DP-1394

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PREPARED FOR THE U.S. ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION UNDER CONTRACT AT(07-2)-1

Printed in the United States of America

Available from
National Technical Information Service
U. S. Department of Commerce
5285 Port Royal Road
Springfield, Virginia 22161

Price: Printed Copy $5.50; Microfiche $2.25

663118

DP-1394
Distribution Category: UC-34c

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Publication Date: December 1975

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ABSTRACT

A consistent set of multigroup neutron cross sections was developed for nuclides in the production chain from ^{242}Pu to ^{253}Es. Initial multigroup data sets were derived from ENDF/B and existing Savannah River evaluated data libraries; where differential data were lacking, resonance-region model calculations and measured integral cross sections were used to fabricate the energy-dependent multigroup data. The evaluated multigroup cross section data were utilized in reactor calculations to predict yields for several experimental test measurements and long-term reactor irradiations in flux spectra of varying hardness. The calculations with the JOSHUA system reproduce the reactor environment as a function of time and predict the concentrations of actinide nuclides in the chain. Multigroup cross section data were modified within the experimental uncertainties until predicted nuclide concentrations matched experimental results within reasonable limits over the range of neutron flux spectra.

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A CONSISTENT SET OF HEAVY ACTINIDE MULTIGROUP CROSS SECTIONS

INTRODUCTION

A consistent set of multigroup neutron cross section data suitable for quantitative depletion or production studies of the heavier actinides was developed. When used in conjunction with multigroup reactor production codes, these evaluated cross section data are capable of predicting actinide yields over a wide range of neutron energy. Nuclides included in the set are in the production chain from ^{242}Pu to ^{253}Es (Figure 1).

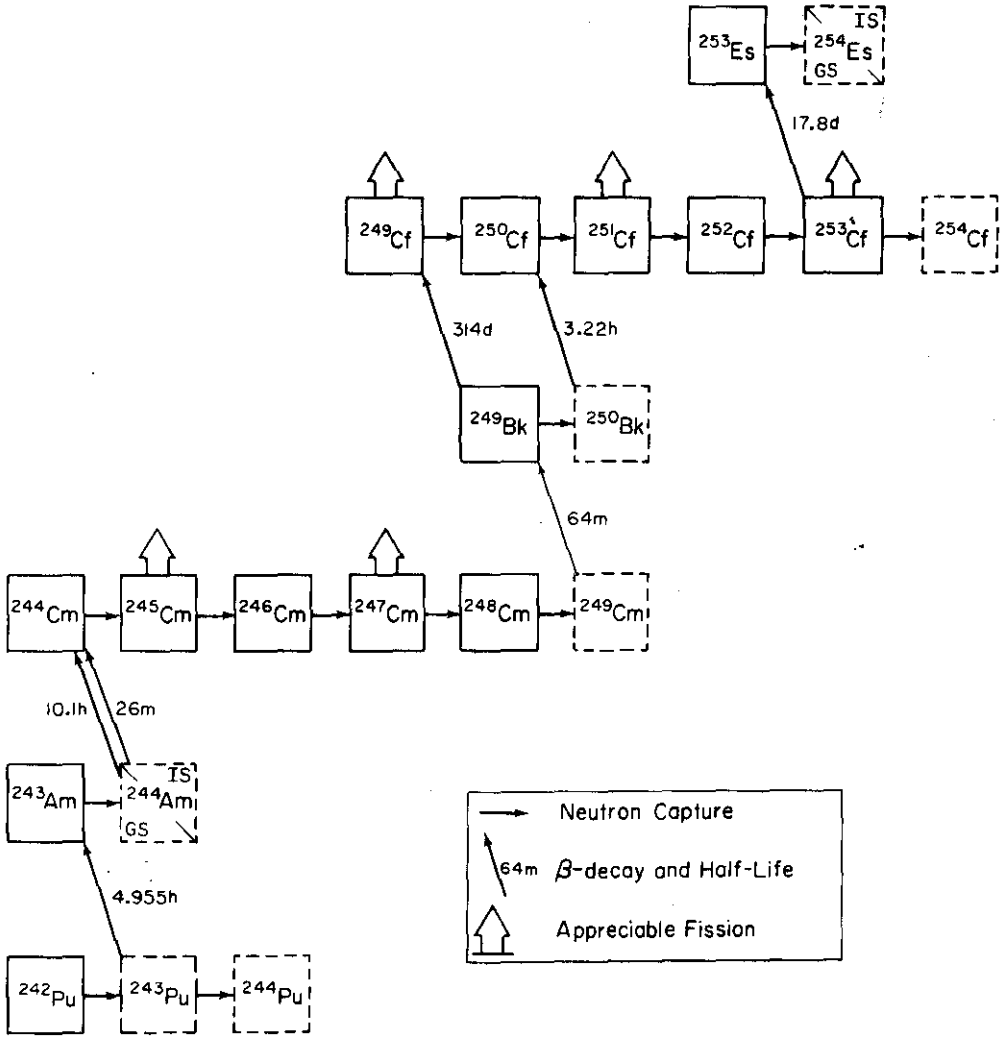

FIGURE 1. The ^{252}Cf Production Chain

These cross sections were developed for application to quantitative studies of ^{252}Cf production at the Savannah River Plant (SRP), but they are equally applicable to fuel cycle analyses involving the heavy-actinide nuclides.

The term *consistent* as applied to cross sections implies:

- The cross sections are in substantial agreement with existing individual differential and integral cross section measurements.
- The cross sections coupled with multigroup reactor production codes provide reasonable agreement between actual production experience and calculated production yields in a variety of neutron-energy spectra for all the important nuclides in the production chain.

A similar cross section study of the heavy actinides utilizing less extensive irradiation data and two-group cross sections (the effective thermal cross sections and resonance integrals) has been described by Hennelly.[1] The work described in this report expands the cross section data to 84-energy groups and utilizes a significantly greater sampling of reactor experiments and experimental conditions.

CROSS SECTIONS

Multigroup Cross Sections

The basic data sets used in these determinations consist of smooth cross sections and resonance parameters, and span the energy region from zero to 10 MeV with a nominal thermal interface at 0.632 eV. The 84-group structure (Table 1) combines the 30-group THERMOS structure[2] at thermal energies with the 54-group MUFT structure[3] at epithermal energies; small modifications have been made to the THERMOS-MUFT structures in the vicinity of the 0.632 eV interface. The 84-group cross sections have also been collapsed to 37 groups (Table 2), 12 thermal and 25 epithermal groups, which may be used to reduce computer time. The cross sections may be divided conveniently into two source groupings: those derived from differential data and those derived from integral data, which are discussed separately below. Table 3 gives a brief description of the cross section data sets.

TABLE 1

Group Structure for 84-Group Data

Number of Groups: 84
First Thermal Group: 55
Thermal Lower Limit: 6.32E - 05 eV

Groups	*Upper Energy, eV*	*Lower Lethargy*	*1/Velocity, sec/cm*	*Characteristic Energy, eV*
1	1.00000E 7	2.49991E -1	1.31344E -14	8.85948E 6
2	7.78801E 6	4.99991E -1	1.68649E -14	6.89976E 6
3	6.06531E 6	7.49991E -1	2.16549E -14	5.37354E 6
4	4.72367E 6	9.99991E -1	2.78054E -14	4.18492E 6
5	3.67879E 6	1.24999E	3.57029E -14	3.25922E 6
6	2.86505E 6	1.49999E	4.58434E -14	2.53828E 6
7	2.23130E 6	1.74999E	5.88641E -14	1.97682E 6
8	1.73774E 6	1.99999E	7.55830E -14	1.53955E 6
9	1.35335E 6	2.24999E	9.70505E -14	1.19900E 6
10	1.05399E 6	2.49999E	1.24615E -13	9.33783E 5
11	8.20850E 5	2.74999E	1.60009E -13	7.27231E 5
12	6.39279E 5	2.99999E	2.05456E -13	6.66368E 5
13	4.97871E 5	3.24999E	2.63811E -13	4.41088E 5
14	3.87742E 5	3.49999E	3.38740E -13	3.43519E 5
15	3.01974E 5	3.74999E	4.34950E -13	2.67533E 5
16	2.35177E 5	3.99999E	5.58487E -13	2.08355E 5
17	1.83156E 5	4.24999E	7.17112E -13	1.62267E 5
18	1.42642E 5	4.49999E	9.20789E -13	1.26374E 5
19	1.11090E 5	4.74999E	1.18232E -12	9.84199E 4
20	8.65169E 4	4.99999E	1.51813E -12	7.66494E 4
21	6.73794E 4	5.49999E	2.18321E -12	5.32993E 4
22	4.08677E 4	5.99999E	3.59951E -12	3.23277E 4
23	2.47875E 4	6.49999E	5.93458E -12	1.96077E 4
24	1.50344E 4	6.99999E	9.78446E -12	1.18927E 4
25	9.11882E 3	7.49999E	1.61318E -11	7.21328E 3
26	5.53084E 3	7.99999E	2.65969E -11	4.37507E 3
27	3.35463E 3	8.49999E	4.38509E -11	2.65362E 3
28	2.03468E 3	8.99999E	7.22980E -11	1.60950E 3
29	1.23410E 3	9.49999E	1.19199E -10	9.76211E 2
30	7.48518E 2	9.99999E	1.96526E -10	5.92102E 2
31	4.53999E 2	1.05000E 1	3.24017E -10	3.59128E 2
32	2.75364E 2	1.10000E 1	5.34214E -10	2.17822E 2
33	1.67017E 2	1.12500E 1	7.86409E -10	1.47968E 2
34	1.30073E 2	1.15000E 1	1.00977E - 9	1.15238E 2
36	7.88932E 1	1.20000E 1	1.66483E - 9	6.98953E 1
37	6.14421E 1	1.22500E 1	2.13768E - 9	5.44346E 1
38	4.78512E 1	1.25000E 1	2.74483E - 9	4.23937E 1
39	3.72665E 1	1.27500E 1	3.52444E - 9	3.30162E 1
40	2.90232E 1	1.30000E 1	4.52547E - 9	2.57130E 1
41	2.26033E 1	1.32500E 1	5.81082E - 9	2.00253E 1
42	1.76035E 1	1.35000E 1	7.46124E - 9	1.55957E 1

TABLE 1 (Continued)

Groups	Upper Energy, eV	Lower Lethargy	1/Velocity, sec/cm	Characteristic Energy, eV
43	1.37096E 1	1.37500E 1	9.58041E -9	1.21460E 1
44	1.06770E 1	1.40000E 1	1.23015E -8	9.45930E
45	8.31529E	1.42500E 1	1.57954E -8	7.36691E
46	6.47595E	1.45000E 1	2.02817E -8	5.73735E
47	5.04348E	1.47500E 1	2.60423E -8	4.46825E
48	3.92786E	1.50000E 1	3.34390E -8	3.47988E
49	3.05902E	1.52500E 1	4.29365E -8	2.71013E
50	2.38237E	1.55000E 1	5.51315E -8	2.11065E
51	1.85539E	1.57538E 1	7.09164E -8	1.64085E
52	1.43950E	1.60000E 1	9.10800E -8	1.27760E
53	1.12535E	1.63000E 1	1.19462E -7	9.74063E -1
54	8.33691E -1	1.63602E 1	1.43814E -7	8.09127E -1
55	7.84930E -1	1.65762E 1	1.64667E -7	7.06659E -1
56	6.32500E -1	1.67891E 1	2.04064E -7	5.70230E -1
57	5.11187E -1	1.69976E 1	2.51961E -7	4.61832E -1
58	4.14983E -1	1.72001E 1	3.09491E -7	3.75983E -1
59	3.38908E -1	1.73951E 1	3.77613E -7	3.08156E -1
60	2.78866E -1	1.75812E 1	4.56977E -7	2.54638E -1
61	2.31511E -1	1.77573E 1	5.47835E -7	2.12406E -1
62	1.94124E -1	1.79229E 1	6.50031E -7	1.79012E -1
63	1.64513E -1	1.80777E 1	7.63122E -7	1.52484E -1
64	1.40911E -1	1.82227E 1	8.86708E -7	1.31231E -1
65	1.21896E -1	1.83594E 1	1.02094E -6	1.13976E -1
66	1.06323E -1	1.85008E 1	1.17319E -6	9.91859E -2
67	9.22968E -2	1.86418E 1	1.35115E -6	8.61216E -2
68	8.01604E -2	1.87814E 1	1.55468E -6	7.48473E -2
69	6.97166E -2	1.89185E 1	1.78545E -6	6.51733E -2
70	6.07832E -2	1.90519E 1	2.04416E -6	5.69249E -2
71	5.31932E -2	1.91948E 1	2.34461E -6	4.95879E -2
72	4.61091E -2	1.93487E 1	2.72152E -6	4.27569E -2
73	3.95312E -2	1.95155E 1	3.19400E -6	3.64319E -2
74	3.34592E -2	1.96974E 1	3.80113E -6	3.06129E -2
75	2.78932E -2	1.98976E 1	4.59936E -6	2.53000E -2
76	2.28332E -2	2.01201E 1	5.67822E -6	2.04930E -2
77	1.82792E -2	2.03704E 1	7.18649E -6	1.61920E -2
78	1.42312E -2	2.06566E 1	9.38644E -6	1.23970E -2
79	1.06892E -2	2.09907E 1	1.27760E -5	9.10799E -3
80	7.65324E -3	2.13920E 1	1.83974E -5	6.32499E -3
81	5.12325E -3	2.18947E 1	2.87460E -5	4.04799E -3
82	3.09925E -3	2.25676E 1	5.11040E -5	2.27700E -3
83	1.58125E -3	2.35893E 1	1.14984E -4	1.01200E -3
84	5.69249E -4	2.57865E 1	4.59936E -4	2.53000E -4

TABLE 2

Group Structure for 37-Group Data

Number of Groups: 37
First Thermal Group: 25
Thermal Lower Limit: 6.325E - 05 eV

Groups	*Upper Energy, eV*	*Lower Lethargy*	*1/Velocity, sec/cm*	*Characteristic Energy, eV*
1	1.00000E 7	1.74999E	3.22731E -10	5.01874E 6
2	1.73774E 6	2.49999E	6.50108E -10	1.23681E 6
3	8.20850E 5	2.99999E	8.97239E -10	6.49219E 5
4	4.97871E 5	3.99999E	1.27562E - 9	3.21243E 5
5	1.83156E 5	4.99999E	2.10314E - 9	1.18179E 5
6	6.73794E 4	5.49999E	3.13167E - 9	5.32993E 4
7	4.08677E 4	5.99999E	4.02115E - 9	3.23277E 4
8	2.47875E 4	6.49999E	6.16326E - 9	1.96077E 4
9	1.50344E 4	6.99999E	6.62915E - 9	1.18927E 4
10	9.11882E 3	7.49999E	8.51277E - 9	7.21328E 3
11	5.53084E 3	7.99999E	1.09306E - 8	4.37507E 3
12	3.35463E 3	8.49999E	1.40352E - 8	2.65362E 3
13	2.03468E 3	8.99999E	1.80215E - 8	1.60950E 3
14	1.23410E 3	9.49999E	2.31401E - 8	9.76211E 2
15	7.48518E 2	9.99999E	2.97125E - 8	5.92102E 2
16	4.53999E 2	1.05000E 1	3.81516E - 8	3.59128E 2
17	2.75364E 2	1.10000E 1	4.89876E - 8	2.17822E 2
18	1.67017E 2	1.17500E 1	6.63129E - 8	1.18872E 2
19	7.88932E 1	1.25000E 1	9.64846E - 8	5.61512E 1
20	3.72665E 1	1.32500E 1	1.40384E - 7	2.65239E 1
21	1.76935E 1	1.42500E 1	2.14526E - 7	1.13584E 1
22	6.47595E	1.52500E 1	3.53693E - 7	4.17851E
23	2.38237E	1.60000E 1	5.55231E - 7	1.69562E
24	1.12535E	1.63602E 1	7.42760E - 7	9.47497E -1
25	7.84930E -1	1.65762E 1	8.60067E - 7	7.06659E -1
26	6.32500E -1	1.72001E 1	1.04976E - 6	4.74347E -1
27	3.38908E -1	1.75812E 1	1.35990E - 6	2.82659E -1
28	2.31511E -1	1.79229E 1	1.63066E - 6	1.96585E -1
29	1.64513E -1	1.82227E 1	1.91589E - 6	1.42407E -1
30	1.21896E -1	1.85008E 1	2.21460E - 6	1.06582E -1
31	9.22968E -2	1.87814E 1	2.54648E - 6	8.06113E -2
32	6.97166E -2	1.90519E 1	2.92312E - 6	6.11759E -2
33	5.31932E -2	1.93487E 1	3.36701E - 6	4.61091E -2
34	3.95312E -2	1.96974E 1	3.95257E - 6	3.34592E -2
35	2.78932E -2	2.01201E 1	4.78469E - 6	2.28332E -2
36	1.82792E -2	2.06566E 1	6.06061E - 6	1.42312E -2
37	1.06892E -2	2.57865E 1	1.29870E - 5	3.09924E -3

TABLE 3

Description of Cross Section Data Sets

Nuclide	*Experimental Data*	*First Resonance, eV*	*Comments*	*Reference*
^{242}Pu	Differential	2.68	Complete data.	4, 5, 6
^{243}Am	Differential	0.42	Complete data.	4, 7, 8
^{244}Cm	Differential	7.67	Complete data.	4, 9, 10, 11, 12
^{245}Cm	Differential	1.96	Incomplete differential data: low energy differential fission now being measured at LLL and ORNL.	4, 9, 10, 11
^{246}Cm	Differential	4.32	Incomplete differential data	4, 9, 10, 11, 12, 13
^{247}Cm	Integral	GENRPAR[a]	Differential fission data above 20 eV.	4, 9
^{248}Cm	Differential	7.25	Good data.	13, 9, 11
^{249}Bk	Integral	GENRPAR[a]	Very little data of any sort: differential total from zero to several hundred eV now being measured at ORNL.	-
^{249}Cf	Differential	0.70	Reasonable differential fission data: differential total will be measured in late 1976 at ORNL.	11, 14, 15, 16
^{250}Cf	Integral	GENRPAR[a]	No differential data.	16
^{251}Cf	Integral	GENRPAR[a]	No differential data.	16, 17
^{252}Cf	Integral	GENRPAR[a]	Very limited differential fission data (24 eV <E< 984 eV).	4, 18, 19
^{253}Cf	Integral	GENRPAR[a]	No differential data, incomplete integral data.	4, 20
^{254}Cf	Integral	GENRPAR[a]	No differential data, no integral data.	-
^{253}Es	Integral	GENRPAR[a]	No differential data.	4

a. Parameters derived as described under "Cross Sections from Integral Data."

Cross Sections from Differential Data

Differential cross section data were used in the evaluations wherever sufficient data existed, and the usual techniques of evaluation were applied. Measured resolved resonance parameters were assumed to be descriptive of the resonance region, and the unresolved resonance region was described with average resonance parameters from the resolved region. In some instances, the unresolved resonance data were re-formulated into smooth, infinite-dilution, multigroup cross sections at 0°K; in other instances, the data were left in terms of the unresolved resonance parameters. In most cases, the thermal region was described by tailing from all of the resonances, with the addition of bound levels if required to match measured thermal cross sections. All of the thermal cross sections and tailings from any bound levels in the resolved resonance region are included in the smooth cross section. When cross sections are included above the unresolved region, they are based on an assortment of experimental data and nuclear model calculations (e.g., Reference 21 for ^{244}Cm nuclear model calculations). Modifications to the cross sections or resonance parameters required by the reactor experiments were made within the experimental uncertainties listed by the cross section measurer, wherever possible; few modifications in excess of one standard deviation were required.

Cross Sections from Integral Data

The techniques used for deriving energy-dependent cross sections from 2200 m/sec cross sections and resonance integrals were as follows:

The scattering cross section was assumed constant at thermal energies and equal to the potential scattering cross section σ_p. The value of σ_p was derived from spherical optical model calculations at 10 keV. Thermal capture and fission cross sections were generated assuming a $1/\sqrt{E}$ energy dependence. The number of neutrons emitted per thermal fission, ν_{th}, was computed from the empirical formula of Reference 22.

Approximate resonance parameters to represent differential cross sections above 0.632 eV were computed with the GENRPAR code, which uses the methods of Reference 23. Thus, for a given nuclide the spacing between resonances and the reduced neutron, radiation, and fission widths were assumed constant; the position of the lowest lying resonance was determined to preserve the absorption resonance integral. Average resonance spacings, reduced neutron widths, and fission widths were determined as in Reference 23, but radiation widths were determined using the

formula of Reference 24 with modified coefficients to fit experimental data for heavy nuclides better.

The average number of neutrons per fission at epithermal energies was calculated from[25]

$$\nu(E) = \nu_{th} + E[0.130 + 0.006(A-235)]$$

where E = incident neutron energy, MeV
A = atomic weight of target nuclide, amu

The temperature in MeV of the Maxwellian energy distribution of fission neutrons was determined from[26]

$$T = 0.50 + 0.43\sqrt{1 + \nu_{th}}$$

The ^{247}Cm epithermal cross sections were evaluated by a special technique; resonance parameters based on the GENRPAR model were combined with measurements from the Physics-8 bomb shot.[27] The unresolved energy range, 60 eV to 86.5 keV, is based on the Physics-8 data. From 60 eV to 20 eV, Physics-8 resolved resonance data are used, but below 20 eV the resolved resonance parameters are based on the GENRPAR model.

REACTOR PRODUCTION EXPERIMENTS

Data from five independent reactor experiments, each including up to six targets with slightly differing conditions, were used in the testing and adjustment of the consistent cross section data set. The general properties of each of the experiments are listed in Table 4, and a brief description of each experiment follows.

HIFLUX: Four plutonium oxide and aluminum rods containing about 98% ^{242}Pu with small quantities of other plutonium isotopes were irradiated in 1965. Target rods were removed from the reactor at intervals to determine the buildup of transplutonium isotopes as a function of time. Isotopic concentrations of the actinides in the rods were determined by the Savannah River Laboratory (SRL). A more complete description of this irradiation is given in Appendix A. Consistent sets of two-group cross sections, based upon this experiment, were reported in 1968 and 1971.[28,1]

CF-I Q-Foils: This was part of a campaign to produce significant quantities of heavier actinides. The target rods of actinide oxides and aluminum contained mixtures of ^{243}Am and ^{244}Cm with small quantities of the higher curium isotopes. Isotopic analysis of the actinides following discharge was done by the transuranium (TRU) facility at Oak Ridge. A more complete description of this irradiation is given in Appendix A.

TABLE 4

General Properties of Reactor Experiments

Experiment	*Unit Name*	*Exposure Time, days*	*Initial Major Isotope(s)*	*Integrated Flux, n/cm²*	*Fast-to-Slow Flux Ratio Range*	*Brief Description*
HIFLUX	Slug I	157	^{242}Pu	3.82×10^{22}	0.296	Target rods of plutonium oxide and aluminum.
	Slug II	213	^{242}Pu	5.18×10^{22}	0.296	
	Slug III	296	^{242}Pu	7.20×10^{22}	0.296	
	Sluv IV	370	^{242}Pu	9.00×10^{22}	0.296	
Q-FOILS	K-7	370	$^{243}Am, ^{244}Cm$	1.15×10^{23}	0.256 to 0.302	Target rods of americium oxide, curium oxide, and aluminum.
	K-10	350	$^{243}Am, ^{244}Cm$	1.06×10^{23}	0.256 to 0.302	
	K-37	280	$^{243}Am, ^{244}Cm$	8.12×10^{22}	0.278 to 0.312	
	K-40	260	$^{243}Am, ^{244}Cm$	7.62×10^{22}	0.278 to 0.312	
	K-41	255	$^{243}Am, ^{244}Cm$	7.47×10^{22}	0.278 to 0.312	
	K-42	250	$^{243}Am, ^{244}Cm$	7.11×10^{22}	0.278 to 0.312	
HOUSINGS	TRU1	670	^{242}Pu	1.11×10^{23}	0.526 to 0.920	Cylindrical tubes of plutonium oxide and aluminum.
	TRU2	710	^{242}Pu	1.13×10^{23}	0.473 to 0.920	
	TRU3	710	^{242}Pu	1.16×10^{23}	0.520 to 0.920	
	TRU4	830	^{242}Pu	1.23×10^{23}	0.473 to 0.920	
	TRU6	880	^{242}Pu	1.20×10^{23}	0.520 to 0.920	
BARELAT		165	^{244}Cm	1.83×10^{21}	1.630 to 2.110	Deposits on aluminum foils in quartz ampoules.
HARDLAT		165	^{244}Cm	2.47×10^{20}	7.438 to 12.451	Deposits on aluminum foils in quartz ampoules.

CF-I Housings: The cylindrical housings and flow guides which held the fuel tubes for the CF-I campaign contained a filler of plutonium oxide which contained about 99% ^{242}Pu (Figure A-2 in Appendix A). There were substantial variations in the fast-to-slow flux ratio, and their flux history is mixed; e.g., all experienced significant zero flux time during their exposure. Final actinide analyses were determined by TRU facility personnel. This irradiation is also described in greater detail in Appendix A.

Resonance Spectrum Assemblies: This study was done in order to evaluate the resonance-spectrum reactor for transplutonium actinide production. Several pure and mixed heavy actinides were deposited on aluminum foils, sealed in quartz ampoules, and irradiated inside lithium-aluminum filter assemblies which served to harden the neutron spectrum. This HARDLAT series had a fast-to-slow flux ratio of about 10. Similar foils with predominantly ^{244}Cm were irradiated without the filters (BARELAT series) to obtain a fast-to-slow flux ratio of about 1.9. The flux history for these exposures was mixed, with some zero flux times occurring. An extensive description of these measurements has been published by Spencer and MacMurdo.[29]

Calculations with each of the above experiments took full account of the flux history and of the energy dependence of the incident neutron flux. Isotopic decay during zero time was explicitly included. Descriptions of the calculational methods and data input are given in Appendix A and Reference 29.

CROSS SECTION TESTING AND MODIFICATION

Actinide concentrations as a function of time in the reactor environment were calculated with the production code GOSPEL, a code operating on the JOSHUA system[30] of SRL. GOSPEL can determine the production of actinides from ^{230}Th to ^{257}Fm using effective cross sections computed from multigroup cross sections and multigroup neutron spectra.

GOSPEL uses the Runge-Kutta routine, stepping through time, to solve a set of 53 differential equations which express the rate of change of concentration of each isotope as the difference between the production and loss of that isotope. The loss for a given isotope is through decay (spontaneous fission, alpha, beta, or electron capture) or through neutron capture ($n\gamma$ to the ground state of the subsequent nucleus, $n\gamma$ to an isomeric state, or n-fission). The production of a given isotope is determined by the losses of all the other isotopes which contribute to it through their decay or neutron interaction.

The reaction rate is obtained by multiplying the effective cross section for a particular reaction type by the thermal neutron flux and the concentration. The effective cross section for the reaction is made up of two parts, σ_{th} and σ_{epi}, which are obtained by folding in the multigroup cross sections with the calculated multigroup neutron spectra. The thermal component (σ_{th}) is the cross section averaged over the thermal groups of the spectrum; the epithermal component (σ_{epi}), averaged over the epithermal groups, is a function of the isotopic concentration due to self-shielding of the resonances.

Spatially dependent multigroup fluxes for GOSPEL were calculated with the JOSHUA module RAHAB, which uses integral transport theory and the Nordheim treatment.[31] Calculations of the multigroup fluxes are discussed in Reference 29 and Appendix A. The neutron spectra and the resulting effective cross section sets were identified by spectral indices to obtain effective cross sections which may vary with time.

Concentrations were calculated for the reactor experiments listed in the preceding section using the SRL STANDARD cross section library as the base cross section set. These calculated concentrations were then compared with the measured experimental concentrations. Selected reaction cross sections could then be modified in the appropriate energy region, i.e., thermal or epithermal. Ideally, cross sections should only have to be modified within the experimental uncertainty of the original measured cross sections.

Iterations continued until acceptable agreement between calculated and experimental concentrations was reached. Once a complete and consistent set of multigroup cross sections has been established, any change in a single isotopic cross section set may alter significantly the predicted concentrations of that isotope and others above it in the chain.

RESULTS AND CONCLUSIONS

A complete set of multigroup cross sections for nuclides in the production chain from ^{242}Pu to ^{253}Es has been established with the techniques described above. Listings of the resultant 84-group smooth cross sections and attendant resonance parameters are given in Appendix B for each isotope. This format is in routine use at SRL. The data may also be characterized in two-group form with the 2200 m/sec cross sections, a g-factor which is a convenient measure of the departure from 1/v dependence,[32] and the resonance integral (with a thermal cutoff of 0.632 eV). These values are listed in Table 5. For two-group calculations, the thermal value used should be the product of the 2200 m/sec cross section and the g-factor.

