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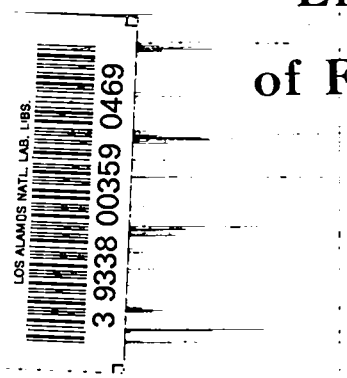
Elastic and Inelastic Scattering of Fast Neutrons from ^{6}Li and ^{7}Li



UNITED STATES
ATOMIC ENERGY COMMISSION
CONTRACT W-7405-ENG. 36

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Printed in the United States of America. Available from Clearinghouse for Federal Scientific and Technical Information National Bureau of Standards, U. S. Department of Commerce Springfield, Virginia 22151

Price: Printed Copy $3.00; Microfiche $0.65

LA-3765
UC-34, PHYSICS
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Report written: June 1967

Report distributed: November 21, 1967

Elastic and Inelastic Scattering of Fast Neutrons from ^{6}Li and ^{7}Li

by

John C. Hopkins
D. M. Drake
H. Condé

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ELASTIC AND INELASTIC SCATTERING OF FAST NEUTRONS FROM ^{6}Li AND ^{7}Li

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John C. Hopkins, D. M. Drake, and H. Condé

ABSTRACT

The differential elastic and inelastic neutron scattering cross sections of ^{6}Li and ^{7}Li have been measured at incident neutron energies of 4.83, 5.74, and 7.5 MeV for ^{6}Li and at energies of 3.35, 4.83, 5.74, and 75. MeV for ^{7}Li. Scattered neutrons and gamma rays were observed independently. The cross sections were measured with a neutron time-of-flight spectrometer relative to the well-known cross section for neutron scattering from hydrogen. The gamma-ray spectra were measured with a NaI(Tl) spectrometer using time-of-flight techniques to eliminate the neutron background. The 2.184-MeV state in ^{6}Li was excited by neutron inelastic scattering. The 3.56-MeV state in ^{6}Li was not observed in either the neutron or gamma-ray studies. Scattered neutrons from the 0.478-MeV state in ^{7}Li were resolved at both 3.35 and 4.83 MeV. Scattered neutrons from the 4.63-MeV state in ^{7}Li were observed at incident neutron energies of 5.74 and 7.5 MeV. A continuum of neutrons due to three-particle breakup was observed for both ^{6}Li and ^{7}Li at 4.83, 5.74, and 7.5 MeV.

1. INTRODUCTION

Differential elastic and inelastic neutron scattering cross sections of ^{6}Li and ^{7}Li have been measured using the Los Alamos Scientific Laboratory high resolution, time-of-flight fast-neutron and gamma-ray spectrometers. The differential cross sections have been measured with incident neutron energies of 4.83, 5.74, and 7.5 MeV for ^{6}Li and 3.35, 4.83, 5.74, and 7.5 MeV for ^{7}Li.

The elastic, and a portion of the inelastic, scattering cross sections have been measured previously.[1-5] Discrepancies among the various results,[4] the need for more data, and concern with the spectrum of neutrons from the three-body breakup have created a further interest in these measurements.

2. EXPERIMENTAL PROCEDURE

The Los Alamos Scientific Laboratory time-of-flight facility used a 2-MHz chopped beam from the 8-MV Van de Graaff accelerator. A Mobley magnet system was employed to compress the 10-nsec chopped beam to less than 1 nsec. The $T(p,n)^{3}He$ source reaction was used for neutrons of less than 5-MeV energy, and the $D(d,n)^{3}He$ reaction for those above 5 MeV. Gas targets, 3-cm long, with 5.69-mg/cm^{2} or 10.45-mg/cm^{2} molybdenum entrance windows were used. The gas pressures were 3 atm. The neutron energy spreads were 62, 47, 230, and 170 keV for incident neutron energies of 3.35, 4.83, 5.74, and 7.5 MeV, respectively. The convergence of the charged particle beam, due to the sweeping action of the Mobley buncher, was ±2.5°.

The scattering samples were right-circular cylinders placed 8.7 cm from the center of the gas target at zero degrees to the incident beam direction. The lithium samples were separated isotopes (purity >99%), 2-cm diam by 2.54-cm long. The samples were canned in thin aluminum containers. Empty aluminum containers were used for background measurements. The neutron cross sections were measured relative to the $^{1}H(n,n)$ scattering cross section using a cylindrical sample of polyethylene, 0.51-cm diam by 1.9-cm long.

Scattered neutrons were detected in a well-shielded plastic scintillator, 12.7-cm diam by 2.5-cm thick. The flight path was 2.3 m. A single Amperex 58 AVP photomultiplier tube viewed the NE102A plastic scintillator.

Cyclic series of four separate runs--lithium sample, empty-can background, polyethylene, and background with no sample or can--were made at the forward angles. The runs with polyethylene were not made at backward angles. All runs were normalized to equal numbers of target neutrons, as recorded by a monitor counter.

The gamma-ray spectrometer and its use have been described by Condé et al.[6]

3. DATA ANALYSIS

Typical neutron time spectra with backgrounds subtracted are shown in Fig. 1 for neutrons scattered by ^{7}Li, ^{6}Li, and polyethylene (CH_2), all at 7.5 MeV, at a laboratory angle of 55°. As usual with time spectra, time increases to the left and, consequently, energy increases to the right. The data were processed with a computer code to produce energy spectra, examples of which are shown in Fig. 2 for ^{6}Li at an incident neutron energy of 4.83 MeV. (Other energy spectra are given in tabular and graphical form in the Appendices.) The elastic peaks, however, have been omitted. The appropriate extrapolation has been made to zero energy from the cut-off energy of approximately 400 keV. The cut-off energy is higher than the detector bias, which is approximately 250 keV, because the efficiency is very small and uncertain in the region immediately above the bias. The cut-off energies were selected after the data were obtained and include the significant data points of lowest energy.

By knowing the number of atoms in the samples, the $^{1}H(n,n)$ scattering cross section, and the number of neutrons scattered into each time or energy interval, we could determine the cross sections. The relative sensitivity of the neutron detector for neutrons of various energies was determined by mea-

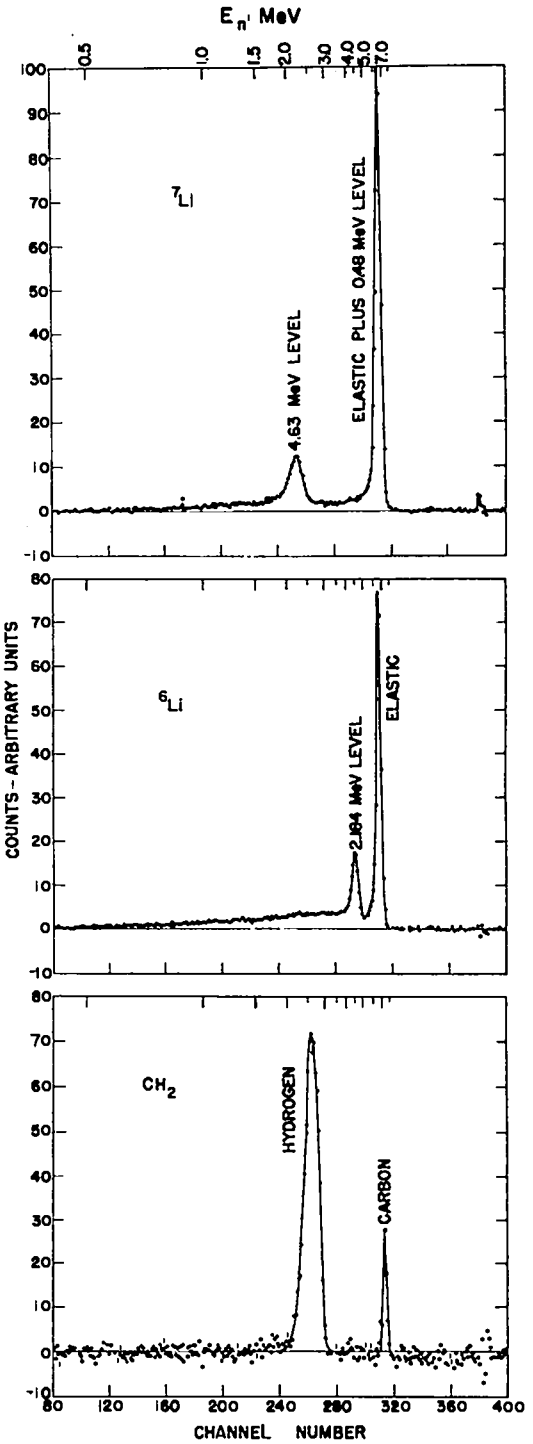

Fig. 1. Typical neutron time spectra with background subtracted for ^{7}Li, ^{6}Li, and CH_2.

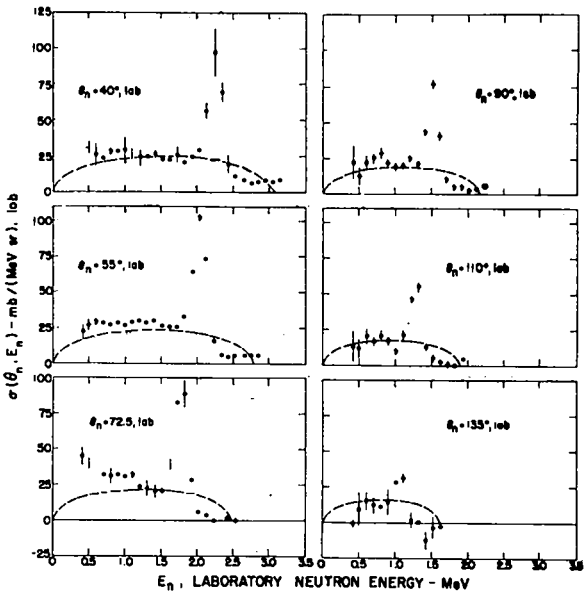

Fig. 2. Energy spectra of neutrons inelastically scattered from ^{6}Li at an incident neutron energy of 4.83 MeV. The dashed curves represent the distributions obtained from a three-body phase space calculation normalized to the total $^{6}Li(n,dn)^{4}He$ cross section obtained in the present experiment.

suring the $^{1}H(n,n)$ differential elastic scattering cross section and assuming isotropy in the center-of-mass system, and by measuring the $T(p,n)^{3}He$ differential cross section and comparing these measurements with those of Wilson et al.,[7] Perry et al.,[8] and Goldberg et al.[9] The relative sensitivity is shown in Fig. 3.

4. CORRECTIONS

4.1 Corrections for the Asymmetry of the Elastic Peak

Peaks in neutron time spectra are generally asymmetric, with a tail on the low energy side. The sources of these tails are discussed in some detail by Batchelor and Towle.[1] For this experiment, measurements were made of beam purity and of the effects of shadow bar placement and other nearby masses. The ^{6}Li and ^{7}Li spectra were plotted on semilog paper, and the elastic peaks were normalized and superimposed visually. In this way the ^{6}Li peak shape was used to extrapolate the ^{7}Li elastic tail under the first excited state at 0.478 MeV. The separation of the elastic peak from the first excited state peak in ^{6}Li is large and did not require this correction.

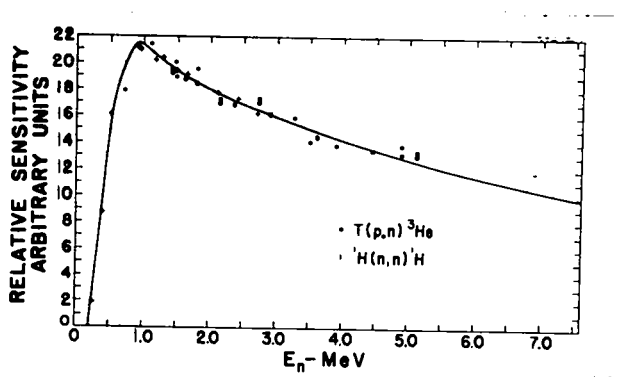

Fig. 3. The relative efficiency or sensitivity of the neutron detector as a function of neutron energy. The values used were taken from the smooth curve through the data.

4.2 Flux Attenuation and Multiple Scattering

Corrections were made to both the polyethylene and lithium data for the effects of multiple scattering and attenuation. The recipe developed by Cranberg and Levin[10] was used to check the more detailed Monte Carlo calculations made with the Aldermaston Maggie code.[11] Since only relative cross sections were measured, the lithium and polyethylene corrections tended to cancel each other. The samples were chosen to minimize the correction, and, for elastic scattering, the average correction factor was 1.04. For elastic scattering the agreement between the simple recipe and the Monte Carlo calculation was excellent.

4.3 Extrapolation Below the Neutron Bias

Figure 2 shows the energy spectra of inelastically scattered neutrons for ^{6}Li at an incident neutron energy of 4.83 MeV. The standard deviations are based upon the consistency of the data. These errors are larger than the statistical uncertainties. The continuum data have been corrected for multiple scattering and attenuation. In this figure the peaks arising from inelastic scattering to the 2.18-MeV level and the elastic scattering tails have not been corrected. These correactions were applied separately. The neutrons appearing above the maximum energy for three-body breakup have experienced multiple elastic scatterings. This contribution was subtracted in the data reduction procedure. The experimental cross sections have been extrapolated from the cut-off energy, approximately 400 keV, to zero energy.

A production cross section for continuum neutrons, integrated over energy and angle, of 460 ± 40 mb was obtained. The dashed curves are the distributions obtained from a three-body phase space calculation[12] normalized to the experimental value of the integrated $^{6}Li(n,dn)^{4}He$ cross section of 460 mb. The fact that there are too few high energy neutrons indicates that a substantial fraction of the continuum may be attributable to breakup in two stages, e.g., $^{6}Li(n,d)^{5}He$ with subsequent ^{5}He breakup into $n + {}^{4}He$. The extrapolations below the bias are based upon estimates of what the spectrum should be. A phase space calculation yields a spectrum going to zero cross section at zero energy, whereas a spectrum resulting from two-stage breakup could have a maximum at low energy.[1] For the present experiment the spectra were arbitrarily extrapolated to a zero energy value of about half the value at 500 keV. An uncertainty of ±38% was assigned to the cross sections below the bias of the spectra obtained at an incident energy of 4.83 MeV. At all higher energies an uncertainty of ±50% was assigned to the cross sections obtained from integration of the extrapolated curves.

5. RESULTS AND DISCUSSION

Tables I and II present the cross sections, integrated over angle, for the observed reactions. Complete tabulations of the differential cross sections and energy spectra are contained in the Appendices.

5.1 ^{6}Li

Neutrons corresponding to elastic scattering, inelastic scattering to the 2.18-MeV level, and to a continuum are observed. The cross section for the excitation of the 3.56-MeV level is less than 5 mb. No de-excitation gamma radiation is observed. The upper limits for gamma-ray production cross sections for gamma rays of 2.18 and 3.56 MeV are 0.2 and 0.4 mb/sr, respectively, at 90° with an incident neutron energy of 4.83 MeV. The 2.18-MeV state decays by breakup into an alpha particle and a deuteron. Figure 4 shows the differential elastic scattering cross sections in the center-of-mass system. The data have been corrected for multiple scattering and attenuation. The minimum zero-degree elastic scattering cross section is given by Wick's limit, $\sigma_w = \frac{k^2\sigma_T^2}{(4\pi)^2}$, in terms of the total cross section and the neutron wave number in the center-of-mass system. These lower limits are shown in Fig. 4.

Figure 5 shows the total cross section for ^{6}Li versus incident neutron energy. The curve represents the recent data of Foster and Glasgow at the Battelle Northwest Laboratory.[14] The data points

TABLE I. FAST NEUTRON CROSS SECTIONS (IN mb) FOR ^{6}Li

	4.83 MeV	5.74 MeV	7.5 MeV
1 Elastic	1350 ± 60	1280 ± 51	1190 ± 48
2 Inelastic to 2.18-MeV level	210 ± 13	170 ± 17	150 ± 15
3 Inelastic to continuum	460 ± 40	480 ± 48	570 ± 57
Total $^{6}Li(n,nd)^{4}He$ Sum of 2 and 3	670 ± 42	650 ± 51	720 ± 59
4 $^{6}Li(n,p)^{6}He$ (Ref. 4,13)	18 ± 2	18 ± 2	15 ± 2
5 $^{6}Li(n,\alpha)T$ (Ref. 4,13)	86 ± 5	71 ± 5	53 ± 5
Total cross section Sum of 1, 2, 3, 4, and 5	2120 ± 70	2020 ± 72	1980 ± 76
Total measured (Ref. 14)	2086 ± 25	2040 ± 30	1893 ± 32

TABLE II. FAST NEUTRON CROSS SECTIONS (IN mb) FOR ^{7}Li

	3.35 MeV	4.83 MeV	5.74 MeV	7.5 MeV
1 Elastic	1860 ± 52	2230 ± 89	1770 ± 71	1520 ± 61
2 Inelastic to 0.48-MeV level	240 ± 20	180 ± 14		
3 Inelastic to 4.63-MeV level	———	———	110 ± 17	120 ± 12
4 Inelastic to continuum	———	100 ± 22	220 ± 34	310 ± 37
Total $^{7}Li(n,Tn)^{4}He$ Sum of 3 and 4	———	100 ± 22	330 ± 38	430 ± 39
Total cross section	2100 ± 56	2510 ± 93	2100 ± 81	1950 ± 72
Total measured (Ref. 14)	2066 ± 28	2425 ± 30	2200 ± 34	1840 ± 30

represent the sums of neutron and charged-particle partial cross sections. The solid circles indicate the values derived from the present experiment; the square, a 10-MeV datum of Cookson et al. at Aldermaston;[5] and the diamonds, the data of Batchelor and Towle at Aldermaston.[1] These three groups measured the neutron partial cross section. Figure 6 shows the integrated elastic scattering cross section as a function of incident neutron energy. The absolute standard deviations are shown if they are larger than the spots. A straight line yields a satisfactory fit to the data.

Figure 7 shows the $^{6}Li(n,dn)^{4}He$ cross section as a function of incident neutron energy. The curve is the total cross section minus the elastic scattering cross section as obtained from the curves of Figs. 4 and 5. The results of Batchelor and Towle,[1] Rosen and Stewart,[2] Cookson et al.,[5] and of the present experiment are illustrated with diamonds, open circles, a square, and solid circles, respectively. If the $^{6}Li(n,2n)$ cross section is negligible, as has been assumed,[4] then there is a systematic discrepancy between the Rosen and Stewart results for ^{6}Li and all other results.[4] The discrepancy does not appear to be a multiplicative factor as first suggested by Pendlebury.[4] One source of the disparity in the results may be neutron production by charged-particle reactions. For example, all neutrons produced by the reactions $^{6}Li(n,dn)^{4}He$ followed by $^{6}Li(d,n)^{7}Be$ would be attributed to the $^{6}Li(n,dn)^{4}He$ reaction in experiments such as this one that detect neutrons.

5.2 ^{7}Li

Neutrons corresponding to elastic scattering and inelastic scattering to the first excited state at 0.478 MeV, to the second excited state at 4.63 MeV, and to a continuum were observed. The first excited state at 0.478 MeV decays only by gamma-ray emission. This transition is from a 1/2-state to the 3/2-ground state, and, therefore, the gamma-ray angular distribution is isotropic. The gamma-ray production cross sections are 230 ± 20 mb and 320 ± 24 mb for incident neutron energies of 5.74 and 7.5 MeV, respectively. These values disagree with the only other measurements of these cross sections.[15] The gamma-ray production cross sections were not measured for incident neutron energies of 3.35 or 4.83 MeV, but they are probably equivalent to the neutron excitation cross sections as reported in Table II. No other gamma radiation was observed. All inelastic scattering, except to the first excited state, results in three-body or sequential breakup of ^{7}Li into a triton and an alpha particle.

Figure 8 shows the differential elastic cross sections in the center-of-mass system. The data have been corrected for multiple scattering and

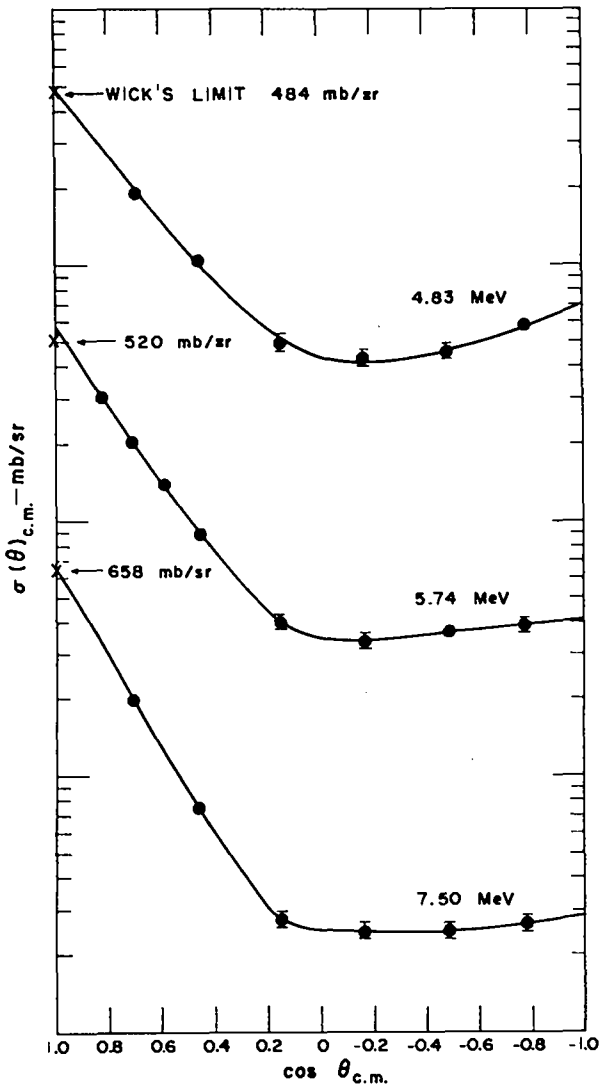

Fig. 4. The differential neutron elastic scattering cross sections for ^{6}Li in the center-of-mass system. The curves are visual fits to the data. Note the discontinuities in the vertical scale.

attenuation. The curves are visual fits to the data. The 5.74- and 7.5-MeV data include the scattering to the first excited state at 0.478 MeV. The minimum zero-degree elastic scattering cross sections, Wick's Limits, are also shown.

Figure 9 shows the total cross section for ^{7}Li. The line represents the data of Foster and Glasgow;[14] the solid circles, the present measurements; the diamonds, the data of Batchelor and Towle;[1] and the square, a 10-MeV datum by Cookson et al.[5]

Figure 10 shows the cross sections for elastic

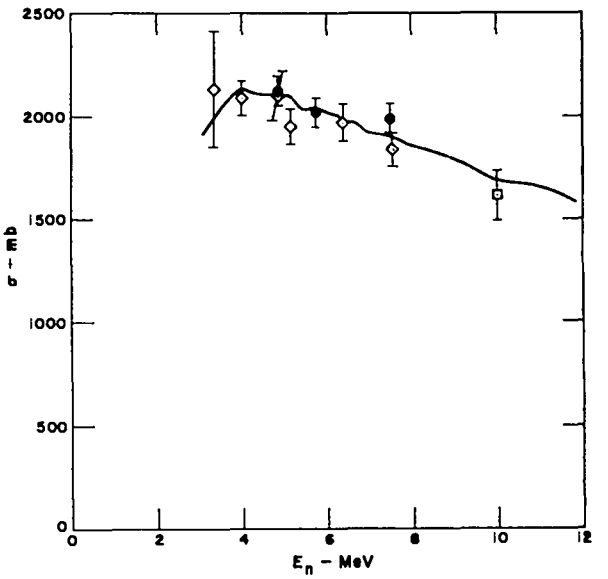

Fig. 5. Total cross sections for ^{6}Li versus incident neutron energy.

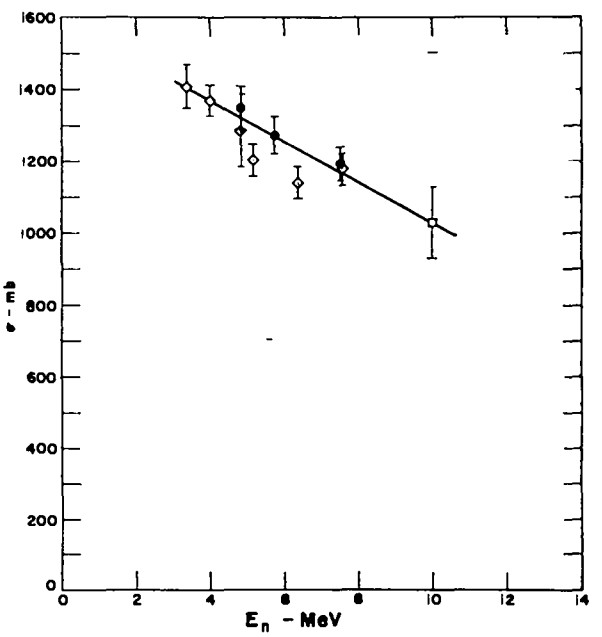

Fig. 6. The integrated elastic scattering cross section for ^{6}Li as a function of incident neutron energy.

scattering plus scattering to the first excited state as a function of incident neutron energy. The curve is a fit to the data, consistent with the total and inelastic scattering cross sections. The solid circles represent the results of the present experiment. The data of Batchelor and

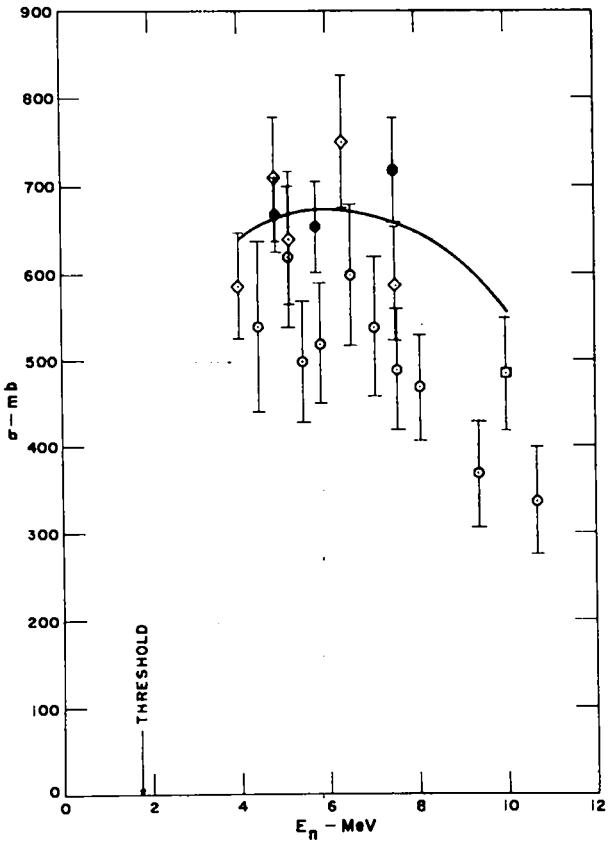

Fig. 7. The $^{6}Li(n,dn)^{4}He$ cross section as a function of incident neutron energy.

Towle[1] and of Cookson et al.[5] are shown as diamonds and a square, respectively.

Figure 11 shows the $^{7}Li(n,tn)^{4}He$ cross section as a function of incident neutron energy. The curve is the total cross section minus the cross sections for elastic scattering and inelastic scattering to the 0.478-MeV state as determined from the curves of Figs. 9 and 10. The solid circles display the data from the present experiment. The results of Cookson et al.,[5] Batchelor et al.,[1] Rosen et al.,[2] Brown et al.,[16] and Wyman et al.[17] are shown as a square, diamonds, open circles, triangles, and inverted triangles, respectively.

The data of the present experiment are consistent with the total cross sections obtained by Foster and Glasgow.[14] Some degree of evaluation was done in that the curves drawn on the graphs of the excitation functions for the partial cross sections were chosen to be best fits to the available

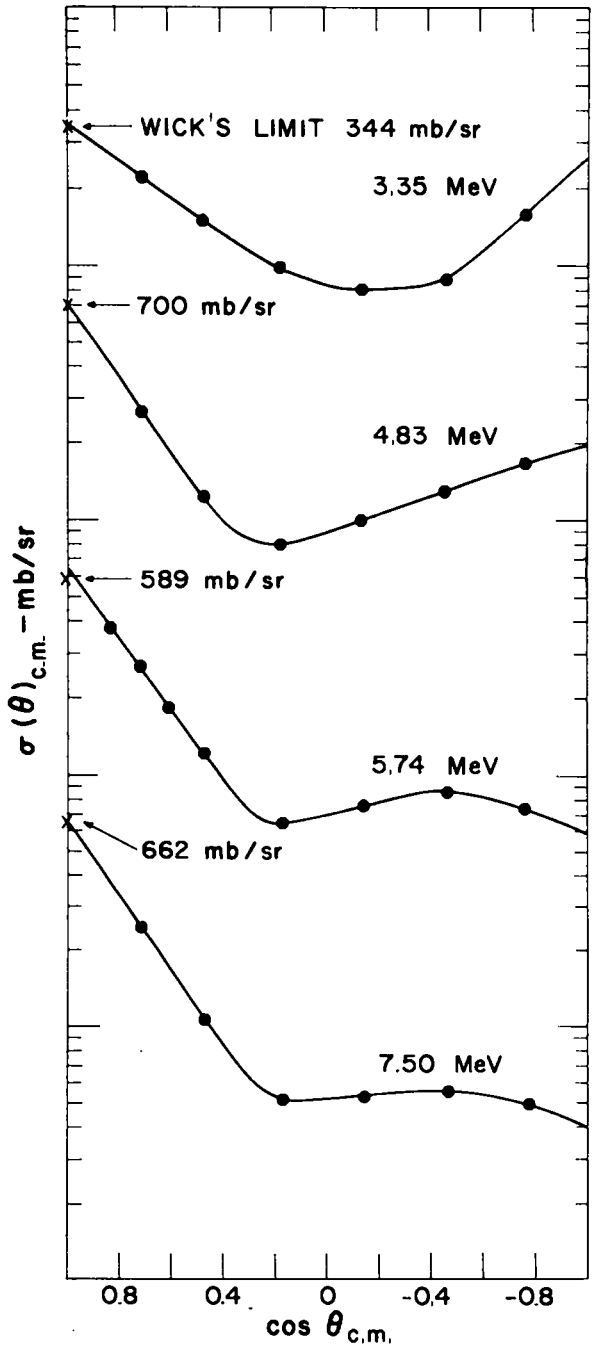

Fig. 8. The differential neutron elastic scattering cross sections for ^{7}Li in the center-of-mass system. The 5.74- and 7.5-MeV data include the scattering to the first excited state at 0.478 MeV.

experimental data which were consistent with the total cross section. These excitation functions are given in Tables III and IV for ^{6}Li and ^{7}Li, respectively.

