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Elastic Scattering, Inelastic Scattering and Transfer Reactions Induced by ^{12}C Bombardment of ^{12}C

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Physic Division

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ABSTRACT

Graphs and tables of differential cross sections are presented for the elastic scattering of ^{12}C by ^{12}C, the single excitation (Q = -4.43 MeV) and the mutual excitation (Q = -8.86 MeV) for 14 bombarding energies in the range $70.7 \leq E_{lab} \leq 126.7$ MeV. Differential cross sections for one- and two-nucleon transfer are presented for E_{lab} = 93.8 MeV.

I. INTRODUCTION

The purpose of this technical memorandum is to provide a complete graphical and tabular compilation of the experimental results obtained at ORNL for $^{12}C + {}^{12}C$ angular distributions. This is intended to aid other researchers who may wish to analyze these experimental data or use them for purposes of normalization. The data are also available on a magnetic tape, copies of which may be obtained by sending a blank tape to the authors. The experimental data reported herein are summarized in Table I.

Differential cross sections for the elastic and inelastic scattering of ^{12}C by ^{12}C have been measured over a wide range of bombarding energies, from E_{lab} = 70.7 to 126.7 MeV. The results have been analyzed with the optical model, the DWBA, and the method of coupled equations. A brief discussion of the analysis is found in ref. 1. The experimental method as well as the analysis is described in ref. 2. However, a brief description of the experimental method will be given here.

Differential cross sections for one- and two-nucleon transfer were measured at one energy, E_{lab} = 93.8 MeV, and are described in ref. 3. Further information is also available in the ORNL Physics Division Annual Reports[4] for 1974 and 1975. For completeness, a table of the excitation function measured[5] for $^{12}C + {}^{12}C$ elastic scattering at $\theta_{c.m.}$ = 90° is also included.

II. EXPERIMENTAL METHOD

Different experimental arrangements were used at different times. In the first experiment, data were taken at E_{lab} = 74.2, 83.3, 89.7, 98.2, 102.1, 106.9, and 117.1 MeV, with the apparatus illustrated schematically in Fig. 1. The angular distributions were measured using a solid-state, position-sensitive detector (PSD) covered by a mask containing 15 apertures, each 1.59 mm wide x 11.4 mm high. The apertures, placed at a distance of 18 cm from the target, were thus spaced 1° apart and subtended an angular opening of ½° each. The range from 11° to 47° (lab) was covered with three separate settings of the PSD, with several apertures providing overlap points at each end of the mask. The inability of the PSD to resolve the mutual excitation of the first excited states of the target and projectile (Q = -8.88 MeV) from the single excitation of the 3^- state (Q = -9.64 MeV) necessitated their separation by a kinematic coincidence technique. (The 3^- state is unbound and therefore cannot produce a kinematic coincidence.) A large detector, 10 mm x 50 mm, was placed 9 cm from the target. Because the target contained no substantial amount of contaminants, it was not necessary that this detector be position-sensitive, thus simplifying the apparatus and especially the data collection.

The singles and coincidence data were stored in separate two-dimensional arrays. Each array consisted of 200 channels (position) by 200 channels (energy). Events were placed in either array according to whether a particle with the correct energy was observed in the conjugate detector.

The coincidence efficiency did not approach 100% because of the vertical height of the beam spot (about 6 mm). Except for the four most forward angles, however, the coincidence efficiencies as predicted by a geometrical calculation and determined empirically from the measured ratios of singles and coincidence events agreed very well. Thus, this method provided a reasonably effective means for separating the mutual excitation from the excitation of the 3^- state at laboratory angles of 15° and greater.

The target thickness was about 50 $\mu g/cm^2$ and was effectively monitored for carbon buildup during the course of the measurements. Nevertheless, the target thickness remained the largest source of error in the cross sections, which are estimated to have an absolute uncertainty of about 15%. The overall angular resolution and precision are estimated to be ±0.6° (lab) and ±0.15° (lab) respectively.

An angular distribution was subsequently obtained at E_{lab} = 70.7 MeV with the PSD as described above, but without the kinematic coincidence.

In the second experiment, a different type of PSD was used. It consisted of 25 individual detectors on a single silicon chip.[6] Each detector, or "slice", was 14 mm in height and subtended an angular width of about 0.6°. This detector offered a much improved efficiency for data collection over the previous detector. Because the results obtained with the kinematic coincidence apparatus indicated that the yield of the 3^- state is small

compared to that of the mutual excitation for laboratory angles $\gtrsim 15°$, the recoil detector was omitted. A substantially thicker target ($\sim$ 180 μgm/cm^2) was used. Its thickness was determined by α-ranging measurements. The stopping power for α-particles in carbon was determined by measuring the energy loss in thicker carbon foils ($\sim$ 300 μgm/cm^2) whose thicknesses had been measured by weighing. The value used was $dE/dx = 0.693 \pm 0.028$ keV/μgm/cm^2 for $E_\alpha = 5.75$ MeV. Angular distributions were measured at bombarding energies of 78.8, 93.8, 105.0, 112.0, 121.6, 117.1, and 126.7 MeV. The systematic error in the absolute normalization for these data is ± 13%.

A short experiment at 98.2 MeV was made using the broad range spectrograph. This allowed the resolution of the mutual and 3^- excitations, and enabled measurement at more forward angles. A momentum spectrum is shown in Fig. 2.

The transfer reactions were measured using two ΔE-E telescopes having solid state detectors of 44 μm and 500 μm, and 60 μm and 400 μm, respectively. The solid angle subtended by each counter was 0.2 msr. A typical spectrum is shown in Fig. 3.

III. RESULTS

The results are presented graphically in Figs. 4-15 and listed in Tables II and III. In all figures showing data points, the curves are only to guide the eye. Table II gives the scattering angle and differential cross section in the center of mass, the percentage error, the ratio to Mott scattering, and the momentum transfer. Errors greater than 5% result from counting statistics, background subtraction and, in the case of the kinematic-coincidence experiments, include a small contribution for the uncertainty in the coincidence efficiency in the determination of the mutual excitation (Q = -8.88). A minimum random error of 5% has been estimated, independent of counting statistics. All of the results contained herein have been normalized to the measurements made with the 180 μgm/cm^2 carbon target. The adjustments made to the other angular distributions in renormalizing them were all less than 10%. Thus, the systematic error on the absolute normalization arising from target thickness, beam-current integration and solid-angle measurement is conservatively estimated at 15% for all data.

For those angular distributions in which the contributions of the 3^- state at 9.64 MeV and the mutual excitation at 8.88 MeV are not distinguished, the following observations hold. For c.m. angles larger than a value θ_c, the mutual excitation dominates, with the 3^- state contributing less than 7% of the counts in the peak. From measurements made with the kinematic coincidence technique, θ_c is estimated to decrease approximately linearly with bombarding energy from 53° c.m. at 71 MeV to 17° c.m. at 120 MeV. For angles in the range of 25°-35° c.m. and bombarding energies below 100 MeV lab, the 3^- contribution can be significant, in the range of 10%-50%. At angles less than 20° c.m. the 3^- contribution probably dominates (see Fig. 10).

The cross sections given in Tables II and III have the following definition. For elastic scattering, and for mutual excitation (Q = -8.88 MeV) the scattered particle and the recoil nucleus are indistinguishable and the experimental cross section includes the (equal) contributions from both scattered particle and recoil nucleus. For single excitation (Q = -4.44 MeV) the residual ^{12}C nuclei are distinguishable because the excited nucleus emits a γ-ray. In Fig. 2, the effect of the small recoil energy imparted by γ-ray emission can be seen as introducing an energy-broadened component in the spectrum. The resolution of the solid state detector does not allow the observation of these two components. All cross sections given in Table II for single excitation include the (equal) contributions from the excited and the unexcited ^{12}C nuclei. In the excitation of the 0^+ state (Q = -7.65 MeV), the 3^- state (Q = -9.64 MeV), and the 4^+ state (Q = -14.05 MeV) the recoil nucleus is particle unstable and decays before reaching the detector. In these cases, the experimental cross section represents the contribution of the unexcited residual nucleus only.

Other measurements of $^{12}C + ^{12}C$ elastic and inelastic scattering, and of transfer reactions are described in refs. 7-15 and 16-18, respectively.

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TABLE I

Summary of Experimental Data Contained in this Report

E_{lab} MeV	Residual Nuclei	≈ Angular Range c.m.	Excitation of Residual Nuclei MeV
70.7	$^{12}C + ^{12}C$	16° - 90°	0, 4.44, (8.88 + 9.64)[a]
74.2	"	22° - 90°	0, 4.44, 8.88
78.8	"	16° - 90°	" " (8.88 + 9.64)
83.3	"	22° - 90°	" " 8.88
89.7	"	22° - 90°	" " 8.88
93.8	"	10° - 90°	" " (8.88 + 9.64)
98.2	"	9° - 90°	" " 8.88
102.1	"	22° - 90°	" " 8.88
105.0	"	15° - 90°	" " (8.88 + 9.64)
106.9	"	24° - 90°	" " 8.88
112.0	"	15° - 90°	" " (8.88 + 9.64)
117.1	"	15° - 90°	" " 8.88
121.6	"	15° - 90°	" " (8.88 + 9.64)
126.7	"	15° - 90°	" " (8.88 + 9.64)
98.2	$^{12}C + ^{12}C$	9° - 31°	7.65, 9.64[b]
	"	15° - 66°	14.07
93.8	$^{11}C + ^{13}C$	11° - 70°	0, 3.76[c]
	$^{11}B + ^{13}N$	11° - 70°	0, 2.25, 3.53, 4.44[d]
	$^{10}B + ^{14}N$	14° - 60°	0, 0.72, 4.91, 5.69, 6.30, 6.95, 8.96, 9.68[e]
73-123	$^{12}C + ^{12}C$	90°	0[f]

[a] These data are found on pages 7-43, grouped according to residual excitation and in order of increasing bombarding energy.

[b] Page 44.

[c] Pages 45-46.

[d] Pages 46-49.

[e] Pages 49-53.

[f] Page 54.

TABLE II

CROSS SECTIONS FOR ELASTIC AND INELASTIC SCATTERING OF $^{12}C + ^{12}C$, AND TRANSFER REACTIONS

$$$$$$$$$$$$$ 12C(12C,12C)12C Q= 0.0 AT ELAB = 70.7 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)	
16.57	1390.252	5.	.4413	.92	70.700 MEV ELASTIC
18.56	377.501	5.	.1865	1.03	70.700 MEV ELASTIC
20.56	87.394	7.	.0633	1.14	70.700 MEV ELASTIC
22.57	146.874	5.	.1486	1.25	70.700 MEV ELASTIC
24.58	175.694	5.	.2399	1.36	70.700 MEV ELASTIC
26.60	83.016	5.	.1493	1.47	70.700 MEV ELASTIC
28.61	11.443	14.	.0267	1.58	70.700 MEV ELASTIC
30.63	5.664	19.	.0170	1.69	70.700 MEV ELASTIC
32.65	22.848	9.	.0876	1.79	70.700 MEV ELASTIC
34.66	32.460	7.	.1590	1.90	70.700 MEV ELASTIC
36.64	15.804	6.	.0987	2.01	70.700 MEV ELASTIC
38.63	7.758	7.	.0621	2.11	70.700 MEV ELASTIC
40.63	5.428	7.	.0559	2.22	70.700 MEV ELASTIC
42.64	4.759	7.	.0635	2.32	70.700 MEV ELASTIC
44.65	6.492	6.	.1125	2.42	70.700 MEV ELASTIC
46.66	6.723	5.	.1517	2.53	70.700 MEV ELASTIC
48.67	5.277	6.	.1548	2.63	70.700 MEV ELASTIC
50.69	2.265	8.	.0857	2.73	70.700 MEV ELASTIC
52.70	.369	19.	.0177	2.83	70.700 MEV ELASTIC
54.71	.851	12.	.0500	2.93	70.700 MEV ELASTIC
56.72	2.280	7.	.1576	3.03	70.700 MEV ELASTIC
58.72	1.984	7.	.1529	3.13	70.700 MEV ELASTIC
60.72	.812	11.	.0661	3.23	70.700 MEV ELASTIC
62.71	.213	22.	.0174	3.32	70.700 MEV ELASTIC
64.70	.560	14.	.0443	3.42	70.700 MEV ELASTIC
66.68	1.224	8.	.0918	3.51	70.700 MEV ELASTIC
68.69	1.519	7.	.1063	3.60	70.700 MEV ELASTIC
70.71	.892	9.	.0581	3.69	70.700 MEV ELASTIC
72.72	.793	9.	.0481	3.78	70.700 MEV ELASTIC
74.72	.677	9.	.0384	3.87	70.700 MEV ELASTIC
76.73	.527	10.	.0281	3.96	70.700 MEV ELASTIC
78.73	.235	15.	.0119	4.05	70.700 MEV ELASTIC
80.72	.087	24.	.0042	4.13	70.700 MEV ELASTIC
82.71	.082	24.	.0039	4.22	70.700 MEV ELASTIC
84.69	.284	13.	.0130	4.30	70.700 MEV ELASTIC
86.68	.604	17.	.0270	4.38	70.700 MEV ELASTIC
88.68	1.053	12.	.0467	4.46	70.700 MEV ELASTIC
90.69	.669	15.	.0296	4.54	70.700 MEV ELASTIC

$$$$$$$$$$$$$ 12C(12C,12C)12C Q= 0.0 AT ELAB = 74.2 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)	
22.44	199.353	5.	.2151	1.27	74.250 MEV ELASTIC
24.44	167.748	5.	.2448	1.38	74.250 MEV ELASTIC
26.44	51.310	5.	.0990	1.50	74.250 MEV ELASTIC
28.45	3.845	5.	.0097	1.61	74.250 MEV ELASTIC
30.47	26.897	5.	.0875	1.72	74.250 MEV ELASTIC
32.49	44.935	5.	.1883	1.83	74.250 MEV ELASTIC
34.51	28.067	5.	.1514	1.94	74.250 MEV ELASTIC
36.53	9.306	5.	.0647	2.05	74.250 MEV ELASTIC
38.55	5.877	5.	.0527	2.16	74.250 MEV ELASTIC

40.56	10.065	5.	.1170	2.27	74.250 MEV ELASTIC
42.58	10.285	5.	.1552	2.38	74.250 MEV ELASTIC
44.56	4.839	5.	.0945	2.48	74.250 MEV ELASTIC
46.55	3.070	5.	.0778	2.59	74.250 MEV ELASTIC
48.56	3.148	5.	.1031	2.69	74.250 MEV ELASTIC
50.56	2.585	5.	.1083	2.79	74.250 MEV ELASTIC
52.58	1.253	6.	.0658	2.90	74.250 MEV ELASTIC
54.59	1.217	6.	.0775	3.00	74.250 MEV ELASTIC
56.61	2.430	5.	.1798	3.10	74.250 MEV ELASTIC
58.62	3.060	5.	.2501	3.20	74.250 MEV ELASTIC
60.64	2.069	5.	.1773	3.30	74.250 MEV ELASTIC
62.66	.697	8.	.0599	3.40	74.250 MEV ELASTIC
64.67	.572	9.	.0477	3.50	74.250 MEV ELASTIC
66.64	1.302	6.	.1033	3.59	74.250 MEV ELASTIC
68.63	1.878	5.	.1399	3.69	74.250 MEV ELASTIC
70.63	1.465	6.	.1021	3.78	74.250 MEV ELASTIC
72.66	.690	9.	.0450	3.88	74.250 MEV ELASTIC
74.65	.204	15.	.0125	3.97	74.250 MEV ELASTIC
76.66	.044	33.	.0026	4.06	74.250 MEV ELASTIC
78.67	.025	45.	.0014	4.15	74.250 MEV ELASTIC
80.69	.040	35.	.0021	4.24	74.250 MEV ELASTIC
82.70	.055	30.	.0028	4.32	74.250 MEV ELASTIC
84.71	.097	23.	.0049	4.41	74.250 MEV ELASTIC
86.72	.172	17.	.0085	4.49	74.250 MEV ELASTIC
88.72	.179	17.	.0088	4.57	74.250 MEV ELASTIC
90.72	.135	20.	.0066	4.66	74.250 MEV ELASTIC
92.71	.175	16.	.0115	4.73	74.250 MEV ELASTIC
94.69	.115	20.	.0074	4.81	74.250 MEV ELASTIC

$$$$$$$$$$$$ 12C(12C,12C)12C Q= 0.0 AT ELAB = 78.8 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTHAN (INV-FM)	
15.85	1368.319	5.	.5134	.93	78.850 MEV ELASTIC
16.45	1082.575	5.	.4706	.96	78.850 MEV ELASTIC
17.06	707.343	5.	.3538	1.00	78.850 MEV ELASTIC
18.29	265.490	5.	.1727	1.07	78.850 MEV ELASTIC
19.51	110.201	5.	.0913	1.14	78.850 MEV ELASTIC
21.35	163.241	5.	.1878	1.25	78.850 MEV ELASTIC
22.58	194.776	6.	.2740	1.32	78.850 MEV ELASTIC
23.82	167.704	5.	.2854	1.39	78.850 MEV ELASTIC
24.43	134.969	5.	.2517	1.43	78.850 MEV ELASTIC
25.84	57.089	5.	.1304	1.51	78.850 MEV ELASTIC
26.29	32.902	7.	.0799	1.53	78.850 MEV ELASTIC
28.29	4.294	10.	.0137	1.65	78.850 MEV ELASTIC
30.00	28.601	5.	.1142	1.74	78.850 MEV ELASTIC
32.47	37.440	5.	.2057	1.88	78.850 MEV ELASTIC
33.82	26.603	5.	.1737	1.96	78.850 MEV ELASTIC
34.94	12.014	6.	.0906	2.02	78.850 MEV ELASTIC
36.79	3.603	6.	.0345	2.13	78.850 MEV ELASTIC
38.03	4.855	7.	.0544	2.20	78.850 MEV ELASTIC
39.84	4.579	5.	.0650	2.30	78.850 MEV ELASTIC
41.06	6.866	5.	.1141	2.36	78.850 MEV ELASTIC
42.29	6.273	5.	.1223	2.43	78.850 MEV ELASTIC
43.51	4.087	5.	.0935	2.50	78.850 MEV ELASTIC
44.12	3.403	5.	.0843	2.53	78.850 MEV ELASTIC
45.97	1.474	9.	.0463	2.63	78.850 MEV ELASTIC
47.20	1.290	8.	.0474	2.70	78.850 MEV ELASTIC
49.05	1.824	8.	.0842	2.80	78.850 MEV ELASTIC
50.29	2.602	7.	.1387	2.86	78.850 MEV ELASTIC

51.52	1.869	8.	.1140	2.93	78.850 MEV ELASTIC
52.76	1.290	15.	.0892	3.00	78.850 MEV ELASTIC
54.00	1.066	10.	.0824	3.06	78.850 MEV ELASTIC
55.85	1.339	8.	.1186	3.16	78.850 MEV ELASTIC
57.71	1.782	7.	.1739	3.25	78.850 MEV ELASTIC
58.94	1.661	8.	.1690	3.32	78.850 MEV ELASTIC
61.41	.888	8.	.0934	3.44	78.850 MEV ELASTIC
63.26	.259	12.	.0270	3.54	78.850 MEV ELASTIC
65.71	.173	14.	.0173	3.66	78.850 MEV ELASTIC
67.06	.369	7.	.0355	3.72	78.850 MEV ELASTIC
68.29	.513	9.	.0477	3.78	78.850 MEV ELASTIC
69.51	.611	8.	.0548	3.84	78.850 MEV ELASTIC
70.74	.384	11.	.0332	3.90	78.850 MEV ELASTIC
72.58	.360	9.	.0296	3.99	78.850 MEV ELASTIC
75.67	.251	11.	.0190	4.14	78.850 MEV ELASTIC
78.14	.189	18.	.0135	4.25	78.850 MEV ELASTIC
79.38	.123	23.	.0086	4.31	78.850 MEV ELASTIC
80.61	.051	33.	.0035	4.36	78.850 MEV ELASTIC
81.85	.086	33.	.0057	4.42	78.850 MEV ELASTIC
83.71	.081	29.	.0053	4.50	78.850 MEV ELASTIC
84.94	.164	25.	.0106	4.55	78.850 MEV ELASTIC
86.18	.243	17.	.0155	4.61	78.850 MEV ELASTIC
88.03	.223	19.	.0141	4.68	78.850 MEV ELASTIC
89.87	.307	18.	.0194	4.76	78.850 MEV ELASTIC
92.32	.215	21.	.0136	4.86	78.850 MEV ELASTIC
93.55	.160	28.	.0102	4.91	78.850 MEV ELASTIC

$$$$$$$$$$$$ 12C(12C,12C)12C Q= 0.0 AT ELAB = 83.3 MEV $$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)	
22.44	166.681	5.	.2210	1.35	83.300 MEV ELASTIC
24.44	62.813	5.	.1135	1.47	83.300 MEV ELASTIC
26.44	4.223	11.	.0102	1.58	83.300 MEV ELASTIC
28.45	17.904	5.	.0572	1.70	83.300 MEV ELASTIC
30.47	35.552	5.	.1488	1.82	83.300 MEV ELASTIC
32.49	21.325	5.	.1165	1.94	83.300 MEV ELASTIC
34.51	7.144	8.	.0508	2.05	83.300 MEV ELASTIC
36.53	3.077	13.	.0285	2.17	83.300 MEV ELASTIC
38.55	4.816	10.	.0580	2.29	83.300 MEV ELASTIC
40.14	6.067	5.	.0900	2.38	83.300 MEV ELASTIC
42.13	3.676	5.	.0708	2.49	83.300 MEV ELASTIC
44.14	1.786	5.	.0446	2.60	83.300 MEV ELASTIC
46.14	1.780	5.	.0574	2.72	83.300 MEV ELASTIC
48.16	2.637	5.	.1087	2.83	83.300 MEV ELASTIC
50.17	2.761	5.	.1431	2.94	83.300 MEV ELASTIC
52.19	1.949	5.	.1240	3.05	83.300 MEV ELASTIC
54.21	1.265	6.	.0953	3.16	83.300 MEV ELASTIC
56.23	1.201	6.	.1029	3.27	83.300 MEV ELASTIC
58.24	1.284	6.	.1195	3.37	83.300 MEV ELASTIC
60.62	.683	5.	.0664	3.50	83.300 MEV ELASTIC
62.62	.169	10.	.0164	3.60	83.300 MEV ELASTIC
64.62	.045	20.	.0042	3.70	83.300 MEV ELASTIC
66.62	.147	11.	.0134	3.81	83.300 MEV ELASTIC
68.63	.196	10.	.0169	3.91	83.300 MEV ELASTIC
70.64	.173	10.	.0142	4.01	83.300 MEV ELASTIC
72.66	.257	9.	.0200	4.11	83.300 MEV ELASTIC
74.67	.425	7.	.0315	4.20	83.300 MEV ELASTIC
76.69	.409	7.	.0289	4.30	83.300 MEV ELASTIC
78.70	.175	11.	.0119	4.39	83.300 MEV ELASTIC
80.71	.058	19.	.0038	4.49	83.300 MEV ELASTIC