TABLE 5

Characteristic Cross Sections from the Multigroup Data Sets

Isotope	σ_c^{2200}, *barns*	σ_f^{2200}, *barns*	*g-factor*	I_c *≥0.632 eV, barns*	I_f *≥0.632 eV, barns*
^{242}Pu	18.7	0	1.01	1250	4.65
^{243}Pu	87.4	180	1.00	264	542
^{243}Am	74.4	0	1.01	1810	3.4
^{244}Cm	10.3	0.60	1.00	600	18.8
^{245}Cm	383	2161	0.97	104	766
^{246}Cm	1.30	0.06	1.00	104	9.91
^{247}Cm	58.2	83.4	1.00	493	749
^{248}Cm	2.44	0.117	1.00	246	17.2
^{249}Bk	1614	0	1.00	4102	0
^{249}Cf	481	1665	0.97	637	1680
^{250}Cf	1659	0	1.00	11233	0
^{251}Cf	2880	5360	1.00	1631	4946
^{252}Cf	20.5	32.2	1.00	44.5	114
^{253}Cf	12.0	1100	1.00	12.1	2000
^{254}Cf	100	0	1.00	99.8	0
^{253}Es	201.2	0	1.00	6310	0

Generally, the concentrations of actinide nuclides predicted with the newly formulated consistent set fall within ±10% of the experimentally measured concentrations. Plots of the percent variation of the calculated from the measured concentrations are given for each of the experiments in Figure 2. Initial and final concentrations are given in Tables 6 through 10 and discussed below for each experiment; all calculations were performed with the same set of cross sections.

HIFLUX: The HIFLUX charge of 1965 was the first SRL comprehensive attempt at this type of study. The original material was predominantly ^{242}Pu. This experiment provided the earlier two-group consistent set which has been in use for several years.[1,28] Comparisons are good except for ^{252}Cf and ^{253}Cf, whose concentrations are overpredicted. ^{253}Cf is understandable, since its low concentration and short half-life make measurement and interpretation difficult. In view of the results of the following experiments, the measurement of the ^{252}Cf concentration is probably in error.

CF-I Q-Foils: This four-adjacent rod assembly initially contained ^{243}Am and ^{244}Cm. Agreement is good through all the isotopes.

CF-I Housings: The CF-I housings began with primarily ^{242}Pu and were in a slightly harder spectrum. Two groups of assemblies, TRU2 and TRU5, were in a region whose flux spectrum could not be determined with confidence. Points for these groups are included in the plots and in the tabulation for comparison; nevertheless, they are not included in the overall summaries because of their uncertain flux-energy spectrum. Agreement is excellent except for overpredicted and scattered values for ^{243}Am. The scatter of the data points for ^{243}Am indicates a measurement problem. Further, the problem is less severe than it appears because virtually the total mass of ^{242}Pu (initially >300 g per group) passes through ^{243}Am on its way to the higher-mass isotopes leaving only $\leqslant$4.3 g of ^{242}Pu and $\leqslant$2.7 g of ^{243}Am. These predicted values for ^{243}Am can be substantially reduced without severely affecting other isotopes and measurements, but only by making extreme and unjustified changes to the capture cross section in the low-energy resonance region for ^{243}Am. Agreement for the rest of the isotopes is excellent. This is the only set of softer spectrum measurements for which any ^{249}Cf data were obtained. ^{249}Bk and ^{249}Cf are serious measurement problems because ^{249}Cf is present only in small abundance, and ^{249}Bk decays to it with a half-life of 314 days; furthermore, ^{253}Es decays to ^{249}Bk with a half-life of 20.5 days.

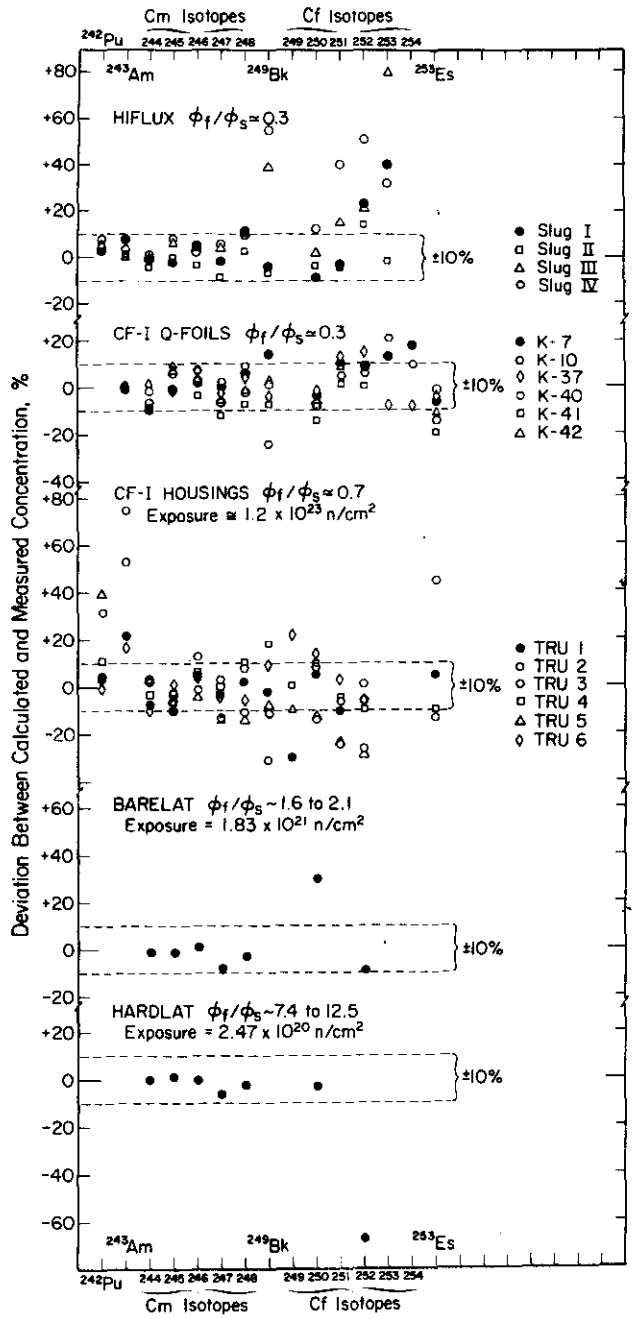

FIGURE 2. Reactor Experiments

TABLE 6

HIFLUX: Concentrations Relative to Initial ^{242}Pu

Isotope	*Initial Concentration (Measured)* All SLUGS identical	*SLUG I 157 days Final Concentration*		*SLUG II 213 days Final Concentration*		*SLUG III 296 days Final Concentration*		*SLUG IV 370 days Final Concentration*	
		Measured	*Calculated*	*Measured*	*Calculated*	*Measured*	*Calculated*	*Measured*	*Calculated*
^{242}Pu	1.00	0.511	0.529	0.402	0.418	0.276	0.292	0.194	0.211
^{243}Am	4.6E -3	1.27E -1	1.37E -1	1.15E -1	1.17E -1	8.6E -2	8.60E -2	6.1E -2	6.43E -2
^{244}Cm	0	2.74E -1	2.73E -1	3.71E -1	3.51E -1	4.14E -1	4.14E -1	4.26E -1	4.29E -1
^{245}Cm	0	1.63E -3	1.60E -3	2.03E -3	2.02E -3	2.22E -3	2.36E -3	2.26E -3	2.44E -3
^{246}Cm	0	7.61E -3	7.98E -3	1.52E -2	1.46E -2	2.50E -2	2.59E -2	3.56E -2	3.63E -2
^{247}Cm	0	1.23E -4	1.22E -4	2.73E -4	2.47E -4	4.54E -4	4.74E -4	6.50E -4	6.86E -4
^{248}Cm	0	6.14E -5	6.80E -5	1.92E -4	1.97E -4	5.04E -4	5.56E -4	9.54E -4	1.05E -3
^{249}Bk	0	3.45E -7	3.32E -7	1.06E -6	9.80E -7	2.01E -6	2.80E -6	3.42E -6	5.31E -6
^{250}Cf	0	2.89E -7	2.63E -7	8.30E -7	7.94E -7	2.27E -6	2.30E -6	3.95E -6	4.42E -6
^{251}Cf	0	6.56E -8	6.39E -8	2.03E -7	1.93E -7	4.85E -7	5.59E -7	7.67E -7	1.07E -6
^{252}Cf	0	6.82E -7	8.37E -7	2.90E -6	3.30E -6	1.04E -5	1.26E -5	1.87E -5	2.82E -5
^{253}Cf	0	8.21E -9	1.15E -8	4.81E -8	4.70E -8	1.02E -7	1.84E -7	3.17E -7	4.19E -7

TABLE 7

CF-I Q-FOILS: Concentrations in Grams per Assembly

Isotope	Assembly	Initial Concentration Measured	Final Concentration Measured	Final Concentration Calculated	Assembly	Initial Concentration Measured	Final Concentration Measured	Final Concentration Calculated
^{243}Am	K-7	59.4	5.57E -2	6.07E -2	K-10	69.4	9.43E -2	8.29E -2
^{244}Cm		108.0	40.2	36.3		127.5	52.3	48.9
^{245}Cm		8.56E -1	2.75E -1	2.73E -1		1.01	3.66E -1	3.60E -1
^{246}Cm		4.73	17.9	17.9		5.58	19.6	20.9
^{247}Cm		7.85E -2	3.86E -1	3.87E -1		9.17E -2	4.39E -1	4.49E -1
^{248}Cm		4.49E -2	1.33	1.40		5.31E -2	1.38	1.51
^{249}Bk		0	6.33E -3	7.22E -3		0	1.03E -2	7.80E -3
^{250}Cf		0	6.33E -3	6.10E -3		0	7.17E -3	6.58E -3
^{251}Cf		0	1.35E -3	1.49E -3		0	1.54E -3	1.61E -3
^{252}Cf		0	5.44E -2	5.92E -2		0	5.86E -2	6.21E -2
^{253}Cf		0	8.29E -3	9.38E -3		0	8.11E -4	9.79E -4
^{254}Cf		0	5.98E -3	7.03E -5		0	6.52E -5	7.19E -5
^{253}Es		0	2.66E -4	2.49E -4		0	3.09E -4	2.65E -4
^{243}Am	K-37	118.9	1.7E -1	1.89E -1	K-40	124.5	6.1E -2	2.50E -1
^{244}Cm		109.4	80.8	81.6		103.3	90.6	88.9
^{245}Cm		8.63E -1	5.48E -1	5.97E -1		8.16E -1	6.01E -1	6.37E -1
^{246}Cm		4.79	20.0	21.4		4.53	20.2	20.5
^{247}Cm		8.46E -2	4.53 -1	4.42E -1		7.59E -2	4.52E -1	4.20E -1
^{248}Cm		4.49E -2	1.08	1.12		4.32E -2	1.02	9.91E -1
^{249}Bk		0	6.23E -3	6.01E -2		0	5.28E -3	5.33E -3
^{250}Cf		0	5.12E -3	5.01E -3		0	4.76E -3	4.44E -3
^{251}Cf		0	1.10E -3	1.24E -3		0	1.01E -3	1.10E -3
^{252}Cf		0	3.66E -2	4.21E -2		0	3.30E -2	3.61E -2
^{253}Cf		0	7.15E -4	6.56E -4		0	-	
^{254}Cf		0	4.84E -5	4.45E -5		0	-	
^{253}Es		0	1.85E -4	1.78E -4		0	1.53E -4	1.51E -4
^{243}Am	K-41	125.9	1.22E -1	2.759E -1	K-42	129.3	2.79E -1	3.54E -1
^{244}Cm		107.3	101.3	92.4		118.1	102.9	102.5
^{245}Cm		8.51E -1	6.75E -1	6.65E -1		9.39E -1	6.89E -1	7.36E -1
^{246}Cm		4.70	21.8	20.9		5.17	21.3	22.0
^{247}Cm		7.68E -2	4.97E -1	4.30E -1		9.20E -2	4.81E -1	4.51E -1
^{248}Cm		4.50E -2	1.09	9.98E -1		4.83 -2	1.03	1.01
^{249}Bk		0	5.82E -3	5.37E -3		0	5.31E -3	5.43E -3
^{250}Cf		0	5.24E -3	4.47E -3		0	4.88E -3	4.52E -3
^{251}Cf		0	1.10E -3	1.11E -3		0	1.03E -3	1.12E -3
^{252}Cf		0	3.61E -2	3.61E -3		0	3.31E -2	3.58E -2
^{253}Cf		0	-			0	-	
^{254}Cf		0	-			0	-	
^{253}Es		0	1.91E -4	1.52E -4		0	1.71E -4	1.51E -4

TABLE 8

CF-I Housings: Concentrations in Grams per Assembly

Isotope	Assembly	Initial Concentration Measured	Final Concentration Measured	Final Concentration Calculated	Assembly	Initial Concentration Measured	Final Concentration Measured	Final Concentration Calculated
^{242}Pu	TRU1	326.5	3.45	3.57	TRU2[a]	326.9	4.08	5.38
^{243}Am		0	2.24	2.72		0	2.17	3.79
^{244}Cm			68.9	64.0			71.5	73.4
^{245}Cm			1.17	1.05			1.03	9.92E -1
^{246}Cm			27.4	28.5			28.1	27.8
^{247}Cm			8.61E -1	8.37E -1			8.81E -1	7.66E -1
^{248}Cm			1.85	1.88			1.85	1.65
^{249}Bk			1.31E -2	1.60E -1			1.75E -2	1.21E -2
^{249}Cf			1.94E -3	1.35E -1			4.51E -4	9.82E -4
^{250}Cf			1.22E -2	1.28E -2			1.23E -2	1.06E -2
^{251}Cf			3.83E -3	3.44E -3			3.64E -3	2.75E -3
^{252}Cf			8.38E -2	7.89E -2			8.27E -2	6.14E -2
^{253}Es		0	3.5 E -4	3.67E -4		0	3.6 E -4	3.12E -4
^{242}Pu	TRU3	334.2	2.94	3.07	TRU4	333.5	2.98	3.30
^{243}Am		0	1.51	2.30		0	1.21	2.34
^{244}Cm			58.9	60.1			60.6	58.7
^{245}Cm			8.92E -1	8.34E -1			8.77E -1	8.53E -1
^{246}Cm			26.3	29.6			27.9	29.5
^{247}Cm			8.38E -1	8.65E -1			8.82E -1	8.79E -1
^{248}Cm			1.89	2.05			1.85	2.04
^{249}Bk			1.69E -2	1.51E -2			1.33 -2	1.57E -2
^{249}Cf			4.68E -4	1.24E -3			1.32 -3	1.32E -3
^{250}Cf			1.24E -2	1.34E -2			1.30 -2	1.40E -2
^{251}Cf			3.71E -3	3.48E -3			3.82 -3	3.63E -3
^{252}Cf			8.63E -2	8.73E -2			9.10 -2	8.18E -2
^{253}Es		0	3.08E -4	4.48E -4		0	4.62 -2	4.19E -2
^{242}Pu	TRU5[a]	393.1	3.60	5.03	TRU6	546.9	4.29	4.27
^{243}Am		0	1.43	3.412		0	2.65	3.11
^{244}Cm			68.8	71.0			97.1	86.9
^{245}Cm			1.07	1.01			1.68	1.70
^{246}Cm			31.4	30.1			47.2	48.8
^{247}Cm			1.00	8.62E -1			1.61	1.55
^{248}Cm			2.17	1.88			3.39	3.59
^{249}Bk			1.56E -2	1.44E -2			3.21E -2	3.49E -2
^{249}Cf			1.54E -3	1.21E -2			2.15E -3	2.61E -3
^{250}Cf			1.45E -2	1.28E -2			2.17E -2	2.47E -2
^{251}Cf			4.33E -3	3.32E -3			7.05E -3	7.23E -3
^{252}Cf			9.59E -2	6.89E -2			1.59E -1	1.50E -1
^{253}Es		0	-	-		0	-	-

a. These measurements not used in averages (page 22).

TABLE 9

BARELAT: Concentrations Relative to Initial ^{244}Cm

Isotope	Initial Concentration Measured	Final Concentration Measured	Final Concentration Calculated
^{243}Cm	2.68E -4	-	-
^{244}Cm	1.00	8.95E -1	8.84E -1
^{245}Cm	8.31E -3	3.08E -2	3.06E -2
^{246}Cm	4.40E -2	5.28E -2	5.34E -2
^{247}Cm	7.37E -4	1.36E -3	1.25E -3
^{248}Cm	4.22E -4	5.65E -4	5.47E -4
^{250}Cf	0	3.04E -6	3.94E -6
^{252}Cf	0	2.31E -6	2.11E -6

TABLE 10

HARDLAT: Concentrations Relative to Initial ^{244}Cm

Isotope	Initial Concentration Measured	Final Concentration Measured	Final Concentration Calculated
^{243}Cm	2.68E -4	-	-
^{244}Cm	1.00	9.22E -1	9.20E -1
^{245}Cm	8.31E -3	5.54E -2	5.59E -2
^{246}Cm	4.40E -2	4.49E -2	4.50E -2
^{247}Cm	7.37E -4	1.21E -2	1.14E -2
^{248}Cm	4.22E -4	4.6 E -2	4.52E -2
^{250}Cf	0	1.87E -6	1.82E -6
^{252}Cf	0	1.91E -7	6.94E -8

BARELAT: One of the resonance spectrum assemblies,[29] but without the lithium-aluminum spectrum-hardening cover, BARELAT is in a yet harder spectrum. The original material was predominantly ^{244}Cm. Agreement is good, except for a very much overpredicted ^{250}Cf. In this case, the final concentrations for ^{250}Cf and ^{252}Cf were determined by alpha counting instead of mass spectrometry. For this reason, other californium isotopes do not appear.

HARDLAT: The only reliable hard spectrum measurement available was HARDLAT, which began with predominantly ^{244}Cm. The californium concentration measurements again were done by alpha counting so only ^{250}Cf and ^{252}Cf appear. Agreement through the curium region is excellent, and quite good for ^{250}Cf. ^{252}Cf is so woefully underpredicted that cross section changes cannot account for it.

Additional hard spectrum measurements were performed with the resonance spectrum assemblies. These measurements are also described by Spencer and MacMurdo;[29] their measurements are, however, unreliable and difficult to interpret since the final concentrations were not measured with a high-precision mass spectrometer.

In addition to the studies of SRL experiments, measurements of the integral capture cross sections of ^{249}Cf, ^{250}Cf, ^{251}Cf, and ^{252}Cf done in the ORR (Oak Ridge Reactor) by Halperin, et al.[16,18,33] were set up with RAHAB and GOSPEL. Thermal and epithermal events were separated using the cadmium-difference technique. The results of the Oak Ridge group were corroborated, and the same two-group equivalent cross section data were obtained as with the SRL measurements except that the SRL value of the thermal capture cross section for ^{250}Cf is somewhat smaller. This result gives support to the resonance evaluations of the californium nuclides where more good, hard-spectrum, production data would be desirable.

A survey of the concentration comparison for thermal and near-thermal neutron spectra is shown in Figure 3. Of the 178 calculated data points used, 76% fall within ±10% of the measured values, and 88% fall within ±20% of the measured values. A rough estimate of the reliability of the measured concentrations for the important isotopes would yield about ±5% for the curium isotopes and ±10% for the californium isotopes.

The multigroup cross sections for heavy actinides through ^{248}Cm are suitable for general reactor studies over a wide range of reactor neutron spectra.

The multigroup cross sections for ^{249}Bk, the californium isotopes, and ^{253}Es are adequate for good quantitative studies in the thermal and near-thermal region, but probably only useful for qualitative studies in the epithermal region.

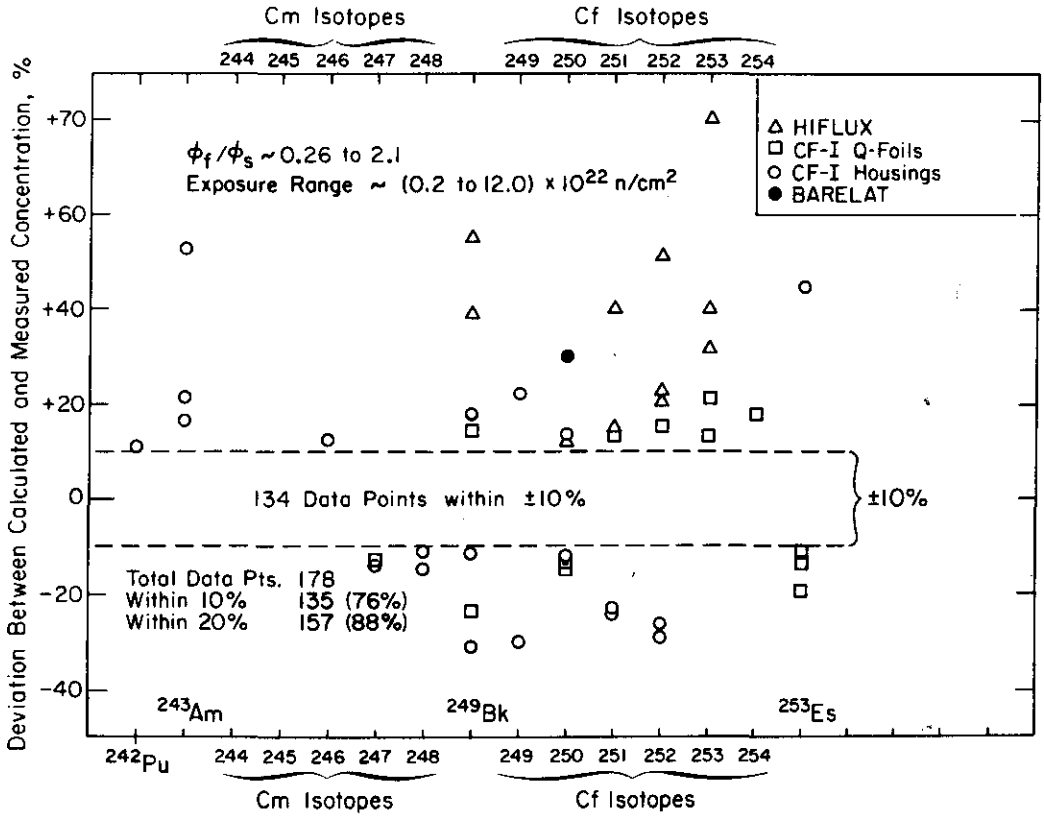

FIGURE 3. Thermal and Near-Thermal Spectra

APPENDIX A – DESCRIPTION OF HOST LATTICES FOR HIFLUX AND CF-I

High power density charges were operated in an SRP production reactor on two separate occasions: the 1965 High Flux Demonstration Campaign and the 1969 Californium-I Campaign. In each case, only the central lattice positions of the reactor contained fuel, and ^{235}U loadings were low to permit operation at thermal neutron flux values well in excess of 10^{15} n/(cm^2-sec). Each campaign ran for about one year.

The 1965 campaign[34] was conducted to assist in the Transplutonium Program and to provide an irradiation facility for research programs being sponsored by several research laboratories. Several ^{242}Pu HIFR targets were irradiated and shipped to Oak Ridge at the conclusion of the program. Approximately 270 grams of ^{242}Pu was irradiated in SRP fabricated targets; analyses of actinide content of this material were made by SRL.

The 1969 charges contained several kilograms of ^{242}Pu and several hundred grams of mixed ^{243}Am and ^{244}Cm. A total of 2 grams of ^{252}Cf was produced. All of the americium and curium material and approximately one-third of the plutonium material were processed at the TRU facility at Oak Ridge. The remaining plutonium targets are still being irradiated in SRP charges.

Target Assembly Preparation

Fabrication

The actinide-target fabrication process consisted of several steps. The plutonium, americium, or curium oxide was uniformly mixed with aluminum powder to achieve the desired density. The mixture was pressed into 1-inch diameter compacts. ^{242}Pu compacts for the 1965 campaign and ^{243}Am-^{244}Cm compacts for the 1969 campaign were canned to form 6-inch-long slugs. However, ^{242}Pu compacts for the 1969 charge were placed in billets and extruded as aluminum clad tubes.

Targets fabricated as slugs were charged to a four-column housing assembly called a quatrefoil (Q-foil) as shown in Figure A-1. Each column contained approximately 8 slugs. Each Q-foil occupied one reactor lattice position.

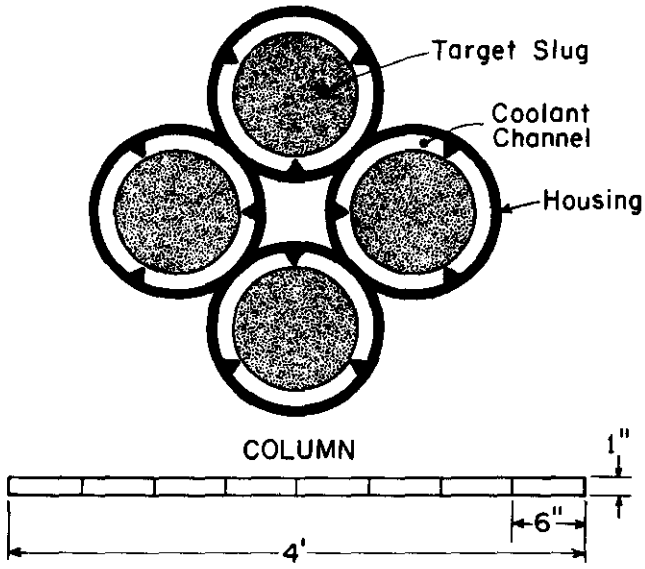

FIGURE A-1. Quatrefoil Assembly

^{242}Pu targets extruded as tubes served as the outer coolant housing for 86 of the fuel assemblies in the 1969 campaign, as shown in Figure A-2. The harder spectrum in the housing enhanced resonance captures in the actinides, resulting in increased ^{252}Cf formation.

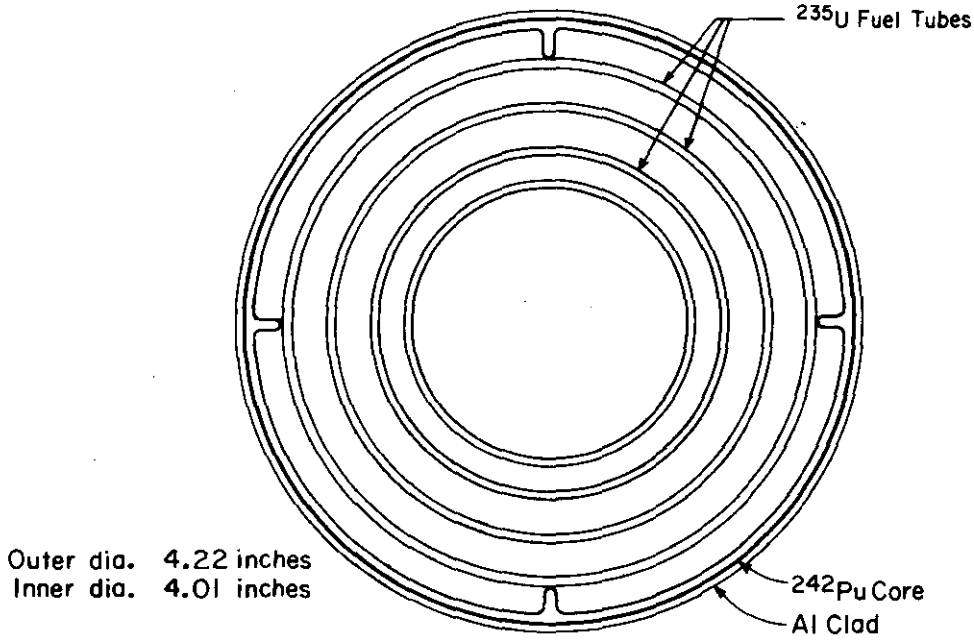

FIGURE A-2. ^{242}Pu Housing Targets - CF-I Campaign

Initial Contents

The initial contents of the plutonium slugs irradiated in the 1965 High Flux Charges are shown in Table A-1. All 8 slugs were identical in initial content and volume. The plutonium was comprised of 96% ^{242}Pu.

TABLE A-1

Initial Contents of Plutonium Slugs in 1965 High Flux Charges

Total ^{242}Pu, g	270	
Number of slugs	8	
Core volume per slug, cm^3	54	
Assay of material, atoms relative to ^{242}Pu		
^{237}Np	5.0×10^{-3}	
^{238}Pu	4.9×10^{-3}	
^{239}Pu	3.9×10^{-3}	
^{240}Pu	1.8×10^{-2}	
^{241}Pu	7.3×10^{-3}	
^{242}Pu	1.0	(96% assay)
^{244}Pu	4.6×10^{-4}	

The americium-curium irradiated in the CF-I charges was contained in 6 separate Q-foil assemblies, as listed in Table A-2. A total of 166 slugs was charged. The $^{243}Am/^{244}Cm$ ratio of the feed material was determined by gamma spectrometry. The ^{244}Cm content of each slug was measured in a calorimeter.

TABLE A-2

Initial Contents of Americium-Curium Slugs in 1969 CF-I Charges

Q-foil Assembly	*Number of Slugs*	*Material per Assembly, g* ^{243}Am	^{244}Cm
K-7	16	59.4	107.7
K-10	19	69.4	127.5
K-37	32	119.0	109.4
K-40	32[a]	132.8	110.1
K-41	32	126.1	107.2
K-42	35	129.5	118.3
Total	166	636.2	680.2

Core volume per slug 52 cm^3

Assay of curium material, atoms relative to ^{244}Cm

^{244}Cm	1.0	(95% assay)
^{245}Cm	7.9×10^{-3}	
^{246}Cm	4.3×10^{-2}	
^{247}Cm	7.1×10^{-4}	
^{248}Cm	4.1×10^{-4}	

a. 2 slugs from the K-40 assembly were diverted to SRL for special tests, and were not shipped to Oak Ridge.