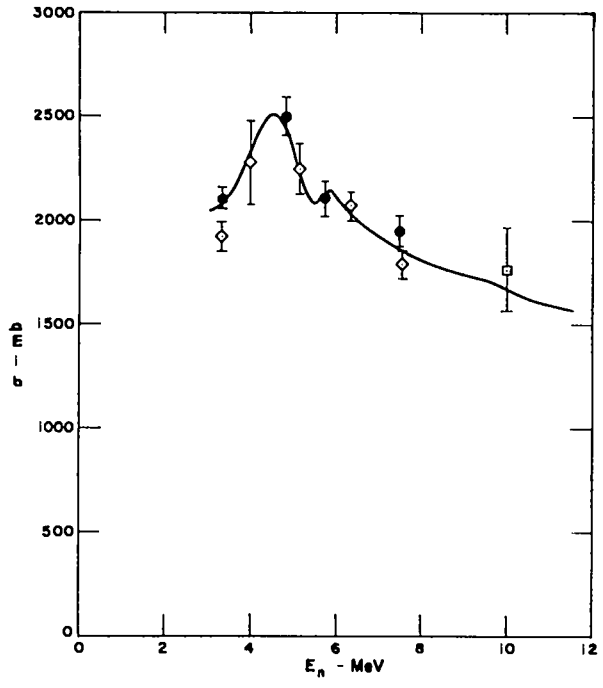

Fig. 9. Total cross sections for ^{7}Li versus incident neutron energy.

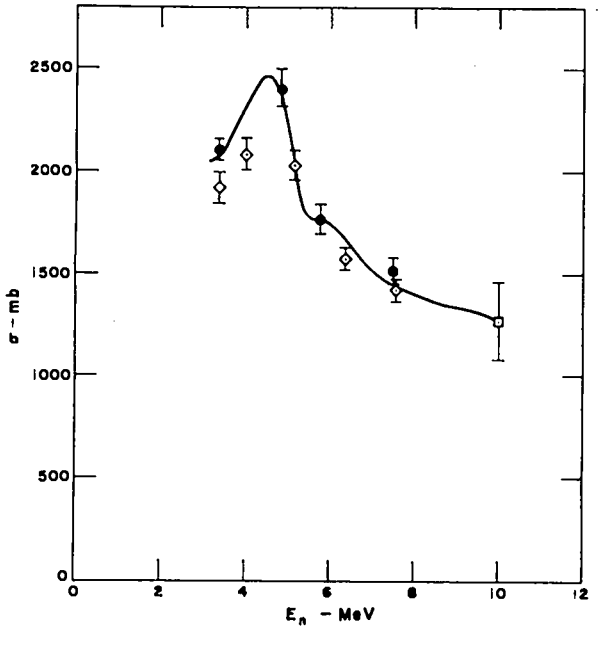

Fig. 10. The ^{7}Li cross sections for elastic scattering plus scattering to the first excited state, as a function of incident neutron energy.

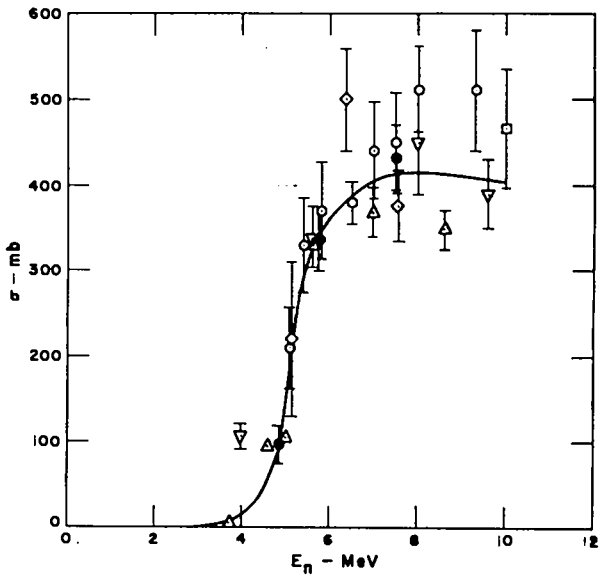

Fig. 11. The ^{7}Li(n,tn)^{4}He cross section as a function of the incident neutron energy.

ACKNOWLEDGMENTS

The authors acknowledge the assistance of Doris C. Jackson, R. K. Lam, J. S. Levin, J. T. Martin, and J. D. Seagrave, who made substantial contributions to this experiment. H. Condé acknowledges the Research Institute of National Defense, Sweden.

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TABLE III. ^{6}Li EVALUATED CROSS SECTIONS (mb)

E_n, MeV	σ_{Total}	$\sigma_{Elastic}$	$\sigma_{n,p}$	$\sigma_{n,\alpha}$	$\sigma_{n,2n}+\sigma_{n,n'\gamma}$ [a]	$\sigma_{n,dn}$ [b]
4.0	2130	1369	15	108	0	638
4.5	2108	1340	18	95	0	655
5.0	2100	1310	19	84	2	685
5.5	2025	1281	19	75	2	648
6.0	2020	1252	18	68	2	680
6.5	1970	1225	17	61	3	664
7.0	1920	1198	16	56	4	646
7.5	1900	1164	15	52	9	660
8.0	1850	1140	14	48	13	635
8.5	1825	1111	13	45	21	635
9.0	1785	1082	13	42	29	619
9.5	1730	1055	12	40	35	588
10.0	1680	1030	11	38	44	557

$\sigma_{n,dn} = \sigma_{Total} - \sigma_{Elastic} - \sigma_{np} - \sigma_{n\alpha} - \sigma_{n,2n} - \sigma_{n,n'\gamma}$

σ_T From Reference 14.

a) These values were obtained from Reference 4.

b) The fluctuations in the $\sigma_{n,dn}$ reflect the fluctuations in σ_{Total}. The curve in Fig. 7 is smoothed, with the assumption that these fluctuations are not significant.

TABLE IV. ^{7}Li EVALUATED CROSS SECTIONS (mb)

E_n, MeV	σ_{Total}	$\sigma_{Elastic} + \sigma_{0.48\text{-MeV level}}$	$\sigma_{n,tn}$
3.0	2040	2040	0
3.5	2104	2104	4
4.0	2342	2327	15
4.5	2516	2471	45
5.0	2340	2200	140
5.5	2080	1770	310
6.0	2110	1750	360
6.5	2012	1627	385
7.0	1923	1518	405
7.5	1862	1450	412
8.0	1816	1401	415
8.5	1773	1359	414
9.0	1740	1328	412
9.5	1720	1312	408
10.0	1665	1261	404

$\sigma_{n,tn} = \sigma_{Total} - \sigma_{Elastic} - \sigma_{0.48\text{-MeV level}}$

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APPENDIX A

CROSS-SECTION DATA

The cross-section data are given for each isotope of Li at each energy. Cross sections for discrete peaks are given in the center-of-mass system, while cross sections for the continuum neutrons are given in the laboratory system.

The energy spectra are intended only to show the continuum neutrons. The cross sections for the discrete peaks given in the energy spectra have not been corrected for multiple scattering or attenuation. The cross sections for the discrete peaks are given separately and have been corrected properly. The standard deviations for the energy spectra were obtained from the consistency of the data for an incident neutron energy of 4.83 MeV. Statistical errors were used for the energy spectra taken with incident neutron energies of 5.74 and 7.5 MeV.

TABLE A1. MAXIMUM ENERGY OF CONTINUUM NEUTRONS AS A FUNCTION OF LABORATORY ANGLE AND INCIDENT NEUTRON ENERGY

θ_{LAB} Degrees	^{6}Li(Q = -1.47 MeV) Incident Energy in MeV			^{7}Li(Q = -2.57 MeV) Incident Energy in MeV		
	4.83	5.74	7.5	4.83	5.74	7.5
30	3.12	4.03	5.72	2.05	2.95	4.65
39	3.01	3.89	5.52	1.97	2.84	4.50
40	3.00	3.87	5.50	1.96	2.83	4.48
47	2.90	3.74	5.32	1.89	2.73	4.35
55	2.77	3.58	5.11	1.79	2.61	4.17
72.5	2.48	3.20	4.59	1.58	2.33	3.77
90	2.18	2.83	4.09	1.37	2.05	3.37
110	1.87	2.46	3.58	1.17	1.78	2.96
134	1.61	2.13	3.12	0.99	1.53	2.60
135	1.60	2.12	3.11	0.98	1.53	2.59

LITHIUM 7 ELASTIC SCATTERING 3.35 MEV LASL 66
ALL CROSS SECTIONS IN MILLIBARNS PER STERADIAN OR MILLIBARNS TOTAL
VISUAL FIT CENTER OF MASS SYSTEM

COSINE OMEGA	SIGMA OMEGA
+1.0	356.0
+0.9	303.0
+0.8	259.0
+0.7	220.0
+0.6	185.0
+0.5	156.0
+0.4	133.0
+0.3	115.0
+0.2	101.0
+0.1	91.0
+0.0	83.9
-0.1	80.3
-0.2	79.4
-0.3	80.2
-0.4	83.4
-0.5	92.9
-0.6	110.3
-0.7	133.0
-0.8	163.0
-0.9	202.0
-1.0	252.0

ELASTIC SCATTERING DATA CENTER OF MASS LI 7 3.35MEV LASL 66

COS OMEGA C.M.	SIGMA OMEGA C.M.	STANDARD DEVIATIONS RELATIVE	ABSOLUTE
+0.703	219.0	4.5	9.0
+0.473	150.0	3.0	6.0
+0.167	98.0	2.5	5.0
-0.144	80	2.0	4.0
-0.466	87	2.0	4.0
-0.775	154	3.5	7.0

INTEGRATED CROSS SECTION 1863 PLUS OR MINUS 52 MILLIBARNS

LITHIUM 7 INELASTIC SCATTERING TO 0.478MEV LEVEL 3.35MEV LASL 66

COS OMEGA C.M.	SIGMA OMEGA C.M.	STANDARD DEVIATIONS RELATIVE	ABSOLUTE
+0.697	22.0	0.5	1.7
+0.463	17.2	0.4	1.3
+0.155	14.7	1.0	1.1
-0.156	16.8	0.4	1.3
-0.477	20.0	0.5	1.5
-0.782	21.5	0.4	1.6

INTEGRATED CROSS SECTION 242 PLUS OR MINUS 20 MILLIBARNS
VISUAL FIT CENTER OF MASS SYSTEM

COS OMEGA	SIGMA OMEGA
+1.0	23.2
+0.9	23.0
+0.8	22.5
+0.7	21.5
+0.6	20.0
+0.5	18.5
+0.4	17.0
+0.3	16.0
+0.2	15.5
+0.1	15.6
+0.0	16.0
-0.1	16.8
-0.2	17.6
-0.3	18.4
-0.4	19.2
-0.5	20.0
-0.6	20.6
-0.7	21.1
-0.8	21.5
-0.9	21.8
-1.0	21.8

LITHIUM 6 ELASTIC SCATTERING 4.83MEV LOS ALAMOS 1966
ALL CROSS SECTIONS IN MILLIBARNS PER STERADIAN OR MILLIBARNS TOTAL
VISUAL FIT CENTER OF MASS SYSTEM

COSINE OMEGA	SIGMA OMEGA
+1.0	508.0
+0.9	371.0
+0.8	275.0
+0.7	203.0
+0.6	152.0
+0.5	115.0
+0.4	88.0
+0.3	69.4
+0.2	56.5
+0.1	48.1
+0.0	43.8
-0.1	42.0
-0.2	41.6
-0.3	42.3
-0.4	44.1
-0.5	46.8
-0.6	50.0
-0.7	53.8
-0.8	58.5
-0.9	64.0
-1.0	70.0

ELASTIC SCATTERING DATA CENTER OF MASS LI 6 4.83 MEV

COS OMEGA C.M.	SIGMA OMEGA C.M.	STANDARD DEVIATIONS RELATIVE	ABSOLUTE
+0.692	193.0	4.0	8.0
+0.456	105.0	2.5	5.0
+0.144	50.0	2.0	4.0
-0.168	43.0	1.5	3.0
-0.486	46.0	1.5	3.0
-0.786	58.0	1.5	3.0

INTEGRATED CROSS SECTION 1350 PLUS OR MINUS 60 MILLIBARNS

LITHIUM 6 INELASTIC SCATTERING TO 2.18 MEV LEVEL 4.83MEV LASL66

COS OMEGA C.M.	SIGMA OMEGA C.M.	STANDARD DEVIATIONS RELATIVE	ABSOLUTE
+0.656	16.5	0.8	1.4
+0.399	19.8	0.8	1.4
+0.072	23.4	1.3	2.0
-0.244	17.1	1.0	1.5
-0.549	14.5	1.0	1.4
-0.818	10.6	1.1	1.3

INTEGRATED CROSS SECTION 208 PLUS OR MINUS 13 MILLIBARNS
VISUAL FIT CENTER OF MASS SYSTEM

COS OMEGA	SIGMA OMEGA
+1.0	12.9
+0.9	14.0
+0.8	14.9
+0.7	16.0
+0.6	17.2
+0.5	18.4
+0.4	19.7
+0.3	20.9
+0.2	22.2
+0.1	22.9
0.0	22.2
-0.1	20.4
-0.2	18.8
-0.3	17.2
-0.4	15.6
-0.5	14.2
-0.6	12.9
-0.7	11.9
-0.8	10.7
-0.9	9.9
-1.0	9.0

SIGMA INELASTIC CONTINUOUS NEUTRONS LI6 4.83 MEV
LABORATORY SYSTEM

LAB ANGLE	BIAS	SIGMA BELOW	S.D.	SIGMA ABOVE	S.D.	SUM	S.D.
40 DEG	0.4MEV	10.2	3.4	49.8	1.9	60.0	3.9
55 DEG	0.4MEV	11.3	3.8	48.3	2.9	59.6	4.7
72.5DEG	0.4MEV	12.6	4.1	39.4	3.0	52.0	5.0
90 DEG	0.4MEV	9.4	3.1	29.6	2.9	39.0	4.2
110 DEG	0.4MEV	3.0	1.1	16.7	5.0	19.7	5.1
135 DEG	0.4MEV	2.1	1.2	10.8	5.6	12.9	5.7

S.D. STANDARD DEVIATIONS ARE RELATIVE. TO OBTAIN ABSOLUTE S.D.
ADD BY SQUARES 3.4PERCENT. THIS EFFECTS SMALL ANGLE SIGMAS ONLY.
INTEGRATED CROSS SECTION 461 PLUS OR MINUS 40 MILLIBARNS FOR SUM
VISUAL FIT LI6 CONTINUUM 4.83 MEV ALL CONTINUOUS NEUTRONS

COS THETA LAB	SIGMA THETA LAB
+1.0	61.2
+0.8	61.2
+0.6	60.0
+0.4	55.4
+0.2	47.6
0.0	36.8
-0.2	25.5
-0.4	18.0
-0.6	14.5
-0.8	11.9
-1.0	10.4

LI 6 90 DEG 4.83MEV CONTINUOUS NEUTRONS

E AVG	DN/DE AVG	S.D. AVG FROM CONSISTENCY OF DATA
0.425	48.0	1.0
0.500	31.1	6.0
0.600	26.3	9.0
0.701	23.5	1.0
0.805	28.2	3.0
0.908	28.2	1.0
1.008	29.2	10.0
1.109	26.3	4.0
1.212	24.5	5.0
1.315	24.5	1.0
1.416	26.3	3.0
1.519	22.6	1.0
1.624	22.6	1.0
1.719	15.4	7.0
1.822	20.7	2.0
1.934	24.5	1.0
2.029	29.2	1.0
2.131	56.5	6.0
2.240	96.9	18.0
2.342	69.6	8.0
2.431	19.6	7.0
2.526	11.3	1.0
2.647	7.3	1.0
2.755	6.0	1.0
2.846	7.5	1.0
2.942	8.5	1.0
3.042	7.9	1.0
3.148	8.5	1.0

LI 6 55 DEG 4.83MEV CONTINUOUS NEUTRONS

E AVG	DN/DE AVG	S.D. AVG FROM CONSISTENCY OF DATA
0.425	22.6	6.0
0.500	27.3	5.0
0.600	29.2	3.0
0.701	28.2	3.0
0.805	27.3	1.0
0.908	28.2	2.0
1.008	27.3	1.0
1.109	29.2	2.0
1.212	30.1	1.0
1.315	28.2	1.0
1.416	30.1	2.0
1.519	26.3	1.0
1.624	25.4	1.0
1.719	25.4	1.0
1.822	32.9	2.0
1.934	64.0	1.0
2.029	102.6	2.0
2.131	73.4	2.0
2.240	16.0	1.0
2.342	6.6	1.0
2.431	4.7	1.0
2.526	5.6	1.0
2.647	5.6	1.0
2.755	5.6	1.0
2.846	5.6	1.0

LI 6 72.5 DEG 4.83MEV CONTINUOUS NEUTRONS

E AVG	DN/DE AVG	S.D. AVG FROM CONSISTENCY OF DATA
0.425	46.1	6.0
0.500	40.5	4.0
0.600	32.0	1.0
0.700	32.0	2.0
0.804	30.1	4.0
0.904	32.0	1.0
1.002	30.1	3.0
1.106	32.0	3.0
1.208	23.5	3.0
1.312	22.6	5.0
1.414	20.7	5.0
1.511	20.7	3.0
1.618	29.5	4.0
1.727	62.8	3.0
1.824	88.5	11.0
1.918	28.2	1.0
2.020	5.6	1.0
2.129	3.8	2.0
2.232	0.0	1.0
2.327	2.8	1.0
2.428	1.9	2.0
2.535	0.0	2.0

LI 6 90 DEG 4.83MEV CONTINUOUS NEUTRONS

E AVG	DN/DE AVG	S.D. AVG
0.425	22.2	12.8
0.500	15.0	6.6
0.600	23.1	5.0
0.701	25.6	4.3
0.805	29.2	3.6
0.908	22.4	3.4
1.008	19.9	3.2
1.109	21.0	3.0
1.212	25.6	2.9
1.315	22.0	2.9
1.416	44.6	3.3
1.519	77.0	3.6
1.624	41.1	3.1
1.719	10.0	2.7
1.822	4.3	2.1
1.934	4.6	2.1
2.029	2.9	2.4
2.131	3.7	2.1
2.240	5.2	2.3
2.342	4.4	2.3

LI 6 110 DEG 4.83MEV CONTINUOUS NEUTRONS

E AVG	DN/DE AVG	S.D. AVG
0.425	13.4	12.9
0.500	12.6	6.7
0.600	20.8	5.2
0.701	16.6	4.3
0.805	20.5	3.6
0.908	18.1	3.3
1.008	10.4	3.1
1.109	21.6	2.9
1.212	45.7	3.2
1.315	55.4	3.4
1.416	13.6	3.0
1.519	5.4	2.7
1.624	3.2	2.5
1.719	1.2	2.7
1.822	-0.2	2.2
1.934	4.9	2.4
2.029	1.8	2.8
2.131	5.9	2.5

LI 6 135 DEG 4.83MEV CONTINUOUS NEUTRONS

E AVG	DN/DE AVG	S.D. AVG FROM CONSISTENCY OF DATA
0.425	-0.9	3.0
0.500	9.4	13.0
0.600	15.1	7.0
0.701	12.2	6.0
0.805	11.3	1.0
0.908	14.1	10.0
1.008	28.2	1.0
1.109	33.9	4.0
1.212	1.9	6.0
1.315	0.9	1.0
1.416	-12.2	7.0
1.519	-3.8	8.0
1.624	-2.8	2.0

LITHIUM 7 ELASTIC SCATTERING 4.83MEV LOS ALAMOS 1966
ALL CROSS SECTIONS IN MILLIBARNS PER STERADIAN OR MILLIBARNS TOTAL
VISUAL FIT CENTER OF MASS SYSTEM

COSINE OMEGA	SIGMA OMEGA
+1.0	734.0
+0.9	525.0
+0.8	374.0
+0.7	263.0
+0.6	186.0
+0.5	133.0
+0.4	99.8
+0.3	82.9
+0.2	78.7
+0.1	82.0
+0.0	87.8
-0.1	95.1
-0.2	102.5
-0.3	110.9
-0.4	119.7
-0.5	130.0
-0.6	142.0
-0.7	154.0
-0.8	166.0
-0.9	178.0
-1.0	190.0

ELASTIC SCATTERING DATA CENTER OF MASS LI7 4.83 LASL66

COS OMEGA C.M.	SIGMA OMEGA C.M.	STANDARD DEVIATIONS RELATIVE	ABSOLUTE
+0.703	267.0	6.5	13.0
+0.473	122.0	3.0	6.0
+0.167	79.0	2.5	5.0
-0.144	98.0	3.0	6.0
-0.466	128.0	4.0	8.0
-0.775	163.0	4.5	9.0

INTEGRATED CROSS SECTION 2225 PLUS OR MINUS 89 MILLIBARNS

LITHIUM 7 INELASTIC SCATTERING TO 0.478MEV LEVEL 4.83MEV LASL66

COS OMEGA C.M.	SIGMA OMEGA C.M.	STANDARD DEVIATIONS RELATIVE	ABSOLUTE
+0.700	12.7	2.6	4.3
+0.466	15.4	0.9	1.5
+0.158	18.7	3.1	5.1
-0.156	14.1	1.3	2.1
-0.473	13.9	1.3	2.2
-0.779	8.5	2.0	3.3

INTEGRATED CROSS SECTION 178 PLUS OR MINUS 27 MILLIBARNS
VISUAL FIT STRAIGHT LINE WITH SIGMA AVG OF 14.2 MB PER SR

SIGMA INELASTIC CONTINUOUS NEUTRONS LI7 4.83 MEV
LABORATORY SYSTEM

LAB ANGLE	BIAS	SIGMA BELOW	S.D.	SIGMA ABOVE	S.D.	SUM	S.D.
40 DEG	0.4MEV	0.9	0.5	8.9	2.3	9.8	2.4
55 DEG	0.4MEV	1.3	0.6	9.5	1.9	10.8	2.0
72.5DEG	0.4MEV	1.4	0.7	7.9	1.7	9.3	1.8
90 DEG	0.4MEV	1.2	0.6	4.6	1.7	5.8	1.8
110 DEG	0.4MEV	1.6	0.8	4.3	1.5	5.9	1.7
135 DEG	0.4MEV	2.3	1.2	4.1	1.6	6.4	2.0

S.D. STANDARD DEVIATIONS ARE RELATIVE. TO OBTAIN ABSOLUTE S.D.
ADD BY SQUARES 3.4 PERCENT.
INTEGRATED CROSS SECTION 97 PLUS OR MINUS 22 MILLIBARNS FOR SUM

LI 7 40 DEG 4.83MEV CONTINUOUS NEUTRONS

E AVG	ON/CE AVG	S.D. AVG FROM CONSISTENCY OF DATA
0.42	4.0	9.2
0.50	-1.9	4.7
0.60	8.1	3.7
0.70	10.4	3.0
0.80	6.7	2.6
0.90	7.5	2.5
1.00	7.7	2.3
1.11	6.9	2.1
1.21	8.1	2.2
1.31	5.1	1.9
1.41	5.6	2.1
1.51	8.1	1.9
1.62	1.4	1.9
1.73	2.3	2.0
1.82	-0.4	2.0
1.92	-0.3	1.9

LI 7 55 DEG 4.83MEV CONTINUOUS NEUTRONS

E AVG	ON/CE AVG	S.D. AVG FROM CONSISTENCY OF DATA
0.42	5.1	5.3
0.50	9.0	2.7
0.60	7.1	2.1
0.70	11.7	1.8
0.80	10.1	1.6
0.90	6.8	1.6
1.00	11.9	1.4
1.11	9.1	1.3
1.21	6.5	1.3
1.31	4.2	1.2
1.41	6.4	1.2
1.51	4.8	1.2
1.62	1.8	1.2
1.72	3.5	1.2

LI 7 72.5 DEG 4.8 MEV CONTINUOUS NEUTRONS

E AVG	ON/CE AVG	S.D. AVG FROM CONSISTENCY OF DATA
0.42	8.0	7.5
0.50	1.1	3.8
0.60	12.4	2.8
0.70	10.9	2.5
0.80	10.3	2.1
0.90	11.4	2.0
1.00	5.6	1.9
1.11	7.0	1.7
1.21	3.9	1.7
1.31	4.2	1.6
1.41	4.7	1.7
1.51	-0.7	1.6

LI 7 90 DEG 4.83MEV CONTINUOUS NEUTRONS

E AVG	DN/DE AVG	S.D. AVG FROM CONSISTENCY OF DATA
0.42	9.7	7.8
0.50	1.3	3.9
0.60	10.0	2.9
0.70	12.0	2.4
0.80	4.2	2.1
0.90	0.2	1.9
1.00	4.7	1.7
1.11	0.1	1.6
1.21	0.8	1.5
1.31	-1.2	1.5

LI 7 110 DEG 4.83MEV CONTINUOUS NEUTRONS

E AVG	DN/DE AVG	S.D. AVG FROM CONSISTENCY OF DATA
0.42		
0.50	15.2	4.3
0.60	7.7	3.4
0.70	9.8	2.7
0.80	6.5	2.2
0.90	5.0	2.0
1.00	2.9	1.9
1.11	0.8	1.7

LI 7 135 DEG 4.83MEV CONTINUOUS NEUTRONS

E AVG	DN/DE AVG	S.D. AVG FROM CONSISTENCY OF DATA
0.42		
0.50	8.6	4.0
0.60	12.5	3.2
0.70	8.4	2.7
0.80	4.8	2.3
0.90	2.0	2.1

LITHIUM 6 ELASTIC SCATTERING 5.74 MEV LOS ALAMOS 1967
ALL CROSS SECTIONS IN MILLIBARNS PER STERADIAN OR MILLIBARNS TOTAL
VISUAL FIT CENTER OF MASS SYSTEM

COSINE OMEGA	SIGMA OMEGA
+1.0	583.0
+0.9	406.0
+0.8	282.0
+0.7	200.0
+0.6	145.0
+0.5	104.0
+0.4	77.0
+0.3	57.0
+0.2	44.6
+0.1	37.9
+0.0	35.0
-0.1	34.0
-0.2	34.0
-0.3	34.6
-0.4	35.8
-0.5	36.7
-0.6	37.6
-0.7	38.4
-0.8	39.1
-0.9	40.1
-1.0	41.0

ELASTIC SCATTERING DATA CENTER OF MASS LI 6 5.74 MEV

COS OMEGA C.M.	SIGMA OMEGA C.M.	STANDARD DEVIATIONS RELATIVE	ABSOLUTE
+0.821	307.0	10.5	15.0
+0.706	204.0	7.0	10.0
+0.587	141.0	6.4	8.5
+0.456	89.3	4.3	5.4
+0.144	40.4	2.2	2.8
-0.168	33.8	1.9	2.4
-0.486	36.2	2.0	2.5
-0.776	38.9	2.2	2.7

INTEGRATED ELASTIC CROSS SECTION 1276 PLUS OR MINUS 51 MILLIBARNS

LITHIUM 6 INELASTIC SCATTERING TO 2.18 MEV LEVEL LOS ALAMOS 67 5.74 MEV

COS OMEGA C.M.	SIGMA OMEGA C.M.	STANDARD DEVIATIONS RELATIVE	ABSOLUTE
+0.804	15.9	1.5	1.6
+0.680	15.9	1.5	1.6
+0.552	15.2	1.4	1.5
+0.413	17.1	1.6	1.7
+0.089	15.1	1.4	1.5
-0.225	12.7	1.2	1.3
-0.533	10.9	1.0	1.1
-0.802	9.6	0.9	1.0

INTEGRATED CROSS SECTION 170 PLUS OR MINUS 17 MILLIBARNS
VISUAL FIT CENTER OF MASS SYSTEM

COS OMEGA	SIGMA OMEGA
+1.0	16.4
+0.8	16.4
+0.6	16.3
+0.4	15.9
+0.2	15.1
+0.0	14.1
-0.2	13.0
-0.4	11.5
-0.6	10.5
-0.8	9.6
-1.0	9.1