82.71	.077	16.	.0050	4.58	83.300 MEV ELASTIC
84.71	.167	11.	.0105	4.67	83.300 MEV ELASTIC
86.71	.228	10.	.0141	4.76	83.300 MEV ELASTIC
88.69	.289	9.	.0178	4.84	83.300 MEV ELASTIC

$$$$$$$$$$$$ 12C(12C,12C)12C Q= 0.0 AT ELAB = 89.7 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)	
22.44	148.292	5.	.2258	1.40	89.700 MEV ELASTIC
24.44	37.028	5.	.0773	1.52	89.700 MEV ELASTIC
26.44	5.214	5.	.0147	1.64	89.700 MEV ELASTIC
28.45	30.202	5.	.1131	1.77	89.700 MEV ELASTIC
30.47	31.070	5.	.1537	1.89	89.700 MEV ELASTIC
32.49	12.006	5.	.0781	2.01	89.700 MEV ELASTIC
34.51	1.850	7.	.0158	2.13	89.700 MEV ELASTIC
36.53	4.959	5.	.0553	2.25	89.700 MEV ELASTIC
38.55	7.158	5.	.1042	2.37	89.700 MEV ELASTIC
40.56	3.868	5.	.0734	2.49	89.700 MEV ELASTIC
42.58	1.575	8.	.0388	2.61	89.700 MEV ELASTIC
44.56	2.658	5.	.0842	2.73	89.700 MEV ELASTIC
46.55	3.306	5.	.1338	2.84	89.700 MEV ELASTIC
48.56	2.176	5.	.1109	2.96	89.700 MEV ELASTIC
50.56	.959	5.	.0602	3.07	89.700 MEV ELASTIC
52.58	.827	5.	.0622	3.18	89.700 MEV ELASTIC
54.59	.861	5.	.0748	3.30	89.700 MEV ELASTIC
56.61	.576	5.	.0556	3.41	89.700 MEV ELASTIC
58.62	.203	7.	.0209	3.52	89.700 MEV ELASTIC
60.64	.055	14.	.0058	3.63	89.700 MEV ELASTIC
62.66	.061	13.	.0064	3.74	89.700 MEV ELASTIC
64.67	.055	14.	.0057	3.85	89.700 MEV ELASTIC
66.68	.031	19.	.0031	3.95	89.700 MEV ELASTIC
68.63	.018	21.	.0017	4.05	89.700 MEV ELASTIC
70.63	.029	17.	.0026	4.16	89.700 MEV ELASTIC
72.64	.043	14.	.0038	4.26	89.700 MEV ELASTIC
74.65	.108	9.	.0091	4.36	89.700 MEV ELASTIC
76.66	.168	7.	.0135	4.46	89.700 MEV ELASTIC
78.67	.202	6.	.0158	4.56	89.700 MEV ELASTIC
80.69	.126	8.	.0095	4.66	89.700 MEV ELASTIC
82.70	.036	15.	.0027	4.75	89.700 MEV ELASTIC
84.71	.049	13.	.0035	4.84	89.700 MEV ELASTIC
86.72	.226	6.	.0162	4.94	89.700 MEV ELASTIC
88.72	.448	5.	.0320	5.03	89.700 MEV ELASTIC
90.72	.443	5.	.0316	5.12	89.700 MEV ELASTIC
92.71	.248	6.	.0178	5.20	89.700 MEV ELASTIC
94.69	.033	18.	.0024	5.29	89.700 MEV ELASTIC

$$$$$$$$$$$$ 12C(12C,12C)12C Q= 0.0 AT ELAB = 93.8 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)	
10.00	4205.362	5.	.3514	.64	93.800 MEV ELASTIC
12.00	2231.061	5.	.3886	.77	93.800 MEV ELASTIC
14.00	1755.138	5.	.5631	.90	93.800 MEV ELASTIC
15.35	403.616	6.	.1852	.98	93.800 MEV ELASTIC
16.59	141.698	5.	.0874	1.06	93.800 MEV ELASTIC

17.82	91.552	5.	.0740	1.14	93.800 MEV ELASTIC
19.06	162.666	5.	.1690	1.22	93.800 MEV ELASTIC
20.30	194.335	5.	.2551	1.30	93.800 MEV ELASTIC
21.55	159.244	5.	.2604	1.37	93.800 MEV ELASTIC
22.80	73.896	5.	.1489	1.45	93.800 MEV ELASTIC
24.05	20.642	6.	.0508	1.53	93.800 MEV ELASTIC
25.30	5.734	10.	.0171	1.61	93.800 MEV ELASTIC
26.55	16.712	7.	.0601	1.69	93.800 MEV ELASTIC
27.80	32.348	5.	.1394	1.77	93.800 MEV ELASTIC
29.05	31.280	5.	.1611	1.84	93.800 MEV ELASTIC
30.31	22.653	5.	.1390	1.92	93.800 MEV ELASTIC
31.56	9.478	5.	.0692	2.00	93.800 MEV ELASTIC
32.81	2.536	9.	.0220	2.08	93.800 MEV ELASTIC
34.30	2.037	9.	.0216	2.17	93.800 MEV ELASTIC
35.55	5.218	5.	.0653	2.24	93.800 MEV ELASTIC
36.80	7.287	5.	.1079	2.32	93.800 MEV ELASTIC
38.05	7.060	5.	.1234	2.40	93.800 MEV ELASTIC
39.35	4.382	5.	.0909	2.48	93.800 MEV ELASTIC
40.56	2.818	5.	.0685	2.55	93.800 MEV ELASTIC
41.81	1.602	5.	.0458	2.62	93.800 MEV ELASTIC
43.06	2.008	5.	.0673	2.70	93.800 MEV ELASTIC
44.30	2.838	5.	.1112	2.77	93.800 MEV ELASTIC
45.55	3.316	5.	.1512	2.85	93.800 MEV ELASTIC
46.80	2.802	5.	.1479	2.92	93.800 MEV ELASTIC
48.05	2.016	5.	.1224	2.99	93.800 MEV ELASTIC
49.30	1.056	6.	.0732	3.07	93.800 MEV ELASTIC
50.55	.492	7.	.0385	3.14	93.800 MEV ELASTIC
51.80	.401	7.	.0350	3.21	93.800 MEV ELASTIC
53.05	.470	7.	.0452	3.28	93.800 MEV ELASTIC
54.31	.602	5.	.0630	3.36	93.800 MEV ELASTIC
55.56	.491	5.	.0550	3.43	93.800 MEV ELASTIC
56.81	.287	6.	.0338	3.50	93.800 MEV ELASTIC
58.06	.060	23.	.0073	3.57	93.800 MEV ELASTIC
59.32	.020	37.	.0025	3.64	93.800 MEV ELASTIC
60.57	.043	18.	.0055	3.71	93.800 MEV ELASTIC
61.81	.138	10.	.0176	3.78	93.800 MEV ELASTIC
63.06	.198	7.	.0251	3.85	93.800 MEV ELASTIC
64.31	.159	12.	.0199	3.91	93.800 MEV ELASTIC
65.35	.080	11.	.0099	3.97	93.800 MEV ELASTIC
66.58	.049	21.	.0059	4.04	93.800 MEV ELASTIC
67.82	.018	33.	.0021	4.10	93.800 MEV ELASTIC
69.06	.036	29.	.0041	4.17	93.800 MEV ELASTIC
70.30	.071	17.	.0080	4.23	93.800 MEV ELASTIC
71.55	.108	13.	.0119	4.30	93.800 MEV ELASTIC
72.80	.132	10.	.0142	4.36	93.800 MEV ELASTIC
74.04	.156	9.	.0163	4.43	93.800 MEV ELASTIC
75.29	.122	19.	.0125	4.49	93.800 MEV ELASTIC
76.55	.104	23.	.0105	4.55	93.800 MEV ELASTIC
77.80	.105	14.	.0103	4.62	93.800 MEV ELASTIC
79.05	.089	17.	.0086	4.68	93.800 MEV ELASTIC
80.30	.080	23.	.0076	4.74	93.800 MEV ELASTIC
81.56	.036	17.	.0034	4.80	93.800 MEV ELASTIC
82.81	.023	33.	.0021	4.86	93.800 MEV ELASTIC
84.06	.014	44.	.0013	4.92	93.800 MEV ELASTIC
85.31	.068	20.	.0061	4.98	93.800 MEV ELASTIC
86.57	.117	15.	.0105	5.04	93.800 MEV ELASTIC
87.81	.154	18.	.0138	5.10	93.800 MEV ELASTIC
89.06	.233	11.	.0209	5.16	93.800 MEV ELASTIC
90.30	.190	18.	.0170	5.21	93.800 MEV ELASTIC
91.55	.201	15.	.0179	5.27	93.800 MEV ELASTIC

$$$$$$$$$$$$$ 12C(12C,12C)12C Q= 0.0 AT ELAB = 98.2 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)	
9.50	3255.000	5.	.2119	.62	98.200 MEV ELASTIC
11.50	1942.500	5.	.2728	.75	98.200 MEV ELASTIC
13.50	1260.000	5.	.3340	.88	98.200 MEV ELASTIC
15.50	246.750	5.	.1117	1.01	98.200 MEV ELASTIC
17.50	59.050	5.	.0429	1.14	98.200 MEV ELASTIC
19.50	171.150	5.	.1840	1.27	98.200 MEV ELASTIC
21.50	123.900	5.	.1916	1.40	98.200 MEV ELASTIC
23.50	30.030	5.	.0649	1.53	98.200 MEV ELASTIC
25.50	5.880	5.	.0174	1.66	98.200 MEV ELASTIC
27.50	24.990	5.	.0996	1.79	98.200 MEV ELASTIC
29.50	23.940	5.	.1273	1.92	98.200 MEV ELASTIC
32.49	2.538	5.	.0205	2.10	98.200 MEV ELASTIC
34.51	4.396	5.	.0468	2.23	98.200 MEV ELASTIC
36.53	7.008	5.	.0979	2.36	98.200 MEV ELASTIC
38.55	5.504	5.	.1006	2.48	98.200 MEV ELASTIC
40.56	2.391	5.	.0569	2.61	98.200 MEV ELASTIC
42.58	1.597	6.	.0492	2.73	98.200 MEV ELASTIC
44.56	2.398	5.	.0943	2.85	98.200 MEV ELASTIC
46.55	2.061	5.	.1023	2.97	98.200 MEV ELASTIC
48.56	.920	5.	.0567	3.09	98.200 MEV ELASTIC
50.56	.229	7.	.0171	3.21	98.200 MEV ELASTIC
52.58	.221	7.	.0194	3.33	98.200 MEV ELASTIC
54.59	.337	6.	.0335	3.45	98.200 MEV ELASTIC
56.61	.133	9.	.0144	3.57	98.200 MEV ELASTIC
58.62	.039	18.	.0044	3.68	98.200 MEV ELASTIC
60.64	.120	10.	.0141	3.80	98.200 MEV ELASTIC
62.66	.241	7.	.0283	3.91	98.200 MEV ELASTIC
64.67	.166	9.	.0192	4.02	98.200 MEV ELASTIC
66.64	.065	11.	.0073	4.13	98.200 MEV ELASTIC
68.63	.038	15.	.0041	4.24	98.200 MEV ELASTIC
70.63	.099	9.	.0104	4.35	98.200 MEV ELASTIC
72.64	.180	7.	.0182	4.46	98.200 MEV ELASTIC
74.65	.178	7.	.0174	4.56	98.200 MEV ELASTIC
76.66	.111	9.	.0105	4.67	98.200 MEV ELASTIC
78.67	.083	10.	.0077	4.77	98.200 MEV ELASTIC
80.69	.079	11.	.0071	4.87	98.200 MEV ELASTIC
82.70	.073	11.	.0064	4.97	98.200 MEV ELASTIC
84.71	.053	13.	.0046	5.07	98.200 MEV ELASTIC
86.72	.051	14.	.0044	5.17	98.200 MEV ELASTIC
88.72	.111	9.	.0095	5.26	98.200 MEV ELASTIC
90.72	.098	10.	.0084	5.35	98.200 MEV ELASTIC
92.71	.053	14.	.0045	5.44	98.200 MEV ELASTIC

$$$$$$$$$$$$$ 12C(12C,12C)12C Q= 0.0 AT ELAB =102.1 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)	
22.44	60.400	5.	.1184	1.49	102.100 MEV ELASTIC
24.44	3.554	7.	.0097	1.62	102.100 MEV ELASTIC
26.44	24.855	5.	.0921	1.75	102.100 MEV ELASTIC
28.45	30.726	5.	.1535	1.89	102.100 MEV ELASTIC
30.47	11.126	5.	.0742	2.02	102.100 MEV ELASTIC
32.49	2.184	9.	.0193	2.15	102.100 MEV ELASTIC
34.51	7.248	5.	.0848	2.28	102.100 MEV ELASTIC
36.53	8.435	5.	.1298	2.40	102.100 MEV ELASTIC
38.55	4.842	6.	.0975	2.53	102.100 MEV ELASTIC

40.56	1.866	10.	.0489	2.66	102.100 MEV ELASTIC
42.58	1.856	10.	.0628	2.79	102.100 MEV ELASTIC
44.56	2.080	5.	.0894	2.91	102.100 MEV ELASTIC
46.55	1.300	5.	.0702	3.03	102.100 MEV ELASTIC
48.56	.434	7.	.0289	3.15	102.100 MEV ELASTIC
50.56	.201	10.	.0161	3.28	102.100 MEV ELASTIC
52.58	.259	9.	.0241	3.40	102.100 MEV ELASTIC
54.59	.233	9.	.0244	3.52	102.100 MEV ELASTIC
56.61	.135	12.	.0154	3.64	102.100 MEV ELASTIC
58.62	.082	15.	.0099	3.76	102.100 MEV ELASTIC
60.64	.184	10.	.0227	3.87	102.100 MEV ELASTIC
62.66	.308	8.	.0379	3.99	102.100 MEV ELASTIC
64.67	.286	8.	.0347	4.10	102.100 MEV ELASTIC
66.64	.112	7.	.0133	4.21	102.100 MEV ELASTIC
68.63	.053	11.	.0061	4.33	102.100 MEV ELASTIC
70.63	.106	8.	.0118	4.44	102.100 MEV ELASTIC
72.64	.189	6.	.0204	4.54	102.100 MEV ELASTIC
74.65	.197	6.	.0206	4.65	102.100 MEV ELASTIC
76.66	.088	9.	.0089	4.76	102.100 MEV ELASTIC
78.67	.026	16.	.0026	4.86	102.100 MEV ELASTIC
80.69	.020	18.	.0020	4.97	102.100 MEV ELASTIC
82.70	.056	11.	.0053	5.07	102.100 MEV ELASTIC
84.71	.043	13.	.0040	5.17	102.100 MEV ELASTIC
86.72	.018	20.	.0016	5.27	102.100 MEV ELASTIC
88.72	.007	32.	.0007	5.36	102.100 MEV ELASTIC
90.72	.011	27.	.0010	5.46	102.100 MEV ELASTIC
92.71	.016	22.	.0015	5.55	102.100 MEV ELASTIC
94.69	.038	15.	.0036	5.64	102.100 MEV ELASTIC

$$$$$$$$$$$$ 12C(12C,12C)12C Q= 0.0 AT ELAB =105.0 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)	
15.35	327.565	7.	.1853	1.04	105.000 MEV ELASTIC
16.59	80.099	5.	.0608	1.12	105.000 MEV ELASTIC
17.82	76.650	7.	.0764	1.20	105.000 MEV ELASTIC
19.06	172.146	6.	.2208	1.29	105.000 MEV ELASTIC
20.30	196.406	5.	.3194	1.37	105.000 MEV ELASTIC
21.55	132.947	5.	.2707	1.45	105.000 MEV ELASTIC
22.80	48.778	8.	.1231	1.54	105.000 MEV ELASTIC
24.05	6.463	9.	.0200	1.62	105.000 MEV ELASTIC
25.30	6.690	11.	.0253	1.70	105.000 MEV ELASTIC
26.59	25.394	7.	.1171	1.79	105.000 MEV ELASTIC
27.80	30.409	7.	.1683	1.87	105.000 MEV ELASTIC
29.06	24.006	6.	.1599	1.95	105.000 MEV ELASTIC
30.30	10.949	5.	.0873	2.03	105.000 MEV ELASTIC
31.55	3.351	9.	.0319	2.11	105.000 MEV ELASTIC
32.81	2.647	9.	.0301	2.20	105.000 MEV ELASTIC
34.05	6.086	6.	.0819	2.28	105.000 MEV ELASTIC
35.30	8.528	5.	.1363	2.36	105.000 MEV ELASTIC
36.55	8.188	6.	.1549	2.44	105.000 MEV ELASTIC
37.80	5.867	6.	.1312	2.52	105.000 MEV ELASTIC
39.06	3.475	6.	.0918	2.60	105.000 MEV ELASTIC
40.31	1.484	9.	.0461	2.68	105.000 MEV ELASTIC
41.56	1.583	5.	.0576	2.76	105.000 MEV ELASTIC
42.81	1.985	6.	.0844	2.84	105.000 MEV ELASTIC
44.06	2.081	7.	.1029	2.92	105.000 MEV ELASTIC
45.32	1.850	5.	.1058	3.00	105.000 MEV ELASTIC
46.57	.921	8.	.0605	3.08	105.000 MEV ELASTIC
47.81	.418	13.	.0312	3.15	105.000 MEV ELASTIC
49.06	.313	10.	.0264	3.23	105.000 MEV ELASTIC

50.55	.209	13.	.0201	3.32	105.000 MEV ELASTIC
51.55	.275	9.	.0286	3.38	105.000 MEV ELASTIC
52.79	.259	12.	.0292	3.46	105.000 MEV ELASTIC
54.03	.315	8.	.0383	3.53	105.000 MEV ELASTIC
55.56	.159	16.	.0207	3.63	105.000 MEV ELASTIC
56.81	.076	14.	.0104	3.70	105.000 MEV ELASTIC
58.06	.076	22.	.0108	3.78	105.000 MEV ELASTIC
59.32	.092	33.	.0133	3.85	105.000 MEV ELASTIC
60.57	.079	22.	.0115	3.92	105.000 MEV ELASTIC
61.81	.182	17.	.0266	4.00	105.000 MEV ELASTIC
63.06	.216	14.	.0315	4.07	105.000 MEV ELASTIC
64.31	.166	14.	.0240	4.14	105.000 MEV ELASTIC
65.55	.127	12.	.0181	4.21	105.000 MEV ELASTIC
66.58	.094	12.	.0133	4.27	105.000 MEV ELASTIC
67.82	.044	14.	.0061	4.34	105.000 MEV ELASTIC
69.26	.022	17.	.0029	4.42	105.000 MEV ELASTIC
70.30	.084	20.	.0112	4.48	105.000 MEV ELASTIC
71.55	.103	10.	.0135	4.55	105.000 MEV ELASTIC
72.80	.133	13.	.0172	4.62	105.000 MEV ELASTIC
74.04	.133	10.	.0168	4.68	105.000 MEV ELASTIC
75.29	.096	9.	.0119	4.75	105.000 MEV ELASTIC
76.55	.048	17.	.0059	4.82	105.000 MEV ELASTIC
77.80	.011	23.	.0013	4.89	105.000 MEV ELASTIC
79.05	.004	80.	.0011	4.95	105.000 MEV ELASTIC
80.30	.008	60.	.0010	5.02	105.000 MEV ELASTIC
81.56	.023	29.	.0027	5.08	105.000 MEV ELASTIC
82.81	.025	16.	.0029	5.15	105.000 MEV ELASTIC
84.06	.022	27.	.0026	5.21	105.000 MEV ELASTIC
85.31	.024	21.	.0027	5.27	105.000 MEV ELASTIC
86.57	.012	46.	.0014	5.33	105.000 MEV ELASTIC
87.81	.023	23.	.0027	5.40	105.000 MEV ELASTIC
89.06	.025	26.	.0028	5.46	105.000 MEV ELASTIC
90.30	.015	29.	.0017	5.52	105.000 MEV ELASTIC
91.55	.013	43.	.0015	5.58	105.000 MEV ELASTIC
92.79	.022	25.	.0024	5.63	105.000 MEV ELASTIC
94.02	.018	32.	.0021	5.69	105.000 MEV ELASTIC
95.26	.029	27.	.0032	5.75	105.000 MEV ELASTIC

$$$$$$$$$$$$ 12C(12C,12C)12C Q= 0.0 AT ELAB =106.9 MEV $$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)	
24.44	4.613	5.	.0138	1.66	106.900 MEV ELASTIC
26.44	29.060	5.	.1191	1.80	106.900 MEV ELASTIC
28.45	24.691	5.	.1369	1.93	106.900 MEV ELASTIC
30.47	6.485	5.	.0482	2.06	106.900 MEV ELASTIC
32.49	3.598	6.	.0356	2.20	106.900 MEV ELASTIC
34.51	8.281	5.	.1084	2.33	106.900 MEV ELASTIC
36.53	7.116	5.	.1225	2.46	106.900 MEV ELASTIC
38.55	3.355	6.	.0756	2.59	106.900 MEV ELASTIC
40.56	1.299	10.	.0380	2.72	106.900 MEV ELASTIC
42.58	1.726	9.	.0650	2.85	106.900 MEV ELASTIC
44.56	1.640	5.	.0781	2.98	106.900 MEV ELASTIC
46.55	.790	6.	.0469	3.10	106.900 MEV ELASTIC
48.56	.239	10.	.0173	3.23	106.900 MEV ELASTIC
50.56	.331	9.	.0286	3.35	106.900 MEV ELASTIC
52.58	.404	8.	.0404	3.48	106.900 MEV ELASTIC
54.59	.307	9.	.0344	3.60	106.900 MEV ELASTIC
56.61	.193	11.	.0234	3.72	106.900 MEV ELASTIC
58.62	.200	11.	.0255	3.84	106.900 MEV ELASTIC
60.64	.252	10.	.0328	3.96	106.900 MEV ELASTIC

