= 1.0000E+07	LMAX= 18	3.4269D-01	1.5038D-01	5.7284D-02	-4.7605D-03	1.6179D-02	-1.4091D-02				
		-1.2517D-03	1.0358D-02	-1.4843D-03	1.5358D-02	1.0703D-02	-4.7767D-03				
		-3.0974D-03	6.2672D-04	1.6218D-04	1.6426D-04	1.2747D-04	2.6646D-05				
ELAB= 1.2000E+07	LMAX= 19	3.8017D-01	1.8046D-01	7.2564D-02	1.1249D-02	2.3558D-02	-9.3140D-03				
		1.0595D-02	1.1906D-02	7.9356D-03	2.2876D-02	5.2982D-03	-7.4894D-03				
		-1.2369D-03	2.9739D-04	-9.9398D-04	1.8116D-04	4.9624D-04	1.2670D-04				
		6.8698D-05	0.0	0.0	0.0	0.0	0.0				
ELAB= 1.4000E+07	LMAX= 21	4.1240D-01	2.1252D-01	9.6365D-02	2.7043D-02	3.0736D-02	-5.5229D-03				
		1.4192D-02	7.7817D-03	7.3724D-03	1.7396D-02	2.6503D-03	2.4983D-03				
		5.3081D-03	-3.1444D-03	-5.1593D-03	-1.0857D-04	1.0027D-03	2.0196D-04				
		3.2197D-04	1.0970D-04	3.7705D-05	0.0	0.0	0.0				
ELAB= 1.6000E+07	LMAX= 22	4.4774D-01	2.5078D-01	1.2035D-01	4.1943D-02	3.6186D-02	-2.4021D-03				
		1.2537D-02	3.1444D-03	5.2096D-03	1.3962D-02	5.3926D-03	1.1499D-02				
		8.8806D-03	-7.8280D-03	-9.5955D-03	-9.3960D-04	1.2681D-04	-1.4065D-05				
		9.8735D-04	3.2649D-04	1.7730D-04	5.0040D-05	0.0	0.0				

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THURIUM 230  
(CH.LAGRANGE 1901)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.8000E+07 LMAX= 23  
4.7533D-01 2.8097D-01 1.4002D-01 5.7209D-02 4.0084D-02 7.3003D-05  
8.0165D-03 -3.2818D-03 -9.7837D-04 5.3570D-03 1.4102D-03 7.7217D-03  
7.5837D-03 -5.9076D-03 -7.2563D-03 -2.3047D-03 -4.2814D-03 -9.9292D-04  
1.9385D-03 5.8254D-04 4.5636D-04 1.8010D-04 6.2833D-05 0.0

ELAB= 2.0000E+07 LMAX= 24  
4.9533D-01 2.9932D-01 1.5660D-01 7.4976D-02 4.7601D-02 7.4709D-03  
7.4251D-03 -6.8414D-03 -6.1478D-03 -4.1252D-03 -4.4352D-03 1.1047D-03  
5.1058D-03 9.5807D-04 2.2657D-04 -4.8830D-03 -1.0526D-02 -1.9137D-03  
2.2179D-03 4.2441D-04 9.3286D-04 4.0694D-04 2.3081D-04 7.5394D-05

NEUTRON TRANSMISSION COEFFICIENTS FOR THORIUM 230.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

E= 0.10000E-02(MEV)	LMAX= 3	JMAX= 5/2							
0.19707E-01	0.69457E-04	0.95937E-04	0.41020E-07	0.25126E-07	0.33680E-11				
E= 0.50000E-02(MEV)	LMAX= 3	JMAX= 5/2							
0.43500E-01	0.77012E-03	0.10629E-02	0.22774E-05	0.13974E-05	0.94019E-09				
E= 0.10000E-01(MEV)	LMAX= 3	JMAX= 5/2							
0.60907E-01	0.21554E-02	0.29717E-02	0.12773E-04	0.78540E-05	0.10612E-07				
E= 0.20000E-01(MEV)	LMAX= 3	JMAX= 5/2							
0.84893E-01	0.59677E-02	0.82089E-02	0.71011E-04	0.43857E-04	0.11950E-06				
E= 0.30000E-01(MEV)	LMAX= 3	JMAX= 5/2							
0.10279E+00	0.10731E-01	0.14724E-01	0.19229E-03	0.11929E-03	0.49164E-06				
E= 0.40000E-01(MEV)	LMAX= 3	JMAX= 5/2							
0.11753E+00	0.16173E-01	0.22131E-01	0.38781E-03	0.24171E-03	0.13394E-05				
E= 0.60000E-01(MEV)	LMAX= 3	JMAX= 5/2							
0.14155E+00	0.28476E-01	0.38729E-01	0.10309E-02	0.64894E-03	0.54843E-05				
E= 0.80000E-01(MEV)	LMAX= 3	JMAX= 5/2							
0.16111E+00	0.42049E-01	0.56834E-01	0.20424E-02	0.12966E-02	0.14874E-04				
E= 0.10000E+00(MEV)	LMAX= 3	JMAX= 5/2							
0.17783E+00	0.56415E-01	0.75823E-01	0.34418E-02	0.20041E-02	0.32213E-04				
E= 0.20000E+00(MEV)	LMAX= 3	JMAX= 5/2							
0.25050E+00	0.14728E+00	0.19138E+00	0.17009E-01	0.11464E-01	0.42554E-03				
E= 0.30000E+00(MEV)	LMAX= 4	JMAX= 7/2							
0.29498E+00	0.22637E+00	0.28979E+00	0.40973E-01	0.27431E-01	0.17314E-02	0.22922E-02	0.31492E-04		
E= 0.40000E+00(MEV)	LMAX= 4	JMAX= 7/2							
0.32982E+00	0.29716E+00	0.37529E+00	0.69625E-01	0.48855E-01	0.46412E-02	0.61646E-02	0.10876E-03		
E= 0.50000E+00(MEV)	LMAX= 4	JMAX= 7/2							
0.35871E+00	0.35966E+00	0.44843E+00	0.10116E+00	0.74115E-01	0.98825E-02	0.13199E-01	0.28143E-03		
E= 0.60000E+00(MEV)	LMAX= 5	JMAX= 9/2							
0.38345E+00	0.41466E+00	0.51065E+00	0.13356E+00	0.10173E+00	0.18170E-01	0.24441E-01	0.60679E-03	0.56311E-03	0.18577E-04
E= 0.80000E+00(MEV)	LMAX= 5	JMAX= 9/2							
0.42416E+00	0.50553E+00	0.60776E+00	0.19632E+00	0.15955E+00	0.46376E-01	0.63383E-01	0.20007E-02	0.19437E-02	0.87988E-04
E= 0.10000E+01(MEV)	LMAX= 6	JMAX= 11/2							
0.45633E+00	0.57546E+00	0.67496E+00	0.25286E+00	0.21592E+00	0.92880E-01	0.12864E+00	0.49449E-02	0.49971E-02	0.29256E-03
0.69445E-03	0.70706E-05								



NEUTRON TRANSMISSION COEFFICIENTS FOR THORIUM 230.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

E= 0.12500E+01(MEV)	LMAX= 6	JMAX= 11/2
0.48772E+00 0.63986E+00 0.72640E+00 0.31333E+00 0.27978E+00 0.17733E+00 0.24704E+00 0.11933E-01 0.12577E-01 0.96028E-03		
0.22016E-02 0.29832E-04		
E= 0.15000E+01(MEV)	LMAX= 5	JMAX= 11/2
0.51139E+00 0.68510E+00 0.75321E+00 0.36337E+00 0.33424E+00 0.28438E+00 0.39231E+00 0.23922E-01 0.26114E-01 0.25646E-02		
0.54774E-02 0.96481E-04		
E= 0.17500E+01(MEV)	LMAX= 7	JMAX= 13/2
0.52879E+00 0.71689E+00 0.76674E+00 0.40454E+00 0.37879E+00 0.47370E+00 0.53977E+00 0.42049E-01 0.47211E-01 0.58217E-02		
0.11450E-01 0.25931E-03 0.30199E-03 0.93552E-05		
E= 0.20000E+01(MEV)	LMAX= 7	JMAX= 13/2
0.54106E+00 0.73944E+00 0.77442E+00 0.43925E+00 0.41376E+00 0.51234E+00 0.66721E+00 0.66851E-01 0.76642E-01 0.11791E-01		
0.20962E-01 0.60726E-03 0.69699E-03 0.14122E-04		
E= 0.25000E+01(MEV)	LMAX= 8	JMAX= 15/2
0.55440E+00 0.76713E+00 0.78419E+00 0.48762E+00 0.45925E+00 0.69056E+00 0.82835E+00 0.13444E+00 0.15734E+00 0.37636E-01		
0.52005E-01 0.24557E-02 0.27514E-02 0.11476E-03 0.69508E-04 0.54997E-05		
E= 0.30000E+01(MEV)	LMAX= 8	JMAX= 15/2
0.55974E+00 0.78115E+00 0.79140E+00 0.51908E+00 0.48336E+00 0.80284E+00 0.88747E+00 0.21551E+00 0.25201E+00 0.93062E-01		
0.95789E-01 0.73458E-02 0.80850E-02 0.39632E-03 0.24678E-03 0.24907E-04		
E= 0.40000E+01(MEV)	LMAX= 10	JMAX= 19/2
0.56797E+00 0.79326E+00 0.80156E+00 0.55376E+00 0.51406E+00 0.89774E+00 0.88261E+00 0.36502E+00 0.41872E+00 0.30896E+00		
0.19389E+00 0.35447E-01 0.39514E-01 0.25125E-02 0.17717E-02 0.25155E-03 0.22537E-03 0.75378E-05 0.13455E-04 0.46395E-06		
E= 0.50000E+01(MEV)	LMAX= 11	JMAX= 21/2
0.58244E+00 0.80234E+00 0.80852E+00 0.57658E+00 0.54812E+00 0.91158E+00 0.84821E+00 0.46920E+00 0.53424E+00 0.54471E+00		
0.28840E+00 0.10026E+00 0.12251E+00 0.93843E-02 0.78894E-02 0.13156E-02 0.10972E-02 0.55537E-04 0.10259E-03 0.40752E-05		
0.40129E-05 0.21352E-06		
E= 0.60000E+01(MEV)	LMAX= 11	JMAX= 21/2
0.60131E+00 0.81160E+00 0.81351E+00 0.59889E+00 0.58388E+00 0.90134E+00 0.82135E+00 0.54218E+00 0.61772E+00 0.67135E+00		
0.37659E+00 0.20349E+00 0.27669E+00 0.25658E-01 0.25591E-01 0.44891E-02 0.36740E-02 0.26581E-03 0.51351E-03 0.22326E-04		
0.22626E-04 0.14322E-05		
E= 0.70000E+01(MEV)	LMAX= 12	JMAX= 23/2
0.62203E+00 0.81976E+00 0.81694E+00 0.62269E+00 0.61654E+00 0.88833E+00 0.80359E+00 0.60318E+00 0.68507E+00 0.71872E+00		
0.45564E+00 0.33561E+00 0.47946E+00 0.57772E-01 0.65149E-01 0.12053E-01 0.96295E-02 0.97753E-03 0.18524E-02 0.87703E-04		
0.94939E-04 0.69481E-05 0.79396E-05 0.54543E-06		
E= 0.80000E+01(MEV)	LMAX= 13	JMAX= 25/2
0.60736E+00 0.78987E+00 0.78811E+00 0.60980E+00 0.60154E+00 0.84507E+00 0.78452E+00 0.60531E+00 0.69337E+00 0.71851E+00		
0.49792E+00 0.47475E+00 0.63644E+00 0.10984E+00 0.12460E+00 0.27174E-01 0.15972E-01 0.24999E-02 0.44580E-02 0.21147E-03		
0.23371E-03 0.17704E-04 0.20266E-04 0.14303E-05 0.14319E-05 0.10688E-06		
E= 0.10000E+02(MEV)	LMAX= 14	JMAX= 27/2
0.64450E+00 0.80359E+00 0.79622E+00 0.65276E+00 0.65200E+00 0.82969E+00 0.76972E+00 0.69755E+00 0.77220E+00 0.73205E+00		
0.58487E+00 0.76028E+00 0.82589E+00 0.26818E+00 0.34239E+00 0.10938E+00 0.58663E-01 0.15428E-01 0.19919E-01 0.14493E-02		
0.18566E-02 0.16412E-03 0.17218E-03 0.15958E-04 0.14438E-04 0.14992E-05 0.15193E-05 0.13482E-06		

NEUTRON TRANSMISSION COEFFICIENTS FOR THORIUM 230.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

E= 0.12000E+02(MEV) LMAX= 15 JMAX= 29/2  
 0.64610E+00 0.77969E+00 0.76889E+00 0.65954E+00 0.66420E+00 0.79188E+00 0.73350E+00 0.73353E+00 0.79045E+00 0.71626E+00  
 0.61096E+00 0.90556E+00 0.83288E+00 0.44650E+00 0.58479E+00 0.27641E+00 0.14751E+00 0.57673E-01 0.60471E-01 0.61974E-02  
 0.92610E-02 0.85939E-03 0.85959E-03 0.95945E-04 0.10380E-03 0.10980E-04 0.11041E-04 0.11733E-05 0.11858E-05 0.11936E-06

E= 0.14000E+02(MEV) LMAX= 17 JMAX= 33/2  
 0.64888E+00 0.75583E+00 0.74301E+00 0.66622E+00 0.67421E+00 0.75920E+00 0.70541E+00 0.75194E+00 0.79133E+00 0.69725E+00  
 0.62546E+00 0.93199E+00 0.79275E+00 0.58679E+00 0.76510E+00 0.46912E+00 0.28470E+00 0.15511E+00 0.13512E+00 0.20299E-01  
 0.34633E-01 0.31877E-02 0.32735E-02 0.41441E-03 0.46576E-03 0.55430E-04 0.55598E-04 0.68366E-05 0.69442E-05 0.81053E-06  
 0.81397E-06 0.90028E-07 0.90162E-07 0.92406E-08

E= 0.16000E+02(MEV) LMAX= 18 JMAX= 35/2  
 0.65223E+00 0.73287E+00 0.71906E+00 0.67237E+00 0.68159E+00 0.73175E+00 0.68328E+00 0.75968E+00 0.78255E+00 0.68316E+00  
 0.63902E+00 0.90805E+00 0.75309E+00 0.68093E+00 0.85844E+00 0.59182E+00 0.43346E+00 0.31582E+00 0.22467E+00 0.55416E-01  
 0.97957E-01 0.91192E-02 0.10353E-01 0.14203E-02 0.15982E-02 0.21148E-03 0.21547E-03 0.29808E-04 0.30374E-04 0.40174E-05  
 0.40414E-05 0.51192E-06 0.51294E-06 0.60604E-07 0.60651E-07 0.66057E-08

E= 0.18000E+02(MEV) LMAX= 19 JMAX= 37/2  
 0.65552E+00 0.71134E+00 0.69728E+00 0.67734E+00 0.68603E+00 0.70874E+00 0.66561E+00 0.75994E+00 0.76868E+00 0.67478E+00  
 0.65230E+00 0.87255E+00 0.72155E+00 0.74852E+00 0.88700E+00 0.63916E+00 0.55732E+00 0.50671E+00 0.30852E+00 0.12923E+00  
 0.20590E+00 0.21809E-01 0.28471E-01 0.40522E-02 0.43915E-02 0.65106E-03 0.68624E-03 0.10420E-03 0.10582E-03 0.15690E-04  
 0.15823E-04 0.22512E-05 0.22572E-05 0.30198E-06 0.30228E-06 0.37436E-07 0.37452E-07 0.42634E-08

E= 0.20000E+02(MEV) LMAX= 20 JMAX= 39/2  
 0.65816E+00 0.69157E+00 0.67780E+00 0.68058E+00 0.68769E+00 0.68927E+00 0.65166E+00 0.75486E+00 0.75234E+00 0.67014E+00  
 0.66391E+00 0.83716E+00 0.69652E+00 0.79553E+00 0.87971E+00 0.65316E+00 0.65289E+00 0.67713E+00 0.38545E+00 0.25494E+00  
 0.33965E+00 0.46582E-01 0.69750E-01 0.98505E-02 0.10370E-01 0.17186E-02 0.18739E-02 0.30566E-03 0.30898E-03 0.50876E-04  
 0.51471E-04 0.80953E-05 0.81846E-05 0.12125E-05 0.12141E-05 0.16860E-06 0.16869E-06 0.21594E-07 0.21599E-07 0.25376E-08

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 232  
 (CH. LAGRANGE 1931)

NEUTRON TOTAL CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	2.5458D+01	5.0000D+03	1.7729D+01	1.0000D+04	1.5870D+01
2.0000D+04	1.4489D+01	3.0000D+04	1.3813D+01	4.0000D+04	1.3362D+01
6.0000D+04	1.2727D+01	8.0000D+04	1.2256D+01	1.0000D+05	1.1866D+01
2.0000D+05	1.0424D+01	3.0000D+05	9.3953D+00	4.0000D+05	8.5866D+00
5.0000D+05	7.9468D+00	6.0000D+05	7.4466D+00	8.0000D+05	6.7711D+00
1.0000D+06	6.4340D+00	1.2500D+06	6.3408D+00	1.5000D+06	6.4754D+00
1.7500D+06	6.7209D+00	2.0000D+06	6.9948D+00	2.5000D+06	7.4700D+00
3.0000D+06	7.7703D+00	4.0000D+06	7.8818D+00	5.0000D+06	7.5483D+00
6.0000D+06	7.0139D+00	7.0000D+06	6.4946D+00	8.0000D+06	6.0897D+00
1.0000D+07	5.6460D+00	1.2000D+07	5.5632D+00	1.4000D+07	5.7326D+00
1.6000D+07	5.9816D+00	1.8000D+07	6.2031D+00	2.0000D+07	6.3506D+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 232  
(CH.LAGRANGE 1961)

NEUTRON COMPOUND NUCLEUS FORMATION CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	1.4047D+01	5.0000D+03	6.5341D+00	1.0000D+04	4.8679D+00
2.0000D+04	3.8003D+00	3.0000D+04	3.3927D+00	4.0000D+04	3.1836D+00
6.0000D+04	2.9826D+00	8.0000D+04	2.8958D+00	1.0000D+05	2.8539D+00
2.0000D+05	2.8105D+00	3.0000D+05	2.8202D+00	4.0000D+05	2.8185D+00
5.0000D+05	2.8149D+00	6.0000D+05	2.8155D+00	8.0000D+05	2.8311D+00
1.0000D+06	2.8800D+00	1.2500D+06	2.9787D+00	1.5000D+06	3.0933D+00
1.7500D+06	3.1891D+00	2.0000D+06	3.2441D+00	2.5000D+06	3.2420D+00
3.0000D+06	3.1689D+00	4.0000D+06	3.0205D+00	5.0000D+06	2.9060D+00
6.0000D+06	2.8219D+00	7.0000D+06	2.7945D+00	8.0000D+06	2.8040D+00
1.0000D+07	2.8243D+00	1.2000D+07	2.7527D+00	1.4000D+07	2.6909D+00
1.6000D+07	2.6316D+00	1.8000D+07	2.5794D+00	2.0000D+07	2.5420D+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 232  
(CH.LAGRANGE 1981)

NEUTRON SHAPE ELASTIC SCATTERING CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.00000+03	1.14110+01	5.00000+03	1.11950+01	1.00000+04	1.10020+01
2.00000+04	1.06890+01	3.00000+04	1.04210+01	4.00000+04	1.01780+01
6.00000+04	9.74340+00	8.00000+04	9.35520+00	1.00000+05	9.00150+00
2.00000+05	7.57120+00	3.00000+05	6.50460+00	4.00000+05	5.67540+00
5.00000+05	5.02090+00	6.00000+05	4.50260+00	8.00000+05	3.77450+00
1.00000+06	3.34540+00	1.25000+06	3.09340+00	1.50000+06	3.05290+00
1.75000+06	3.14850+00	2.00000+06	3.32450+00	2.50000+06	3.75280+00
3.00000+06	4.11500+00	4.00000+06	4.40350+00	5.00000+06	4.23160+00
6.00000+06	3.82070+00	7.00000+06	3.35600+00	8.00000+06	2.96470+00
1.00000+07	2.54630+00	1.20000+07	2.53770+00	1.40000+07	2.77530+00
1.60000+07	3.09550+00	1.80000+07	3.38320+00	2.00000+07	3.58100+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 232  
(CH.LAGRANGE 1981)

NEUTRON DIRECT INELASTIC FIRST EXCITED LEVEL

E	S(E)	E	S(E)	E	S(E)
6.0000D+04	1.1509D-03	8.0000D+04	5.1447D-03	1.0000D+05	1.0551D-02
2.0000D+05	4.2618D-02	3.0000D+05	6.9809D-02	4.0000D+05	8.9781D-02
5.0000D+05	1.0476D-01	6.0000D+05	1.1696D-01	8.0000D+05	1.3896D-01
1.0000D+06	1.6362D-01	1.2500D+06	2.0135D-01	1.5000D+06	2.4333D-01
1.7500D+06	2.8349D-01	2.0000D+06	3.1718D-01	2.5000D+06	3.5820D-01
3.0000D+06	3.6666D-01	4.0000D+06	3.4572D-01	5.0000D+06	3.0884D-01
6.0000D+06	2.7904D-01	7.0000D+06	2.6056D-01	8.0000D+06	2.4722D-01
1.0000D+07	2.1979D-01	1.2000D+07	2.2121D-01	1.4000D+07	2.1897D-01
1.6000D+07	2.1162D-01	1.8000D+07	2.0205D-01	2.0000D+07	1.9318D-01

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 232  
(CH. LAGRANGE 1981)

NEUTRON DIRECT INELASTIC SECOND EXCITED LEVEL

E	S(E)	E	S(E)	E	S(E)
2.0000D+05	2.4197D-05	3.0000D+05	6.7705D-04	4.0000D+05	2.5899D-04
5.0000D+05	6.1722D-03	6.0000D+05	1.1529D-02	8.0000D+05	2.6572D-02
1.0000D+06	4.4867D-02	1.2500D+06	6.7311D-02	1.5000D+06	8.5971D-02
1.7500D+06	9.9789D-02	2.0000D+06	1.0896D-01	2.5000D+06	1.1696D-01
3.0000D+06	1.1782D-01	4.0000D+06	1.1201D-01	5.0000D+06	1.0187D-01
6.0000D+06	9.2300D-02	7.0000D+06	8.3544D-02	8.0000D+06	7.3714D-02
1.0000D+07	5.5675D-02	1.2000D+07	5.1533D-02	1.4000D+07	4.7453D-02
1.6000D+07	4.2940D-02	1.8000D+07	3.8475D-02	2.0000D+07	3.4408D-02

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 232  
(CH.LAGRANGE 1901)

LEGENDRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.0000E+03	LMAX= 3	9.6172D-04	-9.4694D-11	-5.3449D-07	0.0	0.0	0.0
ELAB= 5.0000E+03	LMAX= 3	5.0509D-03	2.5642D-05	-8.2996D-07	0.0	0.0	0.0
ELAB= 1.0000E+04	LMAX= 3	1.0404D-02	1.0136D-04	3.5903D-07	0.0	0.0	0.0
ELAB= 2.0000E+04	LMAX= 3	2.1470D-02	4.1007D-04	3.6269D-06	0.0	0.0	0.0
ELAB= 3.0000E+04	LMAX= 3	3.2719D-02	9.2176D-04	1.1806D-05	0.0	0.0	0.0
ELAB= 4.0000E+04	LMAX= 3	4.3975D-02	1.6282D-03	2.8592D-05	0.0	0.0	0.0
ELAB= 6.0000E+04	LMAX= 3	6.6131D-02	3.5977D-03	9.4989D-05	0.0	0.0	0.0
ELAB= 8.0000E+04	LMAX= 3	8.7564D-02	6.2620D-03	2.2168D-04	0.0	0.0	0.0
ELAB= 1.0000E+05	LMAX= 3	1.0817D-01	9.5500D-03	4.2647D-04	0.0	0.0	0.0
ELAB= 2.0000E+05	LMAX= 3	1.9845D-01	3.3245D-02	3.0940D-03	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	2.7005D-01	6.2543D-02	9.8856D-03	1.0493D-03	-7.0033D-06	0.0
ELAB= 4.0000E+05	LMAX= 5	3.2761D-01	9.3807D-02	2.1472D-02	3.0504D-03	-2.8998D-05	0.0
ELAB= 5.0000E+05	LMAX= 5	3.7451D-01	1.2400D-01	3.8368D-02	6.8487D-03	-5.7296D-05	0.0
ELAB= 6.0000E+05	LMAX= 6	4.1295D-01	1.5209D-01	6.0500D-02	1.3003D-02	-5.3779D-05	7.0519D-05
ELAB= 8.0000E+05	LMAX= 6	4.6985D-01	2.0248D-01	1.1789D-01	3.3989D-02	4.7722D-04	4.2360D-04
ELAB= 1.0000E+06	LMAX= 8	5.0681D-01	2.4961D-01	1.0483D-01	6.7511D-02	3.3030D-03	1.6523D-03
		1.1636D-04	1.3976D-05	0.0	0.0	0.0	0.0



RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 232  
(CH. LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7.8..... 12

ELAB= 1.2500E+06	LMAX= 8	5.3852D-01	3.1127D-01	2.6462D-01	1.2347D-01	1.4102D-02	5.6375D-03
		5.4528D-04	7.3720D-05	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 8	5.6990D-01	3.7654D-01	3.2611D-01	1.8529D-01	3.6412D-02	1.3576D-02
		1.6958D-03	2.5857D-04	0.0	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	6.0864D-01	4.3902D-01	3.6753D-01	2.4173D-01	6.8829D-02	2.5571D-02
		3.9412D-03	6.8398D-04	7.1485D-05	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	6.5202D-01	4.9272D-01	3.9565D-01	2.8656D-01	1.0573D-01	4.0485D-02
		7.6080D-03	1.5129D-03	1.9391D-04	0.0	0.0	0.0
ELAB= 2.5000E+06	LMAX= 11	7.3122D-01	5.7131D-01	4.3820D-01	3.4385D-01	1.7376D-01	7.3988D-02
		1.9245D-02	4.7066D-03	8.0003D-04	1.0251D-04	1.0399D-05	0.0
ELAB= 3.0000E+06	LMAX= 12	7.8679D-01	6.2506D-01	4.7869D-01	3.7859D-01	2.2472D-01	1.0720D-01
		3.5785D-02	1.0801D-02	2.3419D-03	3.6530D-04	4.9390D-05	5.4507D-06
ELAB= 4.0000E+06	LMAX= 14	8.4288D-01	6.9576D-01	5.5286D-01	4.3213D-01	2.9383D-01	1.6443D-01
		7.6227D-02	3.2533D-02	1.0411D-02	2.3637D-03	4.4010D-04	6.9919D-05
		8.6860D-06	1.3807D-06	0.0	0.0	0.0	0.0
ELAB= 5.0000E+06	LMAX= 15	8.6058D-01	7.3057D-01	6.0266D-01	4.7535D-01	3.4326D-01	2.1066D-01
		1.1581D-01	6.3045D-02	2.7505D-02	8.5345D-03	2.0418D-03	4.2188D-04
		6.5015D-05	1.0481D-05	1.4175D-06	0.0	0.0	0.0
ELAB= 6.0000E+06	LMAX= 15	8.6111D-01	7.3971D-01	6.2755D-01	5.0692D-01	3.8031D-01	2.5203D-01
		1.5229D-01	9.7430D-02	5.4367D-02	2.1759D-02	6.6497D-03	1.7287D-03
		3.3480D-04	6.3314D-05	9.2315D-06	0.0	0.0	0.0
ELAB= 7.0000E+06	LMAX= 16	8.5518D-01	7.3636D-01	6.3758D-01	5.2968D-01	4.1178D-01	2.9400D-01
		1.9262D-01	1.3589D-01	9.0677D-02	4.5187D-02	1.7294D-02	5.4375D-03
		1.2878D-03	2.9029D-04	5.9524D-05	1.0486D-05	0.0	0.0
ELAB= 8.0000E+06	LMAX= 17	8.4871D-01	7.2721D-01	6.3581D-01	5.4180D-01	4.3812D-01	3.3400D-01
		2.3779D-01	1.7801D-01	1.3389D-01	7.9933D-02	3.7088D-02	1.3676D-02
		3.0667D-03	1.0188D-03	2.3397D-04	4.9191D-05	9.3408D-06	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 232  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.0000E+07	LMAX= 18	8.4858D-01	7.1170D-01	6.1351D-01	5.3742D-01	4.6368D-01	3.8901D-01
		3.1796D-01	2.5977D-01	2.1824D-01	1.6513D-01	1.0077D-01	4.8820D-02
		1.9010D-02	6.5860D-03	1.9633D-03	5.0185D-04	1.2526D-04	2.4884D-05
ELAB= 1.2000E+07	LMAX= 20	8.6072D-01	7.1621D-01	6.0519D-01	5.2798D-01	4.6526D-01	4.1147D-01
		3.6118D-01	3.1548D-01	2.7538D-01	2.3015D-01	1.6574D-01	9.9049D-02
		4.9324D-02	2.1462D-02	7.9568D-03	2.5246D-03	7.4697D-04	1.9004D-04
		4.9673D-05	1.0940D-05	0.0	0.0	0.0	0.0
ELAB= 1.4000E+07	LMAX= 21	8.0598D-01	7.5548D-01	6.4342D-01	5.5701D-01	4.8876D-01	4.3633D-01
		3.8998D-01	3.4899D-01	3.0901D-01	2.6489D-01	2.0754D-01	1.4186D-01
		8.3706D-02	4.3416D-02	1.9349D-02	7.4705D-03	2.6418D-03	7.8224D-04
		2.2222D-04	5.6380D-05	1.1603D-05	0.0	0.0	0.0
ELAB= 1.6000E+07	LMAX= 22	9.0864D-01	7.9926D-01	6.9692D-01	6.0813D-01	5.3286D-01	4.7251D-01
		4.2034D-01	3.7497D-01	3.3006D-01	2.8428D-01	2.3069D-01	1.6951D-01
		1.1094D-01	6.5308D-02	3.4042D-02	1.5683D-02	6.4984D-03	2.2816D-03
		7.7163D-04	2.3033D-04	7.1878D-05	1.8829D-05	0.0	0.0
ELAB= 1.8000E+07	LMAX= 23	9.2439D-01	8.3320D-01	7.4418D-01	6.6027D-01	5.8247D-01	5.1470D-01
		4.5484D-01	4.0167D-01	3.5083D-01	3.0026D-01	2.4656D-01	1.8834D-01
		1.3122D-01	8.4276D-02	4.9699D-02	2.6488D-02	1.2625D-02	5.1948D-03
		1.9910D-03	6.5746D-04	2.0724D-04	6.3378D-05	1.5918D-05	0.0
ELAB= 2.0000E+07	LMAX= 24	9.3455D-01	8.5654D-01	7.8017D-01	7.0451D-01	6.2866D-01	5.5729D-01
		4.9145D-01	4.3103D-01	3.7397D-01	3.1837D-01	2.6245D-01	2.0530D-01
		1.4937D-01	1.0190D-01	6.5716D-02	3.9374D-02	2.1323D-02	1.0146D-02
		4.3653D-03	1.6328D-03	5.7589D-04	1.8457D-04	5.7200D-05	1.4063D-05

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 232  
(CH. LAGRANGE 1981)

LEGNRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGNRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 6.0000E+04	LMAX= 3	2.9628D-01	3.9637D-02	-1.0996D-03	0.0	0.0	0.0
ELAB= 8.0000E+04	LMAX= 3	2.6046D-01	4.1199D-02	-2.4513D-03	0.0	0.0	0.0
ELAB= 1.0000E+05	LMAX= 3	2.5041D-01	3.9591D-02	-3.7027D-03	0.0	0.0	0.0
ELAB= 2.0000E+05	LMAX= 3	2.3345D-01	2.7566D-02	-1.0117D-02	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	2.1122D-01	-9.3323D-03	-1.7160D-02	2.7714D-03	-1.5240D-04	0.0
ELAB= 4.0000E+05	LMAX= 5	1.9369D-01	-2.8396D-02	-2.2966D-02	5.4204D-03	-3.8918D-04	0.0
ELAB= 5.0000E+05	LMAX= 5	1.7584D-01	-4.4438D-02	-2.8099D-02	8.6549D-03	-7.5708D-04	0.0
ELAB= 6.0000E+05	LMAX= 6	1.5739D-01	-5.7871D-02	-3.0478D-02	9.7363D-03	-1.3528D-03	4.3924D-04
ELAB= 8.0000E+05	LMAX= 6	1.2237D-01	-7.2887D-02	-3.8720D-02	1.1264D-02	-2.2075D-03	1.5643D-03
ELAB= 1.0000E+06	LMAX= 8	9.2526D-02	-7.5647D-02	-4.4689D-02	7.3536D-03	-1.1076D-03	3.5532D-03
		-3.2076D-04	5.9381D-05	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	6.8755D-02	-6.9192D-02	-4.8334D-02	-3.2194D-03	1.7148D-03	6.7990D-03
		-8.1527D-04	2.2248D-04	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 8	5.8349D-02	-5.9471D-02	-4.8942D-02	-1.5763D-02	6.6458D-03	9.8597D-03
		-1.5412D-03	5.8210D-04	0.0	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	5.6725D-02	-4.9374D-02	-4.8134D-02	-2.5968D-02	1.2946D-02	1.1243D-02
		-1.8297D-03	1.3679D-03	-1.3562D-04	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	6.2104D-02	-3.8739D-02	-4.6355D-02	-2.9746D-02	2.0917D-02	1.1045D-02
		-1.9547D-03	2.4724D-03	-2.9705D-04	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 232  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2,...6 AND NEXT LINE 7,8,..... 12