SIGMA INELASTIC CONTINUOUS NEUTRONS LI 6 5.74 MEV
LABORATORY SYSTEM

LAB ANGLE	BIAS	SIGMA BELOW	S.D.	SIGMA ABOVE	S.D.	SUM	S.D.
30 DEG	0.5MEV	4.0	2.0	68.7	6.9	72.7	7.2
39 DEG	0.6MEV	6.4	3.2	50.8	5.1	57.2	6.0
47 DEG	0.4MEV	3.5	1.7	59.2	6.0	62.7	6.2
55 DEG	0.4MEV	3.0	1.5	48.1	4.8	51.1	5.0
72.5DEG	0.4MEV	3.0	1.5	40.0	4.0	43.0	4.3
90 DEG	0.4MEV	3.2	1.6	31.8	3.2	35.0	3.6
110 DEG	0.4MEV	3.0	1.5	23.5	2.4	26.5	2.8
134 DEG	0.4MEV	3.2	1.6	17.7	1.8	20.9	2.4

S.D. STANDARD DEVIATIONS ARE ABSOLUTE
RELATIVE ERRORS ARE ABOUT 0.5 OF THESE
INTEGRATED CROSS SECTION 485 PLUS OR MINUS 48 MILLIBARNS
VISUAL FIT LI6 CONTINUUM 5.74 MEV ALL CONTINUOUS NEUTRONS

COS THETA LAB	SIGMA THETA LAB
+1.0	78.0
+0.9	71.0
+0.8	65.0
+0.7	60.0
+0.6	55.0
+0.5	50.0
+0.4	46.0
+0.3	42.7
+0.2	40.0
+0.1	37.5
+0.0	35.0
-0.1	32.7
-0.2	30.5
-0.3	28.5
-0.4	26.4
-0.5	24.5
-0.6	22.6
-0.7	21.0
-0.8	19.0
-0.9	17.5
-1.0	16.0

LI 6 30 DEG 5.74 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3969	-200.9000	7.2771
0.4990	12.6492	3.5056
0.6004	26.8275	3.3007
0.7017	22.0596	2.8178
0.8038	24.9562	2.5543
0.9025	28.0087	2.4405
1.0048	25.8602	2.2385
1.1068	28.2577	2.2536
1.2114	26.4793	2.0984
1.3153	25.3046	2.1868
1.4156	25.0623	2.0306
1.5179	26.0273	2.0836
1.6209	26.9578	2.0420
1.7227	24.3297	2.0990
1.8217	24.9865	2.0908
1.9294	26.8394	1.9994
2.0315	22.3458	2.1430
2.1257	22.2044	1.9752
2.2267	19.4834	1.8669
2.3351	20.7879	1.7880
2.4315	19.4190	2.0375
2.5341	19.4021	1.6772
2.6430	14.0045	1.9856
2.7355	18.3272	1.9242
2.8330	18.4916	1.8611
2.9357	24.8828	1.8657
3.0441	31.3264	1.8477
3.1587	54.0570	2.1061
3.2487	69.0215	2.1343
3.3430	64.2123	2.1813
3.4750	28.9097	1.8307
3.5790	16.3235	2.1266
3.6511	11.1967	1.9513
3.7636	17.6371	1.4196
3.8809	17.2760	2.0261
3.9623	18.3400	2.0864
4.0897	26.1212	1.5809
4.2226	26.5176	2.2807
4.3151	34.7489	2.3794
4.4107	52.0105	2.4752
4.5095	43.7686	2.6290
4.6116	54.0688	2.8186
4.7173	60.5175	3.0150
4.8266	72.9538	3.2321
4.9398	100.2206	3.5781
5.0570	139.3655	4.0279
5.1784	226.5619	4.9179
5.3042	387.3607	6.2080
5.4347	601.6172	7.4746
5.5701	611.6611	7.6803
5.7106	384.3442	6.5661
5.8564	123.8265	4.4768
6.0079	12.2255	2.3461
6.1654	-1.2938	1.0290
6.3292	0.7284	0.6578
6.4995	0.4605	0.5903
6.6769	-0.8359	0.5453
6.8616	-0.2488	0.4694
7.0540	0.6015	0.4541
7.2547	0.0793	0.4720
7.4641	-0.1307	0.4711

LI 6 39 DEG 5.74 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3969	-6.2864	7.0448
0.4990	11.7443	3.3815
0.6004	25.4363	3.0563
0.7017	25.7335	2.6595
0.8038	25.4496	2.4098
0.9025	21.8608	2.2649
1.0048	23.2851	2.1111
1.1068	25.4365	2.1397
1.2114	20.2412	1.9296
1.3153	21.9485	2.0471
1.4156	21.9016	1.8548
1.5179	20.9753	1.9813
1.6209	19.1914	1.8463
1.7227	20.9520	2.0207
1.8217	21.4904	1.9579
1.9294	17.5853	1.7808
2.0315	13.8638	1.9148
2.1257	17.9494	1.7690
2.2267	15.9102	1.6861
2.3351	15.3648	1.6114
2.4315	11.6280	1.9271
2.5341	15.4031	1.5450
2.6430	15.9584	1.8686
2.7355	16.5627	1.8631
2.8330	24.1269	1.8182
2.9357	35.1407	1.9046
3.0441	46.3768	2.0010
3.1587	59.2291	2.0930
3.2487	52.4934	2.8018
3.3430	36.9661	1.7763
3.4750	17.2220	1.4455
3.5790	11.1902	1.8624
3.6511	8.5399	1.7006
3.7636	10.3322	1.2335
3.8809	13.1507	1.8159
3.9623	15.2432	1.8276
4.0897	19.8024	1.3259
4.2226	23.6810	1.9988
4.3151	26.0617	2.0898
4.4107	30.4176	2.1259
4.5095	34.4521	2.2149
4.6116	42.1376	2.3670
4.7173	50.0294	2.5911
4.8266	67.1100	2.8524
4.9398	94.9827	3.2435
5.0570	156.7055	3.7703
5.1784	269.4847	4.6961
5.3042	380.1773	5.5042
5.4347	396.1493	5.6458
5.5701	263.6562	5.9825
5.7106	96.8809	3.8967
5.8564	9.3659	2.6173
6.0079	-2.0134	1.5059
6.1654	0.5599	0.8265
6.3292	0.4764	0.6730
6.4995	-0.8152	0.5702
6.6769	0.3050	0.5852
6.8616	0.3400	0.5687
7.0540	-0.0012	0.4835
7.2547	0.0263	0.5452
7.4641	-0.8253	0.5051

LI 6 47 DEG 5.74 MEV

E AVG	ON/CE AVG	S.D. AVG
0.3969	23.2838	3.9517
0.4990	28.9347	3.1794
0.6004	31.0682	2.8467
0.7017	29.3605	2.3060
0.8038	29.6218	2.1034
0.9025	23.6843	2.0216
1.0048	25.2979	1.8705
1.1068	25.0806	1.8961
1.2114	24.2300	1.7431
1.3153	22.4013	1.8181
1.4156	23.4109	1.7108
1.5179	25.0467	1.7929
1.6209	23.9165	1.7157
1.7227	24.8146	1.8161
1.8217	20.3787	1.7117
1.9294	16.0296	1.5763
2.0315	17.6629	1.7099
2.1257	15.9566	1.6509
2.2267	16.8395	1.5284
2.3351	17.2921	1.4667
2.4315	14.0834	1.8015
2.5341	17.8257	1.4863
2.6430	17.6510	1.7486
2.7355	24.4596	1.7661
2.8330	36.6597	1.8608
2.9357	48.6487	1.9633
3.0441	59.8724	2.0374
3.1587	47.2777	1.7878
3.2487	24.7338	2.0504
3.3430	12.9003	1.2966
3.4750	10.5953	1.1443
3.5790	9.1452	1.5839
3.6511	4.4953	1.4369
3.7636	10.5946	1.0654
3.8809	11.0353	1.5012
3.9623	13.0772	1.5581
4.0897	16.2465	1.1311
4.2226	17.7790	1.6644
4.3151	21.0660	1.7126
4.4107	26.0665	1.8742
4.5095	30.5178	1.9983
4.6116	41.4460	2.0943
4.7173	51.7374	2.3311
4.8266	81.4768	2.6836
4.9398	133.5351	3.2401
5.0570	221.4545	3.9665
5.1784	280.2684	4.4135
5.3042	251.5801	4.2770
5.4347	145.4912	3.5983
5.5701	44.5667	2.9126
5.7106	4.4758	2.3348
5.8564	1.5287	1.6493
6.0079	1.9427	0.9256
6.1654	-0.5088	0.6068
6.3292	-0.4503	0.4898
6.4995	-0.4836	0.4569
6.6769	0.1939	0.4261
6.8616	0.5870	0.4161
7.0540	0.2350	0.4329
7.2547	1.1935	0.3918
7.4641	-0.3965	0.4111

LI 6 55 DEG 5.74 MEV

E AVG	ON/CE AVG	S.D. AVG
0.3969	17.3853	5.7444
0.4990	20.6008	3.0420
0.6004	27.5124	2.6953
0.7017	24.6291	2.2149
0.8038	25.1563	2.0509
0.9025	23.3160	1.9264
1.0048	22.5078	1.8083
1.1068	25.4422	1.8537
1.2114	27.2671	1.6562
1.3153	24.9469	1.7835
1.4156	23.6357	1.6099
1.5179	24.6868	1.7163
1.6209	21.8856	1.6172
1.7227	23.9619	1.7050
1.8217	21.4858	1.5944
1.9294	16.4962	1.4851
2.0315	17.4800	1.6289
2.1257	12.5188	1.5047
2.2267	12.2651	1.3927
2.3351	15.1551	1.3594
2.4315	14.8277	1.6978
2.5341	19.0403	1.4653
2.6430	25.7120	1.7946
2.7355	37.9252	1.9081
2.8330	50.1543	2.0362
2.9357	52.8061	1.9579
3.0441	33.7318	1.5927
3.1587	11.5507	1.2518
3.2487	5.7259	1.6236
3.3430	5.1214	1.1251
3.4750	6.3024	1.0311
3.5790	4.6804	1.3495
3.6511	5.8560	1.3131
3.7636	9.3553	0.9565
3.8809	8.5450	1.3705
3.9623	10.7323	1.3628
4.0897	16.7675	1.0502
4.2226	15.4595	1.5449
4.3151	16.9514	1.6463
4.4107	22.4428	1.7013
4.5095	30.3827	1.9114
4.6116	41.5946	2.1050
4.7173	66.0963	2.3737
4.8266	104.4420	2.8723
4.9398	149.2261	3.2730
5.0570	172.2533	3.4265
5.1784	143.3495	3.1949
5.3042	71.1124	2.5528
5.4347	17.9218	2.0893
5.5701	2.9242	1.9193
5.7106	-1.9072	1.6747
5.8564	-1.3164	1.2056
6.0079	-0.0143	0.7587
6.1654	-0.6597	0.4832
6.3292	0.3071	0.4384
6.4995	0.4570	0.4624
6.6769	-0.2817	0.4033
6.8616	0.0809	0.4012
7.0540	0.6032	0.4330
7.2547	-0.6758	0.4050
7.4641	0.0723	0.3566

LT 6 72.5 DEG 5.74 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3969	17.8963	4.0174
0.4990	27.6930	3.1424
0.6004	27.6294	2.7092
0.7017	23.2912	2.2420
0.8038	20.4740	2.0313
0.9025	25.6279	1.9308
1.0048	23.7251	1.7569
1.1068	22.1317	1.7365
1.2114	22.8375	1.5917
1.3153	22.0853	1.6988
1.4156	18.9520	1.5257
1.5179	16.4756	1.5920
1.6209	15.4302	1.4307
1.7227	14.4891	1.4963
1.8217	14.5522	1.4640
1.9294	14.8792	1.3553
2.0315	14.0209	1.4158
2.1257	11.7808	1.3820
2.2267	13.8636	1.3462
2.3351	21.7394	1.4080
2.4313	35.0443	2.0077
2.5341	46.7709	1.7391
2.6430	48.4007	2.0571
2.7355	27.9013	1.6399
2.8330	12.7538	1.3062
2.9357	3.3265	1.0886
3.0441	4.1043	0.9834
3.1587	1.0910	1.0122
3.2487	4.4779	1.4526
3.3430	2.6233	0.9989
3.4750	3.2867	0.9172
3.5790	3.4266	1.1967
3.6511	3.1822	1.1928
3.7636	5.5147	0.8308
3.8809	6.9593	1.2751
3.9623	7.6838	1.2179
4.0897	10.9526	0.9699
4.2226	16.9600	1.5621
4.3151	26.1026	1.7486
4.4107	42.7063	2.0427
4.5095	65.3506	2.3665
4.6116	78.2997	2.5433
4.7173	74.8055	2.4504
4.8266	52.8595	2.1379
4.9398	23.5248	1.5841
5.0570	6.1958	1.1786
5.1784	0.7172	1.1658
5.3042	1.5363	1.2184
5.4347	-0.9432	1.3097
5.5701	-2.6111	1.2115
5.7106	-1.0073	0.9762
5.8564	-0.0016	0.7480
6.0079	-0.0580	0.5941
6.1654	-0.7700	0.4726
6.3292	-0.7625	0.3996
6.4995	-0.0719	0.4056
6.6769	0.1532	0.4072
6.8616	-0.3759	0.3749
7.0540	-0.4505	0.3949
7.2547	0.3529	0.4146
7.4641	-0.1018	0.4195

LT 6 90 DEG 5.74 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3969	21.2074	3.7152
0.4990	24.5040	2.9122
0.6004	27.4245	2.6016
0.7017	21.4336	2.1508
0.8038	22.6412	1.9527
0.9025	19.1111	1.8332
1.0048	22.4080	1.6961
1.1068	18.6494	1.6818
1.2114	20.0351	1.4747
1.3153	15.1521	1.4904
1.4156	14.0522	1.3972
1.5179	12.7110	1.4663
1.6209	12.2315	1.3215
1.7227	10.7258	1.3944
1.8217	13.1051	1.3656
1.9294	13.5194	1.2529
2.0315	22.3717	1.4867
2.1257	34.6670	1.6653
2.2267	44.2942	1.7491
2.3351	32.1325	1.5821
2.4313	10.4511	1.3694
2.5341	3.6446	1.0476
2.6430	3.4703	1.1243
2.7355	2.1226	1.0192
2.8330	0.8824	0.9731
2.9357	2.4154	0.9270
3.0441	2.1157	0.9920
3.1587	2.3495	0.9924
3.2487	7.3595	1.4738
3.3430	3.0244	0.9350
3.4750	4.2318	0.8861
3.5790	9.4517	1.3876
3.6511	9.3187	1.4576
3.7636	15.7545	1.1073
3.8809	20.1672	1.7979
3.9623	45.2894	2.1083
4.0897	65.6622	1.6808
4.2226	59.1389	2.2941
4.3151	37.3547	1.9324
4.4107	15.5348	1.4372
4.5095	5.9001	1.1436
4.6116	3.2656	1.0497
4.7173	1.2871	0.9173
4.8266	0.4948	0.9688
4.9398	1.9929	0.8810
5.0570	-1.0060	0.9642
5.1784	1.4283	1.0053
5.3042	-2.0684	1.1135
5.4347	-1.1245	1.0444
5.5701	-1.4393	0.8625
5.7106	-0.3670	0.6720
5.8564	0.4676	0.4819
6.0079	-0.4824	0.4305
6.1654	-0.1123	0.4131
6.3292	0.2291	0.3474
6.4995	0.5118	0.4225
6.6769	-0.4761	0.3706
6.8616	-0.5888	0.3917
7.0540	0.1441	0.3855
7.2547	-0.1933	0.3395
7.4641	-0.0655	0.3574

LI 6 110 DEG 5.74 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3969	19.5368	3.8476
0.4990	23.8615	3.1858
0.6004	21.3285	2.7427
0.7017	15.6650	2.2453
0.8038	20.9582	2.0988
0.9025	19.9575	1.9469
1.0048	16.0674	1.7146
1.1068	15.4845	1.6625
1.2114	14.7052	1.4607
1.3153	10.6669	1.5132
1.4156	9.9165	1.3513
1.5179	9.9040	1.3680
1.6209	11.4157	1.3576
1.7227	15.5744	1.4267
1.8217	29.3860	1.5980
1.9294	36.2381	1.5837
2.0315	21.2545	1.5288
2.1257	6.6265	1.2364
2.2267	3.5578	1.1702
2.3351	1.6690	1.1711
2.4313	0.8600	1.2792
2.5341	3.6015	1.0940
2.6430	3.9697	1.1846
2.7355	5.0228	1.0909
2.8330	5.2043	1.1479
2.9357	5.3199	1.1815
3.0441	4.0176	1.2789
3.1587	5.3816	1.2377
3.2487	5.4180	1.7180
3.3430	13.4147	1.2578
3.4750	29.0634	1.3999
3.5790	50.2901	2.3701
3.6511	62.5270	2.4823
3.7636	62.9664	1.7180
3.8809	43.0690	2.0506
3.9623	22.4188	1.5930
4.0897	5.1001	0.8412
4.2226	2.6081	1.1010
4.3151	0.6698	1.0640
4.4107	1.9770	1.1198
4.5095	0.3839	1.0208
4.6116	2.8232	0.9971
4.7173	-0.0642	0.9631
4.8266	-0.1265	0.9140
4.9398	-0.0642	0.8999
5.0570	0.5701	0.8819
5.1784	-1.3305	1.0408
5.3042	0.0224	1.0453
5.4347	0.8146	0.9410
5.5701	-0.2664	0.8048
5.7106	-0.5916	0.6060
5.8564	-0.9231	0.5332
6.0079	-0.3939	0.4842
6.1654	-0.1586	0.4496
6.3292	0.0158	0.4205
6.4995	-0.2087	0.4391
6.6769	0.1549	0.4821
6.8616	0.2337	0.4205
7.0540	0.4810	0.3691
7.2547	0.8459	0.3729
7.4641	-0.3143	0.3504

LI 6 134 DEG 5.74 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3969	21.2569	3.5871
0.4990	26.2234	2.9769
0.6004	23.4147	2.5675
0.7017	21.7946	2.1935
0.8038	17.1447	1.9574
0.9025	12.7491	1.7609
1.0048	12.5714	1.5629
1.1068	7.0072	1.5078
1.2114	10.8385	1.3995
1.3153	7.0094	1.4699
1.4156	9.1134	1.3891
1.5179	19.2550	1.5773
1.6209	29.6234	1.6345
1.7227	16.6161	1.5590
1.8217	2.4217	1.3094
1.9294	0.5016	1.2733
2.0315	3.8291	1.5524
2.1257	2.9571	1.6806
2.2267	1.1537	1.9017
2.3351	3.2069	1.6702
2.4313	3.4252	1.7463
2.5341	2.3047	1.1619
2.6430	3.7849	1.2218
2.7355	4.8683	1.1338
2.8330	8.6670	1.1456
2.9357	11.6332	1.2027
3.0441	19.7624	1.3679
3.1587	47.4267	1.7398
3.2487	75.1362	2.8286
3.3430	73.6884	1.9495
3.4750	28.5588	1.2739
3.5790	5.0417	1.1740
3.6511	2.8427	1.0532
3.7636	1.3226	0.7166
3.8809	1.2541	1.0636
3.9623	0.1338	1.0329
4.0897	-0.8869	0.7615
4.2226	3.2206	1.1001
4.3151	0.1355	1.0566
4.4107	0.3238	0.9924
4.5095	1.3370	0.9408
4.6116	0.3068	0.9242
4.7173	-1.1621	0.9659
4.8266	0.7770	0.9136
4.9398	-1.2270	0.9528
5.0570	-2.4419	1.0755
5.1784	-1.1415	1.1292
5.3042	0.6688	0.9492
5.4347	0.1036	0.8054
5.5701	-0.1724	0.6731
5.7106	-0.7440	0.5750
5.8564	-0.0297	0.4680
6.0079	0.1534	0.3970
6.1654	-0.5532	0.4238
6.3292	-0.7650	0.3510
6.4995	-0.2549	0.3758
6.6769	0.3743	0.3910
6.8616	-0.0281	0.3814
7.0540	0.1841	0.3605
7.2547	-0.6900	0.3826
7.4641	0.0560	0.3702

LITHIUM 7 ELASTIC SCATTERING 5.74 MEV LOS ALAMOS 1967
LI7 ELASTIC CROSS SECTIONS INCLUDE 0.478 MEV STATE
ALL CROSS SECTIONS IN MILLIBARNS PER STERADIAN OR MILLIBARNS TOTAL
VISUAL FIT CENTER OF MASS SYSTEM

COSINE OMEGA	SIGMA OMEGA
+1.0	667.0
+0.9	479.0
+0.8	345.0
+0.7	250.0
+0.6	181.0
+0.5	130.0
+0.4	95.0
+0.3	71.0
+0.2	64.0
+0.1	65.8
+0.0	68.8
-0.1	72.9
-0.2	77.9
-0.3	82.2
-0.4	85.0
-0.5	85.0
-0.6	81.7
-0.7	77.0
-0.8	71.0
-0.9	64.9
-1.0	58.3

ELASTIC SCATTERING DATA CENTER OF MASS LI 7 5.74 MEV

COS OMEGA C.M.	SIGMA OMEGA C.M.	STANDARD DEVIATIONS RELATIVE	STANDARD DEVIATIONS ABSOLUTE
+0.828	379.0	13.0	19.0
+0.717	266.0	9.1	13.0
+0.601	182.0	8.3	11.0
+0.473	121.0	5.5	7.3
+0.167	64.0	3.6	4.5
-0.144	75.1	4.2	5.3
-0.466	85.3	4.8	6.0
-0.765	73.7	4.2	5.2

INTEGRATED ELASTIC CROSS SECTION 1766 PLUS OR MINUS 71 MILLIBARNS

LITHIUM 7 INELASTIC SCATTERING TO 4.63 MEV LEVEL LOS ALAMOS 67 5.74MEV

COS OMEGA C.M.	SIGMA OMEGA C.M.	STANDARD DEVIATIONS RELATIVE	STANDARD DEVIATIONS ABSOLUTE
+0.707	11.3	1.7	1.7
+0.530	11.9	1.8	1.8
+0.355	10.7	1.6	1.6
+0.173	8.7	1.3	1.3
-0.209			

INTEGRATED CROSS SECTION (IF SHAPE IS SIMILAR TO LI 6)
IS 114 PLUS OR MINUS 17 MILLIBARNS

SIGMA INELASTIC CONTINUOUS NEUTRONS LI7 5.74MEV
LABORATORY SYSTEM

LAB ANGLE	BIAS	SIGMA BELOW	S.D.	SIGMA ABOVE	S.D.	SUM	S.D.
30 DEG	0.5MEV	8.5	4.3	38.2	6.6	47.6	7.9
39 DEG	0.5MEV	10.6	5.3	27.7	5.6	38.3	7.7
47 DEG	0.4MEV	3.3	1.7	26.8	5.0	30.1	5.3
55 DEG	0.4MEV	6.0	3.0	28.3	4.4	34.3	5.3
72.5DEG	0.7MEV	6.0	3.0	12.3	1.2	18.3	3.2
90 DEG	0.6MEV	3.8	1.9	9.6	1.0	13.4	2.1
110 DEG	0.6MEV	2.5	1.3	7.4	0.7	9.9	1.5
134 DEG	0.6MEV	1.5	1.8	2.5	0.3	4.0	1.8

S.D. STANDARD DEVIATIONS ARE ABSOLUTE
RELATIVE ERRORS ARE ABOUT 0.5 OF THESE
INTEGRATED CROSS SECTION 224 PLUS OR MINUS 34 MILLIBARNS ABS.
VISUAL FIT LI7 CONTINUUM 5.74 MEV ALL CONTINUOUS NEUTRONS

COS THETA LAB	SIGMA THETA LAB
+1.0	51.3
+0.9	45.8
+0.8	40.5
+0.7	35.5
+0.6	30.7
+0.5	26.5
+0.4	22.8
+0.3	19.8
+0.2	17.5
+0.1	15.5
+0.0	13.8
-0.1	12.2
-0.2	10.7
-0.3	9.3
-0.4	8.0
-0.5	6.7
-0.6	5.5
-0.7	4.4
-0.8	3.3
-0.9	2.2
-1.0	1.1

LI 7 30 CEG 5.74 MEV

E AVG	DN/CE AVG	S.D. AVG
0.3969	-9.5463	7.6242
0.4990	42.5285	3.5009
0.6004	95.5343	3.6147
0.7017	99.0539	3.2178
0.8038	78.4479	2.8518
0.9025	38.2086	2.3962
1.0048	21.3567	2.0706
1.1068	24.4124	2.0910
1.2114	15.8305	1.8762
1.3153	18.2077	1.9859
1.4156	20.5497	1.8702
1.5179	17.6302	1.8712
1.6209	15.6524	1.8026
1.7227	15.2677	1.8701
1.8217	12.9244	1.8330
1.9294	12.1003	1.7173
2.0315	11.2782	1.8756
2.1257	11.3566	1.7180
2.2267	7.5733	1.5962
2.3351	8.3509	1.5177
2.4313	8.5381	1.7382
2.5341	9.7220	1.4571
2.6430	4.3855	1.7182
2.7355	8.9869	1.6710
2.8330	9.0118	1.6101
2.9357	8.7865	1.5193
3.0441	9.6352	1.4228
3.1587	9.6092	1.3972
3.2487	10.8972	1.9217
3.3430	11.0504	1.4127
3.4750	12.7723	1.3904
3.5790	14.2488	1.9712
3.6511	16.8576	1.9636
3.7636	17.0367	1.3377
3.8809	18.7915	1.9499
3.9623	21.5234	2.0356
4.0897	27.7277	1.5207
4.2226	36.5492	2.3198
4.3151	40.7937	2.3526
4.4107	44.1030	2.5134
4.5095	50.4019	2.5852
4.6116	64.5522	2.8043
4.7173	73.0433	3.0005
4.8266	96.9117	3.3040
4.9398	136.6291	3.7141
5.0570	155.1244	4.1861
5.1784	239.9166	4.7794
5.3042	397.5619	5.9852
5.4347	649.3107	7.3345
5.5701	751.0245	7.8296
5.7106	534.4164	6.8549
5.8564	224.9333	4.8037
6.0079	36.4992	2.4476
6.1654	1.5801	1.0258
6.3292	1.5036	0.6446
6.4995	0.2293	0.5444
6.6769	-0.8080	0.5092
6.8616	0.4873	0.4741
7.0540	0.3216	0.4130
7.2547	-0.3710	0.4202
7.4641	-0.2285	0.4360

LI 7 39 CEG 5.74 MEV

E AVG	DN/CE AVG	S.D. AVG
0.3969	-19.9901	6.4543
0.4990	53.3037	3.4054
0.6004	99.6267	3.4084
0.7017	85.0753	2.9383
0.8038	47.3436	2.4402
0.9025	22.4889	2.1125
1.0048	15.3566	1.8898
1.1068	17.4169	1.9116
1.2114	12.9449	1.7214
1.3153	14.3523	1.8212
1.4156	16.0269	1.6640
1.5179	14.1804	1.7699
1.6209	11.8378	1.6368
1.7227	10.2740	1.7534
1.8217	11.0449	1.7041
1.9294	11.1000	1.5837
2.0315	7.5087	1.6959
2.1257	11.4540	1.5800
2.2267	8.0801	1.4603
2.3351	7.7679	1.3947
2.4313	5.7227	1.6970
2.5341	6.0723	1.3151
2.6430	5.3410	1.5729
2.7355	4.0942	1.5439
2.8330	7.3807	1.4381
2.9357	6.5697	1.3508
3.0441	6.4072	1.3025
3.1587	7.2859	1.2595
3.2487	8.9217	1.7975
3.3430	9.5732	1.2858
3.4750	12.6348	1.2900
3.5790	9.5762	1.7113
3.6511	14.8843	1.7432
3.7636	11.2191	1.1726
3.8809	18.7279	1.8251
3.9623	20.2025	1.8236
4.0897	25.4127	1.3299
4.2226	32.9545	2.0517
4.3151	36.2402	2.1428
4.4107	41.2389	2.1838
4.5095	51.9253	2.3515
4.6116	60.1769	2.4863
4.7173	78.8885	2.7877
4.8266	105.0223	3.1034
4.9398	123.0944	3.3481
5.0570	172.4743	3.7345
5.1784	251.7921	4.4000
5.3042	374.8718	5.2600
5.4347	464.0567	5.7407
5.5701	368.9050	5.3027
5.7106	186.5026	4.2654
5.8564	46.3797	2.7993
6.0079	2.2721	1.5243
6.1654	0.9175	0.7767
6.3292	0.1323	0.6094
6.4995	-0.2148	0.5439
6.6769	-0.1837	0.5159
6.8616	0.7230	0.5343
7.0540	0.7662	0.4745
7.2547	0.5344	0.5197
7.4641	0.0839	0.4970