62.66	.224	11.	.0292	4.08	106.900 MEV ELASTIC
64.67	.205	11.	.0264	4.20	106.900 MEV ELASTIC
66.64	.095	9.	.0120	4.31	106.900 MEV ELASTIC
68.63	.047	12.	.0058	4.43	106.900 MEV ELASTIC
70.63	.066	10.	.0079	4.54	106.900 MEV ELASTIC
72.64	.098	9.	.0114	4.65	106.900 MEV ELASTIC
74.65	.089	9.	.0101	4.76	106.900 MEV ELASTIC
76.66	.049	12.	.0054	4.87	106.900 MEV ELASTIC
78.67	.017	21.	.0019	4.98	106.900 MEV ELASTIC
80.69	.025	17.	.0027	5.08	106.900 MEV ELASTIC
82.70	.033	15.	.0034	5.19	106.900 MEV ELASTIC
84.71	.020	20.	.0021	5.29	106.900 MEV ELASTIC
86.72	.022	19.	.0023	5.39	106.900 MEV ELASTIC
88.72	.045	14.	.0045	5.49	106.900 MEV ELASTIC
90.72	.043	14.	.0043	5.59	106.900 MEV ELASTIC
92.71	.027	18.	.0027	5.68	106.900 MEV ELASTIC
94.69	.011	29.	.0012	5.77	106.900 MEV ELASTIC

$$$$$$$$$$$$ 12C(12C,12C)12C Q= 0.0 AT ELAB =112.0 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)	
15.35	99.304	9.	.0634	1.07	112.000 MEV ELASTIC
16.59	85.466	7.	.0732	1.16	112.000 MEV ELASTIC
17.82	166.454	7.	.1874	1.24	112.000 MEV ELASTIC
19.06	190.951	5.	.2773	1.33	112.000 MEV ELASTIC
20.30	127.025	5.	.2345	1.42	112.000 MEV ELASTIC
21.55	49.805	5.	.1154	1.50	112.000 MEV ELASTIC
22.80	7.973	9.	.0230	1.59	112.000 MEV ELASTIC
24.05	9.844	8.	.0349	1.67	112.000 MEV ELASTIC
25.30	25.159	5.	.1093	1.76	112.000 MEV ELASTIC
26.55	31.445	5.	.1662	1.84	112.000 MEV ELASTIC
27.80	23.049	5.	.1475	1.93	112.000 MEV ELASTIC
29.06	9.331	5.	.0721	2.02	112.000 MEV ELASTIC
30.31	3.406	5.	.0316	2.10	112.000 MEV ELASTIC
31.55	4.780	5.	.0530	2.18	112.000 MEV ELASTIC
32.80	7.418	5.	.0981	2.27	112.000 MEV ELASTIC
34.05	8.149	5.	.1283	2.35	112.000 MEV ELASTIC
35.30	6.686	5.	.1250	2.44	112.000 MEV ELASTIC
36.57	4.715	5.	.1047	2.52	112.000 MEV ELASTIC
37.82	2.273	6.	.0596	2.60	112.000 MEV ELASTIC
39.35	1.099	5.	.0352	2.71	112.000 MEV ELASTIC
40.58	1.349	5.	.0506	2.79	112.000 MEV ELASTIC
41.82	1.468	5.	.0642	2.87	112.000 MEV ELASTIC
43.06	1.424	5.	.0723	2.95	112.000 MEV ELASTIC
44.30	.960	5.	.0563	3.03	112.000 MEV ELASTIC
45.55	.579	6.	.0390	3.11	112.000 MEV ELASTIC
46.80	.274	8.	.0210	3.19	112.000 MEV ELASTIC
48.05	.245	8.	.0212	3.27	112.000 MEV ELASTIC
49.30	.378	5.	.0366	3.35	112.000 MEV ELASTIC
50.55	.462	5.	.0494	3.43	112.000 MEV ELASTIC
51.80	.508	5.	.0595	3.51	112.000 MEV ELASTIC
53.05	.387	5.	.0489	3.59	112.000 MEV ELASTIC
54.31	.288	6.	.0389	3.67	112.000 MEV ELASTIC
55.56	.231	7.	.0329	3.74	112.000 MEV ELASTIC
56.81	.197	8.	.0291	3.82	112.000 MEV ELASTIC
58.06	.199	11.	.0305	3.90	112.000 MEV ELASTIC
59.32	.210	6.	.0328	3.98	112.000 MEV ELASTIC
60.57	.192	7.	.0303	4.05	112.000 MEV ELASTIC
61.81	.170	9.	.0269	4.13	112.000 MEV ELASTIC

63.06	.134	10.	.0212	4.20	112.000 MEV ELASTIC
64.31	.082	13.	.0129	4.28	112.000 MEV ELASTIC
65.55	.069	15.	.0107	4.35	112.000 MEV ELASTIC
66.79	.045	18.	.0070	4.42	112.000 MEV ELASTIC
68.03	.016	37.	.0025	4.49	112.000 MEV ELASTIC
69.26	.021	33.	.0032	4.57	112.000 MEV ELASTIC
71.55	.025	36.	.0036	4.70	112.000 MEV ELASTIC
72.80	.015	43.	.0022	4.77	112.000 MEV ELASTIC
74.04	.011	60.	.0015	4.84	112.000 MEV ELASTIC
75.29	.006	67.	.0009	4.91	112.000 MEV ELASTIC
76.55	.007	67.	.0009	4.98	112.000 MEV ELASTIC
77.80	.015	45.	.0021	5.05	112.000 MEV ELASTIC
79.05	.030	29.	.0041	5.11	112.000 MEV ELASTIC
80.30	.045	25.	.0060	5.18	112.000 MEV ELASTIC
81.56	.040	33.	.0052	5.25	112.000 MEV ELASTIC
82.81	.017	42.	.0021	5.31	112.000 MEV ELASTIC
84.06	.009	60.	.0012	5.38	112.000 MEV ELASTIC
85.31	.007	67.	.0009	5.44	112.000 MEV ELASTIC
86.57	.028	35.	.0036	5.51	112.000 MEV ELASTIC
87.81	.048	26.	.0062	5.57	112.000 MEV ELASTIC
89.06	.084	20.	.0107	5.64	112.000 MEV ELASTIC
90.30	.088	20.	.0112	5.70	112.000 MEV ELASTIC
91.55	.066	19.	.0084	5.76	112.000 MEV ELASTIC
92.79	.025	30.	.0031	5.82	112.000 MEV ELASTIC
95.26	.012	75.	.0015	5.94	112.000 MEV ELASTIC

$$$$$$$$$$$$ 12C(12C,12C)12C Q= 0.0 AT ELAB =117.1 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERROR (%)	SIG/SIGR	PTRAN (INV-FM)	
15.35	94.088	6.	.0570	1.10	117.100 MEV ELASTIC
16.59	52.565	6.	.0428	1.18	117.100 MEV ELASTIC
17.82	140.917	8.	.1509	1.27	117.100 MEW ELASTIC
19.06	183.610	7.	.2541	1.36	117.100 MEV ELASTIC
20.30	133.272	5.	.2348	1.45	117.100 MEV ELASTIC
21.55	53.148	10.	.1178	1.54	117.100 MEV ELASTIC
22.44	5.618	5.	.0146	1.60	117.100 MEV ELASTIC
24.44	23.767	5.	.0864	1.74	117.100 MEV ELASTIC
26.44	28.807	5.	.1445	1.88	117.100 MEV ELASTIC
28.45	9.950	5.	.0679	2.02	117.100 MEV ELASTIC
30.47	3.314	5.	.0305	2.16	117.100 MEV ELASTIC
32.49	7.131	5.	.0877	2.30	117.100 MEV ELASTIC
34.51	7.307	5.	.1192	2.44	117.100 MEV ELASTIC
36.53	3.087	5.	.0662	2.57	117.100 MEV ELASTIC
38.55	.963	8.	.0270	2.71	117.100 MEV ELASTIC
40.56	1.171	7.	.0424	2.85	117.100 MEV ELASTIC
44.56	.760	5.	.0440	3.11	117.100 MEV ELASTIC
46.55	.368	6.	.0262	3.25	117.100 MEV ELASTIC
48.56	.507	5.	.0435	3.38	117.100 MEV ELASTIC
50.56	.602	5.	.0606	3.51	117.100 MEV ELASTIC
52.58	.422	6.	.0485	3.64	117.100 MEV ELASTIC
54.59	.289	7.	.0367	3.77	117.100 MEV ELASTIC
56.61	.156	10.	.0213	3.90	117.100 MEV ELASTIC
58.62	.182	9.	.0260	4.02	117.100 MEV ELASTIC
60.64	.157	10.	.0228	4.15	117.100 MEV ELASTIC
62.66	.090	13.	.0132	4.27	117.100 MEV ELASTIC
66.64	.013	18.	.0018	4.51	117.100 MEV ELASTIC
68.63	.028	12.	.0039	4.63	117.100 MEV ELASTIC
70.63	.020	14.	.0028	4.75	117.100 MEV ELASTIC
72.64	.010	20.	.0014	4.87	117.100 MEV ELASTIC
74.65	.018	15.	.0024	4.98	117.100 MEV ELASTIC

76.66	.026	13.	.0034	5.10	117.100 MEV ELASTIC
78.67	.041	10.	.0052	5.21	117.100 MEV ELASTIC
80.69	.053	9.	.0066	5.32	117.100 MEV ELASTIC
82.70	.028	12.	.0035	5.43	117.100 MEV ELASTIC
84.71	.015	17.	.0018	5.54	117.100 MEV ELASTIC
86.72	.034	12.	.0041	5.64	117.100 MEV ELASTIC
88.72	.079	8.	.0096	5.74	117.100 MEV ELASTIC
90.72	.065	9.	.0079	5.85	117.100 MEV ELASTIC
92.71	.030	13.	.0037	5.95	117.100 MEV ELASTIC
94.69	.012	21.	.0015	6.04	117.100 MEV ELASTIC

$$$$$$$$$$$$ 12C(12C,12C)12C Q= 0.0 AT ELAB =121.6 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)	
15.35	70.160	7.	.0523	1.12	121.600 MEV ELASTIC
16.59	153.902	6.	.1543	1.21	121.600 MEV ELASTIC
17.82	174.258	6.	.2299	1.30	121.600 MEV ELASTIC
19.06	121.695	5.	.2077	1.39	121.600 MEV ELASTIC
20.30	41.430	5.	.0902	1.48	121.600 MEV ELASTIC
21.55	7.901	7.	.0217	1.56	121.600 MEV ELASTIC
22.80	12.225	10.	.0418	1.65	121.600 MEV ELASTIC
24.05	28.042	5.	.1188	1.74	121.600 MEV ELASTIC
25.30	29.516	5.	.1536	1.83	121.600 MEV ELASTIC
26.59	23.781	5.	.1520	1.92	121.600 MEV ELASTIC
27.80	8.834	5.	.0682	2.01	121.600 MEV ELASTIC
29.06	4.400	5.	.0411	2.10	121.600 MEV ELASTIC
30.31	5.025	5.	.0565	2.19	121.600 MEV ELASTIC
31.55	7.244	5.	.0976	2.28	121.600 MEV ELASTIC
32.80	7.222	5.	.1162	2.36	121.600 MEV ELASTIC
34.05	5.814	5.	.1115	2.45	121.600 MEV ELASTIC
35.30	3.187	7.	.0726	2.54	121.600 MEV ELASTIC
36.57	1.381	11.	.0373	2.63	121.600 MEV ELASTIC
37.80	.869	6.	.0276	2.71	121.600 MEV ELASTIC
39.35	1.216	5.	.0472	2.82	121.600 MEV ELASTIC
40.58	1.451	5.	.0657	2.90	121.600 MEV ELASTIC
41.82	1.279	5.	.0672	2.99	121.600 MEV ELASTIC
43.06	1.000	5.	.0607	3.07	121.600 MEV ELASTIC
44.06	.535	5.	.0363	3.14	121.600 MEV ELASTIC
45.55	.571	7.	.0454	3.24	121.600 MEV ELASTIC
46.80	.491	6.	.0441	3.32	121.600 MEV ELASTIC
48.05	.536	5.	.0539	3.41	121.600 MEV ELASTIC
49.30	.611	5.	.0681	3.49	121.600 MEV ELASTIC
50.55	.605	5.	.0740	3.57	121.600 MEV ELASTIC
51.80	.435	5.	.0578	3.66	121.600 MEV ELASTIC
53.05	.292	8.	.0416	3.74	121.600 MEV ELASTIC
54.31	.251	16.	.0379	3.82	121.600 MEV ELASTIC
55.56	.156	11.	.0247	3.90	121.600 MEV ELASTIC
56.81	.135	12.	.0223	3.98	121.600 MEV ELASTIC
58.06	.121	13.	.0206	4.06	121.600 MEV ELASTIC
59.32	.086	16.	.0148	4.14	121.600 MEV ELASTIC
60.57	.071	17.	.0125	4.22	121.600 MEV ELASTIC
61.81	.042	12.	.0074	4.30	121.600 MEV ELASTIC
63.06	.013	14.	.0022	4.38	121.600 MEV ELASTIC
64.31	.011	50.	.0019	4.46	121.600 MEV ELASTIC
65.35	.015	47.	.0026	4.52	121.600 MEV ELASTIC
66.58	.025	22.	.0044	4.60	121.600 MEV ELASTIC
68.03	.036	21.	.0062	4.68	121.600 MEV ELASTIC
69.06	.020	29.	.0033	4.75	121.600 MEV ELASTIC
70.30	.017	33.	.0029	4.82	121.600 MEV ELASTIC

71.55	.014	41.	.0024	4.89	121.600 MEV ELASTIC
72.80	.013	44.	.0022	4.97	121.600 MEV ELASTIC
74.04	.029	19.	.0047	5.04	121.600 MEV ELASTIC
75.29	.041	14.	.0066	5.11	121.600 MEV ELASTIC
76.55	.037	16.	.0058	5.19	121.600 MEV ELASTIC
77.80	.025	23.	.0039	5.26	121.600 MEV ELASTIC
80.30	.024	24.	.0038	5.40	121.600 MEV ELASTIC
81.56	.014	35.	.0022	5.47	121.600 MEV ELASTIC
82.81	.007	44.	.0011	5.54	121.600 MEV ELASTIC
84.06	.014	37.	.0021	5.61	121.600 MEV ELASTIC
85.31	.009	45.	.0014	5.67	121.600 MEV ELASTIC
86.57	.017	32.	.0025	5.74	121.600 MEV ELASTIC
87.81	.016	32.	.0025	5.81	121.600 MEV ELASTIC
89.06	.030	21.	.0045	5.87	121.600 MEV ELASTIC
90.30	.013	36.	.0019	5.94	121.600 MEV ELASTIC

$$$$$$$$$$$$ 12C(12C,12C)12C Q= 0.0 AI ELAB =126.7 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)	
15.35	60.031	7.	.0484	1.14	126.700 MEV ELASTIC
16.59	129.917	7.	.1410	1.23	126.700 MEV ELASTIC
17.82	198.572	5.	.2840	1.32	126.700 MEV ELASTIC
19.06	133.422	5.	.2472	1.41	126.700 MEV ELASTIC
20.30	53.673	6.	.1270	1.51	126.700 MEV ELASTIC
21.55	10.638	10.	.0318	1.60	126.700 MEV ELASTIC
22.80	9.545	8.	.0357	1.69	126.700 MEV ELASTIC
24.05	26.479	5.	.1226	1.78	126.700 MEV ELASTIC
25.35	30.415	5.	.1749	1.88	126.700 MEV ELASTIC
26.55	22.568	5.	.1573	1.96	126.700 MEV ELASTIC
27.82	9.939	7.	.0846	2.05	126.700 MEV ELASTIC
29.06	4.287	8.	.0441	2.14	126.700 MEV ELASTIC
30.30	4.388	6.	.0543	2.23	126.700 MEV ELASTIC
31.56	6.084	5.	.0904	2.32	126.700 MEV ELASTIC
32.81	6.377	5.	.1134	2.41	126.700 MEV ELASTIC
34.05	5.007	6.	.1058	2.50	126.700 MEV ELASTIC
35.30	2.200	9.	.0554	2.59	126.700 MEV ELASTIC
36.55	1.275	10.	.0378	2.68	126.700 MEV ELASTIC
37.80	1.032	11.	.0361	2.77	126.700 MEV ELASTIC
39.05	1.098	10.	.0451	2.86	126.700 MEV ELASTIC
40.58	1.413	5.	.0701	2.96	126.700 MEV ELASTIC
41.82	1.062	5.	.0610	3.05	126.700 MEV ELASTIC
43.06	.845	5.	.0559	3.14	126.700 MEV ELASTIC
44.30	.588	6.	.0445	3.22	126.700 MEV ELASTIC
45.55	.577	6.	.0496	3.31	126.700 MEV ELASTIC
46.80	.582	7.	.0563	3.39	126.700 MEV ELASTIC
48.05	.507	7.	.0547	3.48	126.700 MEV ELASTIC
49.30	.382	10.	.0456	3.56	126.700 MEV ELASTIC
50.55	.403	8.	.0526	3.65	126.700 MEV ELASTIC
51.80	.246	10.	.0347	3.73	126.700 MEV ELASTIC
53.05	.179	14.	.0270	3.82	126.700 MEV ELASTIC
54.31	.094	23.	.0150	3.90	126.700 MEV ELASTIC
55.56	.059	29.	.0100	3.98	126.700 MEV ELASTIC
56.81	.047	35.	.0082	4.07	126.700 MEV ELASTIC
58.06	.044	29.	.0080	4.15	126.700 MEV ELASTIC
59.32	.075	19.	.0137	4.23	126.700 MEV ELASTIC
60.57	.035	25.	.0066	4.31	126.700 MEV ELASTIC
61.81	.016	45.	.0030	4.39	126.700 MEV ELASTIC
63.06	.023	33.	.0042	4.47	126.700 MEV ELASTIC
64.31	.027	28.	.0051	4.55	126.700 MEV ELASTIC

65.55	.034	23.	.0064	4.63	126.700 MEV ELASTIC
66.58	.046	22.	.0085	4.69	126.700 MEV ELASTIC
67.82	.050	21.	.0092	4.77	126.700 MEV ELASTIC
69.06	.038	23.	.0070	4.84	126.700 MEV ELASTIC
70.30	.038	23.	.0069	4.92	126.700 MEV ELASTIC
71.55	.020	36.	.0035	5.00	126.700 MEV ELASTIC
72.80	.016	33.	.0028	5.07	126.700 MEV ELASTIC
74.04	.041	21.	.0072	5.15	126.700 MEV ELASTIC
75.29	.022	31.	.0039	5.22	126.700 MEV ELASTIC
76.55	.050	21.	.0086	5.29	126.700 MEV ELASTIC
77.80	.021	33.	.0036	5.37	126.700 MEV ELASTIC
79.05	.024	29.	.0041	5.44	126.700 MEV ELASTIC
80.30	.016	33.	.0027	5.51	126.700 MEV ELASTIC
81.56	.011	50.	.0018	5.58	126.700 MEV ELASTIC

$$$$$$$$$$$$ 12C(12C,12C)12C Q=-4.44 AT ELAB = 70.7 MEV $$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)	
17.15	65.680	10.	.0239	.94	70.700 MEV SINGLE
19.21	82.020	8.	.0462	1.05	70.700 MEV SINGLE
21.28	70.854	7.	.0581	1.16	70.700 MEV SINGLE
23.36	28.063	10.	.0321	1.27	70.700 MEV SINGLE
25.45	15.655	13.	.0241	1.38	70.700 MEV SINGLE
27.54	27.776	9.	.0564	1.48	70.700 MEV SINGLE
29.63	37.613	7.	.0995	1.59	70.700 MEV SINGLE
31.72	27.585	8.	.0944	1.70	70.700 MEV SINGLE
33.81	11.930	12.	.0527	1.81	70.700 MEV SINGLE
35.91	9.785	13.	.0558	1.91	70.700 MEV SINGLE
37.96	14.910	6.	.1097	2.02	70.700 MEV SINGLE
40.03	16.020	5.	.1529	2.12	70.700 MEV SINGLE
42.11	9.709	5.	.1209	2.23	70.700 MEV SINGLE
44.19	6.212	6.	.1015	2.33	70.700 MEV SINGLE
46.29	7.639	5.	.1642	2.44	70.700 MEV SINGLE
48.38	10.120	5.	.2860	2.54	70.700 MEV SINGLE
50.48	9.357	5.	.3450	2.64	70.700 MEV SINGLE
52.58	6.574	5.	.3106	2.74	70.700 MEV SINGLE
54.68	4.923	5.	.2886	2.84	70.700 MEV SINGLE
56.78	5.364	5.	.3723	2.94	70.700 MEV SINGLE
58.88	5.477	5.	.4247	3.04	70.700 MEV SINGLE
60.98	3.951	5.	.3223	3.14	70.700 MEV SINGLE
63.07	2.474	6.	.2016	3.24	70.700 MEV SINGLE
65.16	2.116	7.	.1658	3.33	70.700 MEV SINGLE
67.24	3.249	5.	.2392	3.43	70.700 MEV SINGLE
69.34	3.577	5.	.2447	3.52	70.700 MEV SINGLE
71.45	3.502	5.	.2218	3.61	70.700 MEV SINGLE
73.57	2.704	5.	.1591	3.70	70.700 MEV SINGLE
75.69	2.107	5.	.1158	3.79	70.700 MEV SINGLE
77.82	2.302	5.	.1193	3.88	70.700 MEV SINGLE
79.94	2.051	5.	.1011	3.97	70.700 MEV SINGLE
82.06	2.121	5.	.1004	4.06	70.700 MEV SINGLE
84.19	2.051	5.	.0941	4.14	70.700 MEV SINGLE
86.31	1.626	5.	.0731	4.23	70.700 MEV SINGLE
88.42	1.440	6.	.0639	4.31	70.700 MEV SINGLE

$$$$$$$$$$$$$ 12C(12C,12C)12C Q=-4.44 AT ELAB = 74.2 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
23.18	24.654	5.	.0299	1.29	74.250 MEV	SINGLE
25.25	15.374	5.	.0252	1.40	74.250 MEV	SINGLE
27.33	30.559	5.	.0664	1.51	74.250 MEV	SINGLE
29.41	34.796	5.	.0990	1.62	74.250 MEV	SINGLE
31.49	23.218	5.	.0860	1.73	74.250 MEV	SINGLE
33.58	10.795	5.	.0519	1.84	74.250 MEV	SINGLE
35.68	10.156	5.	.0634	1.95	74.250 MEV	SINGLE
37.77	15.731	5.	.1279	2.06	74.250 MEV	SINGLE
39.87	16.986	5.	.1804	2.17	74.250 MEV	SINGLE
41.96	10.010	5.	.1393	2.28	74.250 MEV	SINGLE
44.05	5.500	5.	.1006	2.39	74.250 MEV	SINGLE
46.11	7.194	5.	.1720	2.49	74.250 MEV	SINGLE
48.18	9.912	5.	.3096	2.60	74.250 MEV	SINGLE
50.26	8.770	5.	.3544	2.70	74.250 MEV	SINGLE
52.35	4.889	5.	.2506	2.80	74.250 MEV	SINGLE
54.45	3.071	5.	.1932	2.91	74.250 MEV	SINGLE
56.55	4.197	5.	.3095	3.01	74.250 MEV	SINGLE
58.65	5.425	5.	.4438	3.11	74.250 MEV	SINGLE
60.76	5.104	5.	.4380	3.21	74.250 MEV	SINGLE
62.87	3.076	5.	.2640	3.31	74.250 MEV	SINGLE
64.97	2.154	5.	.1784	3.41	74.250 MEV	SINGLE
67.08	3.096	5.	.2423	3.51	74.250 MEV	SINGLE
69.15	4.179	5.	.3062	3.60	74.250 MEV	SINGLE
71.24	4.640	5.	.3171	3.70	74.250 MEV	SINGLE
73.34	3.273	5.	.2091	3.79	74.250 MEV	SINGLE
75.45	1.894	5.	.1137	3.88	74.250 MEV	SINGLE
77.57	2.012	5.	.1143	3.98	74.250 MEV	SINGLE
79.69	2.254	5.	.1221	4.07	74.250 MEV	SINGLE
81.82	1.689	5.	.0880	4.16	74.250 MEV	SINGLE
83.96	.840	7.	.0425	4.24	74.250 MEV	SINGLE
86.10	.535	9.	.0265	4.33	74.250 MEV	SINGLE
88.24	1.010	7.	.0495	4.42	74.250 MEV	SINGLE
90.38	.849	8.	.0415	4.50	74.250 MEV	SINGLE
92.52	.547	10.	.0269	4.58	74.250 MEV	SINGLE
94.67	.525	10.	.0262	4.67	74.250 MEV	SINGLE
96.81	1.108	7.	.0566	4.74	74.250 MEV	SINGLE
98.95	1.781	6.	.0941	4.82	74.250 MEV	SINGLE

$$$$$$$$$$$$$ 12C(12C,12C)12C Q=-4.44 AT ELAB = 78.8 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
16.34	51.264	6.	.0217	.95	78.850 MEV	SINGLE
17.59	67.597	6.	.0380	1.02	78.850 MEV	SINGLE
18.22	74.659	6.	.0479	1.05	78.850 MEV	SINGLE
19.49	81.191	5.	.0669	1.12	78.850 MEV	SINGLE
20.75	62.400	5.	.0647	1.19	78.850 MEV	SINGLE
22.65	28.606	7.	.0407	1.30	78.850 MEV	SINGLE
23.92	16.374	6.	.0283	1.37	78.850 MEV	SINGLE
26.47	24.561	5.	.0612	1.51	78.850 MEV	SINGLE
28.54	31.923	5.	.1053	1.63	78.850 MEV	SINGLE
29.66	23.940	5.	.0915	1.69	78.850 MEV	SINGLE
31.07	18.764	5.	.0861	1.76	78.850 MEV	SINGLE
32.34	9.677	8.	.0523	1.83	78.850 MEV	SINGLE
34.14	11.434	5.	.0778	1.93	78.850 MEV	SINGLE