The contents of the CF-I plutonium housings are described in Table A-3. The batch names were established to categorize the 20 housings for which analyses were made. The first 4 characters of the name (e.g., TRU) refer to the group of housings sent to the TRU facility at Oak Ridge for processing and analysis. Each of the first 5 TRU groups contained 3 housings, and the sixth contained 5 housings. The last 3 characters of the name (e.g., GP3) refer to the region in the reactor lattice in which the housings were irradiated.

Irradiation History

The magnitude and energy distributions of the neutron fluxes in the target assemblies could not be measured directly, but rather were inferred from transport theory calculations and from measured depletion of key nuclides. The calculation of actinide transmutation with exposure consisted of two parts:

TABLE A-3

Initial Contents of Plutonium Housings
in 1969 CF-I Charges

Batch Name	*Number of Housings*	*^{242}Pu per Batch, g*
TRU1GP3	3	326.5
TRU2GP2	3	326.9
TRU3GP3	3	334.2
TRU4GP2	2	224.7
TRU4GP3	1	108.8
TRU5GP1	2	232.8
TRU5FP2	1	116.1
TRU6GP3	5	546.9
Total	20	2216.9

Core volume per housing 357 cm^3

Assay of plutonium material, atoms relative to ^{242}Pu

^{238}Pu	1.7×10^{-3}	
^{239}Pu	4.4×10^{-4}	
^{240}Pu	1.2×10^{-2}	
^{241}Pu	1.1×10^{-3}	
^{242}Pu	1.0	(98% assay)
^{244}Pu	1.9×10^{-3}	

1. Thermal flux values and fast-to-thermal flux ratios were evaluated for representative fuel cycles using the RAID2 program. Thermal fluence per fuel cycle was obtained from observed exposures (MWD) and known fuel content of fuel assemblies, combined with calculated target to fuel thermal flux ratios.

2. Total fluence for the entire campaign was input to the GOSPEL code to calculate at-discharge actinide content. The fluence for the plutonium slugs irradiated in the 1965 High Flux Charges were normalized to give exact agreement between calculated and measured ^{242}Pu contents. A similar normalization could not be made with CF-I targets because depletion of the original primary actinides was too large. The CF-I housing targets were all irradiated in regular SRP production lattices beyond the end of the CF-I campaign. The thermal fluence from that irradiation was only 4% of the CF-I fluence for the last batch to be discharged, and less for the earlier batches.

APPENDIX B – SMOOTH CROSS SECTIONS AND RESONANCE PARAMETERS IN THE 84-GROUP FORMAT

The following computer printout lists the cross sections and resonance parameters in the 84-group format. The group structure used is listed in the first table of the main text. The data for the isotopes are in order of increasing atomic number. Cross sections are in units of barns, and energy is in units of eV. The sequence for each isotope is:

- Epithermal smooth data (54 groups) where

  SIGPO - P_0 component of smooth scattering
  SIGC - smooth capture cross section σ_c
  SIGIN - smooth fission cross section σ_f
  SIGP1 - P_1 component of smooth scattering σ_{S1}
  SIGNU - number of neutrons per fission ν

- Resolved resonance parameters where

  GROUP - group in which this resonance occurs
  SEQ# - sequential number of this resonance within the group
  E RES - resonance energy E_o
  GMN - neutron width Γ_n
  GMGM - radiation width Γ_γ
  GMF - fission width Γ_f
  SPIN - statistical spin factor g

- Unresolved resonance parameters where

  LAST - lowest energy group in which resonances occur
  FIRST - highest energy group in which resonances occur
  D-AVG - average resonance spacing <D>
  GMNO - average reduced neutron width $\langle\Gamma_n^o\rangle$
  GMGM - average radiation width $\langle\Gamma_\gamma\rangle$
  GMF - average fission width $\langle\Gamma_f\rangle$
  SPIN - statistical spin factor g

- Thermal data (30 groups, 55 through 84) where

  NU - number of neutrons per fission over the thermal region
  SIG-S - elastic scattering cross section σ_S (assumed constant at thermal energies)
  SIGMA-A - absorption cross section σ_a
  SIGMA-F - fission cross section σ_f

ZAS= 9+2+2. MASS=239.9800 MULT.STANDARD.PU242

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	1	0.286000E 01	0.383000E-02	0.158000E 00	0.253000E 01	0.250000E 01	0.359000E 01
1	2	0.325000E 01	0.493000E-02	0.599000E 00	0.213000E 01	0.289000E 01	0.366000E 01
1	3	0.356000E 01	0.662000E-02	0.108000E 01	0.182000E 01	0.313000E 01	0.357000E 01
1	4	0.372000E 01	0.969000E-02	0.121000E 01	0.174000E 01	0.316000E 01	0.340000E 01
1	5	0.375000E 01	0.173000E-01	0.113000E 01	0.170000E 01	0.300000E 01	0.327000E 01
1	6	0.376000E 01	0.251000E-01	0.114000E 01	0.151000E 01	0.280000E 01	0.317000E 01
1	7	0.383000E 01	0.445000E-01	0.113000E 01	0.137000E 01	0.265000E 01	0.309000E 01
1	8	0.402000E 01	0.388000E-01	0.100000E 01	0.135000E 01	0.253000E 01	0.303000E 01
1	9	0.433000E 01	0.472000E-01	0.611000E 00	0.150000E 01	0.248000E 01	0.298000E 01
1	10	0.476000E 01	0.695000E-01	0.636000E 00	0.122000E 01	0.241000E 01	0.294000E 01
1	11	0.547000E 01	0.954000E-01	0.611000E 00	0.721000E 00	0.237000E 01	0.291000E 01
1	12	0.619000E 01	0.116000E 00	0.497000E 00	0.364000E 00	0.233000E 01	0.289000E 01
1	13	0.684000E 01	0.118000E 00	0.547000E 00	0.173000E 00	0.227000E 01	0.287000E 01
1	14	0.747000E 01	0.119000E 00	0.608000E 00	0.944000E-01	0.220000E 01	0.286000E 01
1	15	0.810000E 01	0.121000E 00	0.692000E 00	0.582000E-01	0.209000E 01	0.285000E 01
1	16	0.877000E 01	0.126000E 00	0.773000E 00	0.421000E-01	0.196000E 01	0.284000E 01
1	17	0.946000E 01	0.135000E 00	0.743000E 00	0.340000E-01	0.179000E 01	0.283000E 01
1	18	0.102000E 02	0.147000E 00	0.614000E 00	0.301000E-01	0.161000E 01	0.283000E 01
1	19	0.108000E 02	0.168000E 00	0.502000E 00	0.288000E-01	0.141000E 01	0.282000E 01
1	20	0.115000E 02	0.200000E 00	0.370000E 00	0.300000E-01	0.121000E 01	0.282000E 01
1	21	0.126000E 02	0.295000E 00	0.111000E 00	0.370000E-01	0.968000E 00	0.282000E 01
1	22	0.140000E 02	0.411000E 00	0.0	0.453000E-01	0.677000E 00	0.281000E 01
1	23	0.153000E 02	0.500000E 00	0.0	0.536000E-01	0.435000E 00	0.281000E 01
1	24	0.156000E 02	0.582000E 00	0.0	0.553000E-01	0.158000E 00	0.281000E 01
1	25	0.107000E 02	0.348000E 00	0.0	0.0	0.294000E-01	0.281000E 01
1	26	0.107000E 02	0.310000E 00	0.0	0.0	0.294000E-01	0.281000E 01
1	27	0.107000E 02	0.261000E 00	0.0	0.0	0.295000E-01	0.281000E 01
1	28	0.107000E 02	0.212000E 00	0.0	0.0	0.295000E-01	0.281000E 01
1	29	0.107000E 02	0.169000E 00	0.0	0.0	0.296000E-01	0.281000E 01
1	30	0.107000E 02	0.133000E 00	0.0	0.0	0.297000E-01	0.281000E 01
1	31	0.107000E 02	0.105000E-01	0.0	0.0	0.297000E-01	0.281000E 01
1	32	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	33	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	34	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	35	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01

ZAS= 9+2+2. MASS=239.9800 MULT.STANDARD.PU242

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	35	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	37	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	38	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	39	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	40	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	41	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	42	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	43	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	44	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	45	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	46	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	47	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	48	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	49	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	50	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	51	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	52	0.107000E 02	0.0	0.0	0.0	0.297000E-01	0.281000E 01
1	53	0.877000E 01	0.0	0.0	0.0	0.243000E-01	0.281000E 01
1	54	0.747000E 01	0.0	0.0	0.0	0.207000E-01	0.281000E 01

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	30	1	0.736700E 03	0.105000E 00	0.234000E-01	0.610000E-03	0.100000E 01
3	30	2	0.727600E 03	0.320000E-02	0.234000E-01	0.0	0.100000E 01
3	30	3	0.711600E 03	0.120000E 00	0.200000E-01	0.480000E-04	0.100000E 01
3	30	4	0.693200E 03	0.350000E-01	0.220000E-01	0.280000E-03	0.100000E 01
3	30	5	0.669300E 03	0.130000E-01	0.234000E-01	0.110000E-03	0.100000E 01
3	30	6	0.665000E 03	0.270000E-02	0.234000E-01	0.0	0.100000E 01
3	30	7	0.638500E 03	0.440000E-02	0.234000E-01	0.0	0.100000E 01
3	30	8	0.610800E 03	0.110000E-01	0.234000E-01	0.840000E-04	0.100000E 01
3	30	9	0.599800E 03	0.870000E-02	0.234000E-01	0.134000E-03	0.100000E 01
3	30	10	0.595000E 03	0.318000E-01	0.234000E-01	0.260000E-04	0.100000E 01
3	30	11	0.576400E 03	0.300000E-01	0.234000E-01	0.0	0.100000E 01
3	30	12	0.548600E 03	0.735999E-01	0.250000E-01	0.0	0.100000E 01
3	30	13	0.536600E 03	0.100000E 00	0.210000E-01	0.0	0.100000E 01
3	30	14	0.503900E 03	0.150000E 00	0.234000E-01	0.0	0.100000E 01
3	30	15	0.494750E 03	0.270000E-03	0.234000E-01	0.0	0.100000E 01

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	30	16	0.482500E 03	0.209000E-01	0.235000E-01	0.0	0.100000E 01
3	30	17	0.473700E 03	0.960000E-03	0.234000E-01	0.0	0.100000E 01
3	31	1	0.425150E 03	0.280000E-03	0.234000E-01	0.0	0.100000E 01
3	31	2	0.424100E 03	0.410000E-02	0.234000E-01	0.0	0.100000E 01
3	31	3	0.410600E 03	0.750000E-02	0.234000E-01	0.0	0.100000E 01
3	31	4	0.399900E 03	0.180000E-02	0.234000E-01	0.0	0.100000E 01
3	31	5	0.396100E 03	0.250000E-02	0.234000E-01	0.0	0.100000E 01
3	31	6	0.382200E 03	0.459000E-01	0.235000E-01	0.840000E-04	0.100000E 01
3	31	7	0.379630E 03	0.270000E-03	0.234000E-01	0.0	0.100000E 01
3	31	8	0.374300E 03	0.640000E-02	0.234000E-01	0.0	0.100000E 01
3	31	9	0.332400E 03	0.710000E-01	0.250000E-01	0.100000E-03	0.100000E 01
3	31	10	0.327600E 03	0.500000E-03	0.234000E-01	0.0	0.100000E 01
3	31	11	0.319900E 03	0.229000E 00	0.220000E-01	0.230000E-03	0.100000E 01
3	31	12	0.303600E 03	0.183000E-01	0.225000E-01	0.110000E-03	0.100000E 01
3	31	13	0.298700E 03	0.800000E-02	0.260000E-01	0.0	0.100000E 01
3	31	14	0.281050E 03	0.130000E-03	0.234000E-01	0.0	0.100000E 01
3	32	1	0.274750E 03	0.170000E-03	0.234000E-01	0.0	0.100000E 01
3	32	2	0.273600E 03	0.166000E-01	0.220000E-01	0.0	0.100000E 01
3	32	3	0.271950E 03	0.165000E-03	0.234000E-01	0.910000E-04	0.100000E 01
3	32	4	0.264500E 03	0.360000E-03	0.234000E-01	0.0	0.100000E 01
3	32	5	0.232700E 03	0.490000E-02	0.234000E-01	0.740000E-04	0.100000E 01
3	32	6	0.219300E 03	0.300000E-03	0.234000E-01	0.0	0.100000E 01
3	32	7	0.215300E 03	0.525000E-02	0.234000E-01	0.0	0.100000E 01
3	32	8	0.210000E 03	0.420000E-03	0.234000E-01	0.0	0.100000E 01
3	32	9	0.204800E 03	0.520000E-01	0.210000E-01	0.490000E-03	0.100000E 01
3	33	1	0.163500E 03	0.524000E-03	0.234000E-01	0.0	0.100000E 01
3	33	2	0.149700E 03	0.140000E-01	0.230000E-01	0.490000E-04	0.100000E 01
3	33	3	0.141430E 03	0.119000E-03	0.234000E-01	0.0	0.100000E 01
3	33	4	0.131400E 03	0.610000E-02	0.260000E-01	0.490000E-04	0.100000E 01
3	34	1	0.107320E 03	0.170000E-01	0.210000E-01	0.510000E-04	0.100000E 01
3	35	1	0.884500E 02	0.660000E-03	0.234000E-01	0.320000E-04	0.100000E 01
3	36	1	0.676000E 02	0.450000E-02	0.230000E-01	0.770000E-04	0.100000E 01
3	37	1	0.534600E 02	0.520000E-01	0.212000E-01	0.440000E-04	0.100000E 01
3	38	1	0.409500E 02	0.450000E-03	0.270000E-01	0.0	0.100000E 01
3	41	1	0.225700E 02	0.290000E-03	0.230000E-01	0.0	0.100000E 01
3	42	1	0.146000E 02	0.610000E-04	0.234000E-01	0.0	0.100000E 01
3	49	1	0.267000E 01	0.232000E-02	0.220000E-01	0.0	0.100000E 01

***** UNRESOLVED RESONANCE PARAMETERS *****

CARD	LAST	FIRST	D-AVG	GNNO	GNGM	GNF	SPIN
4	23	24	0.184CCCE 02	C.325000E-02	0.245000E-01	0.0	0.100000E 01

THERMAL DATA

MULT.STAND.PU242 ID#= 94242. NU= 2.808000 SIG-S = 0.83800E 01

GROUP	SIGMA-A	SIGMA-F
55	0.638300E 01	0.169700E-03
56	0.621900E 01	0.188200E-03
57	0.625500E 01	0.208600E-03
58	0.643000E 01	C.230700E-03
59	0.670500E 01	0.254400E-03
60	0.705700E 01	0.279400E-03
61	0.746600E 01	0.305600E-03
62	0.791900E 01	0.332600E-03
63	C.840300E 01	0.360100E-03
64	0.890700E 01	0.387900E-03
65	0.943100E 01	0.416000E-03
66	C.999700E 01	0.445800E-03
67	0.106200E 02	0.478300E-03
68	0.113000E 02	0.512900E-03
69	0.120200E 02	0.549500E-03
70	0.127800E 02	0.587900E-03
71	0.136200E 02	0.629800E-03
72	0.145900E 02	0.678300E-03
73	0.157400E 02	0.734900E-03
74	C.171000E 02	0.801900E-03
75	0.187400E 02	0.882300E-03
76	0.207700E 02	0.980800E-03
77	0.233100E 02	C.110400E-02
78	0.265900E 02	0.126300E-02
79	C.310100E 02	0.147700E-02
80	0.372500E 02	0.177800E-02
81	0.467700E 02	0.223500E-02
82	0.631200E 02	0.302100E-02
83	0.988700E 02	0.473600E-02
84	0.231500E 03	0.111000E-01

PLUTONIUM-243

IZAS= 94243. MASS=240.9100 MULT.STANDARD.PU243

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	1	0.102000E 02	0.277000E-05	0.0	0.568000E-05	0.0	0.459000E 01
1	2	0.102000E 02	0.314000E-05	0.0	0.644000E-05	0.0	0.424000E 01
1	3	0.102000E 02	0.356000E-05	0.0	0.729000E-05	0.0	0.397000E 01
1	4	0.102000E 02	0.403000E-05	0.0	0.826000E-05	0.0	0.376000E 01
1	5	0.102000E 02	0.457000E-05	0.0	0.936000E-05	0.0	0.359000E 01
1	6	0.102000E 02	0.518000E-05	0.0	0.106000E-04	0.0	0.346000E 01
1	7	0.102000E 02	0.587000E-05	0.0	0.120000E-04	0.0	0.336000E 01
1	8	0.102000E 02	0.665000E-05	0.0	0.136000E-04	0.0	0.329000E 01
1	9	0.102000E 02	0.754000E-05	0.0	0.154000E-04	0.0	0.323000E 01
1	10	0.102000E 02	0.854000E-05	0.0	0.175000E-04	0.0	0.318000E 01
1	11	0.102000E 02	0.968000E-05	0.0	0.198000E-04	0.0	0.314000E 01
1	12	0.102000E 02	0.110000E-04	0.0	0.225000E-04	0.0	0.311000E 01
1	13	0.102000E 02	0.124000E-04	0.0	0.255000E-04	0.0	0.309000E 01
1	14	0.102000E 02	0.141000E-04	0.0	0.288000E-04	0.0	0.307000E 01
1	15	0.102000E 02	0.160000E-04	0.0	0.327000E-04	0.0	0.306000E 01
1	16	0.102000E 02	0.181000E-04	0.0	0.370000E-04	0.0	0.305000E 01
1	17	0.102000E 02	0.205000E-04	0.0	0.420000E-04	0.0	0.304000E 01
1	18	0.102000E 02	0.232000E-04	0.0	0.476000E-04	0.0	0.303000E 01
1	19	0.102000E 02	0.263000E-04	0.0	0.539000E-04	0.0	0.303000E 01
1	20	0.102000E 02	0.298000E-04	0.0	0.611000E-04	0.0	0.303000E 01
1	21	0.102000E 02	0.360000E-04	0.0	0.738000E-04	0.0	0.302000E 01
1	22	0.102000E 02	0.463000E-04	0.0	0.948000E-04	0.0	0.302000E 01
1	23	0.102000E 02	0.594000E-04	0.0	0.122000E-03	0.0	0.302000E 01
1	24	0.102000E 02	0.763000E-04	0.0	0.156000E-03	0.0	0.301000E 01
1	25	0.102000E 02	0.979000E-04	0.0	0.201000E-03	0.0	0.301000E 01
1	26	0.102000E 02	0.126000E-03	0.0	0.258000E-03	0.0	0.301000E 01
1	27	0.102000E 02	0.161000E-03	0.0	0.331000E-03	0.0	0.301000E 01
1	28	0.102000E 02	0.207000E-03	0.0	0.425000E-03	0.0	0.301000E 01
1	29	0.102000E 02	0.266000E-03	0.0	0.546000E-03	0.0	0.301000E 01
1	30	0.102000E 02	0.342000E-03	0.0	0.701000E-03	0.0	0.301000E 01
1	31	0.102000E 02	0.440000E-03	0.0	0.902000E-03	0.0	0.301000E 01
1	32	0.102000E 02	0.565000E-03	0.0	0.117000E-02	0.0	0.301000E 01
1	33	0.102000E 02	0.691000E-03	0.0	0.142000E-02	0.0	0.301000E 01
1	34	0.102000E 02	0.793000E-03	0.0	0.162000E-02	0.0	0.301000E 01
1	35	0.102000E 02	0.916000E-03	0.0	0.188000E-02	0.0	0.301000E 01

IZAS= 94243. MASS=240.9100 MULT.STANDARD.PU243

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGPI	SIGNU
1	36	0.102000E 02	0.107000E-02	0.0	0.219000E-02	0.0	0.301000E 01
1	37	0.102000E 02	0.127000E-02	0.0	0.261000E-02	0.0	0.301000E 01
1	38	0.102000E 02	0.156000E-02	0.0	0.319000E-02	0.0	0.301000E 01
1	39	0.102000E 02	0.197000E-02	0.0	0.404000E-02	0.0	0.301000E 01
1	40	0.102000E 02	0.262000E-02	0.0	0.537000E-02	0.0	0.301000E 01
1	41	0.102000E 02	0.368000E-02	0.0	0.754000E-02	0.0	0.301000E 01
1	42	0.102000E 02	0.547000E-02	0.0	0.112000E-01	0.0	0.301000E 01
1	43	0.102000E 02	0.857000E-02	0.0	0.176000E-01	0.0	0.301000E 01
1	44	0.102000E 02	0.140000E-01	0.0	0.287000E-01	0.0	0.301000E 01
1	45	0.102000E 02	0.236000E-01	0.0	0.483000E-01	0.0	0.301000E 01
1	46	0.102000E 02	0.405000E-01	0.0	0.829000E-01	0.0	0.301000E 01
1	47	0.102000E 02	0.700000E-01	0.0	0.143000E 00	0.0	0.301000E 01
1	48	0.102000E 02	0.121000E 00	0.0	0.248000E 00	0.0	0.301000E 01
1	49	0.102000E 02	0.208000E 00	0.0	0.426000E 00	0.0	0.301000E 01
1	50	0.102000E 02	0.353000E 00	0.0	0.723000E 00	0.0	0.301000E 01
1	51	0.102000E 02	0.592000E 00	0.0	0.121000E 01	0.0	0.301000E 01
1	52	0.102000E 02	0.967000E 00	0.0	0.198000E 01	0.0	0.301000E 01
1	53	0.102000E 02	0.162000E 01	0.0	0.331000E 01	0.0	0.301000E 01
1	54	0.102000E 02	0.269000E 01	0.0	0.552000E 01	0.0	0.301000E 01

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGN	GMF	SPIN
3	42	1	0.166000E 02	0.176000E-02	0.239000E-01	0.490000E-01	0.500000E 00
3	42	2	0.141000E 02	0.162000E-02	0.239000E-01	0.490000E-01	0.500000E 00
3	43	1	0.116000E 02	0.147000E-02	0.239000E-01	0.490000E-01	0.500000E 00
3	44	1	0.912000E 01	0.130000E-02	0.239000E-01	0.490000E-01	0.500000E 00
3	45	1	0.662000E 01	0.111000E-02	0.239000E-01	0.490000E-01	0.500000E 00
3	47	1	0.412000E 01	0.875000E-03	0.239000E-01	0.490000E-01	0.500000E 00
3	51	1	0.162000E 01	0.549000E-03	0.239000E-01	0.490000E-01	0.500000E 00

***** UNRESOLVED RESONANCE PARAMETERS *****

CARD	LAST	FIRST	D-AVG	GNNO	GMGM	GMF	SPIN
4	41	20	0.250000E 01	0.431000E-03	0.239000E-01	0.490000E-01	0.500000E 00

THERMAL DATA

MULT.STAND.PU243 ID#= 94243. NU= 3.009999 SIG-S = 0.10200E 02

GROUP	SIGMA-A	SIGMA-F
55	0.821000E 01	0.552000E 01
56	0.563200E 02	0.379100E 02
57	0.625900E 02	0.421300E 02
58	0.693600E 02	0.466900E 02
59	0.766200E 02	0.515800E 02
60	0.842900E 02	0.567400E 02
61	0.922900E 02	0.621200E 02
62	0.100500E 03	0.676700E 02
63	0.108900E 03	0.733200E 02
64	0.117400E 03	0.790300E 02
65	0.126000E 03	0.848100E 02
66	0.135100E 03	0.909100E 02
67	0.144900E 03	0.975600E 02
68	0.155500E 03	0.104700E 03
69	0.166600E 03	0.112100E 03
70	0.178300E 03	0.120000E 03
71	0.191000E 03	0.128600E 03
72	0.205700E 03	0.138500E 03
73	0.222800E 03	0.150000E 03
74	0.243100E 03	0.163600E 03
75	0.267400E 03	0.180000E 03
76	0.297100E 03	0.200000E 03
77	0.334200E 03	0.225000E 03
78	0.382000E 03	0.257100E 03
79	0.445700E 03	0.300000E 03
80	0.534800E 03	0.360000E 03
81	0.668500E 03	0.450000E 03
82	0.891300E 03	0.600000E 03
83	0.133700E 04	0.900000E 03
84	0.267400E 04	0.180000E 04

AMERICIUM-243

IZAS= 95243. MASS=240.9700 MLLT. STANDARD. AM243

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	1	0.342000E 01	0.123000E-02	0.521000E 00	0.140000E 01	0.275000E 01	0.442000E 01
1	2	0.413000E 01	0.184000E-02	0.159000E 01	0.140000E 01	0.323000E 01	0.411000E 01
1	3	0.440000E 01	0.278000E-02	0.248000E 01	0.140000E 01	0.336000E 01	0.386000E 01
1	4	0.441000E 01	0.418000E-02	0.258000E 01	0.140000E 01	0.326000E 01	0.367000E 01
1	5	0.453000E 01	0.630000E-02	0.262000E 01	0.140000E 01	0.303000E 01	0.352000E 01
1	6	0.438000E 01	0.948000E-02	0.256000E 01	0.140000E 01	0.283000E 01	0.341000E 01
1	7	0.385000E 01	0.143000E-01	0.247000E 01	0.140000E 01	0.212000E 01	0.332000E 01
1	8	0.376000E 01	0.215000E-01	0.239000E 01	0.140000E 01	0.169000E 01	0.325000E 01
1	9	0.403000E 01	0.324000E-01	0.220000E 01	0.129000E 01	0.172000E 01	0.319000E 01
1	10	0.456000E 01	0.487000E-01	0.185000E 01	0.741000E 00	0.197000E 01	0.315000E 01
1	11	0.519000E 01	0.732999E-01	0.163000E 01	0.207000E 00	0.208000E 01	0.312000E 01
1	12	0.579000E 01	0.112000E 00	0.160000E 01	0.649000E-01	0.209000E 01	0.309000E 01
1	13	0.638000E 01	0.166000E 00	0.150000E 01	0.282000E-01	0.205000E 01	0.307000E 01
1	14	0.701000E 01	0.234000E 00	0.139000E 01	0.149000E-01	0.209000E 01	0.306000E 01
1	15	0.762000E 01	0.296000E 00	0.121000E 01	0.981000E-02	0.217000E 01	0.304000E 01
1	16	0.812000E 01	0.335000E 00	0.101000E 01	0.755000E-02	0.145000E 01	0.303000E 01
1	17	0.866000E 01	0.379000E 00	0.811000E 00	0.580000E-02	0.872000E 00	0.303000E 01
1	18	0.929000E 01	0.428000E 00	0.627000E 00	0.443000E-02	0.734000E 00	0.302000E 01
1	19	0.993000E 01	0.485000E 00	0.444000E 00	0.337000E-02	0.760000E 00	0.302000E 01
1	20	0.100000E 02	0.548000E 00	0.110000E-01	0.254000E-02	0.630000E 00	0.301000E 01
1	21	0.100000E 02	0.655000E 00	0.0	0.167000E-02	0.427000E 00	0.301000E 01
1	22	0.104000E 02	0.838000E 00	0.0	0.866000E-03	0.280000E 00	0.301000E 01
1	23	0.104000E 02	0.107000E 01	0.0	0.376000E-03	0.173000E 00	0.300000E 01
1	24	0.103000E 02	0.114000E 01	0.0	0.813000E-04	0.633000E-01	0.300000E 01
1	25	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01
1	26	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01
1	27	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01
1	28	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01
1	29	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01
1	30	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01
1	31	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01
1	32	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01
1	33	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01
1	34	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01
1	35	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01

IZAS= 95243. MASS=240.9700 MLLT.STANDARD.AM243

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGPI	SIGNU
1	36	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01
1	37	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01
1	38	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01
1	39	0.103000E 02	0.0	0.0	0.0	0.0	0.300000E 01
1	40	0.103000E 02	0.265000E-02	0.0	0.0	0.0	0.300000E 01
1	41	0.103000E 02	0.475000E-02	0.0	0.0	0.0	0.300000E 01
1	42	0.103000E 02	0.843000E-02	0.0	0.0	0.0	0.300000E 01
1	43	0.103000E 02	0.148000E-01	0.0	0.0	0.0	0.300000E 01
1	44	0.103000E 02	0.255000E-01	0.0	0.0	0.0	0.300000E 01
1	45	0.103000E 02	0.431000E-01	0.0	0.0	0.0	0.300000E 01
1	46	0.103000E 02	0.714999E-01	0.0	0.0	0.0	0.300000E 01
1	47	0.103000E 02	0.116000E 00	0.0	0.0	0.0	0.300000E 01
1	48	0.103000E 02	0.182000E 00	0.0	0.0	0.0	0.300000E 01
1	49	0.103000E 02	0.279000E 00	0.0	0.0	0.0	0.300000E 01
1	50	0.103000E 02	0.415000E 00	0.0	0.0	0.0	0.300000E 01
1	51	0.103000E 02	0.599000E 00	0.0	0.0	0.0	0.300000E 01
1	52	0.103000E 02	0.836000E 00	0.0	0.0	0.0	0.300000E 01
1	53	0.103000E 02	0.116000E 01	0.0	0.0	0.0	0.300000E 01
1	54	0.103000E 02	0.160000E 01	0.0	0.0	0.0	0.300000E 01