LI 7 47 DEG 5.74 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3969	22.2893	3.6893
0.4990	76.6115	3.3460
0.6004	91.6256	3.1768
0.7017	59.0944	2.4510
0.8038	27.4434	1.9652
0.9025	17.7692	1.8452
1.0048	15.5615	1.6604
1.1068	16.5768	1.6905
1.2114	14.0938	1.5304
1.3153	13.1661	1.5955
1.4156	13.7537	1.4941
1.5179	12.6027	1.5279
1.6209	10.9255	1.4529
1.7227	11.0125	1.5191
1.8217	8.5143	1.4486
1.9294	7.1014	1.3589
2.0315	7.1530	1.4406
2.1257	6.6371	1.4070
2.2267	6.2352	1.2673
2.3351	4.5111	1.1738
2.4313	4.3525	1.5138
2.5341	5.1201	1.2163
2.6430	5.1452	1.4278
2.7355	5.7104	1.3446
2.8330	4.1096	1.2157
2.9357	5.7242	1.1870
3.0441	4.5550	1.0920
3.1587	7.6424	1.0633
3.2487	8.9718	1.5586
3.3430	6.0837	1.1016
3.4750	10.4558	1.0795
3.5790	7.6809	1.4570
3.6511	9.0393	1.4747
3.7636	12.8865	1.0495
3.8809	11.8938	1.4428
3.9623	13.2760	1.4813
4.0897	19.6011	1.1263
4.2226	22.6276	1.6783
4.3151	30.0940	1.7984
4.4107	32.9503	1.9001
4.5095	48.5965	2.1743
4.6116	63.8078	2.3120
4.7173	78.6141	2.5563
4.8266	100.8612	2.7785
4.9398	124.3953	3.0242
5.0570	180.7090	3.5251
5.1784	271.7117	4.1883
5.3042	316.1207	4.5004
5.4347	233.6005	4.0430
5.5701	100.0542	3.2178
5.7106	16.8993	2.3222
5.8564	1.2850	1.5391
6.0079	1.9040	0.8672
6.1654	-1.1122	0.5427
6.3292	-0.0033	0.4764
6.4995	0.6325	0.4789
6.6769	0.5274	0.4166
6.8616	0.6745	0.3956
7.0540	0.0966	0.3982
7.2547	0.8768	0.3527
7.4641	-0.0567	0.3999

LI 7 55 DEG 5.74 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3969	38.2191	5.4614
0.4990	80.5959	3.3218
0.6004	75.6858	2.9637
0.7017	33.9934	2.1793
0.8038	21.8038	1.8998
0.9025	16.3640	1.7398
1.0048	11.8736	1.5860
1.1068	15.8032	1.6369
1.2114	16.3358	1.4364
1.3153	14.0554	1.5418
1.4156	13.2159	1.3838
1.5179	13.2822	1.4657
1.6209	9.2518	1.3555
1.7227	9.1768	1.3861
1.8217	11.0203	1.3511
1.9294	9.5034	1.2980
2.0315	8.8104	1.3918
2.1257	4.4108	1.2758
2.2267	5.4522	1.1926
2.3351	5.6309	1.1188
2.4313	4.0001	1.3848
2.5341	3.8568	1.1562
2.6430	4.1326	1.3099
2.7355	5.9574	1.2723
2.8330	2.6130	1.1715
2.9357	3.5518	1.0532
3.0441	6.1496	1.0114
3.1587	5.0012	1.0518
3.2487	3.5237	1.4640
3.3430	5.2425	1.0604
3.4750	8.5243	1.0175
3.5790	8.6608	1.3873
3.6511	8.4396	1.3158
3.7636	11.5824	0.9507
3.8809	12.1144	1.3908
3.9623	15.1853	1.4075
4.0897	20.5482	1.0618
4.2226	24.0686	1.6475
4.3151	32.5542	1.8540
4.4107	39.9323	1.9272
4.5095	52.9932	2.1671
4.6116	73.2274	2.4344
4.7173	85.4241	2.5111
4.8266	95.5964	2.6627
4.9398	123.6923	2.9106
5.0570	168.0503	3.2622
5.1784	180.6511	3.3790
5.3042	136.5575	3.0592
5.4347	57.0297	2.4231
5.5701	13.6743	1.9401
5.7106	0.4812	1.6003
5.8564	-0.4712	1.1425
6.0079	0.8195	0.7343
6.1654	0.1403	0.4855
6.3292	-0.4575	0.3702
6.4995	0.0403	0.4125
6.6769	0.5512	0.4207
6.8616	-0.1738	0.3609
7.0540	0.3200	0.3923
7.2547	-0.3535	0.3928
7.4641	0.5727	0.3615

LI 7 72.5 DEG 5.74 MEV

E AVG	ON/CE AVG	S.D. AVG
0.3969	45.9276	3.8677
0.4990	47.1434	3.0487
0.6004	18.2238	2.4051
0.7017	13.4808	1.9714
0.8038	8.8129	1.7475
0.9025	10.9442	1.6301
1.0048	14.4748	1.5296
1.1068	12.9426	1.5006
1.2114	11.9000	1.3478
1.3153	6.4108	1.3581
1.4156	9.4075	1.2862
1.5179	6.9088	1.3390
1.6209	6.0127	1.1857
1.7227	4.1284	1.2131
1.8217	3.4434	1.1805
1.9294	4.5913	1.0930
2.0315	3.5007	1.1070
2.1257	2.7655	1.1123
2.2267	3.4758	1.0606
2.3351	6.1152	1.0500
2.4313	5.0737	1.3491
2.5341	3.6447	1.0457
2.6430	3.6454	1.1834
2.7355	3.3020	1.0617
2.8330	5.4902	1.0655
2.9357	2.4506	0.9872
3.0441	4.7319	0.9272
3.1587	4.3381	1.0084
3.2487	5.9126	1.3948
3.3430	5.3291	0.9847
3.4750	6.6940	0.9268
3.5790	9.1977	1.2939
3.6511	7.4014	1.1830
3.7636	11.1478	0.8959
3.8809	15.9715	1.4328
3.9623	22.4790	1.5215
4.0897	37.8541	1.3132
4.2226	57.7814	2.1921
4.3151	59.6844	2.2066
4.4107	62.8831	2.2438
4.5095	62.2868	2.2230
4.6116	73.8904	2.3811
4.7173	85.3568	2.4725
4.8266	68.0834	2.2419
4.9398	41.8077	1.8074
5.0570	17.3481	1.3486
5.1784	5.6899	1.1977
5.3042	5.0480	1.2108
5.4347	-0.8219	1.2188
5.5701	-2.0378	1.1343
5.7106	-1.6103	0.8862
5.8564	-1.3932	0.6404
6.0079	-0.6932	0.5188
6.1654	-1.4152	0.3946
6.3292	-0.0134	0.3971
6.4995	0.5747	0.3997
6.6769	0.6148	0.3920
6.8616	0.4332	0.3801
7.0540	-0.2538	0.3647
7.2547	-0.1319	0.3502
7.4641	-0.4704	0.3610

LI 7 90 CEG 5.74 MEV

E AVG	ON/CE AVG	S.D. AVG
0.3969	25.7469	3.5871
0.4990	17.9202	2.7239
0.6004	15.9589	2.3770
0.7017	13.5469	1.9709
0.8038	11.6201	1.7429
0.9025	10.6056	1.6517
1.0048	10.5891	1.4811
1.1068	6.0619	1.4397
1.2114	7.8498	1.2471
1.3153	6.5218	1.2881
1.4156	6.6391	1.2213
1.5179	3.1954	1.2440
1.6209	2.4519	1.1083
1.7227	0.6471	1.1435
1.8217	0.8324	1.0827
1.9294	2.5262	0.9996
2.0315	3.8442	1.0576
2.1257	2.6593	1.0286
2.2267	4.9514	1.0401
2.3351	2.8171	1.0333
2.4313	5.7705	1.2942
2.5341	4.0087	0.9993
2.6430	4.5199	1.0943
2.7355	5.3538	1.0514
2.8330	5.1617	1.0320
2.9357	4.6970	0.9419
3.0441	4.1652	0.9888
3.1587	6.1804	1.0264
3.2487	9.3676	1.4199
3.3430	9.9428	1.0358
3.4750	13.3539	1.0354
3.5790	16.8238	1.5235
3.6511	23.0202	1.7034
3.7636	36.6473	1.3695
3.8809	56.9294	2.2053
3.9623	62.0358	2.2947
4.0897	70.6006	1.6711
4.2226	85.3817	2.5629
4.3151	94.5542	2.6539
4.4107	94.3489	2.5950
4.5095	68.3261	2.2219
4.6116	33.2394	1.6594
4.7173	13.9170	1.2168
4.8266	3.5048	1.0024
4.9398	2.8523	0.8634
5.0570	-0.1871	0.9300
5.1784	1.6070	0.9537
5.3042	-1.8692	1.0480
5.4347	-0.8399	0.9873
5.5701	0.9591	0.8793
5.7106	0.3207	0.6603
5.8564	1.0234	0.4885
6.0079	-0.2994	0.4190
6.1654	-0.3723	0.3803
6.3292	0.1529	0.3306
6.4995	0.0799	0.3822
6.6769	-0.0040	0.3812
6.8616	-0.2851	0.3889
7.0540	-0.3631	0.3407
7.2547	0.1502	0.3447
7.4641	-0.0036	0.3455

LI 7 110 DEG 5.74 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3969	20.0254	3.5607
0.4990	18.9731	2.9115
0.6004	10.3808	2.4418
0.7017	10.2027	2.0304
0.8038	11.6835	1.8601
0.9025	9.4518	1.7038
1.0048	6.5542	1.4903
1.1068	6.3971	1.4325
1.2114	5.6861	1.2414
1.3153	2.3318	1.2792
1.4156	3.0739	1.1506
1.5179	3.9638	1.1737
1.6209	0.4920	1.0871
1.7227	4.8662	1.1423
1.8217	2.1913	1.0632
1.9294	3.5912	0.9813
2.0315	2.8651	1.0804
2.1257	2.6902	1.0702
2.2267	2.7047	1.0720
2.3351	2.8512	1.1110
2.4313	5.0881	1.2891
2.5341	3.5465	1.0187
2.6430	7.0106	1.1773
2.7355	8.2578	1.0985
2.8330	7.3344	1.1214
2.9357	10.3008	1.2086
3.0441	10.5102	1.3137
3.1587	14.2469	1.3162
3.2487	16.9016	1.8887
3.3430	27.5287	1.4108
3.4750	48.6230	1.5979
3.5790	56.5281	2.3701
3.6511	65.1156	2.4214
3.7636	78.4817	1.8096
3.8809	114.2984	2.9736
3.9623	126.8733	3.0759
4.0897	85.4683	1.8167
4.2226	28.0198	1.6408
4.3151	10.0307	1.2523
4.4107	1.4958	1.0301
4.5095	1.8208	0.9931
4.6116	1.8896	0.9016
4.7173	0.2445	0.9037
4.8266	0.1799	0.8579
4.9398	0.6180	0.8571
5.0570	1.3576	0.8451
5.1784	-0.8065	0.9798
5.3042	-0.9423	0.9465
5.4347	-0.1297	0.8486
5.5701	-0.6282	0.7343
5.7106	-0.1034	0.5786
5.8564	-1.0827	0.4805
6.0079	0.1617	0.4706
6.1654	0.8150	0.4591
6.3292	-0.1771	0.3757
6.4995	-0.0562	0.4104
6.6769	-0.5180	0.4114
6.8616	-0.2607	0.3596
7.0540	0.9404	0.3652
7.2547	**0.4500**	0.3211
7.4641	**0.4435**	0.3614

LI 7 134 DEG 5.74 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3969	4.0464	3.1848
0.4990	6.2912	2.5973
0.6004	8.0034	2.2386
0.7017	2.6488	1.8508
0.8038	4.8188	1.6917
0.9025	4.2715	1.5408
1.0048	4.0061	1.3518
1.1068	0.9182	1.3179
1.2114	0.2866	1.1572
1.3153	0.0637	1.2593
1.4156	1.2602	1.1775
1.5179	-0.7555	1.1654
1.6209	-0.3847	1.1008
1.7227	-0.0806	1.1782
1.8217	-0.0402	1.1747
1.9294	0.6838	1.1868
2.0315	1.1255	1.4020
2.1257	4.3272	1.5887
2.2267	2.2481	1.7878
2.3351	1.9095	1.5419
2.4313	4.1681	1.6446
2.5341	5.0418	1.1304
2.6430	6.5103	1.2044
2.7355	7.3418	1.1200
2.8330	10.7410	1.1252
2.9357	16.2294	1.2283
3.0441	26.3980	1.4091
3.1587	43.0854	1.6053
3.2487	45.2228	2.1971
3.3430	55.9044	1.6626
3.4750	113.9084	2.1986
3.5790	128.8723	3.2644
3.6511	91.8501	2.7556
3.7636	32.8569	1.2601
3.8809	4.0701	1.0857
3.9623	2.6224	1.0448
4.0897	0.6058	0.7410
4.2226	1.3131	0.9688
4.3151	-0.3384	0.9679
4.4107	1.0126	0.9460
4.5095	1.0458	0.8675
4.6116	0.4400	0.8644
4.7173	-2.0248	0.8662
4.8266	1.2076	0.8652
4.9398	-0.3462	0.9109
5.0570	-0.8607	1.0390
5.1784	-1.3614	1.0446
5.3042	0.3428	0.8753
5.4347	-1.2728	0.7016
5.5701	-1.0552	0.5888
5.7106	-0.8502	0.5258
5.8564	0.1491	0.4416
6.0079	0.1788	0.3680
6.1654	-0.3597	0.3998
6.3292	-0.4369	0.3399
6.4995	0.0916	0.3655
6.6769	-0.1191	0.3320
6.8616	0.2108	0.3651
7.0540	0.8804	0.3720
7.2547	**-0.8452**	0.3420
7.4641	**-0.7528**	0.2935

LITHIUM 6 ELASTIC SCATTERING 7.5 MEV LOS ALAMOS 1967
ALL CROSS SECTIONS IN MILLIBARNS PER STERADIAN OR MILLIBARNS TOTAL
VISUAL FIT CENTER OF MASS SYSTEM

COSINE OMEGA	SIGMA OMEGA
+1.0	674.0
+0.9	440.0
+0.8	290.0
+0.7	191.0
+0.6	128.0
+0.5	87.5
+0.4	60.1
+0.3	41.8
+0.2	30.5
+0.1	26.0
+0.0	25.0
-0.1	24.9
-0.2	24.8
-0.3	24.7
-0.4	24.6
-0.5	24.9
-0.6	25.3
-0.7	26.0
-0.8	26.9
-0.9	27.6
-1.0	28.6

ELASTIC SCATTERING DATA CENTER OF MASS LI 6 7.5 MEV

COS OMEGA C.M.	SIGMA OMEGA C.M.	STANDARD DEVIATIONS RELATIVE	ABSOLUTE
+0.706	196.0	6.9	9.8
+0.456	74.1	3.3	4.4
+0.144	27.4	1.5	1.9
-0.168	24.8	1.4	1.7
-0.486	24.7	1.4	1.7
-0.786	26.4	1.4	1.8

INTEGRATED ELASTIC CROSS SECTION 1194 PLUS OR MINUS 48 MILLIBARNS

LITHIUM 6 INELASTIC SCATTERING TO 2.18 MEV LEVEL LOS ALAMOS 67 7.5MEV

COS OMEGA C.M.	SIGMA OMEGA C.M.	STANDARD DEVIATIONS RELATIVE	ABSOLUTE
+0.689	16.0	1.5	1.6
+0.427	14.4	1.3	1.4
+0.107	13.2	1.2	1.3
-0.206	11.4	1.0	1.1
-0.518	7.8	0.7	0.8
-0.803	7.4	0.6	0.7

INTEGRATED CROSS SECTION 149 PLUS OR MINUS 15 MILLIBARNS
VISUAL FIT CENTER OF MASS SYSTEM LI 6 7.5 2.18MEV LEVEL

COS OMEGA	SIGMA OMEGA
+1.0	17.3
+0.9	17.1
+0.8	16.8
+0.7	16.4
+0.6	15.8
+0.5	15.1
+0.4	14.5
+0.3	13.8
+0.2	13.2
+0.1	12.5
+0.0	11.9
-0.1	11.2
-0.2	10.6
-0.3	10.0
-0.4	9.3
-0.5	8.6
-0.6	8.0
-0.7	7.3
-0.8	6.8
-0.9	6.3
-1.0	6.0

SIGMA INELASTIC CONTINUOUS NEUTRONS LI 6 7.5MEV
LABORATORY SYSTEM

LAB ANGLE	BIAS	SIGMA BELOW	S.D.	SIGMA ABOVE	S.D.	SUM	S.D.
39 DEG	0.5MEV	4.8	2.4	57.4	6.3	62.2	6.7
55 DEG	0.4MEV	5.5	2.8	62.0	6.8	67.5	7.4
72.5DEG	0.5MEV	10.0	5.0	46.3	5.1	56.3	7.1
90 DEG	0.6MEV	8.8	4.4	31.3	3.4	40.1	5.6
110 DEG	0.5MEV	6.6	3.3	26.6	2.9	33.2	4.4
135 DEG	0.4MEV	3.0	1.5	23.6	2.6	26.6	3.0

S.D. STANDARD DEVIATIONS ARE ABSOLUTE
RELATIVE ERRORS ARE ABOUT 0.5 OF THESE
INTEGRATED CROSS SECTION 569 PLUS OR MINUS 57 MILLIBARNS
VISUAL FIT LI6 CONTINUUM 7.5 MEV ALL CONTINUOUS NEUTRONS

COS THETA LAB	SIGMA THETA LAB
+1.0	69.4
+0.9	69.0
+0.8	68.0
+0.7	66.2
+0.6	64.0
+0.5	61.0
+0.4	57.9
+0.3	54.0
+0.2	50.0
+0.1	46.4
+0.0	43.0
-0.1	39.7
-0.2	36.6
-0.3	33.9
-0.4	31.3
-0.5	29.3
-0.6	27.9
-0.7	27.0
-0.8	26.5
-0.9	26.0
-1.0	26.0

LI 6 39 DEG 7.5 MEV

E AVG	ON/CE AVG	S.O. AVG
0.3961	149.1517	5.5646
0.4981	15.8366	2.0410
0.5997	18.0420	1.5298
0.7002	16.0689	1.3220
0.8031	16.9865	1.1231
0.9084	16.8942	1.0482
1.0105	16.8432	1.0014
1.1073	17.2125	1.0297
1.2059	16.1853	0.9549
1.3105	16.6273	0.9333
1.4127	13.6792	0.9425
1.5181	14.3466	0.8624
1.6253	14.0348	0.8973
1.7216	14.5801	0.9753
1.8148	14.6171	0.9690
1.9158	12.8163	0.9207
2.0254	11.8914	0.8644
2.1290	13.1995	0.9607
2.2245	11.5361	0.9223
2.3265	12.2225	0.8930
2.4357	10.5711	0.8489
2.5325	12.5805	0.9815
2.6356	11.3368	0.7536
2.7447	11.9260	0.9027
2.8371	10.6789	0.8663
2.9342	12.5616	0.8140
3.0365	12.5781	0.7503
3.1441	12.4038	0.7037
3.2576	13.3925	0.6836
3.3774	12.6372	0.6627
3.4714	12.1330	0.9213
3.5698	13.0682	0.6190
3.6720	12.6106	0.8444
3.7791	11.2377	0.5768
3.8905	12.6536	0.8107
3.9676	13.0738	0.8171
4.0881	15.8592	0.5892
4.2135	18.3607	0.8676
4.3005	19.9741	0.8809
4.3903	22.2707	0.9157
4.4829	26.8193	0.9424
4.5785	35.5364	0.9948
4.6771	42.8392	1.0199
4.7790	46.4026	1.0296
4.8843	40.2455	0.9638
4.9930	24.8369	0.8402
5.1055	15.5754	0.7698
5.2217	12.1623	0.7127
5.3420	11.3089	0.6886
5.4665	12.2936	0.6673
5.5955	13.3515	0.6726
5.7290	16.5028	0.7042
5.8673	20.7361	0.7331
6.0108	23.3921	0.7336
6.1595	32.7217	0.7980
6.3139	50.6730	0.9296
6.4741	108.1926	1.2783
6.6405	230.9159	1.7667
6.8134	357.6194	2.1579
6.9931	284.6084	2.0283
7.1801	106.7485	1.5262
7.3746	13.6746	1.1238
7.5772	-3.0741	0.7579

LI 6 55 DEG 7.5 MEV

E AVG	ON/CE AVG	S.O. AVG
0.3961	-2.9933	4.6870
0.4981	26.8040	1.5648
0.5997	23.5370	1.1654
0.7002	23.0982	1.0164
0.8031	21.4867	0.8559
0.9084	19.6193	0.8104
1.0105	19.4646	0.7848
1.1073	17.8005	0.8171
1.2059	20.1542	0.7580
1.3105	18.1397	0.7546
1.4127	16.8063	0.7563
1.5181	18.4671	0.7065
1.6253	17.3493	0.7351
1.7216	17.3474	0.7990
1.8148	15.7374	0.7642
1.9158	16.0066	0.7187
2.0254	16.2417	0.6699
2.1290	15.4052	0.7389
2.2245	16.2085	0.7151
2.3265	14.5693	0.6734
2.4357	14.1412	0.6472
2.5325	13.8418	0.7707
2.6356	12.9633	0.5902
2.7447	12.5702	0.7105
2.8371	12.3946	0.6592
2.9342	10.6862	0.6228
3.0365	10.4396	0.5851
3.1441	11.4420	0.5644
3.2576	9.9606	0.5326
3.3774	10.5927	0.5205
3.4714	9.4539	0.6975
3.5698	9.6999	0.4842
3.6720	8.7101	0.6746
3.7791	10.4593	0.4738
3.8905	11.4522	0.6877
3.9676	14.6831	0.7115
4.0881	20.8581	0.5617
4.2135	31.3387	0.9067
4.3005	36.5068	0.9540
4.3903	42.1314	0.9644
4.4829	35.8554	0.9004
4.5785	22.9857	0.7479
4.6771	11.4576	0.6408
4.7790	7.5631	0.5620
4.8843	5.7646	0.5280
4.9930	5.3730	0.5343
5.1055	5.1493	0.5145
5.2217	4.9638	0.4898
5.3420	7.0357	0.4856
5.4665	7.9360	0.4970
5.5955	9.6862	0.5132
5.7290	12.8755	0.5647
5.8673	17.8178	0.6137
6.0108	31.8817	0.7206
6.1595	59.9595	0.9077
6.3139	103.2318	1.1191
6.4741	126.6639	1.2530
6.6405	81.2221	1.0422
6.8134	27.8141	0.7287
6.9931	7.6574	0.6198
7.1801	2.0170	0.5951
7.3746	-0.0221	0.4807
7.5772	0.5732	0.3285

LI 6 72.5 DEG 7.5 MEV

E AVG	ON/DE AVG	S.D. AVG
0.3961	35.2818	2.8782
0.4981	29.7219	1.5240
0.5997	26.4329	1.1352
0.7002	23.1856	0.9923
0.8031	21.3840	0.8154
0.9084	19.4553	0.7628
1.0105	19.5630	0.7433
1.1073	19.1622	0.7707
1.2059	17.4559	0.7124
1.3105	16.0577	0.6922
1.4127	17.3533	0.6983
1.5181	16.4423	0.6649
1.6253	17.3864	0.6908
1.7216	16.3989	0.7531
1.8148	16.0210	0.7296
1.9158	14.7591	0.6713
2.0254	14.6947	0.6130
2.1290	13.7793	0.6635
2.2245	13.3534	0.6330
2.3265	10.9676	0.6005
2.4357	10.6650	0.5732
2.5325	10.5278	0.6648
2.6356	10.3914	0.5240
2.7447	9.3910	0.6090
2.8371	8.1695	0.5663
2.9342	8.8608	0.5238
3.0365	7.7552	0.4985
3.1441	7.9339	0.4956
3.2576	8.2128	0.4794
3.3774	8.8983	0.4640
3.4714	10.6272	0.6620
3.5698	13.7976	0.4932
3.6720	18.3522	0.7530
3.7791	26.3226	0.5851
3.8905	33.3269	0.8979
3.9676	32.9903	0.8934
4.0881	21.2859	0.5504
4.2135	8.6497	0.6285
4.3005	4.9017	0.5520
4.3903	4.2737	0.4987
4.4829	2.3937	0.4801
4.5785	3.0453	0.4662
4.6771	2.9983	0.4610
4.7790	2.7552	0.4683
4.8843	3.1234	0.4601
4.9930	3.2696	0.4673
5.1055	4.2850	0.4819
5.2217	4.7599	0.4899
5.3420	8.8454	0.5288
5.4665	14.2380	0.5884
5.5955	24.0710	0.6899
5.7290	39.7166	0.7917
5.8673	47.5079	0.8335
6.0108	33.9589	0.7082
6.1595	16.3411	0.5469
6.3139	6.8115	0.4332
6.4741	2.3003	0.3826
6.6405	1.8044	0.3947
6.8134	0.6928	0.4256
6.9931	0.0326	0.4271
7.1801	-0.0722	0.3741
7.3746	-0.2093	0.2898
7.5772	0.1326	0.2185

LI 6 90 DEG 7.5 MEV

E AVG	ON/DE AVG	S.D. AVG
0.3961	47.7740	2.7464
0.4981	25.7869	1.4912
0.5997	22.6915	1.1366
0.7002	19.3513	0.9839
0.8031	18.2530	0.8142
0.9084	15.8466	0.7492
1.0105	15.0336	0.7282
1.1073	16.7313	0.7438
1.2059	15.1718	0.6791
1.3105	15.3988	0.6743
1.4127	14.0842	0.6718
1.5181	14.4765	0.6390
1.6253	13.7462	0.6708
1.7216	13.0279	0.7116
1.8148	12.4645	0.6509
1.9158	10.0749	0.5841
2.0254	10.9034	0.5351
2.1290	8.8243	0.5971
2.2245	9.6309	0.5771
2.3265	8.6942	0.5473
2.4357	8.8924	0.5206
2.5325	5.9994	0.5952
2.6356	6.0621	0.4630
2.7447	5.6710	0.5359
2.8371	6.9737	0.5007
2.9342	7.1023	0.4869
3.0365	7.1788	0.4847
3.1441	10.5750	0.5081
3.2576	17.4451	0.5642
3.3774	24.5345	0.6135
3.4714	30.7085	0.9173
3.5698	22.1586	0.5765
3.6720	10.1231	0.6463
3.7791	4.8864	0.4144
3.8905	2.4798	0.5669
3.9676	2.4893	0.5999
4.0881	1.5785	0.4197
4.2135	1.7094	0.5896
4.3005	2.3031	0.5755
4.3903	2.6960	0.6081
4.4829	2.6712	0.6119
4.5785	2.4421	0.6139
4.6771	3.4205	0.6132
4.7790	6.1667	0.5970
4.8843	10.8804	0.6022
4.9930	17.2698	0.6321
5.1055	28.7818	0.7130
5.2217	38.6080	0.7791
5.3420	40.4336	0.7835
5.4665	28.6297	0.6684
5.5955	11.9486	0.4855
5.7290	3.9762	0.3763
5.8673	2.4007	0.3581
6.0108	1.0347	0.3402
6.1595	0.5068	0.3060
6.3139	0.2733	0.2879
6.4741	-0.4081	0.3110
6.6405	0.3879	0.3554
6.8134	-0.0986	0.3707
6.9931	-0.1312	0.3382
7.1801	-0.3171	0.2565
7.3746	-0.0670	0.2052
7.5772	-0.0224	0.1656

LI 6 110 DEG 7.5 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3961	30.4344	2.4421
0.4981	20.0127	1.4176
0.5997	18.6581	1.0644
0.7002	17.1812	0.9044
0.8031	15.8094	0.7668
0.9084	15.2227	0.7221
1.0105	14.5306	0.6927
1.1073	14.8969	0.7009
1.2059	14.8895	0.6410
1.3105	12.2942	0.6196
1.4127	12.0089	0.6253
1.5181	10.2957	0.5888
1.6253	9.3446	0.6112
1.7216	9.4377	0.6141
1.8148	9.2837	0.5797
1.9158	9.4631	0.5373
2.0254	9.0966	0.4928
2.1290	5.4437	0.5170
2.2245	5.8962	0.5017
2.3265	5.6910	0.4796
2.4357	5.8270	0.4620
2.5325	5.7040	0.5569
2.6356	6.1191	0.4300
2.7447	9.1619	0.5291
2.8371	14.5242	0.5702
2.9342	20.9345	0.6210
3.0365	22.0087	0.6299
3.1441	11.3710	0.5111
3.2576	4.0652	0.4175
3.3774	2.4840	0.4009
3.4714	2.8942	0.5681
3.5698	2.5855	0.4037
3.6720	2.5431	0.5697
3.7791	1.8906	0.3994
3.8905	2.1459	0.5710
3.9676	2.1875	0.5598
4.0881	3.2578	0.3618
4.2135	5.2354	0.5169
4.3005	5.7431	0.5163
4.3903	10.4063	0.5711
4.4829	19.1517	0.6763
4.5785	33.8581	0.8080
4.6771	42.7909	0.8779
4.7790	42.1839	0.8444
4.8843	25.8395	0.6805
4.9930	10.0060	0.4758
5.1055	3.1672	0.3512
5.2217	1.9955	0.3053
5.3420	1.2189	0.3000
5.4665	0.7777	0.3107
5.5955	0.2405	0.3046
5.7290	0.4758	0.3323
5.8673	0.3216	0.3223
6.0108	0.1350	0.2913
6.1595	-0.0983	0.2731
6.3139	0.1344	0.2667
6.4741	0.5955	0.2936
6.6405	-0.0771	0.3103
6.8134	-0.3681	0.2826
6.9931	-0.2927	0.2437
7.1801	0.2301	0.2085
7.3746	-0.2768	0.1848
7.5772	0.2945	0.1622