35.53	10.076	7.	.0819	2.01	78.850 MEV	SINGLE
37.33	15.150	5.	.1553	2.10	78.850 MEV	SINGLE
38.72	13.082	5.	.1604	2.18	78.850 MEV	SINGLE
41.13	6.230	5.	.1044	2.31	78.850 MEV	SINGLE
42.42	7.623	5.	.1513	2.38	78.850 MEV	SINGLE
43.65	5.048	5.	.1176	2.44	78.850 MEV	SINGLE
44.92	6.211	5.	.1706	2.51	78.850 MEV	SINGLE
46.19	6.403	5.	.2072	2.57	78.850 MEV	SINGLE
47.47	7.091	5.	.2696	2.64	78.850 MEV	SINGLE
49.39	5.365	5.	.2576	2.74	78.850 MEV	SINGLE
50.03	4.977	5.	.2575	2.77	78.850 MEV	SINGLE
51.95	3.672	6.	.2343	2.87	78.850 MEV	SINGLE
53.23	2.137	7.	.1544	2.94	78.850 MEV	SINGLE
54.52	2.606	7.	.2100	3.00	78.850 MEV	SINGLE
55.16	2.663	6.	.2252	3.04	78.850 MEV	SINGLE
57.09	3.926	5.	.3727	3.13	78.850 MEV	SINGLE
58.38	3.680	7.	.3682	3.20	78.850 MEV	SINGLE
60.31	3.238	5.	.3383	3.29	78.850 MEV	SINGLE
62.24	1.641	9.	.1725	3.39	78.850 MEV	SINGLE
63.52	1.421	11.	.1476	3.45	78.850 MEV	SINGLE
64.17	1.427	14.	.1468	3.48	78.850 MEV	SINGLE
66.09	2.082	8.	.2055	3.57	78.850 MEV	SINGLE
67.37	2.079	6.	.1984	3.64	78.850 MEV	SINGLE
68.79	2.316	11.	.2123	3.70	78.850 MEV	SINGLE
69.93	2.169	6.	.1923	3.76	78.850 MEV	SINGLE
71.99	1.368	7.	.1141	3.85	78.850 MEV	SINGLE
73.92	.946	22.	.0747	3.94	78.850 MEV	SINGLE
75.21	1.016	9.	.0776	4.00	78.850 MEV	SINGLE
77.16	1.031	7.	.0752	4.09	78.850 MEV	SINGLE
79.10	1.315	8.	.0921	4.17	78.850 MEV	SINGLE
81.71	.665	13.	.0446	4.29	78.850 MEV	SINGLE
83.02	.349	14.	.0230	4.34	78.850 MEV	SINGLE
86.29	.498	14.	.0318	4.48	78.850 MEV	SINGLE
87.60	.776	10.	.0492	4.53	78.850 MEV	SINGLE
88.91	.862	9.	.0544	4.59	78.850 MEV	SINGLE
90.87	.703	11.	.0444	4.67	78.850 MEV	SINGLE
92.84	.350	18.	.0222	4.75	78.850 MEV	SINGLE
94.15	.279	19.	.0179	4.80	78.850 MEV	SINGLE
96.12	.231	23.	.0151	4.87	78.850 MEV	SINGLE

$$$$$$$$$$$$$ 12C(12C,12C)12C Q=-4.44 AT ELAB = 83.3 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
23.10	13.418	6.	.0198	1.36	83.300 MEV	SINGLE
25.15	27.582	5.	.0554	1.48	83.300 MEV	SINGLE
27.22	33.220	5.	.0896	1.60	83.300 MEV	SINGLE
29.29	21.059	5.	.0753	1.71	83.300 MEV	SINGLE
31.37	8.564	7.	.0404	1.83	83.300 MEV	SINGLE
33.45	10.654	6.	.0661	1.95	83.300 MEV	SINGLE
35.54	12.679	6.	.1032	2.07	83.300 MEV	SINGLE
37.62	12.225	6.	.1306	2.18	83.300 MEV	SINGLE
39.71	8.168	7.	.1146	2.30	83.300 MEV	SINGLE
41.35	6.184	5.	.1075	2.39	83.300 MEV	SINGLE
43.42	7.587	5.	.1726	2.50	83.300 MEV	SINGLE
45.49	8.183	5.	.2427	2.61	83.300 MEV	SINGLE
47.56	5.556	5.	.2132	2.72	83.300 MEV	SINGLE
49.65	3.547	5.	.1735	2.84	83.300 MEV	SINGLE
51.73	3.417	5.	.2080	2.95	83.300 MEV	SINGLE
53.82	3.811	5.	.2790	3.06	83.300 MEV	SINGLE
55.92	4.031	5.	.3398	3.16	83.300 MEV	SINGLE
58.01	3.699	5.	.3419	3.27	83.300 MEV	SINGLE
60.10	2.717	5.	.2629	3.38	83.300 MEV	SINGLE

62.20	2.197	5.	.2140	3.49	83.300 MEV	SINGLE
64.29	2.265	5.	.2157	3.59	83.300 MEV	SINGLE
66.37	2.252	5.	.2058	3.69	83.300 MEV	SINGLE
68.45	1.912	5.	.1660	3.79	83.300 MEV	SINGLE
70.92	.928	5.	.0755	3.91	83.300 MEV	SINGLE
73.03	.514	6.	.0396	4.01	83.300 MEV	SINGLE
75.13	.758	5.	.0555	4.11	83.300 MEV	SINGLE
77.25	1.252	5.	.0876	4.21	83.300 MEV	SINGLE
79.36	1.256	5.	.0845	4.31	83.300 MEV	SINGLE
81.47	.836	5.	.0544	4.40	83.300 MEV	SINGLE
83.59	.546	6.	.0347	4.49	83.300 MEV	SINGLE
85.70	.843	5.	.0526	4.59	83.300 MEV	SINGLE
87.81	1.481	5.	.0914	4.68	83.300 MEV	SINGLE
89.92	1.740	5.	.1070	4.77	83.300 MEV	SINGLE
92.02	1.419	5.	.0876	4.85	83.300 MEV	SINGLE

$$$$$$$$$$$$$ 12C(12C,12C)12C Q=-4.44 AT ELAB = 89.7 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
23.05	13.678	5.	.0230	1.41	89.700 MEV	SINGLE
25.10	33.449	5.	.0772	1.53	89.700 MEV	SINGLE
27.16	32.969	5.	.1029	1.66	89.700 MEV	SINGLE
29.23	16.807	5.	.0701	1.78	89.700 MEV	SINGLE
31.30	8.412	5.	.0466	1.90	89.700 MEV	SINGLE
33.38	14.508	5.	.1063	2.02	89.700 MEV	SINGLE
35.46	17.533	5.	.1696	2.14	89.700 MEV	SINGLE
37.54	11.417	5.	.1455	2.26	89.700 MEV	SINGLE
39.62	5.033	5.	.0844	2.38	89.700 MEV	SINGLE
41.70	5.318	5.	.1170	2.50	89.700 MEV	SINGLE
43.78	8.580	5.	.2464	2.62	89.700 MEV	SINGLE
45.82	6.764	5.	.2504	2.73	89.700 MEV	SINGLE
47.88	3.540	5.	.1672	2.85	89.700 MEV	SINGLE
49.94	2.389	5.	.1411	2.96	89.700 MEV	SINGLE
52.02	3.892	5.	.2796	3.08	89.700 MEV	SINGLE
54.10	4.473	5.	.3768	3.19	89.700 MEV	SINGLE
56.18	3.077	5.	.2915	3.30	89.700 MEV	SINGLE
58.27	1.542	5.	.1573	3.42	89.700 MEV	SINGLE
60.36	1.565	5.	.1651	3.53	89.700 MEV	SINGLE
62.45	2.115	5.	.2235	3.64	89.700 MEV	SINGLE
64.54	1.848	5.	.1911	3.75	89.700 MEV	SINGLE
66.63	.795	5.	.0793	3.85	89.700 MEV	SINGLE
68.68	.498	5.	.0476	3.96	89.700 MEV	SINGLE
70.75	.737	5.	.0672	4.06	89.700 MEV	SINGLE
72.83	.977	5.	.0851	4.16	89.700 MEV	SINGLE
74.92	.885	5.	.0737	4.27	89.700 MEV	SINGLE
77.02	.622	5.	.0498	4.37	89.700 MEV	SINGLE
79.12	.561	5.	.0435	4.47	89.700 MEV	SINGLE
81.23	.632	5.	.0475	4.56	89.700 MEV	SINGLE
83.34	.576	5.	.0424	4.66	89.700 MEV	SINGLE
85.45	.472	5.	.0341	4.76	89.700 MEV	SINGLE
87.56	.438	5.	.0314	4.85	89.700 MEV	SINGLE
89.68	.418	5.	.0298	4.94	89.700 MEV	SINGLE
91.79	.482	5.	.0345	5.04	89.700 MEV	SINGLE
93.91	.510	5.	.0367	5.12	89.700 MEV	SINGLE
96.02	.639	5.	.0468	5.21	89.700 MEV	SINGLE
98.13	.607	5.	.0453	5.30	89.700 MEV	SINGLE

$$$$$$$$$$$$$ 12C(12C,12C)12C Q=-4.44 AT ELAB = 93.8 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
10.20	185.234	5.	.0168	.66	93.800 MEV	SINGLE
12.30	54.378	5.	.0105	.79	93.800 MEV	SINGLE
14.30	46.767	5.	.0163	.91	93.800 MEV	SINGLE
15.74	82.198	5.	.0416	1.04	93.800 MEV	SINGLE
17.01	93.761	5.	.0636	1.08	93.800 MEV	SINGLE
18.28	68.834	5.	.0612	1.15	93.800 MEV	SINGLE
19.55	38.874	5.	.0444	1.23	93.800 MEV	SINGLE
20.83	15.895	5.	.0229	1.31	93.800 MEV	SINGLE
22.10	14.755	5.	.0265	1.39	93.800 MEV	SINGLE
23.38	25.248	5.	.0560	1.46	93.800 MEV	SINGLE
24.67	34.186	5.	.0926	1.54	93.800 MEV	SINGLE
28.79	13.696	5.	.0680	1.79	93.800 MEV	SINGLE
29.81	7.976	5.	.0457	1.85	93.800 MEV	SINGLE
31.10	10.760	5.	.0737	1.93	93.800 MEV	SINGLE
32.63	14.186	5.	.1198	2.02	93.800 MEV	SINGLE
33.67	15.724	5.	.1530	2.09	93.800 MEV	SINGLE
34.96	13.766	5.	.1593	2.16	93.800 MEV	SINGLE
36.25	9.279	5.	.1276	2.24	93.800 MEV	SINGLE
37.53	6.537	5.	.1066	2.31	93.800 MEV	SINGLE
39.06	4.402	6.	.0879	2.40	93.800 MEV	SINGLE
40.40	4.838	5.	.1151	2.48	93.800 MEV	SINGLE
41.64	5.951	5.	.1664	2.56	93.800 MEV	SINGLE
42.93	6.436	5.	.2122	2.63	93.800 MEV	SINGLE
43.94	6.259	5.	.2342	2.69	93.800 MEV	SINGLE
45.50	4.779	5.	.2165	2.78	93.800 MEV	SINGLE
46.78	3.236	5.	.1705	2.85	93.800 MEV	SINGLE
48.08	2.516	5.	.1534	2.93	93.800 MEV	SINGLE
49.35	2.345	5.	.1634	3.00	93.800 MEV	SINGLE
50.64	2.907	5.	.2296	3.07	93.800 MEV	SINGLE
51.93	3.391	5.	.2998	3.15	93.800 MEV	SINGLE
53.22	3.300	5.	.3219	3.22	93.800 MEV	SINGLE
54.49	3.138	5.	.3320	3.29	93.800 MEV	SINGLE
55.81	2.177	7.	.2467	3.36	93.800 MEV	SINGLE
57.11	1.519	9.	.1812	3.43	93.800 MEV	SINGLE
58.40	1.147	5.	.1418	3.50	93.800 MEV	SINGLE
59.69	1.243	5.	.1570	3.57	93.800 MEV	SINGLE
60.99	1.555	5.	.1985	3.64	93.800 MEV	SINGLE
62.28	1.772	5.	.2260	3.71	93.800 MEV	SINGLE
63.58	1.486	5.	.1878	3.78	93.800 MEV	SINGLE
64.87	1.014	5.	.1263	3.85	93.800 MEV	SINGLE
66.16	.566	6.	.0691	3.92	93.800 MEV	SINGLE
67.24	.317	5.	.0380	3.98	93.800 MEV	SINGLE
68.52	.296	6.	.0346	4.04	93.800 MEV	SINGLE
70.02	.631	5.	.0715	4.12	93.800 MEV	SINGLE
71.09	.847	5.	.0940	4.17	93.800 MEV	SINGLE
72.38	.945	5.	.1021	4.24	93.800 MEV	SINGLE
73.68	.888	5.	.0936	4.30	93.800 MEV	SINGLE
74.98	.596	5.	.0613	4.37	93.800 MEV	SINGLE
76.28	.338	9.	.0340	4.43	93.800 MEV	SINGLE
77.58	.240	10.	.0237	4.50	93.800 MEV	SINGLE
78.88	.254	11.	.0246	4.56	93.800 MEV	SINGLE
80.19	.294	6.	.0279	4.62	93.800 MEV	SINGLE
81.50	.356	7.	.0333	4.69	93.800 MEV	SINGLE
82.81	.361	12.	.0333	4.75	93.800 MEV	SINGLE
84.12	.242	12.	.0220	4.81	93.800 MEV	SINGLE
85.43	.161	13.	.0145	4.87	93.800 MEV	SINGLE
86.75	.110	15.	.0099	4.93	93.800 MEV	SINGLE
88.06	.073	22.	.0065	4.99	93.800 MEV	SINGLE
89.38	.098	28.	.0088	5.05	93.800 MEV	SINGLE
90.69	.085	28.	.0076	5.11	93.800 MEV	SINGLE

92.00	.105	27.	.0094	5.16	93.800 MEV	SINGLE
93.32	.137	16.	.0123	5.22	93.800 MEV	SINGLE
94.63	.276	16.	.0250	5.28	93.800 MEV	SINGLE
95.94	.371	10.	.0338	5.33	93.800 MEV	SINGLE
97.25	.411	8.	.0379	5.39	93.800 MEV	SINGLE

$$$$$$$$$$$$$ 12C(12C,12C)12C Q=-4.44 AT ELAB = 98.2 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
9.70	204.750	5.	.0145	.65	98.200 MEV	SINGLE
11.80	51.450	5.	.0080	.78	98.200 MEV	SINGLE
13.80	44.625	5.	.0129	.90	98.200 MEV	SINGLE
15.90	91.350	5.	.0456	1.03	98.200 MEV	SINGLE
17.90	63.315	5.	.0494	1.16	98.200 MEV	SINGLE
19.90	20.370	5.	.0236	1.28	98.200 MEV	SINGLE
22.00	16.275	5.	.0274	1.41	98.200 MEV	SINGLE
24.00	35.280	5.	.0826	1.54	98.200 MEV	SINGLE
25.04	37.315	5.	.1027	1.60	98.200 MEV	SINGLE
26.10	33.600	5.	.1088	1.67	98.200 MEV	SINGLE
28.10	12.705	5.	.0553	1.79	98.200 MEV	SINGLE
29.16	9.406	5.	.0476	1.86	98.200 MEV	SINGLE
30.20	9.450	5.	.0555	1.92	98.200 MEV	SINGLE
31.22	11.797	5.	.0799	1.99	98.200 MEV	SINGLE
33.29	15.824	5.	.1427	2.11	98.200 MEV	SINGLE
35.37	10.743	5.	.1284	2.24	98.200 MEV	SINGLE
37.44	4.922	5.	.0777	2.37	98.200 MEV	SINGLE
39.52	4.251	5.	.0883	2.49	98.200 MEV	SINGLE
41.59	5.999	5.	.1630	2.62	98.200 MEV	SINGLE
43.67	5.432	5.	.1915	2.74	98.200 MEV	SINGLE
45.70	3.585	5.	.1613	2.86	98.200 MEV	SINGLE
47.75	2.515	5.	.1424	2.98	98.200 MEV	SINGLE
49.81	2.814	5.	.1960	3.10	98.200 MEV	SINGLE
51.88	3.132	5.	.2605	3.22	98.200 MEV	SINGLE
53.95	2.491	5.	.2388	3.34	98.200 MEV	SINGLE
56.03	1.257	5.	.1336	3.46	98.200 MEV	SINGLE
58.11	.755	5.	.0856	3.57	98.200 MEV	SINGLE
60.19	1.061	5.	.1242	3.69	98.200 MEV	SINGLE
62.28	1.475	5.	.1735	3.80	98.200 MEV	SINGLE
64.36	.974	5.	.1129	3.92	98.200 MEV	SINGLE
66.44	.432	5.	.0487	4.03	98.200 MEV	SINGLE
68.49	.452	5.	.0492	4.14	98.200 MEV	SINGLE
70.55	.808	5.	.0849	4.25	98.200 MEV	SINGLE
72.62	.899	5.	.0910	4.36	98.200 MEV	SINGLE
74.70	.529	5.	.0516	4.46	98.200 MEV	SINGLE
76.79	.250	6.	.0236	4.57	98.200 MEV	SINGLE
78.89	.352	5.	.0323	4.67	98.200 MEV	SINGLE
80.98	.416	5.	.0373	4.78	98.200 MEV	SINGLE
83.08	.256	6.	.0225	4.88	98.200 MEV	SINGLE
85.19	.068	11.	.0059	4.98	98.200 MEV	SINGLE
87.29	.122	8.	.0105	5.08	98.200 MEV	SINGLE
89.40	.227	6.	.0194	5.17	98.200 MEV	SINGLE
91.50	.168	7.	.0144	5.27	98.200 MEV	SINGLE
93.60	.075	11.	.0064	5.36	98.200 MEV	SINGLE
95.70	.215	7.	.0188	5.45	98.200 MEV	SINGLE

$$$$$$$$$$$$ 12C(12C,12C)12C Q=-4.44 AT ELAB =102.1 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
22.97	33.216	5.	.0711	1.50	102.100 MEV	SINGLE
25.01	40.163	5.	.1195	1.63	102.100 MEV	SINGLE
27.07	18.671	5.	.0760	1.76	102.100 MEV	SINGLE
29.13	9.170	5.	.0505	1.89	102.100 MEV	SINGLE
31.19	13.960	5.	.1032	2.02	102.100 MEV	SINGLE
33.26	16.586	5.	.1636	2.15	102.100 MEV	SINGLE
35.33	8.770	5.	.1148	2.28	102.100 MEV	SINGLE
37.41	4.288	6.	.0742	2.41	102.100 MEV	SINGLE
39.48	4.762	6.	.1083	2.54	102.100 MEV	SINGLE
41.55	6.539	5.	.1942	2.67	102.100 MEV	SINGLE
43.62	5.090	6.	.1955	2.79	102.100 MEV	SINGLE
45.65	2.741	5.	.1338	2.91	102.100 MEV	SINGLE
47.70	2.386	5.	.1456	3.04	102.100 MEV	SINGLE
49.76	2.574	5.	.1918	3.16	102.100 MEV	SINGLE
51.83	2.262	5.	.1998	3.28	102.100 MEV	SINGLE
53.90	1.538	5.	.1556	3.40	102.100 MEV	SINGLE
55.97	.812	5.	.0906	3.52	102.100 MEV	SINGLE
58.05	.736	5.	.0875	3.64	102.100 MEV	SINGLE
60.13	.783	5.	.0959	3.76	102.100 MEV	SINGLE
62.21	.871	5.	.1074	3.88	102.100 MEV	SINGLE
64.29	.644	5.	.0785	3.99	102.100 MEV	SINGLE
66.37	.353	7.	.0420	4.11	102.100 MEV	SINGLE
68.41	.378	5.	.0436	4.22	102.100 MEV	SINGLE
70.47	.567	5.	.0633	4.33	102.100 MEV	SINGLE
72.54	.448	5.	.0484	4.44	102.100 MEV	SINGLE
74.62	.185	6.	.0194	4.55	102.100 MEV	SINGLE
76.70	.130	7.	.0132	4.66	102.100 MEV	SINGLE
78.79	.327	5.	.0323	4.76	102.100 MEV	SINGLE
80.89	.399	5.	.0385	4.87	102.100 MEV	SINGLE
82.98	.205	6.	.0194	4.97	102.100 MEV	SINGLE
85.08	.080	9.	.0074	5.07	102.100 MEV	SINGLE
87.18	.263	5.	.0244	5.17	102.100 MEV	SINGLE
89.29	.485	5.	.0448	5.27	102.100 MEV	SINGLE
91.38	.370	5.	.0342	5.37	102.100 MEV	SINGLE
93.48	.114	8.	.0106	5.47	102.100 MEV	SINGLE
95.58	.111	8.	.0105	5.56	102.100 MEV	SINGLE
97.67	.375	5.	.0357	5.65	102.100 MEV	SINGLE

$$$$$$$$$$$$ 12C(12C,12C)12C Q=-4.44 AT ELAB =105.0 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
15.70	85.097	7.	.0525	1.05	105.000 MEV	SINGLE
16.96	97.807	5.	.0809	1.13	105.000 MEV	SINGLE
18.23	69.473	6.	.0753	1.22	105.000 MEV	SINGLE
19.50	32.626	5.	.0455	1.30	105.000 MEV	SINGLE
20.77	11.774	6.	.0208	1.38	105.000 MEV	SINGLE
22.04	18.430	5.	.0409	1.46	105.000 MEV	SINGLE
23.32	30.119	7.	.0829	1.55	105.000 MEV	SINGLE
24.60	37.672	5.	.1275	1.63	105.000 MEV	SINGLE
25.93	29.514	5.	.1232	1.72	105.000 MEV	SINGLE
27.20	18.444	5.	.0933	1.80	105.000 MEV	SINGLE
28.46	8.844	7.	.0540	1.88	105.000 MEV	SINGLE
29.72	7.869	6.	.0577	1.96	105.000 MEV	SINGLE
31.00	11.623	5.	.1024	2.04	105.000 MEV	SINGLE
32.28	15.350	5.	.1618	2.12	105.000 MEV	SINGLE