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	32	1	0.249700E 03	0.348000E-02	0.390000E-01	0.0	0.500000E 00
3	32	2	0.248600E 03	0.128000E-01	0.390000E-01	0.0	0.500000E 00
3	32	3	0.247100E 03	0.622000E-02	0.390000E-01	0.0	0.500000E 00
3	32	4	0.246300E 03	0.185000E-02	0.390000E-01	0.0	0.500000E 00
3	32	5	0.244600E 03	0.461000E-02	0.390000E-01	0.0	0.500000E 00
3	32	6	0.244100E 03	0.144000E-02	0.390000E-01	0.0	0.500000E 00
3	32	7	0.242800E 03	0.455000E-02	0.390000E-01	0.0	0.500000E 00
3	32	8	0.241200E 03	0.172000E-02	0.390000E-01	0.0	0.500000E 00
3	32	9	0.239500E 03	0.393000E-02	0.390000E-01	0.0	0.500000E 00
3	32	10	0.238700E 03	0.170000E-02	0.390000E-01	0.0	0.500000E 00
3	32	11	0.237500E 03	0.265000E-02	0.390000E-01	0.0	0.500000E 00
3	32	12	0.236000E 03	0.175000E-02	0.390000E-01	0.0	0.500000E 00
3	32	13	0.234100E 03	0.823000E-02	0.390000E-01	0.0	0.500000E 00
3	32	14	0.232900E 03	0.879000E-02	0.390000E-01	0.0	0.500000E 00
3	32	15	0.231800E 03	0.145000E-02	0.390000E-01	0.0	0.500000E 00

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	32	16	0.228800E 03	0.112000E-02	0.390000E-01	0.0	0.500000E 00
3	32	17	0.227300E 03	0.347000E-02	0.390000E-01	0.0	0.500000E 00
3	32	18	0.226200E 03	0.295000E-02	0.390000E-01	0.0	0.500000E 00
3	32	19	0.225300E 03	0.758000E-02	0.390000E-01	0.0	0.500000E 00
3	32	20	0.224300E 03	0.240000E-02	0.390000E-01	0.0	0.500000E 00
3	32	21	0.222000E 03	0.262000E-02	0.390000E-01	0.0	0.500000E 00
3	32	22	0.221200E 03	0.275000E-02	0.390000E-01	0.0	0.500000E 00
3	32	23	0.220300E 03	0.528000E-02	0.390000E-01	0.0	0.500000E 00
3	32	24	0.217000E 03	0.284000E-02	0.390000E-01	0.0	0.500000E 00
3	32	25	0.214500E 03	0.706000E-02	0.390000E-01	0.0	0.500000E 00
3	32	26	0.213400E 03	0.186000E-02	0.390000E-01	0.0	0.500000E 00
3	32	27	0.211500E 03	0.636000E-02	0.390000E-01	0.0	0.500000E 00
3	32	28	0.210950E 03	0.569000E-02	0.390000E-01	0.0	0.500000E 00
3	32	29	0.209600E 03	0.407000E-02	0.390000E-01	0.0	0.500000E 00
3	32	30	0.208200E 03	0.375000E-02	0.390000E-01	0.0	0.500000E 00
3	32	31	0.206600E 03	0.177000E-02	0.390000E-01	0.0	0.500000E 00
3	32	32	0.205000E 03	0.339000E-02	0.390000E-01	0.0	0.500000E 00
3	32	33	0.203700E 03	0.685000E-03	0.390000E-01	0.0	0.500000E 00
3	32	34	0.202100E 03	0.355000E-03	0.390000E-01	0.0	0.500000E 00
3	32	35	0.199850E 03	0.311000E-02	0.390000E-01	0.0	0.500000E 00
3	32	36	0.199200E 03	0.120000E-02	0.390000E-01	0.0	0.500000E 00
3	32	37	0.197600E 03	0.558000E-02	0.390000E-01	0.0	0.500000E 00
3	32	38	0.196900E 03	0.230000E-02	0.390000E-01	0.0	0.500000E 00
3	32	39	0.196200E 03	0.141000E-02	0.390000E-01	0.0	0.500000E 00
3	32	40	0.195900E 03	0.140000E-03	0.390000E-01	0.0	0.500000E 00
3	32	41	0.193350E 03	0.877000E-02	0.390000E-01	0.0	0.500000E 00
3	32	42	0.192250E 03	0.469000E-02	0.390000E-01	0.0	0.500000E 00
3	32	43	0.191600E 03	0.318000E-02	0.390000E-01	0.0	0.500000E 00
3	32	44	0.190600E 03	0.298000E-02	0.390000E-01	0.0	0.500000E 00
3	32	45	0.188000E 03	0.857000E-02	0.390000E-01	0.0	0.500000E 00
3	32	46	0.186900E 03	0.478000E-02	0.390000E-01	0.0	0.500000E 00
3	32	47	0.186200E 03	0.205000E-02	0.390000E-01	0.0	0.500000E 00
3	32	48	0.184500E 03	0.460000E-02	0.390000E-01	0.0	0.500000E 00
3	32	49	0.184050E 03	0.334000E-02	0.390000E-01	0.0	0.500000E 00
3	32	50	0.183000E 03	0.188000E-02	0.390000E-01	0.0	0.500000E 00
3	32	51	0.181500E 03	0.220000E-02	0.390000E-01	0.0	0.500000E 00
3	32	52	0.180500E 03	0.192000E-02	0.390000E-01	0.0	0.500000E 00
3	32	53	0.180000E 03	0.295000E-02	0.390000E-01	0.0	0.500000E 00
3	32	54	0.177000E 03	0.861000E-02	0.390000E-01	0.0	0.500000E 00
3	32	55	0.175800E 03	0.399000E-02	0.390000E-01	0.0	0.500000E 00

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	32	56	0.174700E 03	0.357000E-02	0.390000E-01	0.0	0.500000E 00
3	32	57	0.173600E 03	0.744000E-02	0.390000E-01	0.0	0.500000E 00
3	32	58	0.172700E 03	0.748000E-02	0.390000E-01	0.0	0.500000E 00
3	32	59	0.171700E 03	0.126000E-02	0.390000E-01	0.0	0.500000E 00
3	32	60	0.169700E 03	0.125000E-02	0.390000E-01	0.0	0.500000E 00
3	32	61	0.168010E 03	0.652000E-02	0.390000E-01	0.0	0.500000E 00
3	33	1	0.166800E 03	0.229000E-02	0.390000E-01	0.0	0.500000E 00
3	33	2	0.166100E 03	0.245000E-02	0.390000E-01	0.0	0.500000E 00
3	33	3	0.164870E 03	0.496000E-02	0.390000E-01	0.0	0.500000E 00
3	33	4	0.163900E 03	0.538000E-03	0.390000E-01	0.0	0.500000E 00
3	33	5	0.160640E 03	0.151000E-01	0.390000E-01	0.0	0.500000E 00
3	33	6	0.158640E 03	0.447000E-02	0.390000E-01	0.0	0.500000E 00
3	33	7	0.154700E 03	0.413000E-02	0.390000E-01	0.0	0.500000E 00
3	33	8	0.154000E 03	0.391000E-02	0.390000E-01	0.0	0.500000E 00
3	33	9	0.152800E 03	0.205000E-02	0.390000E-01	0.0	0.500000E 00
3	33	10	0.151100E 03	0.983000E-03	0.390000E-01	0.0	0.500000E 00
3	33	11	0.149800E 03	0.734000E-03	0.390000E-01	0.0	0.500000E 00
3	33	12	0.148380E 03	0.451000E-02	0.390000E-01	0.0	0.500000E 00
3	33	13	0.146600E 03	0.407000E-02	0.390000E-01	0.0	0.500000E 00
3	33	14	0.146090E 03	0.900000E-02	0.390000E-01	0.0	0.500000E 00
3	33	15	0.145000E 03	0.361000E-02	0.390000E-01	0.0	0.500000E 00
3	33	16	0.144470E 03	0.645000E-02	0.390000E-01	0.0	0.500000E 00
3	33	17	0.144000E 03	0.380000E-02	0.390000E-01	0.0	0.500000E 00
3	33	18	0.141200E 03	0.126000E-02	0.390000E-01	0.0	0.500000E 00
3	33	19	0.140030E 03	0.692000E-02	0.390000E-01	0.0	0.500000E 00
3	33	20	0.139400E 03	0.244000E-02	0.390000E-01	0.0	0.500000E 00
3	33	21	0.135200E 03	0.733000E-03	0.390000E-01	0.0	0.500000E 00
3	33	22	0.134700E 03	0.754000E-03	0.390000E-01	0.0	0.500000E 00
3	33	23	0.134100E 03	0.145000E-02	0.390000E-01	0.0	0.500000E 00
3	33	24	0.133500E 03	0.102000E-02	0.390000E-01	0.0	0.500000E 00
3	33	25	0.132500E 03	0.863000E-03	0.390000E-01	0.0	0.500000E 00
3	33	26	0.130300E 03	0.548000E-03	0.390000E-01	0.0	0.500000E 00
3	34	1	0.127380E 03	0.237000E-02	0.390000E-01	0.0	0.500000E 00
3	34	2	0.126400E 03	0.731000E-03	0.390000E-01	0.0	0.500000E 00
3	34	3	0.125180E 03	0.792000E-02	0.390000E-01	0.0	0.500000E 00
3	34	4	0.123370E 03	0.185000E-01	0.390000E-01	0.0	0.500000E 00
3	34	5	0.122310E 03	0.708000E-02	0.390000E-01	0.0	0.500000E 00
3	34	6	0.119740E 03	0.473000E-02	0.390000E-01	0.0	0.500000E 00
3	34	7	0.116600E 03	0.738000E-02	0.390000E-01	0.0	0.500000E 00
3	34	8	0.114240E 03	0.542000E-02	0.390000E-01	0.0	0.500000E 00
3	34	9	0.113190E 03	0.104000E-01	0.390000E-01	0.0	0.500000E 00

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMEM	GMF	SPIN
3	34	10	0.112700E 03	0.122000E-02	0.390000E-01	0.0	0.500000E 00
3	34	11	0.112120E 03	0.105000E-02	0.390000E-01	0.0	0.500000E 00
3	34	12	0.111630E 03	0.139000E-02	0.390000E-01	0.0	0.500000E 00
3	34	13	0.109720E 03	0.128000E-02	0.390000E-01	0.0	0.500000E 00
3	34	14	0.107170E 03	0.368000E-02	0.390000E-01	0.0	0.500000E 00
3	34	15	0.104960E 03	0.195000E-02	0.390000E-01	0.0	0.500000E 00
3	34	16	0.104060E 03	0.724000E-03	0.390000E-01	0.0	0.500000E 00
3	34	17	0.101920E 03	0.252000E-02	0.390000E-01	0.0	0.500000E 00
3	35	1	0.101120E 03	0.372000E-02	0.390000E-01	0.0	0.500000E 00
3	35	2	0.994800E 02	0.997000E-03	0.390000E-01	0.0	0.500000E 00
3	35	3	0.975300E 02	0.217000E-02	0.390000E-01	0.0	0.500000E 00
3	35	4	0.958000E 02	0.392000E-03	0.390000E-01	0.0	0.500000E 00
3	35	5	0.947200E 02	0.136000E-02	0.390000E-01	0.0	0.500000E 00
3	35	6	0.912500E 02	0.115000E-02	0.390000E-01	0.0	0.500000E 00
3	35	7	0.904300E 02	0.143000E-02	0.390000E-01	0.0	0.500000E 00
3	35	8	0.890000E 02	0.128000E-02	0.390000E-01	0.0	0.500000E 00
3	35	9	0.883600E 02	0.145000E-02	0.390000E-01	0.0	0.500000E 00
3	35	10	0.866300E 02	0.158000E-02	0.390000E-01	0.0	0.500000E 00
3	35	11	0.855600E 02	0.681000E-02	0.390000E-01	0.0	0.500000E 00
3	35	12	0.841900E 02	0.220000E-02	0.390000E-01	0.0	0.500000E 00
3	35	13	0.835200E 02	0.251000E-02	0.390000E-01	0.0	0.500000E 00
3	35	14	0.831000E 02	0.104000E-02	0.390000E-01	0.0	0.500000E 00
3	35	15	0.811000E 02	0.171000E-02	0.390000E-01	0.0	0.500000E 00
3	35	16	0.810000E 02	0.238000E-02	0.390000E-01	0.0	0.500000E 00
3	35	17	0.805000E 02	0.942000E-03	0.390000E-01	0.0	0.500000E 00
3	36	1	0.782200E 02	0.310000E-03	0.390000E-01	0.0	0.500000E 00
3	36	2	0.775400E 02	0.150000E-02	0.390000E-01	0.0	0.500000E 00
3	36	3	0.770000E 02	0.526000E-03	0.390000E-01	0.0	0.500000E 00
3	36	4	0.765000E 02	0.210000E-03	0.390000E-01	0.0	0.500000E 00
3	36	5	0.754300E 02	0.313000E-02	0.390000E-01	0.0	0.500000E 00
3	36	6	0.748800E 02	0.312000E-03	0.390000E-01	0.0	0.500000E 00
3	36	7	0.743400E 02	0.362000E-03	0.390000E-01	0.0	0.500000E 00
3	36	8	0.739300E 02	0.361000E-03	0.390000E-01	0.0	0.500000E 00
3	36	9	0.728800E 02	0.300000E-02	0.390000E-01	0.0	0.500000E 00
3	36	10	0.722200E 02	0.263000E-02	0.390000E-01	0.0	0.500000E 00
3	36	11	0.716000E 02	0.254000E-03	0.390000E-01	0.0	0.500000E 00
3	36	12	0.702700E 02	0.242000E-02	0.390000E-01	0.0	0.500000E 00
3	36	13	0.696600E 02	0.393000E-02	0.390000E-01	0.0	0.500000E 00
3	36	14	0.686700E 02	0.160000E-02	0.390000E-01	0.0	0.500000E 00
3	36	15	0.680100E 02	0.124000E-02	0.390000E-01	0.0	0.500000E 00

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	36	16	0.673600E 02	0.110000E-02	0.390000E-01	0.0	0.500000E 00
3	36	17	0.662100E 02	0.136000E-02	0.390000E-01	0.0	0.500000E 00
3	36	18	0.648200E 02	0.403000E-03	0.390000E-01	0.0	0.500000E 00
3	36	19	0.631900E 02	0.397000E-03	0.390000E-01	0.0	0.500000E 00
3	36	20	0.625100E 02	0.269000E-03	0.390000E-01	0.0	0.500000E 00
3	37	1	0.612000E 02	0.289000E-02	0.390000E-01	0.0	0.500000E 00
3	37	2	0.607600E 02	0.121000E-02	0.390000E-01	0.0	0.500000E 00
3	37	3	0.599800E 02	0.774000E-03	0.390000E-01	0.0	0.500000E 00
3	37	4	0.591300E 02	0.900000E-03	0.390000E-01	0.0	0.500000E 00
3	37	5	0.587400E 02	0.445000E-03	0.390000E-01	0.0	0.500000E 00
3	37	6	0.558700E 02	0.164000E-02	0.390000E-01	0.0	0.500000E 00
3	37	7	0.549300E 02	0.170000E-03	0.390000E-01	0.0	0.500000E 00
3	37	8	0.545500E 02	0.192000E-02	0.390000E-01	0.0	0.500000E 00
3	37	9	0.540200E 02	0.661000E-03	0.390000E-01	0.0	0.500000E 00
3	37	10	0.536000E 02	0.952000E-04	0.390000E-01	0.0	0.500000E 00
3	37	11	0.530300E 02	0.211000E-02	0.390000E-01	0.0	0.500000E 00
3	37	12	0.521700E 02	0.108000E-03	0.390000E-01	0.0	0.500000E 00
3	37	13	0.512800E 02	0.107000E-02	0.390000E-01	0.0	0.500000E 00
3	37	14	0.502000E 02	0.106000E-03	0.390000E-01	0.0	0.500000E 00
3	37	15	0.492900E 02	0.758000E-03	0.390000E-01	0.0	0.500000E 00
3	37	16	0.485500E 02	0.460000E-03	0.390000E-01	0.0	0.500000E 00
3	38	1	0.471100E 02	0.398000E-03	0.390000E-01	0.0	0.500000E 00
3	38	2	0.453500E 02	0.114000E-02	0.390000E-01	0.0	0.500000E 00
3	38	3	0.441100E 02	0.432000E-03	0.390000E-01	0.0	0.500000E 00
3	38	4	0.429500E 02	0.282000E-02	0.390000E-01	0.0	0.500000E 00
3	38	5	0.415400E 02	0.251000E-02	0.390000E-01	0.0	0.500000E 00
3	38	6	0.412600E 02	0.109000E-02	0.390000E-01	0.0	0.500000E 00
3	38	7	0.409500E 02	0.320000E-03	0.390000E-01	0.0	0.500000E 00
3	38	8	0.405000E 02	0.955000E-04	0.390000E-01	0.0	0.500000E 00
3	38	9	0.395000E 02	0.641000E-03	0.390000E-01	0.0	0.500000E 00
3	38	10	0.379300E 02	0.616000E-03	0.390000E-01	0.0	0.500000E 00
3	38	11	0.375500E 02	0.757000E-04	0.390000E-01	0.0	0.500000E 00
3	39	1	0.370300E 02	0.201000E-02	0.390000E-01	0.0	0.500000E 00
3	39	2	0.366700E 02	0.848000E-03	0.390000E-01	0.0	0.500000E 00
3	39	3	0.349900E 02	0.101000E-02	0.390000E-01	0.0	0.500000E 00
3	39	4	0.339400E 02	0.186000E-02	0.390000E-01	0.0	0.500000E 00
3	39	5	0.332000E 02	0.980000E-03	0.390000E-01	0.0	0.500000E 00
3	39	6	0.324200E 02	0.148000E-03	0.390000E-01	0.0	0.500000E 00
3	39	7	0.314900E 02	0.174000E-03	0.390000E-01	0.0	0.500000E 00
3	39	8	0.310700E 02	0.808000E-03	0.390000E-01	0.0	0.500000E 00
3	39	9	0.301300E 02	0.549000E-03	0.390000E-01	0.0	0.500000E 00
3	39	10	0.293000E 02	0.731000E-03	0.390000E-01	0.0	0.500000E 00

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	40	1	0.287300E 02	0.109000E-02	0.390000E-01	0.0	0.500000E 00
3	40	2	0.273500E 02	0.523000E-03	0.390000E-01	0.0	0.500000E 00
3	40	3	0.267500E 02	0.166000E-02	0.390000E-01	0.0	0.500000E 00
3	40	4	0.262400E 02	0.410000E-04	0.390000E-01	0.0	0.500000E 00
3	40	5	0.254100E 02	0.161000E-03	0.390000E-01	0.0	0.500000E 00
3	40	6	0.244500E 02	0.940000E-03	0.390000E-01	0.0	0.500000E 00
3	40	7	0.227400E 02	0.134000E-02	0.390000E-01	0.0	0.500000E 00
3	41	1	0.226000E 02	0.523000E-03	0.390000E-01	0.0	0.500000E 00
3	41	2	0.220100E 02	0.516000E-04	0.390000E-01	0.0	0.500000E 00
3	41	3	0.218700E 02	0.154000E-03	0.390000E-01	0.0	0.500000E 00
3	41	4	0.211100E 02	0.110000E-02	0.390000E-01	0.0	0.500000E 00
3	41	5	0.209700E 02	0.458000E-03	0.390000E-01	0.0	0.500000E 00
3	41	6	0.199100E 02	0.103000E-03	0.390000E-01	0.0	0.500000E 00
3	41	7	0.195300E 02	0.234000E-03	0.390000E-01	0.0	0.500000E 00
3	41	8	0.181600E 02	0.597000E-04	0.390000E-01	0.0	0.500000E 00
3	41	9	0.178700E 02	0.228000E-03	0.420000E-01	0.0	0.500000E 00
3	42	1	0.165800E 02	0.195000E-03	0.360000E-01	0.0	0.500000E 00
3	42	2	0.162100E 02	0.552000E-03	0.480000E-01	0.0	0.500000E 00
3	42	3	0.154000E 02	0.133000E-02	0.440000E-01	0.0	0.500000E 00
3	42	4	0.151400E 02	0.973000E-04	0.390000E-01	0.0	0.500000E 00
3	43	1	0.131500E 02	0.140000E-02	0.410000E-01	0.0	0.500000E 00
3	43	2	0.128800E 02	0.240000E-02	0.360000E-01	0.0	0.500000E 00
3	43	3	0.121200E 02	0.174000E-03	0.370000E-01	0.0	0.500000E 00
3	43	4	0.116900E 02	0.106000E-03	0.260000E-01	0.0	0.500000E 00
3	43	5	0.112800E 02	0.285000E-03	0.410000E-01	0.0	0.500000E 00
3	43	6	0.108800E 02	0.132000E-04	0.390000E-01	0.0	0.500000E 00
3	44	1	0.103100E 02	0.450000E-03	0.490000E-01	0.0	0.500000E 00
3	44	2	0.931000E 01	0.153000E-03	0.390000E-01	0.0	0.500000E 00
3	44	3	0.877000E 01	0.118000E-03	0.370000E-01	0.0	0.500000E 00
3	44	4	0.838000E 01	0.668000E-05	0.390000E-01	0.0	0.500000E 00
3	45	1	0.786000E 01	0.133000E-02	0.390000E-01	0.0	0.500000E 00
3	45	2	0.707000E 01	0.718000E-04	0.400000E-01	0.0	0.500000E 00
3	45	3	0.655000E 01	0.568000E-03	0.370000E-01	0.0	0.500000E 00
3	46	1	0.513000E 01	0.315000E-03	0.390000E-01	0.0	0.500000E 00
3	48	1	0.384000E 01	0.131000E-04	0.430000E-01	0.0	0.500000E 00
3	48	2	0.342000E 01	0.287000E-03	0.380000E-01	0.0	0.500000E 00
3	48	3	0.314000E 01	0.113000E-04	0.320000E-01	0.0	0.500000E 00
3	51	1	0.174000E 01	0.240000E-03	0.390000E-01	0.0	0.500000E 00
3	52	1	0.136000E 01	0.111000E-02	0.430000E-01	0.0	0.500000E 00
3	53	1	0.980000E 00	0.146000E-04	0.380000E-01	0.0	0.500000E 00

***** UNRESOLVED RESONANCE PARAMETERS *****

CARD	LAST	FIRST	D-AVG	GNNO	GMGM	GMF	SPIN
4	32	25	0.670000E 00	0.130000E-03	0.350000E-01	0.0	0.500000E 00

THERMAL DATA

MULT.STANC.AM243 ID#= 95243. NU= 3.000000 SIG-S = 0.72000E 01

GROUP	SIGMA-A	SIGMA-F
55	0.436700E 02	0.0
56	0.365400E 02	0.0
57	0.440400E 02	0.0
58	0.426200E 02	0.0
59	0.319300E 02	0.0
60	0.313200E 02	0.0
61	0.320100E 02	0.0
62	0.332500E 02	0.0
63	0.348100E 02	0.0
64	0.365300E 02	0.0
65	0.382300E 02	0.0
66	0.405200E 02	0.0
67	0.428300E 02	0.0
68	0.454400E 02	0.0
69	0.482200E 02	0.0
70	0.511600E 02	0.0
71	0.544200E 02	0.0
72	0.582100E 02	0.0
73	0.626800E 02	0.0
74	0.680000E 02	0.0
75	0.744300E 02	0.0
76	0.823400E 02	0.0
77	0.922500E 02	0.0
78	0.105100E 03	0.0
79	0.122200E 03	0.0
80	0.146400E 03	0.0
81	0.182500E 03	0.0
82	0.242300E 03	0.0
83	0.364400E 03	0.0
84	0.732000E 03	0.0

CURIUM-244

IZAS= 96244. MASS=241.9700 MULT. STANDARD. CM244

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGPI	SIGNU
1	1	0.283000E 01	0.685000E-02	0.126000E 00	0.262000E 01	0.250000E 01	0.424000E 01
1	2	0.320000E 01	0.878000E-02	0.278000E 00	0.249000E 01	0.284000E 01	0.411000E 01
1	3	0.353000E 01	0.114000E-01	0.420000E 00	0.245000E 01	0.309000E 01	0.393000E 01
1	4	0.371000E 01	0.166000E-01	0.491000E 00	0.243000E 01	0.315000E 01	0.378000E 01
1	5	0.377000E 01	0.347000E-01	0.530000E 00	0.240000E 01	0.307000E 01	0.366000E 01
1	6	0.384000E 01	0.524000E-01	0.559000E 00	0.230000E 01	0.295000E 01	0.356000E 01
1	7	0.390000E 01	0.462000E-01	0.653000E 00	0.200000E 01	0.278000E 01	0.349000E 01
1	8	0.407000E 01	0.395000E-01	0.623000E 00	0.185000E 01	0.264000E 01	0.343000E 01
1	9	0.434000E 01	0.558000E-01	0.571000E 00	0.167000E 01	0.254000E 01	0.339000E 01
1	10	0.459000E 01	0.691000E-01	0.528000E 00	0.158000E 01	0.240000E 01	0.335000E 01
1	11	0.508000E 01	0.833000E-01	0.501000E 00	0.132000E 01	0.230000E 01	0.332000E 01
1	12	0.577000E 01	0.118000E 00	0.398000E 00	0.935000E 00	0.223000E 01	0.330000E 01
1	13	0.645000E 01	0.136000E 00	0.451000E 00	0.564000E 00	0.214000E 01	0.329000E 01
1	14	0.713000E 01	0.148000E 00	0.515000E 00	0.348000E 00	0.206000E 01	0.327000E 01
1	15	0.778000E 01	0.156000E 00	0.593000E 00	0.231000E 00	0.196000E 01	0.326000E 01
1	16	0.851000E 01	0.167000E 00	0.664000E 00	0.172000E 00	0.183000E 01	0.326000E 01
1	17	0.926000E 01	0.180000E 00	0.670000E 00	0.141000E 00	0.168000E 01	0.325000E 01
1	18	0.100000E 02	0.197000E 00	0.558000E 00	0.124000E 00	0.152000E 01	0.325000E 01
1	19	0.108000E 02	0.222000E 00	0.451000E 00	0.119000E 00	0.134000E 01	0.324000E 01
1	20	0.116000E 02	0.261000E 00	0.332000E 00	0.122000E 00	0.115000E 01	0.324000E 01
1	21	0.127000E 02	0.356000E 00	0.111000E 00	0.142000E 00	0.927000E 00	0.324000E 01
1	22	0.142000E 02	0.484000E 00	0.0	0.171000E 00	0.651000E 00	0.323000E 01
1	23	0.157000E 02	0.597000E 00	0.0	0.203000E 00	0.421000E 00	0.323000E 01
1	24	0.163000E 02	0.731000E 00	0.0	0.239000E 00	0.154000E 00	0.323000E 01
1	25	0.103000E 02	0.106000E 01	0.0	0.301000E 00	0.0	0.323000E 01
1	26	0.103000E 02	0.149000E 01	0.0	0.297000E 00	0.0	0.323000E 01
1	27	0.103000E 02	0.215000E 01	0.0	0.293000E 00	0.0	0.323000E 01
1	28	0.103000E 02	0.320000E 01	0.0	0.292000E 00	0.0	0.323000E 01
1	29	0.103000E 02	0.482000E 01	0.0	0.292000E 00	0.0	0.323000E 01
1	30	0.103000E 02	0.727000E 01	0.0	0.300000E 00	0.0	0.323000E 01
1	31	0.103000E 02	0.712000E-06	0.0	0.404000E-07	0.0	0.323000E 01
1	32	0.103000E 02	0.247000E-05	0.0	0.140000E-06	0.0	0.323000E 01
1	33	0.104000E 02	0.153000E-03	0.0	0.353000E-06	0.117000E-03	0.323000E 01
1	34	0.106000E 02	0.947000E-03	0.0	0.655000E-06	0.748000E-03	0.323000E 01
1	35	0.108000E 02	0.166000E-02	0.0	0.122000E-05	0.130000E-02	0.323000E 01

IZAS= 96244. MASS=241.9700 MULT.STANDARD.CM244

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGPI	SIGNU
1	36	0.111000E 02	0.222000E-02	0.0	0.225000E-05	0.174000E-02	0.323000E 01
1	37	0.111000E 02	0.267000E-02	0.0	0.415000E-05	0.208000E-02	0.323000E 01
1	38	0.112000E 02	0.309000E-02	0.0	0.218000E-04	0.234000E-02	0.323000E 01
1	39	0.113000E 02	0.420000E-02	0.0	0.288000E-03	0.263000E-02	0.323000E 01
1	40	0.114000E 02	0.608000E-02	0.0	0.593000E-03	0.288000E-02	0.323000E 01
1	41	0.115000E 02	0.874000E-02	0.0	0.842000E-03	0.308000E-02	0.323000E 01
1	42	0.115000E 02	0.120000E-01	0.0	0.109000E-02	0.324000E-02	0.323000E 01
1	43	0.116000E 02	0.164000E-01	0.0	0.141000E-02	0.336000E-02	0.323000E 01
1	44	0.116000E 02	0.226000E-01	0.0	0.183000E-02	0.345000E-02	0.323000E 01
1	45	0.116000E 02	0.312000E-01	0.0	0.237000E-02	0.352000E-02	0.323000E 01
1	46	0.117000E 02	0.435000E-01	0.0	0.313000E-02	0.358000E-02	0.323000E 01
1	47	0.117000E 02	0.612000E-01	0.0	0.417000E-02	0.362000E-02	0.323000E 01
1	48	0.117000E 02	0.865000E-01	0.0	0.562000E-02	0.366000E-02	0.323000E 01
1	49	0.574000E 01	0.185000E 01	0.0	0.335000E-01	0.180000E-01	0.323000E 01
1	50	0.609000E 01	0.170000E 01	0.0	0.344000E-01	0.203000E-01	0.323000E 01
1	51	0.632000E 01	0.166000E 01	0.0	0.385000E-01	0.210000E-01	0.323000E 01
1	52	0.649000E 01	0.171000E 01	0.0	0.451000E-01	0.215000E-01	0.323000E 01
1	53	0.661000E 01	0.183000E 01	0.0	0.555000E-01	0.219000E-01	0.323000E 01
1	54	0.668000E 01	0.194000E 01	0.0	0.638000E-01	0.221000E-01	0.323000E 01