LI 6 135 DEG 7.5 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3961	22.5076	2.4134
0.4981	23.5228	1.4078
0.5997	18.1181	1.0357
0.7002	16.1663	0.9026
0.8031	14.9772	0.7725
0.9084	13.6865	0.7208
1.0105	13.4485	0.6982
1.1073	12.7894	0.7137
1.2059	11.1282	0.6555
1.3105	9.6106	0.6390
1.4127	9.4419	0.6465
1.5181	10.7424	0.6289
1.6253	9.5852	0.6600
1.7216	7.8531	0.6532
1.8148	6.2427	0.6364
1.9158	6.2657	0.6134
2.0254	6.7865	0.6431
2.1290	4.1907	0.8657
2.2245	5.1328	1.0760
2.3265	6.4333	0.8984
2.4357	10.1138	0.6940
2.5325	18.0632	0.7802
2.6356	20.0946	0.5825
2.7447	7.6068	0.5203
2.8371	3.2898	0.4404
2.9342	1.2111	0.4110
3.0365	1.8880	0.3970
3.1441	2.4189	0.3701
3.2576	1.9876	0.3496
3.3774	2.4510	0.3401
3.4714	2.2789	0.4890
3.5698	2.7240	0.3550
3.6720	2.9317	0.5199
3.7791	4.4933	0.4025
3.8905	6.4615	0.5982
3.9676	9.4318	0.6230
4.0881	20.6137	0.5828
4.2135	51.3022	0.9804
4.3005	40.5182	0.8739
4.3903	17.8292	0.6576
4.4829	6.1679	0.5020
4.5785	3.3228	0.4416
4.6771	2.0728	0.3918
4.7790	1.1545	0.3430
4.8843	0.9243	0.3268
4.9930	0.7545	0.2979
5.1055	0.2640	0.3021
5.2217	0.0525	0.3058
5.3420	0.5341	0.3267
5.4665	-0.0437	0.3386
5.5955	-0.0163	0.3503
5.7290	0.4741	0.3598
5.8673	0.0536	0.3541
6.0108	-0.3667	0.2991
6.1595	0.3109	0.2740
6.3139	0.1985	0.2987
6.4741	-0.5812	0.3535
6.6405	0.2583	0.3852
6.8134	-0.1448	0.3029
6.9931	-0.0712	0.2173
7.1801	0.1723	0.1920
7.3746	-0.2801	0.1772
7.5772	0.0045	0.1568

LITHIUM 7 ELASTIC SCATTERING 7.5 MEV LOS ALAMOS 1967
LI7 ELASTIC CROSS SECTIONS INCLUDE 0.478 MEV STATE
ALL CROSS SECTIONS IN MILLIBARNS PER STERADIAN OR MILLIBARNS TOTAL
VISUAL FIT CENTER OF MASS SYSTEM

COSINE OMEGA	SIGMA OMEGA
+1.0	657.0
+0.9	467.0
+0.8	330.0
+0.7	231.0
+0.6	164.0
+0.5	115.0
+0.4	80.5
+0.3	60.8
+0.2	52.1
+0.1	50.8
+0.0	51.2
-0.1	52.1
-0.2	53.7
-0.3	54.4
-0.4	54.8
-0.5	54.6
-0.6	53.2
-0.7	51.2
-0.8	48.1
-0.9	44.0
-1.0	39.7

ELASTIC SCATTERING DATA CENTER OF MASS LI 7 7.5 MEV

COS OMEGA C.M.	SIGMA OMEGA C.M.	STANDARD DEVIATIONS RELATIVE	ABSOLUTE
+0.717	249.0	8.8	12.5
+0.473	105.2	4.7	6.3
+0.167	51.0	2.9	3.6
-0.144	52.8	3.0	3.7
-0.466	54.7	3.0	3.8
-0.775	49.0	2.7	3.4

INTEGRATED ELASTIC CROSS SECTION 1519 PLUS OR MINUS 61 MILLIBARNS

LITHIUM 7 INELASTIC SCATTERING TO 4.63MEV LEVEL LOS ALAMOS 67 7.5MEV

COS OMEGA C.M.	SIGMA OMEGA C.M.	STANDARD DEVIATIONS RELATIVE	ABSOLUTE
+0.661	10.7	1.0	1.1
+0.382	11.9	1.1	1.2
+0.050	14.2	1.3	1.4
-0.265	10.3	0.9	1.0
-0.565	6.9	0.6	0.7
-0.827	4.7	0.5	0.5

INTEGRATED CROSS SECTION 122 PLUS OR MINUS 12 MILLIBARNS
VISUAL FIT CENTER OF MASS SYSTEM LI7 TO 4.63 STATE 7.5MEV

COS OMEGA	SIGMA OMEGA
+1.0	9.7
+0.9	9.9
+0.8	10.2
+0.7	10.5
+0.6	11.0
+0.5	11.5
+0.4	12.3
+0.3	13.2
+0.2	13.3
+0.1	13.0
0.0	12.5
-0.1	11.7
-0.2	10.8
-0.3	9.8
-0.4	8.7
-0.5	7.7
-0.6	6.7
-0.7	5.8
-0.8	4.9
-0.9	4.2
-1.0	3.1

SIGMA INELASTIC CONTINUOUS NEUTRONS LI7 7.5MEV
LABORATORY SYSTEM

LAB ANGLE	BIAS	SIGMA BELOW	S.D.	SIGMA ABOVE	S.D.	SUM	S.D.
39 DEG	1.0MEV	8.8	4.4	24.8	2.7	33.6	5.2
55 DEG	0.5MEV	4.1	2.1	33.4	3.7	37.5	4.3
72.5DEG	0.5MEV	3.6	1.8	21.5	2.4	25.1	3.0
90 DEG	0.5MEV	3.6	1.8	17.3	1.9	20.9	2.6
110 DEG	0.4MEV	4.1	2.1	16.3	1.8	20.4	2.8
135 DEG	0.4MEV	4.1	2.1	13.6	1.5	17.7	2.6

S.D. STANDARD DEVIATIONS ARE ABSOLUTE
RELATIVE ERRORS ARE ABOUT 0.5 OF THESE
INTEGRATED CROSS SECTION 311 PLUS OR MINUS 37 MILLIBARNS
VISUAL FIT LI7 CONTINUUM 7.5MEV ALL CONTINUOUS NEUTRONS

COS THETA LAB	SIGMA THETA LAB
+1.0	38.6
+0.9	38.4
+0.8	38.0
+0.7	36.8
+0.6	34.8
+0.5	30.8
+0.4	27.2
+0.3	25.0
+0.2	23.6
+0.1	22.4
+0.0	21.4
-0.1	20.6
-0.2	20.0
-0.3	19.4
-0.4	19.0
-0.5	18.4
-0.6	18.0
-0.7	17.7
-0.8	17.4
-0.9	17.1
-1.0	16.8

LI 7 39 DEG 7.5 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3961	93.1072	5.2187
0.4981	1.4917	1.9078
0.5997	2.1800	1.4108
0.7002	2.2834	1.2148
0.8031	3.9451	1.0271
0.9084	6.3174	0.9624
1.0105	7.4247	0.9197
1.1073	8.2611	0.9463
1.2059	9.0117	0.8848
1.3105	10.4514	0.8677
1.4127	9.0803	0.8837
1.5181	9.6027	0.8059
1.6253	9.9741	0.8423
1.7216	12.4085	0.9276
1.8148	12.6546	0.9238
1.9158	14.9850	0.9003
2.0254	15.9593	0.8564
2.1290	20.6816	0.9734
2.2245	32.5235	1.0130
2.3265	50.7327	1.0722
2.4357	51.6036	1.0403
2.5325	32.0944	1.0856
2.6356	15.6855	0.7548
2.7447	7.2254	0.8358
2.8371	4.0058	0.7849
2.9342	5.8414	0.7332
3.0365	6.0547	0.6711
3.1441	6.3534	0.6290
3.2576	5.7163	0.5961
3.3774	6.0323	0.5859
3.4714	6.3886	0.8245
3.5698	6.3914	0.5428
3.6720	6.7360	0.7474
3.7791	6.1299	0.5152
3.8905	6.3180	0.7108
3.9676	6.8075	0.7201
4.0881	8.8820	0.5177
4.2135	11.1361	0.7688
4.3005	12.0806	0.7779
4.3903	12.4094	0.7978
4.4829	10.3510	0.7666
4.5785	10.3857	0.7501
4.6771	8.9978	0.7030
4.7790	9.2820	0.6909
4.8843	10.8121	0.6855
4.9930	11.4683	0.6953
5.1055	12.7446	0.7202
5.2217	12.8094	0.6962
5.3420	15.1312	0.7025
5.4665	14.7964	0.6704
5.5955	16.9205	0.6848
5.7290	19.2329	0.7070
5.8673	23.9804	0.7381
6.0108	30.0844	0.7620
6.1595	41.9151	0.8358
6.3139	67.6353	0.9970
6.4741	109.7988	1.2553
6.6405	202.5911	1.6393
6.8134	369.2012	2.1397
6.9931	404.4846	2.2663
7.1801	204.8347	1.7806
7.3746	41.2349	1.2015
7.5772	4.2663	0.7754

LI 7 55 DEG 7.5 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3961	-12.8614	4.5118
0.4981	14.7110	1.4609
0.5997	11.7783	1.0725
0.7002	13.0707	0.9340
0.8031	13.5115	0.7897
0.9084	12.7370	0.7493
1.0105	13.1201	0.7261
1.1073	13.4846	0.7677
1.2059	14.4528	0.7030
1.3105	13.5310	0.7056
1.4127	12.7602	0.7091
1.5181	14.5129	0.6627
1.6253	15.8718	0.7060
1.7216	16.9493	0.7756
1.8148	20.1835	0.7753
1.9158	26.2810	0.7697
2.0254	41.8749	0.8150
2.1290	56.4329	0.9990
2.2245	49.0010	0.9225
2.3265	28.2670	0.7589
2.4357	13.0814	0.6227
2.5325	9.3480	0.7079
2.6356	7.4645	0.5308
2.7447	4.8835	0.6168
2.8371	6.5917	0.5845
2.9342	4.9793	0.5482
3.0365	4.6463	0.5091
3.1441	4.8989	0.4811
3.2576	4.7886	0.4641
3.3774	4.5673	0.4439
3.4714	4.8389	0.6104
3.5698	4.2637	0.4141
3.6720	3.3151	0.5774
3.7791	4.1509	0.3974
3.8905	3.7828	0.5644
3.9676	3.8543	0.5487
4.0881	5.4120	0.4194
4.2135	5.6547	0.6174
4.3005	4.2261	0.6097
4.3903	5.5199	0.5811
4.4829	4.8606	0.5636
4.5785	5.0839	0.5249
4.6771	5.1105	0.5480
4.7790	6.5956	0.5355
4.8843	7.2001	0.5332
4.9930	7.3684	0.5455
5.1055	7.4977	0.5311
5.2217	8.3680	0.5211
5.3420	10.0946	0.5125
5.4665	11.0659	0.5240
5.5955	13.8849	0.5504
5.7290	21.0899	0.6356
5.8673	31.4637	0.7210
6.0108	46.1421	0.8091
6.1595	62.3052	0.9080
6.3139	87.5810	1.0310
6.4741	134.9233	1.2723
6.6405	147.4934	1.3238
6.8134	80.1969	1.0226
6.9931	24.2465	0.7274
7.1801	6.4999	0.6136
7.3746	1.3849	0.4794
7.5772	1.4572	0.3309

LI 7 72.5 DEG 7.5 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3961	20.3044	2.7448
0.4981	11.5955	1.3919
0.5997	13.8296	1.0400
0.7002	12.8901	0.9092
0.8031	12.0690	0.7406
0.9084	12.8107	0.7019
1.0105	12.6064	0.6793
1.1073	14.0777	0.7153
1.2059	13.1256	0.6644
1.3105	13.2597	0.6534
1.4127	13.8943	0.6542
1.5181	17.0776	0.6504
1.6253	23.9999	0.7172
1.7216	34.0679	0.8561
1.8148	47.5095	0.9123
1.9158	43.5194	0.8418
2.0254	24.6639	0.6693
2.1290	9.6929	0.6079
2.2245	7.3530	0.5601
2.3265	5.1745	0.5297
2.4357	4.4949	0.5001
2.5325	4.5180	0.5774
2.6356	4.3833	0.4540
2.7447	4.5192	0.5370
2.8371	3.8089	0.4994
2.9342	4.6082	0.4579
3.0365	3.4927	0.4322
3.1441	2.5318	0.4165
3.2576	3.5126	0.4104
3.3774	3.5599	0.3881
3.4714	3.7196	0.5312
3.5698	3.4473	0.3666
3.6720	1.8183	0.4899
3.7791	3.3069	0.3534
3.8905	3.3725	0.5102
3.9676	4.0140	0.5281
4.0881	3.8155	0.3823
4.2135	4.0396	0.5481
4.3005	3.9972	0.5224
4.3903	3.7651	0.4760
4.4829	4.0611	0.4909
4.5785	4.0150	0.4673
4.6771	4.7151	0.4735
4.7790	4.2502	0.4761
4.8843	6.4713	0.4946
4.9930	6.3687	0.4965
5.1055	7.8326	0.5146
5.2217	10.9575	0.5524
5.3420	18.1444	0.6171
5.4665	29.7461	0.7202
5.5955	40.6858	0.8080
5.7290	49.4727	0.8462
5.8673	50.0739	0.8344
6.0108	49.9487	0.8055
6.1595	46.2919	0.7669
6.3139	26.4614	0.6107
6.4741	10.8333	0.4748
6.6405	4.8505	0.4211
6.8134	1.6991	0.4232
6.9931	0.8244	0.4215
7.1801	0.6813	0.3709
7.3746	-0.0602	0.2822
7.5772	0.2057	0.2129

LI 7 90 DEG 7.5 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3961	22.3228	2.6782
0.4981	12.6511	1.4209
0.5997	13.3840	1.0726
0.7002	13.1830	0.9213
0.8031	9.2146	0.7567
0.9084	11.8904	0.7015
1.0105	11.9225	0.6856
1.1073	12.4523	0.7021
1.2059	12.1480	0.6493
1.3105	14.9443	0.6546
1.4127	22.2876	0.7099
1.5181	35.2011	0.7530
1.6253	36.1827	0.7952
1.7216	21.4293	0.7517
1.8148	10.4973	0.6159
1.9158	7.1417	0.5332
2.0254	3.8865	0.4920
2.1290	3.7735	0.5246
2.2245	3.8486	0.5063
2.3265	2.7318	0.4726
2.4357	2.4105	0.4482
2.5325	3.3199	0.5342
2.6356	2.4563	0.4144
2.7447	2.9386	0.4714
2.8371	3.0893	0.4396
2.9342	2.6654	0.4319
3.0365	3.4571	0.4184
3.1441	3.6535	0.4144
3.2576	3.3848	0.3981
3.3774	3.7933	0.3944
3.4714	4.7140	0.5599
3.5698	4.4848	0.3845
3.6720	5.5575	0.5388
3.7791	3.9453	0.3859
3.8905	3.6836	0.5662
3.9676	4.5799	0.5876
4.0881	4.5410	0.4197
4.2135	3.6539	0.5716
4.3005	5.5820	0.5938
4.3903	5.8394	0.6058
4.4829	5.5254	0.6124
4.5785	6.5934	0.6305
4.6771	8.2835	0.6405
4.7790	10.4881	0.6377
4.8843	17.9378	0.6800
4.9930	28.3754	0.7410
5.1055	39.4575	0.7958
5.2217	45.9094	0.8239
5.3420	43.0552	0.8647
5.4665	60.0361	0.9020
5.5955	58.3442	0.8839
5.7290	40.0928	0.7449
5.8673	15.3566	0.5130
6.0108	4.9688	0.3711
6.1595	2.5207	0.3282
6.3139	1.1397	0.3036
6.4741	0.4632	0.3043
6.6405	0.2228	0.3448
6.8134	-0.0967	0.3627
6.9931	0.4342	0.3289
7.1801	-0.0983	0.2574
7.3746	-0.4316	0.2036
7.5772	0.1379	0.1755

LI 7 110 DEG 7.5 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3961	17.4756	2.2887
0.4981	14.3203	1.3397
0.5997	12.0896	0.9924
0.7002	11.8892	0.8433
0.8031	10.6265	0.7110
0.9084	11.6068	0.6760
1.0105	11.8683	0.6527
1.1073	12.2565	0.6593
1.2059	21.2745	0.6626
1.3105	29.6571	0.7158
1.4127	19.9610	0.6645
1.5181	8.6678	0.5572
1.6253	5.3735	0.5582
1.7216	5.9554	0.5609
1.8148	3.9861	0.5100
1.9158	3.2932	0.4596
2.0254	3.7237	0.4235
2.1290	2.7074	0.4679
2.2245	3.2549	0.4551
2.3265	2.1753	0.4235
2.4357	2.7703	0.4128
2.5325	2.6784	0.4987
2.6356	2.5694	0.3772
2.7447	2.7009	0.4280
2.8371	3.1198	0.4136
2.9342	3.3923	0.4047
3.0365	4.6680	0.4290
3.1441	5.3328	0.4263
3.2576	4.9014	0.4141
3.3774	4.0792	0.4069
3.4714	4.2390	0.5715
3.5698	4.0414	0.4065
3.6720	4.5937	0.5821
3.7791	4.7810	0.4165
3.8905	5.5891	0.6009
3.9676	4.0142	0.5672
4.0881	6.1646	0.3814
4.2135	7.2279	0.5305
4.3005	8.9009	0.5460
4.3903	13.4249	0.5940
4.4829	20.0122	0.6684
4.5785	30.8799	0.7620
4.6771	39.8921	0.8343
4.7790	47.1591	0.8661
4.8843	57.0944	0.9276
4.9930	67.2556	0.9824
5.1055	64.3763	0.9493
5.2217	41.8057	0.7658
5.3420	14.1203	0.4921
5.4665	4.6653	0.3693
5.5955	1.9849	0.3263
5.7290	1.3748	0.3360
6.0108	0.5252	0.2875
6.1595	0.5436	0.2746
6.3139	0.1903	0.2578
6.4741	0.4032	0.2795
6.6405	-0.2347	0.2959
6.8134	-0.0366	0.2777
6.9931	0.0104	0.2404
7.1801	0.1962	0.1999
7.3746	-0.1153	0.1815
7.5772	0.0964	0.1503

LI 7 135 DEG 7.5 MEV

E AVG	DN/DE AVG	S.D. AVG
0.3961	17.6419	2.3729
0.4981	17.5606	1.3610
0.5997	12.5210	0.9919
0.7002	10.7845	0.8581
0.8031	10.8183	0.7353
0.9084	11.8762	0.6967
1.0105	17.6041	0.7099
1.1073	20.7508	0.7520
1.2059	11.6220	0.6458
1.3105	6.3133	0.6022
1.4127	5.0193	0.5991
1.5181	5.2426	0.5755
1.6253	4.8531	0.6091
1.7216	3.9071	0.6035
1.8148	3.0777	0.5944
1.9158	2.5346	0.5676
2.0254	2.0740	0.5913
2.1290	1.3660	0.8207
2.2245	3.1126	1.0314
2.3265	2.5418	0.8480
2.4357	2.6119	0.6202
2.5325	2.2767	0.6051
2.6356	1.9572	0.4097
2.7447	3.1132	0.4519
2.8371	4.3981	0.4467
2.9342	4.1764	0.4427
3.0365	2.9763	0.4040
3.1441	3.3855	0.3770
3.2576	3.5083	0.3649
3.3774	3.9698	0.3556
3.4714	4.0677	0.5135
3.5698	3.3437	0.3557
3.6720	4.1988	0.5301
3.7791	5.0840	0.3997
3.8905	6.2761	0.5818
3.9676	8.0378	0.5905
4.0881	17.1369	0.4697
4.2135	28.7430	0.7621
4.3005	32.0851	0.7817
4.3903	33.6781	0.8075
4.4829	50.2849	0.9396
4.5785	71.2015	1.0738
4.6771	63.5071	1.0019
4.7790	31.1582	0.7230
4.8843	9.7570	0.4700
4.9930	3.5282	0.3491
5.1055	2.2129	0.3354
5.2217	1.3256	0.3245
5.3420	0.4667	0.3178
5.4665	-0.1715	0.3276
5.5955	0.1668	0.3441
5.7290	0.5601	0.3517
5.8673	0.3597	0.3305
6.0108	0.3218	0.3031
6.1595	0.5803	0.2723
6.3139	-0.1045	0.2856
6.4741	-0.2720	0.3475
6.6405	0.1007	0.3717
6.8134	0.1633	0.2997
6.9931	0.0785	0.2115
7.1801	0.2898	0.1918
7.3746	-0.0311	0.1808
7.5772	0.3552	0.1651

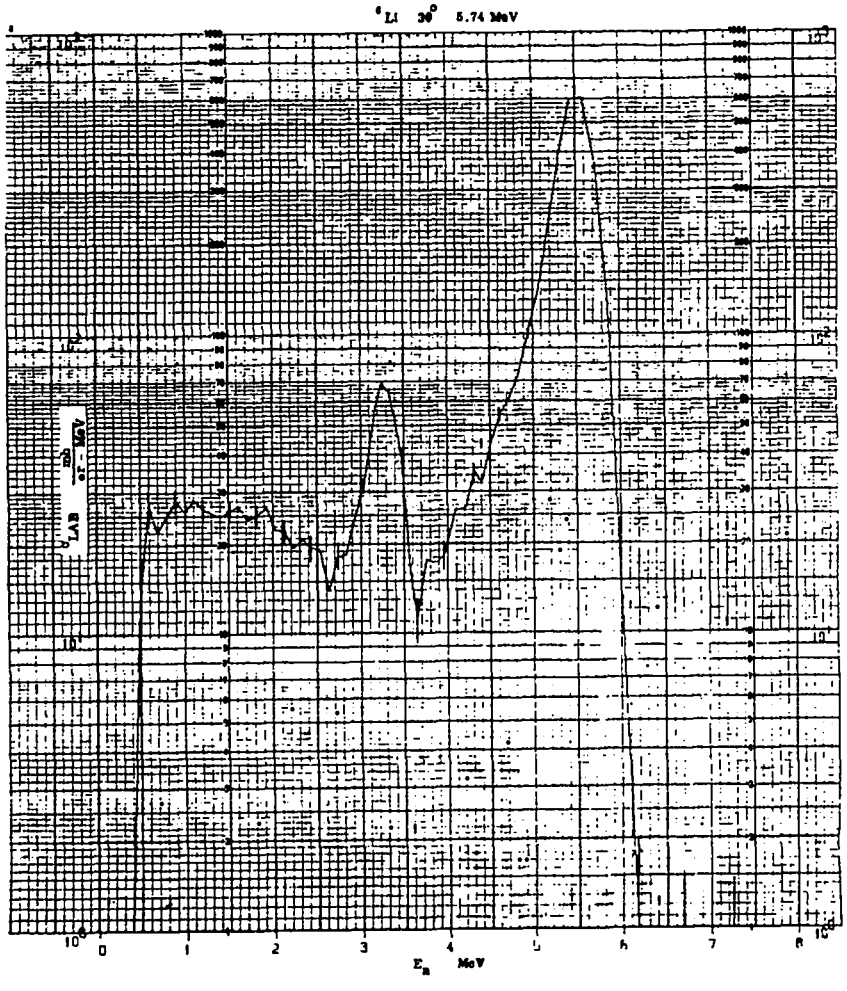
APPENDIX B

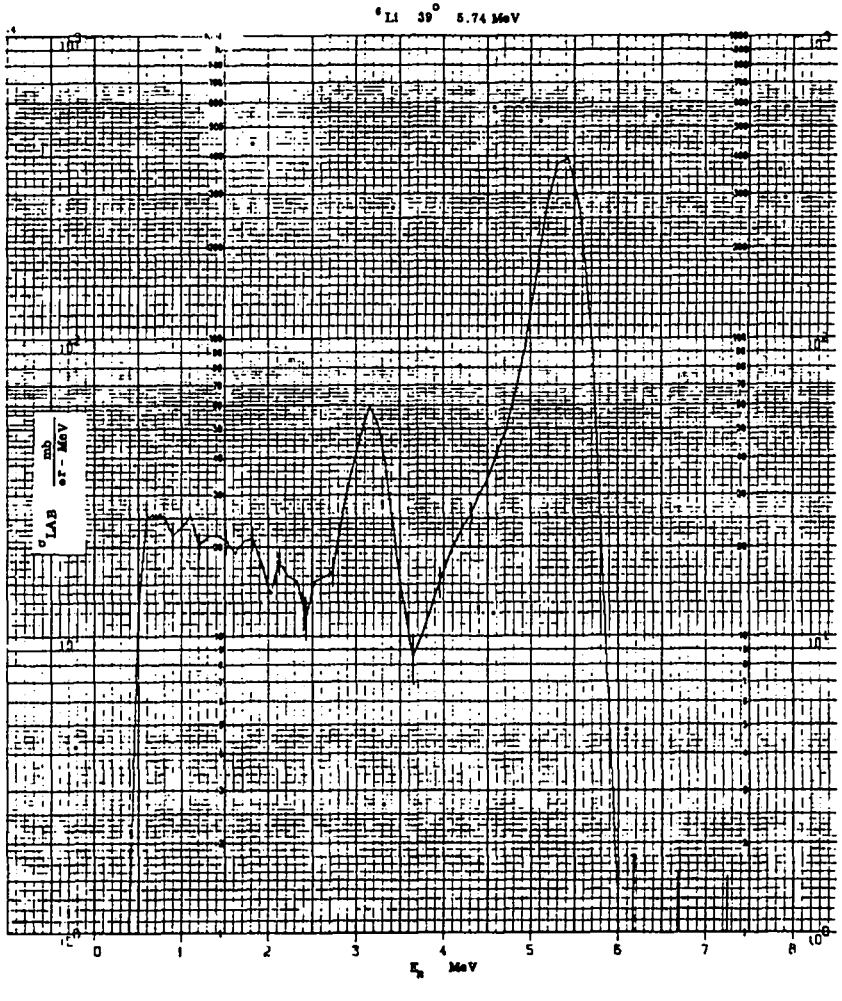
ENERGY SPECTRA

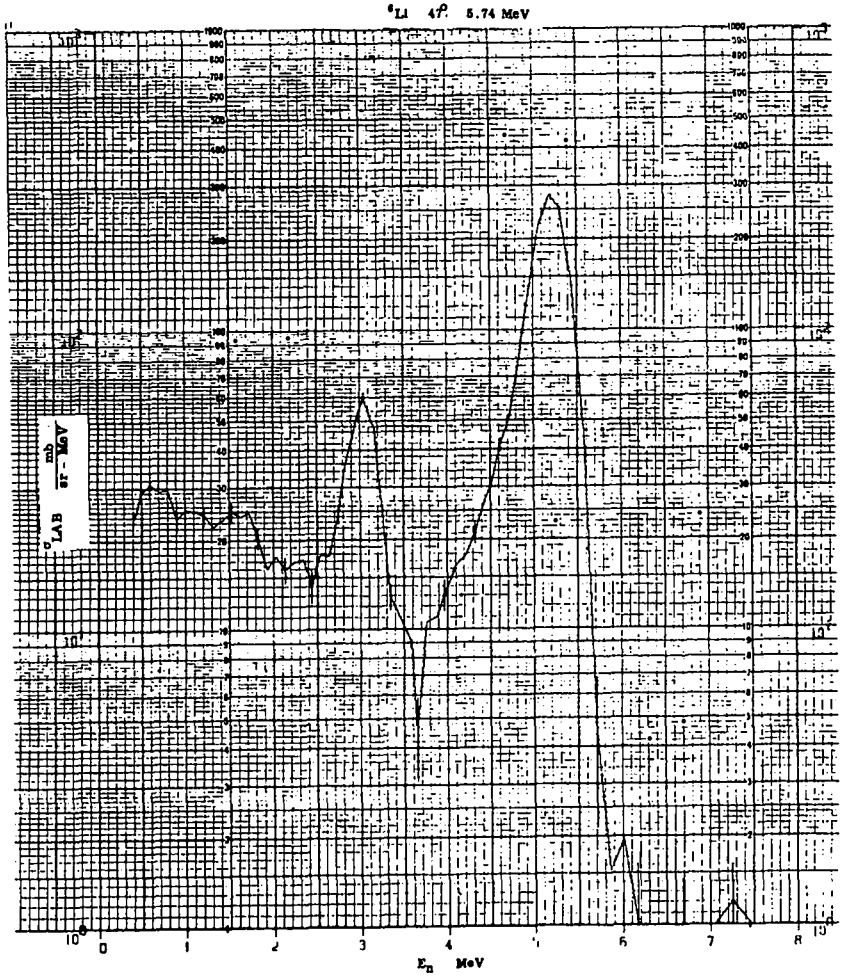
The laboratory cross sections in mb/sr-MeV, on a log scale, are plotted versus scattered neutron energy.