33.57	13.350	5.	.1685	2.20	105.000 MEV	SINGLE
34.84	10.158	5.	.1525	2.28	105.000 MEV	SINGLE
36.12	5.786	6.	.1033	2.37	105.000 MEV	SINGLE
37.42	4.091	6.	.0870	2.45	105.000 MEV	SINGLE
38.69	4.009	7.	.1008	2.53	105.000 MEV	SINGLE
41.26	6.032	5.	.2114	2.69	105.000 MEV	SINGLE
42.54	5.471	5.	.2251	2.77	105.000 MEV	SINGLE
43.83	4.196	5.	.2018	2.85	105.000 MEV	SINGLE
45.11	2.767	5.	.1546	2.92	105.000 MEV	SINGLE
46.40	2.288	6.	.1475	3.00	105.000 MEV	SINGLE
47.68	2.027	6.	.1495	3.08	105.000 MEV	SINGLE
49.20	2.034	6.	.1737	3.17	105.000 MEV	SINGLE
50.25	2.327	5.	.2179	3.24	105.000 MEV	SINGLE
51.53	2.138	7.	.2214	3.31	105.000 MEV	SINGLE
52.80	1.541	6.	.1743	3.39	105.000 MEV	SINGLE
54.08	1.129	9.	.1375	3.46	105.000 MEV	SINGLE
55.35	.730	9.	.0945	3.54	105.000 MEV	SINGLE
56.62	.462	8.	.0626	3.61	105.000 MEV	SINGLE
58.22	.373	17.	.0527	3.71	105.000 MEV	SINGLE
59.51	.457	11.	.0660	3.78	105.000 MEV	SINGLE
60.80	.453	11.	.0660	3.86	105.000 MEV	SINGLE
62.09	.399	17.	.0583	3.93	105.000 MEV	SINGLE
63.37	.321	12.	.0467	4.00	105.000 MEV	SINGLE
64.66	.229	17.	.0330	4.07	105.000 MEV	SINGLE
65.94	.222	13.	.0317	4.15	105.000 MEV	SINGLE
67.02	.200	10.	.0281	4.21	105.000 MEV	SINGLE
68.51	.252	10.	.0346	4.29	105.000 MEV	SINGLE
69.79	.274	10.	.0369	4.36	105.000 MEV	SINGLE
70.86	.287	9.	.0381	4.42	105.000 MEV	SINGLE
72.14	.244	14.	.0317	4.48	105.000 MEV	SINGLE
73.43	.142	11.	.0180	4.55	105.000 MEV	SINGLE
74.72	.075	14.	.0095	4.62	105.000 MEV	SINGLE
76.02	.067	16.	.0083	4.69	105.000 MEV	SINGLE
77.31	.126	19.	.0153	4.76	105.000 MEV	SINGLE
78.61	.237	10.	.0283	4.82	105.000 MEV	SINGLE
79.91	.314	9.	.0369	4.89	105.000 MEV	SINGLE
81.22	.261	8.	.0304	4.96	105.000 MEV	SINGLE
82.52	.170	10.	.0196	5.02	105.000 MEV	SINGLE
83.82	.123	12.	.0139	5.09	105.000 MEV	SINGLE
85.13	.088	15.	.0099	5.15	105.000 MEV	SINGLE
86.44	.116	19.	.0131	5.21	105.000 MEV	SINGLE
87.74	.247	11.	.0277	5.28	105.000 MEV	SINGLE
89.05	.304	9.	.0340	5.34	105.000 MEV	SINGLE
90.35	.297	9.	.0332	5.40	105.000 MEV	SINGLE
91.66	.189	10.	.0211	5.46	105.000 MEV	SINGLE
92.96	.133	14.	.0149	5.52	105.000 MEV	SINGLE
94.27	.104	17.	.0117	5.58	105.000 MEV	SINGLE
95.57	.113	15.	.0128	5.64	105.000 MEV	SINGLE
96.87	.169	13.	.0194	5.70	105.000 MEV	SINGLE
98.17	.225	12.	.0260	5.75	105.000 MEV	SINGLE

$$$$$$$$$$$$$ 12C(12C,12C)12C Q=-4.44 AT ELAB =106.9 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
22.94	35.729	5.	.0837	1.54	106.900 MEV	SINGLE
24.99	35.586	5.	.1163	1.67	106.900 MEV	SINGLE
27.04	16.632	5.	.0746	1.80	106.900 MEV	SINGLE
29.09	8.839	5.	.0538	1.94	106.900 MEV	SINGLE
31.16	13.990	5.	.1147	2.07	106.900 MEV	SINGLE
33.22	14.010	5.	.1536	2.20	106.900 MEV	SINGLE

35.29	6.834	5.	.0996	2.34	106.900 MEV	SINGLE
37.36	4.129	5.	.0795	2.47	106.900 MEV	SINGLE
39.43	5.471	5.	.1384	2.60	106.900 MEV	SINGLE
41.50	5.941	5.	.1957	2.73	106.900 MEV	SINGLE
43.57	3.985	6.	.1690	2.86	106.900 MEV	SINGLE
45.60	2.548	5.	.1365	2.98	106.900 MEV	SINGLE
47.65	2.267	5.	.1508	3.11	106.900 MEV	SINGLE
49.70	2.349	5.	.1893	3.23	106.900 MEV	SINGLE
51.77	1.852	5.	.1755	3.36	106.900 MEV	SINGLE
53.83	1.078	5.	.1162	3.48	106.900 MEV	SINGLE
55.91	.533	7.	.0630	3.61	106.900 MEV	SINGLE
57.98	.692	6.	.0869	3.73	106.900 MEV	SINGLE
60.06	.674	6.	.0873	3.85	106.900 MEV	SINGLE
62.13	.591	6.	.0771	3.97	106.900 MEV	SINGLE
64.21	.314	9.	.0407	4.09	106.900 MEV	SINGLE
66.29	.236	10.	.0299	4.20	106.900 MEV	SINGLE
68.32	.280	5.	.0347	4.32	106.900 MEV	SINGLE
70.38	.319	5.	.0383	4.43	106.900 MEV	SINGLE
72.45	.197	6.	.0230	4.54	106.900 MEV	SINGLE
74.52	.079	9.	.0089	4.65	106.900 MEV	SINGLE
76.60	.110	8.	.0121	4.76	106.900 MEV	SINGLE
78.69	.238	5.	.0256	4.87	106.900 MEV	SINGLE
80.78	.264	5.	.0278	4.98	106.900 MEV	SINGLE
82.87	.196	6.	.0204	5.09	106.900 MEV	SINGLE
84.97	.092	9.	.0095	5.19	106.900 MEV	SINGLE
87.06	.221	6.	.0225	5.29	106.900 MEV	SINGLE
89.16	.353	5.	.0358	5.40	106.900 MEV	SINGLE
91.25	.354	5.	.0358	5.49	106.900 MEV	SINGLE
93.35	.130	8.	.0132	5.59	106.900 MEV	SINGLE
95.44	.100	9.	.0102	5.69	106.900 MEV	SINGLE
97.52	.203	7.	.0212	5.78	106.900 MEV	SINGLE

$$$$$$$$$$$$ 12C(12C,12C)12C Q=-4.44 AT ELAB =112.0 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
15.68	108.148	6.	.0748	1.09	112.000 MEV	SINGLE
16.94	75.333	5.	.0699	1.17	112.000 MEV	SINGLE
18.20	33.193	5.	.0405	1.26	112.000 MEV	SINGLE
19.47	15.853	7.	.0249	1.34	112.000 MEV	SINGLE
20.74	22.055	7.	.0441	1.43	112.000 MEV	SINGLE
22.01	38.801	5.	.0975	1.51	112.000 MEV	SINGLE
23.28	38.556	5.	.1206	1.60	112.000 MEV	SINGLE
24.56	31.897	5.	.1231	1.68	112.000 MEV	SINGLE
25.89	13.848	6.	.0661	1.77	112.000 MEV	SINGLE
27.12	10.067	6.	.0581	1.85	112.000 MEV	SINGLE
28.40	9.387	5.	.0657	1.94	112.000 MEV	SINGLE
29.68	12.105	5.	.1024	2.02	112.000 MEV	SINGLE
30.96	15.158	5.	.1545	2.11	112.000 MEV	SINGLE
32.23	12.428	5.	.1518	2.19	112.000 MEV	SINGLE
33.52	9.641	5.	.1412	2.28	112.000 MEV	SINGLE
34.78	6.051	5.	.1055	2.36	112.000 MEV	SINGLE
36.06	4.614	5.	.0957	2.44	112.000 MEV	SINGLE
37.34	5.566	5.	.1371	2.53	112.000 MEV	SINGLE
38.63	6.124	5.	.1786	2.61	112.000 MEV	SINGLE
39.91	5.478	5.	.1885	2.69	112.000 MEV	SINGLE
40.22	5.489	5.	.1964	2.71	112.000 MEV	SINGLE
42.47	3.780	5.	.1787	2.86	112.000 MEV	SINGLE
44.02	2.676	5.	.1518	2.95	112.000 MEV	SINGLE
45.29	2.121	5.	.1387	3.04	112.000 MEV	SINGLE
46.57	2.012	5.	.1506	3.12	112.000 MEV	SINGLE

47.84	1.911	5.	.1622	3.20	112.000 MEV	SINGLE
49.12	1.738	5.	.1657	3.28	112.000 MEV	SINGLE
50.41	1.535	5.	.1626	3.36	112.000 MEV	SINGLE
51.69	1.123	5.	.1305	3.44	112.000 MEV	SINGLE
52.98	.827	5.	.1041	3.51	112.000 MEV	SINGLE
54.26	.557	5.	.0749	3.59	112.000 MEV	SINGLE
55.55	.591	5.	.0840	3.67	112.000 MEV	SINGLE
56.84	.577	5.	.0855	3.75	112.000 MEV	SINGLE
58.12	.641	5.	.0979	3.83	112.000 MEV	SINGLE
59.41	.609	5.	.0949	3.90	112.000 MEV	SINGLE
60.70	.521	6.	.0823	3.98	112.000 MEV	SINGLE
61.98	.380	6.	.0603	4.06	112.000 MEV	SINGLE
63.27	.302	6.	.0478	4.13	112.000 MEV	SINGLE
64.55	.252	9.	.0397	4.21	112.000 MEV	SINGLE
65.83	.296	7.	.0462	4.28	112.000 MEV	SINGLE
68.18	.227	7.	.0345	4.42	112.000 MEV	SINGLE
69.46	.175	12.	.0262	4.49	112.000 MEV	SINGLE
70.74	.141	12.	.0208	4.56	112.000 MEV	SINGLE
73.30	.132	15.	.0188	4.70	112.000 MEV	SINGLE
74.59	.132	14.	.0186	4.77	112.000 MEV	SINGLE
75.88	.162	15.	.0224	4.84	112.000 MEV	SINGLE
77.18	.137	17.	.0186	4.91	112.000 MEV	SINGLE
78.47	.148	14.	.0200	4.98	112.000 MEV	SINGLE
79.77	.153	10.	.0204	5.05	112.000 MEV	SINGLE
81.07	.126	16.	.0166	5.12	112.000 MEV	SINGLE
82.37	.117	13.	.0152	5.19	112.000 MEV	SINGLE
83.67	.073	24.	.0096	5.25	112.000 MEV	SINGLE
84.97	.074	22.	.0095	5.32	112.000 MEV	SINGLE
86.27	.087	21.	.0111	5.39	112.000 MEV	SINGLE
87.58	.108	14.	.0138	5.45	112.000 MEV	SINGLE
88.88	.117	15.	.0149	5.51	112.000 MEV	SINGLE
90.18	.121	18.	.0154	5.58	112.000 MEV	SINGLE
91.48	.101	23.	.0129	5.64	112.000 MEV	SINGLE
92.78	.088	16.	.0113	5.70	112.000 MEV	SINGLE
94.08	.101	20.	.0129	5.76	112.000 MEV	SINGLE
95.38	.087	22.	.0112	5.82	112.000 MEV	SINGLE
96.68	.100	19.	.0130	5.88	112.000 MEV	SINGLE
97.97	.087	27.	.0113	5.94	112.000 MEV	SINGLE

$$$$$$$$$$$$ 12C(12C,12C)12C Q=-4.44 AT ELAB =117.1 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
15.66	102.505	8.	.0768	1.11	117.100 MEV	SINGLE
16.92	83.579	5.	.0841	1.20	117.100 MEV	SINGLE
18.18	38.851	6.	.0514	1.28	117.100 MEV	SINGLE
19.45	15.097	5.	.0258	1.37	117.100 MEV	SINGLE
20.72	19.231	6.	.0419	1.46	117.100 MEV	SINGLE
21.99	33.965	5.	.0932	1.54	117.100 MEV	SINGLE
23.26	39.028	6.	.1336	1.63	117.100 MEV	SINGLE
24.54	31.407	5.	.1329	1.72	117.100 MEV	SINGLE
25.81	17.334	6.	.0901	1.81	117.100 MEV	SINGLE
27.09	9.268	7.	.0589	1.89	117.100 MEV	SINGLE
28.37	9.071	5.	.0700	1.98	117.100 MEV	SINGLE
29.65	12.057	5.	.1127	2.07	117.100 MEV	SINGLE
30.93	14.869	6.	.1676	2.15	117.100 MEV	SINGLE
32.21	13.144	5.	.1780	2.24	117.100 MEV	SINGLE
33.49	8.486	9.	.1376	2.33	117.100 MEV	SINGLE
34.77	5.865	6.	.1136	2.41	117.100 MEV	SINGLE
36.05	5.489	5.	.1265	2.50	117.100 MEV	SINGLE
37.33	4.976	7.	.1360	2.58	117.100 MEV	SINGLE

38.60	5.766	6.	.1864	2.67	117.100 MEV	SINGLE
39.88	5.160	7.	.1963	2.75	117.100 MEV	SINGLE
41.44	4.485	6.	.2070	2.85	117.100 MEV	SINGLE
42.70	3.180	7.	.1707	2.94	117.100 MEV	SINGLE
43.97	2.305	7.	.1431	3.02	117.100 MEV	SINGLE
45.24	1.921	7.	.1370	3.10	117.100 MEV	SINGLE
46.52	1.613	8.	.1311	3.19	117.100 MEV	SINGLE
47.79	1.619	8.	.1486	3.27	117.100 MEV	SINGLE
49.07	1.415	7.	.1453	3.35	117.100 MEV	SINGLE
50.35	1.124	11.	.1277	3.43	117.100 MEV	SINGLE
51.64	1.130	13.	.1402	3.51	117.100 MEV	SINGLE
52.92	.658	14.	.0882	3.59	117.100 MEV	SINGLE
54.21	.592	20.	.0846	3.67	117.100 MEV	SINGLE
55.49	.538	14.	.0809	3.75	117.100 MEV	SINGLE
56.78	.503	14.	.0789	3.83	117.100 MEV	SINGLE
58.06	.527	16.	.0851	3.91	117.100 MEV	SINGLE
59.35	.681	14.	.1123	3.99	117.100 MEV	SINGLE
60.63	.505	9.	.0844	4.07	117.100 MEV	SINGLE
61.92	.301	17.	.0505	4.15	117.100 MEV	SINGLE
63.20	.208	29.	.0349	4.22	117.100 MEV	SINGLE
64.48	.216	29.	.0362	4.30	117.100 MEV	SINGLE
65.76	.331	15.	.0550	4.38	117.100 MEV	SINGLE
66.84	.287	7.	.0473	4.44	117.100 MEV	SINGLE
68.11	.206	12.	.0335	4.51	117.100 MEV	SINGLE
69.38	.141	15.	.0227	4.59	117.100 MEV	SINGLE
70.66	.088	15.	.0140	4.66	117.100 MEV	SINGLE
71.94	.087	16.	.0136	4.73	117.100 MEV	SINGLE
73.22	.076	20.	.0117	4.81	117.100 MEV	SINGLE
74.51	.152	12.	.0231	4.88	117.100 MEV	SINGLE
75.80	.154	9.	.0231	4.95	117.100 MEV	SINGLE
77.09	.139	15.	.0206	5.02	117.100 MEV	SINGLE
78.38	.114	16.	.0167	5.09	117.100 MEV	SINGLE
79.68	.089	18.	.0130	5.16	117.100 MEV	SINGLE
80.98	.070	20.	.0100	5.23	117.100 MEV	SINGLE
82.27	.027	26.	.0038	5.30	117.100 MEV	SINGLE
83.57	.029	38.	.0041	5.37	117.100 MEV	SINGLE
84.87	.040	28.	.0056	5.44	117.100 MEV	SINGLE
86.17	.034	21.	.0048	5.51	117.100 MEV	SINGLE
87.47	.035	20.	.0049	5.57	117.100 MEV	SINGLE
88.77	.056	18.	.0078	5.64	117.100 MEV	SINGLE
90.07	.040	21.	.0056	5.70	117.100 MEV	SINGLE
91.37	.039	19.	.0055	5.77	117.100 MEV	SINGLE
92.67	.029	16.	.0040	5.83	117.100 MEV	SINGLE
93.96	.035	27.	.0049	5.89	117.100 MEV	SINGLE
95.26	.022	43.	.0030	5.96	117.100 MEV	SINGLE
96.55	.034	31.	.0047	6.02	117.100 MEV	SINGLE
97.84	.043	29.	.0062	6.08	117.100 MEV	SINGLE

$$$$$$$$$$$$ 12C(12C,12C)12C Q=-4.44 AT ELAB =121.6 MEV $$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
15.65	75.711	6.	.0608	1.13	121.600 MEV	SINGLE
16.91	39.719	5.	.0428	1.22	121.600 MEV	SINGLE
18.17	17.532	8.	.0249	1.31	121.600 MEV	SINGLE
19.43	22.677	7.	.0417	1.40	121.600 MEV	SINGLE
20.70	36.781	6.	.0863	1.48	121.600 MEV	SINGLE
21.97	42.830	5.	.1267	1.57	121.600 MEV	SINGLE
23.24	29.309	5.	.1083	1.66	121.600 MEV	SINGLE
24.52	14.956	8.	.0685	1.75	121.600 MEV	SINGLE
25.85	8.586	7.	.0488	1.84	121.600 MEV	SINGLE

27.07	9.902	5.	.0683	1.93	121.600 MEV	SINGLE
28.35	14.415	5.	.1210	2.02	121.600 MEV	SINGLE
29.63	15.172	5.	.1543	2.11	121.600 MEV	SINGLE
30.90	11.373	5.	.1396	2.19	121.600 MEV	SINGLE
32.17	8.740	5.	.1288	2.28	121.600 MEV	SINGLE
33.46	5.216	5.	.0922	2.37	121.600 MEV	SINGLE
34.74	5.651	5.	.1193	2.46	121.600 MEV	SINGLE
36.02	5.991	5.	.1505	2.55	121.600 MEV	SINGLE
37.30	5.692	6.	.1695	2.63	121.600 MEV	SINGLE
38.56	5.104	5.	.1791	2.72	121.600 MEV	SINGLE
40.14	3.678	5.	.1576	2.82	121.600 MEV	SINGLE
42.67	2.174	5.	.1261	2.99	121.600 MEV	SINGLE
43.94	2.021	7.	.1353	3.08	121.600 MEV	SINGLE
45.21	1.786	6.	.1369	3.16	121.600 MEV	SINGLE
46.24	1.579	7.	.1343	3.23	121.600 MEV	SINGLE
47.52	1.290	8.	.1238	3.31	121.600 MEV	SINGLE
48.80	1.163	7.	.1246	3.40	121.600 MEV	SINGLE
50.07	.958	10.	.1133	3.48	121.600 MEV	SINGLE
51.35	.772	6.	.0996	3.56	121.600 MEV	SINGLE
52.88	.733	5.	.1034	3.66	121.600 MEV	SINGLE
54.16	.706	6.	.1060	3.74	121.600 MEV	SINGLE
55.44	.549	5.	.0866	3.83	121.600 MEV	SINGLE
56.73	.564	6.	.0927	3.91	121.600 MEV	SINGLE
58.01	.434	8.	.0735	3.99	121.600 MEV	SINGLE
59.30	.392	11.	.0678	4.07	121.600 MEV	SINGLE
60.58	.266	11.	.0466	4.15	121.600 MEV	SINGLE
61.86	.199	9.	.0352	4.23	121.600 MEV	SINGLE
63.15	.169	12.	.0299	4.30	121.600 MEV	SINGLE
64.43	.164	12.	.0289	4.38	121.600 MEV	SINGLE
65.71	.226	13.	.0396	4.46	121.600 MEV	SINGLE
66.98	.251	9.	.0437	4.54	121.600 MEV	SINGLE
68.05	.215	10.	.0371	4.60	121.600 MEV	SINGLE
69.32	.153	12.	.0260	4.68	121.600 MEV	SINGLE
70.80	.085	12.	.0143	4.76	121.600 MEV	SINGLE
71.87	.066	13.	.0111	4.82	121.600 MEV	SINGLE
73.16	.085	13.	.0141	4.90	121.600 MEV	SINGLE
74.44	.125	11.	.0204	4.97	121.600 MEV	SINGLE
75.73	.098	11.	.0157	5.05	121.600 MEV	SINGLE
77.02	.132	9.	.0210	5.12	121.600 MEV	SINGLE
78.31	.100	14.	.0157	5.19	121.600 MEV	SINGLE
79.60	.077	11.	.0121	5.26	121.600 MEV	SINGLE
82.19	.015	36.	.0023	5.40	121.600 MEV	SINGLE
83.49	.022	30.	.0033	5.47	121.600 MEV	SINGLE
84.79	.031	20.	.0048	5.54	121.600 MEV	SINGLE
86.09	.036	23.	.0054	5.61	121.600 MEV	SINGLE
87.38	.047	29.	.0071	5.68	121.600 MEV	SINGLE
88.68	.053	24.	.0079	5.74	121.600 MEV	SINGLE
89.98	.046	23.	.0070	5.81	121.600 MEV	SINGLE
91.28	.032	23.	.0048	5.88	121.600 MEV	SINGLE
92.57	.024	31.	.0035	5.94	121.600 MEV	SINGLE

$$$$$$$$$$$$ 12C(12C,12C)12C Q=-4.44 A1 ELAB =126.7 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
15.64	87.708	6.	.0759	1.15	126.700 MEV	SINGLE
16.89	50.613	5.	.0589	1.24	126.700 MEV	SINGLE
18.15	20.169	7.	.0310	1.33	126.700 MEV	SINGLE
19.42	19.751	7.	.0393	1.42	126.700 MEV	SINGLE
20.68	35.442	5.	.0902	1.51	126.700 MEV	SINGLE
21.95	43.702	5.	.1405	1.61	126.700 MEV	SINGLE