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	30	1	0.520600E 03	0.402000E-01	0.280000E-01	0.161000E-02	0.100000E 01
3	30	2	0.511100E 03	0.123000E 00	0.410000E-01	0.220000E-03	0.100000E 01
3	30	3	0.492100E 03	0.614000E-01	0.330000E-01	0.420000E-03	0.100000E 01
3	30	4	0.489200E 03	0.221000E-01	0.200000E-01	0.270000E-03	0.100000E 01
3	30	5	0.471100E 03	0.443000E-01	0.460000E-01	0.280000E-02	0.100000E 01
3	31	1	0.443700E 03	0.674000E-01	0.410000E-01	0.100000E-02	0.100000E 01
3	31	2	0.426900E 03	0.207000E-01	0.190000E-01	0.180000E-03	0.100000E 01
3	31	3	0.420600E 03	0.123000E 00	0.330000E-01	0.850000E-03	0.100000E 01
3	31	4	0.414000E 03	0.214000E-01	0.350000E-01	0.210000E-03	0.100000E 01
3	31	5	0.397600E 03	0.179000E-01	0.390000E-01	0.700000E-03	0.100000E 01
3	31	6	0.386300E 03	0.261000E-01	0.300000E-01	0.900000E-03	0.100000E 01
3	31	7	0.364600E 03	0.611000E-02	0.390000E-01	0.220000E-02	0.100000E 01
3	31	8	0.361800E 03	0.228000E-01	0.420000E-01	0.138000E-02	0.100000E 01
3	31	9	0.353100E 03	0.117000E 00	0.350000E-01	0.122000E-02	0.100000E 01
3	31	10	0.343600E 03	0.471000E-01	0.300000E-01	0.800000E-03	0.100000E 01
3	31	11	0.329500E 03	0.423000E-01	0.450000E-01	0.410000E-03	0.100000E 01
3	31	12	0.317400E 03	0.606000E-02	0.350000E-01	0.280000E-03	0.100000E 01
3	32	1	0.274200E 03	0.215000E-01	0.350000E-01	0.390000E-03	0.100000E 01
3	32	2	0.264800E 03	0.114000E-01	0.400000E-01	0.920000E-03	0.100000E 01
3	32	3	0.242700E 03	0.129000E-02	0.360000E-01	0.220000E-02	0.100000E 01
3	32	4	0.234500E 03	0.398000E-02	0.410000E-01	0.850000E-03	0.100000E 01
3	32	5	0.230700E 03	0.150000E-01	0.500000E-01	0.500000E-03	0.100000E 01
3	32	6	0.222100E 03	0.414000E-01	0.520000E-01	0.180000E-02	0.100000E 01
3	32	7	0.209800E 03	0.452000E-01	0.340000E-01	0.480000E-03	0.100000E 01
3	32	8	0.197000E 03	0.323000E-01	0.500000E-01	0.134000E-02	0.100000E 01
3	32	9	0.181600E 03	0.876000E-02	0.340000E-01	0.184000E-02	0.100000E 01
3	32	10	0.171300E 03	0.301000E-02	0.340000E-01	0.117000E-02	0.100000E 01
3	33	1	0.139200E 03	0.236000E-02	0.300000E-01	0.270000E-02	0.100000E 01
3	33	2	0.132900E 03	0.115000E-01	0.460000E-01	0.162000E-02	0.100000E 01
3	35	1	0.963000E 02	0.677000E-02	0.510000E-01	0.233000E-02	0.100000E 01
3	35	2	0.860500E 02	0.256000E-01	0.300000E-01	0.520000E-03	0.100000E 01
3	36	1	0.700500E 02	0.653000E-03	0.200000E-01	0.170000E-02	0.100000E 01
3	37	1	0.528000E 02	0.610000E-03	0.350000E-01	0.160000E-02	0.100000E 01
3	39	1	0.350000E 02	0.379000E-02	0.230000E-01	0.157000E-02	0.100000E 01
3	40	1	0.228200E 02	0.855000E-03	0.350000E-01	0.350000E-02	0.100000E 01
3	42	1	0.167800E 02	0.188000E-02	0.370000E-01	0.140000E-02	0.100000E 01
3	45	1	0.767000E 01	0.940000E-02	0.320000E-01	0.450000E-03	0.100000E 01

THERMAL DATA

MULT.STAND.CM244 ID#= 96244. NU= 3.230000 SIG-S = 0.69900E 01

GROUP	SIGMA-A	SIGMA-F
55	0.21140JE J1	0.714700E-01
56	0.2314C0E 01	0.849400E-01
57	0.254500E 01	0.100300E 00
58	0.280s0JE J1	0.117300E 00
59	0.3C920CE C1	0.135700E 00
60	0.33990JE J1	0.155300E 00
61	0.372300E J1	0.175700E 00
62	0.405900E 01	0.196700E 00
63	0.44030JE J1	0.218000E 00
64	0.475100E 01	0.239300E 00
65	0.509500E J1	0.260700E 00
66	0.547900E J1	0.283300E 00
67	0.5E86C0E J1	0.307700E 00
68	0.632100E 01	0.333500E 00
69	0.678000E J1	0.360700E 00
70	0.726100E 01	0.388500E 00
71	0.77870JE J1	0.419700E 00
72	0.83950JE J1	0.455100E 00
73	0.910300E 01	0.496200E 00
74	0.99420JE J1	0.544600E 00
75	0.109500E 02	0.602500E 00
76	0.121900E 02	0.673100E 00
77	0.137200E J2	0.761100E 00
78	0.157100E 02	0.874200E 00
79	0.183700E J2	0.102500E 01
80	0.221200E J2	0.123800E 01
81	0.278300E J2	0.156000E 01
82	0.376200E J2	0.211200E 01
83	0.550000E 02	0.331600E 01
84	0.138200E 03	0.777500E 01

CURIUM-245

IZAS= 96245. MASS=242.9000 MULT.STANDARD.CM245

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGPI	SIGNU
1	1	0.300000E 01	0.800000E-03	0.0	0.388000E 01	0.0	0.435000E 01
1	2	0.340000E 01	0.110000E-02	0.0	0.335000E 01	0.0	0.411000E 01
1	3	0.360000E 01	0.150000E-02	0.0	0.296000E 01	0.0	0.391000E 01
1	4	0.370000E 01	0.220000E-02	0.0	0.302000E 01	0.0	0.377000E 01
1	5	0.380000E 01	0.330000E-02	0.0	0.320000E 01	0.0	0.365000E 01
1	6	0.390000E 01	0.480000E-02	0.0	0.330000E 01	0.0	0.356000E 01
1	7	0.400000E 01	0.710000E-02	0.0	0.336000E 01	0.0	0.349000E 01
1	8	0.420000E 01	0.103000E-01	0.0	0.315000E 01	0.0	0.343000E 01
1	9	0.440000E 01	0.149000E-01	0.0	0.291000E 01	0.0	0.339000E 01
1	10	0.460000E 01	0.228000E-01	0.0	0.278000E 01	0.0	0.337000E 01
1	11	0.500000E 01	0.336000E-01	0.0	0.270000E 01	0.0	0.336000E 01
1	12	0.550000E 01	0.447000E-01	0.0	0.270000E 01	0.0	0.335000E 01
1	13	0.680000E 01	0.570000E-01	0.0	0.270000E 01	0.0	0.334000E 01
1	14	0.750000E 01	0.681000E-01	0.0	0.268000E 01	0.0	0.333000E 01
1	15	0.830000E 01	0.791000E-01	0.0	0.267000E 01	0.0	0.333000E 01
1	16	0.900000E 01	0.889000E-01	0.0	0.267000E 01	0.0	0.332000E 01
1	17	0.950000E 01	0.935000E-01	0.0	0.280000E 01	0.0	0.332000E 01
1	18	0.100000E 02	0.955000E-01	0.0	0.286000E 01	0.0	0.332000E 01
1	19	0.100000E 02	0.968000E-01	0.0	0.291000E 01	0.0	0.331000E 01
1	20	0.100000E 02	0.100000E 00	0.0	0.298000E 01	0.0	0.331000E 01
1	21	0.100000E 02	0.146000E 00	0.0	0.309000E 01	0.0	0.330000E 01
1	22	0.100000E 02	0.248000E 00	0.0	0.304000E 01	0.0	0.330000E 01
1	23	0.100000E 02	0.312000E 00	0.0	0.291000E 01	0.0	0.330000E 01
1	24	0.100000E 02	0.356000E 00	0.0	0.299000E 01	0.0	0.330000E 01
1	25	0.100000E 02	0.439000E 00	0.0	0.348000E 01	0.0	0.330000E 01
1	26	0.100000E 02	0.574000E 00	0.0	0.430000E 01	0.0	0.330000E 01
1	27	0.100000E 02	0.788000E 00	0.0	0.591000E 01	0.0	0.330000E 01
1	28	0.100000E 02	0.101000E 01	0.0	0.760000E 01	0.0	0.330000E 01
1	29	0.100000E 02	0.130000E 01	0.0	0.973000E 01	0.0	0.330000E 01
1	30	0.100000E 02	0.167000E 01	0.0	0.125000E 02	0.0	0.330000E 01
1	31	0.101000E 02	0.216000E 01	0.0	0.162000E 02	0.0	0.330000E 01
1	32	0.101000E 02	0.275000E 01	0.0	0.206000E 02	0.0	0.330000E 01
1	33	0.102000E 02	0.332000E 01	0.0	0.249000E 02	0.0	0.330000E 01
1	34	0.102000E 02	0.375000E 01	0.0	0.281000E 02	0.0	0.330000E 01
1	35	0.103000E 02	0.425000E 01	0.0	0.319000E 02	0.0	0.330000E 01

IZAS= 96245. MASS=242.9000 MULT.STANDARD.:M245

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGPI	SIGNU
1	36	0.104000E 02	0.482000E 01	0.0	0.361000E 02	0.0	0.330000E 01
1	37	0.104000E 02	0.546000E 01	0.0	0.409000E 02	0.0	0.330000E 01
1	38	0.104000E 02	0.619000E 01	0.0	0.464000E 02	0.0	0.330000E 01
1	39	0.105000E 02	0.701000E 01	0.0	0.526000E 02	0.0	0.330000E 01
1	40	0.105000E 02	0.794000E 01	0.0	0.596000E 02	0.0	0.330000E 01
1	41	0.106000E 02	0.899000E 01	0.0	0.675000E 02	0.0	0.330000E 01
1	42	0.107000E 02	0.102000E 02	0.0	0.766000E 02	0.0	0.330000E 01
1	43	0.110000E 02	0.116000E 02	0.0	0.867000E 02	0.0	0.330000E 01
1	44	0.114000E 02	0.600000E 01	0.0	0.450000E 02	0.0	0.330000E 01
1	45	0.111000E 02	0.680000E 01	0.0	0.510000E 02	0.0	0.330000E 01
1	46	0.115000E 02	0.771000E 01	0.0	0.578000E 02	0.0	0.330000E 01
1	47	0.112000E 02	0.873000E 01	0.0	0.655000E 02	0.0	0.330000E 01
1	48	0.906000E 01	0.988000E 01	0.0	0.741000E 02	0.0	0.330000E 01
1	49	0.101000E 02	0.112000E 02	0.0	0.842000E 02	0.0	0.330000E 01
1	50	0.108000E 02	0.132000E 02	0.0	0.980000E 02	0.0	0.330000E 01
1	51	0.900000E 01	0.152000E 02	0.0	0.113000E 03	0.0	0.330000E 01
1	52	0.969000E 01	0.177000E 02	0.0	0.131000E 03	0.0	0.330000E 01
1	53	0.101000E 02	0.212000E 02	0.0	0.155000E 03	0.0	0.330000E 01
1	54	0.104000E 02	0.261000E 02	0.0	0.188000E 03	0.0	0.330000E 01

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	44	1	0.917000E 01	0.727000E-03	0.400000E-01	0.110000E 00	0.500000E 00
3	47	1	0.470000E 01	0.195000E-02	0.400000E-01	0.350000E 00	0.500000E 00
3	50	1	0.197000E 01	0.238000E-03	0.400000E-01	0.230000E 00	0.500000E 00

THERMAL DATA

MULT.STAND.CM245 ID#= 96245. NU= 3.299999 SIG-S = 0.10000E 02

GROUP	SIGMA-A	SIGMA-F
55	0.244200E 03	0.219300E 03
56	0.284000E 03	0.244600E 03
57	0.331600E 03	0.286000E 03
58	0.388300E 03	0.333500E 03
59	0.454100E 03	0.389300E 03
60	0.528100E 03	0.452100E 03
61	0.609100E 03	0.520900E 03
62	0.695300E 03	0.594400E 03
63	0.786500E 03	0.671100E 03
64	0.879300E 03	0.750300E 03
65	0.967900E 03	0.824900E 03
66	0.107700E 04	0.917100E 03
67	0.118800E 04	0.101100E 04
68	0.130700E 04	0.111100E 04
69	0.143100E 04	0.121800E 04
70	0.156300E 04	0.132900E 04
71	0.170500E 04	0.144900E 04
72	0.186900E 04	0.158800E 04
73	0.205800E 04	0.174800E 04
74	0.228000E 04	0.193700E 04
75	0.254400E 04	0.216100E 04
76	0.286200E 04	0.243100E 04
77	0.326400E 04	0.277000E 04
78	0.376900E 04	0.319900E 04
79	0.444100E 04	0.376800E 04
80	0.537600E 04	0.456100E 04
81	0.676200E 04	0.573600E 04
82	0.906100E 04	0.768600E 04
83	0.136700E 05	0.115900E 05
84	0.275300E 05	0.233500E 05

IZAS= 96246. MASS=243.9500 MULT.STANDARD.CM246

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	1	0.289C00E 01	0.C	0.431000E-01	0.258000E 01	0.255000E 01	0.488000E 01
1	2	0.433000E 01	0.C	0.394000E 00	0.234000E 01	0.385000E 01	0.479000E 01
1	3	0.475000E 01	0.185000E-03	0.835000E 00	0.195000E 01	0.416000E 01	0.454000E 01
1	4	0.478C00E 01	0.118000E-02	0.887000E 00	0.189000E 01	0.405000E 01	0.430000E 01
1	5	0.445000E 01	0.476000E-02	0.101000E 01	0.190000E 01	0.362000E 01	0.412000E 01
1	6	0.355C00E 01	0.134000E-01	0.116000E 01	0.198000E 01	0.304000E 01	0.398000E 01
1	7	0.351000E 01	0.28C000E-01	0.121000E 01	0.201000E 01	0.250000E 01	0.387000E 01
1	8	0.338000E 01	0.392000E-01	0.117000E 01	0.185000E 01	0.219000E 01	0.378000E 01
1	9	0.368C00E 01	0.476C00E-01	0.111000E 01	0.157000E 01	0.215000E 01	0.372000E 01
1	10	0.439000E 01	0.616000E-01	0.102000E 01	0.911000E 00	0.229000E 01	0.366000E 01
1	11	0.567000E 01	0.815000E-01	0.830000E 00	0.310000E 00	0.256000E 01	0.362000E 01
1	12	0.684000E 01	0.883999E-01	0.710000E 00	0.933999E-01	0.264000E 01	0.359000E 01
1	13	0.782000E 01	0.896000E-01	0.690000E 00	0.294000E-01	0.260000E 01	0.357000E 01
1	14	0.865000E 01	0.899000E-01	0.754000E 00	0.105000E-01	0.250000E 01	0.355000E 01
1	15	0.946000E 01	0.933999E-01	0.848000E 00	0.428000E-02	0.238000E 01	0.353000E 01
1	16	0.102000E 02	0.101000E 00	0.970000E 00	0.220000E-02	0.220000E 01	0.352000E 01
1	17	0.108000E 02	0.115C00E 00	0.103000E 01	0.135000E-02	0.196000E 01	0.351000E 01
1	18	0.113000E 02	0.132000E 00	0.922000E 00	0.894000E-03	0.172000E 01	0.351000E 01
1	19	0.119000E 02	0.151000E 00	0.824000E 00	0.614000E-03	0.147000E 01	0.350C00E 01
1	20	0.123C00E 02	0.168C00E 00	0.691000E 00	0.525000E-03	0.123000E 01	0.349000E 01
1	21	0.129000E 02	0.199000E 00	0.399000E 00	0.467000E-03	0.944000E 00	0.349000E 01
1	22	0.136000E 02	0.256C00E 00	0.0	0.108000E-03	0.621000E 00	0.349000E 01
1	23	0.137000E 02	0.326C00E 00	0.0	0.0	0.368000E 00	0.348000E 01
1	24	0.131000E 02	0.404000E 00	0.0	0.528000E-03	0.127000E 00	0.348000E 01
1	25	0.110C00E 02	0.496C00E 00	0.0	0.442000E-02	0.303000E-01	0.348000E 01
1	26	0.113000E 02	0.660000E 00	0.0	0.684000E-02	0.311000E-01	0.348000E 01
1	27	0.115000E 02	0.920000E 00	0.0	0.105000E-01	0.318000E-01	0.348C00E 01
1	28	0.118000E 02	0.132C00E 01	0.0	0.161000E-01	0.325000E-01	0.348000E 01
1	29	0.121000E 02	0.194000E 01	0.0	0.243000E-01	0.333000E-01	0.348000E 01
1	30	0.124000E 02	0.287C00E 01	0.0	0.365000E-01	0.341000E-01	0.348C00E 01
1	31	0.136000E 02	0.118C00E 01	0.0	0.151000E-01	0.374000E-01	0.348000E 01
1	32	0.105000E 02	0.0	0.0	0.0	0.290000E-01	0.348000E 01
1	33	0.105C00E 02	0.C	0.0	0.0	0.290000E-01	0.348000E 01
1	34	0.109000E 02	0.0	0.0	0.0	0.300000E-01	0.348000E 01
1	35	0.250000E 02	0.0	0.0	0.0	0.688000E-01	0.348CC0E 01

IZAS= 96246. MASS=243.9500 MULT.STANDARD.CM246

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGPI	SIGNU
1	36	0.851000E 01	0.0	0.0	0.0	0.234000E-01	0.348000E 01
1	37	0.936000E 01	0.0	0.0	0.0	0.258000E-01	0.348000E 01
1	38	0.956000E 01	0.0	0.0	0.0	0.263000E-01	0.348000E 01
1	39	0.975000E 01	0.0	0.0	0.0	0.269000E-01	0.348000E 01
1	40	0.995000E 01	0.0	0.0	0.0	0.274000E-01	0.348000E 01
1	41	0.102000E 02	0.0	0.0	0.0	0.280000E-01	0.348000E 01
1	42	0.106000E 02	0.0	0.0	0.0	0.292000E-01	0.348000E 01
1	43	0.970000E 01	0.0	0.0	0.0	0.267000E-01	0.348000E 01
1	44	0.999000E 01	0.0	0.0	0.0	0.275000E-01	0.348000E 01
1	45	0.103000E 02	0.0	0.0	0.0	0.283000E-01	0.348000E 01
1	46	0.106000E 02	0.0	0.0	0.0	0.292000E-01	0.348000E 01
1	47	0.127000E 02	0.0	0.0	0.0	0.351000E-01	0.348000E 01
1	48	0.874000E 01	0.0	0.0	0.0	0.241000E-01	0.348000E 01
1	49	0.926000E 01	0.0	0.0	0.0	0.255000E-01	0.348000E 01
1	50	0.935000E 01	0.0	0.0	0.0	0.257000E-01	0.348000E 01
1	51	0.943000E 01	0.0	0.0	0.0	0.260000E-01	0.348000E 01
1	52	0.949000E 01	0.0	0.0	0.0	0.261000E-01	0.348000E 01
1	53	0.953000E 01	0.0	0.0	0.0	0.262000E-01	0.348000E 01
1	54	0.956000E 01	0.0	0.0	0.0	0.263000E-01	0.348000E 01

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	31	1	0.381100E 03	0.117000E 00	0.370000E-01	0.180000E-02	0.100000E 01
3	31	2	0.313400E 03	0.248000E-01	0.370000E-01	0.150000E-02	0.100000E 01
3	31	3	0.288200E 03	0.594000E-01	0.370000E-01	0.310000E-03	0.100000E 01
3	31	4	0.278300E 03	0.701000E-02	0.370000E-01	0.130000E-02	0.100000E 01
3	32	1	0.250700E 03	0.934000E-02	0.370000E-01	0.380000E-03	0.100000E 01
3	33	1	0.158700E 03	0.289000E-01	0.370000E-01	0.730000E-03	0.100000E 01
3	35	1	0.919100E 02	0.159000E-01	0.310000E-01	0.170000E-03	0.100000E 01
3	35	2	0.846200E 02	0.267000E-01	0.310000E-01	0.700000E-03	0.100000E 01
3	42	1	0.153300E 02	0.548000E-03	0.310000E-01	0.480000E-03	0.100000E 01
3	47	1	0.431000E 01	0.332000E-03	0.310000E-01	0.167000E-02	0.100000E 01

THERMAL DATA

MULT. STAND. CM246 ID#= 96246. NU= 3.480000 SIG-S = 0.10466E 02

GROUP	SIGMA-A	SIGMA-F
55	0.351000E 00	0.166800E-01
56	0.365300E 00	0.172900E-01
57	0.335500E 00	0.181800E-01
58	0.410700E 00	0.193100E-01
59	0.440000E 00	0.206400E-01
60	0.472600E 00	0.221300E-01
61	0.508000E 00	0.237500E-01
62	0.545500E 00	0.254800E-01
63	0.584400E 00	0.272700E-01
64	0.624400E 00	0.291100E-01
65	0.664700E 00	0.309700E-01
66	0.708600E 00	0.330000E-01
67	0.756100E 00	0.352000E-01
68	0.807300E 00	0.375700E-01
69	0.861600E 00	0.400800E-01
70	0.918800E 00	0.427300E-01
71	0.981400E 00	0.456300E-01
72	0.105400E 01	0.489900E-01
73	0.113900E 01	0.529300E-01
74	0.123900E 01	0.575900E-01
75	0.136000E 01	0.631900E-01
76	0.153300E 01	0.700700E-01
77	0.169400E 01	0.786700E-01
78	0.193300E 01	0.897599E-01
79	0.225200E 01	0.104600E 00
80	0.270000E 01	0.125300E 00
81	0.337100E 01	0.156500E 00
82	0.449200E 01	0.208500E 00
83	0.673500E 01	0.312600E 00
84	0.134600E 02	0.625000E 00

CURIUM-247

IZAS= 95247. MASS=244.9500 MULT.STANCARD.C4247

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	1	0.100000E 02	0.0	0.0	0.0	0.825000E 01	0.538000E 01
1	2	0.100000E 02	0.0	0.0	0.0	0.824000E 01	0.498000E 01
1	3	0.100000E 02	0.0	0.0	0.0	0.814000E 01	0.467000E 01
1	4	0.100000E 02	0.0	0.0	0.0	0.766000E 01	0.443000E 01
1	5	0.100000E 02	0.0	0.0	0.0	0.712000E 01	0.424000E 01
1	6	0.100000E 02	0.0	0.0	0.0	0.670000E 01	0.409000E 01
1	7	0.100000E 02	0.0	0.0	0.103000E 01	0.639000E 01	0.398000E 01
1	8	0.100000E 02	0.0	0.0	0.305000E 01	0.626000E 01	0.389000E 01
1	9	0.100000E 02	0.0	0.0	0.265000E 01	0.616000E 01	0.382000E 01
1	10	0.100000E 02	0.0	0.0	0.226000E 01	0.550000E 01	0.377000E 01
1	11	0.100000E 02	0.0	0.0	0.225000E 01	0.372000E 01	0.373000E 01
1	12	0.100000E 02	0.0	0.0	0.225000E 01	0.229000E 01	0.369000E 01
1	13	0.100000E 02	0.0	0.0	0.225000E 01	0.147000E 01	0.367000E 01
1	14	0.100000E 02	0.0	0.0	0.225000E 01	0.112000E 01	0.365000E 01
1	15	0.100000E 02	0.0	0.0	0.225000E 01	0.843000E 00	0.363000E 01
1	16	0.100000E 02	0.0	0.0	0.225000E 01	0.628000E 00	0.362000E 01
1	17	0.100000E 02	0.0	0.0	0.225000E 01	0.461000E 00	0.361000E 01
1	18	0.100000E 02	0.0	0.0	0.225000E 01	0.331000E 00	0.361000E 01
1	19	0.100000E 02	0.0	0.0	0.225000E 01	0.230000E 00	0.360000E 01
1	20	0.100000E 02	0.0	0.0	0.225000E 01	0.151000E 00	0.360000E 01
1	21	0.100000E 02	0.0	0.0	0.225000E 01	0.681000E-01	0.359000E 01
1	22	0.100000E 02	0.0	0.0	0.225000E 01	0.101000E-02	0.359000E 01
1	23	0.100000E 02	0.0	0.0	0.234000E 01	0.0	0.358000E 01
1	24	0.100000E 02	0.458000E-01	0.0	0.243000E 01	0.0	0.358000E 01
1	25	0.100000E 02	0.0	0.0	0.0	0.0	0.358000E 01
1	26	0.100000E 02	0.0	0.0	0.0	0.0	0.358000E 01
1	27	0.100000E 02	0.0	0.0	0.0	0.0	0.358000E 01
1	28	0.100000E 02	0.0	0.0	0.0	0.0	0.358000E 01
1	29	0.100000E 02	0.0	0.0	0.0	0.0	0.358000E 01
1	30	0.100000E 02	0.0	0.0	0.0	0.0	0.358000E 01
1	31	0.100000E 02	0.0	0.0	0.0	0.0	0.358000E 01
1	32	0.100000E 02	0.0	0.0	0.0	0.0	0.358000E 01
1	33	0.100000E 02	0.0	0.0	0.0	0.0	0.358000E 01
1	34	0.100000E 02	0.0	0.0	0.0	0.0	0.358000E 01
1	35	0.100000E 02	0.0	0.0	0.0	0.0	0.358000E 01

IZAS= 95247. MASS=244.9500 MULT.STANDARD.C4247

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	36	0.100000E 02	0.0	0.0	0.0	0.0	0.358000E 01
1	37	0.100000E 02	0.113000E-03	0.0	0.110000E-03	0.0	0.358000E 01
1	38	0.100000E 02	0.209000E-03	0.0	0.204000E-03	0.0	0.358000E 01
1	39	0.100000E 02	0.384000E-03	0.0	0.376000E-03	0.0	0.358000E 01
1	40	0.100000E 02	0.702000E-03	0.0	0.687000E-03	0.0	0.358000E 01
1	41	0.100000E 02	0.128000E-02	0.0	0.125000E-02	0.0	0.358000E 01
1	42	0.100000E 02	0.231000E-02	0.0	0.225000E-02	0.0	0.358000E 01
1	43	0.100000E 02	0.413000E-02	0.0	0.404000E-02	0.0	0.358000E 01
1	44	0.100000E 02	0.730000E-02	0.0	0.714000E-02	0.0	0.358000E 01
1	45	0.101000E 02	0.128000E-01	0.0	0.125000E-01	0.0	0.358000E 01
1	46	0.101000E 02	0.219000E-01	0.0	0.215000E-01	0.0	0.358000E 01
1	47	0.101000E 02	0.370000E-01	0.0	0.362000E-01	0.0	0.358000E 01
1	48	0.101000E 02	0.611000E-01	0.0	0.598000E-01	0.0	0.358000E 01
1	49	0.101000E 02	0.985000E-01	0.0	0.964000E-01	0.0	0.358000E 01
1	50	0.102000E 02	0.319000E 01	0.0	0.477000E 01	0.0	0.358000E 01
1	51	0.102000E 02	0.808000E 01	0.0	0.122000E 02	0.0	0.358000E 01
1	52	0.102000E 02	0.324000E 02	0.0	0.491000E 02	0.0	0.358000E 01
1	53	0.102000E 02	0.788000E 03	0.0	0.120000E 04	0.0	0.358000E 01
1	54	0.103000E 02	0.106000E 04	0.0	0.161000E 04	0.0	0.358000E 01