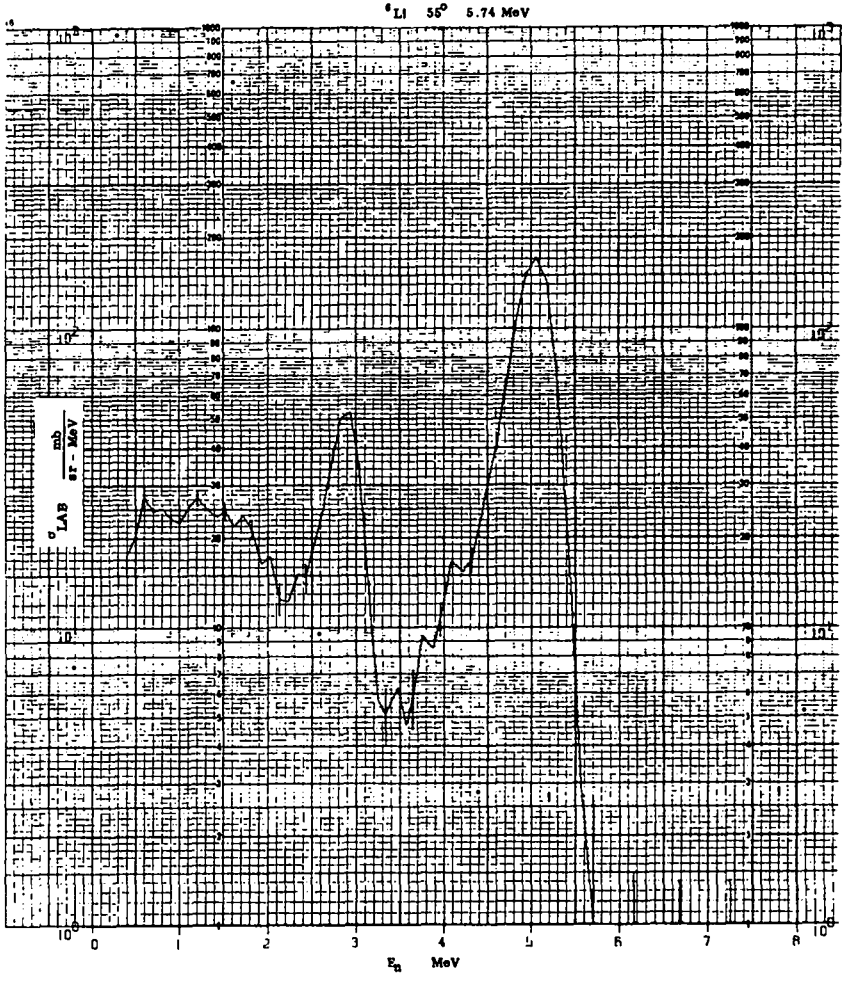
In these spectra the elastic and inelastic scattering peaks have not been corrected for multiple scattering and attenuation. These spectra are intended to show the continuum neutron distributions, which have been corrected properly. The error bars are statistical standard deviations only.

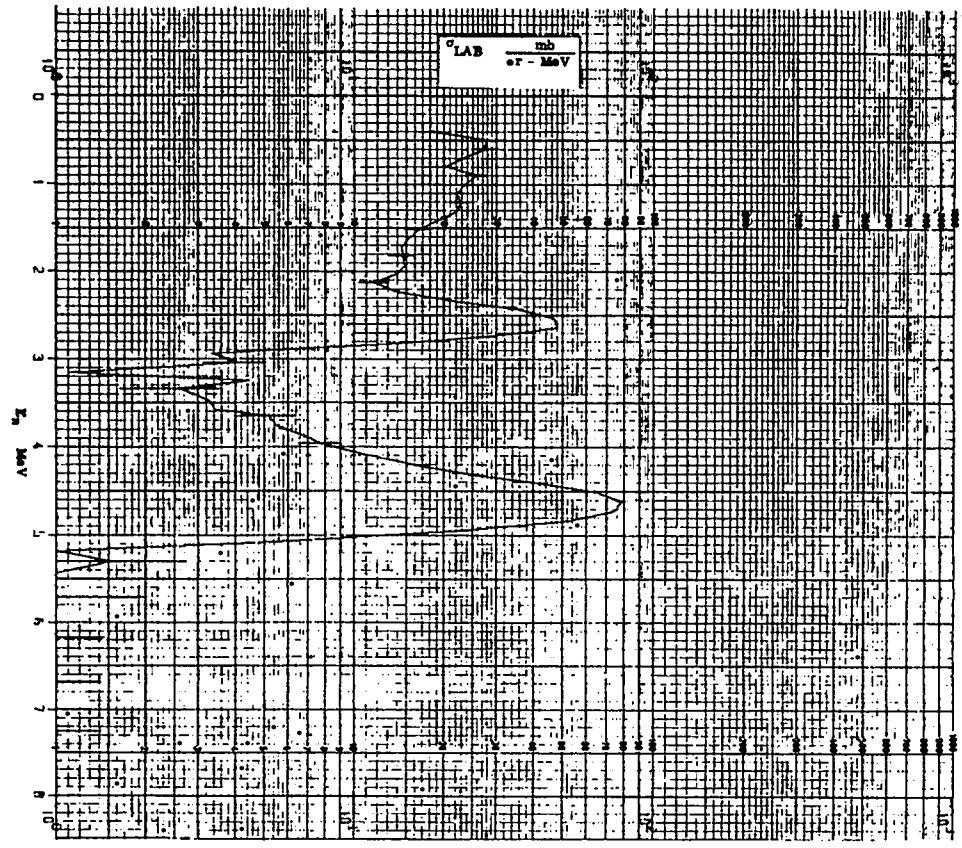
The extrapolations below the cut-off energy are not shown. The procedure for such extrapolation is discussed in the text.

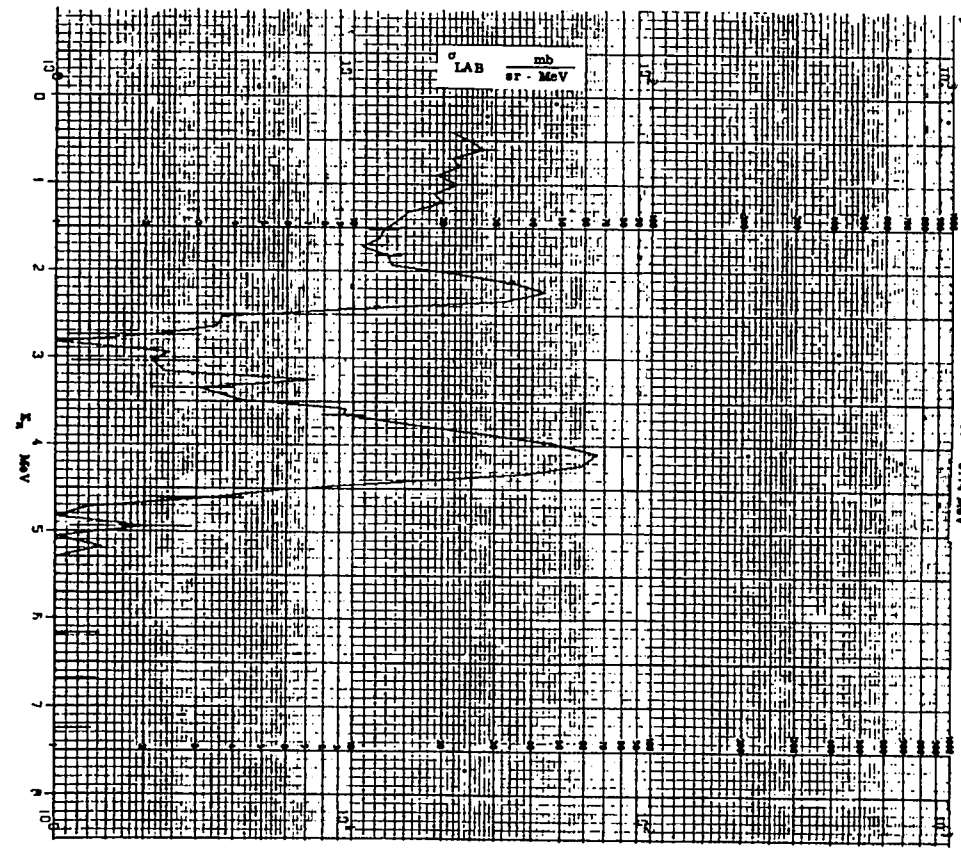

^{6}Li 30° 5.74 MeV
$\frac{d\sigma}{d\Omega}_{LAB}$ $\frac{mb}{sr - MeV}$
E_n MeV

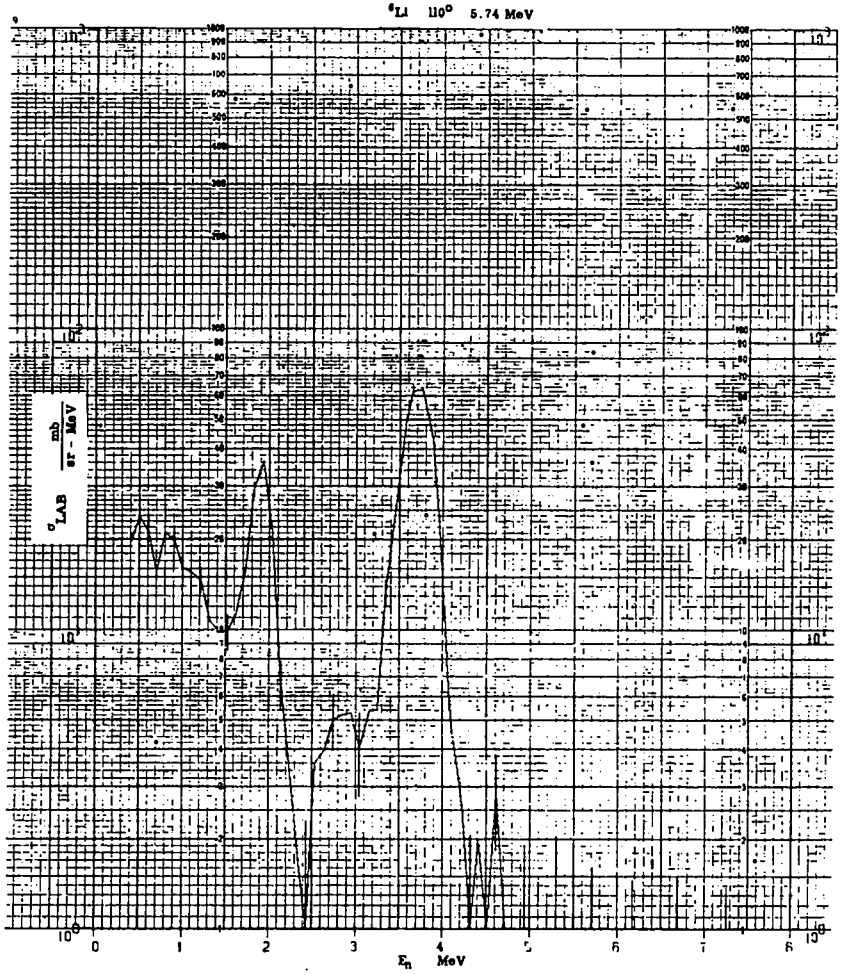

^{6}Li 39° 5.74 MeV
$\frac{d\sigma}{d\Omega}_{LAB}$ $\frac{mb}{sr - MeV}$
E_n MeV