23.22	32.199	5.	.1296	1.70	126.700 MEV	SINGLE
24.50	16.808	5.	.0839	1.79	126.700 MEV	SINGLE
25.77	8.890	7.	.0547	1.88	126.700 MEV	SINGLE
27.05	10.507	5.	.0792	1.97	126.700 MEV	SINGLE
28.32	13.894	5.	.1277	2.06	126.700 MEV	SINGLE
29.60	14.903	5.	.1661	2.15	126.700 MEV	SINGLE
30.88	11.820	5.	.1591	2.24	126.700 MEV	SINGLE
32.15	8.630	5.	.1396	2.33	126.700 MEV	SINGLE
33.42	5.456	7.	.1057	2.42	126.700 MEV	SINGLE
34.69	5.504	6.	.1272	2.51	126.700 MEV	SINGLE
35.99	5.268	5.	.1452	2.60	126.700 MEV	SINGLE
37.25	6.013	5.	.1957	2.68	126.700 MEV	SINGLE
38.53	4.575	5.	.1756	2.77	126.700 MEV	SINGLE
40.11	2.687	5.	.1258	2.88	126.700 MEV	SINGLE
41.37	2.148	5.	.1170	2.97	126.700 MEV	SINGLE
42.63	1.914	5.	.1206	3.06	126.700 MEV	SINGLE
43.90	1.817	5.	.1317	3.14	126.700 MEV	SINGLE
45.17	1.589	5.	.1314	3.23	126.700 MEV	SINGLE
46.44	1.476	5.	.1382	3.31	126.700 MEV	SINGLE
47.71	1.079	5.	.1133	3.40	126.700 MEV	SINGLE
48.99	.901	5.	.1050	3.48	126.700 MEV	SINGLE
50.27	.764	7.	.0978	3.57	126.700 MEV	SINGLE
51.55	.737	6.	.1025	3.65	126.700 MEV	SINGLE
52.83	.627	6.	.0936	3.74	126.700 MEV	SINGLE
54.11	.517	8.	.0819	3.82	126.700 MEV	SINGLE
55.40	.533	8.	.0888	3.90	126.700 MEV	SINGLE
56.68	.367	10.	.0635	3.99	126.700 MEV	SINGLE
57.96	.387	10.	.0690	4.07	126.700 MEV	SINGLE
59.24	.325	11.	.0593	4.15	126.700 MEV	SINGLE
60.53	.232	11.	.0428	4.23	126.700 MEV	SINGLE
61.81	.194	11.	.0362	4.31	126.700 MEV	SINGLE
63.09	.120	15.	.0224	4.39	126.700 MEV	SINGLE
64.37	.129	17.	.0241	4.47	126.700 MEV	SINGLE
65.65	.171	11.	.0319	4.55	126.700 MEV	SINGLE
66.92	.161	12.	.0299	4.63	126.700 MEV	SINGLE
67.98	.132	15.	.0243	4.70	126.700 MEV	SINGLE
69.47	.089	10.	.0162	4.78	126.700 MEV	SINGLE
70.73	.039	23.	.0070	4.86	126.700 MEV	SINGLE
71.81	.027	31.	.0048	4.92	126.700 MEV	SINGLE
73.09	.053	19.	.0095	5.00	126.700 MEV	SINGLE
74.37	.053	26.	.0092	5.08	126.700 MEV	SINGLE
75.66	.056	23.	.0097	5.15	126.700 MEV	SINGLE
76.94	.064	15.	.0110	5.22	126.700 MEV	SINGLE
78.23	.060	23.	.0102	5.30	126.700 MEV	SINGLE
79.53	.049	17.	.0083	5.37	126.700 MEV	SINGLE
80.82	.028	29.	.0047	5.44	126.700 MEV	SINGLE

$$$$$$$$ 12C(12C,12C)12C Q=(-8.88,9.64) AT ELAB = 70.7 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
17.86	24.338	27.	.0104	1.02	70.700 MEV	MUTUAL/3-
20.02	19.463	22.	.0128	1.12	70.700 MEV	MUTUAL/3-
22.18	12.775	31.	.0122	1.22	70.700 MEV	MUTUAL/3-
24.35	13.791	23.	.0182	1.32	70.700 MEV	MUTUAL/3-
26.53	8.456	30.	.0151	1.43	70.700 MEV	MUTUAL/3-
28.71	9.596	23.	.0226	1.53	70.700 MEV	MUTUAL/3-
30.89	7.763	27.	.0240	1.64	70.700 MEV	MUTUAL/3-
33.08	6.613	32.	.0267	1.74	70.700 MEV	MUTUAL/3-
35.27	6.190	22.	.0327	1.85	70.700 MEV	MUTUAL/3-
37.46	8.420	18.	.0582	1.96	70.700 MEV	MUTUAL/3-

39.61	4.976	19.	.0450	2.06	70.700 MEV	MUTUAL/3-
41.78	6.402	11.	.0765	2.16	70.700 MEV	MUTUAL/3-
43.96	4.218	12.	.0668	2.26	70.700 MEV	MUTUAL/3-
46.15	3.833	12.	.0810	2.37	70.700 MEV	MUTUAL/3-
48.35	3.421	13.	.0963	2.47	70.700 MEV	MUTUAL/3-
50.55	2.607	13.	.0970	2.57	70.700 MEV	MUTUAL/3-
52.76	3.021	10.	.1456	2.67	70.700 MEV	MUTUAL/3-
54.98	3.232	9.	.1947	2.78	70.700 MEV	MUTUAL/3-
57.19	2.685	10.	.1913	2.88	70.700 MEV	MUTUAL/3-
59.42	2.504	10.	.1978	2.98	70.700 MEV	MUTUAL/3-
61.64	2.120	10.	.1737	3.07	70.700 MEV	MUTUAL/3-
63.86	2.116	9.	.1705	3.17	70.700 MEV	MUTUAL/3-
66.08	2.564	8.	.1958	3.27	70.700 MEV	MUTUAL/3-
68.26	3.183	7.	.2263	3.36	70.700 MEV	MUTUAL/3-
70.50	3.328	7.	.2182	3.46	70.700 MEV	MUTUAL/3-
72.76	2.601	7.	.1573	3.55	70.700 MEV	MUTUAL/3-
75.02	1.864	8.	.1046	3.64	70.700 MEV	MUTUAL/3-
77.30	1.774	7.	.0932	3.73	70.700 MEV	MUTUAL/3-
79.58	1.697	7.	.0843	3.83	70.700 MEV	MUTUAL/3-
81.87	1.631	8.	.0775	3.92	70.700 MEV	MUTUAL/3-
84.17	1.148	10.	.0527	4.00	70.700 MEV	MUTUAL/3-
86.48	.689	14.	.0309	4.09	70.700 MEV	MUTUAL/3-
88.73	2.007	27.	.0890	4.18	70.700 MEV	MUTUAL/3-
91.06	1.740	32.	.0772	4.26	70.700 MEV	MUTUAL/3-

$$$$$$$$ 12C(12C,12C)12C Q=(-8.88) AT ELAB = 74.2 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
24.10	8.909	18.	.0124	1.34	74.250 MEV	MUTUAL
26.26	5.913	13.	.0111	1.45	74.250 MEV	MUTUAL
28.42	4.419	13.	.0111	1.56	74.250 MEV	MUTUAL
30.58	5.367	11.	.0177	1.67	74.250 MEV	MUTUAL
32.76	7.310	10.	.0317	1.77	74.250 MEV	MUTUAL
34.94	7.612	9.	.0433	1.88	74.250 MEV	MUTUAL
37.12	5.409	11.	.0405	1.99	74.250 MEV	MUTUAL
39.31	5.066	12.	.0501	2.10	74.250 MEV	MUTUAL
41.50	4.486	12.	.0588	2.21	74.250 MEV	MUTUAL
43.69	4.773	11.	.0832	2.31	74.250 MEV	MUTUAL
45.88	4.189	12.	.0973	2.42	74.250 MEV	MUTUAL
48.03	3.429	9.	.1051	2.52	74.250 MEV	MUTUAL
50.21	3.035	9.	.1218	2.63	74.250 MEV	MUTUAL
52.39	2.904	9.	.1495	2.73	74.250 MEV	MUTUAL
54.59	3.354	8.	.2136	2.83	74.250 MEV	MUTUAL
56.79	3.300	8.	.2470	2.94	74.250 MEV	MUTUAL
59.00	3.693	8.	.3056	3.04	74.250 MEV	MUTUAL
61.22	3.250	8.	.2800	3.14	74.250 MEV	MUTUAL
63.44	2.972	8.	.2533	3.24	74.250 MEV	MUTUAL
65.67	2.917	8.	.2376	3.34	74.250 MEV	MUTUAL
67.90	2.916	8.	.2225	3.44	74.250 MEV	MUTUAL
70.14	2.729	8.	.1935	3.54	74.250 MEV	MUTUAL
72.38	2.227	8.	.1466	3.63	74.250 MEV	MUTUAL
74.62	2.025	8.	.1245	3.73	74.250 MEV	MUTUAL
76.81	2.430	8.	.1407	3.82	74.250 MEV	MUTUAL
79.07	2.612	8.	.1434	3.91	74.250 MEV	MUTUAL
81.34	1.943	9.	.1021	4.00	74.250 MEV	MUTUAL
83.63	1.094	11.	.0556	4.10	74.250 MEV	MUTUAL
85.92	1.541	9.	.0765	4.19	74.250 MEV	MUTUAL
88.24	2.238	8.	.1096	4.28	74.250 MEV	MUTUAL
90.56	2.490	8.	.1217	4.36	74.250 MEV	MUTUAL
92.90	1.668	9.	.0821	4.45	74.250 MEV	MUTUAL

95.25	1.331	10.	.0668	4.53	74.250 MEV	MUTUAL
97.61	1.297	10.	.0670	4.62	74.250 MEV	MUTUAL
99.99	1.862	9.	.1003	4.70	74.250 MEV	MUTUAL
102.39	1.925	9.	.1093	4.78	74.250 MEV	MUTUAL
104.80	1.815	9.	.1097	4.86	74.250 MEV	MUTUAL

$$$$$$$$$ 12C(12C,12C)12C Q=(-8.88,-9.64) AT ELAB = 78.8 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
16.93	10.982	18.	.0053	1.01	78.850 MEV	MUTUAL/3-
17.58	7.825	31.	.0044	1.05	78.850 MEV	MUTUAL/3-
18.89	7.501	17.	.0055	1.11	78.850 MEV	MUTUAL/3-
20.20	10.005	10.	.0094	1.18	78.850 MEV	MUTUAL/3-
22.82	9.189	9.	.0134	1.32	78.850 MEV	MUTUAL/3-
24.80	7.043	13.	.0139	1.42	78.850 MEV	MUTUAL/3-
26.78	5.516	11.	.0144	1.52	78.850 MEV	MUTUAL/3-
28.94	5.899	11.	.0205	1.63	78.850 MEV	MUTUAL/3-
30.10	8.304	9.	.0336	1.69	78.850 MEV	MUTUAL/3-
32.09	7.717	10.	.0404	1.79	78.850 MEV	MUTUAL/3-
33.55	7.425	8.	.0468	1.87	78.850 MEV	MUTUAL/3-
34.87	8.223	12.	.0615	1.94	78.850 MEV	MUTUAL/3-
36.74	5.813	14.	.0552	2.03	78.850 MEV	MUTUAL/3-
38.07	5.840	11.	.0659	2.10	78.850 MEV	MUTUAL/3-
40.19	4.541	13.	.0673	2.21	78.850 MEV	MUTUAL/3-
41.39	3.565	11.	.0619	2.27	78.850 MEV	MUTUAL/3-
42.69	3.313	7.	.0681	2.34	78.850 MEV	MUTUAL/3-
43.38	4.627	12.	.1041	2.37	78.850 MEV	MUTUAL/3-
44.67	3.281	12.	.0872	2.44	78.850 MEV	MUTUAL/3-
45.33	3.236	8.	.0936	2.47	78.850 MEV	MUTUAL/3-
47.35	2.300	6.	.0861	2.57	78.850 MEV	MUTUAL/3-
49.31	2.758	8.	.1312	2.67	78.850 MEV	MUTUAL/3-
51.31	3.701	6.	.2209	2.77	78.850 MEV	MUTUAL/3-
52.65	4.194	5.	.2870	2.83	78.850 MEV	MUTUAL/3-
53.99	5.202	6.	.4018	2.90	78.850 MEV	MUTUAL/3-
56.01	4.442	7.	.3974	3.00	78.850 MEV	MUTUAL/3-
58.03	3.233	9.	.3196	3.10	78.850 MEV	MUTUAL/3-
59.38	3.143	9.	.3233	3.16	78.850 MEV	MUTUAL/3-
60.74	2.816	24.	.2926	3.22	78.850 MEV	MUTUAL/3-
62.76	2.981	12.	.3122	3.32	78.850 MEV	MUTUAL/3-
64.12	3.451	6.	.3551	3.38	78.850 MEV	MUTUAL/3-
66.83	2.496	5.	.2418	3.51	78.850 MEV	MUTUAL/3-
68.18	2.221	9.	.2072	3.57	78.850 MEV	MUTUAL/3-
70.89	2.190	8.	.1887	3.69	78.850 MEV	MUTUAL/3-
71.71	1.781	6.	.1498	3.73	78.850 MEV	MUTUAL/3-
73.60	2.243	8.	.1788	3.81	78.850 MEV	MUTUAL/3-
75.79	2.389	27.	.1799	3.91	78.850 MEV	MUTUAL/3-
77.84	2.541	14.	.1826	4.00	78.850 MEV	MUTUAL/3-
79.22	2.719	16.	.1900	4.05	78.850 MEV	MUTUAL/3-
81.30	1.853	9.	.1249	4.14	78.850 MEV	MUTUAL/3-
82.69	2.017	12.	.1334	4.20	78.850 MEV	MUTUAL/3-
83.38	1.579	17.	.1035	4.23	78.850 MEV	MUTUAL/3-
85.48	1.752	19.	.1125	4.31	78.850 MEV	MUTUAL/3-
86.88	1.981	12.	.1260	4.37	78.850 MEV	MUTUAL/3-
88.29	2.691	16.	.1702	4.43	78.850 MEV	MUTUAL/3-
89.00	2.768	10.	.1747	4.45	78.850 MEV	MUTUAL/3-
91.12	2.541	15.	.1605	4.54	78.850 MEV	MUTUAL/3-
93.26	1.876	10.	.1194	4.62	78.850 MEV	MUTUAL/3-

$$$$$$$$ 12C(12C,12C)12C Q=(-8.88) AT ELAB = 83.3 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
23.89	7.783	38.	.0129	1.41	83.300 MEV	MUTUAL
26.02	5.196	17.	.0118	1.52	83.300 MEV	MUTUAL
28.16	2.672	25.	.0082	1.64	83.300 MEV	MUTUAL
30.31	5.065	18.	.0207	1.75	83.300 MEV	MUTUAL
32.46	4.623	17.	.0252	1.87	83.300 MEV	MUTUAL
34.62	2.415	33.	.0174	1.98	83.300 MEV	MUTUAL
36.78	2.330	22.	.0223	2.10	83.300 MEV	MUTUAL
38.95	2.709	23.	.0344	2.21	83.300 MEV	MUTUAL
41.11	3.695	19.	.0623	2.33	83.300 MEV	MUTUAL
42.82	3.296	8.	.0694	2.41	83.300 MEV	MUTUAL
44.96	2.879	8.	.0799	2.53	83.300 MEV	MUTUAL
47.12	2.289	9.	.0832	2.64	83.300 MEV	MUTUAL
49.28	2.967	8.	.1394	2.75	83.300 MEV	MUTUAL
51.45	4.122	7.	.2442	2.86	83.300 MEV	MUTUAL
53.63	4.088	7.	.2947	2.97	83.300 MEV	MUTUAL
55.81	3.256	8.	.2728	3.08	83.300 MEV	MUTUAL
58.00	2.266	8.	.2094	3.19	83.300 MEV	MUTUAL
60.19	2.081	8.	.2016	3.30	83.300 MEV	MUTUAL
62.38	2.036	8.	.1981	3.40	83.300 MEV	MUTUAL
64.98	1.473	7.	.1386	3.53	83.300 MEV	MUTUAL
67.16	1.144	8.	.1027	3.63	83.300 MEV	MUTUAL
69.35	1.437	7.	.1219	3.73	83.300 MEV	MUTUAL
71.55	1.651	7.	.1321	3.84	83.300 MEV	MUTUAL
73.76	1.761	7.	.1332	3.94	83.300 MEV	MUTUAL
75.98	1.560	7.	.1121	4.04	83.300 MEV	MUTUAL
78.22	1.588	7.	.1091	4.14	83.300 MEV	MUTUAL
80.46	1.558	7.	.1031	4.23	83.300 MEV	MUTUAL
82.70	1.341	8.	.0861	4.33	83.300 MEV	MUTUAL
84.96	1.376	7.	.0863	4.43	83.300 MEV	MUTUAL
87.22	1.825	7.	.1129	4.52	83.300 MEV	MUTUAL
89.49	2.182	7.	.1342	4.61	83.300 MEV	MUTUAL
91.76	1.945	7.	.1199	4.70	83.300 MEV	MUTUAL
94.04	1.357	7.	.0845	4.79	83.300 MEV	MUTUAL
96.32	1.491	7.	.0947	4.88	83.300 MEV	MUTUAL

$$$$$$$$ 12C(12C,12C)12C Q=(-8.88) AT ELAB = 89.7 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
25.88	4.395	10.	.0114	1.57	89.700 MEV	MUTUAL
28.01	3.918	11.	.0138	1.69	89.700 MEV	MUTUAL
30.15	4.327	9.	.0205	1.81	89.700 MEV	MUTUAL
32.29	4.440	10.	.0281	1.93	89.700 MEV	MUTUAL
34.44	2.728	12.	.0230	2.05	89.700 MEV	MUTUAL
36.59	2.793	12.	.0314	2.17	89.700 MEV	MUTUAL
38.74	3.225	10.	.0482	2.29	89.700 MEV	MUTUAL
40.89	4.979	8.	.0986	2.41	89.700 MEV	MUTUAL
43.05	4.274	9.	.1119	2.53	89.700 MEV	MUTUAL
45.20	3.453	9.	.1185	2.64	89.700 MEV	MUTUAL
47.32	2.790	7.	.1235	2.76	89.700 MEV	MUTUAL
49.45	2.917	6.	.1637	2.87	89.700 MEV	MUTUAL
51.60	2.892	6.	.2003	2.99	89.700 MEV	MUTUAL
53.75	2.193	7.	.1805	3.10	89.700 MEV	MUTUAL
55.92	1.563	7.	.1463	3.21	89.700 MEV	MUTUAL
58.09	1.462	7.	.1484	3.33	89.700 MEV	MUTUAL
60.26	1.868	7.	.1969	3.44	89.700 MEV	MUTUAL

62.44	1.994	7.	.2107	3.55	89.700 MEV	MUTUAL
64.62	1.607	7.	.1660	3.66	89.700 MEV	MUTUAL
66.81	1.143	7.	.1135	3.77	89.700 MEV	MUTUAL
68.99	1.609	7.	.1526	3.87	89.700 MEV	MUTUAL
71.15	2.521	6.	.2278	3.98	89.700 MEV	MUTUAL
73.32	2.431	6.	.2094	4.08	89.700 MEV	MUTUAL
75.51	1.624	6.	.1338	4.18	89.700 MEV	MUTUAL
77.71	1.038	7.	.0822	4.29	89.700 MEV	MUTUAL
79.92	1.089	7.	.0834	4.39	89.700 MEV	MUTUAL
82.14	1.299	6.	.0967	4.49	89.700 MEV	MUTUAL
84.38	1.095	7.	.0798	4.59	89.700 MEV	MUTUAL
86.62	.852	7.	.0612	4.68	89.700 MEV	MUTUAL
88.87	.776	7.	.0554	4.78	89.700 MEV	MUTUAL
91.13	.746	7.	.0532	4.87	89.700 MEV	MUTUAL
93.39	.864	7.	.0621	4.97	89.700 MEV	MUTUAL
95.67	1.117	7.	.0814	5.06	89.700 MEV	MUTUAL
97.95	1.141	7.	.0850	5.15	89.700 MEV	MUTUAL
100.24	.917	7.	.0703	5.24	89.700 MEV	MUTUAL
102.54	1.107	7.	.0880	5.32	89.700 MEV	MUTUAL

$$$$$$$$$ 12C(12C,12C)12C Q=(-8.88,-9.64) AT ELAB = 93.8 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
10.50	26.868	9.	.0027	.74	93.800 MEV	MUTUAL/3-
12.60	20.999	5.	.0044	.85	93.800 MEV	MUTUAL/3-
14.70	12.930	5.	.0050	.96	93.800 MEV	MUTUAL/3-
16.80	7.960	5.	.0052	1.08	93.800 MEV	MUTUAL/3-
19.00	9.628	5.	.0099	1.21	93.800 MEV	MUTUAL/3-
21.10	9.720	5.	.0147	1.33	93.800 MEV	MUTUAL/3-
23.70	7.291	5.	.0170	1.48	93.800 MEV	MUTUAL/3-
26.30	4.573	5.	.0158	1.63	93.800 MEV	MUTUAL/3-
27.40	4.281	5.	.0174	1.69	93.800 MEV	MUTUAL/3-
29.50	4.649	15.	.0256	1.81	93.800 MEV	MUTUAL/3-
31.60	3.439	5.	.0252	1.93	93.800 MEV	MUTUAL/3-
33.70	2.283	5.	.0223	2.05	93.800 MEV	MUTUAL/3-
34.93	3.354	12.	.0387	2.13	93.800 MEV	MUTUAL/3-
36.01	2.808	15.	.0374	2.19	93.800 MEV	MUTUAL/3-
37.34	3.601	8.	.0573	2.26	93.800 MEV	MUTUAL/3-
38.67	4.491	8.	.0852	2.34	93.800 MEV	MUTUAL/3-
40.00	4.511	9.	.1019	2.41	93.800 MEV	MUTUAL/3-
41.63	3.715	5.	.1037	2.51	93.800 MEV	MUTUAL/3-
42.94	3.324	5.	.1098	2.58	93.800 MEV	MUTUAL/3-
44.26	2.706	5.	.1054	2.65	93.800 MEV	MUTUAL/3-
45.58	2.418	5.	.1106	2.73	93.800 MEV	MUTUAL/3-
46.90	2.202	5.	.1177	2.80	93.800 MEV	MUTUAL/3-
48.23	2.181	5.	.1352	2.87	93.800 MEV	MUTUAL/3-
49.56	1.922	6.	.1368	2.95	93.800 MEV	MUTUAL/3-
50.90	1.845	7.	.1491	3.02	93.800 MEV	MUTUAL/3-
52.23	1.580	9.	.1431	3.09	93.800 MEV	MUTUAL/3-
53.57	1.354	13.	.1352	3.17	93.800 MEV	MUTUAL/3-
54.91	1.200	14.	.1300	3.24	93.800 MEV	MUTUAL/3-
56.25	1.196	13.	.1382	3.31	93.800 MEV	MUTUAL/3-
57.60	1.406	13.	.1703	3.38	93.800 MEV	MUTUAL/3-
58.94	2.039	16.	.2548	3.45	93.800 MEV	MUTUAL/3-
60.29	2.709	14.	.3443	3.52	93.800 MEV	MUTUAL/3-
61.64	2.114	5.	.2700	3.59	93.800 MEV	MUTUAL/3-
62.99	1.825	5.	.2318	3.66	93.800 MEV	MUTUAL/3-
64.33	1.650	5.	.2069	3.73	93.800 MEV	MUTUAL/3-
65.68	1.312	5.	.1614	3.80	93.800 MEV	MUTUAL/3-
67.03	1.252	5.	.1505	3.87	93.800 MEV	MUTUAL/3-