ELAB= 2.5000E+06	LMAX= 11	9.0436D-02	-1.0699D-02	-3.3034D-02	-1.9058D-02	3.7931D-02	5.4364D-03	6.3371D-05	5.2189D-03	-8.8263D-04	3.5358D-04	-1.0726D-05	0.0
ELAB= 3.0000E+06	LMAX= 12	1.2939D-01	2.2068D-02	-6.0679D-03	2.6706D-03	5.2814D-02	-2.8307D-03	4.4414D-03	7.4922D-03	-1.6168D-03	1.1983D-03	-4.8420D-05	2.1398D-05
ELAB= 4.0000E+06	LMAX= 14	1.8568D-01	6.7493D-02	4.0735D-02	3.1488D-02	6.8057D-02	-1.2931D-02	3.1732D-03	1.6980D-03	-9.3333D-04	6.0506D-03	-4.1702D-04	2.9304D-04
		1.7004D-05	3.4788D-06	0.0	0.0	0.0	0.0						
ELAB= 5.0000E+06	LMAX= 15	2.1231D-01	8.1910D-02	3.7147D-02	3.2761D-02	5.1853D-02	-1.3834D-02	-1.7428D-02	-2.2001D-02	5.5338D-03	1.4008D-02	-1.8435D-03	1.8211D-03
		8.9427D-05	3.7848D-05	5.1476D-06	0.0	0.0	0.0						
ELAB= 6.0000E+06	LMAX= 15	2.3812D-01	8.1309D-02	8.6631D-03	1.4897D-02	1.4455D-02	-2.2791D-02	-3.7595D-02	-4.2707D-02	1.4609D-02	1.4618D-02	-3.8212D-03	6.2255D-03
		2.1827D-04	2.0829D-04	3.7474D-05	0.0	0.0	0.0						
ELAB= 7.0000E+06	LMAX= 16	2.6359D-01	8.0056D-02	-6.6391D-03	-1.0655D-03	-1.0219D-02	-2.9799D-02	-3.7593D-02	-4.5731D-02	1.2533D-02	1.2336D-03	-3.2127D-03	1.3098D-02
		1.9596D-04	6.9048D-04	1.7649D-04	2.8738D-05	0.0	0.0						
ELAB= 8.0000E+06	LMAX= 17	2.8487D-01	8.2830D-02	-7.4068D-03	-8.1818D-03	-1.9300D-02	-3.1963D-02	-3.2830D-02	-4.5990D-02	-3.8607D-04	-1.4035D-02	1.6600D-03	1.9093D-02
		-2.0201D-04	1.7720D-03	5.6648D-04	1.1592D-04	3.3376D-05	0.0						
ELAB= 1.0000E+07	LMAX= 18	3.3984D-01	1.1823D-01	9.6116D-03	-8.8919D-03	-2.5656D-02	-4.0489D-02	-3.7010D-02	-5.2916D-02	-1.6148D-02	-1.4004D-02	1.2203D-02	1.6273D-02
		-1.3466D-03	7.2320D-03	3.2990D-03	8.3002D-04	3.9313D-04	7.4415D-05						
ELAB= 1.2000E+07	LMAX= 20	3.9333D-01	1.6879D-01	3.7271D-02	1.5031D-02	-1.2621D-02	-2.7951D-02	-2.7970D-02	-3.8286D-02	-1.3053D-02	-3.9277D-03	1.0262D-02	-5.9076D-04
		-2.4500D-03	1.5189D-02	7.9151D-03	2.6674D-03	1.8794D-03	4.2238D-04	1.6355D-04	3.7058D-05	0.0	0.0	0.0	0.0
ELAB= 1.4000E+07	LMAX= 21	4.3940D-01	2.1428D-01	7.3486D-02	4.7614D-02	1.2593D-02	-8.8147D-04	-9.2416D-03	-1.6545D-02	-4.4542D-03	4.2364D-04	1.2411D-02	-3.3928D-03
		5.3781D-04	1.6792D-02	9.3225D-03	6.0205D-03	5.8957D-03	1.4790D-03	7.9010D-04	2.3512D-04	6.4332D-05	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 232  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.6000E+07	LMAX= 22	4.7654D-01	2.5083D-01	1.0570D-01	7.4220D-02	4.1046D-02	2.9628D-02
		1.9468D-02	1.0541D-02	1.6180D-02	1.2913D-02	2.2715D-02	5.9477D-03
		5.4299D-05	4.9827D-03	3.5034D-03	1.0364D-02	1.1519D-02	3.5920D-03
		2.7694D-03	8.4995D-04	3.2492D-04	8.4204D-05	0.0	0.0
ELAB= 1.8000E+07	LMAX= 23	5.0727D-01	2.7764D-01	1.2754D-01	8.6951D-02	5.6326D-02	4.6640D-02
		3.9681D-02	2.9861D-02	3.2196D-02	2.2924D-02	2.5885D-02	9.2606D-03
		-4.3030D-03	-9.0558D-03	-5.0611D-03	1.1479D-02	1.4583D-02	6.3812D-03
		6.7405D-03	2.1917D-03	9.7986D-04	3.4275D-04	1.0069D-04	0.0
ELAB= 2.0000E+07	LMAX= 24	5.3252D-01	2.9686D-01	1.4593D-01	9.4765D-02	6.2861D-02	5.2270D-02
		4.7482D-02	3.8352D-02	3.8611D-02	2.7413D-02	2.4936D-02	9.7530D-03
		-4.3868D-03	-1.2853D-02	-1.0726D-02	4.9741D-03	9.9266D-03	9.3752D-03
		1.1941D-02	4.2817D-03	2.4656D-03	9.3146D-04	3.8295D-04	1.1312D-04

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 232  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 2.0000E+05	LMAX= 3	2.0807D-01	1.0954D-01	1.0435D-02	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	3.9815D-01	2.1058D-01	1.7322D-02	1.2711D-03	-1.6813D-04	0.0
ELAB= 4.0000E+05	LMAX= 5	4.4099D-01	2.1875D-01	1.5651D-02	1.1180D-04	-2.5831D-04	0.0
ELAB= 5.0000E+05	LMAX= 5	4.5364D-01	2.1152D-01	1.1831D-02	-1.2834D-03	-2.8903D-04	0.0
ELAB= 6.0000E+05	LMAX= 6	4.5789D-01	1.9316D-01	4.7466D-03	-3.7703D-03	-2.1883D-04	1.0664D-04
ELAB= 8.0000E+05	LMAX= 6	4.4134D-01	1.5539D-01	-8.4338D-03	-5.9636D-03	2.5879D-04	1.8119D-04
ELAB= 1.0000E+06	LMAX= 8	4.1799D-01	1.0739D-01	-2.5191D-02	-7.5914D-03	2.0761D-03	1.5299D-04
		-9.9605D-05	1.2025D-05	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	3.8406D-01	4.8988D-02	-3.7758D-02	-4.5501D-03	3.9236D-03	-1.2301D-04
		-1.8972D-04	3.6466D-05	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 8	3.4986D-01	-1.4465D-03	-4.1801D-02	2.3913D-03	5.4724D-03	-7.7722D-04
		-2.7412D-04	7.8587D-05	0.0	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	3.2105D-01	-3.3988D-02	-3.3946D-02	1.2452D-02	5.7799D-03	-1.8327D-03
		-7.9338D-05	1.4599D-04	-4.3358D-05	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	3.0205D-01	-4.6980D-02	-1.8793D-02	2.1698D-02	4.4533D-03	-2.7716D-03
		2.4239D-04	1.9093D-04	-8.7940D-05	0.0	0.0	0.0
ELAB= 2.5000E+06	LMAX= 11	2.8649D-01	-4.0143D-02	1.6577D-02	3.1912D-02	-1.7197D-03	-3.3656D-03
		1.4152D-03	-7.3041D-05	-2.4301D-04	6.6106D-05	-4.0082D-06	0.0
ELAB= 3.0000E+06	LMAX= 12	2.8293D-01	-2.3805D-02	3.8480D-02	2.8450D-02	-7.9643D-03	-8.2852D-04
		2.3767D-03	-1.2141D-03	-3.8473D-04	2.1307D-04	-2.3453D-05	4.7124D-06

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 232  
(CH.LAGRANGE 1981)

LEGENRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 4.0000E+06	LMAX= 14	2.8009D-01	9.0465D-04	4.3222D-02	3.3678D-03	-7.8642D-03	6.4750D-03
		-2.9331D-03	-4.9959D-03	5.9426D-04	6.3487D-04	-1.8846D-04	8.3705D-05
		3.2239D-06	1.8829D-06	0.0	0.0	0.0	0.0
ELAD= 5.0000E+06	LMAX= 15	2.7331D-01	1.6993D-02	3.2597D-02	-2.4179D-02	-6.3457D-03	-2.9506D-03
		-1.4838D-02	4.0986D-04	4.1303D-03	-8.5144D-04	-5.5684D-04	4.8314D-04
		-2.3317D-06	1.2352D-05	1.0980D-06	0.0	0.0	0.0
ELAB= 6.0000E+06	LMAX= 15	2.6176D-01	3.4327D-02	2.7824D-02	-4.1418D-02	-5.5183D-03	-1.6399D-02
		-1.7056D-02	2.0283D-02	6.3412D-03	-6.4316D-03	-4.4254D-04	1.3255D-03
		-1.0389D-04	6.3649D-05	7.7318D-06	0.0	0.0	0.0
ELAB= 7.0000E+06	LMAX= 16	2.5655D-01	5.9508D-02	3.5181D-02	-3.5306D-02	5.7005D-03	-1.4839D-02
		-9.5935D-05	3.3158D-02	1.4931D-03	-1.1360D-02	1.6587D-03	1.9744D-03
		-4.7758D-04	1.6974D-04	2.5652D-05	8.0939D-06	0.0	0.0
ELAD= 8.0000E+06	LMAX= 17	2.6729D-01	8.8676D-02	4.3158D-02	-2.2327D-02	1.5803D-02	-1.1010D-02
		-5.6834D-03	2.5104D-02	-7.1550D-03	-8.0668D-03	5.9663D-03	1.3342D-03
		-1.2524D-03	3.2849D-04	5.2238D-05	2.7944D-05	1.0443D-05	0.0
ELAB= 1.0000E+07	LMAX= 18	3.2346D-01	1.4374D-01	5.2806D-02	-5.3743D-03	1.7672D-02	-1.5013D-02
		-3.3469D-03	7.4006D-03	-3.7703D-03	1.5844D-02	1.0958D-02	-4.9890D-03
		-3.0970D-03	6.9753D-04	5.6110D-05	1.2125D-04	1.2224D-04	2.2255D-05
ELAB= 1.2000E+07	LMAX= 20	3.5720D-01	1.7070D-01	6.7013D-02	7.7178D-03	2.3057D-02	-1.1909D-02
		8.8082D-03	8.7654D-03	6.0450D-03	2.2206D-02	3.1819D-03	-7.8836D-03
		-1.2588D-04	6.5449D-04	-1.3219D-03	8.0476D-05	4.7758D-04	7.8097D-05
		6.9751D-05	1.6485D-05	9.0	0.0	0.0	0.0
ELAB= 1.4000E+07	LMAX= 21	3.8602D-01	2.0291D-01	9.0803D-02	2.1762D-02	2.9632D-02	-9.4812D-03
		1.2768D-02	4.6243D-03	5.5920D-03	1.7280D-02	3.9349D-04	2.6741D-03
		7.1814D-03	-2.8309D-03	-5.6405D-03	-1.0609D-04	9.4866D-04	9.1524D-05
		3.1897D-04	1.0403D-04	3.6698D-05	0.0	0.0	0.0
ELAB= 1.6000E+07	LMAX= 22	4.2018D-01	2.4287D-01	1.1503D-01	3.7444D-02	3.5937D-02	-5.4525D-03
		1.2813D-02	2.0240D-03	5.1410D-03	1.5233D-02	4.1666D-03	1.0574D-02
		9.4696D-03	-7.6614D-03	-9.3205D-03	-4.5412D-04	-1.6373D-04	-2.9946D-04
		9.9401D-04	2.9698D-04	1.7341D-04	4.8146D-05	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR THORIUM 232  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.8000E+07 LMAX= 23  
4.4712D-01 2.7473D-01 1.3573D-01 5.5070D-02 4.1282D-02 -1.1471D-03  
1.0175D-02 -2.5572D-03 5.4768D-04 6.8026D-03 5.0845D-04 5.1757D-03  
5.8187D-03 -5.6791D-03 -5.2058D-03 -9.9342D-04 -4.9480D-03 -1.3923D-03  
1.9638D-03 4.6077D-04 4.4195D-04 1.7178D-04 6.2206D-05 0.0

ELAB= 2.0000E+07 LMAX= 24  
4.6670D-01 2.9375D-01 1.5357D-01 7.5346D-02 5.0422D-02 8.5848D-03  
1.1525D-02 -4.4093D-03 -2.8188D-03 -2.1060D-03 -4.3178D-03 -1.0247D-03  
2.3847D-03 7.4142D-04 3.0334D-03 -3.1741D-03 -1.1158D-02 -1.9883D-03  
2.1999D-03 7.9031D-05 8.9091D-04 3.7812D-04 2.2866D-04 7.5024D-05



NEUTRON TRANSMISSION COEFFICIENTS FOR THORIUM 232.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

E= 0.10000E-02(MEV)	LMAX= 3	JMAX= 5/2			
0.20917E-01	0.77151E-04	0.10474E-03	0.44100E-07	0.26378E-07	0.36664E-11
E= 0.50000E-02(MEV)	LMAX= 3	JMAX= 5/2			
0.46130E-01	0.85551E-03	0.11609E-02	0.24479E-05	0.14660E-05	0.10264E-08
E= 0.10000E-01(MEV)	LMAX= 3	JMAX= 5/2			
0.64541E-01	0.23945E-02	0.32470E-02	0.13725E-04	0.82428E-05	0.11591E-07
E= 0.20000E-01(MEV)	LMAX= 3	JMAX= 5/2			
0.89857E-01	0.66304E-02	0.89772E-02	0.76262E-04	0.46013E-04	0.13067E-06
E= 0.30000E-01(MEV)	LMAX= 3	JMAX= 5/2			
0.10870E+00	0.11923E-01	0.16115E-01	0.20638E-03	0.12512E-03	0.53823E-06
E= 0.40000E-01(MEV)	LMAX= 3	JMAX= 5/2			
0.12419E+00	0.17968E-01	0.24239E-01	0.41594E-03	0.25342E-03	0.14680E-05
E= 0.60000E-01(MEV)	LMAX= 3	JMAX= 5/2			
0.14934E+00	0.31613E-01	0.42460E-01	0.11042E-02	0.67993E-03	0.60225E-05
E= 0.80000E-01(MEV)	LMAX= 3	JMAX= 5/2			
0.16975E+00	0.46663E-01	0.62400E-01	0.21856E-02	0.13579E-02	0.16374E-04
E= 0.10000E+00(MEV)	LMAX= 3	JMAX= 5/2			
0.18713E+00	0.62570E-01	0.83347E-01	0.36799E-02	0.23073E-02	0.35549E-04
E= 0.20000E+00(MEV)	LMAX= 3	JMAX= 5/2			
0.25016E+00	0.14602E+00	0.19134E+00	0.17234E-01	0.11325E-01	0.39640E-03
E= 0.30000E+00(MEV)	LMAX= 4	JMAX= 7/2			
0.29347E+00	0.22611E+00	0.29229E+00	0.39208E-01	0.27004E-01	0.16220E-02
E= 0.40000E+00(MEV)	LMAX= 4	JMAX= 7/2			
0.32710E+00	0.29872E+00	0.38125E+00	0.66591E-01	0.47970E-01	0.43732E-02
E= 0.50000E+00(MEV)	LMAX= 4	JMAX= 7/2			
0.35487E+00	0.36342E+00	0.45810E+00	0.96749E-01	0.72652E-01	0.93714E-02
E= 0.60000E+00(MEV)	LMAX= 5	JMAX= 9/2			
0.37866E+00	0.42067E+00	0.52380E+00	0.12779E+00	0.99642E-01	0.17353E-01
E= 0.80000E+00(MEV)	LMAX= 5	JMAX= 9/2			
0.41800E+00	0.51506E+00	0.62550E+00	0.18815E+00	0.15629E+00	0.45033E-01
E= 0.10000E+01(MEV)	LMAX= 6	JMAX= 11/2			
0.44950E+00	0.58593E+00	0.69248E+00	0.24286E+00	0.21187E+00	0.91892E-01
0.64247E-03	0.62980E-05				

NEUTRON TRANSMISSION COEFFICIENTS FOR THORIUM 232.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

E= 0.12500E+01(MEV)		LMAX= 6	JMAX= 11/2							
0.48070E+00	0.64722E+00	0.73650E+00	0.30183E+00	0.27537E+00	0.17946E+00	0.23199E+00	0.11502E-01	0.12021E-01	0.98224E-03	
0.20408E-02	0.26884E-04									
E= 0.15000E+01(MEV)		LMAX= 6	JMAX= 11/2							
0.50454E+00	0.68576E+00	0.75083E+00	0.35107E+00	0.32999E+00	0.29256E+00	0.36990E+00	0.22955E-01	0.25337E-01	0.26215E-02	
0.50902E-02	0.88045E-04									
E= 0.17500E+01(MEV)		LMAX= 7	JMAX= 13/2							
0.52215E+00	0.70913E+00	0.75089E+00	0.39195E+00	0.37485E+00	0.41515E+00	0.51176E+00	0.40239E-01	0.46434E-01	0.59824E-02	
0.10679E-01	0.23982E-03	0.28474E-03	0.99573E-05							
E= 0.20000E+01(MEV)		LMAX= 7	JMAX= 13/2							
0.53443E+00	0.72292E+00	0.74678E+00	0.42573E+00	0.40990E+00	0.53013E+00	0.63693E+00	0.63897E-01	0.76220E-01	0.12151E-01	
0.19697E-01	0.56948E-03	0.66752E-03	0.25534E-04							
E= 0.25000E+01(MEV)		LMAX= 8	JMAX= 15/2							
0.54686E+00	0.73442E+00	0.74076E+00	0.47573E+00	0.45379E+00	0.70392E+00	0.80256E+00	0.12858E+00	0.15822E+00	0.38835E-01	
0.50469E-01	0.23677E-02	0.26925E-02	0.12177E-03	0.55676E-04	0.53977E-05					
E= 0.30000E+01(MEV)		LMAX= 9	JMAX= 17/2							
0.55017E+00	0.73602E+00	0.74043E+00	0.50773E+00	0.47415E+00	0.80416E+00	0.86956E+00	0.20645E+00	0.25260E+00	0.96078E-01	
0.96886E-01	0.72549E-02	0.79508E-02	0.42703E-03	0.20206E-03	0.25158E-04	0.21535E-04	0.47538E-06			
E= 0.40000E+01(MEV)		LMAX= 10	JMAX= 19/2							
0.55356E+00	0.73767E+00	0.74782E+00	0.54147E+00	0.49627E+00	0.87885E+00	0.87228E+00	0.34912E+00	0.41014E+00	0.31743E+00	
0.20039E+00	0.35869E-01	0.38055E-01	0.27935E-02	0.15122E-02	0.26449E-03	0.18395E-03	0.63042E-05	0.11311E-04	0.35453E-06	
E= 0.50000E+01(MEV)		LMAX= 11	JMAX= 21/2							
0.56381E+00	0.74773E+00	0.75818E+00	0.56087E+00	0.52367E+00	0.88287E+00	0.83935E+00	0.44454E+00	0.51373E+00	0.55046E+00	
0.28990E+00	0.10091E+00	0.11598E+00	0.10631E-01	0.70070E-02	0.13781E-02	0.86597E-03	0.45538E-04	0.89665E-04	0.32313E-05	
0.28687E-05	0.13794E-06									
E= 0.60000E+01(MEV)		LMAX= 11	JMAX= 21/2							
0.57902E+00	0.76090E+00	0.76803E+00	0.57849E+00	0.55415E+00	0.86769E+00	0.81281E+00	0.50779E+00	0.58662E+00	0.66641E+00	
0.36955E+00	0.20172E+00	0.26100E+00	0.28638E-01	0.23497E-01	0.45618E-02	0.28307E-02	0.22450E-03	0.46210E-03	0.17816E-04	
0.16564E-04	0.94724E-06									
E= 0.70000E+01(MEV)		LMAX= 12	JMAX= 23/2							
0.59642E+00	0.77324E+00	0.77636E+00	0.59771E+00	0.58215E+00	0.85290E+00	0.79535E+00	0.56176E+00	0.64558E+00	0.70548E+00	
0.44114E+00	0.33116E+00	0.45468E+00	0.61054E-01	0.61092E-01	0.12047E-01	0.73466E-02	0.85097E-03	0.16824E-02	0.69364E-04	
0.70778E-04	0.47156E-05	0.55310E-05	0.33593E-06							
E= 0.80000E+01(MEV)		LMAX= 13	JMAX= 25/2							
0.61457E+00	0.78368E+00	0.78310E+00	0.61829E+00	0.60773E+00	0.84202E+00	0.78391E+00	0.61394E+00	0.69569E+00	0.72011E+00	
0.50206E+00	0.48211E+00	0.63925E+00	0.11194E+00	0.12847E+00	0.28330E-01	0.16404E-01	0.26499E-02	0.46130E-02	0.22123E-03	
0.24728E-03	0.18543E-04	0.21136E-04	0.14910E-05	0.15001E-05	0.11177E-06					
E= 0.10000E+02(MEV)		LMAX= 14	JMAX= 27/2							
0.65097E+00	0.79901E+00	0.79275E+00	0.65943E+00	0.65622E+00	0.82837E+00	0.77021E+00	0.70302E+00	0.77174E+00	0.73477E+00	
0.58680E+00	0.76308E+00	0.81979E+00	0.27444E+00	0.35052E+00	0.11253E+00	0.60521E-01	0.16290E-01	0.20308E-01	0.15324E-02	
0.19778E-02	0.17201E-03	0.17967E-03	0.16617E-04	0.17231E-04	0.15665E-05	0.15865E-05	0.14097E-06			

NEUTRON TRANSMISSION COEFFICIENTS FOR THORIUM 232.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

E= 0.12000E+02(MEV) LMAX= 16 JMAX= 31/2  
 0.65150E+00 0.77636E+00 0.76657E+00 0.66445E+00 0.66694E+00 0.79174E+00 0.73462E+00 0.73563E+00 0.78894E+00 0.71903E+00  
 0.61166E+00 0.90288E+00 0.82684E+00 0.45500E+00 0.59505E+00 0.27878E+00 0.15223E+00 0.60562E-01 0.61233E-01 0.65550E-02  
 0.98843E-02 0.90190E-03 0.90283E-03 0.10019E-03 0.10894E-03 0.11465E-04 0.11540E-04 0.12266E-05 0.12397E-05 0.12483E-06  
 0.12521E-06 0.11806E-07

E= 0.14000E+02(MEV) LMAX= 17 JMAX= 33/2  
 0.65304E+00 0.75356E+00 0.74165E+00 0.66953E+00 0.67575E+00 0.75998E+00 0.70695E+00 0.75176E+00 0.78952E+00 0.70011E+00  
 0.62635E+00 0.92752E+00 0.78805E+00 0.59433E+00 0.77152E+00 0.46577E+00 0.29238E+00 0.16149E+00 0.13546E+00 0.21432E-01  
 0.36779E-01 0.33507E-02 0.34585E-02 0.43457E-03 0.48950E-03 0.57829E-04 0.58200E-04 0.71475E-05 0.72567E-05 0.84756E-06  
 0.85122E-06 0.94158E-07 0.94302E-07 0.96654E-08

E= 0.16000E+02(MEV) LMAX= 18 JMAX= 35/2  
 0.65515E+00 0.73155E+00 0.71853E+00 0.67432E+00 0.68217E+00 0.73328E+00 0.68514E+00 0.75835E+00 0.78076E+00 0.68625E+00  
 0.64037E+00 0.90432E+00 0.74919E+00 0.68692E+00 0.85953E+00 0.58574E+00 0.44173E+00 0.32500E+00 0.22528E+00 0.58371E-01  
 0.10242E+00 0.95969E-02 0.10976E-01 0.14935E-02 0.16798E-02 0.22062E-03 0.22593E-03 0.31144E-04 0.31716E-04 0.42004E-05  
 0.42259E-05 0.53537E-06 0.53646E-06 0.63388E-07 0.63439E-07 0.69097E-08

E= 0.18000E+02(MEV) LMAX= 19 JMAX= 37/2  
 0.65729E+00 0.71087E+00 0.69748E+00 0.67820E+00 0.68594E+00 0.71083E+00 0.66774E+00 0.75812E+00 0.76701E+00 0.67787E+00  
 0.65381E+00 0.86999E+00 0.71799E+00 0.75289E+00 0.88462E+00 0.63473E+00 0.56525E+00 0.51481E+00 0.31073E+00 0.13560E+00  
 0.21097E+00 0.22962E-01 0.30242E-01 0.42662E-02 0.46138E-02 0.68078E-03 0.72088E-03 0.10884E-03 0.11047E-03 0.16402E-04  
 0.16542E-04 0.23541E-05 0.23606E-05 0.31583E-06 0.31616E-06 0.39158E-07 0.39175E-07 0.44598E-08

E= 0.20000E+02(MEV) LMAX= 20 JMAX= 39/2  
 0.65997E+00 0.69186E+00 0.67861E+00 0.68061E+00 0.68704E+00 0.69174E+00 0.65395E+00 0.75290E+00 0.75080E+00 0.67297E+00  
 0.66531E+00 0.83559E+00 0.69341E+00 0.79774E+00 0.87566E+00 0.65086E+00 0.66028E+00 0.67978E+00 0.38915E+00 0.26565E+00  
 0.34283E+00 0.49021E-01 0.74095E-01 0.10365E-01 0.10915E-01 0.18034E-02 0.19723E-02 0.31928E-03 0.32317E-03 0.53178E-04  
 0.53802E-04 0.84647E-05 0.84961E-05 0.12680E-05 0.12698E-05 0.17634E-06 0.17644E-06 0.22588E-07 0.22594E-07 0.26546E-08

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 234  
(CH.LAGRANGE 1931)

NEUTRON TOTAL CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	2.5480D+01	5.0000D+03	1.7722D+01	1.0000D+04	1.5873D+01
2.0000D+04	1.4518D+01	3.0000D+04	1.3865D+01	4.0000D+04	1.3433D+01
6.0000D+04	1.2688D+01	8.0000D+04	1.2241D+01	1.0000D+05	1.1871D+01
2.0000D+05	1.0544D+01	3.0000D+05	9.5544D+00	4.0000D+05	8.7675D+00
5.0000D+05	8.1405D+00	6.0000D+05	7.6484D+00	8.0000D+05	6.9794D+00
1.0000D+06	6.6417D+00	1.2500D+06	6.5413D+00	1.5000D+06	6.6613D+00
1.7500D+06	6.8848D+00	2.0000D+06	7.1323D+00	2.5000D+06	7.5560D+00
3.0000D+06	7.8166D+00	4.0000D+06	7.8906D+00	5.0000D+06	7.5537D+00
6.0000D+06	7.0324D+00	7.0000D+06	6.5313D+00	8.0000D+06	6.1416D+00
1.0000D+07	5.6908D+00	1.2000D+07	5.5914D+00	1.4000D+07	5.7435D+00
1.6000D+07	5.9333D+00	1.8000D+07	6.2070D+00	2.0000D+07	6.3642D+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 234  
(CH. LAGRANGE 1981)

NEUTRON COMPOUND NUCLEUS FORMATION CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	1.4182D+01	5.0000D+03	6.6382D+00	1.0000D+04	4.9801D+00
2.0000D+04	3.9327D+00	3.0000D+04	3.5425D+00	4.0000D+04	3.3478D+00
6.0000D+04	3.1067D+00	8.0000D+04	3.0325D+00	1.0000D+05	3.0001D+00
2.0000D+05	3.0383D+00	3.0000D+05	3.0560D+00	4.0000D+05	3.0512D+00
5.0000D+05	3.0397D+00	6.0000D+05	3.0316D+00	8.0000D+05	3.0292D+00
1.0000D+06	3.0626D+00	1.2500D+06	3.1456D+00	1.5000D+06	3.2438D+00
1.7500D+06	3.3190D+00	2.0000D+06	3.3506D+00	2.5000D+06	3.3073D+00
3.0000D+06	3.2063D+00	4.0000D+06	3.0321D+00	5.0000D+06	2.9122D+00
6.0000D+06	2.8356D+00	7.0000D+06	2.8186D+00	8.0000D+06	2.8314D+00
1.0000D+07	2.6510D+00	1.2000D+07	2.7795D+00	1.4000D+07	2.7156D+00
1.6000D+07	2.6550D+00	1.8000D+07	2.6035D+00	2.0000D+07	2.5675D+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 234  
(CH. LAGRANGE 1981)

NEUTRON SHAPE ELASTIC SCATTERING CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	1.1298D+01	5.0000D+03	1.1004D+01	1.0000D+04	1.0893D+01
2.0000D+04	1.0586D+01	3.0000D+04	1.0323D+01	4.0000D+04	1.0005D+01
6.0000D+04	9.5797D+00	8.0000D+04	9.2023D+00	1.0000D+05	8.8587D+00
2.0000D+05	7.4656D+00	3.0000D+05	6.4315D+00	4.0000D+05	5.6272D+00
5.0000D+05	4.9913D+00	6.0000D+05	4.4067D+00	8.0000D+05	3.7752D+00
1.0000D+06	3.3532D+00	1.2500D+06	3.1027D+00	1.5000D+06	3.0614D+00
1.7500D+06	3.1569D+00	2.0000D+06	3.3332D+00	2.5000D+06	3.7599D+00
3.0000D+06	4.1170D+00	4.0000D+06	4.4040D+00	5.0000D+06	4.2368D+00
6.0000D+06	3.8301D+00	7.0000D+06	3.3708D+00	8.0000D+06	2.9958D+00
1.0000D+07	2.5669D+00	1.2000D+07	2.5412D+00	1.4000D+07	2.7638D+00
1.6000D+07	3.0765D+00	1.8000D+07	3.3658D+00	2.0000D+07	3.5715D+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 234  
(CH. LAGRANGE 1981)

NEUTRON DIRECT INELASTIC FIRST EXCITED LEVEL

E	S(E)	E	S(E)	E	S(E)
6.00000+04	1.9845D-03	8.00000+04	6.4205D-03	1.00000+05	1.2128D-02
2.00000+05	4.0353D-02	3.00000+05	6.5996D-02	4.00000+05	8.5843D-02
5.00000+05	1.0192D-01	6.00000+05	1.1618D-01	8.00000+05	1.4414D-01
1.00000+06	1.7535D-01	1.25000+06	2.1924D-01	1.50000+06	2.6367D-01
1.75000+06	3.6313D-01	2.00000+06	3.3415D-01	2.50000+06	3.6773D-01
3.00000+06	3.7143D-01	4.00000+06	3.4072D-01	5.00000+06	3.0175D-01
6.00000+06	2.7332D-01	7.00000+06	2.5725D-01	8.00000+06	2.4214D-01
1.00000+07	2.1705D-01	1.20000+07	2.1944D-01	1.40000+07	2.1698D-01
1.60000+07	2.0922D-01	1.80000+07	1.9965D-01	2.00000+07	1.9117D-01

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 234  
(CH. LAGRANGE 1981)