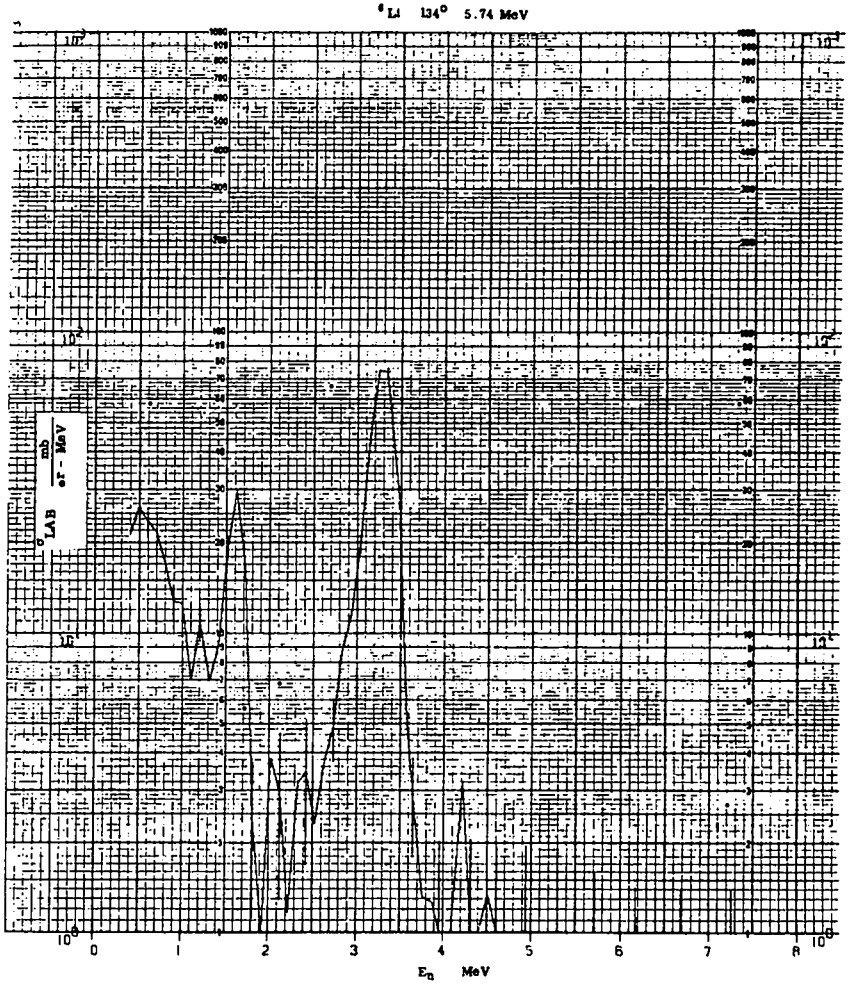

^{6}Li 47° 5.74 MeV
$\frac{d\sigma}{d\Omega}_{LAB}$ $\frac{mb}{sr}$
E_n MeV

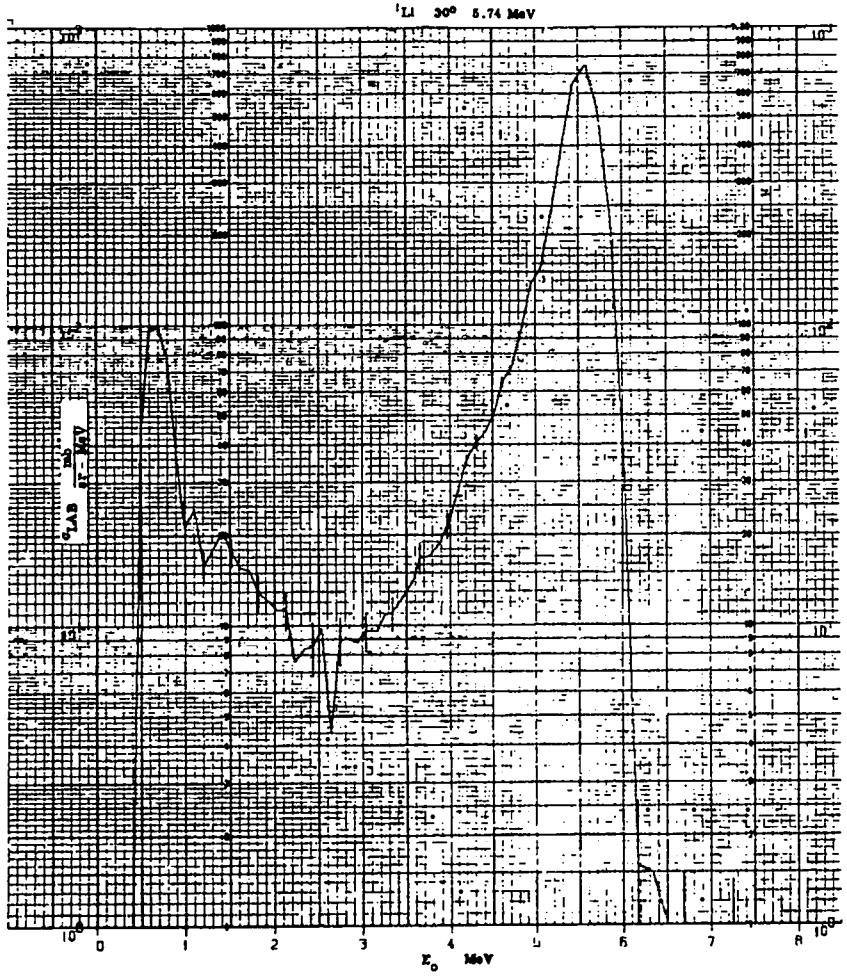

^{6}Li 55° 5.74 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV

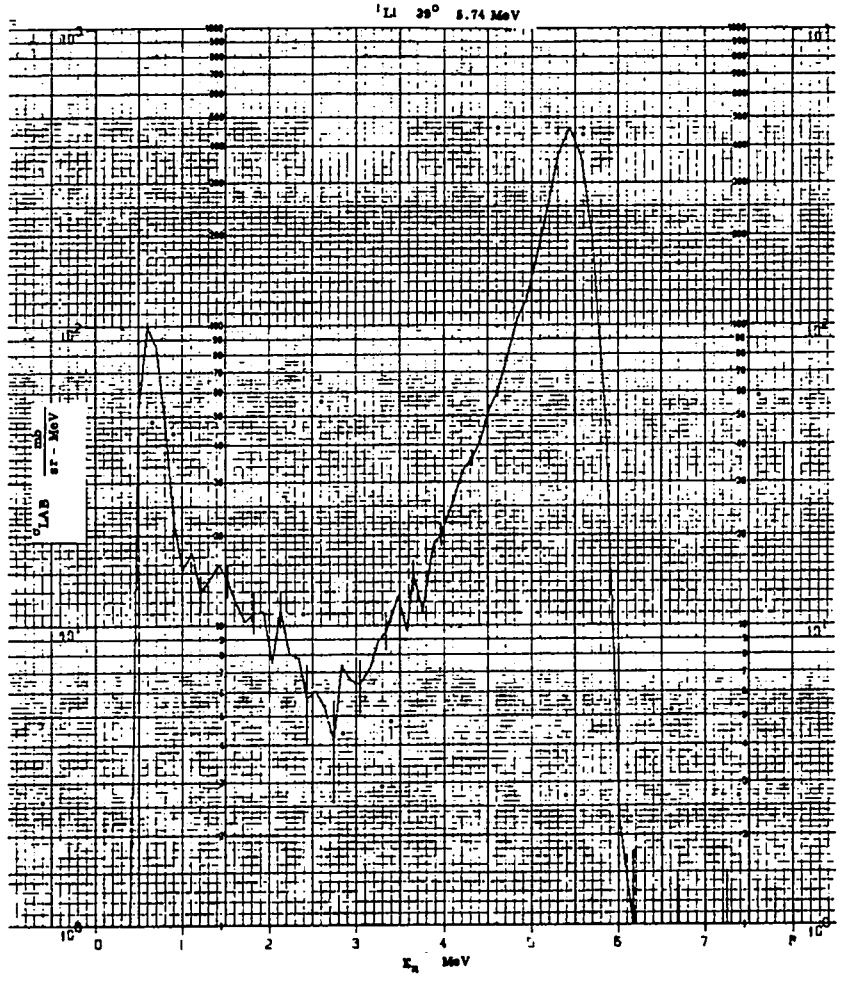

σ_{LAB} mb / sr - MeV
T_n MeV
^6Li 72.4° 5.74 MeV

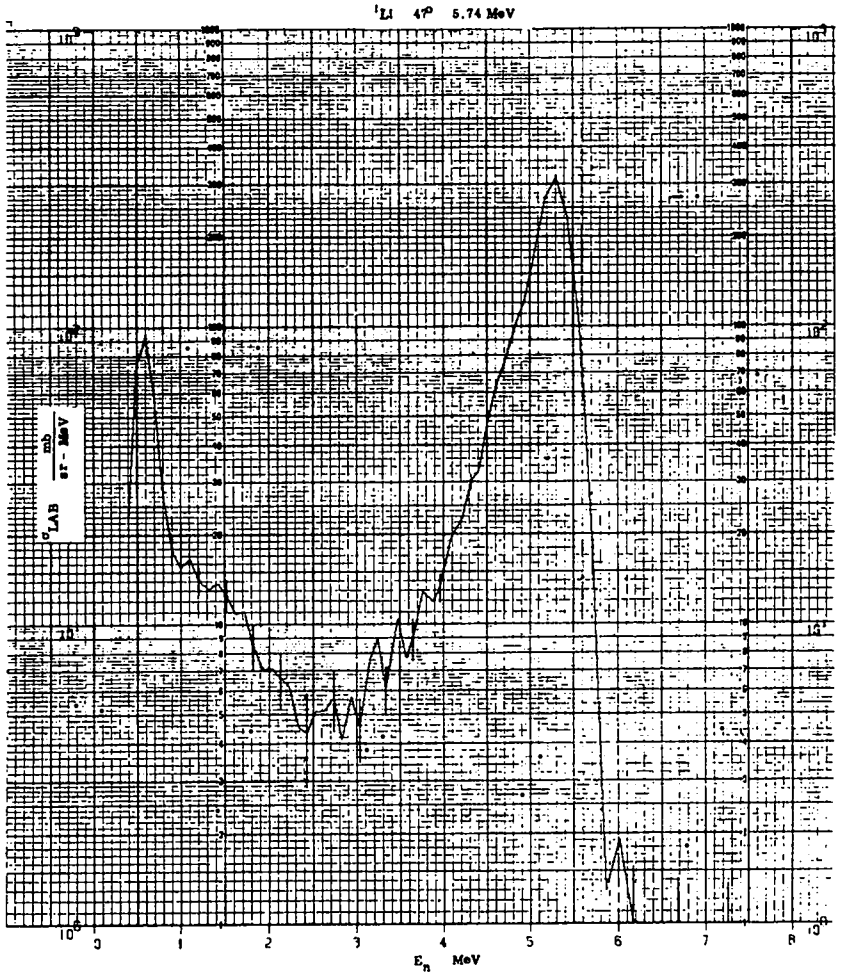

σ_{LAB} mb / sr - MeV
T_n MeV
^6Li 90° 5.74 MeV

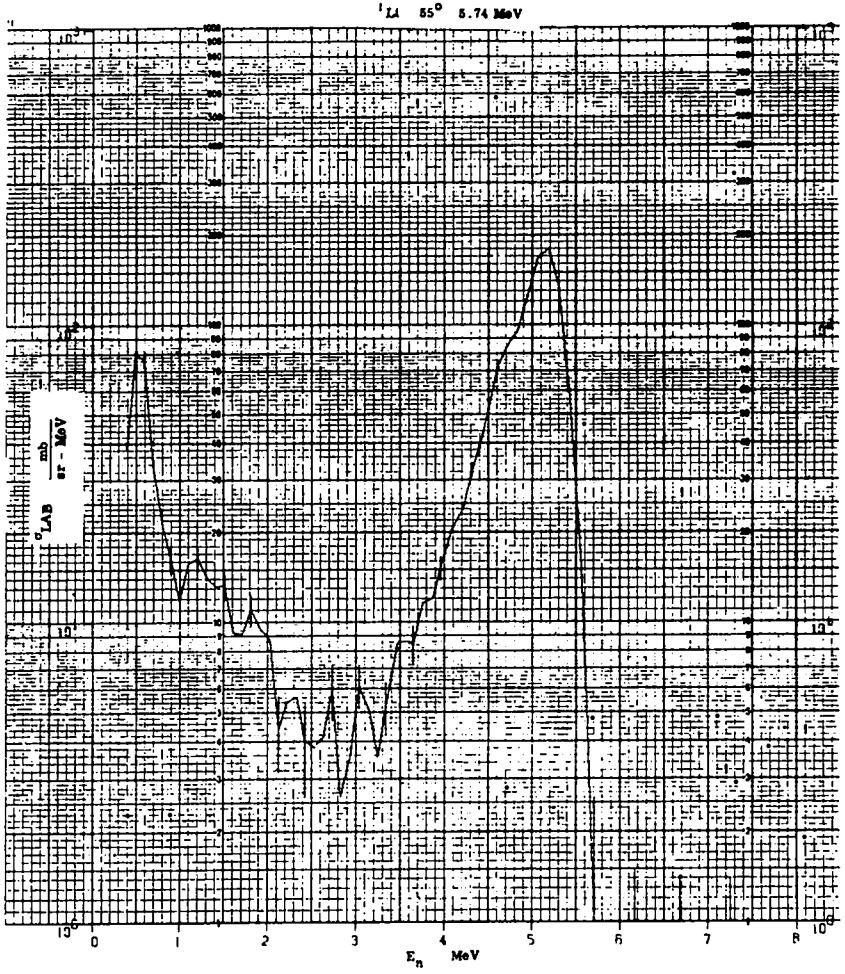

^{6}Li 110° 5.74 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV

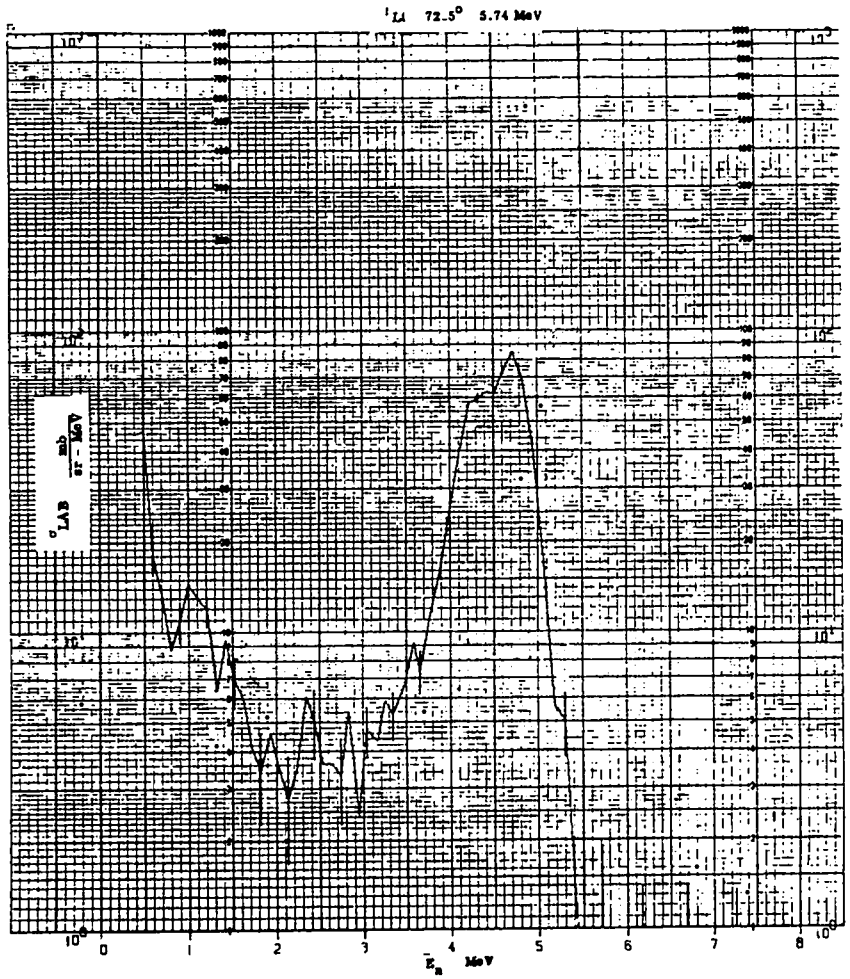

^{6}Li 134° 5.74 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV

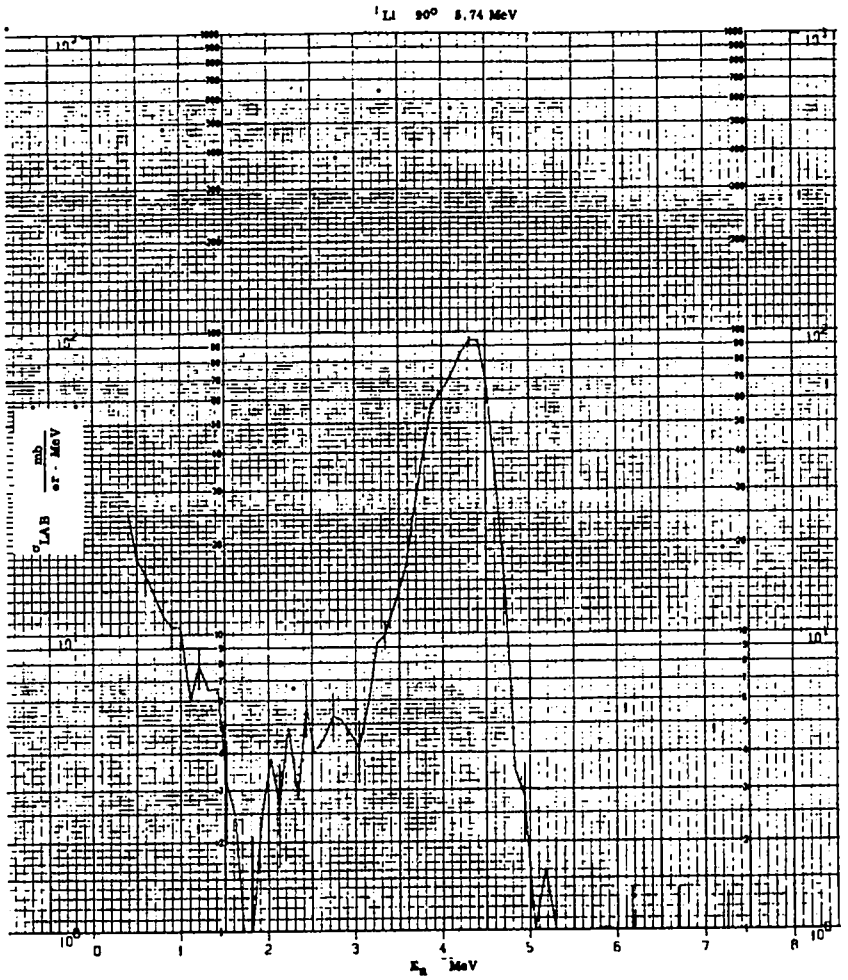

^{7}Li 30° 5.74 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_o MeV

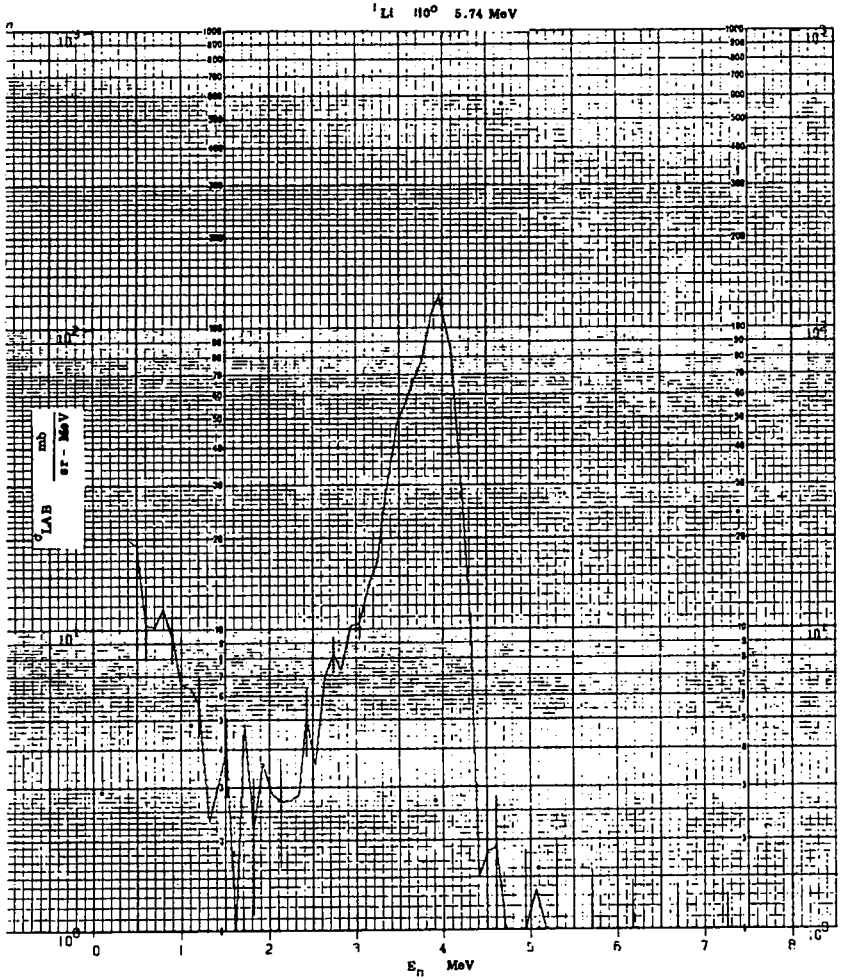

^{7}Li 39° 5.74 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV

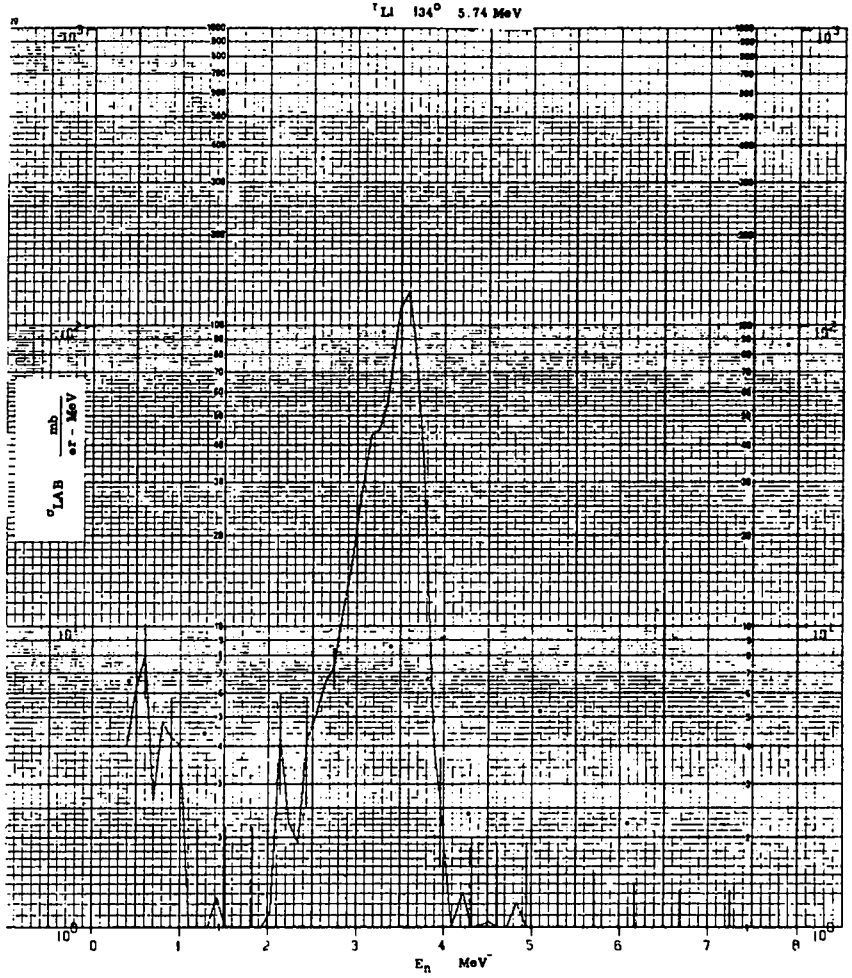

^{7}Li 47° 5.74 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV

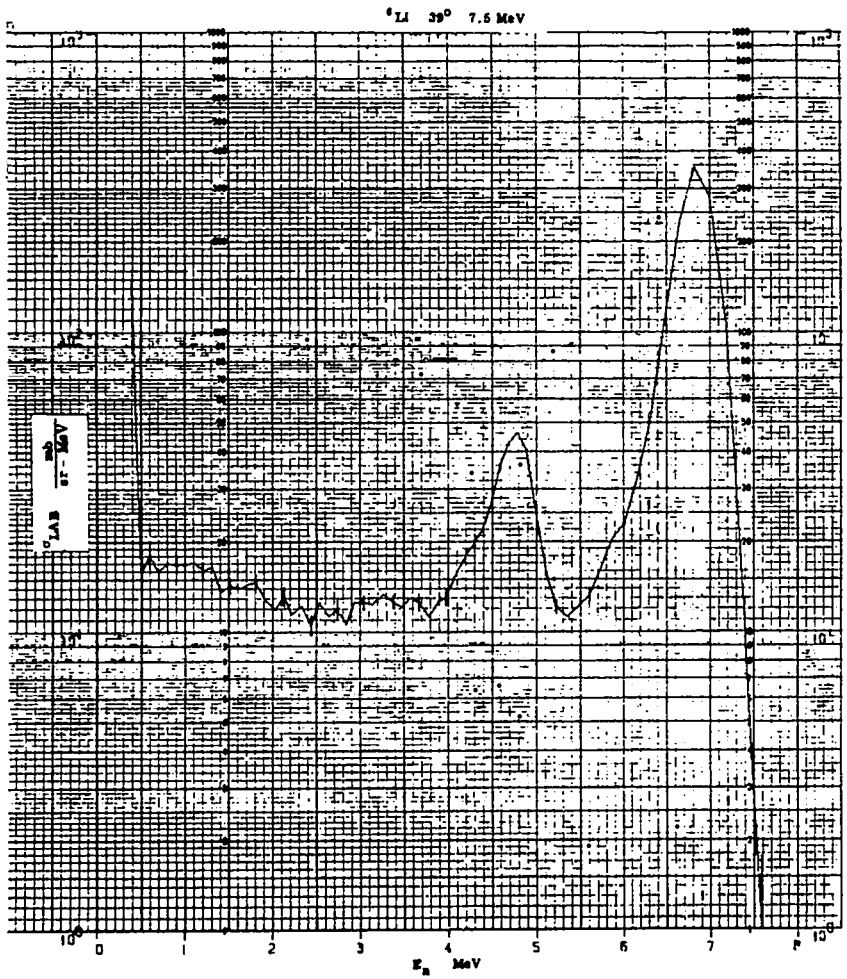

^{7}Li 55° 5.74 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV

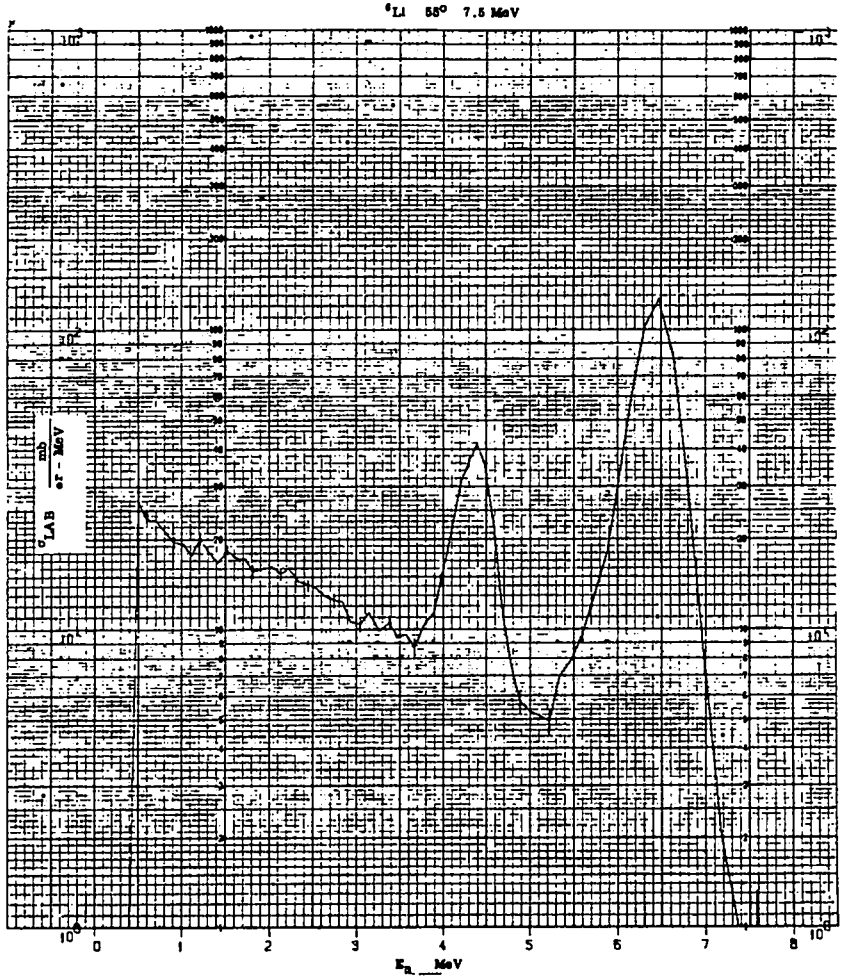

^{7}Li 72.5° 5.74 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV

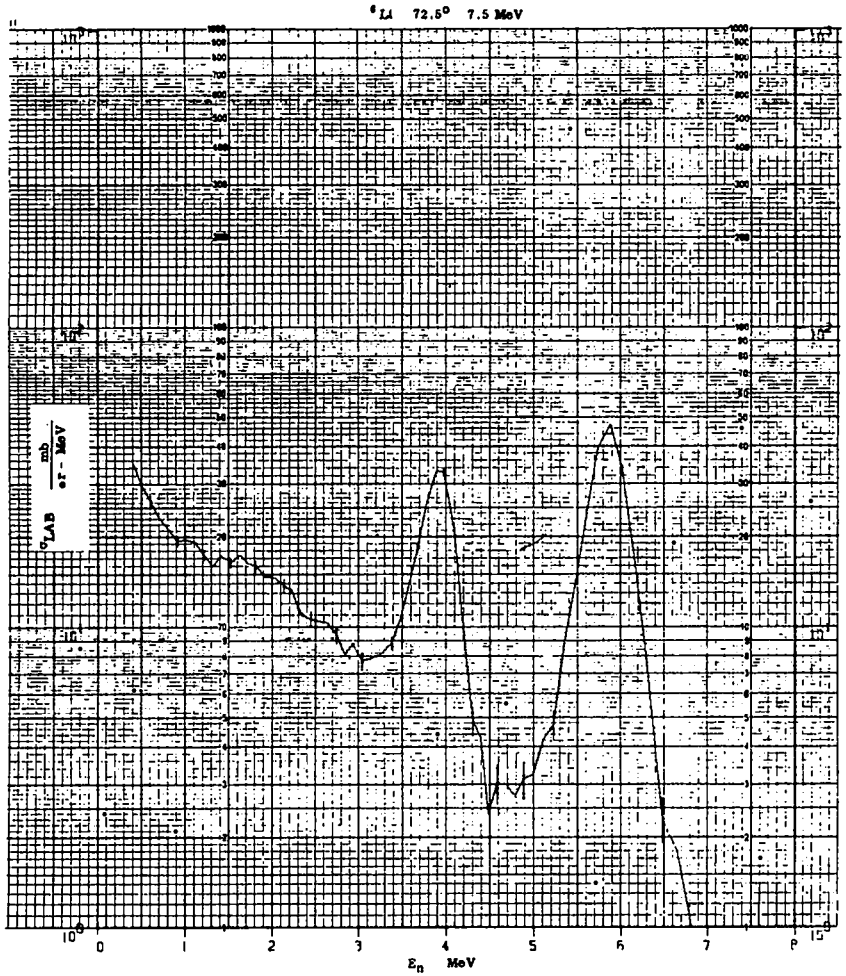

^{7}Li 90° 5.74 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV

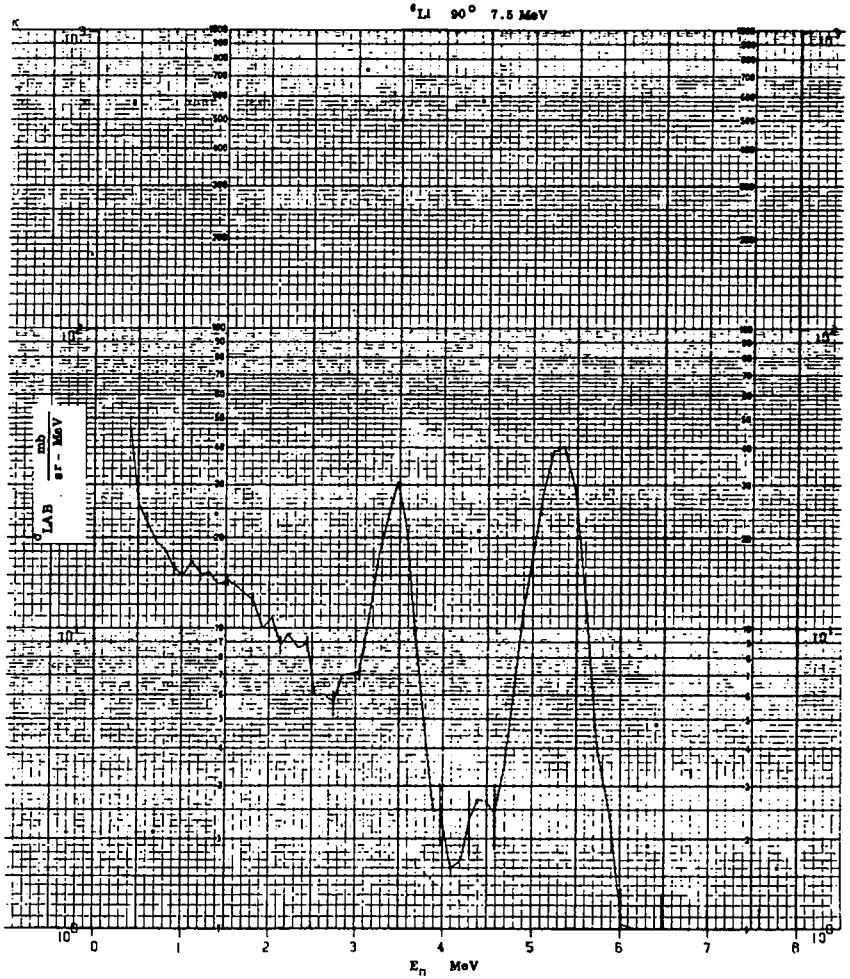

^{7}Li 110° 5.74 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV

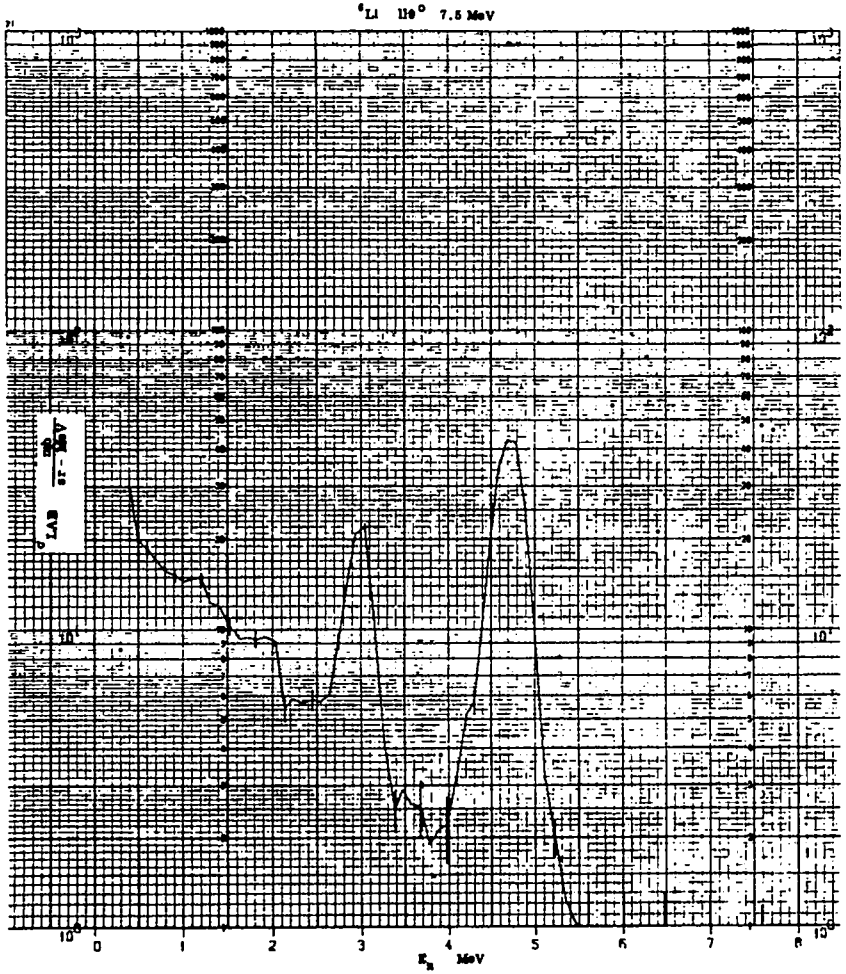

^{7}Li 134° 5.74 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV

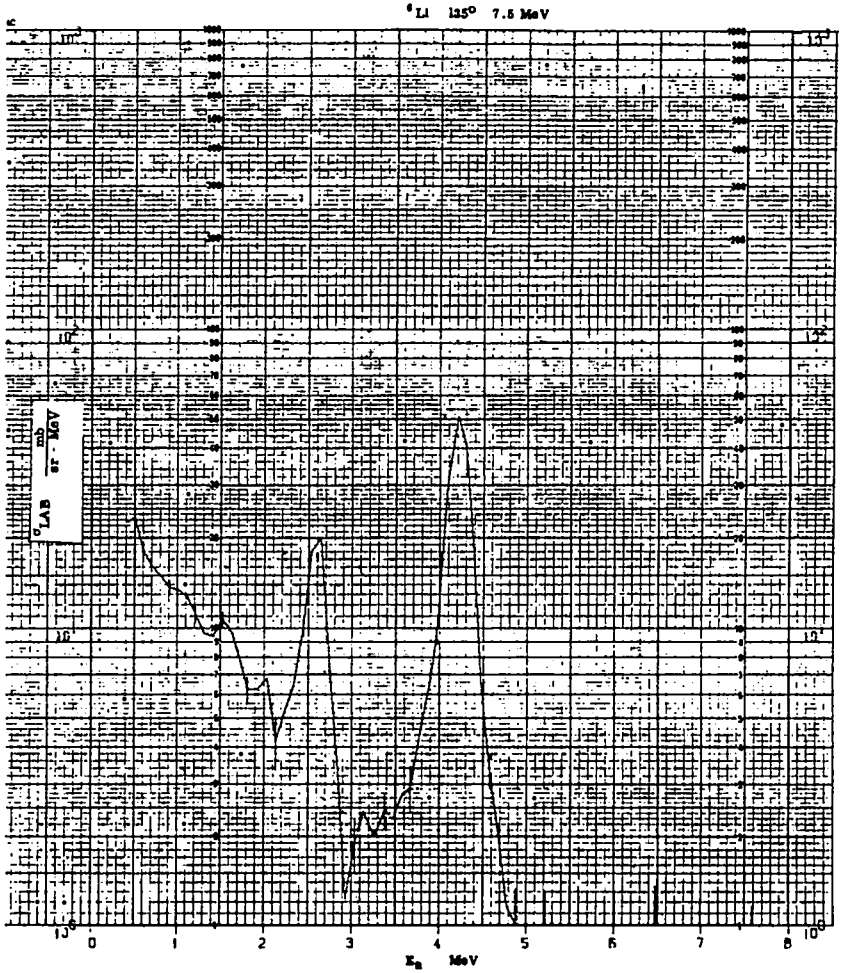

^{6}Li 39° 7.5 MeV
$\frac{mb}{sr - MeV}$
σ_{LAB}
E_n MeV

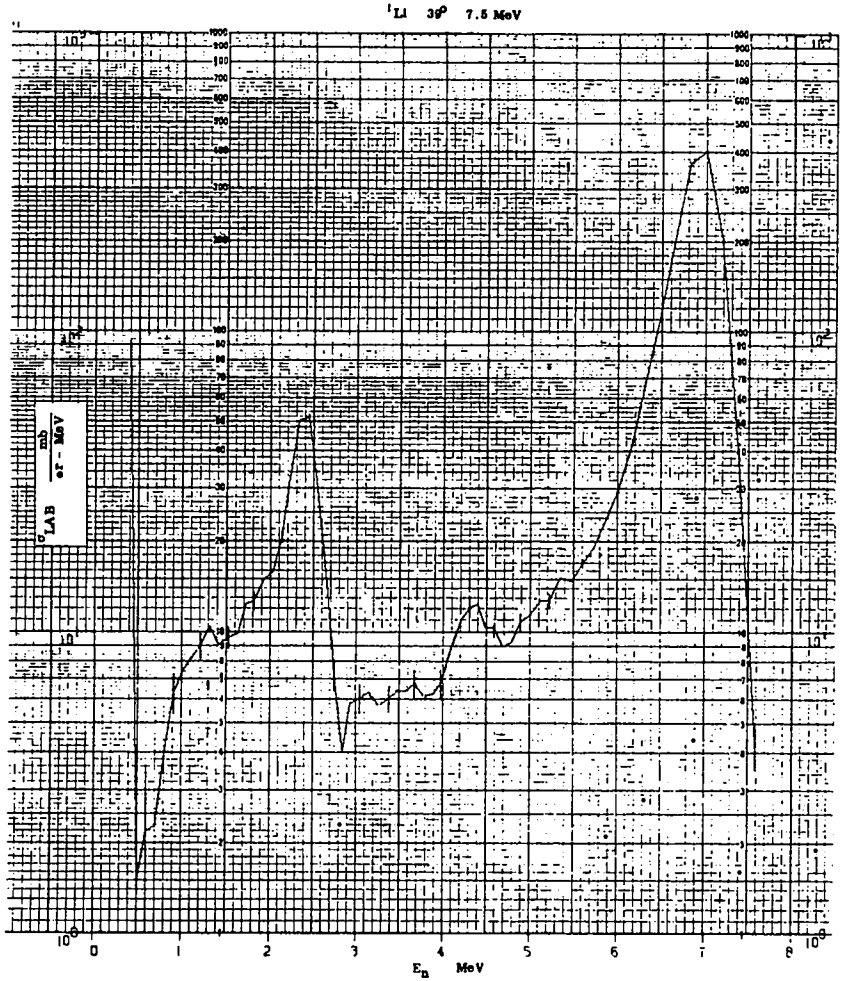

^{6}Li 55° 7.5 MeV
$\frac{mb}{sr - MeV}$
σ_{LAB}
E_n MeV

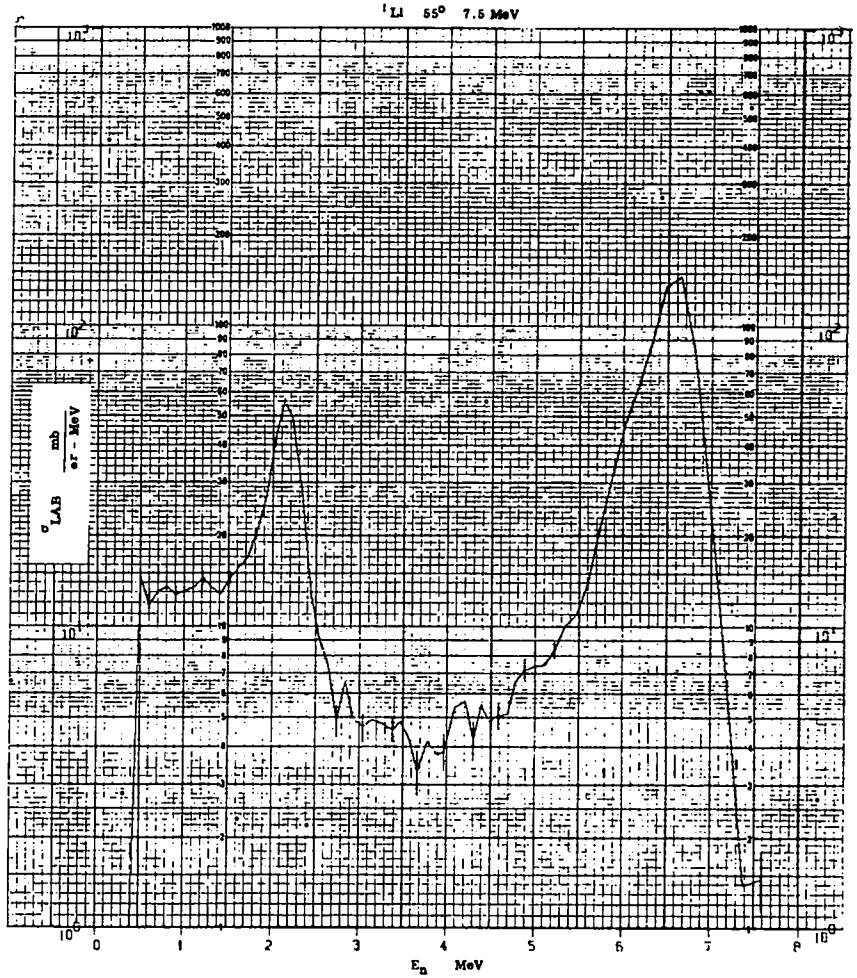

^6Li 72.5° 7.5 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV

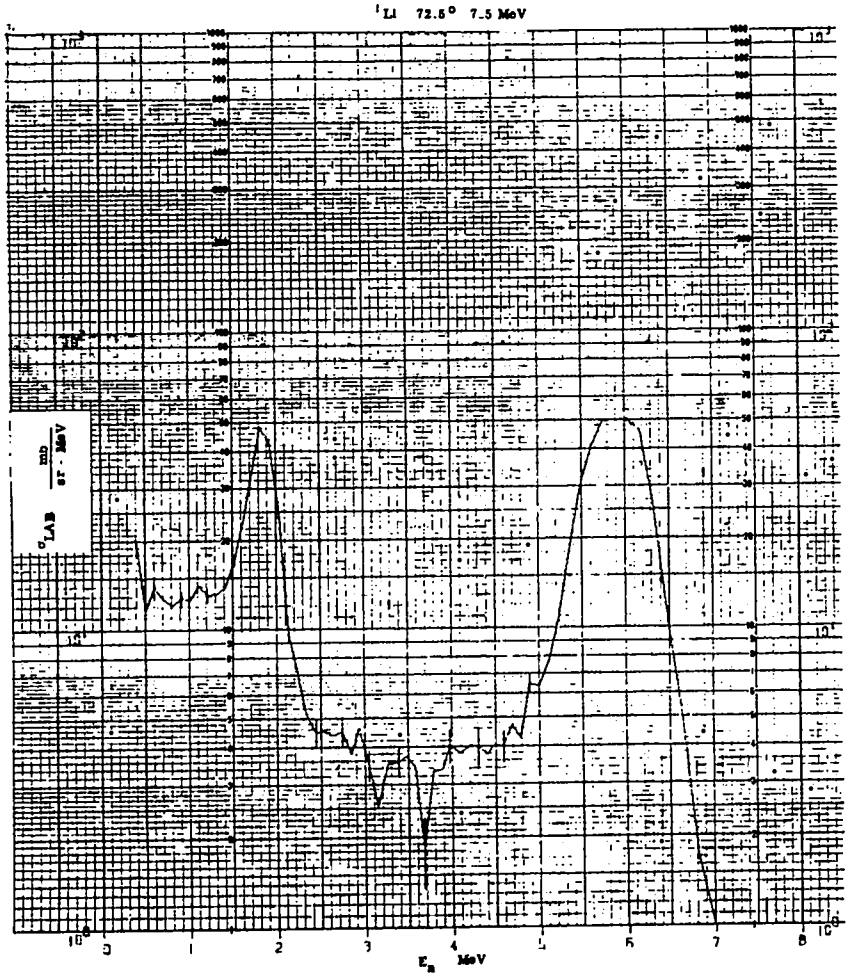

^6Li 90° 7.5 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV

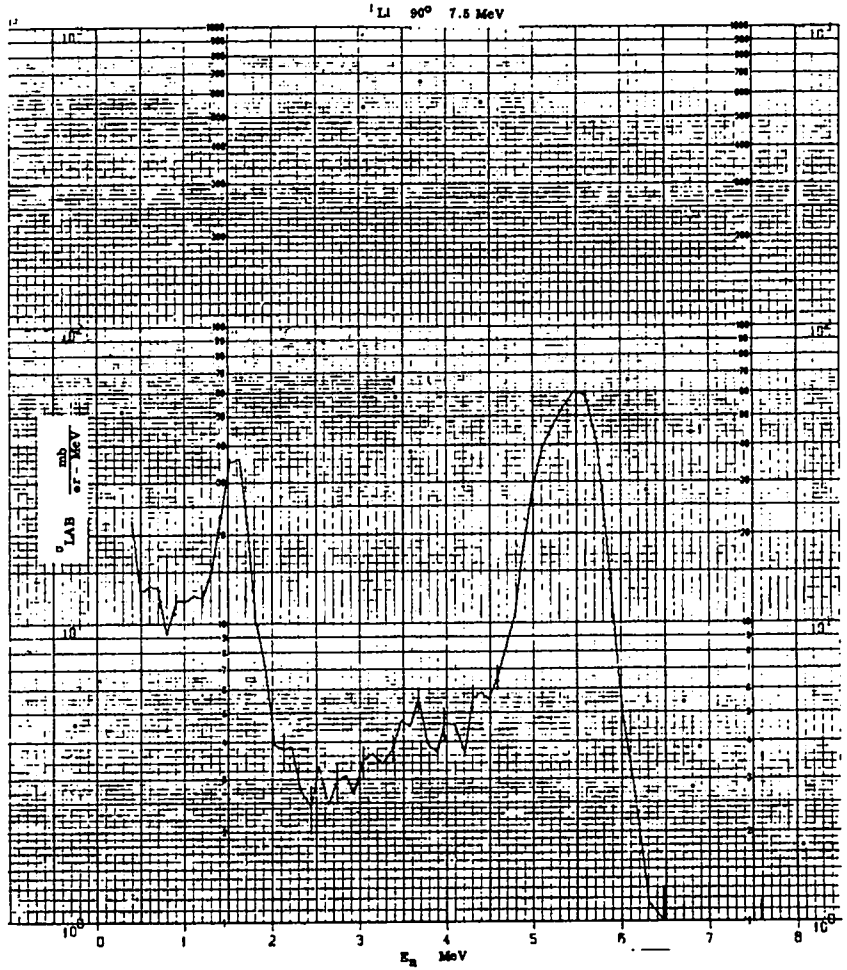

^{6}Li 110° 7.5 MeV
$\frac{d\sigma}{d\Omega}_{LAB}$ $\frac{mb}{sr \cdot MeV}$
E_n MeV