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	37	1	0.556600E 02	0.157000E-01	0.381000E-01	0.114000E 00	0.500000E 00
3	37	2	0.561800E 02	0.660000E-03	0.381000E-01	0.689999E-01	0.500000E 00
3	37	3	0.551000E 02	0.534000E-03	0.381000E-01	0.380000E-01	0.500000E 00
3	37	4	0.536300E 02	0.450000E-03	0.381000E-01	0.324000E 00	0.500000E 00
3	37	5	0.521900E 02	0.126000E-02	0.381000E-01	0.400000E-02	0.500000E 00
3	37	6	0.517800E 02	0.166000E-02	0.381000E-01	0.140000E-01	0.500000E 00
3	37	7	0.506900E 02	0.318000E-02	0.381000E-01	0.520000E-01	0.500000E 00
3	37	8	0.500800E 02	0.236000E-02	0.381000E-01	0.550000E-01	0.500000E 00
3	37	9	0.488500E 02	0.680000E-02	0.381000E-01	0.820000E-01	0.500000E 00
3	37	10	0.479200E 02	0.117000E-02	0.381000E-01	0.164000E 00	0.500000E 00
3	38	1	0.452100E 02	0.578000E-03	0.381000E-01	0.600000E-01	0.500000E 00
3	38	2	0.448700E 02	0.210000E-02	0.381000E-01	0.320000E-01	0.500000E 00
3	38	3	0.433900E 02	0.191000E-03	0.381000E-01	0.400000E-02	0.500000E 00
3	38	4	0.417600E 02	0.517000E-04	0.381000E-01	0.546000E 00	0.500000E 00
3	38	5	0.412500E 02	0.662000E-03	0.381000E-01	0.200000E-01	0.500000E 00
3	38	6	0.406100E 02	0.319000E-04	0.381000E-01	0.480000E-01	0.500000E 00
3	38	7	0.399500E 02	0.948000E-04	0.381000E-01	0.167000E 00	0.500000E 00
3	38	8	0.395200E 02	0.629000E-05	0.381000E-01	0.705000E 00	0.500000E 00
3	38	9	0.377600E 02	0.246000E-04	0.381000E-01	0.130000E-01	0.500000E 00
3	38	10	0.377400E 02	0.246000E-04	0.381000E-01	0.555000E 00	0.500000E 00
3	39	1	0.363600E 02	0.163000E-02	0.381000E-01	0.610000E-01	0.500000E 00
3	39	2	0.322300E 02	0.505000E-03	0.381000E-01	0.260000E-01	0.500000E 00
3	39	3	0.306200E 02	0.188000E-03	0.381000E-01	0.520000E-01	0.500000E 00
3	39	4	0.302500E 02	0.345000E-02	0.381000E-01	0.400000E-02	0.500000E 00
3	40	1	0.280400E 02	0.582000E-04	0.381000E-01	0.530000E-01	0.500000E 00
3	40	2	0.261900E 02	0.154000E-04	0.381000E-01	0.220000E 00	0.500000E 00
3	40	3	0.253500E 02	0.101000E-04	0.381000E-01	0.260000E-01	0.500000E 00
3	40	4	0.240300E 02	0.441000E-04	0.381000E-01	0.134000E 00	0.500000E 00
3	41	1	0.213000E 02	0.125000E-03	0.381000E-01	0.404000E 00	0.500000E 00
3	42	1	0.173000E 02	0.175000E-02	0.381000E-01	0.580000E-01	0.500000E 00
3	43	1	0.132000E 02	0.153000E-02	0.381000E-01	0.580000E-01	0.500000E 00
3	44	1	0.907000E 01	0.126000E-02	0.381000E-01	0.580000E-01	0.500000E 00
3	47	1	0.497000E 01	0.937000E-03	0.381000E-01	0.580000E-01	0.500000E 00

***** UNRESOLVED RESONANCE PARAMETERS *****

CARD	LAST	FIRST	D-AVG	GNNO	GMGM	GMF	SPIN
4	36	24	0.410000E 01	0.205000E-03	0.381000E-01	0.580000E-01	0.500000E 00

THERMAL DATA

MULT.STANC.CM247 ID#= 96247. NU= 3.580000 SIG-S = 0.10000E 02

GROUP	SIGMA-A	SIGMA-F
55	0.687200E 03	0.414600E 03
56	0.205000E 03	0.123500E 03
57	0.122500E 03	0.736500E 02
58	0.938000E 02	0.562900E 02
59	0.813600E 02	0.487100E 02
60	0.757900E 02	0.452800E 02
61	0.737300E 02	0.439600E 02
62	0.736800E 02	0.438600E 02
63	0.743600E 02	0.445000E 02
64	0.768500E 02	0.456200E 02
65	0.793800E 02	0.470700E 02
66	0.824300E 02	0.488500E 02
67	0.861400E 02	0.509800E 02
68	0.903300E 02	0.534200E 02
69	0.949800E 02	0.561400E 02
70	0.100000E 03	0.590900E 02
71	0.105700E 03	0.624000E 02
72	0.112400E 03	0.663200E 02
73	0.120400E 03	0.709900E 02
74	0.130000E 03	0.766000E 02
75	0.141600E 03	0.834400E 02
76	0.156000E 03	0.919000E 02
77	0.174200E 03	0.102600E 03
78	0.197800E 03	0.116400E 03
79	0.229500E 03	0.135000E 03
80	0.274100E 03	0.161300E 03
81	0.341300E 03	0.200800E 03
82	0.453800E 03	0.266900E 03
83	0.679300E 03	0.399400E 03
84	0.135700E 04	0.797800E 03

CURIUM-248

IZAS= 96248. MASS=245.8700 MULT.STANDARD.C#248

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGPI	SIGNU
1	1	0.366000E 01	C.C	0.510000E-01	0.259000E 01	0.323000E 01	0.521000E 01
1	2	0.437000E 01	0.0	0.518000E 00	0.219000E 01	0.388000E 01	0.489000E 01
1	3	C.477000E 01	0.317000E-04	0.153000E 01	0.126000E 01	0.418000E 01	C.461CCCE C1
1	4	C.477C00E 01	0.238000E-03	0.154000E 01	0.124000E 01	0.404000E 01	0.436000E 01
1	5	0.442000E 01	0.110000E-02	0.163000E 01	0.128000E 01	C.359000E C1	C.417000E 01
1	6	C.392000E 01	C.360C00E-02	0.176000E 01	0.142000E 01	0.302000E C1	C.402000E 01
1	7	0.348000E 01	C.9550C0E-02	0.163000E 01	0.164000E 01	0.248000E 01	0.390000E 01
1	8	0.331000E 01	0.179000E-01	0.893000E 00	0.186000E 01	0.215000E 01	0.381000E 01
1	9	0.362000E 01	C.281C00E-01	0.968000E 00	0.199000E 01	0.212000E 01	0.374000E 01
1	10	0.441000E 01	0.383000E-01	0.882000E 00	0.176000E 01	0.230000E 01	0.368000E 01
1	11	0.558000E 01	0.540000E-01	0.101000E 01	0.107000E 01	0.252000E C1	C.364C00E 01
1	12	0.665000E 01	0.6340C0E-01	0.675000E 00	0.453000E 00	0.264000E 01	0.361000E 01
1	13	0.795000E 01	0.674000E-01	0.715000E 00	0.176000E 00	C.264000E 01	0.358000E 01
1	14	0.884000E 01	0.682999E-01	0.810000E 00	0.732000E-01	0.256000E 01	C.3560C0E C1
1	15	0.968000E 01	0.711000E-01	C.920C00E 00	0.348000E-01	0.243000E 01	0.355000E 01
1	16	0.104000E 02	0.766000E-01	0.106000E 01	0.205000E-01	0.224000E 01	0.353000E 01
1	17	0.110000E 02	0.867C00E-01	0.112000E 01	0.148000E-01	0.200000E 01	0.352000E 01
1	18	0.115000E 02	0.996000E-01	0.100000E 01	0.114000E-01	0.175000E 01	0.352000E 01
1	19	0.121000E 02	0.116000E 00	0.889000E 00	0.901000E-02	0.150000E 01	C.3510C0E C1
1	20	0.126CCCE 02	0.143000E 00	0.740000E 00	0.807000E-02	0.125000E 01	0.351000E 01
1	21	0.132000E 02	0.200000E 00	0.405000E 00	0.762000E-02	0.964000E 00	0.350000E 01
1	22	C.139000E 02	C.302C00E 00	0.0	0.748000E-02	0.637000E 00	C.350000E C1
1	23	0.141000E 02	0.422000E 00	0.0	0.751000E-02	0.380000E 00	0.349000E 01
1	24	0.136000E 02	0.468000E 00	0.0	0.659000E-02	0.131000E 00	0.349000E 01
1	25	0.117C00E C2	0.0	0.0	0.0	0.322000E-01	0.349000E 01
1	26	0.121000E 02	0.0	0.0	0.0	0.334000E-01	0.349000E 01
1	27	C.140000E 02	0.0	0.0	0.0	0.386000E-01	0.349000E 01
1	28	0.120000E 02	0.0	0.0	0.0	0.331000E-01	0.349000E 01
1	29	0.113000E 02	0.0	0.0	0.0	C.312000E-01	0.349000E 01
1	30	0.136000E 02	0.0	0.0	0.0	0.374000E-01	C.3490C0E 01
1	31	0.905000E 01	0.0	0.0	0.0	0.249000E-01	0.349000E 01
1	32	0.971000E 01	0.0	0.0	0.0	0.267000E-01	0.349000E 01
1	33	C.116C00E 02	0.0	0.0	0.0	0.320000E-01	0.349000E 01
1	34	0.199000E 02	0.0	0.0	0.0	0.547000E-01	0.349000E 01
1	35	0.778000E 02	0.0	0.0	0.0	0.214000E 00	C.349000E C1

1285= 96243. MASS=245.8700 MULT.STANDARD.C#248

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGPI	SIGNU
1	36	0.521000E 02	0.0	0.0	0.0	0.143000E 00	0.349000E 01
1	37	0.605000E 01	0.0	0.0	0.0	0.166000E-01	0.349000E 01
1	38	0.926000E 01	0.0	0.0	0.0	0.255000E-01	0.349000E 01
1	39	0.642000E 02	0.0	0.0	0.0	0.177000E 00	0.349000E 01
1	40	0.741000E 02	0.0	0.0	0.0	0.204000E 00	0.349000E 01
1	41	0.386000E 01	0.0	0.0	0.0	0.106000E-01	0.349000E 01
1	42	0.539000E 01	0.0	0.0	0.0	0.149000E-01	0.349000E 01
1	43	0.628000E 01	0.0	0.0	0.0	0.173000E-01	0.349000E 01
1	44	0.756000E 01	0.0	0.0	0.0	0.208000E-01	0.349000E 01
1	45	0.352000E 02	0.0	0.0	0.0	0.969000E-01	0.349000E 01
1	46	0.399000E 01	0.0	0.0	0.0	0.110000E-01	0.349000E 01
1	47	0.514000E 01	0.0	0.0	0.0	0.141000E-01	0.349000E 01
1	48	0.549000E 01	0.0	0.0	0.0	0.151000E-01	0.349000E 01
1	49	0.563000E 01	0.0	0.0	0.0	0.155000E-01	0.349000E 01
1	50	0.574000E 01	0.0	0.0	0.0	0.158000E-01	0.349000E 01
1	51	0.583000E 01	0.0	0.0	0.0	0.161000E-01	0.349000E 01
1	52	0.590000E 01	0.0	0.0	0.0	0.162000E-01	0.349000E 01
1	53	0.596000E 01	0.0	0.0	0.0	0.164000E-01	0.349000E 01
1	54	0.599000E 01	0.0	0.0	0.0	0.165000E-01	0.349000E 01

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	27	1	0.239100E 04	0.323000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	27	2	0.236900E 04	0.496000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	27	3	0.229100E 04	0.330000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	27	4	0.223400E 04	0.851000E-01	0.260000E-01	0.820000E-03	0.100000E 01
3	27	5	0.221500E 04	0.654000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	27	6	0.215600E 04	0.158000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	27	7	0.213800E 04	0.472000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	27	8	0.207100E 04	0.783000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	27	9	0.204000E 04	0.199000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	28	1	0.191000E 04	0.118000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	28	2	0.181200E 04	0.545000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	28	3	0.164600E 04	0.130000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	28	4	0.150500E 04	0.683000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	28	5	0.138900E 04	0.406000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	28	6	0.128810E 04	0.538000E-01	0.260000E-01	0.820000E-03	0.100000E 01
3	28	7	0.127660E 04	0.179000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	28	8	0.126200E 04	0.270000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	29	1	0.120970E 04	0.348000E-01	0.260000E-01	0.820000E-03	0.100000E 01
3	29	2	0.119360E 04	0.328000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	29	3	0.110330E 04	0.219000E 00	0.260000E-01	0.820000E-03	0.100000E 01

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	29	7	0.887100E 03	0.983000E-01	0.260000E-01	0.820000E-03	0.100000E 01
3	29	8	0.865900E 03	0.492000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	29	9	0.769400E 03	0.610000E-01	0.260000E-01	0.820000E-03	0.100000E 01
3	30	1	0.721500E 03	0.913000E-01	0.260000E-01	0.820000E-03	0.100000E 01
3	30	2	0.694300E 03	0.203000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	30	3	0.688600E 03	0.394000E-01	0.260000E-01	0.820000E-03	0.100000E 01
3	30	4	0.647000E 03	0.109000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	30	5	0.605300E 03	0.106000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	30	6	0.541800E 03	0.384000E 00	0.260000E-01	0.820000E-03	0.100000E 01
3	30	7	0.484900E 03	0.970000E-02	0.260000E-01	0.820000E-03	0.100000E 01
3	30	8	0.457700E 03	0.755000E-01	0.260000E-01	0.820000E-03	0.100000E 01
3	31	1	0.415700E 03	0.500000E-01	0.260000E-01	0.820000E-03	0.100000E 01
3	31	2	0.380600E 03	0.936000E-01	0.260000E-01	0.820000E-03	0.100000E 01
3	31	3	0.321800E 03	0.264000E-01	0.260000E-01	0.820000E-03	0.100000E 01
3	32	1	0.258700E 03	0.627000E-01	0.260000E-01	0.820000E-03	0.100000E 01
3	32	2	0.237900E 03	0.165000E-01	0.260000E-01	0.820000E-03	0.100000E 01
3	32	3	0.186400E 03	0.425000E-02	0.260000E-01	0.820000E-03	0.100000E 01
3	33	1	0.140300E 03	0.153000E-02	0.260000E-01	0.820000E-03	0.100000E 01
3	35	1	0.989500E 02	0.149000E 00	0.260000E-01	0.470000E-03	0.100000E 01
3	36	1	0.761000E 02	0.968000E-01	0.260000E-01	0.330000E-02	0.100000E 01
3	39	1	0.350100E 02	0.117000E-01	0.302000E-01	0.240000E-02	0.100000E 01
3	40	1	0.269000E 02	0.195000E-01	0.320000E-01	0.800000E-04	0.100000E 01
3	45	1	0.725000E 01	0.167000E-02	0.233000E-01	0.140000E-02	0.100000E 01

***** UNRESOLVED RESONANCE PARAMETERS *****

CARD	LAST	FIRST	D-AVG	GMN	GMGM	GMF	SPIN
4	27	24	0.400000E 02	0.480000E-02	0.260000E-01	0.320000E-03	0.100000E 01

THERMAL DATA

MULT.STANC.CM248 ID#= 962+8. NU= 3.490000 SIG-S = 0.10400E 02

GROUP	SIGMA-A	SIGMA-F
55	0.544700E 00	0.251900E-01
56	0.551500E 00	0.272700E-01
57	0.644800E 00	0.296500E-01
58	0.704100E 00	0.323300E-01
59	0.768800E 00	0.352500E-01
60	0.838000E 00	0.383800E-01
61	0.911100E 00	0.416900E-01
62	0.987100E 00	0.451400E-01
63	0.106500E 01	0.486800E-01
64	0.114400E 01	0.522700E-01
65	0.122300E 01	0.558800E-01
66	0.130900E 01	0.597800E-01
67	0.140200E 01	0.639800E-01
68	0.150100E 01	0.685000E-01
69	0.160600E 01	0.732700E-01
70	0.171600E 01	0.782900E-01
71	0.183600E 01	0.837700E-01
72	0.197500E 01	0.901000E-01
73	0.213800E 01	0.975000E-01
74	0.233000E 01	0.106300E 00
75	0.256100E 01	0.116800E 00
76	0.284300E 01	0.129600E 00
77	0.319600E 01	0.145700E 00
78	0.365100E 01	0.166400E 00
79	0.425700E 01	0.194100E 00
80	0.510600E 01	0.232800E 00
81	0.638100E 01	0.290800E 00
82	0.850500E 01	0.387700E 00
83	0.127600E 02	0.581400E 00
84	0.255100E 02	0.116300E 01

BERKELIUM-249

IZAS= 97249. MASS=246.9300 MULT.STANDARC.3K249

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	1	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	2	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	3	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	4	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	5	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	6	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	7	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	8	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	9	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	10	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	11	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	12	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	13	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	14	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	15	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	16	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	17	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	18	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	19	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	20	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	21	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	22	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	23	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	24	0.992000E 01	0.429000E 00	0.0	0.0	0.0	0.0
1	25	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	26	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	27	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	28	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	29	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	30	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	31	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	32	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	33	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	34	0.992000E 01	0.0	0.0	0.0	0.0	0.0
1	35	0.992000E 01	0.141000E-01	0.0	0.0	0.0	0.0

IZAS= 97249. MASS=246.9300 MULT.STANDARC.3K249

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	36	0.992000E 01	0.270000E-01	0.0	0.0	0.0	0.0
1	37	0.992000E 01	0.496000E-01	0.0	0.0	0.0	0.0
1	38	0.992000E 01	0.907000E-01	0.0	0.0	0.0	0.0
1	39	0.992000E 01	0.165000E 00	0.0	0.0	0.0	0.0
1	40	0.992000E 01	0.297000E 00	0.0	0.0	0.0	0.0
1	41	0.992000E 01	0.531000E 00	0.0	0.0	0.0	0.0
1	42	0.992000E 01	0.938000E 00	0.0	0.0	0.0	0.0
1	43	0.992000E 01	0.164000E 01	0.0	0.0	0.0	0.0
1	44	0.992000E 01	0.281000E 01	0.0	0.0	0.0	0.0
1	45	0.992000E 01	0.472000E 01	0.0	0.0	0.0	0.0
1	46	0.992000E 01	0.777000E 01	0.0	0.0	0.0	0.0
1	47	0.992000E 01	0.125000E 02	0.0	0.0	0.0	0.0
1	48	0.992000E 01	0.195000E 02	0.0	0.0	0.0	0.0
1	49	0.992000E 01	0.295000E 02	0.0	0.0	0.0	0.0
1	50	0.992000E 01	0.435000E 02	0.0	0.0	0.0	0.0
1	51	0.992000E 01	0.621000E 02	0.0	0.0	0.0	0.0
1	52	0.992000E 01	0.859000E 02	0.0	0.0	0.0	0.0
1	53	0.992000E 01	0.215000E 03	0.0	0.0	0.0	0.0
1	54	0.992000E 01	0.514000E 03	0.0	0.0	0.0	0.0

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	35	1	0.996700E 02	0.595000E-02	0.300000E-01	0.0	0.500000E 00
3	35	2	0.985700E 02	0.592000E-02	0.300000E-01	0.0	0.500000E 00
3	35	3	0.974700E 02	0.589000E-02	0.300000E-01	0.0	0.500000E 00
3	35	4	0.963700E 02	0.585000E-02	0.300000E-01	0.0	0.500000E 00
3	35	5	0.952700E 02	0.582000E-02	0.300000E-01	0.0	0.500000E 00
3	35	6	0.941700E 02	0.579000E-02	0.300000E-01	0.0	0.500000E 00
3	35	7	0.930700E 02	0.575000E-02	0.300000E-01	0.0	0.500000E 00
3	35	8	0.919700E 02	0.572000E-02	0.300000E-01	0.0	0.500000E 00
3	35	9	0.908700E 02	0.568000E-02	0.300000E-01	0.0	0.500000E 00
3	35	10	0.897700E 02	0.565000E-02	0.300000E-01	0.0	0.500000E 00
3	35	11	0.886700E 02	0.561000E-02	0.300000E-01	0.0	0.500000E 00
3	35	12	0.875700E 02	0.558000E-02	0.300000E-01	0.0	0.500000E 00

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	35	13	0.864700E 02	0.554000E-02	0.300000E-01	0.0	0.500000E 00
3	35	14	0.853700E 02	0.551000E-02	0.300000E-01	0.0	0.500000E 00
3	35	15	0.842700E 02	0.547000E-02	0.300000E-01	0.0	0.500000E 00
3	35	16	0.831700E 02	0.544000E-02	0.300000E-01	0.0	0.500000E 00
3	35	17	0.820700E 02	0.540000E-02	0.300000E-01	0.0	0.500000E 00
3	35	18	0.809700E 02	0.536000E-02	0.300000E-01	0.0	0.500000E 00
3	35	19	0.798700E 02	0.533000E-02	0.300000E-01	0.0	0.500000E 00
3	36	1	0.787700E 02	0.529000E-02	0.300000E-01	0.0	0.500000E 00
3	36	2	0.776700E 02	0.525000E-02	0.300000E-01	0.0	0.500000E 00
3	36	3	0.765700E 02	0.522000E-02	0.300000E-01	0.0	0.500000E 00
3	36	4	0.754700E 02	0.518000E-02	0.300000E-01	0.0	0.500000E 00
3	36	5	0.743700E 02	0.514000E-02	0.300000E-01	0.0	0.500000E 00
3	36	6	0.732700E 02	0.510000E-02	0.300000E-01	0.0	0.500000E 00
3	36	7	0.721700E 02	0.506000E-02	0.300000E-01	0.0	0.500000E 00
3	36	8	0.710700E 02	0.503000E-02	0.300000E-01	0.0	0.500000E 00
3	36	9	0.699700E 02	0.499000E-02	0.300000E-01	0.0	0.500000E 00
3	36	10	0.688700E 02	0.495000E-02	0.300000E-01	0.0	0.500000E 00
3	36	11	0.677700E 02	0.491000E-02	0.300000E-01	0.0	0.500000E 00
3	36	12	0.666700E 02	0.487000E-02	0.300000E-01	0.0	0.500000E 00
3	36	13	0.655700E 02	0.483000E-02	0.300000E-01	0.0	0.500000E 00
3	36	14	0.644700E 02	0.479000E-02	0.300000E-01	0.0	0.500000E 00
3	36	15	0.633700E 02	0.475000E-02	0.300000E-01	0.0	0.500000E 00
3	36	16	0.622700E 02	0.470000E-02	0.300000E-01	0.0	0.500000E 00
3	37	1	0.611700E 02	0.466000E-02	0.300000E-01	0.0	0.500000E 00
3	37	2	0.600700E 02	0.462000E-02	0.300000E-01	0.0	0.500000E 00
3	37	3	0.589700E 02	0.458000E-02	0.300000E-01	0.0	0.500000E 00
3	37	4	0.578700E 02	0.454000E-02	0.300000E-01	0.0	0.500000E 00
3	37	5	0.567700E 02	0.449000E-02	0.300000E-01	0.0	0.500000E 00
3	37	6	0.556700E 02	0.445000E-02	0.300000E-01	0.0	0.500000E 00
3	37	7	0.545700E 02	0.440000E-02	0.300000E-01	0.0	0.500000E 00
3	37	8	0.534700E 02	0.436000E-02	0.300000E-01	0.0	0.500000E 00
3	37	9	0.523700E 02	0.431000E-02	0.300000E-01	0.0	0.500000E 00
3	37	10	0.512700E 02	0.427000E-02	0.300000E-01	0.0	0.500000E 00
3	37	11	0.501700E 02	0.422000E-02	0.300000E-01	0.0	0.500000E 00
3	37	12	0.490700E 02	0.418000E-02	0.300000E-01	0.0	0.500000E 00
3	37	13	0.479700E 02	0.413000E-02	0.300000E-01	0.0	0.500000E 00
3	38	1	0.468700E 02	0.408000E-02	0.300000E-01	0.0	0.500000E 00
3	38	2	0.457700E 02	0.403000E-02	0.300000E-01	0.0	0.500000E 00
3	38	3	0.446700E 02	0.398000E-02	0.300000E-01	0.0	0.500000E 00
3	38	4	0.435700E 02	0.393000E-02	0.300000E-01	0.0	0.500000E 00

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	38	5	0.424700E 02	0.389000E-02	0.300000E-01	0.0	0.500000E 00
3	38	6	0.413700E 02	0.383000E-02	0.300000E-01	0.0	0.500000E 00
3	38	7	0.402700E 02	0.378000E-02	0.300000E-01	0.0	0.500000E 00
3	38	8	0.391700E 02	0.373000E-02	0.300000E-01	0.0	0.500000E 00
3	38	9	0.380700E 02	0.368000E-02	0.300000E-01	0.0	0.500000E 00
3	39	1	0.369700E 02	0.362000E-02	0.300000E-01	0.0	0.500000E 00
3	39	2	0.358700E 02	0.357000E-02	0.300000E-01	0.0	0.500000E 00
3	39	3	0.347700E 02	0.352000E-02	0.300000E-01	0.0	0.500000E 00
3	39	4	0.336700E 02	0.346000E-02	0.300000E-01	0.0	0.500000E 00
3	39	5	0.325700E 02	0.340000E-02	0.300000E-01	0.0	0.500000E 00
3	39	6	0.314700E 02	0.334000E-02	0.300000E-01	0.0	0.500000E 00
3	39	7	0.303700E 02	0.329000E-02	0.300000E-01	0.0	0.500000E 00
3	39	8	0.292700E 02	0.323000E-02	0.300000E-01	0.0	0.500000E 00
3	40	1	0.281700E 02	0.316000E-02	0.300000E-01	0.0	0.500000E 00
3	40	2	0.270700E 02	0.310000E-02	0.300000E-01	0.0	0.500000E 00
3	40	3	0.259700E 02	0.304000E-02	0.300000E-01	0.0	0.500000E 00
3	40	4	0.248700E 02	0.297000E-02	0.300000E-01	0.0	0.500000E 00
3	40	5	0.237700E 02	0.291000E-02	0.300000E-01	0.0	0.500000E 00
3	40	6	0.226700E 02	0.284000E-02	0.300000E-01	0.0	0.500000E 00
3	41	1	0.215700E 02	0.277000E-02	0.300000E-01	0.0	0.500000E 00
3	41	2	0.204700E 02	0.270000E-02	0.300000E-01	0.0	0.500000E 00
3	41	3	0.193700E 02	0.262000E-02	0.300000E-01	0.0	0.500000E 00
3	41	4	0.182700E 02	0.255000E-02	0.300000E-01	0.0	0.500000E 00
3	42	1	0.171700E 02	0.247000E-02	0.300000E-01	0.0	0.500000E 00
3	42	2	0.160700E 02	0.239000E-02	0.300000E-01	0.0	0.500000E 00
3	42	3	0.149700E 02	0.231000E-02	0.300000E-01	0.0	0.500000E 00
3	42	4	0.138700E 02	0.222000E-02	0.300000E-01	0.0	0.500000E 00
3	43	1	0.127700E 02	0.213000E-02	0.300000E-01	0.0	0.500000E 00
3	43	2	0.116700E 02	0.204000E-02	0.300000E-01	0.0	0.500000E 00
3	44	1	0.105700E 02	0.194000E-02	0.300000E-01	0.0	0.500000E 00
3	44	2	0.947000E 01	0.183000E-02	0.300000E-01	0.0	0.500000E 00
3	44	3	0.837000E 01	0.172000E-02	0.300000E-01	0.0	0.500000E 00
3	45	1	0.727000E 01	0.161000E-02	0.300000E-01	0.0	0.500000E 00
3	46	1	0.617000E 01	0.148000E-02	0.300000E-01	0.0	0.500000E 00
3	46	2	0.507000E 01	0.134000E-02	0.300000E-01	0.0	0.500000E 00
3	47	1	0.397000E 01	0.119000E-02	0.300000E-01	0.0	0.500000E 00
3	49	1	0.287000E 01	0.101000E-02	0.300000E-01	0.0	0.500000E 00
3	51	1	0.177000E 01	0.794000E-03	0.300000E-01	0.0	0.500000E 00

***** UNRESOLVED RESONANCE PARAMETERS *****

CARD	LAST	FIRST	D-AVG	GNNJ	GNGN	GNF	SPIN
4	35	24	0.110000E 01	0.596000E-03	0.300000E-01	0.0	0.500000E 00

THERMAL DATA

MULT. STANC. BK249 ID#= 97249. NU= 0.0 SIG-S = 0.59200E 01

GROUP	SIGMA-A	SIGMA-F
55	0.826800E 04	0.0
56	0.130400E 04	0.0
57	0.457200E 03	0.0
58	0.408800E 03	0.0
59	0.426800E 03	0.0
60	0.464300E 03	0.0
61	0.510200E 03	0.0
62	0.560600E 03	0.0
63	0.613200E 03	0.0
64	0.667100E 03	0.0
65	0.721700E 03	0.0
66	0.779600E 03	0.0
67	0.842600E 03	0.0
68	0.909700E 03	0.0
69	0.980500E 03	0.0
70	0.105400E 04	0.0
71	0.113500E 04	0.0
72	0.122700E 04	0.0
73	0.133500E 04	0.0
74	0.146200E 04	0.0
75	0.161400E 04	0.0
76	0.179900E 04	0.0
77	0.203000E 04	0.0
78	0.232600E 04	0.0
79	0.271900E 04	0.0
80	0.327000E 04	0.0
81	0.409400E 04	0.0
82	0.546500E 04	0.0
83	0.820400E 04	0.0
84	0.164200E 05	0.0