NEUTRON DIRECT INELASTIC SECOND EXCITED LEVEL

E	S(E)	E	S(E)	E	S(E)
2.00000+05	5.64710-05	3.00000+05	9.44490-04	4.00000+05	3.32750-03
5.00000+05	7.62570-03	6.00000+05	1.38840-02	8.00000+05	3.08180-02
1.00000+06	5.05180-02	1.25000+06	7.37390-02	1.50000+06	9.24090-02
1.75000+06	1.05800-01	2.00000+06	1.14300-01	2.50000+06	1.21040-01
3.00000+06	1.21020-01	4.00000+06	1.13850-01	5.00000+06	1.02990-01
6.00000+06	9.34360-02	7.00000+06	8.46360-02	8.00000+06	7.22830-02
1.00000+07	5.50470-02	1.20000+07	5.12630-02	1.40000+07	4.71220-02
1.60000+07	4.25200-02	1.80000+07	3.80330-02	2.00000+07	3.40720-02



RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 234  
(CH,LAGRANGE 1981)

LEGENRE COEFFICIENTS FOR S.P.PE ELASTIC  
THE LEGENRE COEFFICIENTS ARE IN THE ORDER 1,2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.0000E+03	LMAX= 3	9.8060D-04	1.9543D-06	2.6472D-07	0.0	0.0	0.0
ELAB= 5.0000E+03	LMAX= 3	5.1873D-03	2.5899D-05	-3.6014D-07	0.0	0.0	0.0
ELAB= 1.0000E+04	LMAX= 3	1.0740D-02	1.0541D-04	1.0746D-06	0.0	0.0	0.0
ELAB= 2.0000E+04	LMAX= 3	2.2325D-02	4.2658D-04	3.4810D-06	0.0	0.0	0.0
ELAB= 3.0000E+04	LMAX= 3	3.4204D-02	9.5033D-04	1.2685D-05	0.0	0.0	0.0
ELAB= 4.0000E+04	LMAX= 3	4.6176D-02	1.6947D-03	2.9356D-05	0.0	0.0	0.0
ELAB= 6.0000E+04	LMAX= 3	6.6519D-02	3.5785D-03	9.1949D-05	0.0	0.0	0.0
ELAB= 8.0000E+04	LMAX= 3	8.8618D-02	6.2400D-03	2.1625D-04	0.0	0.0	0.0
ELAB= 1.0000E+05	LMAX= 3	1.1004D-01	9.5369D-03	4.1500D-04	0.0	0.0	0.0
ELAB= 2.0000E+05	LMAX= 3	2.0583D-01	3.3535D-02	3.0115D-03	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	2.8341D-01	6.3764D-02	9.7392D-03	1.0282D-03	-7.1757D-06	0.0
ELAB= 4.0000E+05	LMAX= 5	3.4582D-01	9.6506D-02	2.1306D-02	3.0202D-03	-2.1909D-05	0.0
ELAB= 5.0000E+05	LMAX= 5	3.9620D-01	1.2861D-01	3.8273D-02	6.8346D-03	-3.6584D-05	0.0
ELAB= 6.0000E+05	LMAX= 6	4.3683D-01	1.5890D-01	6.0633D-02	1.3093D-02	2.6698D-05	8.2806D-05
ELAB= 8.0000E+05	LMAX= 6	4.9488D-01	2.1384D-01	1.1894D-01	3.4739D-02	8.9332D-04	4.9231D-04
ELAB= 1.0000E+06	LMAX= 8	5.3036D-01	2.6489D-01	1.8732D-01	6.9755D-02	4.5584D-03	1.9011D-03
		1.4750D-04	1.4851D-05	0.0	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 234  
(CH. LAGRANGE 1961)

LEGENRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENRE COEFFICIENTS ARE IN THE ORDER 1,2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.2500E+06	LMAX= 8	5.5961D-01	3.2953D-01	2.6899D-01	1.2857D-01	1.7480D-02	6.4012D-03
		6.6216D-04	8.0765D-05	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 8	5.8940D-01	3.9513D-01	3.3175D-01	1.9306D-01	4.2715D-02	1.5212D-02
		2.0182D-03	2.9830D-04	0.0	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	6.2666D-01	4.5554D-01	3.7366D-01	2.5073D-01	7.7737D-02	2.8226D-02
		4.5675D-03	7.6514D-04	8.6026D-05	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	6.6775D-01	5.0569D-01	4.0170D-01	2.9528D-01	1.1605D-01	4.4062D-02
		8.6043D-03	1.6560D-03	2.1597D-04	0.0	0.0	0.0
ELAB= 2.5000E+06	LMAX= 11	7.4100D-01	5.7831D-01	4.4352D-01	3.5037D-01	1.8366D-01	7.8682D-02
		2.0951D-02	5.0577D-03	8.7406D-04	1.1165D-04	1.2545D-05	0.0
ELAB= 3.0000E+06	LMAX= 12	7.9166D-01	6.2817D-01	4.8244D-01	3.8310D-01	2.3245D-01	1.1190D-01
		3.7851D-02	1.1404D-02	2.4938D-03	3.8452D-04	5.2732D-05	5.2435D-06
ELAB= 4.0000E+06	LMAX= 14	8.4313D-01	6.9506D-01	5.5350D-01	4.3377D-01	2.9777D-01	1.6764D-01
		7.7916D-02	3.3376D-02	1.0682D-02	2.4286D-03	4.6362D-04	6.9813D-05
		6.8689D-06	3.4333D-07	0.0	0.0	0.0	0.0
ELAB= 5.0000E+06	LMAX= 15	8.6032D-01	7.2969D-01	6.0237D-01	4.7566D-01	3.4521D-01	2.1278D-01
		1.1672D-01	6.3552D-02	2.7675D-02	8.6152D-03	2.1013D-03	4.2306D-04
		6.5925D-05	9.9325D-06	1.0205D-06	0.0	0.0	0.0
ELAB= 6.0000E+06	LMAX= 15	8.6223D-01	7.4130D-01	6.2900D-01	5.0828D-01	3.8235D-01	2.5442D-01
		1.5333D-01	9.7649D-02	5.4344D-02	2.1874D-02	6.7884D-03	1.7449D-03
		3.4861D-04	7.9055D-05	1.1748D-05	0.0	0.0	0.0
ELAB= 7.0000E+06	LMAX= 16	8.5818D-01	7.4107D-01	6.4191D-01	5.3347D-01	4.1539D-01	2.9750D-01
		1.9467D-01	1.3628D-01	9.0710D-02	4.5443D-02	1.7655D-02	5.5364D-03
		1.3398D-03	3.0515D-04	6.2142D-05	1.0719D-05	0.0	0.0
ELAB= 8.0000E+06	LMAX= 17	8.5183D-01	7.3276D-01	6.4139D-01	5.4679D-01	4.4237D-01	3.3742D-01
		2.3954D-01	1.7752D-01	1.3330D-01	8.0189D-02	3.7583D-02	1.3942D-02
		3.9835D-03	1.0591D-03	2.4466D-04	5.2764D-05	1.0412D-05	0.0



RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 234  
(CH.LAGRANGE 1901)

( LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 6.0000E+04	LMAX= 3	2.8163D-01	4.1828D-02	-1.4937D-03	0.0	0.0	0.0
ELAB= 8.0000E+04	LMAX= 3	2.6176D-01	4.1358D-02	-2.8120D-03	0.0	0.0	0.0
ELAB= 1.0000E+05	LMAX= 3	2.5535D-01	3.9309D-02	-4.1050D-03	0.0	0.0	0.0
ELAB= 2.0000E+05	LMAX= 3	2.6328D-01	2.8776D-02	-1.1496D-02	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	2.4005D-01	-8.8911D-03	-2.0510D-02	3.2715D-03	-1.4433D-04	0.0
ELAB= 4.0000E+05	LMAX= 5	2.2033D-01	-2.8530D-02	-2.8273D-02	6.3491D-03	-3.4460D-04	0.0
ELAB= 5.0000E+05	LMAX= 5	1.9877D-01	-4.4401D-02	-3.5535D-02	1.0011D-02	-6.2357D-04	0.0
ELAB= 6.0000E+05	LMAX= 6	1.7596D-01	-5.6994D-02	-4.0053D-02	1.0985D-02	-1.0308D-03	5.2734D-04
ELAB= 8.0000E+05	LMAX= 6	1.3221D-01	-6.9231D-02	-5.1629D-02	1.1943D-02	-1.3177D-03	1.7949D-03
ELAB= 1.0000E+06	LMAX= 8	9.6281D-02	-6.9839D-02	-5.8745D-02	6.7128D-03	1.5852D-04	3.5462D-03
		-2.5658D-04	6.1336D-05	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	6.7919D-02	-6.3196D-02	-6.1535D-02	-5.8615D-03	3.1851D-03	7.4606D-03
		-6.3261D-04	2.2712D-04	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 8	5.4466D-02	-5.5095D-02	-6.0694D-02	-1.9917D-02	8.0611D-03	1.0860D-02
		-1.1846D-03	5.9983D-04	0.0	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	5.1449D-02	-4.6511D-02	-5.8247D-02	-3.0492D-02	1.4320D-02	1.2473D-02
		-1.2566D-03	1.4417D-03	-1.2052D-04	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	5.7411D-02	-3.6448D-02	-5.4481D-02	-3.3354D-02	2.2337D-02	1.2347D-02
		-1.1497D-03	2.6184D-03	-2.6227D-04	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 234  
(CH.LACRAIGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 2.5000E+06	LMAX= 11	9.0574D-02	-7.1975D-03	-3.6116D-02	-1.9409D-02	3.9423D-02	6.3410D-03
		1.1981D-03	5.5194D-03	-7.4221D-04	3.0996D-04	-9.2011D-06	0.0
ELAB= 3.0000E+06	LMAX= 12	1.3424D-01	2.6759D-02	-5.0202D-03	4.2147D-03	5.4280D-02	-2.5966D-03
		5.1321D-03	7.8609D-03	-1.2295D-03	1.3009D-03	-4.1186D-05	2.4885D-05
ELAB= 4.0000E+06	LMAX= 14	1.9409D-01	7.1307D-02	4.2482D-02	3.2928D-02	6.8366D-02	-1.2407D-02
		1.4971D-03	1.4883D-03	4.7605D-05	6.3060D-03	-3.8894D-04	3.2346D-04
		1.7154D-05	3.0065D-06	0.0	0.0	0.0	0.0
ELAB= 5.0000E+06	LMAX= 15	2.2168D-01	8.3077D-02	3.6558D-02	3.3790D-02	5.0579D-02	-1.1621D-02
		-1.9695D-02	-2.3013D-02	6.6046D-03	1.3944D-02	-1.7773D-03	1.9288D-03
		8.5994D-05	4.1885D-05	6.4862D-06	0.0	0.0	0.0
ELAB= 6.0000E+06	LMAX= 15	2.4730D-01	8.0358D-02	8.3906D-03	1.5553D-02	1.4057D-02	-1.9628D-02
		-3.7498D-02	-4.2780D-02	1.4540D-02	1.3416D-02	-3.5971D-03	6.3983D-03
		2.0029D-04	2.2956D-04	4.1463D-05	0.0	0.0	0.0
ELAB= 7.0000E+06	LMAX= 16	2.7118D-01	7.8523D-02	-5.2621D-03	1.7537D-04	-8.1596D-03	-2.5839D-02
		-3.5291D-02	-4.5132D-02	1.0620D-02	-7.0683D-04	-2.6783D-03	1.3201D-02
		1.4929D-04	7.5569D-04	1.9364D-04	3.2253D-05	0.0	0.0
ELAB= 8.0000E+06	LMAX= 17	2.8710D-01	8.0644D-02	-6.3298D-03	-7.3199D-03	-1.6987D-02	-2.9016D-02
		-3.0872D-02	-4.6111D-02	-2.6181D-03	-1.5398D-02	2.3371D-03	1.9033D-02
		-3.5758D-04	1.9063D-03	5.9713D-04	1.2438D-04	3.5148D-05	0.0
ELAB= 1.0000E+07	LMAX= 18	3.4222D-01	1.1832D-01	9.4768D-03	-9.2095D-03	-2.5571D-02	-4.0371D-02
		-3.7391D-02	-5.4263D-02	-1.8701D-02	-1.4563D-02	1.2313D-02	1.5391D-02
		-1.2553D-03	7.7809D-03	3.4224D-03	8.9967D-04	4.2133D-04	8.1455D-05
ELAB= 1.2000E+07	LMAX= 20	3.9684D-01	1.6991D-01	3.7432D-02	1.4852D-02	-1.3825D-02	-2.8844D-02
		-2.9891D-02	-3.9944D-02	-1.6080D-02	-5.6934D-03	9.5231D-03	-1.1508D-03
		-1.6858D-03	1.5895D-02	8.0777D-03	2.9038D-03	1.9851D-03	4.5825D-04
		1.7736D-04	3.9906D-05	0.0	0.0	0.0	0.0
ELAB= 1.4000E+07	LMAX= 21	4.4321D-01	2.1570D-01	7.4473D-02	4.7771D-02	1.1935D-02	-1.6261D-03
		-1.0843D-02	-1.8019D-02	-6.5063D-03	-1.1178D-03	1.2260D-02	-2.8442D-03
		1.1799D-03	1.6726D-02	9.3019D-03	6.4867D-03	6.1455D-03	1.5948D-03
		8.4951D-04	2.5378D-04	6.9722D-05	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 234  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.6000E+07	LMAX= 22						
		4.8040D-01	2.5233D-01	1.0663D-01	7.4098D-02	4.0683D-02	2.8854D-02
		1.8427D-02	9.3203D-03	1.4986D-02	1.1913D-02	2.2645D-02	6.6748D-03
		2.1450D-04	4.1744D-03	3.2380D-03	1.0845D-02	1.2146D-02	3.8290D-03
		2.9249D-03	8.9973D-04	3.4705D-04	9.0555D-05	0.0	0.0
ELAB= 1.8000E+07	LMAX= 23						
		5.1074D-01	2.7912D-01	1.2865D-01	8.7172D-02	5.6355D-02	4.6052D-02
		3.8980D-02	2.8849D-02	3.1338D-02	2.2310D-02	2.5832D-02	1.0101D-02
		-3.6014D-03	-9.1708D-03	-5.1102D-03	1.1490D-02	1.4440D-02	6.7230D-03
		6.9794D-03	2.2869D-03	1.0375D-03	3.6590D-04	1.0805D-04	0.0
ELAB= 2.0000E+07	LMAX= 24						
		5.3610D-01	2.9891D-01	1.4786D-01	9.5987D-02	6.3971D-02	5.2932D-02
		4.7940D-02	3.8645D-02	3.8844D-02	2.8036D-02	2.5765D-02	1.1349D-02
		-2.8435D-03	-1.2148D-02	-1.0644D-02	4.4221D-03	9.5729D-03	9.8365D-03
		1.2234D-02	4.4927D-03	2.6304D-03	1.0039D-03	4.1516D-04	1.2280D-04

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 234  
(CH.LAGRANGE 1981)

LEGENRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 2.0000E+05	LMAX= 3	2.9592D-01	1.3149D-01	1.4701D-02	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	4.4692D-01	2.1872D-01	1.9099D-02	1.2433D-03	-2.0585D-04	0.0
ELAB= 4.0000E+05	LMAX= 5	4.7589D-01	2.1787D-01	1.6338D-02	-3.1219D-05	-2.8311D-04	0.0
ELAB= 5.0000E+05	LMAX= 5	4.8214D-01	2.0681D-01	1.1874D-02	-1.4567D-03	-3.0276D-04	0.0
ELAB= 6.0000E+05	LMAX= 6	4.8244D-01	1.8614D-01	3.4574D-03	-3.8259D-03	-2.2565D-04	1.0989D-04
ELAB= 8.0000E+05	LMAX= 6	4.6066D-01	1.4480D-01	-1.1118D-02	-5.9056D-03	3.1793D-04	1.8792D-04
ELAB= 1.0000E+06	LMAX= 8	4.3217D-01	9.4653D-02	-2.8511D-02	-7.0667D-03	2.2320D-03	1.6110D-04
		-1.0747D-04	1.1196D-05	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	3.9080D-01	3.3136D-02	-4.1474D-02	-3.3009D-03	4.2392D-03	-1.2165D-04
		-2.0454D-04	3.6877D-05	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 8	3.5038D-01	-1.7362D-02	-4.4009D-02	4.7974D-03	5.8830D-03	-8.2158D-04
		-2.9662D-04	8.1875D-05	0.0	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	3.1800D-01	-4.7247D-02	-3.3189D-02	1.6181D-02	6.0745D-03	-2.0060D-03
		-1.0100D-04	1.5334D-04	-4.5379D-05	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	2.9748D-01	-5.6708D-02	-1.5418D-02	2.6089D-02	4.4126D-03	-3.1211D-03
		2.2479D-04	2.0477D-04	-8.9196D-05	0.0	0.0	0.0
ELAB= 2.5000E+06	LMAX= 11	2.8097D-01	-4.5011D-02	2.1349D-02	3.5308D-02	-2.6581D-03	-3.9190D-03
		1.4361D-03	-9.4901D-05	-2.4656D-04	7.7010D-05	-5.1214D-06	0.0
ELAB= 3.0000E+06	LMAX= 12	2.7711D-01	-2.6546D-02	4.0782D-02	2.9097D-02	-9.2217D-03	-1.0942D-03
		2.3810D-03	-1.3388D-03	-3.8561D-04	2.3971D-04	-2.1510D-05	8.0455D-06

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 234  
(CH. LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 4.0000E+06	LMAX= 14	2.7549D-01	4.7037D-04	4.2378D-02	1.3569D-03	-7.8798D-03	6.4912D-03
		-3.4243D-03	-5.1257D-03	7.0037D-04	6.5730D-04	-1.9395D-04	9.4877D-05
		2.1671D-06	1.3326D-06	0.0	0.0	0.0	0.0
ELAB= 5.0000E+06	LMAX= 15	2.7036D-01	1.7964D-02	3.2313D-02	-2.5612D-02	-5.2428D-03	-3.6209D-03
		-1.5606D-02	1.0693D-03	4.3469D-03	-1.0237D-03	-5.6231D-04	5.1447D-04
		-8.6123D-06	1.3773D-05	1.8632D-06	0.0	0.0	0.0
ELAB= 6.0000E+06	LMAX= 15	2.6063D-01	3.7064D-02	2.9335D-02	-3.9870D-02	-2.9318D-03	-1.6237D-02
		-1.7653D-02	2.1033D-02	6.2491D-03	-6.7007D-03	-3.4341D-04	1.3532D-03
		-1.3108D-04	6.5696D-05	7.0354D-06	0.0	0.0	0.0
ELAB= 7.0000E+06	LMAX= 16	2.5701D-01	6.3323D-02	3.6958D-02	-3.1414D-02	8.6457D-03	-1.3421D-02
		-1.0258D-02	3.1880D-02	7.1413D-04	-1.1401D-02	2.3155D-03	1.5775D-03
		-1.4256D-04	-2.9776D-04	5.4209D-04	-2.4479D-04	0.0	0.0
ELAB= 8.0000E+06	LMAX= 17	2.7143D-01	9.1930D-02	4.3005D-02	-1.9828D-02	1.6760D-02	-1.0786D-02
		-6.5409D-03	2.2693D-02	-8.1238D-03	-7.1227D-03	6.5003D-03	1.1647D-03
		-1.3503D-03	3.3484D-04	4.9971D-05	2.9525D-05	1.0735D-05	0.0
ELAB= 1.0000E+07	LMAX= 18	3.2835D-01	1.4401D-01	5.2146D-02	-4.8594D-03	1.6828D-02	-1.5582D-02
		-3.8463D-03	6.3435D-03	-3.2009D-03	1.7073D-02	1.0875D-02	-5.4074D-03
		-3.0576D-03	7.3422D-04	3.1347D-05	1.3433D-04	1.3005D-04	2.4520D-05
ELAB= 1.2000E+07	LMAX= 20	3.6065D-01	1.6993D-01	6.6870D-02	7.3066D-03	2.1972D-02	-1.2728D-02
		8.3839D-03	7.9820D-03	6.3368D-03	2.2590D-02	2.9178D-03	-7.4405D-03
		2.9378D-04	4.8986D-04	-1.4416D-03	1.1765D-04	4.8929D-04	8.7021D-05
		7.6691D-05	1.8504D-05	0.0	0.0	0.0	0.0
ELAB= 1.4000E+07	LMAX= 21	3.8997D-01	2.0422D-01	9.1529D-02	2.1609D-02	2.8899D-02	-9.9436D-03
		1.2219D-02	4.2646D-03	5.7877D-03	1.7876D-02	1.3085D-03	3.6957D-03
		7.3631D-03	-3.3553D-03	-5.7973D-03	-8.8771D-05	9.1535D-04	1.1425D-04
		3.4247D-04	1.1119D-04	3.9446D-05	0.0	0.0	0.0
ELAB= 1.6000E+07	LMAX= 22	4.2393D-01	2.4505D-01	1.1580D-01	3.7981D-02	3.5684D-02	-5.3644D-03
		1.2526D-02	2.1060D-03	5.3631D-03	1.5538D-02	4.7610D-03	1.0962D-02
		9.2982D-03	-7.7760D-03	-9.0970D-03	-5.3059D-04	-3.7744D-04	-2.8394D-04
		1.0362D-03	3.0760D-04	1.8335D-04	5.1019D-05	0.0	0.0



RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 234  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.8000E+07 LMAX= 23  
4.4985D-01 2.7639D-01 1.3650D-01 5.6620D-02 4.1910D-02 -9.3974D-05  
1.0665D-02 -2.0015D-03 9.9069D-04 6.8073D-03 6.4063D-04 4.8966D-03  
5.4125D-03 -5.1464D-03 -4.3872D-03 -1.1920D-03 -5.3222D-03 -1.3696D-03  
1.9658D-03 4.4675D-04 4.6005D-04 1.8202D-04 6.6790D-05 0.0

ELAB= 2.0000E+07 LMAX= 24  
4.7027D-01 2.9555D-01 1.5456D-01 7.6999D-02 5.1114D-02 9.9301D-03  
1.2297D-02 -3.5882D-03 -2.0439D-03 -1.8331D-03 -3.9086D-03 -8.7690D-04  
2.2138D-03 1.2959D-03 3.5844D-03 -3.5838D-03 -1.1323D-02 -1.9390D-03  
1.9998D-03 1.4935D-05 9.3321D-04 4.0687D-04 2.4787D-04 8.1632D-05

NEUTRON TRANSMISSION COEFFICIENTS FOR URANIUM 234.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

	E= 0.10000E-02(MEV)	LMAX= 3	JMAX= 5/2						
0.21084E-01	0.86323E-04	0.11918E-03	0.43518E-07	0.26950E-07	0.41947E-11				
	E= 0.50000E-02(MEV)	LMAX= 3	JMAX= 5/2						
0.46497E-01	0.95751E-03	0.13211E-02	0.24163E-05	0.14987E-05	0.11707E-08				
	E= 0.10000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.65056E-01	0.26910E-02	0.36957E-02	0.13553E-04	0.84230E-05	0.13219E-07				
	E= 0.20000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.90580E-01	0.74285E-02	0.10219E-01	0.75365E-04	0.47025E-04	0.14899E-06				
	E= 0.30000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.10958E+00	0.13366E-01	0.18346E-01	0.20412E-03	0.12788E-03	0.61353E-06				
	E= 0.40000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.12520E+00	0.20152E-01	0.27596E-01	0.41179E-03	0.25903E-03	0.16730E-05				
	E= 0.60000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.15052E+00	0.34531E-01	0.46038E-01	0.10739E-02	0.70284E-03	0.64978E-05				
	E= 0.80000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.17124E+00	0.50983E-01	0.67745E-01	0.21288E-02	0.14057E-02	0.17637E-04				
	E= 1.10000E+00(MEV)	LMAX= 3	JMAX= 5/2						
0.18893E+00	0.68376E-01	0.90566E-01	0.35897E-02	0.23918E-02	0.38221E-04				
	E= 0.20000E+00(MEV)	LMAX= 3	JMAX= 5/2						
0.25479E+00	0.16317E+00	0.21398E+00	0.17066E-01	0.11982E-01	0.44688E-03				
	E= 0.30000E+00(MEV)	LMAX= 4	JMAX= 7/2						
0.30035E+00	0.25205E+00	0.32592E+00	0.39157E-01	0.28800E-01	0.18306E-02	0.23623E-02	0.32591E-04		
	E= 0.40000E+00(MEV)	LMAX= 4	JMAX= 7/2						
0.33626E+00	0.33176E+00	0.42263E+00	0.67022E-01	0.51502E-01	0.49318E-02	0.63432E-02	0.11266E-03		
	E= 0.50000E+00(MEV)	LMAX= 4	JMAX= 7/2						
0.36619E+00	0.40180E+00	0.50404E+00	0.98034E-01	0.78395E-01	0.10554E-01	0.13556E-01	0.29181E-03		
	E= 0.60000E+00(MEV)	LMAX= 5	JMAX= 9/2						
0.39189E+00	0.46270E+00	0.57148E+00	0.13022E+00	0.10788E+00	0.19514E-01	0.25047E-01	0.62990E-03	0.59554E-03	0.19970E-04
	E= 0.80000E+00(MEV)	LMAX= 5	JMAX= 9/2						
0.43408E+00	0.56001E+00	0.66999E+00	0.19330E+00	0.16957E+00	0.50452E-01	0.64603E-01	0.20819E-02	0.20814E-02	0.95390E-04
	E= 0.10000E+01(MEV)	LMAX= 6	JMAX= 11/2						
0.46695E+00	0.62938E+00	0.72837E+00	0.25066E+00	0.22923E+00	0.10237E+00	0.13023E+00	0.51577E-02	0.54127E-02	0.31996E-03
0.66080E-03	0.74511E-05								



NEUTRON TRANSMISSION COEFFICIENTS FOR URANIUM 234.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

E= 0.12000E+02(MEV) LMAX= 16 JMAX= 31/2  
 0.65761E+00 0.78031E+00 0.76954E+00 0.67143E+00 0.67579E+00 0.79173E+00 0.73371E+00 0.74790E+00 0.79999E+00 0.71482E+00  
 0.61621E+00 0.90937E+00 0.81762E+00 0.46728E+00 0.61142E+00 0.28238E+00 0.15887E+00 0.63593E-01 0.61734E-01 0.69453E-02  
 0.10606E-01 0.95753E-03 0.95729E-03 0.10651E-03 0.11635E-03 0.12216E-04 0.12287E-04 0.13062E-05 0.13207E-05 0.13290E-06  
 0.13333E-06 0.12571E-07

E= 0.14000E+02(MEV) LMAX= 17 JMAX= 33/2  
 0.66007E+00 0.75685E+00 0.74423E+00 0.67742E+00 0.68496E+00 0.76044E+00 0.70732E+00 0.76292E+00 0.79837E+00 0.69833E+00  
 0.63260E+00 0.92835E+00 0.78045E+00 0.60703E+00 0.78546E+00 0.46501E+00 0.30419E+00 0.16727E+00 0.13538E+00 0.22773E-01  
 0.39006E-01 0.35354E-02 0.36853E-02 0.46284E-03 0.52122E-03 0.61571E-04 0.62028E-04 0.76123E-05 0.77313E-05 0.90238E-06  
 0.90643E-06 0.10024E-06 0.10040E-06 0.10290E-07

E= 0.16000E+02(MEV) LMAX= 18 JMAX= 35/2  
 0.66280E+00 0.73447E+00 0.72099E+00 0.68276E+00 0.69137E+00 0.73435E+00 0.68660E+00 0.76826E+00 0.78784E+00 0.68700E+00  
 0.64820E+00 0.90324E+00 0.74415E+00 0.70093E+00 0.86908E+00 0.58018E+00 0.45601E+00 0.33289E+00 0.22452E+00 0.62053E-01  
 0.10610E+00 0.10097E-01 0.11736E-01 0.15914E-02 0.17769E-02 0.23451E-03 0.24096E-03 0.33172E-04 0.33764E-04 0.44723E-05  
 0.45005E-05 0.56996E-06 0.57116E-06 0.67483E-07 0.67540E-07 0.73565E-08

E= 0.18000E+02(MEV) LMAX= 19 JMAX= 37/2  
 0.66532E+00 0.71368E+00 0.70001E+00 0.68684E+00 0.69485E+00 0.71250E+00 0.67014E+00 0.76674E+00 0.77278E+00 0.68068E+00  
 0.66262E+00 0.86863E+00 0.71519E+00 0.76781E+00 0.89014E+00 0.62907E+00 0.58092E+00 0.52277E+00 0.31164E+00 0.14350E+00  
 0.21396E+00 0.24197E-01 0.32388E-01 0.45385E-02 0.48629E-02 0.72333E-03 0.76906E-03 0.11590E-03 0.11749E-03 0.17465E-04  
 0.17620E-04 0.25062E-05 0.25134E-05 0.33623E-06 0.33660E-06 0.41689E-07 0.41708E-07 0.47404E-08

E= 0.20000E+02(MEV) LMAX= 20 JMAX= 39/2  
 0.66713E+00 0.69472E+00 0.68137E+00 0.68916E+00 0.69548E+00 0.69399E+00 0.65724E+00 0.76034E+00 0.75562E+00 0.67734E+00  
 0.67455E+00 0.83438E+00 0.69238E+00 0.81146E+00 0.87840E+00 0.64789E+00 0.67628E+00 0.68502E+00 0.39330E+00 0.27822E+00  
 0.34420E+00 0.51802E-01 0.79210E-01 0.10982E-01 0.11546E-01 0.19175E-02 0.21027E-02 0.33975E-03 0.34391E-03 0.56624E-04  
 0.57310E-04 0.90117E-05 0.90464E-05 0.13499E-05 0.13519E-05 0.18774E-06 0.18785E-06 0.24049E-07 0.24055E-07 0.28265E-08

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 238  
(CH.LAGRANGE 1981)

NEUTRON TOTAL CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.00000+03	2.49140+01	5.00000+03	1.74520+01	1.00000+04	1.57010+01
2.00000+04	1.44410+01	3.00000+04	1.38480+01	4.00000+04	1.34600+01
6.00000+04	1.29250+01	8.00000+04	1.25290+01	1.00000+05	1.21980+01
2.00000+05	1.06470+01	3.00000+05	9.68990+00	4.00000+05	8.91100+00
5.00000+05	8.28140+00	6.00000+05	7.78250+00	8.00000+05	7.09840+00
1.00000+06	6.75150+00	1.25000+06	6.64930+00	1.50000+06	6.77170+00
1.75000+06	6.99460+00	2.00000+06	7.23720+00	2.50000+06	7.64710+00
3.00000+06	7.89800+00	4.00000+06	7.97020+00	5.00000+06	7.58330+00
6.00000+06	7.08090+00	7.00000+06	6.59490+00	8.00000+06	6.20450+00
1.00000+07	5.75430+00	1.20000+07	5.65200+00	1.40000+07	5.79510+00
1.60000+07	6.02980+00	1.80000+07	6.25570+00	2.00000+07	6.41780+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 238  
(CH. LAGRANGE 1981)

NEUTRON COMPOUND NUCLEUS FORMATION CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.00000+03	1.37890+01	5.00000+03	6.53160+00	1.00000+04	4.96410+00
2.00000+04	4.00310+00	3.00000+04	3.66460+00	4.00000+04	3.50760+00
6.00000+04	3.38420+00	8.00000+04	3.35220+00	1.00000+05	3.35010+00
2.00000+05	3.13610+00	3.00000+05	3.16290+00	4.00000+05	3.15350+00
5.00000+05	3.13410+00	6.00000+05	3.11880+00	8.00000+05	3.10790+00
1.00000+06	3.14230+00	1.25000+06	3.23370+00	1.50000+06	3.33690+00
1.75000+06	3.40630+00	2.00000+06	3.42360+00	2.50000+06	3.34700+00
3.00000+06	3.22250+00	4.00000+06	3.02690+00	5.00000+06	2.90290+00
6.00000+06	2.83830+00	7.00000+06	2.83080+00	8.00000+06	2.84700+00
1.00000+07	2.86630+00	1.20000+07	2.79240+00	1.40000+07	2.72420+00
1.60000+07	2.66200+00	1.80000+07	2.61140+00	2.00000+07	2.57600+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 238  
(CH. LAGRANGE 1981)

NEUTRON SHAPE ELASTIC SCATTERING CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	1.1127D+01	5.0000D+03	1.0920D+01	1.0000D+04	1.0736D+01
2.0000D+04	1.0438D+01	3.0000D+04	1.0183D+01	4.0000D+04	9.9522D+00
6.0000D+04	9.5392D+00	8.0000D+04	9.1716D+00	1.0000D+05	8.8375D+00
2.0000D+05	7.4692D+00	3.0000D+05	6.4580D+00	4.0000D+05	5.6653D+00
5.0000D+05	5.0333D+00	6.0000D+05	4.5272D+00	8.0000D+05	3.8035D+00
1.0000D+06	3.3645D+00	1.2500D+06	3.0965D+00	1.5000D+06	3.0486D+00
1.7500D+06	3.1487D+00	2.0000D+06	3.3365D+00	2.5000D+06	3.7905D+00
3.0000D+06	4.1697D+00	4.0000D+06	4.4841D+00	5.0000D+06	4.2489D+00
6.0000D+06	3.8536D+00	7.0000D+06	3.4025D+00	8.0000D+06	3.0192D+00
1.0000D+07	2.5946D+00	1.2000D+07	2.5677D+00	1.4000D+07	2.7875D+00
1.6000D+07	3.0991D+00	1.8000D+07	3.3914D+00	2.0000D+07	3.6021D+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 238  
(CH.LAGRANGE 1981)