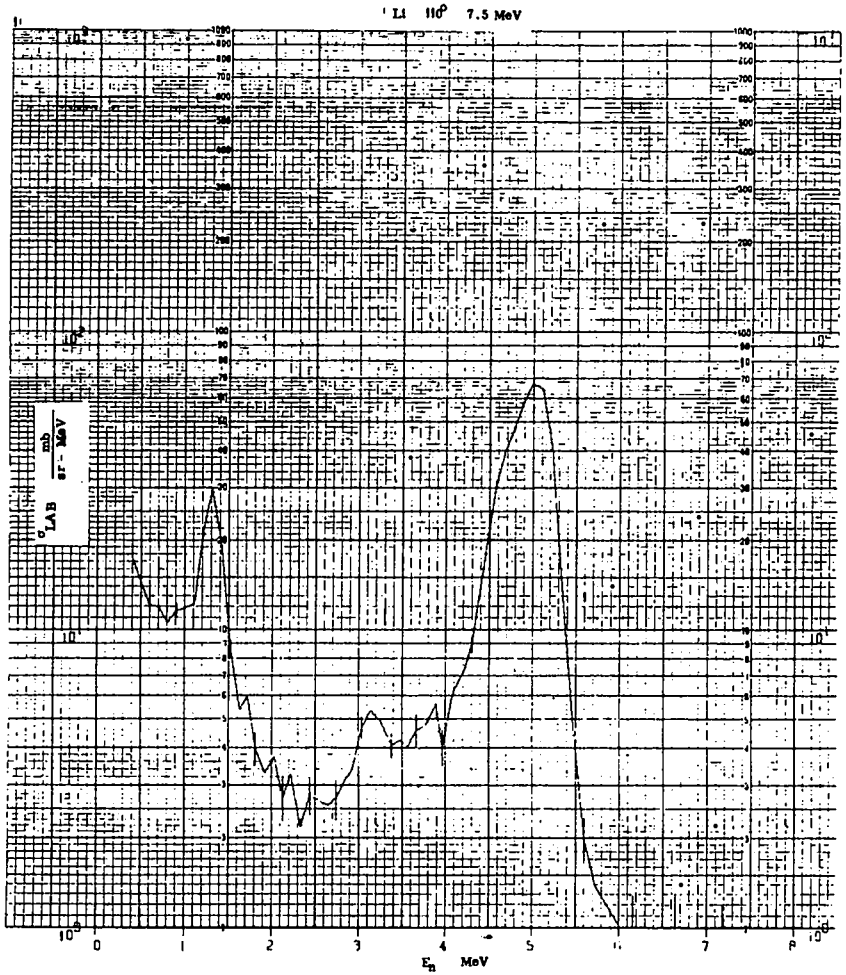

^{6}Li 135° 7.5 MeV
$\frac{d\sigma}{d\Omega}_{LAB}$ $\frac{mb}{sr \cdot MeV}$
E_n MeV

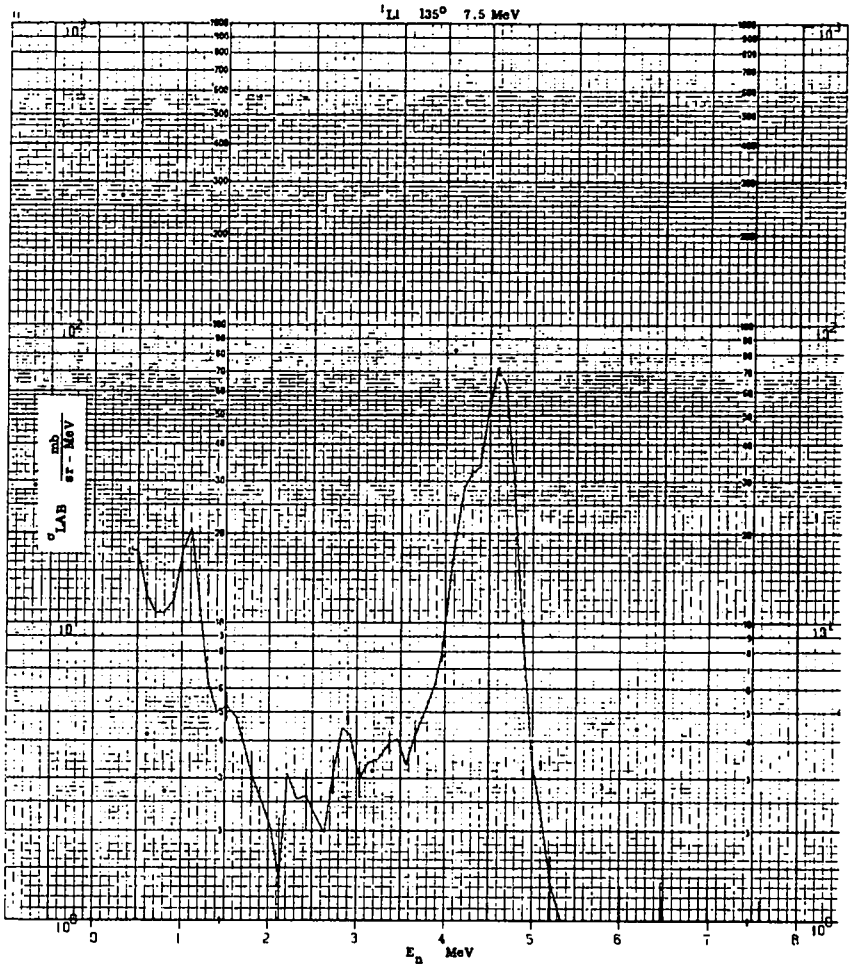

^{7}Li 39° 7.5 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV


^{7}Li 55° 7.5 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV


^{7}Li 72.5° 7.5 MeV
σ_{LAB} mb/sr - MeV
E_n MeV


^{7}Li 90° 7.5 MeV
σ_{LAB} mb/sr - MeV
E_n MeV

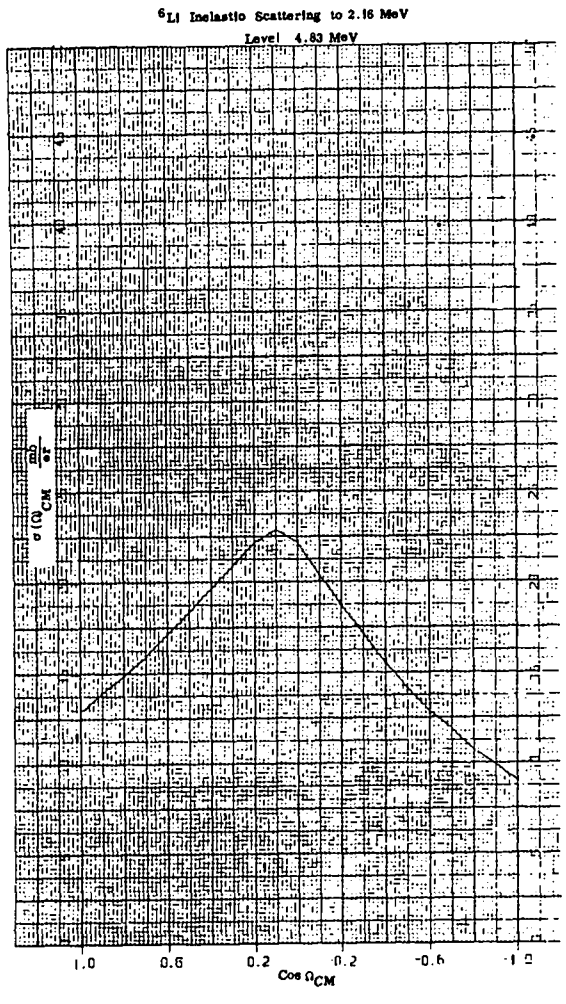

^{7}Li 110° 7.5 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV

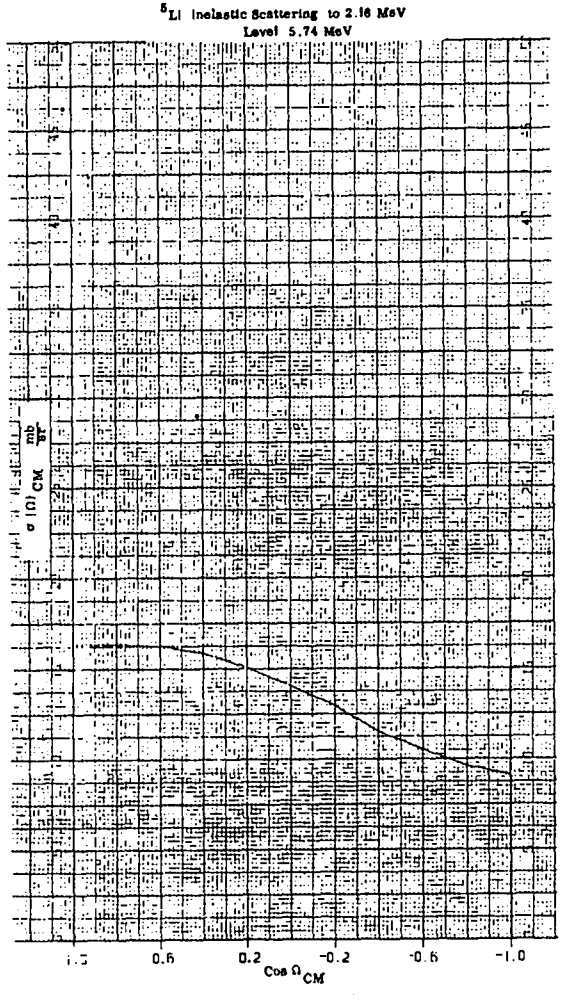

^{7}Li 135° 7.5 MeV
σ_{LAB} $\frac{mb}{sr - MeV}$
E_n MeV

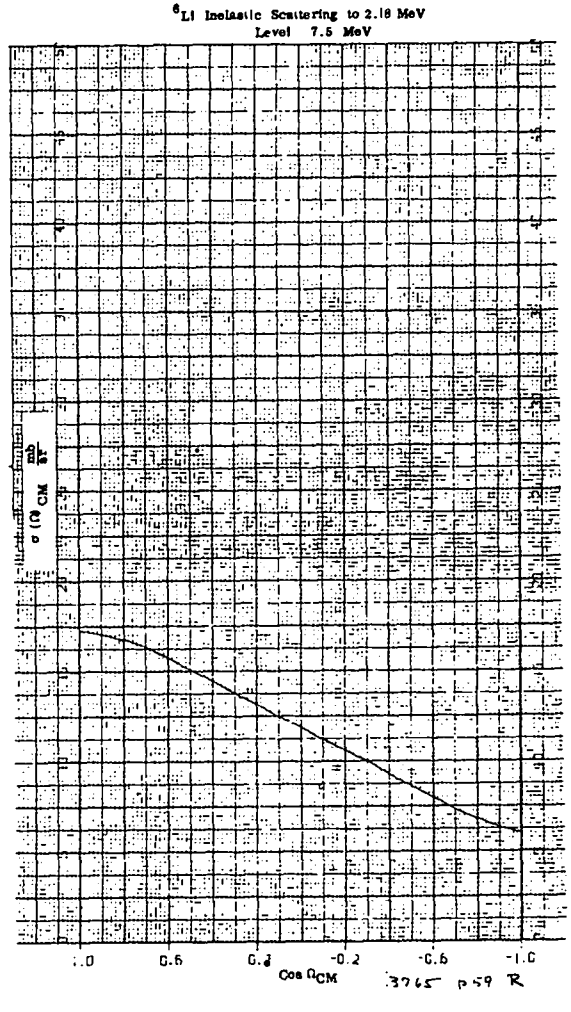
APPENDIX C

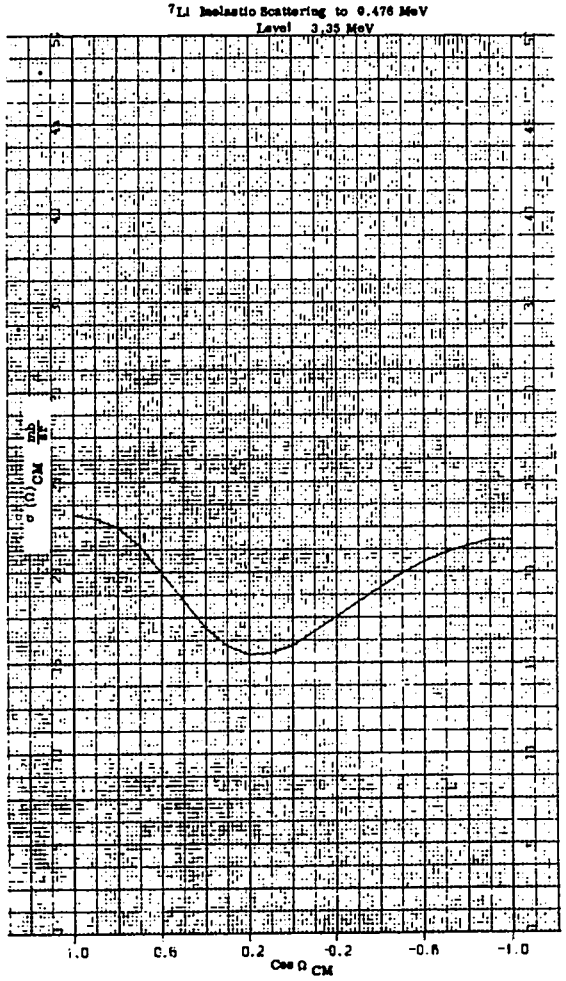
ANGULAR DISTRIBUTIONS

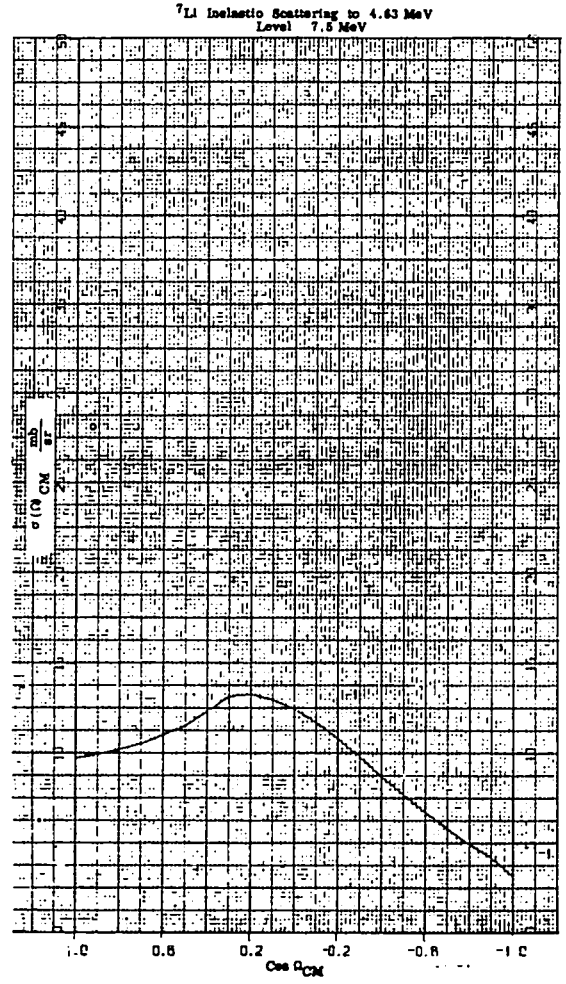
The visual fits to the differential cross sections for inelastic scattering are given as functions of cos Ω in the center-of-mass system. The distributions for continuum neutrons have been integrated over energy.

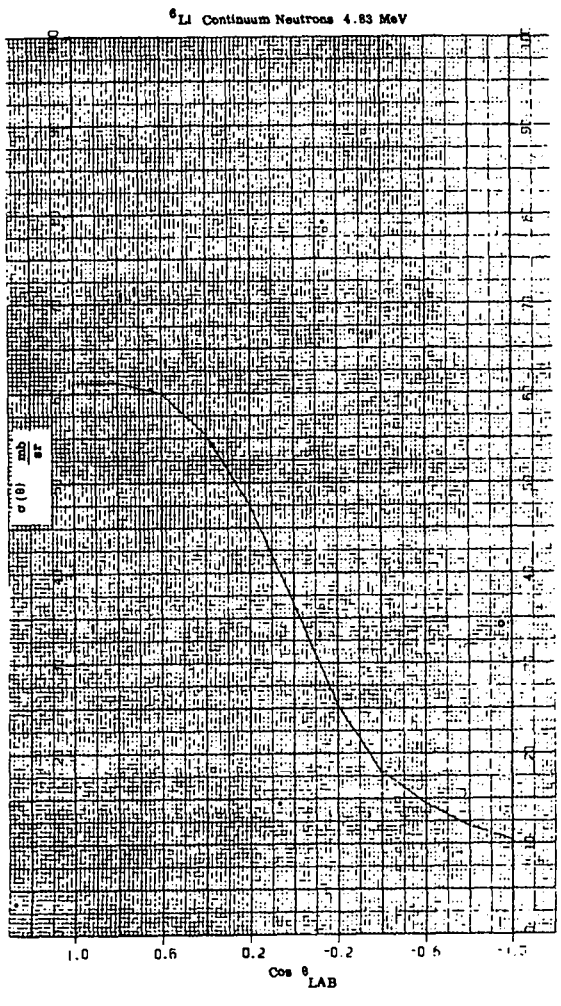

^{6}Li Inelastic Scattering to 2.16 MeV
Level 4.83 MeV
$\sigma(\Omega)_{CM}$ $\frac{mb}{sr}$
1.0
0.6
0.2
-0.2
-0.6
-1.0
Cos Ω_{CM}

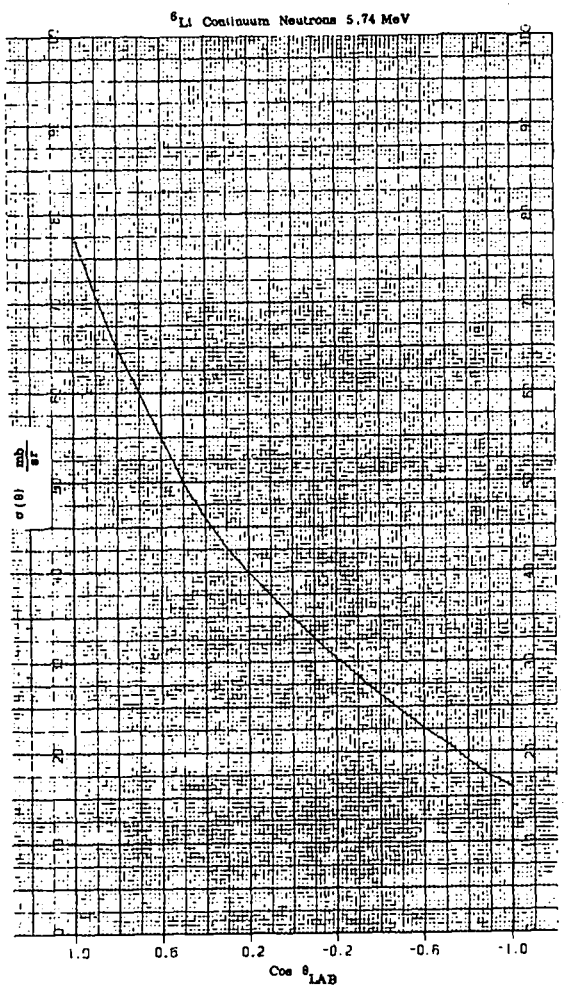

^{6}Li Inelastic Scattering to 2.16 MeV
Level 5.74 MeV
$\sigma(\Omega)_{CM}$ $\frac{mb}{sr}$
0.6
0.2
-0.2
-0.6
-1.0
Cos Ω_{CM}

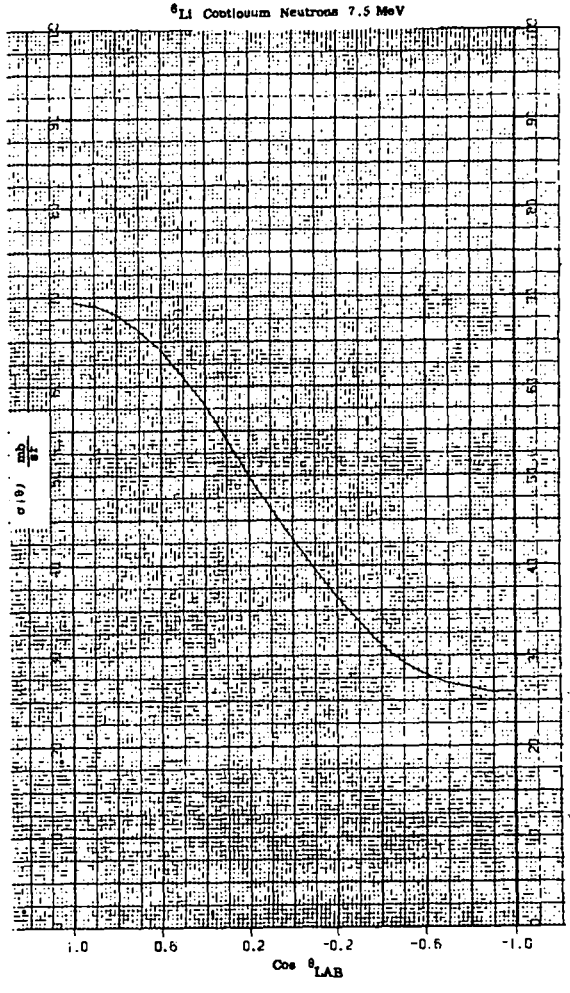

^{6}Li Inelastic Scattering to 2.16 MeV
Level 7.5 MeV
$\sigma(\Omega)_{CM}$ $\frac{mb}{sr}$
0.6
-0.2
-0.6
-1.0
Cos Ω_{CM}
3765 P59 R

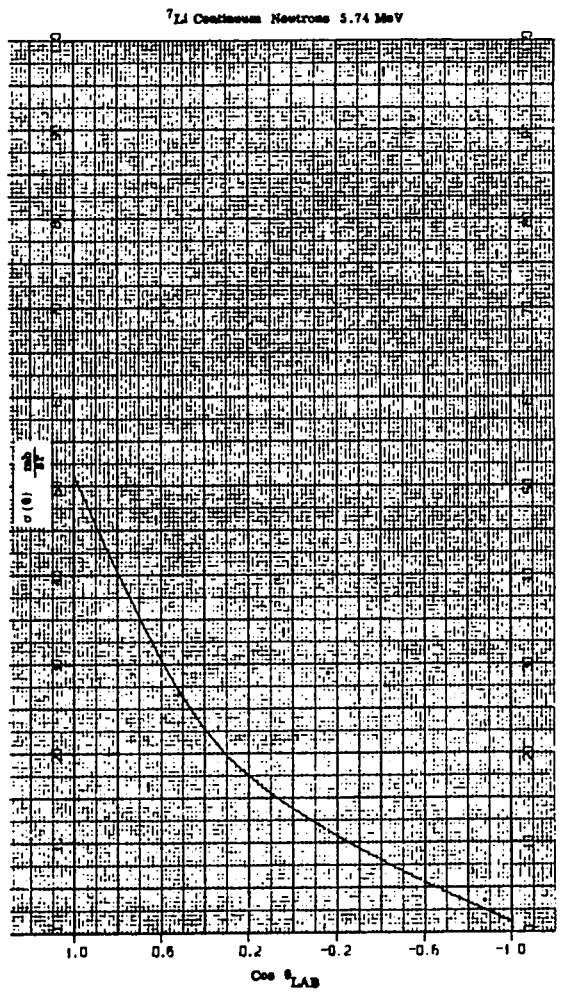

^{7}Li Inelastic Scattering to 0.476 MeV
Level 3.35 MeV
$\sigma(\theta)_{CM}$ $\frac{mb}{sr}$
1.0
0.6
0.2
-0.2
-0.6
-1.0
Cos Θ_{CM}

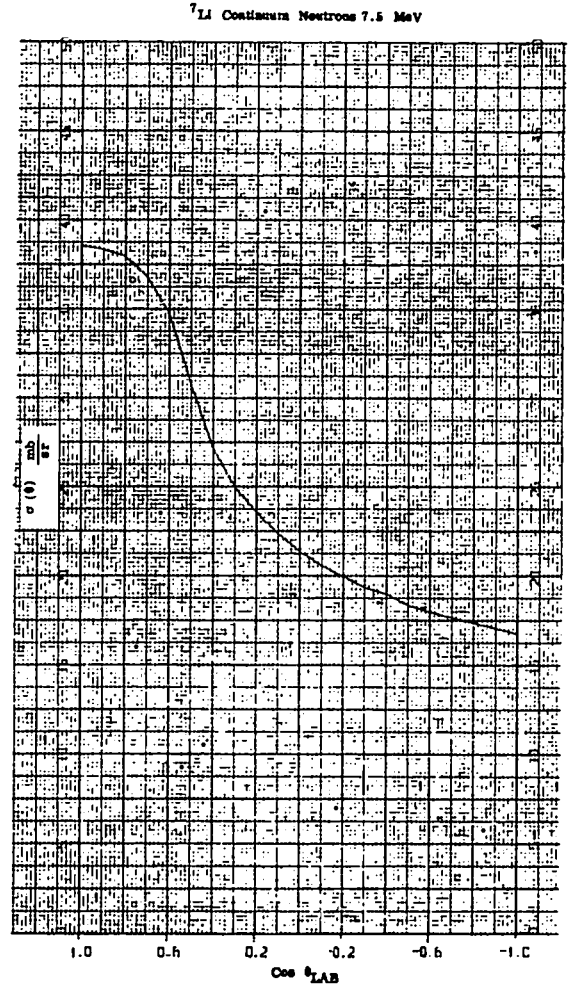

^{7}Li Inelastic Scattering to 4.63 MeV
Level 7.5 MeV
$\sigma(\theta)_{CM}$ $\frac{mb}{sr}$
1.0
0.6
0.2
-0.2
-0.6
-1.0
Cos Θ_{CM}


^{6}Li Continuum Neutrons 4.83 MeV
$\frac{mb}{sr}$ σ (θ)
Cos θ_{LAB}


^{6}Li Continuum Neutrons 5.74 MeV
$\frac{mb}{sr}$ σ (θ)
Cos θ_{LAB}


^{6}Li Continuum Neutrons 7.5 MeV
$\frac{mb}{sr}$ σ (θ)
Cos θ_{LAB}


^{7}Li Continuum Neutrons 5.74 MeV
$\frac{d\sigma}{d\Omega}(\theta)$
1.0
0.6
0.2
-0.2
-0.6
-1.0
Cos θ_{LAB}


^{7}Li Continuum Neutrons 7.5 MeV
$\frac{d\sigma}{d\Omega}(\theta)$
1.0
0.6
0.2
-0.2
-0.6
-1.0
Cos θ_{LAB}