IZAS= 98249. MASS=246.9300 MULT.STANDARD.CF249

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	1	0.975000E 01	0.0	0.0	0.186000E 01	0.0	0.560000E 01
1	2	0.975000E 01	0.0	0.0	0.186000E 01	0.0	0.518000E 01
1	3	0.975000E 01	0.0	0.0	0.186000E 01	0.0	0.485000E 01
1	4	0.975000E 01	0.0	0.0	0.186000E 01	0.0	0.460000E 01
1	5	0.975000E 01	0.0	0.0	0.186000E 01	0.0	0.440000E 01
1	6	0.975000E 01	0.0	0.0	0.191000E 01	0.0	0.425000E 01
1	7	0.975000E 01	0.0	0.0	0.182000E 01	0.0	0.412000E 01
1	8	0.975000E 01	0.0	0.0	0.163000E 01	0.0	0.403000E 01
1	9	0.975000E 01	0.0	0.0	0.147000E 01	0.0	0.396000E 01
1	10	0.975000E 01	0.0	0.0	0.138000E 01	0.0	0.390000E 01
1	11	0.975000E 01	0.0	0.0	0.147000E 01	0.0	0.386000E 01
1	12	0.975000E 01	0.0	0.0	0.153000E 01	0.0	0.382000E 01
1	13	0.975000E 01	0.0	0.0	0.162000E 01	0.0	0.379000E 01
1	14	0.975000E 01	0.0	0.0	0.171000E 01	0.0	0.377000E 01
1	15	0.975000E 01	0.0	0.0	0.189000E 01	0.0	0.376000E 01
1	16	0.975000E 01	0.0	0.0	0.203000E 01	0.0	0.374000E 01
1	17	0.975000E 01	0.0	0.0	0.207000E 01	0.0	0.373000E 01
1	18	0.975000E 01	0.0	0.0	0.230000E 01	0.0	0.373000E 01
1	19	0.975000E 01	0.0	0.0	0.289000E 01	0.0	0.372000E 01
1	20	0.975000E 01	0.0	0.0	0.260000E 01	0.0	0.372000E 01
1	21	0.975000E 01	0.0	0.0	0.248000E 01	0.0	0.371000E 01
1	22	0.975000E 01	0.0	0.0	0.283000E 01	0.0	0.371000E 01
1	23	0.975000E 01	0.0	0.0	0.305000E 01	0.0	0.370000E 01
1	24	0.101000E 02	0.0	0.0	0.315000E 01	0.0	0.370000E 01
1	25	0.138000E 02	0.0	0.0	0.0	0.0	0.370000E 01
1	26	0.142000E 02	0.0	0.0	0.0	0.0	0.370000E 01
1	27	0.147000E 02	0.0	0.0	0.0	0.0	0.370000E 01
1	28	0.151000E 02	0.0	0.0	0.0	0.0	0.370000E 01
1	29	0.155000E 02	0.0	0.0	0.0	0.0	0.370000E 01
1	30	0.159000E 02	0.0	0.0	0.0	0.0	0.370000E 01
1	31	0.164000E 02	0.0	0.0	0.0	0.0	0.370000E 01
1	32	0.169000E 02	0.0	0.0	0.0	0.0	0.370000E 01
1	33	0.172000E 02	0.0	0.0	0.0	0.0	0.370000E 01
1	34	0.175000E 02	0.0	0.0	0.0	0.0	0.370000E 01
1	35	0.177000E 02	0.0	0.0	0.0	0.0	0.370000E 01

IZAS= 98249. MASS=246.9300 MULT.STANCARC.CF249

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGPI	SIGNU
1	36	0.152000E 02	0.497000E-04	0.0	0.197000E-03	0.0	0.370000E 01
1	37	0.126000E 02	0.165000E-03	0.0	0.652000E-03	0.0	0.370000E 01
1	38	0.118000E 02	0.307000E-03	0.0	0.122000E-02	0.0	0.370000E 01
1	39	0.114000E 02	0.572000E-03	0.0	0.227000E-02	0.0	0.370000E 01
1	40	0.118000E 02	0.106000E-02	0.0	0.422000E-02	0.0	0.370000E 01
1	41	0.134000E 02	0.196000E-02	0.0	0.784000E-02	0.0	0.370000E 01
1	42	0.897000E 01	0.367000E-02	0.0	0.145000E-01	0.0	0.370000E 01
1	43	0.802000E 01	0.680000E-02	0.0	0.270000E-01	0.0	0.370000E 01
1	44	0.929000E 01	0.126000E-01	0.0	0.498000E-01	0.0	0.370000E 01
1	45	0.810000E 01	0.232000E-01	0.0	0.919000E-01	0.0	0.370000E 01
1	46	0.100000E 02	0.426000E-01	0.0	0.169000E 00	0.0	0.370000E 01
1	47	0.841000E 01	0.778000E-01	0.0	0.308000E 00	0.0	0.370000E 01
1	48	0.798000E 01	0.141000E 00	0.0	0.560000E 00	0.0	0.370000E 01
1	49	0.913000E 01	0.255000E 00	0.0	0.101000E 01	0.0	0.370000E 01
1	50	0.994000E 01	0.589000E 01	0.0	0.158000E 02	0.0	0.370000E 01
1	51	0.110000E 02	0.133000E 02	0.0	0.351000E 02	0.0	0.370000E 01
1	52	0.131000E 02	0.382000E 02	0.0	0.989000E 02	0.0	0.370000E 01
1	53	0.203000E 02	0.215000E 03	0.0	0.547000E 03	0.0	0.370000E 01
1	54	0.364000E 02	0.862000E 03	0.0	0.218000E 04	0.0	0.370000E 01

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	36	1	0.693000E 02	0.560000E-03	0.400000E-01	0.210000E 00	0.500000E 00
3	36	2	0.671000E 02	0.820000E-03	0.400000E-01	0.500000E-01	0.500000E 00
3	36	3	0.657000E 02	0.670000E-02	0.400000E-01	0.440000E 00	0.500000E 00
3	36	4	0.617000E 02	0.240000E-03	0.400000E-01	0.500000E 00	0.500000E 00
3	37	1	0.608000E 02	0.390000E-03	0.400000E-01	0.100000E 01	0.500000E 00
3	37	2	0.602000E 02	0.930000E-04	0.400000E-01	0.210000E 01	0.500000E 00
3	37	3	0.594000E 02	0.370000E-02	0.400000E-01	0.260000E 00	0.500000E 00
3	37	4	0.587000E 02	0.390000E-02	0.400000E-01	0.100000E-01	0.500000E 00
3	37	5	0.576000E 02	0.460000E-02	0.400000E-01	0.450000E 00	0.500000E 00
3	37	6	0.564000E 02	0.370000E-02	0.400000E-01	0.450000E-01	0.500000E 00
3	37	7	0.560000E 02	0.310000E-02	0.400000E-01	0.230000E 00	0.500000E 00
3	37	8	0.539000E 02	0.480000E-02	0.400000E-01	0.490000E 00	0.500000E 00
3	37	9	0.521000E 02	0.830000E-02	0.400000E-01	0.870000E-01	0.500000E 00
3	37	10	0.512000E 02	0.170000E-02	0.400000E-01	0.300000E 00	0.500000E 00

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GNGM	GMF	SPIN
3	37	11	0.484000E 02	0.310000E-02	0.400000E-01	0.170000E 00	0.500000E 00
3	38	1	0.475000E 02	0.220000E-02	0.400000E-01	0.700000E-01	0.500000E 00
3	38	2	0.466000E 02	0.490000E-03	0.400000E-01	0.150000E 00	0.500000E 00
3	38	3	0.456000E 02	0.390000E-02	0.400000E-01	0.550000E-01	0.500000E 00
3	38	4	0.431000E 02	0.370000E-03	0.400000E-01	0.100000E 00	0.500000E 00
3	38	5	0.427000E 02	0.280000E-03	0.400000E-01	0.130000E 00	0.500000E 00
3	38	6	0.403000E 02	0.330000E-02	0.400000E-01	0.110000E 00	0.500000E 00
3	38	7	0.397000E 02	0.260000E-02	0.400000E-01	0.220000E 00	0.500000E 00
3	38	8	0.381000E 02	0.490000E-03	0.400000E-01	0.400000E 00	0.500000E 00
3	38	9	0.374000E 02	0.600000E-03	0.400000E-01	0.200000E-01	0.500000E 00
3	39	1	0.370000E 02	0.395000E-02	0.400000E-01	0.130000E 00	0.500000E 00
3	39	2	0.363000E 02	0.600000E-02	0.400000E-01	0.500000E-01	0.500000E 00
3	39	3	0.349000E 02	0.890000E-03	0.400000E-01	0.400000E-01	0.500000E 00
3	39	4	0.333000E 02	0.170000E-02	0.400000E-01	0.300000E 00	0.500000E 00
3	39	5	0.315000E 02	0.840000E-03	0.400000E-01	0.200000E 00	0.500000E 00
3	39	6	0.310000E 02	0.230000E-02	0.400000E-01	0.480000E 00	0.500000E 00
3	39	7	0.303000E 02	0.830000E-03	0.400000E-01	0.280000E-01	0.500000E 00
3	40	1	0.289000E 02	0.500000E-04	0.400000E-01	0.500000E 00	0.500000E 00
3	40	2	0.281000E 02	0.410000E-02	0.400000E-01	0.150000E-01	0.500000E 00
3	40	3	0.276000E 02	0.790000E-03	0.400000E-01	0.750000E-01	0.500000E 00
3	40	4	0.260000E 02	0.160000E-02	0.400000E-01	0.320000E 00	0.500000E 00
3	40	5	0.234000E 02	0.630000E-03	0.400000E-01	0.106000E 00	0.500000E 00
3	40	6	0.228000E 02	0.960000E-03	0.400000E-01	0.240000E-02	0.500000E 00
3	41	1	0.217000E 02	0.180000E-02	0.400000E-01	0.140000E 00	0.500000E 00
3	41	2	0.213000E 02	0.798000E-02	0.400000E-01	0.150000E 00	0.500000E 00
3	41	3	0.198000E 02	0.180000E-03	0.400000E-01	0.110000E 00	0.500000E 00
3	41	4	0.177000E 02	0.170000E-04	0.400000E-01	0.400000E 00	0.500000E 00
3	42	1	0.168200E 02	0.172000E-02	0.400000E-01	0.163000E 00	0.500000E 00
3	42	2	0.160600E 02	0.637000E-03	0.400000E-01	0.325000E 00	0.500000E 00
3	43	1	0.136300E 02	0.149000E-02	0.400000E-01	0.205000E 00	0.500000E 00
3	43	2	0.119000E 02	0.128000E-03	0.400000E-01	0.242000E 00	0.500000E 00
3	44	1	0.103500E 02	0.251000E-03	0.400000E-01	0.252000E 00	0.500000E 00
3	44	2	0.952000E 01	0.112000E-02	0.400000E-01	0.971000E-01	0.500000E 00
3	44	3	0.866000E 01	0.338000E-03	0.400000E-01	0.146000E 00	0.500000E 00
3	45	1	0.752000E 01	0.173000E-03	0.400000E-01	0.834000E-01	0.500000E 00
3	46	1	0.508000E 01	0.604000E-03	0.400000E-01	0.154000E 00	0.500000E 00
3	48	1	0.390000E 01	0.227000E-03	0.400000E-01	0.449000E-01	0.500000E 00

CARD	LAST	FIRST	UNRESOLVED RESONANCE PARAMETERS D-AVG	GMNJ	GMGM	GMF	SPIN
4	36	24	0.121000E 01	0.310000E-03	0.400000E-01	0.240000E 00	0.500000E 00

THERMAL DATA

MULT.STAND.CF249 ID#= 98249. NU= 3.700000 SIG-S = 0.10280E 02

GROUP	SIGMA-A	SIGMA-F
55	0.665200E 04	0.476700E 04
56	0.260900E 04	0.187200E 04
57	0.106600E 04	0.768500E 03
58	0.711200E 03	0.516100E 03
59	0.597200E 03	0.437000E 03
60	0.568100E 03	0.419300E 03
61	0.579300E 03	0.431400E 03
62	0.615300E 03	0.461000E 03
63	0.666000E 03	0.502000E 03
64	0.726800E 03	0.550500E 03
65	0.795000E 03	0.604600E 03
66	0.872300E 03	0.665600E 03
67	0.960600E 03	0.735200E 03
68	0.105800E 04	0.811900E 03
69	0.116400E 04	0.894900E 03
70	0.127600E 04	0.983000E 03
71	0.140000E 04	0.108000E 04
72	0.154300E 04	0.119300E 04
73	0.171100E 04	0.132400E 04
74	0.190900E 04	0.147900E 04
75	0.214600E 04	0.166500E 04
76	0.243400E 04	0.189000E 04
77	0.279000E 04	0.216800E 04
78	0.324400E 04	0.252300E 04
79	0.384300E 04	0.299100E 04
80	0.467400E 04	0.363900E 04
81	0.590800E 04	0.460200E 04
82	0.794600E 04	0.619200E 04
83	0.119900E 05	0.934900E 04
84	0.240800E 05	0.187700E 05

CALIFORNIUM-250

IZAS= 98250. MASS=247.9300 MULT.STANDARD.CF250

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	1	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	2	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	3	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	4	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	5	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	6	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	7	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	8	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	9	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	10	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	11	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	12	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	13	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	14	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	15	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	16	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	17	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	18	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	19	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	20	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	21	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	22	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	23	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	24	0.988000E 01	0.980000E-01	0.0	0.0	0.0	0.0
1	25	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	26	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	27	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	28	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	29	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	30	0.988000E 01	0.0	0.0	0.0	0.0	0.0
1	31	0.988000E 01	0.289000E-04	0.0	0.0	0.0	0.0
1	32	0.988000E 01	0.124000E-02	0.0	0.0	0.0	0.0
1	33	0.988000E 01	0.312000E-02	0.0	0.0	0.0	0.0
1	34	0.988000E 01	0.578000E-02	0.0	0.0	0.0	0.0
1	35	0.988000E 01	0.107000E-01	0.0	0.0	0.0	0.0

IZAS= 93250. MASS=247.9300 MULT.STANDARD.CF250

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	36	0.988000E 01	0.197000E-01	0.0	0.0	0.0	0.0
1	37	0.988000E 01	0.362000E-01	0.0	0.0	0.0	0.0
1	38	0.988000E 01	0.662000E-01	0.0	0.0	0.0	0.0
1	39	0.988000E 01	0.120000E 00	0.0	0.0	0.0	0.0
1	40	0.988000E 01	0.217000E 00	0.0	0.0	0.0	0.0
1	41	0.988000E 01	0.389000E 00	0.0	0.0	0.0	0.0
1	42	0.988000E 01	0.688000E 00	0.0	0.0	0.0	0.0
1	43	0.988000E 01	0.120000E 01	0.0	0.0	0.0	0.0
1	44	0.988000E 01	0.207000E 01	0.0	0.0	0.0	0.0
1	45	0.988000E 01	0.401000E 01	0.0	0.0	0.0	0.0
1	46	0.988000E 01	0.648000E 01	0.0	0.0	0.0	0.0
1	47	0.988000E 01	0.105000E 02	0.0	0.0	0.0	0.0
1	48	0.988000E 01	0.169000E 02	0.0	0.0	0.0	0.0
1	49	0.988000E 01	0.270000E 02	0.0	0.0	0.0	0.0
1	50	0.988000E 01	0.435000E 02	0.0	0.0	0.0	0.0
1	51	0.988000E 01	0.737000E 02	0.0	0.0	0.0	0.0
1	52	0.988000E 01	0.143000E 03	0.0	0.0	0.0	0.0
1	53	0.988000E 01	0.466000E 03	0.0	0.0	0.0	0.0
1	54	0.988000E 01	0.166000E 04	0.0	0.0	0.0	0.0

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	32	1	0.271800E 03	0.252000E-01	0.316000E-01	0.0	0.100000E 01
3	32	2	0.257500E 03	0.245000E-01	0.316000E-01	0.0	0.100000E 01
3	32	3	0.243200E 03	0.238000E-01	0.316000E-01	0.0	0.100000E 01
3	32	4	0.229000E 03	0.231000E-01	0.316000E-01	0.0	0.100000E 01
3	32	5	0.214700E 03	0.224000E-01	0.316000E-01	0.0	0.100000E 01
3	32	6	0.200400E 03	0.216000E-01	0.316000E-01	0.0	0.100000E 01
3	32	7	0.186200E 03	0.208000E-01	0.316000E-01	0.0	0.100000E 01
3	32	8	0.171900E 03	0.200000E-01	0.316000E-01	0.0	0.100000E 01
3	33	1	0.157600E 03	0.192000E-01	0.316000E-01	0.0	0.100000E 01
3	33	2	0.143400E 03	0.183000E-01	0.316000E-01	0.0	0.100000E 01
3	34	1	0.129100E 03	0.173000E-01	0.316000E-01	0.0	0.100000E 01
3	34	2	0.114800E 03	0.164000E-01	0.316000E-01	0.0	0.100000E 01
3	35	1	0.100500E 03	0.153000E-01	0.316000E-01	0.0	0.100000E 01
3	35	2	0.862800E 02	0.142000E-01	0.316000E-01	0.0	0.100000E 01
3	36	1	0.720100E 02	0.130000E-01	0.316000E-01	0.0	0.100000E 01
3	37	1	0.577400E 02	0.116000E-01	0.316000E-01	0.0	0.100000E 01
3	38	1	0.434700E 02	0.101000E-01	0.316000E-01	0.0	0.100000E 01
3	39	1	0.292000E 02	0.825000E-02	0.316000E-01	0.0	0.100000E 01
3	42	1	0.149300E 02	0.590000E-02	0.316000E-01	0.0	0.100000E 01

***** UNRESOLVED RESONANCE PARAMETERS *****

CARD	LAST	FIRST	D-AVG	GNNO	GMGM	GMF	SPIN
4	31	24	0.142700E 02	0.153000E-02	0.316000E-01	0.0	0.100000E 01

THERMAL DATA

MULT.STANC.CF250 ID#= 98250. NU= 0.0 SIG-S = 0.98800E 01

GROUP	SIGMA-A	SIGMA-F
55	0.315400E 05	0.0
56	0.997600E 04	0.0
57	0.148700E 04	0.0
58	0.838200E 03	0.0
59	0.731700E 03	0.0
60	0.687400E 03	0.0
61	0.687000E 03	0.0
62	0.707700E 03	0.0
63	0.739900E 03	0.0
64	0.778900E 03	0.0
65	0.822200E 03	0.0
66	0.870800E 03	0.0
67	0.925800E 03	0.0
68	0.986000E 03	0.0
69	0.105100E 04	0.0
70	0.112000E 04	0.0
71	0.119600E 04	0.0
72	0.128400E 04	0.0
73	0.138800E 04	0.0
74	0.151100E 04	0.0
75	0.165900E 04	0.0
76	0.184100E 04	0.0
77	0.206900E 04	0.0
78	0.236200E 04	0.0
79	0.275400E 04	0.0
80	0.330300E 04	0.0
81	0.412700E 04	0.0
82	0.550000E 04	0.0
83	0.824900E 04	0.0
84	0.164900E 05	0.0

CALIFORNIUM-251

IZAS= 98251. MASS=248.9200 MULT.STANDARD.CF251

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	1	0.984000E 01	0.0	0.0	0.0	0.0	0.615000E 01
1	2	0.984000E 01	0.0	0.0	0.0	0.0	0.571000E 01
1	3	0.984000E 01	0.0	0.0	0.0	0.0	0.536000E 01
1	4	0.984000E 01	0.0	0.0	0.0	0.0	0.509000E 01
1	5	0.984000E 01	0.0	0.0	0.0	0.0	0.488000E 01
1	6	0.984000E 01	0.0	0.0	0.0	0.0	0.472000E 01
1	7	0.984000E 01	0.0	0.0	0.0	0.0	0.459000E 01
1	8	0.984000E 01	0.0	0.0	0.0	0.0	0.449000E 01
1	9	0.984000E 01	0.0	0.0	0.0	0.0	0.441000E 01
1	10	0.984000E 01	0.0	0.0	0.0	0.0	0.435000E 01
1	11	0.984000E 01	0.0	0.0	0.0	0.0	0.430000E 01
1	12	0.984000E 01	0.0	0.0	0.0	0.0	0.427000E 01
1	13	0.984000E 01	0.0	0.0	0.0	0.0	0.424000E 01
1	14	0.984000E 01	0.0	0.0	0.0	0.0	0.422000E 01
1	15	0.984000E 01	0.0	0.0	0.0	0.0	0.420000E 01
1	16	0.984000E 01	0.0	0.0	0.0	0.0	0.419000E 01
1	17	0.984000E 01	0.0	0.0	0.0	0.0	0.418000E 01
1	18	0.984000E 01	0.0	0.0	0.0	0.0	0.417000E 01
1	19	0.984000E 01	0.0	0.0	0.0	0.0	0.416000E 01
1	20	0.984000E 01	0.0	0.0	0.0	0.0	0.416000E 01
1	21	0.984000E 01	0.0	0.0	0.0	0.0	0.415000E 01
1	22	0.984000E 01	0.0	0.0	0.0	0.0	0.415000E 01
1	23	0.984000E 01	0.0	0.0	0.0	0.0	0.414000E 01
1	24	0.984000E 01	0.472000E-01	0.0	0.159000E 00	0.0	0.414000E 01
1	25	0.984000E 01	0.0	0.0	0.0	0.0	0.414000E 01
1	26	0.984000E 01	0.0	0.0	0.0	0.0	0.414000E 01
1	27	0.984000E 01	0.0	0.0	0.0	0.0	0.414000E 01
1	28	0.984000E 01	0.0	0.0	0.0	0.0	0.414000E 01
1	29	0.984000E 01	0.0	0.0	0.0	0.0	0.414000E 01
1	30	0.984000E 01	0.0	0.0	0.0	0.0	0.414000E 01
1	31	0.984000E 01	0.0	0.0	0.0	0.0	0.414000E 01
1	32	0.984000E 01	0.0	0.0	0.0	0.0	0.414000E 01
1	33	0.984000E 01	0.620000E-02	0.0	0.108000E-01	0.0	0.414000E 01
1	34	0.984000E 01	0.124000E-01	0.0	0.215000E-01	0.0	0.414000E 01
1	35	0.984000E 01	0.229000E-01	0.0	0.398000E-01	0.0	0.414000E 01

IZAS= 98251. MASS= 248.9200 MULT. STANDARD. CF251

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGPI	SIGNU
1	36	C.984000E 01	0.422000E-01	J.0	0.735000E-01	0.0	0.414000E 01
1	37	0.984000E 01	0.775999E-01	0.0	0.135000E 00	0.0	0.414000E 01
1	38	C.984000E 01	0.142000E 00	J.0	0.247000E 00	0.0	0.414000E 01
1	39	C.984000E 01	0.258000E CC	0.0	0.450000E 00	0.0	0.414000E 01
1	40	0.984000E 01	0.467000E 00	0.0	0.813000E 00	0.0	0.414000E 01
1	41	C.984000E 01	C.837000E 00	J.0	0.146000E 01	0.0	C.414000E 01
1	42	0.984000E 01	0.148000E 01	0.0	0.258000E 01	0.0	0.414000E 01
1	43	0.984000E 01	0.260000E 01	J.0	0.452000E 01	0.0	0.414000E 01
1	44	C.984000E 01	0.447000E 01	J.0	0.779000E 01	0.0	0.414000E 01
1	45	0.984000E 01	0.757000E 01	0.0	0.132000E 02	0.0	0.414000E 01
1	46	C.984000E 01	0.136000E 02	J.0	0.254000E 02	0.0	C.414000E 01
1	47	C.984000E 01	0.213000E 02	0.0	0.387000E 02	0.0	0.414000E 01
1	48	0.984000E 01	0.334000E 02	0.0	0.606000E 02	0.0	0.414000E 01
1	49	C.984000E 01	C.516000E 02	J.0	0.944000E 02	0.0	C.414000E 01
1	50	0.984000E 01	0.784000E 02	0.0	0.146000E 03	0.0	0.414000E 01
1	51	0.984000E 01	0.119000E 03	J.0	0.233000E 03	0.0	0.414000E 01
1	52	C.984000E 01	0.192000E 03	J.0	0.411000E 03	0.0	0.414000E 01
1	53	0.984000E 01	0.497000E 03	0.0	0.135000E 04	0.0	0.414000E 01
1	54	C.984000E 01	0.163000E 04	J.0	0.511000E 04	0.0	0.414000E 01

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	33	1	0.155800E 03	0.222000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	33	2	0.147600E 03	0.216000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	33	3	0.139400E 03	0.210000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	33	4	0.131300E 03	0.204000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	34	1	0.123100E 03	0.197000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	34	2	0.115000E 03	0.191000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	34	3	0.106800E 03	0.184000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	35	1	0.986300E 02	0.177000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	35	2	0.904700E 02	0.169000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	35	3	0.823100E 02	0.161000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	36	1	0.741500E 02	0.153000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	36	2	0.659900E 02	0.144000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	37	1	0.578300E 02	0.135000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	37	2	0.496700E 02	0.125000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	38	1	0.415100E 02	0.115000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	39	1	0.333500E 02	0.103000E-01	0.270000E-01	0.911000E-01	0.500000E 00
3	40	1	0.251900E 02	0.893000E-02	0.270000E-01	0.911000E-01	0.500000E 00
3	42	1	0.170300E 02	0.734000E-02	0.270000E-01	0.911000E-01	0.500000E 00
3	44	1	0.887000E 01	0.530000E-02	0.270000E-01	0.911000E-01	0.500000E 00

UNRESOLVED RESONANCE PARAMETERS

CARD	LAST	FIRST	D-AVG	GNJ	GMGM	GMF	SPIN
4	33	24	0.816000E 01	0.178000E-02	0.270000E-01	0.911000E-01	0.500000E 00

THERMAL DATA

MULT.STAND.CF251 ID#= 98251. NU= 4.139999 SIG-S = 0.98400E 01

GROUP	SIGMA-A	SIGMA-F
55	0.117300E 05	0.130300E 05
56	0.537900E 04	0.401900E 04
57	0.275700E 04	0.196800E 04
58	0.236600E 04	0.163700E 04
59	0.237300E 04	0.161000E 04
60	0.251400E 04	0.168500E 04
61	0.271700E 04	0.180700E 04
62	0.295200E 04	0.195300E 04
63	0.320500E 04	0.211200E 04
64	0.346800E 04	0.228000E 04
65	0.373800E 04	0.245200E 04
66	0.402600E 04	0.263700E 04
67	0.434100E 04	0.283900E 04
68	0.467800E 04	0.305600E 04
69	0.503400E 04	0.328500E 04
70	0.540600E 04	0.352600E 04
71	0.581300E 04	0.378800E 04
72	0.628100E 04	0.409100E 04
73	0.632700E 04	0.444400E 04
74	0.747000E 04	0.486100E 04
75	0.824100E 04	0.536000E 04
76	0.918100E 04	0.596900E 04
77	0.103500E 05	0.672900E 04
78	0.118600E 05	0.770500E 04
79	0.133600E 05	0.900500E 04
80	0.166600E 05	0.108200E 05
81	0.208600E 05	0.135400E 05
82	0.278400E 05	0.180700E 05
83	0.417900E 05	0.271300E 05
84	0.836200E 05	0.542800E 05

CALIFORNIUM-252

IZAS= 98252. MASS=249.9600 PULT.STANDARD.CF252

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGPI	SIGNU
1	1	0.980000E 01	0.0	0.0	0.0	0.0	0.612000E 01
1	2	0.980000E 01	0.0	0.0	0.0	0.0	0.567000E 01
1	3	0.980000E 01	0.0	0.0	0.458000E 00	0.0	0.531000E 01
1	4	0.980000E 01	0.0	0.0	0.224000E 01	0.0	0.503000E 01
1	5	0.980000E 01	0.0	0.0	0.227000E 01	0.0	0.482000E 01
1	6	0.980000E 01	0.0	0.0	0.229000E 01	0.0	0.465000E 01
1	7	0.980000E 01	0.0	0.0	0.225000E 01	0.0	0.452000E 01
1	8	0.980000E 01	0.0	0.0	0.196000E 01	0.0	0.442000E 01
1	9	0.980000E 01	0.0	0.0	0.170000E 01	0.0	0.434000E 01
1	10	0.980000E 01	0.0	0.0	0.149000E 01	0.0	0.428000E 01
1	11	0.980000E 01	0.0	0.0	0.133000E 01	0.0	0.423000E 01
1	12	0.980000E 01	0.0	0.0	0.121000E 01	0.0	0.419000E 01
1	13	0.980000E 01	0.0	0.0	0.111000E 01	0.0	0.416000E 01
1	14	0.980000E 01	0.0	0.0	0.103000E 01	0.0	0.414000E 01
1	15	0.980000E 01	0.0	0.0	0.922000E 00	0.0	0.412000E 01
1	16	0.980000E 01	0.0	0.0	0.774000E 00	0.0	0.411000E 01
1	17	0.980000E 01	0.0	0.0	0.659000E 00	0.0	0.410000E 01
1	18	0.980000E 01	0.0	0.0	0.570000E 00	0.0	0.409000E 01
1	19	0.980000E 01	0.0	0.0	0.500000E 00	0.0	0.408000E 01
1	20	0.980000E 01	0.0	0.0	0.446000E 00	0.0	0.408000E 01
1	21	0.980000E 01	0.0	0.0	0.389000E 00	0.0	0.407000E 01
1	22	0.980000E 01	0.0	0.0	0.336000E 00	0.0	0.407000E 01
1	23	0.980000E 01	0.0	0.0	0.304000E 00	0.0	0.406000E 01
1	24	0.980000E 01	0.189000E-01	0.0	0.243000E 00	0.0	0.406000E 01
1	25	0.980000E 01	0.0	0.0	0.0	0.0	0.406000E 01
1	26	0.980000E 01	0.0	0.0	0.0	0.0	0.406000E 01
1	27	0.980000E 01	0.0	0.0	0.0	0.0	0.406000E 01
1	28	0.980000E 01	0.0	0.0	0.0	0.0	0.406000E 01
1	29	0.980000E 01	0.0	0.0	0.0	0.0	0.406000E 01
1	30	0.980000E 01	0.0	0.0	0.0	0.0	0.406000E 01
1	31	0.981000E 01	0.511000E-05	0.0	0.786000E-05	0.0	0.406000E 01
1	32	0.983000E 01	0.273000E-04	0.0	0.420000E-04	0.0	0.406000E 01
1	33	0.984000E 01	0.684000E-04	0.0	0.105000E-03	0.0	0.406000E 01
1	34	0.985000E 01	0.127000E-03	0.0	0.195000E-03	0.0	0.406000E 01
1	35	0.987000E 01	0.234000E-03	0.0	0.360000E-03	0.0	0.406000E 01