68.38	1.421	5.	.1665	3.94	93.800 MEV	MUTUAL/3-
69.51	1.724	5.	.1975	4.00	93.800 MEV	MUTUAL/3-
70.84	1.934	5.	.2156	4.06	93.800 MEV	MUTUAL/3-
72.19	1.743	5.	.1891	4.13	93.800 MEV	MUTUAL/3-
73.54	1.650	5.	.1743	4.19	93.800 MEV	MUTUAL/3-
74.89	1.193	5.	.1229	4.26	93.800 MEV	MUTUAL/3-
76.25	.878	6.	.0883	4.32	93.800 MEV	MUTUAL/3-
77.61	.744	7.	.0732	4.39	93.800 MEV	MUTUAL/3-
78.98	.767	5.	.0739	4.45	93.800 MEV	MUTUAL/3-
80.35	.842	13.	.0773	4.52	93.800 MEV	MUTUAL/3-
81.73	.811	6.	.0756	4.58	93.800 MEV	MUTUAL/3-
83.11	.727	7.	.0669	4.64	93.800 MEV	MUTUAL/3-
84.49	.722	6.	.0657	4.71	93.800 MEV	MUTUAL/3-
85.88	.695	7.	.0627	4.77	93.800 MEV	MUTUAL/3-
87.27	.794	8.	.0712	4.83	93.800 MEV	MUTUAL/3-
88.66	.908	5.	.0811	4.89	93.800 MEV	MUTUAL/3-
90.06	.972	5.	.0868	4.95	93.800 MEV	MUTUAL/3-
91.46	.742	6.	.0663	5.01	93.800 MEV	MUTUAL/3-
92.86	.700	9.	.0628	5.07	93.800 MEV	MUTUAL/3-
94.26	.709	5.	.0640	5.13	93.800 MEV	MUTUAL/3-
95.67	.735	8.	.0669	5.19	93.800 MEV	MUTUAL/3-
97.08	.880	5.	.0811	5.24	93.800 MEV	MUTUAL/3-
98.49	.932	7.	.0871	5.30	93.800 MEV	MUTUAL/3-
99.91	.894	6.	.0850	5.36	93.800 MEV	MUTUAL/3-
101.33	.932	5.	.0902	5.41	93.800 MEV	MUTUAL/3-

$$$$$$$$ 12C(12C,12C)12C Q=(-8.88) AT ELAB = 98.2 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
9.90	11.340	50.	.0009	.71	98.200 MEV	MUTUAL
12.00	9.555	17.	.0016	.83	98.200 MEV	MUTUAL
14.10	6.982	15.	.0022	.95	98.200 MEV	MUTUAL
16.20	3.990	17.	.0021	1.07	98.200 MEV	MUTUAL
18.30	5.565	14.	.0047	1.19	98.200 MEV	MUTUAL
20.40	7.560	10.	.0096	1.32	98.200 MEV	MUTUAL
22.50	3.990	10.	.0073	1.44	98.200 MEV	MUTUAL
24.60	3.255	17.	.0084	1.57	98.200 MEV	MUTUAL
25.74	3.242	10.	.0099	1.63	98.200 MEV	MUTUAL
27.85	4.610	8.	.0193	1.76	98.200 MEV	MUTUAL
29.98	4.523	7.	.0257	1.89	98.200 MEV	MUTUAL
32.11	3.551	10.	.0272	2.01	98.200 MEV	MUTUAL
34.24	3.017	10.	.0310	2.14	98.200 MEV	MUTUAL
36.38	3.375	9.	.0462	2.26	98.200 MEV	MUTUAL
38.52	4.041	9.	.0736	2.39	98.200 MEV	MUTUAL
40.66	3.641	9.	.0877	2.51	98.200 MEV	MUTUAL
42.80	2.368	10.	.0750	2.64	98.200 MEV	MUTUAL
44.94	1.791	12.	.0737	2.76	98.200 MEV	MUTUAL
47.04	1.830	7.	.0958	2.88	98.200 MEV	MUTUAL
49.16	1.448	7.	.0947	3.00	98.200 MEV	MUTUAL
51.29	1.156	8.	.0917	3.12	98.200 MEV	MUTUAL
53.43	1.171	8.	.1087	3.24	98.200 MEV	MUTUAL
55.58	1.286	7.	.1341	3.36	98.200 MEV	MUTUAL
57.73	1.643	7.	.1846	3.47	98.200 MEV	MUTUAL
59.89	1.670	7.	.1949	3.59	98.200 MEV	MUTUAL
62.05	1.465	7.	.1724	3.71	98.200 MEV	MUTUAL
64.21	1.251	7.	.1452	3.82	98.200 MEV	MUTUAL
66.38	.988	7.	.1115	3.94	98.200 MEV	MUTUAL
68.55	.886	7.	.0965	4.05	98.200 MEV	MUTUAL
70.68	.944	7.	.0989	4.16	98.200 MEV	MUTUAL
72.84	.803	7.	.0809	4.27	98.200 MEV	MUTUAL

75.00	.501	8.	.0486	4.37	98.200 MEV	MUTUAL
77.18	.547	8.	.0514	4.48	98.200 MEV	MUTUAL
79.37	.730	7.	.0666	4.59	98.200 MEV	MUTUAL
81.57	.633	8.	.0563	4.69	98.200 MEV	MUTUAL
83.78	.252	12.	.0220	4.79	98.200 MEV	MUTUAL
85.99	.463	9.	.0400	4.90	98.200 MEV	MUTUAL
88.22	1.009	7.	.0864	5.00	98.200 MEV	MUTUAL
90.45	.938	7.	.0801	5.09	98.200 MEV	MUTUAL
92.68	.622	8.	.0533	5.19	98.200 MEV	MUTUAL
94.92	.392	9.	.0340	5.29	98.200 MEV	MUTUAL
97.17	.592	8.	.0521	5.38	98.200 MEV	MUTUAL
99.42	.783	7.	.0704	5.47	98.200 MEV	MUTUAL

$$$$$$$$$ 12C(12C,12C)12C Q=(-8.88) AT ELAB =102.1 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
25.68	4.214	16.	.0139	1.66	102.100 MEV	MUTUAL
27.79	5.269	13.	.0239	1.79	102.100 MEV	MUTUAL
29.91	4.156	15.	.0256	1.92	102.100 MEV	MUTUAL
32.03	4.287	14.	.0357	2.05	102.100 MEV	MUTUAL
34.16	3.273	15.	.0365	2.18	102.100 MEV	MUTUAL
36.29	4.113	13.	.0613	2.31	102.100 MEV	MUTUAL
38.43	4.251	12.	.0843	2.43	102.100 MEV	MUTUAL
40.56	3.671	11.	.0961	2.56	102.100 MEV	MUTUAL
42.70	1.757	19.	.0603	2.69	102.100 MEV	MUTUAL
44.83	1.784	17.	.0792	2.81	102.100 MEV	MUTUAL
46.93	1.663	8.	.0935	2.93	102.100 MEV	MUTUAL
49.04	1.596	8.	.1113	3.06	102.100 MEV	MUTUAL
51.17	1.251	8.	.1051	3.18	102.100 MEV	MUTUAL
53.30	1.306	8.	.1275	3.30	102.100 MEV	MUTUAL
55.44	1.779	7.	.1944	3.42	102.100 MEV	MUTUAL
57.59	1.942	7.	.2283	3.54	102.100 MEV	MUTUAL
59.74	1.640	7.	.2003	3.66	102.100 MEV	MUTUAL
61.90	1.159	8.	.1430	3.78	102.100 MEV	MUTUAL
64.05	.891	9.	.1088	3.90	102.100 MEV	MUTUAL
66.21	.728	9.	.0867	4.01	102.100 MEV	MUTUAL
68.37	.552	10.	.0638	4.13	102.100 MEV	MUTUAL
70.50	.518	7.	.0579	4.24	102.100 MEV	MUTUAL
72.64	.375	8.	.0404	4.35	102.100 MEV	MUTUAL
74.80	.312	8.	.0325	4.46	102.100 MEV	MUTUAL
76.97	.380	8.	.0384	4.57	102.100 MEV	MUTUAL
79.15	.670	7.	.0659	4.67	102.100 MEV	MUTUAL
81.34	.615	7.	.0592	4.78	102.100 MEV	MUTUAL
83.54	.306	9.	.0289	4.89	102.100 MEV	MUTUAL
85.75	.472	8.	.0441	4.99	102.100 MEV	MUTUAL
87.96	.932	7.	.0863	5.09	102.100 MEV	MUTUAL
90.18	1.228	7.	.1135	5.19	102.100 MEV	MUTUAL
92.40	.711	7.	.0659	5.29	102.100 MEV	MUTUAL
94.63	.295	9.	.0275	5.39	102.100 MEV	MUTUAL
96.87	.519	7.	.0491	5.48	102.100 MEV	MUTUAL
99.11	.766	7.	.0740	5.58	102.100 MEV	MUTUAL
101.35	.508	7.	.0503	5.67	102.100 MEV	MUTUAL

$$$$$$$$ 12C(12C,12C)12C Q=(-8.88,-9.64) AT ELAB =105.0 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
16.10	14.220	24.	.0096	1.10	105.000 MEV	MUTUAL/3-
17.39	10.715	11.	.0097	1.17	105.000 MEV	MUTUAL/3-
18.69	10.942	9.	.0130	1.25	105.000 MEV	MUTUAL/3-
19.99	12.156	11.	.0187	1.33	105.000 MEV	MUTUAL/3-
21.30	10.288	9.	.0200	1.42	105.000 MEV	MUTUAL/3-
22.61	6.806	18.	.0166	1.50	105.000 MEV	MUTUAL/3-
23.92	4.714	20.	.0143	1.58	105.000 MEV	MUTUAL/3-
25.23	3.145	15.	.0118	1.66	105.000 MEV	MUTUAL/3-
26.60	4.106	16.	.0190	1.74	105.000 MEV	MUTUAL/3-
27.90	5.753	7.	.0323	1.82	105.000 MEV	MUTUAL/3-
29.20	5.304	7.	.0361	1.90	105.000 MEV	MUTUAL/3-
30.50	5.671	8.	.0465	1.98	105.000 MEV	MUTUAL/3-
31.81	4.929	5.	.0487	2.06	105.000 MEV	MUTUAL/3-
33.12	4.280	7.	.0507	2.15	105.000 MEV	MUTUAL/3-
34.44	4.163	8.	.0592	2.23	105.000 MEV	MUTUAL/3-
35.75	3.765	9.	.0640	2.31	105.000 MEV	MUTUAL/3-
37.07	4.542	6.	.0922	2.39	105.000 MEV	MUTUAL/3-
38.39	4.687	6.	.1133	2.47	105.000 MEV	MUTUAL/3-
39.71	3.449	7.	.0991	2.55	105.000 MEV	MUTUAL/3-
41.35	2.201	7.	.0780	2.65	105.000 MEV	MUTUAL/3-
42.65	1.991	5.	.0830	2.72	105.000 MEV	MUTUAL/3-
43.96	1.667	5.	.0814	2.80	105.000 MEV	MUTUAL/3-
45.27	2.069	6.	.1177	2.88	105.000 MEV	MUTUAL/3-
46.58	1.644	9.	.1081	2.96	105.000 MEV	MUTUAL/3-
47.90	1.853	6.	.1397	3.04	105.000 MEV	MUTUAL/3-
49.22	1.805	5.	.1544	3.11	105.000 MEV	MUTUAL/3-
50.54	1.674	7.	.1606	3.19	105.000 MEV	MUTUAL/3-
51.87	1.516	7.	.1610	3.27	105.000 MEV	MUTUAL/3-
52.94	1.367	11.	.1559	3.33	105.000 MEV	MUTUAL/3-
54.53	1.502	10.	.1871	3.42	105.000 MEV	MUTUAL/3-
55.86	1.664	11.	.2197	3.50	105.000 MEV	MUTUAL/3-
56.89	1.855	6.	.2537	3.56	105.000 MEV	MUTUAL/3-
58.20	1.756	7.	.2480	3.63	105.000 MEV	MUTUAL/3-
59.86	1.154	17.	.1671	3.72	105.000 MEV	MUTUAL/3-
61.19	1.010	13.	.1476	3.80	105.000 MEV	MUTUAL/3-
62.53	.799	13.	.1167	3.87	105.000 MEV	MUTUAL/3-
63.86	.685	12.	.0995	3.94	105.000 MEV	MUTUAL/3-
65.20	.372	14.	.0533	4.02	105.000 MEV	MUTUAL/3-
66.53	.419	14.	.0592	4.09	105.000 MEV	MUTUAL/3-
67.87	.514	12.	.0713	4.16	105.000 MEV	MUTUAL/3-
68.98	.365	7.	.0499	4.22	105.000 MEV	MUTUAL/3-
70.31	.382	10.	.0512	4.29	105.000 MEV	MUTUAL/3-
71.64	.306	12.	.0402	4.36	105.000 MEV	MUTUAL/3-
72.97	.304	10.	.0390	4.43	105.000 MEV	MUTUAL/3-
74.31	.395	11.	.0499	4.50	105.000 MEV	MUTUAL/3-
75.66	.409	10.	.0506	4.57	105.000 MEV	MUTUAL/3-
77.00	.528	12.	.0642	4.64	105.000 MEV	MUTUAL/3-
78.35	.533	8.	.0638	4.71	105.000 MEV	MUTUAL/3-
79.71	.484	9.	.0571	4.77	105.000 MEV	MUTUAL/3-
81.07	.439	8.	.0511	4.84	105.000 MEV	MUTUAL/3-
82.43	.324	10.	.0373	4.91	105.000 MEV	MUTUAL/3-
83.80	.228	12.	.0260	4.97	105.000 MEV	MUTUAL/3-
85.16	.350	9.	.0396	5.04	105.000 MEV	MUTUAL/3-
86.54	.359	14.	.0404	5.10	105.000 MEV	MUTUAL/3-
87.91	.545	9.	.0611	5.17	105.000 MEV	MUTUAL/3-
89.29	.643	7.	.0719	5.23	105.000 MEV	MUTUAL/3-
90.66	.630	7.	.0705	5.29	105.000 MEV	MUTUAL/3-
92.04	.503	7.	.0564	5.36	105.000 MEV	MUTUAL/3-
93.43	.246	12.	.0277	5.42	105.000 MEV	MUTUAL/3-
94.81	.152	14.	.0172	5.48	105.000 MEV	MUTUAL/3-

96.20	.237	13.	.0271	5.54	105.000 MEV	MUTUAL/3-
97.58	.414	8.	.0477	5.60	105.000 MEV	MUTUAL/3-
98.97	.513	7.	.0598	5.66	105.000 MEV	MUTUAL/3-
100.37	.455	8.	.0537	5.72	105.000 MEV	MUTUAL/3-
101.76	.339	10.	.0406	5.77	105.000 MEV	MUTUAL/3-

$$$$$$$$ 12C(12C,12C)12C Q=(-8.88) AT ELAB =106.9 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
25.62	3.540	16.	.0128	1.70	106.900 MEV	MUTUAL
27.72	4.685	14.	.0233	1.83	106.900 MEV	MUTUAL
29.83	5.503	11.	.0373	1.96	106.900 MEV	MUTUAL
31.95	4.041	13.	.0371	2.09	106.900 MEV	MUTUAL
34.08	3.690	12.	.0455	2.22	106.900 MEV	MUTUAL
36.20	3.507	12.	.0578	2.36	106.900 MEV	MUTUAL
38.33	3.078	13.	.0674	2.49	106.900 MEV	MUTUAL
40.46	1.587	18.	.0458	2.62	106.900 MEV	MUTUAL
42.59	1.308	20.	.0493	2.75	106.900 MEV	MUTUAL
44.71	1.404	16.	.0681	2.87	106.900 MEV	MUTUAL
46.80	1.741	8.	.1062	3.00	106.900 MEV	MUTUAL
48.91	1.846	8.	.1387	3.12	106.900 MEV	MUTUAL
51.03	1.783	8.	.1601	3.25	106.900 MEV	MUTUAL
53.16	1.371	9.	.1422	3.37	106.900 MEV	MUTUAL
55.29	1.518	8.	.1753	3.50	106.900 MEV	MUTUAL
57.43	1.522	8.	.1887	3.62	106.900 MEV	MUTUAL
59.58	1.277	8.	.1646	3.74	106.900 MEV	MUTUAL
61.72	.837	10.	.1093	3.86	106.900 MEV	MUTUAL
63.88	.559	11.	.0725	3.98	106.900 MEV	MUTUAL
66.03	.496	11.	.0631	4.10	106.900 MEV	MUTUAL
68.18	.359	13.	.0445	4.22	106.900 MEV	MUTUAL
70.29	.314	8.	.0378	4.33	106.900 MEV	MUTUAL
72.43	.411	8.	.0479	4.45	106.900 MEV	MUTUAL
74.58	.438	8.	.0495	4.56	106.900 MEV	MUTUAL
76.74	.423	9.	.0465	4.67	106.900 MEV	MUTUAL
78.92	.464	8.	.0499	4.78	106.900 MEV	MUTUAL
81.09	.401	8.	.0422	4.89	106.900 MEV	MUTUAL
83.28	.281	11.	.0291	5.00	106.900 MEV	MUTUAL
85.48	.265	10.	.0271	5.10	106.900 MEV	MUTUAL
87.68	.491	8.	.0498	5.21	106.900 MEV	MUTUAL
89.88	.616	7.	.0623	5.31	106.900 MEV	MUTUAL
92.10	.452	8.	.0459	5.41	106.900 MEV	MUTUAL
94.31	.293	9.	.0300	5.51	106.900 MEV	MUTUAL
96.53	.344	9.	.0356	5.61	106.900 MEV	MUTUAL
98.75	.470	8.	.0494	5.71	106.900 MEV	MUTUAL
100.98	.519	8.	.0557	5.80	106.900 MEV	MUTUAL

$$$$$$$$ 12C(12C,12C)12C Q=(-8.88,-9.64) AT ELAB =112.0 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
16.05	10.782	10.	.0081	1.12	112.000 MEV	MUTUAL/3-
17.34	11.386	12.	.0115	1.21	112.000 MEV	MUTUAL/3-
18.63	9.550	9.	.0127	1.29	112.000 MEV	MUTUAL/3-
19.93	9.741	9.	.0167	1.37	112.000 MEV	MUTUAL/3-
21.23	8.344	11.	.0183	1.46	112.000 MEV	MUTUAL/3-
22.53	6.836	16.	.0188	1.54	112.000 MEV	MUTUAL/3-