NEUTRON DIRECT INELASTIC FIRST EXCITED LEVEL

E	S(E)	E	S(E)	E	S(E)
6.0000D+04	1.6101D-03	8.0000D+04	5.5082D-03	1.0000D+05	1.0580D-02
2.0000D+05	4.1398D-02	3.0000D+05	6.7926D-02	4.0000D+05	8.8526D-02
5.0000D+05	1.0556D-01	6.0000D+05	1.2123D-01	8.0000D+05	1.5347D-01
1.0000D+06	1.9018D-01	1.2500D+06	2.4039D-01	1.5000D+06	2.8878D-01
1.7500D+06	3.2944D-01	2.0000D+06	3.5936D-01	2.5000D+06	3.8685D-01
3.0000D+06	3.8388D-01	4.0000D+06	3.4495D-01	5.0000D+06	3.2963D-01
6.0000D+06	2.9745D-01	7.0000D+06	2.7962D-01	8.0000D+06	2.6674D-01
1.0000D+07	2.3971D-01	1.2000D+07	2.4256D-01	1.4000D+07	2.3873D-01
1.6000D+07	2.2902D-01	1.8000D+07	2.1801D-01	2.0000D+07	2.0886D-01



RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 238  
(CH. LAGRANGE 1981)

NEUTRON DIRECT INELASTIC SECOND EXCITED LEVEL

E	S(E)	E	S(E)	E	S(E)
2.0000D+05	5.4332D-05	3.0000D+05	1.0127D-03	4.0000D+05	3.6224D-03
5.0000D+05	8.3375D-03	6.0000D+05	1.5185D-02	8.0000D+05	3.3538D-02
1.0000D+06	5.4501D-02	1.2500D+06	7.8615D-02	1.5000D+06	9.7382D-02
1.7500D+06	1.1021D-01	2.0000D+06	1.1778D-01	2.5000D+06	1.2280D-01
3.0000D+06	1.2201D-01	4.0000D+06	1.1426D-01	5.0000D+06	1.0189D-01
6.0000D+06	9.1587D-02	7.0000D+06	8.2038D-02	8.0000D+06	7.1504D-02
1.0000D+07	5.3645D-02	1.2000D+07	4.9433D-02	1.4000D+07	4.4683D-02
1.6000D+07	3.9622D-02	1.8000D+07	3.4888D-02	2.0000D+07	3.0901D-02

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 238  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.0000E+03	LMAX= 3	8.7301D-04	9.9217D-07	3.8838D-07	0.0	0.0	0.0
ELAB= 5.0000E+03	LMAX= 3	4.7203D-03	2.5275D-05	-5.5436D-07	0.0	0.0	0.0
ELAB= 1.0000E+04	LMAX= 3	9.9194D-03	1.0592D-04	1.2357D-07	0.0	0.0	0.0
ELAB= 2.0000E+04	LMAX= 3	2.1017D-02	4.2520D-04	3.0098D-06	0.0	0.0	0.0
ELAB= 3.0000E+04	LMAX= 3	3.2650D-02	9.5304D-04	1.1582D-05	0.0	0.0	0.0
ELAB= 4.0000E+04	LMAX= 3	4.4565D-02	1.6885D-03	2.6749D-05	0.0	0.0	0.0
ELAB= 6.0000E+04	LMAX= 3	6.8675D-02	3.7454D-03	8.9970D-05	0.0	0.0	0.0
ELAB= 8.0000E+04	LMAX= 3	9.2720D-02	6.5367D-03	2.1298D-04	0.0	0.0	0.0
ELAB= 1.0000E+05	LMAX= 3	1.1636D-01	9.9946D-03	4.1104D-04	0.0	0.0	0.0
ELAB= 2.0000E+05	LMAX= 3	2.0867D-01	3.2936D-02	2.8151D-03	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	2.9012D-01	6.2752D-02	9.2051D-03	9.9384D-04	-9.5676D-06	0.0
ELAB= 4.0000E+05	LMAX= 5	3.5546D-01	9.5144D-02	2.0294D-02	2.9449D-03	-3.1240D-05	0.0
ELAB= 5.0000E+05	LMAX= 5	4.0753D-01	1.2707D-01	3.6725D-02	6.7089D-03	-6.1456D-05	0.0
ELAB= 6.0000E+05	LMAX= 6	4.4871D-01	1.5742D-01	5.8630D-02	1.2948D-02	-1.5011D-05	9.5749D-05
ELAB= 8.0000E+05	LMAX= 6	5.0527D-01	2.1320D-01	1.1672D-01	3.4952D-02	8.5746D-04	5.7038D-04
ELAB= 1.0000E+06	LMAX= 8	5.3757D-01	2.6602D-01	1.8624D-01	7.1390D-02	4.8545D-03	2.2223D-03
		1.7171D-04	1.6612D-05	0.0	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 238  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.2500E+06	LMAX= 8	5.6340D-01	3.3359D-01	2.7936D-01	1.3363D-01	1.9282D-02	7.4701D-03
		7.7417D-04	9.6920D-05	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 8	5.9199D-01	4.0136D-01	3.3464D-01	2.0177D-01	4.7396D-02	1.7561D-02
		2.3275D-03	3.3687D-04	0.0	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	6.2946D-01	4.6178D-01	3.7638D-01	2.6119D-01	8.5538D-02	3.2014D-02
		5.1871D-03	8.7776D-04	9.8741D-05	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	6.7067D-01	5.1033D-01	4.0356D-01	3.0529D-01	1.2591D-01	4.9010D-02
		9.6033D-03	1.8516D-03	2.3674D-04	0.0	0.0	0.0
ELAB= 2.5000E+06	LMAX= 11	7.4256D-01	5.7833D-01	4.4375D-01	3.5683D-01	1.9388D-01	8.4643D-02
		2.2724D-02	5.5291D-03	9.5894D-04	1.2169D-04	1.3926D-05	0.0
ELAB= 3.0000E+06	LMAX= 12	7.9135D-01	6.2580D-01	4.8198D-01	3.8661D-01	2.4075D-01	1.1760D-01
		4.0076D-02	1.1185D-02	2.6858D-03	4.1532D-04	5.8800D-05	6.3762D-06
ELAB= 4.0000E+06	LMAX= 14	8.4090D-01	6.9162D-01	5.5214D-01	4.3439D-01	3.0238D-01	1.7164D-01
		7.9777D-02	3.4441D-02	1.1109D-02	2.5407D-03	4.8645D-04	7.4430D-05
		6.9463D-06	-1.0029D-07	0.0	0.0	0.0	0.0
ELAB= 5.0000E+06	LMAX= 15	8.6043D-01	7.2932D-01	6.0300D-01	4.7693D-01	3.4870D-01	2.1651D-01
		1.1874D-01	6.4651D-02	2.8423D-02	8.9420D-03	2.2068D-03	4.5894D-04
		7.0211D-05	1.8882D-05	1.1434D-06	0.0	0.0	0.0
ELAB= 6.0000E+06	LMAX= 15	8.6289D-01	7.4264D-01	6.3112D-01	5.1085D-01	3.8587D-01	2.5869D-01
		1.5565D-01	9.8770D-02	5.5445D-02	2.2617D-02	7.1607D-03	1.8807D-03
		3.6731D-04	7.3998D-05	1.1738D-05	0.0	0.0	0.0
ELAB= 7.0000E+06	LMAX= 16	8.5961D-01	7.4418D-01	6.4574D-01	5.3750D-01	4.1976D-01	3.0231D-01
		1.9773D-01	1.3737D-01	9.2016D-02	4.6843D-02	1.8578D-02	5.9013D-03
		1.4096D-03	3.3105D-04	7.0046D-05	1.3138D-05	0.0	0.0
ELAB= 8.0000E+06	LMAX= 17	8.5493D-01	7.3765D-01	6.4647D-01	5.5203D-01	4.4782D-01	3.4268D-01
		2.4384D-01	1.7944D-01	1.3492D-01	8.2458D-02	3.9390D-02	1.4697D-02
		4.2217D-03	1.1494D-03	2.6223D-04	5.2609D-05	8.7873D-06	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 238  
(CH. LAGRANGE 1981)

LEGNRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGNRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.0000E+07	LMAX= 18	8.54270-01	7.20860-01	6.24090-01	5.48450-01	4.73350-01	3.96860-01
		3.23480-01	2.61780-01	2.18600-01	1.67980-01	1.05080-01	5.20570-02
		2.08290-02	7.40740-03	2.22700-03	5.79840-04	1.46700-04	2.96010-05
ELAB= 1.2000E+07	LMAX= 20	8.64170-01	7.21800-01	6.12660-01	5.35960-01	4.72640-01	4.17840-01
		3.65730-01	3.18400-01	2.77000-01	2.33530-01	1.71810-01	1.05210-01
		5.37120-02	2.38070-02	8.91790-03	2.87750-03	8.54740-04	2.15580-04
		5.35610-05	1.06230-05	0.0	0.0	0.0	0.0
ELAB= 1.4000E+07	LMAX= 21	8.87380-01	7.57340-01	6.46170-01	5.60210-01	4.92490-01	4.39910-01
		3.93190-01	3.51860-01	3.10890-01	2.68940-01	2.14060-01	1.49190-01
		8.96450-02	4.71440-02	2.12960-02	8.38920-03	2.99600-03	9.02500-04
		2.62030-04	6.77300-05	1.43970-05	0.0	0.0	0.0
ELAB= 1.6000E+07	LMAX= 22	9.09140-01	7.99330-01	6.97060-01	6.08650-01	5.34170-01	4.74170-01
		4.22590-01	3.77590-01	3.33470-01	2.88690-01	2.36900-01	1.76740-01
		1.17290-01	6.98590-02	3.69350-02	1.73270-02	7.26230-03	2.60500-03
		8.91960-04	2.64500-04	8.06500-05	2.02480-05	0.0	0.0
ELAB= 1.8000E+07	LMAX= 23	9.24910-01	8.33360-01	7.44120-01	6.60340-01	5.83080-01	5.15850-01
		4.56830-01	4.04360-01	3.54530-01	3.04980-01	2.52570-01	1.95390-01
		1.37880-01	8.94570-02	5.33590-02	2.88500-02	1.39480-02	5.86370-03
		2.27100-03	7.52310-04	2.37020-04	6.91960-05	1.61150-05	0.0
ELAB= 2.0000E+07	LMAX= 24	9.35330-01	8.57310-01	7.80740-01	7.05100-01	6.29600-01	5.58820-01
		4.93760-01	4.34150-01	3.78070-01	3.23500-01	2.68570-01	2.12300-01
		1.56280-01	1.07570-01	6.99300-02	4.23840-02	2.33170-02	1.13240-02
		4.93910-03	1.87480-03	6.74590-04	2.19560-04	6.99550-05	1.77710-05

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 238  
(CH.LAGRANGE 1981)

LEGENBRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENBRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 6.0000E+04	LMAX= 3	3.1344D-01	4.3516D-02	-1.5214D-03	0.0	0.0	0.0
ELAB= 8.0000E+04	LMAX= 3	2.9256D-01	4.4232D-02	-3.0585D-03	0.0	0.0	0.0
FLAB= 1.0000E+05	LMAX= 3	2.8571D-01	4.2347D-02	-4.5688D-03	0.0	0.0	0.0
ELAB= 2.0000E+05	LMAX= 3	2.6643D-01	2.8575D-02	-1.1529D-02	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	2.4313D-01	-1.0833D-02	-2.1485D-02	3.4455D-03	-1.3320D-04	0.0
ELAB= 4.0000E+05	LMAX= 5	2.2211D-01	-3.1952D-02	-3.0261D-02	6.8105D-03	-3.2154D-04	0.0
ELAB= 5.0000E+05	LMAX= 5	1.9794D-01	-4.9112D-02	-3.8518D-02	1.0881D-02	-5.7654D-04	0.0
ELAB= 6.0000E+05	LMAX= 6	1.7204D-01	-6.2095D-02	-4.3397D-02	1.2200D-02	-9.8458D-04	5.7183D-04
ELAB= 8.0000E+05	LMAX= 6	1.2358D-01	-7.2810D-02	-5.4403D-02	1.3336D-02	-1.3165D-03	1.9300D-03
ELAB= 1.0000E+06	LMAX= 8	8.6437D-02	-7.0085D-02	-5.9137D-02	7.2533D-03	-1.4621D-04	4.2218D-03
		-2.4601D-04	6.2572D-05	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	5.8639D-02	-6.0231D-02	-5.9027D-02	-7.4180D-03	2.3801D-03	8.0109D-03
		-6.2271D-04	2.2521D-04	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 8	4.5268D-02	-5.1122D-02	-5.7298D-02	-2.3508D-02	7.0236D-03	1.1751D-02
		-1.2183D-03	5.9790D-04	0.0	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	4.1987D-02	-4.2649D-02	-5.5665D-02	-3.4881D-02	1.3639D-02	1.3613D-02
		-1.3499D-03	1.4525D-03	-1.2647D-04	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	4.8318D-02	-3.2651D-02	-5.3046D-02	-3.7098D-02	2.2507D-02	1.3564D-02
		-1.3170D-03	2.6518D-03	-2.7728D-04	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 238  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 2.5000E+06	LMAX= 11	8.4191D-02	-2.8192D-03	-3.5134D-02	-2.0380D-02	4.1426D-02	7.0786D-03			
		9.1746D-04	5.6215D-03	-7.7439D-04	4.1078D-04	-9.6874D-06	0.0			
ELAB= 3.0000E+06	LMAX= 12	1.3035D-01	3.0771D-02	-3.2831D-03	4.2302D-03	5.6973D-02	-2.9804D-03			
		4.6037D-03	8.0726D-03	-1.2673D-03	1.3731D-03	-4.6114D-05	2.7113D-05			
ELAB= 4.0000E+06	LMAX= 14	1.9207D-01	7.3171D-02	4.2773D-02	3.1891D-02	6.9391D-02	-1.2542D-02			
		1.4603D-03	1.1095D-03	-2.2951D-04	6.6273D-03	-4.6071D-04	3.5586D-04			
		1.5977D-05	4.6523D-06	0.0	0.0	0.0	0.0			
ELAB= 5.0000E+06	LMAX= 15	2.3581D-01	8.3941D-02	3.5921D-02	3.2668D-02	4.7086D-02	-9.2933D-03			
		-2.0751D-02	-2.3544D-02	6.8585D-03	1.3001D-02	-1.8027D-03	1.9290D-03			
		7.6779D-05	4.0661D-05	5.9878D-06	0.0	0.0	0.0			
ELAB= 6.0000E+06	LMAX= 15	2.6251D-01	7.9718D-02	8.8061D-03	1.4619D-02	1.2246D-02	-1.6683D-02			
		-3.6527D-02	-4.1108D-02	1.4084D-02	1.1233D-02	-3.5065D-03	6.3079D-03			
		1.4604D-04	2.2287D-04	4.1677D-05	0.0	0.0	0.0			
ELAB= 7.0000E+06	LMAX= 16	2.8617D-01	7.8362D-02	-3.0873D-03	2.0500D-04	-7.5322D-03	-2.2156D-02			
		-3.2960D-02	-4.2204D-02	8.7730D-03	-3.1192D-03	-2.1352D-03	1.2780D-02			
		-2.6184D-05	7.3814D-04	1.9060D-04	2.9992D-05	0.0	0.0			
ELAB= 8.0000E+06	LMAX= 17	3.0543D-01	8.3374D-02	-3.0249D-03	-6.8387D-03	-1.5794D-02	-2.5973D-02			
		-2.9594D-02	-4.4421D-02	-5.6183D-03	-1.6413D-02	3.5717D-03	1.7960D-02			
		-6.2082D-04	1.9421D-03	5.9694D-04	1.2118D-04	3.6680D-05	0.0			
ELAB= 1.0000E+07	LMAX= 18	3.5914D-01	1.2398D-01	1.3210D-02	-8.1510D-03	-2.5155D-02	-3.9384D-02			
		-3.7595D-02	-5.3568D-02	-2.0745D-02	-1.3926D-02	1.2726D-02	1.3443D-02			
		-1.2144D-03	8.1144D-03	3.3603D-03	8.9693D-04	4.2891D-04	8.1920D-05			
ELAB= 1.2000E+07	LMAX= 20	4.1253D-01	1.7660D-01	4.2672D-02	1.6537D-02	-1.3512D-02	-2.8154D-02			
		-3.0396D-02	-3.9483D-02	-1.7781D-02	-6.7941D-03	8.5299D-03	-1.9409D-03			
		-3.9281D-04	1.6282D-02	7.7556D-03	2.9706D-03	2.0275D-03	4.6689D-04			
		1.8440D-04	4.1573D-05	0.0	0.0	0.0	0.0			
ELAB= 1.4000E+07	LMAX= 21	4.5781D-01	2.2360D-01	8.1184D-02	5.0214D-02	1.3403D-02	-6.6465D-04			
		-1.0514D-02	-1.7553D-02	-7.0048D-03	-1.8170D-03	1.1975D-02	-1.7585D-03			
		2.7027D-03	1.6269D-02	8.6044D-03	6.7101D-03	6.2296D-03	1.6216D-03			
		8.8445D-04	2.6011D-04	7.1296D-05	0.0	0.0	0.0			

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 238  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.6000E+07	LMAX= 22										
		4.9306D-01	2.6009D-01	1.1326D-01	7.6934D-02	4.2525D-02	2.9704D-02				
		1.9181D-02	9.9405D-03	1.5265D-02	1.2104D-02	2.2676D-02	7.9282D-03				
		1.3458D-03	3.3297D-03	2.5210D-03	1.1024D-02	1.1917D-02	3.8038D-03				
		2.9865D-03	8.9774D-04	3.5185D-04	9.1532D-05	0.0	0.0				
ELAB= 1.8000E+07	LMAX= 23										
		5.2093D-01	2.8602D-01	1.3521D-01	9.0886D-02	5.8485D-02	4.6818D-02				
		3.9411D-02	2.9037D-02	3.1280D-02	2.2418D-02	2.5753D-02	1.0988D-02				
		-1.9911D-03	-8.4865D-03	-4.8226D-03	1.1205D-02	1.3485D-02	6.6193D-03				
		6.9778D-03	2.2389D-03	1.0514D-03	3.7281D-04	1.1130D-04	0.0				
ELAB= 2.0000E+07	LMAX= 24										
		5.4518D-01	3.0615D-01	1.5514D-01	1.0096D-01	6.7185D-02	5.4646D-02				
		4.8860D-02	3.9287D-02	3.9102D-02	2.8620D-02	2.6306D-02	1.2629D-02				
		-7.2501D-04	-1.0341D-02	-9.7275D-03	3.6979D-03	8.4380D-03	9.8092D-03				
		1.2082D-02	4.4350D-03	2.7092D-03	1.0378D-03	4.3422D-04	1.2911D-04				

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 238  
(CH.LAGRANGE 1981)

LEGENRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 2.0000E+05	LMAX= 3	2.7792D-01	1.2660D-01	1.3867D-02	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	4.3615D-01	2.1726D-01	1.8590D-02	1.2876D-03	-1.9366D-04	0.0
ELAB= 4.0000E+05	LMAX= 5	4.7040D-01	2.1871D-01	1.6045D-02	2.4159D-05	-2.7883D-04	0.0
ELAB= 5.0000E+05	LMAX= 5	4.8011D-01	2.0841D-01	1.1615D-02	-1.4253D-03	-3.0438D-04	0.0
ELAB= 6.0000E+05	LMAX= 6	4.8267D-01	1.8770D-01	2.3743D-03	-3.8161D-03	-2.2581D-04	1.0762D-04
ELAB= 8.0000E+05	LMAX= 6	4.6233D-01	1.4463D-01	-1.3194D-02	-6.0832D-03	3.3802D-04	1.9042D-04
ELAB= 1.0000E+06	LMAX= 8	4.3279D-01	9.2155D-02	-3.0972D-02	-7.1866D-03	2.2611D-03	1.8505D-04
		-1.0593D-04	9.4770D-06	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	3.8783D-01	2.6166D-02	-4.4801D-02	-3.2815D-03	4.4311D-03	-5.5720D-05
		-2.0749D-04	3.4659D-05	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 8	3.4410D-01	-2.6472D-02	-4.6712D-02	5.5259D-03	6.2949D-03	-7.3212D-04
		-3.1957D-04	7.5353D-05	0.0	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	3.1040D-01	-5.5269D-02	-3.3842D-02	1.8004D-02	6.6120D-03	-1.9514D-03
		-1.5601D-04	1.4698D-04	-4.0607D-05	0.0	0.0	0.0
LAB= 2.0000E+06	LMAX= 9	2.9004D-01	-6.2028D-02	-1.4184D-02	2.8735D-02	4.9579D-03	-3.1804D-03
		1.3685D-04	1.9274D-04	-8.5992D-05	0.0	0.0	0.0
ELAB= 2.5000E+06	LMAX= 11	2.7459D-01	-4.6590D-02	2.3499D-02	3.7736D-02	-2.6579D-03	-4.3123D-03
		1.3320D-03	-1.2000D-04	-2.4226D-04	8.2982D-05	-4.2727D-06	0.0
ELAB= 3.0000E+06	LMAX= 12	2.7135D-01	-2.7443D-02	4.1211D-02	2.9452D-02	-9.7973D-03	-1.3952D-03
		2.3635D-03	-1.4419D-03	-3.8424D-04	2.6097D-04	-2.1923D-05	8.4367D-06



RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 238  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2...6 AND NEXT LINE 7,8..... 12

ELAB= 4.0000E+06	LMAX= 14	2.7151D-01	2.1549D-04	4.1424D-02	-6.0544D-04	-7.8496D-03	6.6554D-03
		-3.6377D-03	-5.2863D-03	7.5403D-04	6.6959D-04	-1.9474D-04	1.0762D-04
		9.3775D-07	8.1918D-07	0.0	0.0	0.0	0.0
ELAB= 5.0000E+06	LMAX= 15	2.4992D-01	1.2566D-02	3.2102D-02	-2.7025D-02	-3.4114D-04	-3.4933D-03
		-1.6737D-02	2.0405D-03	4.3530D-03	-1.2488D-03	-6.1230D-04	5.4563D-04
		-1.7160D-05	1.3901D-05	1.9818D-06	0.0	0.0	0.0
ELAB= 6.0000E+06	LMAX= 15	2.3937D-01	3.2763D-02	3.0173D-02	-3.9092D-02	2.0719D-03	-1.5552D-02
		-1.9096D-02	2.2716D-02	6.0912D-03	-7.3363D-03	-3.1668D-04	1.4367D-03
		-1.8069D-04	6.1786D-05	6.2595D-06	0.0	0.0	0.0
ELAB= 7.0000E+06	LMAX= 16	2.3742D-01	5.9424D-02	3.7574D-02	-2.9052D-02	1.4171D-02	-1.1128D-02
		-1.0536D-02	3.1634D-02	-1.0699D-03	-1.1774D-02	2.4852D-03	2.0722D-03
		-6.8410D-04	1.5836D-04	1.8753D-05	6.7344D-06	0.0	0.0
ELAB= 8.0000E+06	LMAX= 17	2.5290D-01	8.7570D-02	4.2130D-02	-1.7453D-02	2.1899D-02	-8.6071D-03
		-6.9467D-03	1.9298D-02	-1.1426D-02	-6.9093D-03	7.5241D-03	1.2328D-03
		-1.5925D-03	3.2308D-04	2.6414D-05	2.0350D-05	1.0070D-05	0.0
ELAB= 1.0000E+07	LMAX= 18	3.0898D-01	1.3357D-01	4.6634D-02	-5.7233D-03	1.8277D-02	-1.5864D-02
		-4.8456D-03	2.7516D-03	-5.8929D-03	1.7831D-02	1.0677D-02	-5.9023D-03
		-2.8391D-03	9.0151D-04	-1.2056D-04	7.9124D-05	1.1973D-04	1.7523D-05
ELAB= 1.2000E+07	LMAX= 20	3.3344D-01	1.5603D-01	5.9996D-02	2.3262D-03	2.1214D-02	-1.5815D-02
		6.9184D-03	3.8449D-03	3.2641D-03	2.1795D-02	4.6455D-05	-7.7912D-03
		2.1054D-03	9.0372D-04	-1.8768D-03	4.0858D-05	4.7115D-04	4.7638D-05
		7.2098D-05	1.6733D-05	0.0	0.0	0.0	0.0
ELAB= 1.4000E+07	LMAX= 21	3.5754D-01	1.9131D-01	8.3342D-02	1.4765D-02	2.7299D-02	-1.4615D-02
		1.0537D-02	2.9472D-04	2.7690D-03	1.7620D-02	-6.7691D-04	4.2148D-03
		9.4873D-03	-3.3162D-03	-6.2598D-03	6.6397D-05	8.1874D-04	-3.2256D-05
		3.4227D-04	1.0182D-04	3.8107D-05	0.0	0.0	0.0
ELAB= 1.6000E+07	LMAX= 22	3.8807D-01	2.3272D-01	1.0599D-01	3.1742D-02	3.4450D-02	-9.3050D-03
		1.2481D-02	1.7914D-04	4.3063D-03	1.6186D-02	3.6563D-03	9.9815D-03
		9.1289D-03	-7.9690D-03	-8.1575D-03	4.3168D-04	-7.9539D-04	-6.5148D-04
		1.0499D-03	2.4980D-04	1.7443D-04	4.7548D-05	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR URANIUM 238  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.8000E+07 LMAX= 23  
4.1072D-01 2.6358D-01 1.2613D-01 5.2061D-02 4.1567D-02 -2.5407D-03  
1.2551D-02 -2.3016D-03 2.0344D-03 7.5064D-03 -1.9003D-04 2.5738D-03  
2.5131D-03 -5.4043D-03 -1.2271D-03 7.8781D-04 -6.1028D-03 -1.7157D-03  
2.0054D-03 2.1599D-04 4.2291D-04 1.6270D-04 6.4577D-05 0.0

ELAB= 2.0000E+07 LMAX= 24  
4.2997D-01 2.8184D-01 1.4430D-01 7.3589D-02 5.1716D-02 9.4142D-03  
1.6177D-02 -2.0215D-03 1.5340D-03 3.0240D-04 -2.9901D-03 -1.5071D-03  
-7.9751D-04 4.6903D-04 6.6193D-03 -1.7026D-03 -1.1688D-02 -1.5544D-03  
1.9465D-03 -5.5512D-04 8.5668D-04 3.5475D-04 2.4451D-04 8.1073D-05

NEUTRON TRANSMISSION COEFFICIENTS FOR URANIUM 238.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

	E= 0.10000E-02(MEV)	LMAX= 3	JMAX= 5/2						
0.20438E-01	0.10207E-03	0.13926E-03	0.41034E-07	0.26575E-07	0.47748E-11				
	E= 0.50000E-02(MEV)	LMAX= 3	JMAX= 5/2						
0.45098E-01	0.11327E-02	0.15344E-02	0.22785E-05	0.14786E-05	0.13362E-08				
	E= 0.10000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.63129E-01	0.31735E-02	0.42984E-02	0.12781E-04	0.83146E-05	0.15111E-07				
	E= 0.20000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.87968E-01	0.88017E-02	0.11915E-01	0.71083E-04	0.46478E-04	0.17081E-06				
	E= 0.30000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.10650E+00	0.15848E-01	0.21437E-01	0.19255E-03	0.12657E-03	0.70550E-06				
	E= 0.40000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.12176E+00	0.23909E-01	0.32307E-01	0.38843E-03	0.25678E-03	0.19296E-05				
	E= 0.60000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.14664E+00	0.42144E-01	0.56816E-01	0.10338E-02	0.69086E-03	0.79643E-05				
	E= 0.80000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.16691E+00	0.62251E-01	0.83711E-01	0.20504E-02	0.13831E-02	0.21780E-04				
	E= 0.10000E+00(MEV)	LMAX= 3	JMAX= 5/2						
0.18426E+00	0.83493E-01	0.11197E+00	0.34592E-02	0.23556E-02	0.47554E-04				
	E= 0.20000E+00(MEV)	LMAX= 3	JMAX= 5/2						
0.23894E+00	0.17584E+00	0.23258E+00	0.15544E-01	0.11503E-01	0.48937E-03				
	E= 0.30000E+00(MEV)	LMAX= 4	JMAX= 7/2						
0.28359E+00	0.27135E+00	0.35295E+00	0.35931E-01	0.27831E-01	0.20130E-02	0.25783E-02	0.31072E-04		
	E= 0.40000E+00(MEV)	LMAX= 4	JMAX= 7/2						
0.31936E+00	0.35633E+00	0.45510E+00	0.61950E-01	0.50075E-01	0.54340E-02	0.69399E-02	0.10802E-03		
	E= 0.50000E+00(MEV)	LMAX= 4	JMAX= 7/2						
0.34953E+00	0.43020E+00	0.53921E+00	0.91237E-01	0.76636E-01	0.11643E-01	0.14862E-01	0.28131E-03		
	E= 0.60000E+00(MEV)	LMAX= 5	JMAX= 9/2						
0.37563E+00	0.49357E+00	0.60706E+00	0.12195E+00	0.10595E+00	0.21542E-01	0.27507E-01	0.61040E-03	0.61969E-03	0.21789E-04
	E= 0.80000E+00(MEV)	LMAX= 5	JMAX= 9/2						
0.41857E+00	0.59235E+00	0.70153E+00	0.18293E+00	0.16764E+00	0.55720E-01	0.71108E-01	0.20370E-02	0.21786E-02	0.10467E-03
	E= 0.10000E+01(MEV)	LMAX= 6	JMAX= 11/2						
0.45187E+00	0.65980E+00	0.75258E+00	0.23914E+00	0.22749E+00	0.11287E+00	0.14330E+00	0.50895E-02	0.56931E-02	0.35262E-03
0.71230E-03	0.80308E-05								

NEUTRON TRANSMISSION COEFFICIENTS FOR URANIUM 238.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

E= 0.12500E+01(MEV) LMAX= 6 JMAX= 11/2  
 0.40291E+00 0.71119E+00 0.77613E+00 0.30006E+00 0.29378E+00 0.21635E+00 0.27108E+00 0.12422E-01 0.14563E-01 0.11822E-02  
 0.21965E-02 0.34497E-04

E= 0.15000E+01(MEV) LMAX= 6 JMAX= 11/2  
 0.50462E+00 0.73853E+00 0.77737E+00 0.35063E+00 0.34790E+00 0.34226E+00 0.42155E+00 0.25111E-01 0.30537E-01 0.31546E-02  
 0.53210E-02 0.11350E-03

E= 0.17500E+01(MEV) LMAX= 7 JMAX= 13/2  
 0.51896E+00 0.75191E+00 0.77190E+00 0.39198E+00 0.38941E+00 0.46907E+00 0.56664E+00 0.44332E-01 0.55307E-01 0.71767E-02  
 0.10899E-01 0.30978E-03 0.35101E-03 0.11103E-04

E= 0.20000E+01(MEV) LMAX= 7 JMAX= 13/2  
 0.52763E+00 0.75747E+00 0.76638E+00 0.42534E+00 0.41928E+00 0.58045E+00 0.68537E+00 0.70473E-01 0.89155E-01 0.14508E-01  
 0.19718E-01 0.73426E-03 0.82212E-03 0.28496E-04

E= 0.25000E+01(MEV) LMAX= 8 JMAX= 15/2  
 0.53409E+00 0.75754E+00 0.76023E+00 0.47254E+00 0.45240E+00 0.73918E+00 0.82428E+00 0.13988E+00 0.17642E+00 0.45752E-01  
 0.48639E-01 0.29969E-02 0.32490E-02 0.13529E-03 0.64193E-04 0.68510E-05

E= 0.30000E+01(MEV) LMAX= 9 JMAX= 17/2  
 0.53463E+00 0.75342E+00 0.75884E+00 0.50086E+00 0.46694E+00 0.82745E+00 0.86750E+00 0.21895E+00 0.26913E+00 0.11050E+00  
 0.89717E-01 0.88384E-02 0.92576E-02 0.46550E-03 0.23476E-03 0.31675E-04 0.23306E-04 0.54764E-06