IZAS= 98252. MASS=249.9600 MULT.STANDARD.CF252

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	36	0.988000E 01	0.430000E-03	0.0	0.662000E-03	0.0	0.406000E 01
1	37	0.991000E 01	0.785000E-03	0.0	0.121000E-02	0.0	0.406000E 01
1	38	0.994000E 01	0.144000E-02	0.0	0.221000E-02	0.0	0.406000E 01
1	39	0.997000E 01	0.261000E-02	0.0	0.401000E-02	0.0	0.406000E 01
1	40	0.100000E 02	0.466000E-02	0.0	0.721000E-02	0.0	0.406000E 01
1	41	0.101000E 02	0.834000E-02	0.0	0.128000E-01	0.0	0.406000E 01
1	42	0.101000E 02	0.147000E-01	0.0	0.226000E-01	0.0	0.406000E 01
1	43	0.102000E 02	0.254000E-01	0.0	0.391000E-01	0.0	0.406000E 01
1	44	0.103000E 02	0.433000E-01	0.0	0.666000E-01	0.0	0.406000E 01
1	45	0.104000E 02	0.721999E-01	0.0	0.111000E 00	0.0	0.406000E 01
1	46	0.106000E 02	0.118000E 00	0.0	0.181000E 00	0.0	0.406000E 01
1	47	0.107000E 02	0.187000E 00	0.0	0.288000E 00	0.0	0.406000E 01
1	48	0.109000E 02	0.289000E 00	0.0	0.445000E 00	0.0	0.406000E 01
1	49	0.110000E 02	0.433000E 00	0.0	0.667000E 00	0.0	0.406000E 01
1	50	0.112000E 02	0.630000E 00	0.0	0.970000E 00	0.0	0.406000E 01
1	51	0.114000E 02	0.850000E 00	0.0	0.137000E 01	0.0	0.406000E 01
1	52	0.115000E 02	0.122000E 01	0.0	0.187000E 01	0.0	0.406000E 01
1	53	0.117000E 02	0.165000E 01	0.0	0.255000E 01	0.0	0.406000E 01
1	54	0.118000E 02	0.201000E 01	0.0	0.309000E 01	0.0	0.406000E 01

RESOLVED RESONANCE DATA

CARD	GROUP	SEC #	E RES	GMN	GMGM	GMF	SPIN
3	31	1	0.349000E 03	0.225000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	31	2	0.331600E 03	0.219000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	31	3	0.314100E 03	0.213000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	31	4	0.296600E 03	0.207000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	31	5	0.279200E 03	0.201000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	32	1	0.261700E 03	0.194000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	32	2	0.244200E 03	0.188000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	32	3	0.226700E 03	0.181000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	32	4	0.209300E 03	0.174000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	32	5	0.191800E 03	0.166000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	32	6	0.174300E 03	0.159000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	33	1	0.156900E 03	0.150000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	33	2	0.139400E 03	0.142000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	34	1	0.121900E 03	0.133000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	34	2	0.104500E 03	0.123000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	35	1	0.869900E 02	0.112000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	36	1	0.695200E 02	0.100000E-01	0.235000E-01	0.595000E-01	0.100000E 01
3	37	1	0.520500E 02	0.867000E-02	0.235000E-01	0.595000E-01	0.100000E 01
3	39	1	0.345800E 02	0.707000E-02	0.235000E-01	0.595000E-01	0.100000E 01
3	42	1	0.171100E 02	0.497000E-02	0.235000E-01	0.595000E-01	0.100000E 01

***** UNRESOLVED RESONANCE PARAMETERS *****

CARD	LAST	FIRST	D-AVG	GMN	GMGM	GMF	SPIN
4	31	24	0.174700E 02	0.120000E-02	0.235000E-01	0.595000E-01	0.500000E 00

THERMAL DATA

4UL T. STAND. CF252 ID#= 98252. NU= 4.059999 SIG-S = 0.98CCCE C1

GROUP	SIGMA-A	SIGMA-F
55	0.626300E J1	0.384800E 01
56	0.757600E 01	0.464700E 01
57	0.902000E J1	0.552800E 01
58	0.1058CCE C2	0.648200E 01
59	0.122500E J2	0.749600E 01
60	0.139800E J2	0.855700E 01
61	0.1578CCE 02	0.965400E 01
62	0.176200E J2	0.107700E 02
63	0.194700E J2	0.119000E 02
64	0.213200E J2	0.130400E 02
65	0.231600E J2	0.141600E 02
66	0.251300E C2	0.153600E 02
67	0.272300E 02	C.166400E 02
68	0.294700E J2	0.180100E 02
69	0.318100E C2	0.194400E 02
70	0.342600E J2	0.209300E 02
71	0.369100E J2	0.225500E 02
72	0.399600E 02	C.244200E 02
73	0.435100E J2	0.265800E 02
74	0.476800E 02	0.291300E 02
75	0.526700E 02	0.321700E 02
76	0.587400E J2	0.358800E 02
77	0.662100E 02	0.405000E 02
78	0.760100E J2	0.464300E 02
79	0.839100E J2	0.543100E 02
80	0.106900E 03	C.653100E 02
81	0.133900E J3	0.817900E 02
82	0.178800E 03	0.109200E 03
83	0.268500E 03	0.164000E 03
84	0.537200E J3	0.328100E 03

CALIFORNIUM-253

IZAS= 98253. MASS=250.8300 MULT.STANDARD.CF253

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	1	0.976000E 01	0.708000E-06	0.0	0.117000E-03	0.0	0.626000E 01
1	2	0.976000E 01	0.802000E-06	0.0	0.133000E-03	0.0	0.579000E 01
1	3	0.976000E 01	0.909000E-06	0.0	0.151000E-03	0.0	0.543000E 01
1	4	0.976000E 01	0.103000E-05	0.0	0.171000E-03	0.0	0.515000E 01
1	5	0.976000E 01	0.117000E-05	0.0	0.193000E-03	0.0	0.493000E 01
1	6	0.976000E 01	0.132000E-05	0.0	0.219000E-03	0.0	0.476000E 01
1	7	0.976000E 01	0.150000E-05	0.0	0.248000E-03	0.0	0.462000E 01
1	8	0.976000E 01	0.170000E-05	0.0	0.281000E-03	0.0	0.452000E 01
1	9	0.976000E 01	0.192000E-05	0.0	0.319000E-03	0.0	0.444000E 01
1	10	0.976000E 01	0.218000E-05	0.0	0.361000E-03	0.0	0.438000E 01
1	11	0.976000E 01	0.247000E-05	0.0	0.409000E-03	0.0	0.433000E 01
1	12	0.976000E 01	0.280000E-05	0.0	0.464000E-03	0.0	0.429000E 01
1	13	0.976000E 01	0.317000E-05	0.0	0.526000E-03	0.0	0.426000E 01
1	14	0.976000E 01	0.359000E-05	0.0	0.596000E-03	0.0	0.424000E 01
1	15	0.976000E 01	0.407000E-05	0.0	0.675000E-03	0.0	0.422000E 01
1	16	0.976000E 01	0.462000E-05	0.0	0.765000E-03	0.0	0.420000E 01
1	17	0.976000E 01	0.523000E-05	0.0	0.867000E-03	0.0	0.419000E 01
1	18	0.976000E 01	0.593000E-05	0.0	0.982000E-03	0.0	0.418000E 01
1	19	0.976000E 01	0.672000E-05	0.0	0.111000E-02	0.0	0.418000E 01
1	20	0.976000E 01	0.761000E-05	0.0	0.126000E-02	0.0	0.417000E 01
1	21	0.976000E 01	0.920000E-05	0.0	0.152000E-02	0.0	0.417000E 01
1	22	0.976000E 01	0.118000E-04	0.0	0.196000E-02	0.0	0.416000E 01
1	23	0.976000E 01	0.152000E-04	0.0	0.251000E-02	0.0	0.416000E 01
1	24	0.976000E 01	0.195000E-04	0.0	0.323000E-02	0.0	0.416000E 01
1	25	0.976000E 01	0.250000E-04	0.0	0.414000E-02	0.0	0.416000E 01
1	26	0.976000E 01	0.321000E-04	0.0	0.532000E-02	0.0	0.416000E 01
1	27	0.976000E 01	0.412000E-04	0.0	0.683000E-02	0.0	0.416000E 01
1	28	0.976000E 01	0.529000E-04	0.0	0.877000E-02	0.0	0.416000E 01
1	29	0.976000E 01	0.680000E-04	0.0	0.113000E-01	0.0	0.416000E 01
1	30	0.976000E 01	0.873000E-04	0.0	0.145000E-01	0.0	0.416000E 01
1	31	0.976000E 01	0.112000E-03	0.0	0.186000E-01	0.0	0.415000E 01
1	32	0.976000E 01	0.144000E-03	0.0	0.238000E-01	0.0	0.415000E 01
1	33	0.976000E 01	0.173000E-03	0.0	0.287000E-01	0.0	0.415000E 01
1	34	0.976000E 01	0.196000E-03	0.0	0.325000E-01	0.0	0.415000E 01
1	35	0.976000E 01	0.222000E-03	0.0	0.368000E-01	0.0	0.415000E 01

IZAS= 98253. MASS=250.8300 MULT.STANDARD.CF253

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	36	0.976000E 01	0.252000E-03	0.0	0.418000E-01	0.0	0.415000E 01
1	37	0.976000E 01	0.286000E-03	0.0	0.473000E-01	0.0	0.415000E 01
1	38	0.976000E 01	0.324000E-03	0.0	0.536000E-01	0.0	0.415000E 01
1	39	0.976000E 01	0.367000E-03	0.0	0.607000E-01	0.0	0.415000E 01
1	40	0.976000E 01	0.416000E-03	0.0	0.688000E-01	0.0	0.415000E 01
1	41	0.976000E 01	0.471000E-03	0.0	0.779999E-01	0.0	0.415000E 01
1	42	0.976000E 01	0.534000E-03	0.0	0.883999E-01	0.0	0.415000E 01
1	43	0.976000E 01	0.605000E-03	0.0	0.100000E 00	0.0	0.415000E 01
1	44	0.976000E 01	0.685000E-03	0.0	0.113000E 00	0.0	0.415000E 01
1	45	0.976000E 01	0.776000E-03	0.0	0.129000E 00	0.0	0.415000E 01
1	46	0.976000E 01	0.880000E-03	0.0	0.146000E 00	0.0	0.415000E 01
1	47	0.976000E 01	0.997000E-03	0.0	0.165000E 00	0.0	0.415000E 01
1	48	0.976000E 01	0.113000E-02	0.0	0.187000E 00	0.0	0.415000E 01
1	49	0.976000E 01	0.128000E-02	0.0	0.212000E 00	0.0	0.415000E 01
1	50	0.976000E 01	0.145000E-02	0.0	0.240000E 00	0.0	0.415000E 01
1	51	0.976000E 01	0.165000E-02	0.0	0.273000E 00	0.0	0.415000E 01
1	52	0.976000E 01	0.186000E-02	0.0	0.309000E 00	0.0	0.415000E 01
1	53	0.976000E 01	0.214000E-02	0.0	0.354000E 00	0.0	0.415000E 01
1	54	0.976000E 01	0.248000E-02	0.0	0.410000E 00	0.0	0.415000E 01

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GNGM	GMF	SPIN
3	45	1	0.655000E 01	0.631000E-03	0.267000E-01	0.443000E 01	0.500000E 00
3	46	1	0.571000E 01	0.589000E-03	0.267000E-01	0.443000E 01	0.500000E 00
3	47	1	0.487000E 01	0.544000E-03	0.267000E-01	0.443000E 01	0.500000E 00
3	47	2	0.403000E 01	0.495000E-03	0.267000E-01	0.443000E 01	0.500000E 00
3	48	1	0.319000E 01	0.440000E-03	0.267000E-01	0.443000E 01	0.500000E 00
3	50	1	0.235000E 01	0.378000E-03	0.267000E-01	0.443000E 01	0.500000E 00
3	51	1	0.151000E 01	0.303000E-03	0.267000E-01	0.443000E 01	0.500000E 00
3	54	1	0.670000E 00	0.202000E-03	0.267000E-01	0.443000E 01	0.500000E 00

CARD	LAST	FIRST	UNRESOLVED RESONANCE PARAMETERS ***** D-AVG	G(NJ)	GMGM	GMF	SPIN
4	44	20	0.840000E 00	0.241000E-03	0.267000E-01	0.443000E 01	0.500000E 00

THERMAL DATA

MULT.STAND.CF253 ID#= 98253. NU= 4.150000 SIG-S = 0.97600E 01

GROUP	SIGMA-A	SIGMA-F
55	0.412500E 00	0.410000E 00
56	0.234200E 03	0.231700E 03
57	0.260300E 03	0.257500E 03
58	0.288500E 03	0.285300E 03
59	0.318600E 03	0.315200E 03
60	0.350500E 03	0.346700E 03
61	0.383800E 03	0.379600E 03
62	0.418000E 03	0.413500E 03
63	0.453000E 03	0.448100E 03
64	0.488800E 03	0.483000E 03
65	0.523300E 03	0.518300E 03
66	0.561500E 03	0.555600E 03
67	0.602700E 03	0.596200E 03
68	0.646500E 03	0.639500E 03
69	0.692300E 03	0.685400E 03
70	0.741300E 03	0.733300E 03
71	0.794300E 03	0.785700E 03
72	0.855400E 03	0.846200E 03
73	0.926700E 03	0.916700E 03
74	0.101100E 04	0.100000E 04
75	0.111200E 04	0.110000E 04
76	0.123500E 04	0.122200E 04
77	0.139000E 04	0.137500E 04
78	0.158900E 04	0.157100E 04
79	0.185300E 04	0.183300E 04
80	0.222400E 04	0.220000E 04
81	0.278000E 04	0.275000E 04
82	0.370700E 04	0.366700E 04
83	0.556000E 04	0.550000E 04
84	0.111200E 05	0.110000E 05

CALIFORNIUM-254

IZAS= 98254. MASS=251.8200 MULT.STANDARD.CF254

SMOOTH DATA

CARD	GROUP	SIGFO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	1	0.988000E 01	0.449000E-06	0.0	0.0	0.0	0.0
1	2	0.988000E 01	0.509000E-06	0.0	0.0	0.0	0.0
1	3	0.988000E 01	0.577000E-06	0.0	0.0	0.0	0.0
1	4	0.988000E 01	0.653000E-06	0.0	0.0	0.0	0.0
1	5	0.988000E 01	0.740000E-06	0.0	0.0	0.0	0.0
1	6	0.988000E 01	0.839000E-06	0.0	0.0	0.0	0.0
1	7	0.988000E 01	0.951000E-06	0.0	0.0	0.0	0.0
1	8	0.988000E 01	0.108000E-05	0.0	0.0	0.0	0.0
1	9	0.988000E 01	0.122000E-05	0.0	0.0	0.0	0.0
1	10	0.988000E 01	0.138000E-05	0.0	0.0	0.0	0.0
1	11	0.988000E 01	0.157000E-05	0.0	0.0	0.0	0.0
1	12	0.988000E 01	0.178000E-05	0.0	0.0	0.0	0.0
1	13	0.988000E 01	0.201000E-05	0.0	0.0	0.0	0.0
1	14	0.988000E 01	0.228000E-05	0.0	0.0	0.0	0.0
1	15	0.988000E 01	0.258000E-05	0.0	0.0	0.0	0.0
1	16	0.988000E 01	0.293000E-05	0.0	0.0	0.0	0.0
1	17	0.988000E 01	0.332000E-05	0.0	0.0	0.0	0.0
1	18	0.988000E 01	0.376000E-05	0.0	0.0	0.0	0.0
1	19	0.988000E 01	0.426000E-05	0.0	0.0	0.0	0.0
1	20	0.988000E 01	0.483000E-05	0.0	0.0	0.0	0.0
1	21	0.988000E 01	0.583000E-05	0.0	0.0	0.0	0.0
1	22	0.988000E 01	0.749000E-05	0.0	0.0	0.0	0.0
1	23	0.988000E 01	0.962000E-05	0.0	0.0	0.0	0.0
1	24	0.988000E 01	0.124000E-04	0.0	0.0	0.0	0.0
1	25	0.988000E 01	0.159000E-04	0.0	0.0	0.0	0.0
1	26	0.988000E 01	0.204000E-04	0.0	0.0	0.0	0.0
1	27	0.988000E 01	0.262000E-04	0.0	0.0	0.0	0.0
1	28	0.988000E 01	0.339000E-04	0.0	0.0	0.0	0.0
1	29	0.988000E 01	0.441000E-04	0.0	0.0	0.0	0.0
1	30	0.988000E 01	0.568000E-04	0.0	0.0	0.0	0.0
1	31	0.988000E 01	0.832000E-04	0.0	0.0	0.0	0.0
1	32	0.988000E 01	0.133000E-03	0.0	0.0	0.0	0.0
1	33	0.988000E 01	0.212000E-03	0.0	0.0	0.0	0.0
1	34	0.988000E 01	0.314000E-03	0.0	0.0	0.0	0.0
1	35	0.988000E 01	0.492000E-03	0.0	0.0	0.0	0.0

IZAS= 98254. MASS=251.8200 MULT.STANDARD.CF254

SMOOTH DATA

CARD	GROUP	SIGFO	SIGC	SIGIN	SIGF	SIGPI	SIGNU
1	36	0.988000E 01	0.810000E-03	0.0	0.0	0.0	0.0
1	37	0.988000E 01	0.138000E-02	0.0	0.0	0.0	0.0
1	38	0.988000E 01	0.242000E-02	0.0	0.0	0.0	0.0
1	39	0.988000E 01	0.430000E-02	0.0	0.0	0.0	0.0
1	40	0.988000E 01	0.771000E-02	0.0	0.0	0.0	0.0
1	41	0.988000E 01	0.138000E-01	0.0	0.0	0.0	0.0
1	42	0.988000E 01	0.248000E-01	0.0	0.0	0.0	0.0
1	43	0.988000E 01	0.441000E-01	0.0	0.0	0.0	0.0
1	44	0.988000E 01	0.778000E-01	0.0	0.0	0.0	0.0
1	45	0.988000E 01	0.136000E 00	0.0	0.0	0.0	0.0
1	46	0.988000E 01	0.233000E 00	0.0	0.0	0.0	0.0
1	47	0.988000E 01	0.392000E 00	0.0	0.0	0.0	0.0
1	48	0.988000E 01	0.646000E 00	0.0	0.0	0.0	0.0
1	49	0.988000E 01	0.104000E 01	0.0	0.0	0.0	0.0
1	50	0.988000E 01	0.163000E 01	0.0	0.0	0.0	0.0
1	51	0.988000E 01	0.249000E 01	0.0	0.0	0.0	0.0
1	52	0.988000E 01	0.367000E 01	0.0	0.0	0.0	0.0
1	53	0.988000E 01	0.543000E 01	0.0	0.0	0.0	0.0
1	54	0.988000E 01	0.792000E 01	0.0	0.0	0.0	0.0

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	32	1	0.190000E 03	0.318000E-01	0.178000E-01	0.0	0.100000E 01
3	33	1	0.156000E 03	0.288000E-01	0.178000E-01	0.0	0.100000E 01
3	34	1	0.122000E 03	0.255000E-01	0.178000E-01	0.0	0.100000E 01
3	35	1	0.879000E 02	0.217000E-01	0.178000E-01	0.0	0.100000E 01
3	37	1	0.540000E 02	0.170000E-01	0.178000E-01	0.0	0.100000E 01
3	41	1	0.202000E 02	0.104000E-01	0.178000E-01	0.0	0.100000E 01

***** UNRESOLVED RESONANCE PARAMETERS *****

CARD	LAST	FIRST	C-AVG	GNO	GMGM	GMF	SPIN
4	31	20	0.339000E 02	0.231000E-02	0.178000E-01	0.0	0.100000E 01

THERMAL DATA

MULT.STANC.CF254 ID#= 98254. NU= 0.0 SIG-S = C.588COE 01

GROUP	SIGMA-A	SIGMA-F
55	0.792000E 01	0.0
56	0.216600E 02	0.0
57	0.234100E 02	0.0
58	0.259400E 02	0.0
59	0.286500E 02	C.0
60	0.315200E 02	0.0
61	0.345100E 02	0.0
62	0.315900E 02	0.0
63	0.407300E 02	0.0
64	0.439100E 02	0.0
65	0.471100E 02	0.0
66	0.505000E 02	0.0
67	0.542000E 02	C.0
68	0.581400E 02	0.0
69	0.623000E 02	0.0
70	0.666700E 02	C.0
71	0.714300E 02	0.0
72	0.769200E 02	0.0
73	0.833300E 02	0.0
74	0.909100E 02	0.0
75	0.100000E 03	0.0
76	0.111100E 03	0.0
77	0.125000E 03	0.0
78	0.142900E 03	C.0
79	0.166700E 03	0.0
80	C.200000E 03	0.0
81	0.250000E 03	0.0
82	0.333300E 03	0.0
83	0.500000E 03	0.0
84	0.100000E 04	0.0

IZAS= 99253. MASS=250.9100 MULT.STANDARD.ES253

SMOOTH DATA

CARD	GROUP	SIGPO	SIGC	SIGIN	SIGF	SIGP1	SIGNU
1	1	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	2	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	3	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	4	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	5	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	6	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	7	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	8	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	9	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	10	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	11	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	12	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	13	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	14	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	15	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	16	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	17	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	18	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	19	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	20	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	21	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	22	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	23	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	24	0.977000E 01	0.146000E-02	0.0	0.0	0.0	0.0
1	25	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	26	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	27	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	28	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	29	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	30	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	31	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	32	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	33	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	34	0.976000E 01	0.0	0.0	0.0	0.0	0.0
1	35	0.981000E 01	0.136000E-03	0.0	0.0	0.0	0.0

IZAS= 94253. MASS=250.9100 MULT.STANDARD.ES253

SMOOTH DATA

CARD	GROUP	SIGPO	SIGG	SIGIN	SIGF	SIGPI	SIGNU
1	36	0.982000E 01	0.253000E-03	0.0	0.0	0.0	0.0
1	37	0.983000E 01	0.464000E-03	0.0	0.0	0.0	0.0
1	38	0.985000E 01	0.849000E-03	0.0	0.0	0.0	0.0
1	39	0.988000E 01	0.155000E-02	0.0	0.0	0.0	0.0
1	40	0.991000E 01	0.279000E-02	0.0	0.0	0.0	0.0
1	41	0.995000E 01	0.500000E-02	0.0	0.0	0.0	0.0
1	42	0.100000E 02	0.886000E-02	0.0	0.0	0.0	0.0
1	43	0.101000E 02	0.155000E-01	0.0	0.0	0.0	0.0
1	44	0.101000E 02	0.267000E-01	0.0	0.0	0.0	0.0
1	45	0.102000E 02	0.451000E-01	0.0	0.0	0.0	0.0
1	46	0.103000E 02	0.747000E-01	0.0	0.0	0.0	0.0
1	47	0.104000E 02	0.121000E 00	0.0	0.0	0.0	0.0
1	48	0.105000E 02	0.190000E 00	0.0	0.0	0.0	0.0
1	49	0.107000E 02	0.290000E 00	0.0	0.0	0.0	0.0
1	50	0.108000E 02	0.483000E 01	0.0	0.0	0.0	0.0
1	51	0.110000E 02	0.852000E 01	0.0	0.0	0.0	0.0
1	52	0.111000E 02	0.195000E 02	0.0	0.0	0.0	0.0
1	53	0.112000E 02	0.717000E 02	0.0	0.0	0.0	0.0
1	54	0.113000E 02	0.205000E 03	0.0	0.0	0.0	0.0

RESOLVED RESONANCE DATA

CARD	GROUP	SEQ #	E RES	GMN	GMGM	GMF	SPIN
3	35	1	0.974600E 02	0.135000E-01	0.200000E-01	0.0	0.500000E 00
3	35	2	0.937400E 02	0.133000E-01	0.200000E-01	0.0	0.500000E 00
3	35	3	0.900100E 02	0.130000E-01	0.200000E-01	0.0	0.500000E 00
3	35	4	0.862800E 02	0.127000E-01	0.200000E-01	0.0	0.500000E 00
3	35	5	0.825600E 02	0.125000E-01	0.200000E-01	0.0	0.500000E 00
3	36	1	0.788300E 02	0.122000E-01	0.200000E-01	0.0	0.500000E 00
3	36	2	0.751100E 02	0.119000E-01	0.200000E-01	0.0	0.500000E 00
3	36	3	0.713800E 02	0.116000E-01	0.200000E-01	0.0	0.500000E 00
3	36	4	0.676500E 02	0.113000E-01	0.200000E-01	0.0	0.500000E 00
3	36	5	0.639300E 02	0.110000E-01	0.200000E-01	0.0	0.500000E 00
3	37	1	0.602000E 02	0.106000E-01	0.200000E-01	0.0	0.500000E 00
3	37	2	0.564800E 02	0.103000E-01	0.200000E-01	0.0	0.500000E 00
3	37	3	0.527500E 02	0.996000E-02	0.200000E-01	0.0	0.500000E 00
3	37	4	0.490200E 02	0.960000E-02	0.200000E-01	0.0	0.500000E 00
3	38	1	0.453000E 02	0.923000E-02	0.200000E-01	0.0	0.500000E 00
3	38	2	0.415700E 02	0.884000E-02	0.200000E-01	0.0	0.500000E 00
3	38	3	0.378500E 02	0.843000E-02	0.200000E-01	0.0	0.500000E 00
3	39	1	0.341200E 02	0.801000E-02	0.200000E-01	0.0	0.500000E 00
3	39	2	0.303900E 02	0.756000E-02	0.200000E-01	0.0	0.500000E 00
3	40	1	0.266700E 02	0.708600E-02	0.200000E-01	0.0	0.500000E 00
3	40	2	0.229400E 02	0.657000E-02	0.200000E-01	0.0	0.500000E 00
3	41	1	0.192200E 02	0.601000E-02	0.200000E-01	0.0	0.500000E 00
3	42	1	0.154900E 02	0.540000E-02	0.200000E-01	0.0	0.500000E 00
3	43	1	0.117600E 02	0.470000E-02	0.200000E-01	0.0	0.500000E 00
3	45	1	0.804000E 01	0.389000E-02	0.200000E-01	0.0	0.500000E 00
3	47	1	0.431000E 01	0.285000E-02	0.200000E-01	0.0	0.500000E 00

UNRESOLVED RESONANCE PARAMETERS

CARD	LAST	FIRST	D-AVG	GMNJ	GMGM	GMF	SPIN
4	34	24	0.372600E 01	0.137000E-02	0.200000E-01	0.0	0.500000E 00

THERMAL DATA

4UL T. STANC. ES253. ID# = 99253. NU= 0.0 SIG-S = C.S7600E 01

GROUP	SIGMA-A	SIGMA-F
55	0.115000E J4	0.0
56	0.255200E 05	0.0
57	0.102400E J4	0.0
58	0.350400E 03	0.0
59	0.218400E 03	0.0
60	0.169500E J3	0.0
61	0.147100E 03	0.0
62	0.136100E J3	0.0
63	0.130900E J3	0.0
64	0.129000E 03	0.0
65	0.129200E J3	0.0
66	0.130900E 03	0.0
67	0.133900E J3	0.0
68	0.137700E J3	0.0
69	0.142900E J3	0.0
70	0.148600E J3	0.0
71	0.155400E J3	0.0
72	0.163600E 03	0.0
73	0.173700E J3	0.0
74	0.186000E 03	0.0
75	0.201200E J3	0.0
76	0.220200E J3	0.0
77	0.244500E 03	0.0
78	0.276200E J3	0.0
79	0.319000E J3	0.0
80	0.379600E 03	0.0
81	0.471300E J3	0.0
82	0.625100E 03	0.0
83	0.934100E 03	0.0
84	0.186400E J4	0.0

IHC90JI EXECUTION TERMINATING DUE TO ERROR COUNT FOR ERROR NUMBER 217

I 402171 FIOCS - END OF DATA SET ON UNIT 5

TRACEBACK ROUTINE	CALLED FROM ISN	REG. 14	REG. 15	REG. 0	REG. 1
IBCOM		0022FE40	00225218	0022F500	00048988
MAIN		4022C016	0022F850	00000000	00220380

ENTRY POINT= 0022F850

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