E= 0.40000E+01(MEV) LMAX= 10 JMAX= 19/2  
 0.53907E+00 0.75221E+00 0.76221E+00 0.53029E+00 0.49095E+00 0.88884E+00 0.85109E+00 0.35502E+00 0.41859E+00 0.33695E+00  
 0.18165E+00 0.39779E-01 0.42135E-01 0.29176E-02 0.17782E-02 0.31291E-03 0.19285E-03 0.73001E-05 0.14208E-04 0.42484E-06

E= 0.50000E+01(MEV) LMAX= 11 JMAX= 21/2  
 0.56231E+00 0.74897E+00 0.75829E+00 0.56181E+00 0.53290E+00 0.87286E+00 0.81357E+00 0.45641E+00 0.53016E+00 0.53123E+00  
 0.27548E+00 0.10707E+00 0.12893E+00 0.10504E-01 0.82783E-02 0.15168E-02 0.87335E-03 0.53287E-04 0.11251E-03 0.37004E-05  
 0.32955E-05 0.15781E-06

E= 0.60000E+01(MEV) LMAX= 11 JMAX= 21/2  
 0.57998E+00 0.76056E+00 0.76619E+00 0.58178E+00 0.56491E+00 0.85584E+00 0.79112E+00 0.52413E+00 0.60890E+00 0.63566E+00  
 0.36140E+00 0.21121E+00 0.28614E+00 0.28394E-01 0.27298E-01 0.49125E-02 0.28758E-02 0.26388E-03 0.55402E-03 0.19756E-04  
 0.19082E-04 0.10867E-05

E= 0.70000E+01(MEV) LMAX= 12 JMAX= 23/2  
 0.59938E+00 0.77141E+00 0.77298E+00 0.60350E+00 0.59246E+00 0.84105E+00 0.77705E+00 0.58458E+00 0.67012E+00 0.67637E+00  
 0.43897E+00 0.35000E+00 0.48441E+00 0.61839E-01 0.69220E-01 0.13180E-01 0.75835E-02 0.10045E-02 0.18911E-02 0.76935E-04  
 0.82489E-04 0.54217E-05 0.63112E-05 0.38353E-06

E= 0.80000E+01(MEV) LMAX= 13 JMAX= 25/2  
 0.61904E+00 0.78058E+00 0.77855E+00 0.62544E+00 0.61755E+00 0.83082E+00 0.76810E+00 0.65765E+00 0.71850E+00 0.69648E+00  
 0.50324E+00 0.51170E+00 0.65558E+00 0.11666E+00 0.14300E+00 0.31393E-01 0.17247E-01 0.31323E-02 0.49323E-02 0.24967E-03  
 0.29180E-03 0.21353E-04 0.23803E-04 0.16981E-05 0.17235E-05 0.12751E-06

E= 0.10000E+02(MEV) LMAX= 14 JMAX= 27/2  
 0.65720E+00 0.79414E+00 0.78678E+00 0.66716E+00 0.66569E+00 0.81853E+00 0.75780E+00 0.72436E+00 0.78760E+00 0.71933E+00  
 0.50855E+00 0.78907E+00 0.80225E+00 0.29427E+00 0.30304E+00 0.12175E+00 0.65576E-01 0.19004E-01 0.21241E-01 0.17587E-02  
 0.23634E-02 0.19798E-03 0.20090E-03 0.18849E-04 0.19846E-04 0.17874E-05 0.18076E-05 0.16083E-06

NEUTRON TRANSMISSION COEFFICIENTS FOR URANIUM 238.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

E= 0.12000E+02(MEV) LMAX= 16 JMAX= 31/2  
 0.65836E+00 0.77073E+00 0.76021E+00 0.67218E+00 0.67595E+00 0.78305E+00 0.72499E+00 0.75064E+00 0.79857E+00 0.70680E+00  
 0.61383E+00 0.90909E+00 0.80000E+00 0.48380E+00 0.63409E+00 0.28829E+00 0.16699E+00 0.69090E-01 0.63155E-01 0.75443E-02  
 0.11867E-01 0.10339E-02 0.10351E-02 0.11416E-03 0.12587E-03 0.13078E-04 0.13176E-04 0.13993E-05 0.14156E-05 0.14241E-06  
 0.14289E-06 0.13473E-07

E= 0.14000E+02(MEV) LMAX= 17 JMAX= 33/2  
 0.65991E+00 0.74778E+00 0.73547E+00 0.67499E+00 0.68391E+00 0.75272E+00 0.69982E+00 0.76201E+00 0.79432E+00 0.69177E+00  
 0.63127E+00 0.92030E+00 0.76332E+00 0.62255E+00 0.79906E+00 0.46162E+00 0.31785E+00 0.17925E+00 0.13578E+00 0.24772E-01  
 0.43304E-01 0.38158E-02 0.40224E-02 0.49060E-03 0.56477E-03 0.65881E-04 0.66665E-04 0.81535E-05 0.82847E-05 0.96684E-06  
 0.97144E-06 0.10742E-06 0.10761E-06 0.11029E-07

E= 0.16000E+02(MEV) LMAX= 18 JMAX= 35/2  
 0.66163E+00 0.72607E+00 0.71292E+00 0.68121E+00 0.68914E+00 0.72759E+00 0.68017E+00 0.76496E+00 0.78203E+00 0.68223E+00  
 0.64794E+00 0.89272E+00 0.72864E+00 0.71460E+00 0.87268E+00 0.56943E+00 0.47121E+00 0.35041E+00 0.22389E+00 0.67558E-01  
 0.11439E+00 0.10893E-01 0.12908E-01 0.17204E-02 0.19191E-02 0.25091E-03 0.25966E-03 0.35525E-04 0.36149E-04 0.47912E-05  
 0.48231E-05 0.61074E-06 0.61212E-06 0.72325E-07 0.72390E-07 0.78055E-08

E= 0.18000E+02(MEV) LMAX= 19 JMAX= 37/2  
 0.66313E+00 0.70603E+00 0.69271E+00 0.68420E+00 0.69152E+00 0.70657E+00 0.66468E+00 0.76177E+00 0.76574E+00 0.67713E+00  
 0.66274E+00 0.85772E+00 0.70130E+00 0.77851E+00 0.88570E+00 0.61776E+00 0.59638E+00 0.53930E+00 0.31211E+00 0.15573E+00  
 0.22307E+00 0.26121E-01 0.35858E-01 0.49124E-02 0.52387E-02 0.77595E-03 0.83131E-03 0.12411E-03 0.12579E-03 0.18708E-04  
 0.18883E-04 0.26853E-05 0.26935E-05 0.36033E-06 0.36075E-06 0.44684E-07 0.44706E-07 0.50903E-08

E= 0.20000E+02(MEV) LMAX= 20 JMAX= 39/2  
 0.66397E+00 0.68787E+00 0.67485E+00 0.68551E+00 0.69116E+00 0.68874E+00 0.65260E+00 0.75424E+00 0.74779E+00 0.67449E+00  
 0.67445E+00 0.82367E+00 0.68023E+00 0.81740E+00 0.86912E+00 0.63910E+00 0.69020E+00 0.69292E+00 0.39601E+00 0.29872E+00  
 0.35034E+00 0.55978E-01 0.88004E-01 0.11865E-01 0.12494E-01 0.20649E-02 0.22797E-02 0.36384E-03 0.36916E-03 0.60649E-04  
 0.61418E-04 0.96547E-05 0.96942E-05 0.14466E-05 0.14488E-05 0.20121E-06 0.20134E-06 0.25779E-07 0.25786E-07 0.30303E-08

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR PLUTONIUM 242  
(CH. LAGRANGE 1981)

NEUTRON TOTAL CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	2.4727D+01	5.0000D+03	1.7450D+01	1.0000D+04	1.5771D+01
2.0000D+04	1.4591D+01	3.0000D+04	1.4048D+01	4.0000D+04	1.3698D+01
6.0000D+04	1.3075D+01	8.0000D+04	1.2719D+01	1.0000D+05	1.2419D+01
2.0000D+05	1.1341D+01	3.0000D+05	1.0400D+01	4.0000D+05	9.6093D+00
5.0000D+05	8.9585D+00	6.0000D+05	8.4360D+00	7.0000D+05	8.0213D+00
8.0000D+05	7.7028D+00	1.0000D+06	7.3057D+00	1.2500D+06	7.1300D+00
1.5000D+06	7.1605D+00	1.7500D+06	7.2819D+00	2.0000D+06	7.4329D+00
2.5000D+06	7.7165D+00	3.0000D+06	7.9025D+00	4.0000D+06	7.9331D+00
5.0000D+06	7.6078D+00	6.0000D+06	7.1214D+00	7.0000D+06	6.6524D+00
8.0000D+06	6.2699D+00	1.0000D+07	5.8219D+00	1.2000D+07	5.7120D+00
1.4000D+07	5.8427D+00	1.6000D+07	6.0716D+00	1.8000D+07	6.3012D+00
2.0000D+07	6.4710D+00	0.0	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR PLUTONIUM 242  
(CH.LAGRANGE 1981)

NEUTRON COMPOUND NUCLEUS FORMATION CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	1.3603D+01	5.0000D+03	6.5303D+00	1.0000D+04	5.0326D+00
2.0000D+04	4.1459D+00	3.0000D+04	3.8540D+00	4.0000D+04	3.7313D+00
6.0000D+04	3.6227D+00	8.0000D+04	3.6189D+00	1.0000D+05	3.6356D+00
2.0000D+05	3.8073D+00	3.0000D+05	3.7777D+00	4.0000D+05	3.6926D+00
5.0000D+05	3.6007D+00	6.0000D+05	3.5227D+00	7.0000D+05	3.4600D+00
8.0000D+05	3.4167D+00	1.0000D+06	3.3880D+00	1.2500D+06	3.4193D+00
1.5000D+06	3.4619D+00	1.7500D+06	3.4709D+00	2.0000D+06	3.4419D+00
2.5000D+06	3.3230D+00	3.0000D+06	3.1930D+00	4.0000D+06	3.0053D+00
5.0000D+06	2.8939D+00	6.0000D+06	2.8427D+00	7.0000D+06	2.8458D+00
8.0000D+06	2.8653D+00	1.0000D+07	2.8860D+00	1.2000D+07	2.8089D+00
1.4000D+07	2.7368D+00	1.6000D+07	2.6732D+00	1.8000D+07	2.6235D+00
2.0000D+07	2.5889D+00	0.0	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR PLUTONIUM 242  
(CH. LAGRANGE 1981)

NEUTRON SHAPE ELASTIC SCATTERING CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	1.1124D+01	5.0000D+03	1.0920D+01	1.0000D+04	1.0739D+01
2.0000D+04	1.0445D+01	3.0000D+04	1.0194D+01	4.0000D+04	9.9672D+00
6.0000D+04	9.4507D+00	8.0000D+04	9.0944D+00	1.0000D+05	8.7714D+00
2.0000D+05	7.4942D+00	3.0000D+05	6.5554D+00	4.0000D+05	5.8228D+00
5.0000D+05	5.2350D+00	6.0000D+05	4.7583D+00	7.0000D+05	4.3709D+00
8.0000D+05	4.0576D+00	1.0000D+06	3.6097D+00	1.2500D+06	3.3089D+00
1.5000D+06	3.2195D+00	1.7500D+06	3.2752D+00	2.0000D+06	3.4187D+00
2.5000D+06	3.7971D+00	3.0000D+06	4.1272D+00	4.0000D+06	4.4102D+00
5.0000D+06	4.2618D+00	6.0000D+06	3.8702D+00	7.0000D+06	3.4251D+00
8.0000D+06	3.0466D+00	1.0000D+07	2.6228D+00	1.2000D+07	2.5906D+00
1.4000D+07	2.8040D+00	1.6000D+07	3.1133D+00	1.8000D+07	3.4095D+00
2.0000D+07	3.6271D+00	0.0	0.0	0.0	0.0



RESULTS OF COUPLED CHANNEL CALCULATIONS FOR PLUTONIUM 242  
(CH.LAGRANGE 1981)

NEUTRON DIRECT INELASTIC FIRST EXCITED LEVEL

E	S(E)	E	S(E)	E	S(E)
6.0000D+04	1.8885D-03	8.0000D+04	6.1450D-03	1.0000D+05	1.1636D-02
2.0000D+05	3.9141D-02	3.0000D+05	6.5700D-02	4.0000D+05	8.9202D-02
5.0000D+05	1.1197D-01	6.0000D+05	1.3562D-01	7.0000D+05	1.6066D-01
8.0000D+05	1.8710D-01	1.0000D+06	2.4233D-01	1.2500D+06	3.0937D-01
1.5000D+06	3.6684D-01	1.7500D+06	4.1030D-01	2.0000D+06	4.4036D-01
2.5000D+06	4.3174D-01	3.0000D+06	4.5061D-01	4.0000D+06	3.9714D-01
5.0000D+06	3.4513D-01	6.0000D+06	3.1248D-01	7.0000D+06	2.9566D-01
8.0000D+06	2.8340D-01	1.0000D+07	2.5697D-01	1.2000D+07	2.6064D-01
1.4000D+07	2.5575D-01	1.6000D+07	2.4450D-01	1.8000D+07	2.3275D-01
2.0000D+07	2.2363D-01	0.0	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR PLUTONIUM 242  
(CH. LAGRANGE 1981)

NEUTRON DIRECT INELASTIC SECOND EXCITED LEVEL

E	S(E)	E	S(E)	E	S(E)
2.0000D+05	7.2176D-05	3.0000D+05	1.3539D-03	4.0000D+05	4.7576D-03
5.0000D+05	1.0767D-02	6.0000D+05	1.9295D-02	7.0000D+05	2.9740D-02
8.0000D+05	4.1404D-02	1.0000D+06	6.5654D-02	1.2500D+06	9.2477D-02
1.5000D+06	1.1238D-01	1.7500D+06	1.2510D-01	2.0000D+06	1.3184D-01
2.5000D+06	1.3462D-01	3.0000D+06	1.3171D-01	4.0000D+06	1.2045D-01
5.0000D+06	1.0699D-01	6.0000D+06	9.6081D-02	7.0000D+06	8.5848D-02
8.0000D+06	7.4631D-02	1.0000D+07	5.6141D-02	1.2000D+07	5.1552D-02
1.4000D+07	4.6104D-02	1.6000D+07	4.0494D-02	1.8000D+07	3.5443D-02
2.0000D+07	3.1346D-02	0.0	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR PLUTONIUM 242  
(CH. LAGRANGE 1901)

LEGENDRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.0000E+03	LMAX= 3	8.9432D-04	9.9245D-07	-5.6501D-07	0.0	0.0	0.0
ELAB= 5.0000E+03	LMAX= 3	4.8908D-03	2.8309D-05	4.3358D-07	0.0	0.0	0.0
ELAB= 1.0000E+04	LMAX= 3	1.0373D-02	1.1618D-04	7.5683D-07	0.0	0.0	0.0
ELAB= 2.0000E+04	LMAX= 3	2.2249D-02	4.6615D-04	3.3842D-06	0.0	0.0	0.0
ELAB= 3.0000E+04	LMAX= 3	3.4852D-02	1.0506D-03	1.1878D-05	0.0	0.0	0.0
ELAB= 4.0000E+04	LMAX= 3	4.7873D-02	1.8587D-03	2.8863D-05	0.0	0.0	0.0
ELAB= 6.0000E+04	LMAX= 3	7.1954D-02	3.9708D-03	9.2666D-05	0.0	0.0	0.0
ELAB= 8.0000E+04	LMAX= 3	9.7960D-02	6.9345D-03	2.1694D-04	0.0	0.0	0.0
ELAB= 1.0000E+05	LMAX= 3	1.2370D-01	1.0610D-02	4.1954D-04	0.0	0.0	0.0
ELAB= 2.0000E+05	LMAX= 3	2.4646D-01	3.8171D-02	3.1483D-03	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	3.4191D-01	7.2528D-02	1.0320D-02	1.0730D-03	-3.0684D-06	0.0
ELAB= 4.0000E+05	LMAX= 5	4.1404D-01	1.0936D-01	2.2480D-02	3.1789D-03	5.7289D-06	0.0
ELAB= 5.0000E+05	LMAX= 5	4.6765D-01	1.4538D-01	4.0117D-02	7.2057D-03	4.5364D-05	0.0
ELAB= 6.0000E+05	LMAX= 6	5.0697D-01	1.7941D-01	6.3150D-02	1.3859D-02	2.8086D-04	1.1849D-04
ELAB= 7.0000E+05	LMAX= 6	5.3533D-01	2.1127D-01	9.0935D-02	2.3721D-02	8.4320D-04	3.056 -04
ELAB= 8.0000E+05	LMAX= 6	5.5547D-01	2.4141D-01	1.2252D-01	3.7236D-02	2.0536D-03	6.7951D-04

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR PLUTONIUM 242  
(CH.LAGRANGE 1981)

LEGENRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.0000E+06	LMAX= 8	5.8030D-01	2.9894D-01	1.9169D-01	7.5723D-02	7.9551D-03	2.5484D-03
		2.0795D-04	1.9700D-05	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	6.0167D-01	3.6911D-01	2.7403D-01	1.4049D-01	2.6038D-02	8.2284D-03
		8.8584D-04	1.0137D-04	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 9	6.2826D-01	4.3444D-01	3.3709D-01	2.0953D-01	5.7543D-02	1.8727D-02
		2.5474D-03	3.4719D-04	2.9870D-05	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	6.6189D-01	4.8860D-01	3.7930D-01	2.6803D-01	9.7069D-02	3.3380D-02
		5.6249D-03	9.0730D-04	9.8260D-05	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	6.9707D-01	5.3048D-01	4.0799D-01	3.1070D-01	1.3702D-01	5.0575D-02
		1.0315D-02	1.9445D-03	2.5288D-04	0.0	0.0	0.0
ELAB= 2.5000E+06	LMAX= 11	7.5701D-01	5.8916D-01	4.5027D-01	3.6068D-01	2.0251D-01	8.7005D-02
		2.4173D-02	5.8310D-03	1.0213D-03	1.3131D-04	1.4373D-05	0.0
ELAB= 3.0000E+06	LMAX= 12	7.9857D-01	6.3199D-01	4.8810D-01	3.9009D-01	2.4741D-01	1.2078D-01
		4.2309D-02	1.2856D-02	2.8627D-03	4.5284D-04	6.4562D-05	7.0430D-06
ELAB= 4.0000E+06	LMAX= 14	8.4330D-01	6.9379D-01	5.5540D-01	4.3595D-01	3.0696D-01	1.7535D-01
		8.2594D-02	3.5673D-02	1.1621D-02	2.6924D-03	5.2786D-04	8.3990D-05
		1.2435D-05	2.8346D-06	0.0	0.0	0.0	0.0
ELAB= 5.0000E+06	LMAX= 15	8.5993D-01	7.2863D-01	6.0324D-01	4.7779D-01	3.5133D-01	2.1960D-01
		1.2045D-01	6.5762D-02	2.9101D-02	9.0381D-03	2.3443D-03	4.8334D-04
		7.6690D-05	1.4802D-05	2.8013D-06	0.0	0.0	0.0
ELAB= 6.0000E+06	LMAX= 16	8.6362D-01	7.4428D-01	6.3318D-01	5.1319D-01	3.8902D-01	2.6256D-01
		1.5799D-01	9.9972D-02	5.6406D-02	2.3316D-02	7.5758D-03	1.9838D-03
		3.9211D-04	7.7797D-05	1.1995D-05	1.3096D-06	0.0	0.0
ELAB= 7.0000E+06	LMAX= 16	8.6192D-01	7.4819D-01	6.4992D-01	5.4177D-01	4.2429D-01	3.0717D-01
		2.0125D-01	1.3887D-01	9.3297D-02	4.8237D-02	1.9559D-02	6.2242D-03
		1.5089D-03	3.6107D-04	7.4052D-05	1.2944D-05	0.0	0.0



RESULTS OF COUPLED CHANNEL CALCULATIONS FOR PLUTONIUM 242  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8,..... 12

ELAB= 6.0000E+04	LMAX= 3	3.1681D-01	4.3914D-02	-1.6893D-03	0.0	0.0	0.0
ELAB= 8.0000E+04	LMAX= 3	2.9742D-01	4.4241D-02	-3.3322D-03	0.0	0.0	0.0
ELAB= 1.0000E+05	LMAX= 3	2.9031D-01	4.2127D-02	-4.9717D-03	0.0	0.0	0.0
ELAB= 2.0000E+05	LMAX= 3	2.9944D-01	2.7584D-02	-1.4906D-02	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	2.6284D-01	-1.4874D-02	-2.9491D-02	4.9029D-03	-1.0599D-04	0.0
ELAB= 4.0000E+05	LMAX= 5	2.2979D-01	-3.7780D-02	-4.1536D-02	9.4855D-03	-2.3330D-04	0.0
ELAB= 5.0000E+05	LMAX= 5	1.9556D-01	-5.3552D-02	-5.1595D-02	1.4545D-02	-3.7933D-04	0.0
ELAB= 6.0000E+05	LMAX= 6	1.6389D-01	-6.3014D-02	-5.7296D-02	1.5772D-02	-6.0135D-04	6.7672D-04
ELAB= 7.0000E+05	LMAX= 6	1.3663D-01	-6.6179D-02	-6.2650D-02	1.6937D-02	-6.4051D-04	1.2643D-03
ELAB= 8.0000E+05	LMAX= 6	1.1423D-01	-6.5428D-02	-6.5853D-02	1.6078D-02	-5.6135D-04	2.0953D-03
ELAB= 1.0000E+06	LMAX= 8	8.2254D-02	-5.8178D-02	-6.7016D-02	8.8651D-03	5.2012D-04	4.3925D-03
		-1.5380D-04	5.8788D-05	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	6.0099D-02	-4.7483D-02	-6.3455D-02	-6.6338D-03	2.7642D-03	8.1507D-03
		-4.0195D-04	2.1121D-04	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 9	5.0768D-02	-3.8950D-02	-5.9007D-02	-2.3315D-02	6.5999D-03	1.1578D-02
		-5.7964D-04	6.3980D-04	-3.6364D-05	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	5.1644D-02	-3.1791D-02	-5.5478D-02	-3.4051D-02	1.2462D-02	1.3826D-02
		-7.1406D-04	1.3816D-03	-9.7882D-05	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	6.2093D-02	-2.2735D-02	-5.0489D-02	-3.5749D-02	2.1006D-02	1.3828D-02
		-4.3987D-04	2.5337D-03	-2.1190D-04	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR PLUTONIUM 242  
(CH.LAGRANGE 1981)

LEGENRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENRE COEFFICIENTS ARE IN THE ORDER 1,2,...6 AND NEXT LINE 7,8,..... 12

ELAB= 2.5000E+06	LMAX= 11	1.0423D-01	5.4626D-03	-2.9125D-02	-1.8140D-02	3.8588D-02	7.5165D-03				
		1.9435D-03	5.3169D-03	-5.4876D-04	4.0917D-04	-7.4380D-06	0.0				
ELAB= 3.0000E+06	LMAX= 12	1.5311D-01	3.7211D-02	3.5660D-03	6.2519D-03	5.3193D-02	-2.1540D-03				
		4.7047D-03	7.3698D-03	-7.3107D-04	1.3380D-03	-3.8388D-05	2.8100D-05				
ELAB= 4.0000E+06	LMAX= 14	2.1676D-01	7.6681D-02	4.4602D-02	3.1839D-02	6.3448D-02	-1.0362D-02				
		-2.0922D-03	-1.5782D-04	1.1149D-03	6.1093D-03	-4.0565D-04	3.5174D-04				
		1.4324D-05	3.6722D-06	0.0	0.0	0.0	0.0				
ELAB= 5.0000E+06	LMAX= 15	2.4739D-01	8.4016D-02	3.4106D-02	3.2440D-02	4.3788D-02	-6.1854D-03				
		-2.2504D-02	-2.4543D-02	7.7110D-03	1.2330D-02	-1.8077D-03	2.0114D-03				
		6.3770D-05	4.3438D-05	6.1397D-06	0.0	0.0	0.0				
ELAB= 6.0000E+06	LMAX= 16	2.7422D-01	7.8249D-02	8.2737D-03	1.4335D-02	1.1033D-02	-1.2773D-02				
		-3.5000D-02	-3.9728D-02	1.3695D-02	9.0102D-03	-3.4054D-03	6.3891D-03				
		8.0702D-05	2.2686D-04	4.5700D-05	5.2606D-06	0.0	0.0				
ELAB= 7.0000E+06	LMAX= 16	2.9671D-01	7.7530D-02	-1.3211D-03	1.1272D-03	-5.6315D-03	-1.7497D-02				
		-2.9398D-02	-3.9931D-02	6.4836D-03	-5.7644D-03	-1.6275D-03	1.2631D-02				
		-2.0500D-04	7.8376D-04	2.0196D-04	3.1974D-05	0.0	0.0				
ELAB= 8.0000E+06	LMAX= 17	3.1475D-01	8.4147D-02	-8.1042D-04	-5.7892D-03	-1.3518D-02	-2.2570D-02				
		-2.7146D-02	-4.3566D-02	-8.6904D-03	-1.7794D-02	4.6079D-03	1.7316D-02				
		-9.2119D-04	2.1059D-03	6.2480D-04	1.2831D-04	3.9643D-05	0.0				
ELAB= 1.0000E+07	LMAX= 18	3.6835D-01	1.2709D-01	1.4707D-02	-7.4316D-03	-2.4808D-02	-3.8679D-02				
		-3.7656D-02	-5.3744D-02	-2.3535D-02	-1.4408D-02	1.2637D-02	1.1753D-02				
		-1.0183D-03	8.8137D-03	3.4437D-03	9.6548D-04	4.6403D-04	8.9109D-05				
ELAB= 1.2000E+07	LMAX= 20	4.2196D-01	1.8050D-01	4.5402D-02	1.7447D-02	-1.3825D-02	-2.8005D-02				
		-3.1503D-02	-3.9954D-02	-2.0413D-02	-8.9564D-03	7.3262D-03	-2.6874D-03				
		8.1352D-04	1.6967D-02	7.7070D-03	3.2108D-03	2.1650D-03	5.0555D-04				
		2.0382D-04	4.6114D-05	0.0	0.0	0.0	0.0				
ELAB= 1.4000E+07	LMAX= 21	4.6675D-01	2.2804D-01	8.4967D-02	5.1404D-02	1.4086D-02	-3.4496D-04				
		-1.0777D-02	-1.7897D-02	-8.0893D-03	-3.2516D-03	1.1754D-02	-7.2508D-04				
		3.8067D-03	1.5737D-02	8.0661D-03	7.1492D-03	6.5163D-03	1.7274D-03				
		9.6397D-04	2.8141D-04	7.8123D-05	0.0	0.0	0.0				





RESULTS OF COUPLED CHANNEL CALCULATIONS FOR PLUTONIUM 242  
(CH.LAGRANGE 1931)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 2.0000E+05	LMAX= 3	2.5383D-01	1.3281D-01	1.2572D-02	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	3.9806D-01	2.2256D-01	1.6521D-02	1.3133D-03	-1.7742D-04	0.0
ELAB= 4.0000E+05	LMAX= 5	4.3772D-01	2.2535D-01	1.3941D-02	-2.2405D-05	-2.5986D-04	0.0
ELAB= 5.0000E+05	LMAX= 5	4.5320D-01	2.1463D-01	9.2861D-03	-1.6331D-03	-2.9541D-04	0.0
ELAB= 6.0000E+05	LMAX= 6	4.5853D-01	1.9238D-01	-2.0578D-03	-4.1095D-03	-1.9511D-04	1.0397D-04
ELAB= 7.0000E+05	LMAX= 6	4.5253D-01	1.6977D-01	-1.0550D-02	-5.6243D-03	4.3939D-05	1.5180D-04
ELAB= 8.0000E+05	LMAX= 6	4.4143D-01	1.4413D-01	-1.9359D-02	-6.8146D-03	4.2891D-04	2.0135D-04
ELAB= 1.0000E+06	LMAX= 8	4.1025D-01	8.5246D-02	-3.7689D-02	-8.1556D-03	2.3593D-03	2.3536D-04
		-1.0282D-04	1.0313D-05	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	3.6105D-01	1.3017D-02	-5.1589D-02	-3.9120D-03	4.7123D-03	2.0788D-05
		-2.1996D-04	3.3597D-05	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 9	3.1476D-01	-4.0982D-02	-5.0352D-02	6.5508D-03	6.7872D-03	-7.6040D-04
		-2.7396D-04	8.6274D-05	-1.6669D-05	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	2.8113D-01	-6.7045D-02	-3.7210D-02	1.8865D-02	7.2851D-03	-1.9129D-03
		-2.4413D-04	1.5164D-04	-3.8799D-05	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	2.6096D-01	-7.0872D-02	-1.7797D-02	2.9350D-02	5.8934D-03	-3.1899D-03
		-2.5281D-05	2.0322D-04	-8.0227D-05	0.0	0.0	0.0
ELAB= 2.5000E+06	LMAX= 11	2.4471D-01	-5.3146D-02	1.5974D-02	3.5776D-02	-8.5065D-04	-4.0803D-03
		1.0803D-03	-1.3084D-04	-2.4194D-04	8.8388D-05	-4.4174D-06	0.0
ELAB= 3.0000E+06	LMAX= 12	2.4128D-01	-3.4659D-02	3.1404D-02	2.4900D-02	-6.8766D-03	-7.7364D-04
		2.1175D-03	-1.4439D-03	-4.1037D-04	2.7082D-04	-2.6187D-05	8.5196D-06

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR PLUTONIUM 242  
(CH. LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 4.0000E+06 LMAX= 14  
 2.4360D-01 -7.1750D-03 3.6880D-02 -5.4232D-03 -2.3097D-03 7.8259D-03  
 -4.0267D-03 -4.9589D-03 6.5726D-04 6.3496D-04 -2.2707D-04 1.1313D-04  
 1.3132D-06 1.7946D-06 0.0 0.0 0.0 0.0

ELAB= 5.0000E+06 LMAX= 15  
 2.3972D-01 1.1363D-02 3.1729D-02 -2.9421D-02 2.5044D-03 -3.5107D-03  
 -1.8106D-02 3.1086D-03 4.6792D-03 -1.5174D-03 -6.6091D-04 5.8365D-04  
 -2.8614D-05 1.3951D-05 1.5359D-06 0.0 0.0 0.0

ELAB= 6.0000E+06 LMAX= 16  
 2.2988D-01 3.3159D-02 3.1057D-02 -3.7621D-02 6.2392D-03 -1.4007D-02  
 -1.9040D-02 2.3977D-02 5.9491D-03 -7.8851D-03 -2.2272D-04 1.5032D-03  
 -2.2754D-04 5.8340D-05 6.2742D-06 1.5547D-06 0.0 0.0

ELAB= 7.0000E+06 LMAX= 16  
 2.3057D-01 5.9988D-02 3.8404D-02 -2.5626D-02 1.8924D-02 -7.9733D-03  
 -1.0054D-02 3.0355D-02 -2.7993D-03 -1.1941D-02 3.0350D-03 2.1144D-03  
 -8.1713D-04 1.5263D-04 1.3206D-05 5.1078D-06 0.0 0.0

ELAB= 8.0000E+06 LMAX= 17  
 2.4836D-01 8.6394D-02 4.0998D-02 -1.5183D-02 2.4978D-02 -6.7442D-03  
 -6.7145D-03 1.5926D-02 -1.3953D-02 -6.1409D-03 8.4071D-03 1.1117D-03  
 -1.7837D-03 3.3338D-04 1.0816D-05 1.5714D-05 1.0307D-05 0.0

ELAB= 1.0000E+07 LMAX= 18  
 3.0117D-01 1.2620D-01 4.3549D-02 -6.5266D-03 1.8595D-02 -1.6157D-02  
 -4.8663D-03 3.5579D-04 -7.0410D-03 1.8899D-02 1.0212D-02 -6.5299D-03  
 -2.5782D-03 1.0503D-03 -2.3075D-04 5.9800D-05 1.2136D-04 1.5142D-05

ELAB= 1.2000E+07 LMAX= 20  
 3.1929D-01 1.4778D-01 5.6605D-02 -8.8801D-04 2.0676D-02 -1.7856D-02  
 6.3163D-03 1.1091D-03 1.1390D-03 2.1410D-02 -1.5817D-03 -7.6016D-03  
 3.4456D-03 9.7835D-04 -2.2176D-03 4.1881D-05 4.7149D-04 3.1018D-05  
 7.6794D-05 1.7314D-05 0.0 0.0 0.0 0.0

ELAB= 1.4000E+07 LMAX= 21  
 3.4059D-01 1.8480D-01 7.8696D-02 1.1027D-02 2.6307D-02 -1.7112D-02  
 9.5630D-03 -1.9817D-03 6.9337D-04 1.7433D-02 -1.0829D-03 5.2358D-03  
 1.0633D-02 -3.6901D-03 -6.5539D-03 2.3165D-04 7.2280D-04 -1.2164D-04  
 3.5912D-04 9.7856D-05 3.8738D-05 0.0 0.0 0.0

ELAB= 1.6000E+07 LMAX= 22  
 3.6854D-01 2.2573D-01 9.9454D-02 2.8344D-02 3.3326D-02 -1.1492D-02  
 1.2212D-02 -1.1702D-03 3.4491D-03 1.5915D-02 3.2505D-03 9.4664D-03  
 8.4038D-03 -8.2627D-03 -7.1487D-03 1.1422D-03 -1.2124D-03 -8.7408D-04  
 1.0089D-03 2.0586D-04 1.7215D-04 4.5718D-05 0.0 0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR PLUTONIUM 242  
(CH.LAGRANGE 1981)

LEGENRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)

THE LEGENRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.8000E+07 LMAX= 23  
3.8841D-01 2.5484D-01 1.1861D-01 4.9174D-02 4.0652D-02 -4.1176D-03  
1.3299D-02 -3.0504D-03 2.3301D-03 7.1705D-03 -5.3578D-04 1.6899D-03  
5.0209D-04 -5.4575D-03 1.2126D-03 1.8991D-03 -6.7661D-03 -1.8146D-03  
2.0326D-03 2.7477D-05 4.0779D-04 1.5330D-04 6.4605D-05 0.0

ELAB= 2.0000E+07 LMAX= 24  
4.0760D-01 2.7204D-01 1.3650D-01 7.0268D-02 5.0779D-02 8.3413D-03  
1.7716D-02 -1.9045D-03 3.3583D-03 1.2583D-03 -2.0329D-03 -6.2728D-04  
-2.0729D-03 1.0788D-04 8.2513D-03 -1.0574D-03 -1.1795D-02 -1.0969D-03  
1.7444D-03 -9.8872D-04 8.4102D-04 3.3241D-04 2.5423D-04 8.4883D-05

NEUTRON TRANSMISSION COEFFICIENTS FOR PLUTONIUM 242.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

E= 0.10000E+02(MEV) LMAX= 14 JMAX= 27/2  
 0.65694E+00 0.78792E+00 0.78004E+00 0.66749E+00 0.66663E+00 0.81105E+00 0.74866E+00 0.73182E+00 0.79129E+00 0.71106E+00  
 0.58914E+00 0.80027E+00 0.78956E+00 0.31027E+00 0.40380E+00 0.12721E+00 0.69563E-01 0.21086E-01 0.21931E-01 0.19278E-02  
 0.26660E-02 0.21872E-03 0.22107E-03 0.20602E-04 0.21912E-04 0.19581E-05 0.19786E-05 0.17600E-06

E= 0.12000E+02(MEV) LMAX= 16 JMAX= 31/2  
 0.65798E+00 0.76421E+00 0.75332E+00 0.67207E+00 0.67631E+00 0.77582E+00 0.71707E+00 0.75309E+00 0.79872E+00 0.69875E+00  
 0.61349E+00 0.90912E+00 0.78312E+00 0.50207E+00 0.65480E+00 0.29326E+00 0.17790E+00 0.75204E-01 0.64483E-01 0.82778E-02  
 0.13416E-01 0.11380E-02 0.11365E-02 0.12509E-03 0.13938E-03 0.14334E-04 0.14444E-04 0.15316E-05 0.15509E-05 0.15582E-06  
 0.15639E-06 0.14742E-07

E= 0.14000E+02(MEV) LMAX= 17 JMAX= 33/2  
 0.65923E+00 0.74122E+00 0.72870E+00 0.67648E+00 0.68362E+00 0.74602E+00 0.69305E+00 0.76255E+00 0.79193E+00 0.68527E+00  
 0.63170E+00 0.91357E+00 0.74772E+00 0.63721E+00 0.81129E+00 0.45938E+00 0.33495E+00 0.19104E+00 0.13670E+00 0.27249E-01  
 0.48074E-01 0.41721E-02 0.44492E-02 0.54840E-03 0.62414E-03 0.72170E-04 0.73227E-04 0.89265E-05 0.90784E-05 0.10579E-05  
 0.10633E-05 0.11754E-06 0.11775E-06 0.12069E-07

E= 0.16000E+02(MEV) LMAX= 18 JMAX= 35/2  
 0.66055E+00 0.71969E+00 0.70647E+00 0.68024E+00 0.68811E+00 0.72152E+00 0.67438E+00 0.76358E+00 0.77785E+00 0.67770E+00  
 0.64910E+00 0.88385E+00 0.71523E+00 0.72734E+00 0.87437E+00 0.56200E+00 0.48911E+00 0.36564E+00 0.22486E+00 0.74339E-01  
 0.12200E+00 0.11055E-01 0.14372E-01 0.18967E-02 0.21015E-02 0.27444E-03 0.28590E-03 0.38903E-04 0.39574E-04 0.52428E-05  
 0.52804E-05 0.66822E-06 0.66983E-06 0.79137E-07 0.79212E-07 0.86292E-08

E= 0.18000E+02(MEV) LMAX= 19 JMAX= 37/2  
 0.66161E+00 0.69999E+00 0.68669E+00 0.68268E+00 0.68972E+00 0.70108E+00 0.65973E+00 0.75893E+00 0.76035E+00 0.67389E+00  
 0.66402E+00 0.84841E+00 0.68993E+00 0.78977E+00 0.88059E+00 0.61032E+00 0.61373E+00 0.55190E+00 0.31514E+00 0.17025E+00  
 0.23017E+00 0.28404E-01 0.40132E-01 0.54116E-02 0.57089E-02 0.84930E-03 0.91764E-03 0.13591E-03 0.13766E-03 0.20473E-04  
 0.20680E-04 0.29380E-05 0.29475E-05 0.39424E-06 0.39473E-06 0.40895E-07 0.48921E-07 0.55708E-08

E= 0.20000E+02(MEV) LMAX= 20 JMAX= 39/2  
 0.66198E+00 0.68226E+00 0.66931E+00 0.68340E+00 0.68861E+00 0.68371E+00 0.64839E+00 0.75032E+00 0.74162E+00 0.67202E+00  
 0.67538E+00 0.81434E+00 0.67072E+00 0.82350E+00 0.86011E+00 0.63377E+00 0.70471E+00 0.69725E+00 0.40183E+00 0.32130E+00  
 0.35420E+00 0.60932E-01 0.98497E-01 0.13001E-01 0.13673E-01 0.22648E-02 0.25201E-02 0.39823E-03 0.40466E-03 0.66378E-04  
 0.67281E-04 0.10563E-04 0.10609E-04 0.15826E-05 0.15852E-05 0.22016E-06 0.22031E-06 0.28210E-07 0.28219E-07 0.33166E-08

NEUTRON TRANSMISSION COEFFICIENTS FOR PLUTONIUM 242.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

E= 0.10000E+01(MEV)	LMAX= 6	JMAX= 11/2
0.46877E+00 0.74104E+00 0.78945E+00 0.24908E+00 0.24444E+00 0.13965E+00 0.15408E+00 0.55075E-02 0.64324E-02 0.42102E-03		
0.70910E-03 0.94296E-05		
E= 0.12500E+01(MEV)	LMAX= 6	JMAX= 11/2
0.49894E+00 0.76911E+00 0.78938E+00 0.31200E+00 0.31336E+00 0.25372E+00 0.28205E+00 0.13518E-01 0.16395E-01 0.13884E-02		
0.20996E-02 0.40750E-04		
E= 0.15000E+01(MEV)	LMAX= 7	JMAX= 13/2
0.51898E+00 0.77628E+00 0.77606E+00 0.36382E+00 0.36789E+00 0.37718E+00 0.42527E+00 0.27419E-01 0.34124E-01 0.36253E-02		
0.49443E-02 0.13467E-03 0.14088E-03 0.40997E-05		
E= 0.17500E+01(MEV)	LMAX= 7	JMAX= 13/2
0.53134E+00 0.77424E+00 0.76388E+00 0.40582E+00 0.40811E+00 0.48940E+00 0.55748E+00 0.48442E-01 0.61125E-01 0.80522E-02		
0.99921E-02 0.36822E-03 0.40294E-03 0.12122E-04		
E= 0.20000E+01(MEV)	LMAX= 7	JMAX= 13/2
0.53804E+00 0.76820E+00 0.75479E+00 0.43938E+00 0.43566E+00 0.58254E+00 0.66316E+00 0.76841E-01 0.97184E-01 0.15891E-01		
0.18052E-01 0.87129E-03 0.94100E-03 0.30755E-04		
E= 0.25000E+01(MEV)	LMAX= 8	JMAX= 15/2
0.54130E+00 0.75322E+00 0.74489E+00 0.48596E+00 0.46322E+00 0.71551E+00 0.78855E+00 0.15076E+00 0.18676E+00 0.47923E-01		
0.45287E-01 0.34989E-02 0.36503E-02 0.14092E-03 0.71454E-04 0.81061E-05		
E= 0.30000E+01(MEV)	LMAX= 9	JMAX= 17/2
0.53999E+00 0.74100E+00 0.74175E+00 0.51204E+00 0.47587E+00 0.79666E+00 0.83178E+00 0.23234E+00 0.27884E+00 0.11133E+00		
0.85436E-01 0.10015E-01 0.10159E-01 0.46603E-03 0.26283E-03 0.37153E-04 0.23413E-04 0.60700E-06		
E= 0.40000E+01(MEV)	LMAX= 10	JMAX= 19/2
0.54360E+00 0.73478E+00 0.74472E+00 0.53964E+00 0.50083E+00 0.86494E+00 0.82404E+00 0.36830E+00 0.42821E+00 0.32336E+00		
0.17797E+00 0.42491E-01 0.45409E-01 0.28161E-02 0.20048E-02 0.34832E-03 0.19075E-03 0.81093E-05 0.16941E-04 0.46626E-06		
E= 0.50000E+01(MEV)	LMAX= 11	JMAX= 21/2
0.55781E+00 0.74309E+00 0.75210E+00 0.55898E+00 0.53534E+00 0.86345E+00 0.79635E+00 0.46005E+00 0.53695E+00 0.52282E+00		
0.27035E+00 0.10948E+00 0.13654E+00 0.10569E-01 0.92534E-02 0.16003E-02 0.88850E-03 0.59013E-04 0.13058E-03 0.40648E-05		
0.36137E-05 0.17211E-06		
E= 0.60000E+01(MEV)	LMAX= 12	JMAX= 23/2
0.57694E+00 0.75462E+00 0.75970E+00 0.58050E+00 0.56755E+00 0.84589E+00 0.77651E+00 0.53114E+00 0.61858E+00 0.62204E+00		
0.35990E+00 0.21507E+00 0.30009E+00 0.28833E-01 0.30064E-01 0.51391E-02 0.29436E-02 0.29385E-03 0.61832E-03 0.21237E-04		
0.21000E-04 0.11894E-05 0.14253E-05 0.72524E-07		
E= 0.70000E+01(MEV)	LMAX= 12	JMAX= 23/2
0.59747E+00 0.76534E+00 0.7630E+00 0.60347E+00 0.59430E+00 0.83164E+00 0.76454E+00 0.59526E+00 0.67970E+00 0.66316E+00		
0.44041E+00 0.35935E+00 0.49847E+00 0.63792E-01 0.74915E-01 0.13941E-01 0.78339E-02 0.11240E-02 0.20188E-02 0.82087E-04		
0.91495E-04 0.59540E-05 0.68925E-05 0.41817E-06		
E= 0.80000E+01(MEV)	LMAX= 13	JMAX= 25/2
0.61793E+00 0.77440E+00 0.77176E+00 0.62583E+00 0.61804E+00 0.82220E+00 0.75705E+00 0.65108E+00 0.72625E+00 0.68553E+00		
0.50557E+00 0.52653E+00 0.65989E+00 0.12228E+00 0.15319E+00 0.33306E-01 0.17999E-01 0.35120E-02 0.51289E-02 0.27153E-03		
0.52625E-03 0.23516E-04 0.25813E-04 0.18511E-05 0.18831E-05 0.13849E-06		

NEUTRON TRANSMISSION COEFFICIENTS FOR PLUTONIUM 242.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

E= 0.10000E-02(MEV)	LMAX= 3	JMAX= 5/2						
0.20096E-01	0.11993E-03	0.16286E-03	0.40499E-07	0.26471E-07	0.54955E-11			
E= 0.50000E-02(MEV)	LMAX= 3	JMAX= 5/2						
0.44350E-01	0.13317E-02	0.18072E-02	0.22491E-05	0.14726E-05	0.15351E-08			
E= 0.10000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.62090E-01	0.37329E-02	0.50610E-02	0.12617E-04	0.82796E-05	0.17354E-07			
E= 0.20000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.86530E-01	0.10363E-01	0.14019E-01	0.70192E-04	0.46264E-04	0.19605E-06			
E= 0.30000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.10476E+00	0.18672E-01	0.25198E-01	0.19020E-03	0.12592E-03	0.80917E-06			
E= 0.40000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.11978E+00	0.28106E-01	0.37934E-01	0.38386E-03	0.25520E-03	0.22116E-05			
E= 0.60000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.14511E+00	0.48361E-01	0.65305E-01	0.10017E-02	0.70468E-03	0.88080E-05			
E= 0.80000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.16533E+00	0.71417E-01	0.96072E-01	0.19884E-02	0.14125E-02	0.24035E-04			
E= 0.10000E+00(MEV)	LMAX= 3	JMAX= 5/2						
0.18269E+00	0.95737E-01	0.12823E+00	0.33577E-02	0.24088E-02	0.52347E-04			
E= 0.20000E+00(MEV)	LMAX= 3	JMAX= 5/2						
0.24853E+00	0.22865E+00	0.30085E+00	0.16125E-01	0.12249E-01	0.65781E-03			
E= 0.30000E+00(MEV)	LMAX= 4	JMAX= 7/2						
0.29497E+00	0.34718E+00	0.44247E+00	0.37315E-01	0.29777E-01	0.26968E-02	0.30272E-02	0.32883E-04	
E= 0.40000E+00(MEV)	LMAX= 4	JMAX= 7/2						
0.33228E+00	0.44784E+00	0.55289E+00	0.64411E-01	0.53787E-01	0.72180E-02	0.80551E-02	0.11469E-03	
E= 0.50000E+00(MEV)	LMAX= 4	JMAX= 7/2						
0.36376E+00	0.53063E+00	0.63569E+00	0.94959E-01	0.82547E-01	0.15317E-01	0.17040E-01	0.29973E-03	
E= 0.60000E+00(MEV)	LMAX= 5	JMAX= 9/2						
0.39094E+00	0.59721E+00	0.69581E+00	0.12703E+00	0.11429E+00	0.28066E-01	0.31143E-01	0.65258E-03	0.69871E-03
E= 0.70000E+00(MEV)	LMAX= 5	JMAX= 9/2						
0.41459E+00	0.64957E+00	0.73769E+00	0.15923E+00	0.14746E+00	0.46409E-01	0.51376E-01	0.12525E-02	0.13752E-02
E= 0.80000E+00(MEV)	LMAX= 5	JMAX= 9/2						
0.43522E+00	0.68970E+00	0.76513E+00	0.19065E+00	0.18080E+00	0.71031E-01	0.78473E-01	0.21918E-02	0.24618E-02

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CURIUM 246  
(CH.LAGRANGE 1981)

NEUTRON TOTAL CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	2.6589D+01	5.0000D+03	1.8514D+01	1.0000D+04	1.6656D+01
2.0000D+04	1.5357D+01	3.0000D+04	1.4766D+01	4.0000D+04	1.4389D+01
5.0000D+04	1.4107D+01	6.0000D+04	1.3878D+01	8.0000D+04	1.3501D+01
1.0000D+05	1.3182D+01	2.0000D+05	1.1903D+01	3.0000D+05	1.0894D+01
4.0000D+05	1.0054D+01	6.0000D+05	8.8234D+00	8.0000D+05	8.0623D+00
1.0000D+06	7.6459D+00	1.2500D+06	7.4389D+00	1.5000D+06	7.4249D+00
1.7500D+06	7.4975D+00	2.0000D+06	7.6049D+00	2.5000D+06	7.8281D+00
3.0000D+06	7.9769D+00	4.0000D+06	7.9505D+00	5.0000D+06	7.5968D+00
6.0000D+06	7.1089D+00	7.0000D+06	6.6439D+00	8.0000D+06	6.2683D+00
1.0000D+07	5.8606D+00	1.2000D+07	5.7943D+00	1.4000D+07	5.9491D+00
1.6000D+07	6.1857D+00	1.8000D+07	6.4085D+00	2.0000D+07	6.5595D+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CURIUM 246  
(CH.LAGRANGE 1981)

NEUTRON COMPOUND NUCLEUS FORMATION CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	1.5103D+01	5.0000D+03	7.2572D+00	1.0000D+04	5.6020D+00
2.0000D+04	4.6291D+00	3.0000D+04	4.3138D+00	4.0000D+04	4.1844D+00
5.0000D+04	4.1297D+00	6.0000D+04	4.1098D+00	8.0000D+04	4.1130D+00
1.0000D+05	4.1337D+00	2.0000D+05	4.1647D+00	3.0000D+05	4.0819D+00
4.0000D+05	3.9422D+00	6.0000D+05	3.6812D+00	8.0000D+05	3.5094D+00
1.0000D+06	3.4324D+00	1.2500D+06	3.4140D+00	1.5000D+06	3.4134D+00
1.7500D+06	3.3909D+00	2.0000D+06	3.3456D+00	2.5000D+06	3.2300D+00
3.0000D+06	3.1232D+00	4.0000D+06	2.9722D+00	5.0000D+06	2.8825D+00
6.0000D+06	2.8439D+00	7.0000D+06	2.8448D+00	8.0000D+06	2.8568D+00
1.0000D+07	2.8773D+00	1.2000D+07	2.7981D+00	1.4000D+07	2.7226D+00
1.6000D+07	2.6594D+00	1.8000D+07	2.6101D+00	2.0000D+07	2.5744D+00



RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CURIUM 246  
(CH.LAGRANGE 1981)

NEUTRON SHAPE ELASTIC SCATTERING CRDSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	1.1486D+01	5.0000D+03	1.1256D+01	1.0000D+04	1.1054D+01
2.0000D+04	1.0728D+01	3.0000D+04	1.0452D+01	4.0000D+04	1.0204D+01
5.0000D+04	9.9771D+00	6.0000D+04	9.7661D+00	8.0000D+04	9.3819D+00
1.0000D+05	9.0374D+00	2.0000D+05	7.6976D+00	3.0000D+05	6.7411D+00
4.0000D+05	6.0085D+00	6.0000D+05	4.9613D+00	8.0000D+05	4.2790D+00
1.0000D+06	3.8419D+00	1.2500D+06	3.5412D+00	1.5000D+06	3.4374D+00
1.7500D+06	3.4670D+00	2.0000D+06	3.5776D+00	2.5000D+06	3.8869D+00
3.0000D+06	4.1580D+00	4.0000D+06	4.3595D+00	5.0000D+06	4.1755D+00
6.0000D+06	3.7812D+00	7.0000D+06	3.3507D+00	8.0000D+06	2.9932D+00
1.0000D+07	2.6191D+00	1.2000D+07	2.6340D+00	1.4000D+07	2.8778D+00
1.6000D+07	3.1981D+00	1.8000D+07	3.4900D+00	2.0000D+07	3.6918D+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CURIUM 246  
(CH.LAGRANGE 1981)

NEUTRON DIRECT INELASTIC FIRST EXCITED LEVEL

E	S(E)	E	S(E)	E	S(E)
5.0000D+04	6.0009D-04	6.0000D+04	1.9095D-03	8.0000D+04	5.7732D-03
1.0000D+05	1.0721D-02	2.0000D+05	4.0341D-02	3.0000D+05	6.9412D-02
4.0000D+05	9.7429D-02	6.0000D+05	1.5706D-01	8.0000D+05	2.2343D-01
1.0000D+06	2.9201D-01	1.2500D+06	3.7196D-01	1.5000D+06	4.3849D-01
1.7500D+06	4.8874D-01	2.0000D+06	5.2273D-01	2.5000D+06	5.4903D-01
3.0000D+06	5.3813D-01	4.0000D+06	4.7706D-01	5.0000D+06	4.1470D-01
6.0000D+06	3.7363D-01	7.0000D+06	3.5068D-01	8.0000D+06	3.3389D-01
1.0000D+07	3.0186D-01	1.2000D+07	3.0603D-01	1.4000D+07	2.9919D-01
1.6000D+07	2.8522D-01	1.8000D+07	2.7113D-01	2.0000D+07	2.6064D-01

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CURIUM 246  
 (CH.LAGRANGE 1981)

NEUTRON DIRECT INELASTIC SECOND EXCITED LEVEL

E	S(E)	E	S(E)	E	S(E)
2.0000D+05	1.0974D-04	3.0000D+05	1.7724D-03	4.0000D+05	6.0448D-03
6.0000D+05	2.3852D-02	8.0000D+05	5.0525D-02	1.0000D+06	7.9620D-02
1.2500D+06	1.1176E-01	1.5000D+06	1.3560D-01	1.7500D+06	1.5088D-01
2.0000D+06	1.5906D-01	2.5000D+06	1.6215D-01	3.0000D+06	1.5761D-01
4.0000D+06	1.4170D-01	5.0000D+06	1.2410D-01	6.0000D+06	1.1016D-01
7.0000D+06	9.7621D-02	8.0000D+06	8.4419D-02	1.0000D+07	6.2405D-02
1.2000D+07	5.6229D-02	1.4000D+07	4.9525D-02	1.6000D+07	4.2985D-02
1.8000D+07	3.7271D-02	2.0000D+07	3.2694D-02	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CURIUM 246  
(CH.LAGRANGE 1981)

LEGENRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.0000E+03	LMAX= 3	1.0137D-02	1.1040D-05	2.4261D-06	0.0	0.0	0.0
ELAB= 5.0000E+03	LMAX= 3	5.5366D-02	3.4226D-04	7.5060D-07	0.0	0.0	0.0
ELAB= 1.0000E+04	LMAX= 3	1.1658D-01	1.4132D-03	-7.9232D-07	0.0	0.0	0.0
ELAB= 2.0000E+04	LMAX= 3	2.4608D-01	5.5314D-03	4.0981D-05	0.0	0.0	0.0
ELAB= 3.0000E+04	LMAX= 3	3.7912D-01	1.2134D-02	1.3861D-04	0.0	0.0	0.0
ELAB= 4.0000E+04	LMAX= 3	5.1217D-01	2.0988D-02	3.2222D-04	0.0	0.0	0.0
ELAB= 5.0000E+04	LMAX= 3	6.4316D-01	3.1897D-02	6.2969D-04	0.0	0.0	0.0
ELAB= 6.0000E+04	LMAX= 3	7.7103D-01	4.4671D-02	1.0563D-03	0.0	0.0	0.0
ELAB= 8.0000E+04	LMAX= 3	1.0144D+00	7.4966D-02	2.3902D-03	0.0	0.0	0.0
ELAB= 1.0000E+05	LMAX= 3	1.2388D+00	1.1051D-01	4.4732D-03	0.0	0.0	0.0
ELAB= 2.0000E+05	LMAX= 3	2.0628D+00	3.2875D-01	2.8227D-02	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	2.4838D+00	5.4165D-01	7.9711D-02	8.2504D-03	2.4934D-05	0.0
ELAB= 4.0000E+05	LMAX= 5	2.6533D+00	7.2103D-01	1.5209D-01	2.1362D-02	1.6203D-04	0.0
ELAB= 6.0000E+05	LMAX= 6	2.6317D+00	9.6137D-01	3.4072D-01	7.4811D-02	2.2927D-03	6.2917D-04
ELAB= 8.0000E+05	LMAX= 6	2.4528D+00	1.1038D+00	5.5260D-01	1.6883D-01	1.1451D-02	2.9160D-03
ELAB= 1.0000E+06	LMAX= 8	2.2844D+00	1.2172D+00	7.5684D-01	3.0127D-01	3.6006D-02	9.6308D-03
		8.1278D-04	7.7113D-05	0.0	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CURTIUM 246  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.2500E+06	LMAX= 8	2.1802D+00	1.3707D+00	9.7664D-01	5.0282D-01	1.0036D-01	2.7873D-02
		3.1273D-03	3.7064D-04	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 9	2.2116D+00	1.5487D+00	1.1568D+00	7.1565D-01	2.0483D-01	6.0486D-02
		8.5173D-03	1.1766D-03	1.1590D-04	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	2.3470D+00	1.7412D+00	1.3148D+00	9.1571D-01	3.3865D-01	1.0831D-01
		1.8890D-02	3.0330D-03	3.3856D-04	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	7.1071D-01	5.4216D-01	4.1008D-01	3.0573D-01	1.3596D-01	4.7623D-02
		1.0040D-02	1.8713D-03	2.4531D-04	0.0	0.0	0.0
ELAB= 2.5000E+06	LMAX= 11	7.6702D-01	5.9968D-01	4.5649D-01	3.5744D-01	1.9985D-01	8.3883D-02
		2.4033D-02	5.7874D-03	1.0353D-03	1.3397D-04	1.3831D-05	0.0
ELAB= 3.0000E+06	LMAX= 12	8.0635D-01	6.4253D-01	4.9615D-01	3.9012D-01	2.4538D-01	1.1891D-01
		4.2912D-02	1.3135D-02	2.9966D-03	4.8968D-04	7.2137D-05	8.2610D-06
ELAB= 4.0000E+06	LMAX= 14	8.4925D-01	7.0276D-01	5.6327D-01	4.4098D-01	3.0761D-01	1.7599D-01
		8.5076D-02	3.7212D-02	1.2424D-02	2.9359D-03	5.9533D-04	9.4720D-05
		1.0076D-05	9.4753D-07	0.0	0.0	0.0	0.0
ELAB= 5.0000E+06	LMAX= 15	8.6448D-01	7.3492D-01	6.0983D-01	4.8286D-01	3.5441D-01	2.2235D-01
		1.2475D-01	6.9214D-02	3.1248D-02	1.0056D-02	2.6755D-03	5.5467D-04
		8.4959D-05	1.4725D-05	1.8906D-06	0.0	0.0	0.0
ELAB= 6.0000E+06	LMAX= 16	8.6702D-01	7.4849D-01	6.3839D-01	5.1820D-01	3.9396D-01	2.6749D-01
		1.6436D-01	1.0569D-01	6.0500D-02	2.5446D-02	8.6064D-03	2.2461D-03
		4.4134D-04	9.1134D-05	1.5052D-05	2.1449D-06	0.0	0.0
ELAB= 7.0000E+06	LMAX= 16	8.6444D-01	7.5017D-01	6.5233D-01	5.4501D-01	4.2899D-01	3.1274D-01
		2.0857D-01	1.4596D-01	9.9105D-02	5.2164D-02	2.1713D-02	6.8806D-03
		1.6695D-03	4.0959D-04	8.1873D-05	1.3654D-05	0.0	0.0
ELAB= 8.0000E+06	LMAX= 17	8.6022D-01	7.4286D-01	6.5109D-01	5.5808D-01	4.5603D-01	3.5246D-01
		2.5498D-01	1.8871D-01	1.4292D-01	8.9842D-02	4.4401D-02	1.6678D-02
		4.9346D-03	1.4134D-03	3.2432D-04	6.7461D-05	1.1725D-05	0.0



RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CURIUM 246  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7.8..... 12

ELAB= 5.0000E+04	LMAX= 3	2.1117D-04	2.3661D-05	-5.4580D-07	0.0	0.0	0.0
ELAB= 6.0000E+04	LMAX= 3	6.6174D-04	9.1774D-05	-3.9496D-06	0.0	0.0	0.0
ELAB= 8.0000E+04	LMAX= 3	1.9322D-03	2.8435D-04	-2.3964D-05	0.0	0.0	0.0
ELAB= 1.0000E+05	LMAX= 3	3.5128D-03	5.0144D-04	-6.7033D-05	0.0	0.0	0.0
ELAB= 2.0000E+05	LMAX= 3	1.2080D-02	1.1140D-03	-7.1482D-04	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	1.7327D-02	-9.3777D-04	-2.3904D-03	4.0285D-04	-6.5958D-06	0.0
ELAB= 4.0000E+05	LMAX= 5	2.0487D-02	-3.3140D-03	-4.5486D-03	1.0464D-03	-1.9493D-05	0.0
ELAB= 6.0000E+05	LMAX= 6	2.3199D-02	-8.2266D-03	-9.5071D-03	2.5740D-03	-7.6038D-05	1.0743D-04
ELAB= 8.0000E+05	LMAX= 6	2.4184D-02	-1.1671D-02	-1.4896D-02	3.6193D-03	-7.0313D-05	4.5028D-04
ELAB= 1.0000E+06	LMAX= 8	2.4570D-02	-1.3521D-02	-1.9433D-02	2.7794D-03	2.5066D-04	1.2115D-03
		-3.6423D-05	1.6418D-05	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	2.5319D-02	-1.4102D-02	-2.3020D-02	-1.6712D-03	1.1673D-03	2.8294D-03
		-1.1475D-04	7.4771D-05	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 9	2.7762D-02	-1.3440D-02	-2.4490D-02	-8.7951D-03	2.9205D-03	4.6987D-03
		-1.6398D-04	2.7092D-04	-1.3827D-05	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	3.3303D-02	-1.1922D-02	-2.4642D-02	-1.5065D-02	5.9055D-03	6.2271D-03
		-1.5797D-04	6.5474D-04	-4.1092D-05	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	8.1568D-02	-1.6531D-02	-4.3961D-02	-3.3589D-02	1.8974D-02	1.2698D-02
		1.9075D-04	2.4659D-03	-1.7975D-04	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CURIUM 246  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2,..6 AND NEXT LINE 7,8..... 12

ELAB= 2.5000E+06	LMAX= 11	1.2618D-01	9.1942D-03	-2.1045D-02	-1.8520D-02	3.4015D-02	6.9594D-03				
		2.9460D-03	5.0866D-03	-4.2804D-04	4.1614D-04	-6.1855D-06	0.0				
ELAB= 3.0000E+06	LMAX= 12	1.7431D-01	3.9906D-02	1.0682D-02	5.2473D-03	4.7271D-02	-1.2561D-03				
		5.4207D-03	6.6624D-03	-4.1108D-04	1.3416D-03	-3.6254D-05	2.8458D-05				
ELAB= 4.0000E+06	LMAX= 14	2.3413D-01	7.8481D-02	4.6518D-02	3.0685D-02	5.5889D-02	-9.1251D-03				
		-5.6789D-03	-1.4862D-03	2.4459D-03	5.7795D-03	-3.6900D-04	3.5368D-04				
		1.4469D-05	3.7444D-06	0.0	0.0	0.0	0.0				
ELAB= 5.0000E+06	LMAX= 15	2.6361D-01	8.6426D-02	3.2918D-02	3.0142D-02	3.4744D-02	-6.7696D-03				
		-2.8219D-02	-2.3809D-02	9.1391D-03	1.1014D-02	-1.6220D-03	1.9396D-03				
		6.4881D-05	4.3111D-05	6.7520D-06	0.0	0.0	0.0				
ELAB= 6.0000E+06	LMAX= 16	2.9177D-01	8.1356D-02	8.1568D-03	1.2228D-02	4.6539D-03	-1.3283D-02				
		-3.7887D-02	-3.7116D-02	1.3314D-02	7.2171D-03	-2.8646D-03	6.0127D-03				
		9.3198D-05	2.1736D-04	4.6726D-05	6.0107D-06	0.0	0.0				
ELAB= 7.0000E+06	LMAX= 16	3.1870D-01	8.3551D-02	2.8602D-04	-8.7356D-04	-9.7307D-03	-1.8584D-02				
		-3.1436D-02	-3.7818D-02	4.5255D-03	-6.4043D-03	-5.9577D-04	1.1756D-02				
		-1.5808D-04	7.6172D-04	2.0658D-04	2.9870D-05	0.0	0.0				
ELAB= 8.0000E+06	LMAX= 17	3.3997D-01	9.3288D-02	3.0193D-03	-6.7023D-03	-1.6213D-02	-2.4338D-02				
		-2.9448D-02	-4.2378D-02	-1.0623D-02	-1.6633D-02	5.7508D-03	1.5953D-02				
		-7.9035D-04	2.0889D-03	6.3297D-04	1.2246D-04	4.0495D-05	0.0				
ELAB= 1.0000E+07	LMAX= 19	3.9197D-01	1.3669D-01	2.1620D-02	-4.9026D-03	-2.4007D-02	-3.7939D-02				
		-3.7587D-02	-5.0901D-02	-2.3022D-02	-1.2558D-02	1.2514D-02	1.0235D-02				
		-4.1290D-04	8.8189D-03	3.4038D-03	9.4723D-04	4.4763D-04	9.5015D-05				
		2.4387D-05	0.0	0.0	0.0	0.0	0.0				
ELAB= 1.2000E+07	LMAX= 20	4.4363D-01	1.9066D-01	5.4797D-02	2.1419D-02	-1.0285D-02	-2.4752D-02				
		-2.8813D-02	-3.6062D-02	-1.8457D-02	-7.8557D-03	6.6941D-03	-2.7772D-03				
		2.0091D-03	1.6639D-02	7.5050D-03	3.2596D-03	2.2185D-03	5.2044D-04				
		2.1382D-04	4.7251D-05	0.0	0.0	0.0	0.0				



RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CURTUM 246  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.4000E+07	LMAX= 21	4.8737D-01	2.4012D-01	9.5952D-02	5.6387D-02	1.9238D-02	4.0514D-03
		-6.3094D-03	-1.3284D-02	-4.7966D-03	-1.2360D-03	1.1864D-02	3.9708D-04
		4.7005D-03	1.4752D-02	7.7032D-03	7.2883D-03	6.5919D-03	1.7689D-03
		1.0004D-03	2.8737D-04	8.1143D-05	0.0	0.0	0.0
ELAB= 1.6000E+07	LMAX= 22	5.1808D-01	2.7508D-01	1.2708D-01	8.3700D-02	4.8330D-02	3.3815D-02
		2.3644D-02	1.4143D-02	1.8290D-02	1.4063D-02	2.2621D-02	9.7967D-03
		2.7938D-03	1.6127D-03	1.5195D-03	1.1185D-02	1.1606D-02	3.9162D-03
		3.2016D-03	9.3345D-04	3.8799D-04	1.0167D-04	0.0	0.0
ELAB= 1.8000E+07	LMAX= 23	5.4161D-01	2.9898D-01	1.4837D-01	9.8497D-02	6.3627D-02	4.9818D-02
		4.2043D-02	3.1449D-02	3.2614D-02	2.3518D-02	2.5107D-02	1.1786D-02
		2.8320D-04	-7.2599D-03	-4.4215D-03	1.0095D-02	1.1850D-02	6.7059D-03
		7.1253D-03	2.2573D-03	1.1505D-03	4.1358D-04	1.2688D-04	0.0
ELAB= 2.0000E+07	LMAX= 24	5.6470D-01	3.2036D-01	1.6937D-01	1.0991D-01	7.2846D-02	5.7635D-02
		5.0414D-02	4.0641D-02	3.9301D-02	2.9109D-02	2.5750D-02	1.3072D-02
		1.3587D-03	-8.1085D-03	-9.0033D-03	1.6113D-03	6.4637D-03	9.9486D-03
		1.1953D-02	4.5854D-03	3.0263D-03	1.1654D-03	4.9843D-04	1.4843D-04

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CURIUM 246  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2,...6 AND NEXT LINE 7,8,..... 12

ELAB= 2.0000E+05	LMAX= 3	2.6220D-05	1.5764D-05	1.2750D-06	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	6.3912D-04	4.0837D-04	2.6000D-05	2.2651D-06	-2.9568D-07	0.0
ELAB= 4.0000E+05	LMAX= 5	2.4043D-03	1.3999D-03	7.2927D-05	-1.0778D-06	-1.4463D-06	0.0
ELAB= 6.0000E+05	LMAX= 6	1.0020D-02	4.6961D-03	-9.2722D-05	-1.0394D-04	-3.7500D-06	2.3496D-06
ELAB= 8.0000E+05	LMAX= 6	2.0553D-02	7.4340D-03	-1.0420D-03	-3.6919D-04	2.3303D-05	9.8176D-06
ELAB= 1.0000E+06	LMAX= 8	3.0188D-02	6.9582D-03	-3.0408D-03	-7.3004D-04	1.8403D-04	1.7931D-05
		-8.0718D-06	7.4120D-07	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	3.7390D-02	1.7097D-03	-5.7673D-03	-6.0557D-04	5.1010D-04	2.0721D-06
		-2.2868D-05	4.3165D-06	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 9	3.9625D-02	-5.2019D-03	-6.9261D-03	5.7623D-04	8.9993D-04	-9.6179D-05
		-3.7044D-05	1.2748D-05	-1.8940D-06	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	3.9328D-02	-9.8430D-03	-6.0306D-03	2.3632D-03	1.1089D-03	-2.6288D-04
		-3.8757D-05	2.4286D-05	-5.5026D-06	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	2.4086D-01	-7.0547D-02	-2.2847D-02	2.5241D-02	6.4182D-03	-2.8118D-03
		-7.4273D-05	2.0785D-04	-7.7760D-05	0.0	0.0	0.0
ELAB= 2.5000E+06	LMAX= 11	2.2405D-01	-5.5026D-02	8.7778D-03	3.0395D-02	1.1301D-03	-3.0077D-03
		9.1000D-04	-1.6532D-04	-2.3762D-04	9.1683D-05	-4.9401D-06	0.0
ELAB= 3.0000E+06	LMAX= 12	2.2109D-01	-3.7712D-02	2.5329D-02	1.9572D-02	-3.6960D-03	5.0540D-04
		1.7353D-03	-1.4433D-03	-4.1462D-04	2.7002D-04	-2.9390D-05	7.7668D-06
ELAB= 4.0000E+06	LMAX= 14	2.2510D-01	-1.1851D-02	3.5099D-02	-1.0049D-02	8.6883D-04	8.3686D-03
		-4.5082D-03	-4.3167D-03	6.3011D-04	5.6978D-04	-2.6092D-04	1.0791D-04
		-9.1476D-07	2.5414D-06	0.0	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CURIUM 246  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,6 ..... 12

ELAB= 5.0000E+06	LMAX= 15	2.1830D-01	6.4491D-03	3.2289D-02	-3.1678D-02	7.0326D-03	-2.0559D-03
		-1.9858D-02	4.3665D-03	4.9826D-03	-1.7455D-03	-7.8098D-04	5.9485D-04
		-3.8877D-05	1.1372D-05	1.0389D-06	0.0	0.0	0.0
ELAB= 6.0000E+06	LMAX= 16	2.0832D-01	2.8012D-02	3.0349D-02	-3.8533D-02	1.0574D-02	-1.1058D-02
		-2.1273D-02	2.5361D-02	6.1875D-03	-8.4699D-03	-3.2997D-04	1.5802D-03
		-2.7554D-04	5.0576D-05	5.0142D-06	9.3702D-07	0.0	0.0
ELAB= 7.0000E+06	LMAX= 16	2.0846D-01	5.3438D-02	3.6432D-02	-2.5663D-02	2.3404D-02	-3.7756D-03
		-8.6135D-03	3.0897D-02	-3.9019D-03	-1.2843D-02	3.1826D-03	2.3170D-03
		-9.2331D-04	1.4004D-04	9.5029D-06	1.8859D-06	0.0	0.0
ELAB= 8.0000E+06	LMAX= 17	2.2477D-01	7.6028D-02	3.6942D-02	-1.5376D-02	2.9334D-02	-2.8662D-03
		-3.5922D-03	1.5222D-02	-1.6647D-02	-7.0095D-03	8.8064D-03	1.3917D-03
		-1.9174D-03	3.2571D-04	-5.2697D-06	2.1271D-06	1.0095D-05	0.0
ELAB= 1.0000E+07	LMAX= 19	2.7113D-01	1.0847D-01	3.6191D-02	-8.7949D-03	2.1138D-02	-1.4608D-02
		-3.1083D-03	-2.3077D-03	-1.1038D-02	1.7963D-02	9.7145D-03	-6.5679D-03
		-2.2533D-03	1.2557D-03	-3.6119D-04	-3.0342D-05	1.0275D-04	5.2203D-06
		6.4296D-06	0.0	0.0	0.0	0.0	0.0
ELAB= 1.2000E+07	LMAX= 20	2.7977D-01	1.2732D-01	4.5923D-02	-7.6899D-03	2.0859D-02	-2.0157D-02
		6.1648D-03	-2.8915D-03	-3.9920D-03	1.9639D-02	-4.4633D-03	-8.6318D-03
		5.0991D-03	1.7748D-03	-2.5825D-03	-9.8816D-05	4.5921D-04	-4.2205D-05
		6.4757D-05	1.2987D-05	0.0	0.0	0.0	0.0
ELAB= 1.4000E+07	LMAX= 21	2.9133D-01	1.6062D-01	6.3191D-02	9.9918D-04	2.4324D-02	-2.2460D-02
		7.9541D-03	-6.6721D-03	-4.9442D-03	1.5204D-02	-4.3090D-03	3.9626D-03
		1.2718D-02	-2.8774D-03	-6.8137D-03	5.6011D-04	6.9726D-04	-4.0048D-04
		3.2837D-04	7.0875D-05	3.3515D-05	0.0	0.0	0.0
ELAB= 1.6000E+07	LMAX= 22	3.1206D-01	1.9728D-01	7.9110D-02	1.6254D-02	2.9486D-02	-1.8085D-02
		1.0926D-02	-5.1776D-03	-1.5466D-04	1.4216D-02	1.2892D-03	7.6786D-03
		7.6308D-03	-8.6954D-03	-5.8769D-03	2.9948D-03	-1.3864D-03	-1.4654D-03
		1.0606D-03	9.0537D-05	1.4054D-04	3.4023D-05	0.0	0.0
ELAB= 1.8000E+07	LMAX= 23	3.2727D-01	2.2340D-01	9.4703D-02	3.4656D-02	3.4172D-02	-1.2457D-02
		1.1652D-02	-7.2711D-03	5.3695D-04	5.8808D-03	-1.4837D-03	8.0545D-04
		-2.5280D-03	-7.3287D-03	4.0822D-03	5.1445D-03	-7.0425D-03	-2.2461D-03
		2.1398D-03	-3.1255D-04	3.1931D-04	9.9559D-05	5.0442D-05	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CURIUM 246  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2...6 AND NEXT LINE 7,8..... 12

ELAB= 2.0000E+07 LMAX= 24  
3.4165D-01 2.3582D-01 1.0934D-01 5.4182D-02 4.3733D-02 4.2053D-04  
1.7039D-02 -4.9438D-03 3.9862D-03 1.9760D-03 -1.1743D-03 1.1391D-03  
-4.0389D-03 -2.3805D-03 1.0184D-02 1.7107D-03 -1.1468D-02 -2.6697D-04  
2.1081D-03 -1.7185D-03 6.4026D-04 1.8262D-04 2.0509D-04 6.8850D-05

NEUTRON TRANSMISSION COEFFICIENTS FOR CURIUM 246.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), . . . . .

	E= 0.10000E-02(MEV)	LMAX= 3	JMAX= 5/2						
0.22301E-01	0.13198E-03	0.18867E-03	0.47776E-07	0.29055E-07	0.63238E-11				
	E= 0.50000E-02(MEV)	LMAX= 3	JMAX= 5/2						
0.49135E-01	0.14659E-02	0.20947E-02	0.26510E-05	0.16164E-05	0.17708E-08				
	E= 0.10000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.68698E-01	0.41101E-02	0.58695E-02	0.14858E-04	0.90888E-05	0.20051E-07				
	E= 0.20000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.95547E-01	0.11414E-01	0.16271E-01	0.82485E-04	0.50797E-04	0.22724E-06				
	E= 0.30000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.11549E+00	0.20574E-01	0.29259E-01	0.22302E-03	0.13831E-03	0.94098E-06				
	E= 0.40000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.13186E+00	0.31061E-01	0.44056E-01	0.44894E-03	0.28061E-03	0.25803E-05				
	E= 0.50000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.14595E+00	0.42543E-01	0.60174E-01	0.76900E-03	0.48452E-03	0.56449E-05				
	E= 0.60000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.15841E+00	0.54788E-01	0.7727E-01	0.11908E-02	0.75482E-03	0.10706E-04				
	E= 0.80000E-01(MEV)	LMAX= 3	JMAX= 5/2						
0.17991E+00	0.80912E-01	0.11339E+00	0.23551E-02	0.15110E-02	0.29431E-04				
	E= 0.10000E+00(MEV)	LMAX= 3	JMAX= 5/2						
0.19821E+00	0.10843E+00	0.15090E+00	0.39622E-02	0.25735E-02	0.64590E-04				
	E= 0.20000E+00(MEV)	LMAX= 3	JMAX= 5/2						
0.26460E+00	0.24930E+00	0.33323E+00	0.18501E-01	0.12787E-01	0.75124E-03				
	E= 0.30000E+00(MEV)	LMAX= 4	JMAX= 7/2						
0.31055E+00	0.37654E+00	0.48197E+00	0.42029E-01	0.30869E-01	0.30782E-02	0.30798E-02	0.35972E-04		
	E= 0.40000E+00(MEV)	LMAX= 4	JMAX= 7/2						
0.34667E+00	0.48268E+00	0.59274E+00	0.71369E-01	0.55459E-01	0.82169E-02	0.81031E-02	0.12450E-03		
	E= 0.60000E+00(MEV)	LMAX= 5	JMAX= 9/2						
0.40282E+00	0.63405E+00	0.72452E+00	0.13716E+00	0.11709E+00	0.31731E-01	0.30652E-01	0.69964E-03	0.70900E-03	0.28636E-04
	E= 0.80000E+00(MEV)	LMAX= 5	JMAX= 9/2						
0.44549E+00	0.71932E+00	0.77621E+00	0.20222E+00	0.18483E+00	0.79434E-01	0.75774E-01	0.23293E-02	0.25018E-02	0.13667E-03
	E= 0.10000E+01(MEV)	LMAX= 6	JMAX= 11/2						
0.47845E+00	0.75871E+00	0.78314E+00	0.26105E+00	0.25003E+00	0.15309E+00	0.14653E+00	0.58194E-02	0.65520E-02	0.45313E-03
0.72691E-03	0.99314E-05								

NEUTRON TRANSMISSION COEFFICIENTS FOR CURIUM 246.000

THE COEFFICIENTS ARE IN THE ORDER (L,U): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), . . . . .

E= 0.12500E+01(MEV) LMAX= 6 JMAX= 11/2  
 0.50875E+00 0.77134E+00 0.76509E+00 0.32391E+00 0.32127E+00 0.26783E+00 0.26468E+00 0.14228E-01 0.16759E-01 0.14724E-02  
 0.20886E-02 0.43284E-04

E= 0.15000E+01(MEV) LMAX= 7 JMAX= 13/2  
 0.52925E+00 0.76611E+00 0.74142E+00 0.37562E+00 0.37806E+00 0.38183E+00 0.39588E+00 0.28822E-01 0.35004E-01 0.37780E-02  
 0.47963E-02 0.14432E-03 0.15524E-03 0.45367E-05

E= 0.17500E+01(MEV) LMAX= 7 JMAX= 13/2  
 0.54195E+00 0.75511E+00 0.72206E+00 0.41769E+00 0.41987E+00 0.47865E+00 0.51693E+00 0.50938E-01 0.62880E-01 0.82399E-02  
 0.95471E-02 0.39809E-03 0.42313E-03 0.13288E-04

E= 0.20000E+01(MEV) LMAX= 7 JMAX= 13/2  
 0.54862E+00 0.74262E+00 0.70864E+00 0.45146E+00 0.44792E+00 0.55649E+00 0.61514E+00 0.80870E-01 0.10013E+00 0.15981E-01  
 0.17204E-01 0.94950E-03 0.99393E-03 0.33340E-04

E= 0.25000E+01(MEV) LMAX= 8 JMAX= 15/2  
 0.55073E+00 0.71828E+00 0.69525E+00 0.49844E+00 0.47411E+00 0.66934E+00 0.74009E+00 0.15866E+00 0.19211E+00 0.46841E-01  
 0.44507E-01 0.38523E-02 0.38772E-02 0.14839E-03 0.75690E-04 0.90927E-05

E= 0.30000E+01(MEV) LMAX= 9 JMAX= 17/2  
 0.54745E+00 0.69986E+00 0.69228E+00 0.52500E+00 0.48261E+00 0.74449E+00 0.79360E+00 0.24343E+00 0.28522E+00 0.10698E+00  
 0.88396E-01 0.11028E-01 0.10776E-01 0.47683E-03 0.27931E-03 0.42100E-04 0.24344E-04 0.65823E-06

E= 0.40000E+01(MEV) LMAX= 10 JMAX= 19/2  
 0.54764E+00 0.68970E+00 0.69990E+00 0.54909E+00 0.50311E+00 0.82361E+00 0.80302E+00 0.37928E+00 0.43289E+00 0.30962E+00  
 0.19086E+00 0.45843E-01 0.47935E-01 0.28102E-02 0.21463E-02 0.39182E-03 0.19586E-03 0.87766E-05 0.19184E-04 0.50380E-06

E= 0.50000E+01(MEV) LMAX= 11 JMAX= 21/2  
 0.55996E+00 0.70116E+00 0.71354E+00 0.56531E+00 0.53558E+00 0.83528E+00 0.78280E+00 0.46557E+00 0.53701E+00 0.51609E+00  
 0.28393E+00 0.11499E+00 0.14338E+00 0.10717E-01 0.99253E-02 0.17540E-02 0.92159E-03 0.63725E-04 0.14918E-03 0.43821E-05  
 0.38186E-05 0.18261E-06

E= 0.60000E+01(MEV) LMAX= 12 JMAX= 23/2  
 0.57798E+00 0.71783E+00 0.72704E+00 0.58435E+00 0.56548E+00 0.82513E+00 0.76634E+00 0.53234E+00 0.61167E+00 0.63002E+00  
 0.37101E+00 0.22152E+00 0.31057E+00 0.29957E-01 0.31879E-01 0.55632E-02 0.30987E-02 0.31772E-03 0.69766E-03 0.22761E-04  
 0.22413E-04 0.12683E-05 0.15556E-05 0.77111E-07

E= 0.70000E+01(MEV) LMAX= 12 JMAX= 23/2  
 0.59759E+00 0.73365E+00 0.73870E+00 0.60510E+00 0.58946E+00 0.81548E+00 0.75649E+00 0.59366E+00 0.66527E+00 0.67485E+00  
 0.44820E+00 0.36556E+00 0.50456E+00 0.67032E-01 0.78214E-01 0.15067E-01 0.82979E-02 0.12198E-02 0.22211E-02 0.89443E-04  
 0.98864E-04 0.63791E-05 0.74884E-05 0.44613E-06

E= 0.80000E+01(MEV) LMAX= 13 JMAX= 25/2  
 0.61707E+00 0.74725E+00 0.74840E+00 0.62517E+00 0.61147E+00 0.80939E+00 0.75054E+00 0.64629E+00 0.70693E+00 0.69590E+00  
 0.50935E+00 0.52897E+00 0.65435E+00 0.12839E+00 0.15847E+00 0.35932E-01 0.19043E-01 0.38274E-02 0.55302E-02 0.29589E-03  
 0.35595E-03 0.25311E-04 0.27897E-04 0.19793E-05 0.20302E-05 0.14813E-06

E= 0.10000E+02(MEV) LMAX= 15 JMAX= 29/2  
 0.65382E+00 0.76805E+00 0.76322E+00 0.66249E+00 0.65564E+00 0.80288E+00 0.74390E+00 0.71938E+00 0.76988E+00 0.71724E+00  
 0.58654E+00 0.79098E+00 0.78020E+00 0.32160E+00 0.41444E+00 0.13323E+00 0.73063E-01 0.23047E-01 0.23269E-01 0.21106E-02  
 0.29460E-02 0.23728E-03 0.23881E-03 0.22066E-04 0.23686E-04 0.20934E-05 0.21172E-05 0.18765E-06 0.18933E-06 0.15815E-07

NEUTRON TRANSMISSION COEFFICIENTS FOR CURIUM 246.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

E= 0.12000E+02(MEV) LMAX= 16 JMAX= 31/2  
 0.65096E+00 0.71754E+00 0.73908E+00 0.66228E+00 0.66179E+00 0.76866E+00 0.71149E+00 0.73507E+00 0.77708E+00 0.70036E+00  
 0.60661E+00 0.89489E+00 0.77493E+00 0.51136E+00 0.66143E+00 0.29760E+00 0.18504E+00 0.81713E-01 0.67092E-01 0.90018E-02  
 0.14934E-01 0.12421E-02 0.12333E-02 0.13454E-03 0.15166E-03 0.15342E-04 0.15493E-04 0.16352E-05 0.16568E-05 0.16583E-06  
 0.16647E-06 0.15630E-07

E= 0.14000E+02(MEV) LMAX= 17 JMAX= 33/2  
 0.64871E+00 0.72698E+00 0.71633E+00 0.66298E+00 0.66670E+00 0.73941E+00 0.68680E+00 0.74092E+00 0.77127E+00 0.68336E+00  
 0.62236E+00 0.89987E+00 0.73932E+00 0.63878E+00 0.80602E+00 0.45772E+00 0.34311E+00 0.20453E+00 0.14011E+00 0.29454E-01  
 0.53256E-01 0.45603E-02 0.48447E-02 0.59284E-03 0.68305E-03 0.77309E-04 0.78791E-04 0.95417E-05 0.97111E-05 0.11276E-05  
 0.11337E-05 0.12484E-06 0.12508E-06 0.12766E-07

E= 0.16000E+02(MEV) LMAX= 18 JMAX= 35/2  
 0.64713E+00 0.70731E+00 0.69547E+00 0.66403E+00 0.66970E+00 0.71516E+00 0.66750E+00 0.74155E+00 0.75842E+00 0.67340E+00  
 0.63791E+00 0.87189E+00 0.70581E+00 0.72143E+00 0.86007E+00 0.55970E+00 0.49345E+00 0.38251E+00 0.23025E+00 0.80077E-01  
 0.13188E+00 0.12894E-01 0.15701E-01 0.20598E-02 0.22955E-02 0.29439E-03 0.30883E-03 0.41631E-04 0.42363E-04 0.55959E-05  
 0.56381E-05 0.71087E-06 0.71270E-06 0.83857E-07 0.83944E-07 0.91043E-08

E= 0.18000E+02(MEV) LMAX= 19 JMAX= 37/2  
 0.64595E+00 0.68903E+00 0.67665E+00 0.66469E+00 0.67053E+00 0.69465E+00 0.65217E+00 0.73759E+00 0.74208E+00 0.66708E+00  
 0.65120E+00 0.83783E+00 0.67967E+00 0.77690E+00 0.86234E+00 0.60850E+00 0.61397E+00 0.56302E+00 0.32118E+00 0.18260E+00  
 0.24179E+00 0.30686E-01 0.44032E-01 0.58927E-02 0.61999E-02 0.91430E-03 0.99617E-03 0.14560E-03 0.14761E-03 0.21880E-04  
 0.22111E-04 0.31303E-05 0.31411E-05 0.41848E-06 0.41904E-06 0.51681E-07 0.51710E-07 0.58614E-08

E= 0.20000E+02(MEV) LMAX= 20 JMAX= 39/2  
 0.64477E+00 0.67231E+00 0.65989E+00 0.66438E+00 0.66920E+00 0.67695E+00 0.64002E+00 0.73009E+00 0.72441E+00 0.66281E+00  
 0.66113E+00 0.80457E+00 0.66020E+00 0.80742E+00 0.84087E+00 0.63068E+00 0.70035E+00 0.69637E+00 0.40627E+00 0.34096E+00  
 0.36272E+00 0.65434E-01 0.10836E+00 0.14133E-01 0.14818E-01 0.24477E-02 0.27498E-02 0.42713E-03 0.43533E-03 0.71021E-04  
 0.72030E-04 0.11271E-04 0.11323E-04 0.16827E-05 0.16856E-05 0.23312E-06 0.23329E-06 0.29736E-07 0.29746E-07 0.34795E-08

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CALIFORNIUM 252  
(CH.LAGRANGE 1981)

NEUTRON TOTAL CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	3.1121D+01	5.0000D+03	2.0952D+01	1.0000D+04	1.8603D+01
2.0000D+04	1.6956D+01	3.0000D+04	1.6204D+01	4.0000D+04	1.5727D+01
5.0000D+04	1.5372D+01	6.0000D+04	1.5084D+01	8.0000D+04	1.4615D+01
1.0000D+05	1.4225D+01	2.0000D+05	1.2712D+01	3.0000D+05	1.1573D+01
4.0000D+05	1.0653D+01	6.0000D+05	9.3344D+00	8.0000D+05	8.5228D+00
1.0000D+06	8.0569D+00	1.2500D+06	7.7690D+00	1.5000D+06	7.6610D+00
1.7500D+06	7.6450D+00	2.0000D+06	7.6799D+00	2.5000D+06	7.8153D+00
3.0000D+06	7.9350D+00	4.0000D+06	7.9134D+00	5.0000D+06	7.5800D+00
6.0000D+06	7.1253D+00	7.0000D+06	6.6806D+00	8.0000D+06	6.3126D+00
1.0000D+07	5.9379D+00	1.2000D+07	5.9119D+00	1.4000D+07	6.0950D+00
1.6000D+07	6.3372D+00	1.8000D+07	6.5478D+00	2.0000D+07	6.6726D+00



RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CALIFORNIUM 252  
(CH.LAGRANGE 1981)

NEUTRON COMPOUND NUCLEUS FORMATION CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	1.8893D+01	5.0000D+03	9.0155D+00	1.0000D+04	6.9170D+00
2.0000D+04	5.6629D+00	3.0000D+04	5.2380D+00	4.0000D+04	5.0478D+00
5.0000D+04	4.9519D+00	6.0000D+04	4.9004D+00	8.0000D+04	4.8532D+00
1.0000D+05	4.8306D+00	2.0000D+05	4.6751D+00	3.0000D+05	4.4458D+00
4.0000D+05	4.1950D+00	6.0000D+05	3.7903D+00	8.0000D+05	3.5391D+00
1.0000D+06	3.4120D+00	1.2500D+06	3.3430D+00	1.5000D+06	3.3022D+00
1.7500D+06	3.2571D+00	2.0000D+06	3.2084D+00	2.5000D+06	3.1242D+00
3.0000D+06	3.0668D+00	4.0000D+06	2.9926D+00	5.0000D+06	2.9364D+00
6.0000D+06	2.9123D+00	7.0000D+06	2.9038D+00	8.0000D+06	2.8967D+00
1.0000D+07	2.9058D+00	1.2000D+07	2.8340D+00	1.4000D+07	2.7576D+00
1.6000D+07	2.6951D+00	1.8000D+07	2.6470D+00	2.0000D+07	2.6119D+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CALIFORNIUM 252  
(CH. LAGRANGE 1981)

NEUTRON SHAPE ELASTIC SCATTERING CROSS SECTIONS

E	S(E)	E	S(E)	E	S(E)
1.0000D+03	1.2228D+01	5.0000D+03	1.1937D+01	1.0000D+04	1.1686D+01
2.0000D+04	1.1293D+01	3.0000D+04	1.0966D+01	4.0000D+04	1.0679D+01
5.0000D+04	1.0419D+01	6.0000D+04	1.0181D+01	8.0000D+04	9.7555D+00
1.0000D+05	9.3818D+00	2.0000D+05	7.9919D+00	3.0000D+05	7.0486D+00
4.0000D+05	6.3439D+00	6.0000D+05	5.3472D+00	8.0000D+05	4.6890D+00
1.0000D+06	4.2490D+00	1.2500D+06	3.9147D+00	1.5000D+06	3.7540D+00
1.7500D+06	3.7137D+00	2.0000D+06	3.7507D+00	2.5000D+06	3.9300D+00
3.0000D+06	4.1112D+00	4.0000D+06	4.2289D+00	5.0000D+06	4.0340D+00
6.0000D+06	3.6669D+00	7.0000D+06	3.2768D+00	8.0000D+06	2.9559D+00
1.0000D+07	2.6389D+00	1.2000D+07	2.6954D+00	1.4000D+07	2.9694D+00
1.6000D+07	3.2956D+00	1.8000D+07	3.5743D+00	2.0000D+07	3.7488D+00

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CALIFORNIUM 252  
(CH.LAGRANGE 1981)

NEUTRON DIRECT INELASTIC FIRST EXCITED LEVEL

E	S(E)	E	S(E)	E	S(E)
5.0000D+04	7.1866D-04	6.0000D+04	2.2727D-03	8.0000D+04	6.7901D-03
1.0000D+05	1.2474D-02	2.0000D+05	4.5265D-02	3.0000D+05	7.6775D-02
4.0000D+05	1.0728D-01	6.0000D+05	1.7252D-01	8.0000D+05	2.4460D-01
1.0000D+06	3.1847D-01	1.2500D+06	4.0435D-01	1.5000D+06	4.7647D-01
1.7500D+06	5.3215D-01	2.0000D+06	5.7143D-01	2.5000D+06	6.0831D-01
3.0000D+06	6.0701D-01	4.0000D+06	5.5464D-01	5.0000D+06	4.8959D-01
6.0000D+06	4.4120D-01	7.0000D+06	4.0830D-01	8.0000D+06	3.8143D-01
1.0000D+07	3.3603D-01	1.2000D+07	3.2025D-01	1.4000D+07	3.1333D-01
1.6000D+07	2.9910D-01	1.8000D+07	2.8536D-01	2.0000D+07	2.7568D-01

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CALIFORNIUM 252  
(CH.LAGRANGE 1981)

NEUTRON DIRECT INELASTIC SECOND EXCITED LEVEL

E	S(E)	E	S(E)	E	S(E)
2.0000D+05	1.2910D-04	3.0000D+05	2.0091D-03	4.0000D+05	6.5538D-03
6.0000D+05	2.4440D-02	8.0000D+05	5.0127D-02	1.0000D+06	7.7411D-02
1.2500D+06	1.0688D-01	1.5000D+06	1.2838D-01	1.7500D+06	1.4206D-01
2.0000D+06	1.4942D-01	2.5000D+06	1.5282D-01	3.0000D+06	1.5002D-01
4.0000D+06	1.3724D-01	5.0000D+06	1.2003D-01	6.0000D+06	1.0497D-01
7.0000D+06	9.1632D-02	8.0000D+06	7.8586D-02	1.0000D+07	5.7094D-02
1.2000D+07	6.2209D-02	1.4000D+07	5.4626D-02	1.6000D+07	4.7406D-02
1.8000D+07	4.1157D-02	2.0000D+07	3.6188D-02	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CALIFORNIUM 252  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.0000E+03	LMAX= 3	1.4455D-02	2.2080D-05	2.2214D-06	0.0	0.0	0.0
ELAB= 5.0000E+03	LMAX= 3	7.7684D-02	4.8578D-04	1.2396D-06	0.0	0.0	0.0
ELAB= 1.0000E+04	LMAX= 3	1.6182D-01	1.9371D-03	2.2668D-06	0.0	0.0	0.0
ELAB= 2.0000E+04	LMAX= 3	3.3630D-01	7.5739D-03	6.7364D-05	0.0	0.0	0.0
ELAB= 3.0000E+04	LMAX= 3	5.1200D-01	1.6517D-02	2.0348D-04	0.0	0.0	0.0
ELAB= 4.0000E+04	LMAX= 3	6.8458D-01	2.8452D-02	4.8259D-04	0.0	0.0	0.0
ELAB= 5.0000E+04	LMAX= 3	8.5177D-01	4.3103D-02	9.4352D-04	0.0	0.0	0.0
ELAB= 6.0000E+04	LMAX= 3	1.0124D+00	6.0117D-02	1.5867D-03	0.0	0.0	0.0
ELAB= 8.0000E+04	LMAX= 3	1.3117D+00	1.0029D-01	3.6168D-03	0.0	0.0	0.0
ELAB= 1.0000E+05	LMAX= 3	1.5797D+00	1.4669D-01	6.6566D-03	0.0	0.0	0.0
ELAB= 2.0000E+05	LMAX= 3	2.4940D+00	4.2221D-01	4.0162D-02	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	2.9016D+00	6.7749D-01	1.0847D-01	1.0577D-02	1.1336D-04	0.0
ELAB= 4.0000E+05	LMAX= 5	3.0318D+00	8.8310D-01	1.9924D-01	2.7035D-02	5.1931D-04	0.0
ELAB= 6.0000E+05	LMAX= 6	2.9409D+00	1.1446D+00	4.1884D-01	9.1829D-02	4.4412D-03	7.2953D-04
ELAB= 8.0000E+05	LMAX= 6	2.7237D+00	1.2940D+00	6.4559D-01	2.0095D-01	1.8029D-02	3.3359D-03
ELAB= 1.0000E+06	LMAX= 8	2.5381D+00	1.4115D+00	8.4896D-01	3.4701D-01	4.9371D-02	1.0484D-02
		8.3196D-04	8.7456D-05	0.0	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CALIFORNIUM 252  
(CH. LAGRANGE 1981)

LEGENORE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENORE COEFFICIENTS ARE IN THE ORDER 1,2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.2500E+06	LMAX= 8	2.4206D+00	1.5615D+00	1.0550D+00	5.5560D-01	1.2203D-01	2.8654D-02
		2.9612D-03	3.6160D-04	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 9	2.4294D+00	1.7209D+00	1.2189D+00	7.6186D-01	2.2927D-01	5.9642D-02
		7.3650D-03	1.1155D-03	9.5435D-05	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	2.5279D+00	1.8830D+00	1.3630D+00	9.4644D-01	3.5875D-01	1.0398D-01
		1.7269D-02	2.8299D-03	2.8349D-04	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	7.1380D-01	5.4517D-01	4.0079D-01	2.9485D-01	1.3260D-01	4.2990D-02
		8.7864D-03	1.6670D-03	2.0596D-04	0.0	0.0	0.0
ELAB= 2.5000E+06	LMAX= 11	7.6910D-01	6.0215D-01	4.5494D-01	3.4840D-01	1.9526D-01	7.8404D-02
		2.2422D-02	5.3956D-03	9.4288D-04	1.3625D-04	1.5343D-05	0.0
ELAB= 3.0000E+06	LMAX= 12	8.0914D-01	6.4699D-01	5.0016D-01	3.8548D-01	2.4296D-01	1.1553D-01
		4.2372D-02	1.2871D-02	2.9209D-03	5.0724D-04	6.9810D-05	9.0471D-06
ELAB= 4.0000E+06	LMAX= 14	8.5601D-01	7.1233D-01	5.7246D-01	4.4505D-01	3.1145D-01	1.7949D-01
		8.9406D-02	3.9115D-02	1.3291D-02	3.2906D-03	6.4923D-04	1.1957D-04
		1.2869D-05	1.8081D-06	0.0	0.0	0.0	0.0
ELAB= 5.0000E+06	LMAX= 15	8.7281D-01	7.4522D-01	6.2022D-01	4.9172D-01	3.6246D-01	2.3084D-01
		1.3335D-01	7.4736D-02	3.4575D-02	1.1490D-02	3.1028D-03	7.1874D-04
		1.0001D-04	1.6160D-05	1.3473D-06	0.0	0.0	0.0
ELAB= 6.0000E+06	LMAX= 16	8.7469D-01	7.5772D-01	6.4869D-01	5.2855D-01	4.0466D-01	2.7941D-01
		1.7642D-01	1.1494D-01	6.7115D-02	2.9072D-02	1.0162D-02	2.8250D-03
		5.1448D-04	1.1131D-04	1.9647D-05	3.2892D-06	0.0	0.0
ELAB= 7.0000E+06	LMAX= 17	8.7107D-01	7.5729D-01	6.5957D-01	5.5287D-01	4.3890D-01	3.2447D-01
		2.2151D-01	1.5670D-01	1.0781D-01	5.8356D-02	2.4979D-02	8.1608D-03
		1.8790D-03	4.8096D-04	9.4632D-05	1.7657D-05	3.1442D-06	0.0
ELAB= 8.0000E+06	LMAX= 17	8.6599D-01	7.4783D-01	6.5464D-01	5.6227D-01	4.6276D-01	3.6138D-01
		2.6526D-01	1.9891D-01	1.5170D-01	9.7436D-02	4.9066D-02	1.8736D-02
		5.4118D-03	1.6170D-03	3.7625D-04	8.2490D-05	1.6435D-05	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CALIFORNIUM 252  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR SHAPE ELASTIC  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7,8..... 12

ELAB= 1.0000E+07	LMAX= 19						
		8.6482D-01	7.3233D-01	6.3427D-01	5.5846D-01	4.8444D-01	4.1146D-01
		3.4103D-01	2.7995D-01	2.3355D-01	1.8286D-01	1.1814D-01	6.0770D-02
		2.5479D-02	9.6536D-03	2.9557D-03	8.0077D-04	2.0536D-04	5.0133D-05
		1.2072D-05	0.0	0.0	0.0	0.0	0.0
ELAB= 1.2000E+07	LMAX= 20						
		8.7791D-01	7.4163D-01	6.3241D-01	5.5206D-01	4.8683D-01	4.3169D-01
		3.8006D-01	3.3307D-01	2.8986D-01	2.4439D-01	1.8316D-01	1.1601D-01
		6.2003D-02	2.8553D-02	1.1122D-02	3.8028D-03	1.1673D-03	3.1163D-04
		8.6049D-05	1.9270D-05	0.0	0.0	0.0	0.0
ELAB= 1.4000E+07	LMAX= 21						
		9.0011D-01	7.7872D-01	6.7113D-01	5.8384D-01	5.1344D-01	4.5716D-01
		4.0787D-01	3.6383D-01	3.2050D-01	2.7575D-01	2.2071D-01	1.5668D-01
		9.6933D-02	5.2679D-02	2.4915D-02	1.0394D-02	3.8383D-03	1.2304D-03
		3.7929D-04	1.0632D-04	2.5669D-05	0.0	0.0	0.0
ELAB= 1.6000E+07	LMAX= 22						
		9.1907D-01	8.1718D-01	7.2025D-01	6.3339D-01	5.5762D-01	4.9404D-01
		4.3896D-01	3.8998D-01	3.4274D-01	2.9486D-01	2.4183D-01	1.8210D-01
		1.2320D-01	7.5404D-02	4.1571D-02	2.0459D-02	8.9079D-03	3.4059D-03
		1.2006D-03	3.5913D-04	1.0986D-04	2.6634D-05	0.0	0.0
ELAB= 1.8000E+07	LMAX= 23						
		9.3244D-01	8.4707D-01	7.6308D-01	6.8228D-01	6.0554D-01	5.3629D-01
		4.7428D-01	4.1807D-01	3.6497D-01	3.1250D-01	2.5833D-01	2.0097D-01
		1.4390D-01	9.5358D-02	5.8731D-02	3.3079D-02	1.6726D-02	7.4741D-03
		2.9820D-03	1.0237D-03	3.3825D-04	1.0158D-04	2.4202D-05	0.0
ELAB= 2.0000E+07	LMAX= 24						
		9.4085D-01	8.6707D-01	7.9474D-01	7.2261D-01	6.4921D-01	5.7817D-01
		5.1134D-01	4.4898D-01	3.9006D-01	3.3292D-01	2.7613D-01	2.1913D-01
		1.6321D-01	1.1423D-01	7.6023D-02	4.7727D-02	2.7483D-02	1.4120D-02
		6.3880D-03	2.5545D-03	9.7108D-04	3.3032D-04	1.1334D-04	3.1044D-05

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CALIFORNIUM 252  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2,...,6 AND NEXT LINE 7,8,....., 12

ELAB= 5.0000E+04	LMAX= 3	2.5460D-04	2.7568D-05	-7.7695D-07	0.0	0.0	0.0
ELAB= 6.0000E+04	LMAX= 3	7.7705D-04	1.0528D-04	-5.5252D-06	0.0	0.0	0.0
ELAB= 8.0000E+04	LMAX= 3	2.1874D-03	3.1499D-04	-3.2872D-05	0.0	0.0	0.0
ELAB= 1.0000E+05	LMAX= 3	3.8658D-03	5.3365D-04	-9.0162D-05	0.0	0.0	0.0
ELAB= 2.0000E+05	LMAX= 3	1.2116D-02	7.9051D-04	-8.8478D-04	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	1.6468D-02	-2.3782D-03	-2.6213D-03	5.1483D-04	-1.5975D-05	0.0
ELAB= 4.0000E+05	LMAX= 5	1.9384D-02	-5.8674D-03	-4.4656D-03	1.3197D-03	-5.5752D-05	0.0
ELAB= 6.0000E+05	LMAX= 6	2.4194D-02	-1.2516D-02	-7.3364D-03	3.3247D-03	-3.0092D-04	1.0830D-04
ELAB= 9.0000E+05	LMAX= 6	2.9706D-02	-1.6349D-02	-9.0006D-03	5.0188D-03	-6.9713D-04	4.4716D-04
ELAB= 1.0000E+06	LMAX= 8	3.5476D-02	-1.7020D-02	-9.2469D-03	4.9008D-03	-8.5798D-04	1.1907D-03
		-7.2353D-05	1.5785D-05	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	4.2614D-02	-1.4626D-02	-8.6257D-03	1.2581D-03	-5.7225D-04	2.7098D-03
		-2.3299D-04	7.0093D-05	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 9	5.0001D-02	-1.0757D-02	-8.3894D-03	-5.2775D-03	8.3787D-04	4.4174D-03
		-4.3526D-04	2.4536D-04	-1.6337D-05	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	5.8698D-02	-6.8311D-03	-9.0489D-03	-1.1437D-02	3.8683D-03	5.7726D-03
		-6.4982D-04	5.9294D-04	-4.8332D-05	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	1.2180D-01	-4.1541D-03	-1.6123D-02	-2.5406D-02	1.4348D-02	1.0653D-02
		-1.1431D-03	2.0531D-03	-1.9209D-04	0.0	0.0	0.0



RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CALIFORNIUM 252  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2...6 AND NEXT LINE 7,8..... 12

ELAB= 2.5000E+06	LMAX= 11	1.5928D-01	1.7854D-02	-4.3143D-03	-1.5858D-02	2.9029D-02	5.4353D-03				
		8.3078D-04	4.2972D-03	-4.9216D-04	3.5781D-04	-4.7112D-06	0.0				
ELAB= 3.0000E+06	LMAX= 12	2.0142D-01	4.4128D-02	1.8257D-02	2.6392D-03	4.0784D-02	-1.3611D-03				
		3.4277D-03	5.5423D-03	-6.3133D-04	1.1937D-03	-3.0027D-05	2.4843D-05				
ELAB= 4.0000E+06	LMAX= 14	2.5663D-01	8.0197D-02	4.7252D-02	2.6554D-02	4.8954D-02	-5.7297D-03				
		-6.3705D-03	-3.2567D-03	2.0498D-03	5.3527D-03	-3.0597D-04	3.3405D-04				
		1.8504D-05	4.0255D-06	0.0	0.0	0.0	0.0				
ELAB= 5.0000E+06	LMAX= 15	2.8615D-01	8.9134D-02	3.4452D-02	2.6548D-02	2.8476D-02	-5.9064D-03				
		-3.0642D-02	-2.3932D-02	8.8094D-03	9.9467D-03	-1.1518D-03	1.8686D-03				
		9.1503D-05	4.1400D-05	6.5089D-06	0.0	0.0	0.0				
ELAB= 6.0000E+06	LMAX= 16	3.1477D-01	8.5194D-02	1.1494D-02	9.3650D-03	-6.1884D-04	-1.4392D-02				
		-4.0405D-02	-3.5349D-02	1.1246D-02	6.0142D-03	-1.5208D-03	5.6474D-03				
		1.8841D-04	2.0404D-04	4.5828D-05	5.4523D-06	0.0	0.0				
ELAB= 7.0000E+06	LMAX= 17	3.4517D-01	9.0827D-02	4.8561D-03	-3.9975D-03	-1.5089D-02	-2.1587D-02				
		-3.5344D-02	-3.6696D-02	1.4787D-03	-5.6918D-03	1.4189D-03	1.0731D-02				
		8.3063D-05	7.0138D-04	1.8971D-04	2.7393D-05	7.7892D-06	0.0				
ELAB= 8.0000E+06	LMAX= 17	3.7059D-01	1.0596D-01	1.0621D-02	-8.2829D-03	-2.0614D-02	-2.8022D-02				
		-3.3842D-02	-4.1318D-02	-1.2162D-02	-1.3379D-02	7.5841D-03	1.4244D-02				
		-3.2413D-04	1.9289D-03	6.0738D-04	1.1052D-04	3.7894D-05	0.0				
ELAB= 1.0000E+07	LMAX= 19	4.2190D-01	1.5295D-01	3.4487D-02	2.8421D-04	-2.1439D-02	-3.5730D-02				
		-3.6052D-02	-4.5406D-02	-2.0140D-02	-8.7843D-03	1.2227D-02	8.7082D-03				
		5.7571D-04	8.2407D-03	3.2239D-03	8.8438D-04	4.3102D-04	9.0951D-05				
		2.3507D-05	0.0	0.0	0.0	0.0	0.0				
ELAB= 1.2000E+07	LMAX= 20	4.5963D-01	2.0014D-01	6.2693D-02	2.6015D-02	-6.7029D-03	-2.1868D-02				
		-2.7162D-02	-3.3681D-02	-1.7697D-02	-7.1051D-03	6.6061D-03	-2.6192D-03				
		3.0647D-03	1.7130D-02	8.3295D-03	3.9027D-03	2.6129D-03	6.4997D-04				
		2.6979D-04	6.0897D-05	0.0	0.0	0.0	0.0				

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CALIFORNIUM 252  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (1 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2,..6 AND NEXT LINE 7,8,..... 12

ELAB= 1.4000E+07	LMAX= 21	5.0237D-01	2.5000D-01	1.0478D-01	6.2039D-02	2.5193D-02	9.2988D-03
		-1.5271D-03	-8.7057D-03	-1.3744D-03	1.2315D-03	1.3298D-02	1.7459D-03
		4.3670D-03	1.3395D-02	8.0541D-03	8.3074D-03	7.4179D-03	2.1614D-03
		1.2117D-03	3.5539D-04	1.0201D-04	0.0	0.0	0.0
ELAB= 1.6000E+07	LMAX= 22	5.3121D-01	2.8345D-01	1.3459D-01	8.8469D-02	5.3345D-02	3.8304D-02
		2.8350D-02	1.8568D-02	2.1746D-02	1.6584D-02	2.3237D-02	1.0447D-02
		1.9489D-03	-2.0385D-04	1.1956D-03	1.1656D-02	1.2264D-02	4.6526D-03
		3.6901D-03	1.1116D-03	4.7467D-04	1.2585D-04	0.0	0.0
ELAB= 1.8000E+07	LMAX= 23	5.5402D-01	3.0679D-01	1.5575D-01	1.0277D-01	6.7395D-02	5.2841D-02
		4.5074D-02	3.4407D-02	3.4679D-02	2.5161D-02	2.5068D-02	1.1895D-02
		7.1702D-05	-7.8933D-03	-5.2359D-03	9.0083D-03	1.1791D-02	7.8197D-03
		7.9340D-03	2.6966D-03	1.4069D-03	5.1963D-04	1.6229D-04	0.0
ELAB= 2.0000E+07	LMAX= 24	5.7748D-01	3.2872D-01	1.7712D-01	1.1399D-01	7.5909D-02	5.9513D-02
		5.1815D-02	4.2192D-02	4.0001D-02	2.9818D-02	2.5153D-02	1.2480D-02
		5.4661D-04	-9.0781D-03	-1.0730D-02	-8.8561D-04	5.6181D-03	1.0978D-02
		1.2847D-02	5.4996D-03	3.6442D-03	1.4394D-03	6.2635D-04	1.8836D-04

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CALIFORNIUM 252  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7.8..... 12

ELAB= 2.0000E+05	LMAX= 3	2.2013D-05	1.9403D-05	1.0109D-06	0.0	0.0	0.0
ELAB= 3.0000E+05	LMAX= 5	5.1417D-04	4.7532D-04	2.1089D-05	2.2368D-06	-2.4148D-07	0.0
ELAB= 4.0000E+05	LMAX= 5	1.9145D-03	1.5839D-03	5.7282D-05	-3.2642D-06	-1.1636D-06	0.0
ELAB= 6.0000E+05	LMAX= 6	7.8194D-03	5.1142D-03	-1.0164D-04	-1.2661D-04	-2.1934D-06	2.4543D-06
ELAB= 8.0000E+05	LMAX= 6	1.5884D-02	7.9623D-03	-9.0599D-04	-4.4217D-04	2.1597D-05	1.0589D-05
ELAB= 1.0000E+06	LMAX= 8	2.3249D-02	7.4914D-03	-2.5693D-03	-8.9059D-04	1.5111D-04	1.9831D-05
		-6.3127D-06	1.1171D-06	0.0	0.0	0.0	0.0
ELAB= 1.2500E+06	LMAX= 8	2.8891D-02	2.7198D-03	-4.8371D-03	-9.1576D-04	4.1402D-04	9.0104D-06
		-1.9005D-05	4.3507D-06	0.0	0.0	0.0	0.0
ELAB= 1.5000E+06	LMAX= 9	3.0956D-02	-3.2845D-03	-5.9827D-03	-3.7358D-05	7.5136D-04	-6.6594D-05
		-3.3597D-05	1.2936D-05	-1.2721D-06	0.0	0.0	0.0
ELAB= 1.7500E+06	LMAX= 9	3.1157D-02	-7.1689D-03	-5.7883D-03	1.3245D-03	1.0066D-03	-1.9490D-04
		-4.4777D-05	2.3444D-05	-3.6377D-06	0.0	0.0	0.0
ELAB= 2.0000E+06	LMAX= 9	2.0527D-01	-5.6539D-02	-3.0663D-02	1.6750D-02	7.3641D-03	-2.1633D-03
		-2.5257D-04	2.1173D-04	-5.9690D-05	0.0	0.0	0.0
ELAB= 2.5000E+06	LMAX= 11	1.9213D-01	-4.8898D-02	-9.1040D-03	1.9135D-02	5.8710D-03	-1.5197D-03
		3.9128D-04	-1.3281D-04	-1.9885D-04	8.3798D-05	-5.9870D-06	0.0
ELAB= 3.0000E+06	LMAX= 12	1.9061D-01	-3.8549D-02	8.2208D-03	9.9629D-03	4.6841D-03	2.5258D-03
		8.0746D-04	-1.2720D-03	-3.6143D-04	2.3950D-04	-3.3674D-05	5.5205D-06
ELAB= 4.0000E+06	LMAX= 14	1.9750D-01	-1.7321D-02	2.9478D-02	-1.2557D-02	1.0316D-02	8.7150D-03
		-5.6129D-03	-3.2653D-03	5.5937D-04	4.5563D-04	-2.7464D-04	9.5203D-05
		-2.1701D-06	1.6744D-07	0.0	0.0	0.0	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CALIFORNIUM 252  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1.2...6 AND NEXT LINE 7.8..... 12

ELAB= 5.0000E+06	LMAX= 15	1.8929D-01	8.7138D-05	3.1577D-02	-3.0801D-02	1.4525D-02	-1.2513D-03
		-2.1717D-02	5.7656D-03	5.0673D-03	-1.8756D-03	-8.8504D-04	5.5416D-04
		-4.2428D-05	7.8941D-06	1.3621D-06	0.0	0.0	0.0
ELAB= 6.0000E+06	LMAX= 16	1.7956D-01	2.0311D-02	2.7364D-02	-3.7145D-02	1.5101D-02	-7.9026D-03
		-2.2019D-02	2.5876D-02	6.2864D-03	-8.7314D-03	-5.4094D-04	1.6090D-03
		-2.8860D-04	3.6514D-05	4.9803D-06	2.8482D-07	0.0	0.0
ELAB= 7.0000E+06	LMAX= 17	1.8415D-01	4.3862D-02	3.0463D-02	-2.4940D-02	2.5887D-02	8.5730D-04
		-4.8979D-03	3.0244D-02	-4.9980D-03	-1.3311D-02	2.9755D-03	2.5332D-03
		-9.3226D-04	1.1469D-04	5.0075D-06	-3.0367D-06	2.0494D-06	0.0
ELAB= 8.0000E+06	LMAX= 17	2.0401D-01	6.2664D-02	2.9119D-02	-1.4427D-02	3.1106D-02	2.4349D-03
		-2.7717D-03	1.4832D-02	-1.8583D-02	-7.8146D-03	8.4237D-03	1.8151D-03
		-1.8371D-03	3.0560D-04	-1.3940D-05	-1.9291D-05	7.4780D-06	0.0
ELAB= 1.0000E+07	LMAX= 19	2.4514D-01	8.4812D-02	2.5826D-02	-8.9425D-03	2.2647D-02	-9.3694D-03
		1.6289D-03	-4.2071D-03	-1.5028D-02	1.5599D-02	8.3956D-03	-6.0269D-03
		-1.6202D-03	1.5063D-03	-4.2402D-04	-1.4234D-04	8.8938D-05	-9.7022D-06
		3.0491D-06	0.0	0.0	0.0	0.0	0.0
ELAB= 1.2000E+07	LMAX= 20	2.8310D-01	1.2885D-01	4.6954D-02	-7.6847D-03	2.0902D-02	-2.0622D-02
		6.2417D-03	-3.7070D-03	-4.5258D-03	1.8956D-02	-4.6076D-03	-7.9843D-03
		5.6492D-03	1.6652D-03	-2.8724D-03	-1.2457D-04	4.9676D-04	-5.4029D-05
		7.9132D-05	1.6063D-05	0.0	0.0	0.0	0.0
ELAB= 1.4000E+07	LMAX= 21	2.9568D-01	1.6298D-01	6.4513D-02	1.8761D-03	2.4505D-02	-2.2257D-02
		7.6825D-03	-6.7896D-03	-5.2851D-03	1.4819D-02	-3.6573D-03	4.2921D-03
		1.2747D-02	-3.0970D-03	-7.0723D-03	6.2188D-04	6.1805D-04	-4.9515D-04
		3.7556D-04	8.0017D-05	4.0308D-05	0.0	0.0	0.0
ELAB= 1.6000E+07	LMAX= 22	3.1594D-01	1.9851D-01	8.0125D-02	1.7458D-02	2.9331D-02	-1.7833D-02
		1.0214D-02	-5.5460D-03	-6.7857D-04	1.2980D-02	1.2545D-03	6.4375D-03
		6.4408D-03	-8.4196D-03	-5.0358D-03	3.3031D-03	-1.8817D-03	-1.6721D-03
		1.1413D-03	7.8891D-05	1.6506D-04	4.0261D-05	0.0	0.0
ELAB= 1.8000E+07	LMAX= 23	3.3080D-01	2.2277D-01	9.5576D-02	3.6255D-02	3.4355D-02	-1.1503D-02
		1.1185D-02	-7.5361D-03	2.1234D-04	4.6564D-03	-1.4816D-03	3.6944D-04
		-3.2010D-03	-6.5898D-03	5.3159D-03	5.1508D-03	-7.6953D-03	-2.3066D-03
		2.1181D-03	-4.1254D-04	3.6131D-04	1.1689D-04	6.2602D-05	0.0

RESULTS OF COUPLED CHANNEL CALCULATIONS FOR CALIFORNIUM 252  
(CH.LAGRANGE 1981)

LEGENDRE COEFFICIENTS FOR DIRECT INELASTIC (2 LEVEL)  
THE LEGENDRE COEFFICIENTS ARE IN THE ORDER 1,2...6 AND NEXT LINE 7,8..... 12

ELAB= 2.0000E+07 LMAX= 24  
3.4651D-01 2.3400D-01 1.1005D-01 5.5307D-02 4.3902D-02 1.9881D-03  
1.6914D-02 -4.4628D-03 4.2315D-03 1.8749D-03 -6.7616D-04 1.7614D-03  
-3.9924D-03 -2.4955D-03 1.0052D-02 1.4918D-03 -1.1137D-02 -2.5107D-05  
1.6169D-03 -1.9805D-03 6.9001D-04 2.0551D-04 2.4821D-04 8.4379D-05

NEUTRON TRANSMISSION COEFFICIENTS FOR CALIFORNIUM 252.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), .....

E= 0.10000E-02(MEV)	LMAX= 3	JMAX= 5/2							
0.27922E-01	0.16417E-03	0.22618E-03	0.65206E-07	0.32715E-07	0.81997E-11				
E= 0.50000E-02(MEV)	LMAX= 3	JMAX= 5/2							
0.61245E-01	0.18215E-02	0.25063E-02	0.36139E-05	0.18174E-05	0.22962E-08				
E= 0.10000E-01(MEV)	LMAX= 3	JMAX= 5/2							
0.85304E-01	0.51004E-02	0.70047E-02	0.20223E-04	0.10201E-04	0.25999E-07				
E= 0.20000E-01(MEV)	LMAX= 3	JMAX= 5/2							
0.11794E+00	0.14123E-01	0.19314E-01	0.11192E-03	0.56801E-04	0.29464E-06				
E= 0.30000E-01(MEV)	LMAX= 3	JMAX= 5/2							
0.14184E+00	0.25377E-01	0.34542E-01	0.30159E-03	0.15405E-03	0.12200E-05				
E= 0.40000E-01(MEV)	LMAX= 3	JMAX= 5/2							
0.16121E+00	0.38190E-01	0.51723E-01	0.60475E-03	0.31112E-03	0.33450E-05				
E= 0.50000E-01(MEV)	LMAX= 3	JMAX= 5/2							
0.17767E+00	0.52135E-01	0.70255E-01	0.10309E-02	0.53479E-03	0.73169E-05				
E= 0.60000E-01(MEV)	LMAX= 3	JMAX= 5/2							
0.19207E+00	0.66912E-01	0.89718E-01	0.15912E-02	0.83073E-03	0.13875E-04				
E= 0.80000E-01(MEV)	LMAX= 3	JMAX= 5/2							
0.21651E+00	0.98142E-01	0.13025E+00	0.31275E-02	0.16533E-02	0.38126E-04				
E= 0.10000E+00(MEV)	LMAX= 3	JMAX= 5/2							
0.23684E+00	0.13063E+00	0.17155E+00	0.52292E-02	0.27994E-02	0.83633E-04				
E= 0.20000E+00(MEV)	LMAX= 3	JMAX= 5/2							
0.30623E+00	0.29104E+00	0.36222E+00	0.23638E-01	0.13507E-01	0.96611E-03				
E= 0.30000E+00(MEV)	LMAX= 4	JMAX= 7/2							
0.34945E+00	0.42801E+00	0.50652E+00	0.51941E-01	0.31712E-01	0.39043E-02	0.33234E-02	0.41218E-04		
E= 0.40000E+00(MEV)	LMAX= 4	JMAX= 7/2							
0.38050E+00	0.53619E+00	0.60723E+00	0.85445E-01	0.55591E-01	0.10272E-01	0.86266E-02	0.13989E-03		
E= 0.60000E+00(MEV)	LMAX= 5	JMAX= 9/2							
0.42499E+00	0.67765E+00	0.71649E+00	0.15561E+00	0.11319E+00	0.38418E-01	0.31759E-01	0.75788E-03	0.66317E-03	0.34267E-04
E= 0.80000E+00(MEV)	LMAX= 5	JMAX= 9/2							
0.45796E+00	0.74486E+00	0.75113E+00	0.22055E+00	0.17532E+00	0.92187E-01	0.76500E-01	0.24435E-02	0.23141E-02	0.15977E-03
E= 0.10000E+01(MEV)	LMAX= 6	JMAX= 11/2							
0.48472E+00	0.76628E+00	0.74862E+00	0.27706E+00	0.23595E+00	0.16849E+00	0.14437E+00	0.59418E-02	0.60246E-02	0.51739E-03
0.72199E-03	0.92442E-05								

NEUTRON TRANSMISSION COEFFICIENTS FOR CALIFORNIUM 252.000

THE COEFFICIENTS ARE IN THE ORDER (L,J): (0,1/2),(1,1/2),(1,3/2),(2,3/2),(2,5/2),(3,5/2),(3,7/2), . . . . .

E= 0.12500E+01(MEV) LMAX= 6 JMAX= 11/2  
 0.51203E+00 0.76218E+00 0.72645E+00 0.33652E+00 0.30543E+00 0.27567E+00 0.25367E+00 0.14150E-01 0.15406E-01 0.16344E-02  
 0.20165E-02 0.40026E-04

E= 0.15000E+01(MEV) LMAX= 7 JMAX= 13/2  
 0.53359E+00 0.74700E+00 0.70235E+00 0.38578E+00 0.36567E+00 0.37351E+00 0.37083E+00 0.28172E-01 0.32427E-01 0.40854E-02  
 0.45372E-02 0.13295E-03 0.15387E-03 0.53833E-05

E= 0.17500E+01(MEV) LMAX= 7 JMAX= 13/2  
 0.54992E+00 0.73057E+00 0.68323E+00 0.42698E+00 0.41527E+00 0.45383E+00 0.47658E+00 0.49396E-01 0.59147E-01 0.86972E-02  
 0.89052E-02 0.36682E-03 0.42026E-03 0.15364E-04

E= 0.20000E+01(MEV) LMAX= 7 JMAX= 13/2  
 0.56148E+00 0.71505E+00 0.66994E+00 0.46154E+00 0.45342E+00 0.51885E+00 0.56270E+00 0.78531E-01 0.96218E-01 0.16489E-01  
 0.15914E-01 0.88005E-03 0.99424E-03 0.37475E-04

E= 0.25000E+01(MEV) LMAX= 8 JMAX= 15/2  
 0.57301E+00 0.68738E+00 0.65691E+00 0.51387E+00 0.49733E+00 0.61704E+00 0.67977E+00 0.15796E+00 0.19399E+00 0.46386E-01  
 0.41376E-01 0.36864E-02 0.39959E-02 0.15821E-03 0.81565E-04 0.90843E-05

E= 0.30000E+01(MEV) LMAX= 9 JMAX= 17/2  
 0.57541E+00 0.66687E+00 0.65502E+00 0.54745E+00 0.51315E+00 0.68759E+00 0.74127E+00 0.25147E+00 0.29949E+00 0.10250E+00  
 0.85539E-01 0.11136E-01 0.11554E-01 0.49051E-03 0.29725E-03 0.42639E-04 0.25610E-04 0.77103E-06

E= 0.40000E+01(MEV) LMAX= 10 JMAX= 19/2  
 0.57773E+00 0.65589E+00 0.66674E+00 0.57962E+00 0.53100E+00 0.77463E+00 0.77431E+00 0.40989E+00 0.46534E+00 0.28713E+00  
 0.20165E+00 0.51290E-01 0.54132E-01 0.28149E-02 0.22418E-02 0.42481E-03 0.20273E-03 0.10019E-04 0.20876E-04 0.52195E-06

E= 0.50000E+01(MEV) LMAX= 11 JMAX= 21/2  
 0.58852E+00 0.67020E+00 0.68551E+00 0.59573E+00 0.55857E+00 0.80161E+00 0.76813E+00 0.50156E+00 0.56806E+00 0.48622E+00  
 0.30069E+00 0.13337E+00 0.16241E+00 0.10735E-01 0.10263E-01 0.20204E-02 0.96278E-03 0.71028E-04 0.16281E-03 0.46094E-05  
 0.42271E-05 0.20331E-06

E= 0.60000E+01(MEV) LMAX= 12 JMAX= 23/2  
 0.60463E+00 0.69096E+00 0.70391E+00 0.61180E+00 0.58487E+00 0.80238E+00 0.75834E+00 0.56259E+00 0.63083E+00 0.61615E+00  
 0.38574E+00 0.25349E+00 0.34030E+00 0.30431E-01 0.32915E-01 0.65452E-02 0.32986E-02 0.34832E-03 0.76886E-03 0.24852E-04  
 0.24939E-04 0.14047E-05 0.17086E-05 0.86099E-07

E= 0.70000E+01(MEV) LMAX= 13 JMAX= 25/2  
 0.62219E+00 0.71086E+00 0.71989E+00 0.62916E+00 0.60578E+00 0.79936E+00 0.75218E+00 0.61655E+00 0.67300E+00 0.67356E+00  
 0.45983E+00 0.40293E+00 0.52564E+00 0.69022E-01 0.81166E-01 0.17714E-01 0.89549E-02 0.13231E-02 0.24766E-02 0.10058E-03  
 0.11063E-03 0.70267E-05 0.82630E-05 0.49501E-06 0.50873E-06 0.33401E-07

E= 0.80000E+01(MEV) LMAX= 13 JMAX= 25/2  
 0.63947E+00 0.72818E+00 0.73333E+00 0.64587E+00 0.62499E+00 0.79772E+00 0.74899E+00 0.66198E+00 0.70812E+00 0.69930E+00  
 0.51833E+00 0.55762E+00 0.65650E+00 0.13245E+00 0.16574E+00 0.41568E-01 0.20588E-01 0.41302E-02 0.62126E-02 0.33724E-03  
 0.39859E-03 0.27746E-04 0.30976E-04 0.21885E-05 0.22753E-05 0.16841E-06

E= 0.10000E+02(MEV) LMAX= 15 JMAX= 29/2  
 0.67146E+00 0.75531E+00 0.75419E+00 0.67685E+00 0.66414E+00 0.79783E+00 0.74649E+00 0.72279E+00 0.76523E+00 0.72423E+00  
 0.59361E+00 0.78842E+00 0.76838E+00 0.33149E+00 0.43659E+00 0.14518E+00 0.77697E-01 0.25040E-01 0.25791E-01 0.23922E-02  
 0.32842E-02 0.25949E-03 0.26817E-03 0.24455E-04 0.26352E-04 0.23559E-05 0.23922E-05 0.21586E-06 0.21763E-06 0.18580E-07