23.84	5.255	15.	.0180	1.62	112.000 MEV	MUTUAL/3-
25.15	5.744	8.	.0244	1.71	112.000 MEV	MUTUAL/3-
26.51	7.031	6.	.0370	1.80	112.000 MEV	MUTUAL/3-
27.77	7.583	5.	.0483	1.88	112.000 MEV	MUTUAL/3-
29.08	6.262	5.	.0485	1.96	112.000 MEV	MUTUAL/3-
30.40	5.312	6.	.0499	2.05	112.000 MEV	MUTUAL/3-
31.70	4.424	6.	.0501	2.13	112.000 MEV	MUTUAL/3-
33.02	3.742	7.	.0511	2.21	112.000 MEV	MUTUAL/3-
34.34	3.430	6.	.0562	2.30	112.000 MEV	MUTUAL/3-
35.63	4.107	5.	.0803	2.38	112.000 MEV	MUTUAL/3-
36.94	2.930	6.	.0684	2.46	112.000 MEV	MUTUAL/3-
38.28	2.225	8.	.0620	2.55	112.000 MEV	MUTUAL/3-
39.59	2.025	11.	.0669	2.63	112.000 MEV	MUTUAL/3-
40.90	1.918	8.	.0748	2.71	112.000 MEV	MUTUAL/3-
42.50	1.925	5.	.0914	2.81	112.000 MEV	MUTUAL/3-
43.80	1.803	5.	.0998	2.89	112.000 MEV	MUTUAL/3-
45.11	1.892	5.	.1213	2.97	112.000 MEV	MUTUAL/3-
46.42	1.940	5.	.1431	3.05	112.000 MEV	MUTUAL/3-
47.73	1.890	5.	.1588	3.13	112.000 MEV	MUTUAL/3-
49.05	1.762	5.	.1669	3.21	112.000 MEV	MUTUAL/3-
50.36	1.792	5.	.1892	3.29	112.000 MEV	MUTUAL/3-
51.68	1.500	5.	.1742	3.37	112.000 MEV	MUTUAL/3-
53.01	1.397	5.	.1761	3.45	112.000 MEV	MUTUAL/3-
54.33	1.203	5.	.1625	3.53	112.000 MEV	MUTUAL/3-
55.65	1.132	5.	.1615	3.61	112.000 MEV	MUTUAL/3-
56.98	1.060	5.	.1578	3.69	112.000 MEV	MUTUAL/3-
58.31	.950	5.	.1457	3.76	112.000 MEV	MUTUAL/3-
59.64	.704	5.	.1102	3.84	112.000 MEV	MUTUAL/3-
60.97	.539	5.	.0852	3.92	112.000 MEV	MUTUAL/3-
62.30	.446	6.	.0707	4.00	112.000 MEV	MUTUAL/3-
63.62	.433	8.	.0685	4.07	112.000 MEV	MUTUAL/3-
64.95	.520	5.	.0817	4.15	112.000 MEV	MUTUAL/3-
66.28	.444	6.	.0689	4.22	112.000 MEV	MUTUAL/3-
67.61	.419	6.	.0641	4.30	112.000 MEV	MUTUAL/3-
68.93	.327	9.	.0493	4.37	112.000 MEV	MUTUAL/3-
70.26	.257	5.	.0382	4.44	112.000 MEV	MUTUAL/3-
71.58	.349	7.	.0510	4.51	112.000 MEV	MUTUAL/3-
72.90	.390	5.	.0560	4.59	112.000 MEV	MUTUAL/3-
75.36	.611	9.	.0851	4.72	112.000 MEV	MUTUAL/3-
76.70	.537	8.	.0737	4.79	112.000 MEV	MUTUAL/3-
78.04	.415	9.	.0562	4.86	112.000 MEV	MUTUAL/3-
79.39	.276	12.	.0369	4.93	112.000 MEV	MUTUAL/3-
80.74	.240	13.	.0317	5.00	112.000 MEV	MUTUAL/3-
82.09	.244	10.	.0319	5.07	112.000 MEV	MUTUAL/3-
83.45	.220	11.	.0285	5.13	112.000 MEV	MUTUAL/3-
84.81	.213	13.	.0275	5.20	112.000 MEV	MUTUAL/3-
86.17	.258	11.	.0331	5.27	112.000 MEV	MUTUAL/3-
87.53	.255	12.	.0325	5.33	112.000 MEV	MUTUAL/3-
88.90	.237	11.	.0302	5.40	112.000 MEV	MUTUAL/3-
90.26	.254	15.	.0323	5.47	112.000 MEV	MUTUAL/3-
91.63	.205	17.	.0262	5.53	112.000 MEV	MUTUAL/3-
93.01	.188	20.	.0240	5.59	112.000 MEV	MUTUAL/3-
94.38	.186	20.	.0239	5.66	112.000 MEV	MUTUAL/3-
95.75	.213	19.	.0276	5.72	112.000 MEV	MUTUAL/3-
97.13	.219	18.	.0285	5.78	112.000 MEV	MUTUAL/3-
98.51	.254	16.	.0334	5.84	112.000 MEV	MUTUAL/3-
99.88	.252	16.	.0334	5.90	112.000 MEV	MUTUAL/3-
101.26	.384	10.	.0516	5.96	112.000 MEV	MUTUAL/3-

$$$$$$$$ 12C(12C,12C)12C Q=(-8.88,-9.64) AT ELAB =117.1 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
16.01	10.647	15.	.0087	1.15	117.100 MEV	MUTUAL/3-
17.30	9.336	17.	.0102	1.23	117.100 MEV	MUTUAL/3-
18.59	11.121	10.	.0160	1.31	117.100 MEV	MUTUAL/3-
19.89	9.194	13.	.0171	1.40	117.100 MEV	MUTUAL/3-
21.18	9.833	8.	.0235	1.49	117.100 MEV	MUTUAL/3-
22.48	5.515	9.	.0165	1.57	117.100 MEV	MUTUAL/3-
23.79	6.643	11.	.0249	1.66	117.100 MEV	MUTUAL/3-
25.09	5.827	11.	.0270	1.74	117.100 MEV	MUTUAL/3-
26.40	6.948	11.	.0396	1.83	117.100 MEV	MUTUAL/3-
27.71	7.651	29.	.0534	1.92	117.100 MEV	MUTUAL/3-
29.02	6.378	10.	.0543	2.00	117.100 MEV	MUTUAL/3-
30.33	4.919	9.	.0508	2.09	117.100 MEV	MUTUAL/3-
31.64	4.251	10.	.0530	2.17	117.100 MEV	MUTUAL/3-
32.95	3.742	11.	.0563	2.26	117.100 MEV	MUTUAL/3-
34.26	3.717	12.	.0671	2.35	117.100 MEV	MUTUAL/3-
35.57	4.158	14.	.0898	2.43	117.100 MEV	MUTUAL/3-
36.88	2.599	13.	.0670	2.52	117.100 MEV	MUTUAL/3-
38.19	2.752	12.	.0843	2.60	117.100 MEV	MUTUAL/3-
39.50	1.881	20.	.0682	2.68	117.100 MEV	MUTUAL/3-
41.11	2.174	12.	.0964	2.79	117.100 MEV	MUTUAL/3-
42.41	2.208	10.	.1144	2.87	117.100 MEV	MUTUAL/3-
43.71	2.212	7.	.1333	2.95	117.100 MEV	MUTUAL/3-
45.01	2.123	5.	.1477	3.04	117.100 MEV	MUTUAL/3-
46.31	2.381	8.	.1897	3.12	117.100 MEV	MUTUAL/3-
47.62	1.910	9.	.1727	3.20	117.100 MEV	MUTUAL/3-
48.93	1.932	8.	.1961	3.28	117.100 MEV	MUTUAL/3-
50.25	1.985	8.	.2236	3.36	117.100 MEV	MUTUAL/3-
51.56	1.490	11.	.1840	3.45	117.100 MEV	MUTUAL/3-
52.88	1.360	14.	.1817	3.53	117.100 MEV	MUTUAL/3-
54.20	.973	18.	.1390	3.61	117.100 MEV	MUTUAL/3-
55.52	.691	13.	.1041	3.69	117.100 MEV	MUTUAL/3-
56.85	.503	16.	.0789	3.77	117.100 MEV	MUTUAL/3-
58.17	.642	14.	.1038	3.85	117.100 MEV	MUTUAL/3-
59.50	.347	19.	.0573	3.93	117.100 MEV	MUTUAL/3-
60.82	.349	20.	.0583	4.01	117.100 MEV	MUTUAL/3-
62.15	.288	20.	.0483	4.08	117.100 MEV	MUTUAL/3-
63.47	.491	17.	.0824	4.16	117.100 MEV	MUTUAL/3-
64.79	.490	19.	.0820	4.24	117.100 MEV	MUTUAL/3-
66.12	.583	12.	.0966	4.31	117.100 MEV	MUTUAL/3-
67.44	.633	17.	.1038	4.39	117.100 MEV	MUTUAL/3-
68.55	.356	7.	.0577	4.45	117.100 MEV	MUTUAL/3-
69.86	.323	7.	.0517	4.53	117.100 MEV	MUTUAL/3-
71.18	.294	9.	.0463	4.60	117.100 MEV	MUTUAL/3-
72.51	.390	8.	.0606	4.68	117.100 MEV	MUTUAL/3-
73.83	.468	12.	.0717	4.75	117.100 MEV	MUTUAL/3-
75.16	.609	13.	.0920	4.82	117.100 MEV	MUTUAL/3-
76.50	.484	7.	.0721	4.89	117.100 MEV	MUTUAL/3-
77.84	.363	8.	.0534	4.97	117.100 MEV	MUTUAL/3-
79.18	.230	12.	.0334	5.04	117.100 MEV	MUTUAL/3-
80.52	.174	12.	.0251	5.11	117.100 MEV	MUTUAL/3-
81.87	.122	13.	.0174	5.18	117.100 MEV	MUTUAL/3-
83.22	.150	14.	.0212	5.25	117.100 MEV	MUTUAL/3-
84.58	.132	10.	.0186	5.32	117.100 MEV	MUTUAL/3-
85.93	.138	17.	.0193	5.39	117.100 MEV	MUTUAL/3-
87.29	.147	10.	.0205	5.45	117.100 MEV	MUTUAL/3-
88.65	.146	18.	.0204	5.52	117.100 MEV	MUTUAL/3-
90.01	.154	17.	.0214	5.59	117.100 MEV	MUTUAL/3-
91.37	.152	17.	.0211	5.65	117.100 MEV	MUTUAL/3-
92.74	.190	12.	.0265	5.72	117.100 MEV	MUTUAL/3-
94.10	.124	22.	.0173	5.78	117.100 MEV	MUTUAL/3-

95.47	.123	23.	.0173	5.85	117.100 MEV	MUTUAL/3-
96.84	.110	19.	.0156	5.91	117.100 MEV	MUTUAL/3-

$$$$$$$$ 12C(12C,12C)12C Q=(-8.88,-9.64) AT ELAB =121.6 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
15.98	11.900	7.	.0104	1.16	121.600 MEV	MUTUAL/3-
17.27	12.310	9.	.0144	1.25	121.600 MEV	MUTUAL/3-
18.56	9.691	16.	.0150	1.34	121.600 MEV	MUTUAL/3-
19.85	7.387	19.	.0147	1.42	121.600 MEV	MUTUAL/3-
21.15	6.207	8.	.0158	1.51	121.600 MEV	MUTUAL/3-
22.44	6.610	10.	.0213	1.60	121.600 MEV	MUTUAL/3-
23.74	7.927	9.	.0320	1.69	121.600 MEV	MUTUAL/3-
25.05	7.405	8.	.0370	1.77	121.600 MEV	MUTUAL/3-
26.35	7.385	7.	.0455	1.86	121.600 MEV	MUTUAL/3-
27.70	6.427	6.	.0488	1.95	121.600 MEV	MUTUAL/3-
28.99	4.988	6.	.0461	2.04	121.600 MEV	MUTUAL/3-
30.28	4.919	6.	.0551	2.13	121.600 MEV	MUTUAL/3-
31.58	3.286	7.	.0445	2.21	121.600 MEV	MUTUAL/3-
32.88	3.461	7.	.0564	2.30	121.600 MEV	MUTUAL/3-
34.18	3.429	7.	.0670	2.39	121.600 MEV	MUTUAL/3-
35.49	3.179	8.	.0743	2.47	121.600 MEV	MUTUAL/3-
36.80	2.179	10.	.0607	2.56	121.600 MEV	MUTUAL/3-
38.10	2.309	8.	.0764	2.65	121.600 MEV	MUTUAL/3-
39.43	2.240	6.	.0878	2.73	121.600 MEV	MUTUAL/3-
41.04	2.349	5.	.1124	2.84	121.600 MEV	MUTUAL/3-
42.33	2.566	5.	.1432	2.92	121.600 MEV	MUTUAL/3-
43.63	2.354	5.	.1522	3.01	121.600 MEV	MUTUAL/3-
44.93	2.320	5.	.1727	3.09	121.600 MEV	MUTUAL/3-
46.23	1.790	5.	.1520	3.18	121.600 MEV	MUTUAL/3-
47.54	1.788	5.	.1718	3.26	121.600 MEV	MUTUAL/3-
48.84	1.400	5.	.1506	3.34	121.600 MEV	MUTUAL/3-
50.16	1.327	5.	.1579	3.43	121.600 MEV	MUTUAL/3-
51.47	1.053	5.	.1370	3.51	121.600 MEV	MUTUAL/3-
52.78	.885	6.	.1243	3.59	121.600 MEV	MUTUAL/3-
54.10	.546	9.	.0818	3.67	121.600 MEV	MUTUAL/3-
55.42	.492	12.	.0777	3.76	121.600 MEV	MUTUAL/3-
56.74	.518	8.	.0851	3.84	121.600 MEV	MUTUAL/3-
58.06	.515	9.	.0873	3.92	121.600 MEV	MUTUAL/3-
59.38	.442	10.	.0765	4.00	121.600 MEV	MUTUAL/3-
60.70	.435	15.	.0763	4.08	121.600 MEV	MUTUAL/3-
62.03	.399	9.	.0704	4.16	121.600 MEV	MUTUAL/3-
63.35	.421	9.	.0745	4.24	121.600 MEV	MUTUAL/3-
64.67	.433	7.	.0764	4.32	121.600 MEV	MUTUAL/3-
65.99	.501	7.	.0878	4.40	121.600 MEV	MUTUAL/3-
67.31	.521	8.	.0904	4.47	121.600 MEV	MUTUAL/3-
68.42	.365	9.	.0628	4.54	121.600 MEV	MUTUAL/3-
69.94	.259	11.	.0439	4.62	121.600 MEV	MUTUAL/3-
71.04	.190	11.	.0319	4.69	121.600 MEV	MUTUAL/3-
72.36	.207	12.	.0343	4.76	121.600 MEV	MUTUAL/3-
73.68	.294	9.	.0482	4.84	121.600 MEV	MUTUAL/3-
75.01	.319	8.	.0516	4.91	121.600 MEV	MUTUAL/3-
76.34	.302	7.	.0482	4.99	121.600 MEV	MUTUAL/3-
77.67	.200	8.	.0316	5.06	121.600 MEV	MUTUAL/3-
79.01	.154	15.	.0241	5.13	121.600 MEV	MUTUAL/3-
80.35	.130	20.	.0201	5.20	121.600 MEV	MUTUAL/3-
81.70	.078	18.	.0120	5.27	121.600 MEV	MUTUAL/3-
84.39	.110	15.	.0167	5.42	121.600 MEV	MUTUAL/3-
85.74	.114	11.	.0172	5.49	121.600 MEV	MUTUAL/3-
87.10	.132	16.	.0198	5.56	121.600 MEV	MUTUAL/3-

88.45	.158	11.	.0237	5.62	121.600 MEV	MUTUAL/3-
89.81	.147	12.	.0221	5.69	121.600 MEV	MUTUAL/3-
91.16	.165	12.	.0248	5.76	121.600 MEV	MUTUAL/3-
92.52	.125	13.	.0188	5.82	121.600 MEV	MUTUAL/3-

$$$$$$$$ 12C(12C,12C)12C Q=(-8.88,-9.64) AT ELAB =126.7 MEV $$$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
17.24	12.573	8.	.0158	1.27	126.700 MEV	MUTUAL/3-
18.53	11.139	7.	.0185	1.36	126.700 MEV	MUTUAL/3-
19.82	9.761	9.	.0210	1.45	126.700 MEV	MUTUAL/3-
21.11	7.463	12.	.0206	1.54	126.700 MEV	MUTUAL/3-
22.40	7.221	12.	.0252	1.63	126.700 MEV	MUTUAL/3-
23.70	6.412	8.	.0280	1.72	126.700 MEV	MUTUAL/3-
25.00	8.465	5.	.0460	1.81	126.700 MEV	MUTUAL/3-
26.30	7.977	6.	.0535	1.90	126.700 MEV	MUTUAL/3-
27.65	6.250	6.	.0518	1.99	126.700 MEV	MUTUAL/3-
28.94	4.365	7.	.0440	2.08	126.700 MEV	MUTUAL/3-
30.22	3.601	10.	.0440	2.17	126.700 MEV	MUTUAL/3-
31.52	3.116	6.	.0461	2.26	126.700 MEV	MUTUAL/3-
32.82	3.278	7.	.0583	2.35	126.700 MEV	MUTUAL/3-
34.12	3.428	5.	.0732	2.43	126.700 MEV	MUTUAL/3-
35.42	3.250	6.	.0830	2.52	126.700 MEV	MUTUAL/3-
36.73	2.539	7.	.0772	2.61	126.700 MEV	MUTUAL/3-
38.03	2.779	6.	.1002	2.70	126.700 MEV	MUTUAL/3-
39.34	2.502	8.	.1065	2.79	126.700 MEV	MUTUAL/3-
40.96	2.464	5.	.1279	2.90	126.700 MEV	MUTUAL/3-
42.25	2.447	5.	.1477	2.98	126.700 MEV	MUTUAL/3-
43.54	2.163	5.	.1509	3.07	126.700 MEV	MUTUAL/3-
44.84	1.660	6.	.1329	3.15	126.700 MEV	MUTUAL/3-
46.14	1.348	5.	.1228	3.24	126.700 MEV	MUTUAL/3-
47.44	1.329	6.	.1363	3.33	126.700 MEV	MUTUAL/3-
48.75	1.079	5.	.1234	3.41	126.700 MEV	MUTUAL/3-
50.06	.892	7.	.1125	3.50	126.700 MEV	MUTUAL/3-
51.37	.750	7.	.1032	3.58	126.700 MEV	MUTUAL/3-
52.68	.717	9.	.1063	3.67	126.700 MEV	MUTUAL/3-
54.00	.500	9.	.0788	3.75	126.700 MEV	MUTUAL/3-
55.31	.408	10.	.0677	3.83	126.700 MEV	MUTUAL/3-
56.63	.427	9.	.0739	3.92	126.700 MEV	MUTUAL/3-
57.95	.457	8.	.0815	4.00	126.700 MEV	MUTUAL/3-
59.27	.443	15.	.0807	4.08	126.700 MEV	MUTUAL/3-
60.58	.518	12.	.0958	4.16	126.700 MEV	MUTUAL/3-
61.90	.429	14.	.0800	4.24	126.700 MEV	MUTUAL/3-
63.22	.390	10.	.0730	4.33	126.700 MEV	MUTUAL/3-
64.54	.357	10.	.0668	4.41	126.700 MEV	MUTUAL/3-
65.85	.423	7.	.0788	4.49	126.700 MEV	MUTUAL/3-
67.17	.422	8.	.0780	4.56	126.700 MEV	MUTUAL/3-
68.27	.296	10.	.0544	4.63	126.700 MEV	MUTUAL/3-
69.58	.193	13.	.0351	4.71	126.700 MEV	MUTUAL/3-
71.11	.178	5.	.0319	4.80	126.700 MEV	MUTUAL/3-
72.21	.180	12.	.0321	4.86	126.700 MEV	MUTUAL/3-
73.53	.175	14.	.0307	4.94	126.700 MEV	MUTUAL/3-
74.85	.215	18.	.0375	5.01	126.700 MEV	MUTUAL/3-
76.18	.210	12.	.0362	5.09	126.700 MEV	MUTUAL/3-
77.51	.191	12.	.0327	5.16	126.700 MEV	MUTUAL/3-
78.84	.120	12.	.0203	5.24	126.700 MEV	MUTUAL/3-
80.18	.082	20.	.0138	5.31	126.700 MEV	MUTUAL/3-
81.52	.060	19.	.0100	5.38	126.700 MEV	MUTUAL/3-
82.86	.095	15.	.0157	5.46	126.700 MEV	MUTUAL/3-
84.20	.065	26.	.0107	5.53	126.700 MEV	MUTUAL/3-

85.55	.089	22.	.0145	5.60	126.700 MEV	MUTUAL/3-
86.90	.100	16.	.0163	5.67	126.700 MEV	MUTUAL/3-
88.25	.136	18.	.0221	5.74	126.700 MEV	MUTUAL/3-
89.60	.122	18.	.0198	5.81	126.700 MEV	MUTUAL/3-
90.95	.120	19.	.0195	5.88	126.700 MEV	MUTUAL/3-
92.30	.097	24.	.0158	5.94	126.700 MEV	MUTUAL/3-

$$$$$$$$$$$$ 12C(12C,12C)12C Q=-7.65 AT ELAB = 98.2 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
9.90	8.820	15.	.0007	.69	98.200 MEV	Q=-7.65
12.00	.882	30.	.0001	.81	98.200 MEV	Q=-7.65
14.00	1.827	17.	.0006	.93	98.200 MEV	Q=-7.65
16.10	3.780	10.	.0020	1.06	98.200 MEV	Q=-7.65
18.20	1.890	10.	.0016	1.18	98.200 MEV	Q=-7.65
20.30	.357	20.	.0004	1.31	98.200 MEV	Q=-7.65
28.60	.336	20.	.0016	1.81	98.200 MEV	Q=-7.65
30.60	.493	30.	.0031	1.93	98.200 MEV	Q=-7.65

$$$$$$$$$$$$ 12C(12C,12C)12C Q=-9.64 AT ELAB = 98.2 MEV $$$$$$$$$$$$$

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	SIG/SIGR	PTRAN (INV-FM)		
10.00	23.940	25.	.0019	.73	98.200 MEV	Q=-9.64
12.10	17.115	10.	.0029	.85	98.200 MEV	Q=-9.64
14.20	9.135	10.	.0030	.96	98.200 MEV	Q=-9.64
16.30	6.888	7.	.0038	1.08	98.200 MEV	Q=-9.64
18.40	7.087	7.	.0061	1.20	98.200 MEV	Q=-9.64
20.50	5.890	7.	.0076	1.33	98.200 MEV	Q=-9.64
22.60	3.696	10.	.0069	1.45	98.200 MEV	Q=-9.64
24.60	2.992	11.	.0077	1.57	98.200 MEV	Q=-9.64
26.70	2.562	15.	.0091	1.69	98.200 MEV	Q=-9.64
28.80	1.669	12.	.0080	1.81	98.200 MEV	Q=-9.64
30.90	.987	23.	.0064	1.94	98.200 MEV	Q=-9.64

12C(12C,12C)12C EX=14.07 93.8 MEV

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
15.30	5.860	6.	1.08
17.50	3.164	8.	1.19
19.70	3.044	5.	1.30
21.90	2.155	5.	1.41
24.10	1.917	5.	1.53
27.40	2.182	5.	1.70
28.40	1.898	5.	1.75
30.60	1.559	7.	1.87
32.80	1.146	5.	1.99
35.10	1.128	5.	2.11
39.50	1.440	8.	2.35
43.90	1.000	5.	2.58

48.30	.663	5.	2.81
52.80	.646	5.	3.05
57.30	.435	5.	3.28
61.80	.457	5.	3.50
66.30	.464	5.	3.72

12C(12C,13C)11C EX=0.00 93.8 MEV

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
11.40	2.458	16.	.90
13.70	2.008	8.	1.00
16.00	1.990	5.	1.11
18.30	1.330	8.	1.22
20.60	.841	6.	1.34
22.90	.388	8.	1.46
25.20	.398	6.	1.58
28.60	.354	9.	1.76
29.80	.256	8.	1.83
32.10	.129	18.	1.95
34.40	.088	11.	2.08
36.70	.104	10.	2.20
41.30	.065	47.	2.45
46.00	.067	13.	2.69
50.70	.046	12.	2.94
55.40	.049	12.	3.18
60.20	.031	14.	3.42
64.98	.012	17.	3.66
69.80	.005	27.	3.89

12C(12C,11C)13C EX=0.00 93.8 MEV

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
10.40	4.998	15.	.85
12.50	2.668	9.	.94
14.60	1.953	9.	1.04
16.70	1.458	10.	1.14
18.80	1.504	5.	1.25
20.90	.684	7.	1.36
22.90	.459	7.	1.46
26.10	.419	8.	1.63
27.10	.404	7.	1.68
29.20	.403	10.	1.80
31.30	.173	9.	1.91
33.40	.106	12.	2.02
37.60	.138	22.	2.25
41.80	.042	19.	2.47
46.00	.036	21.	2.69
50.20	.076	11.	2.91
54.40	.042	16.	3.13
58.60	.022	14.	3.34
62.80	.017	17.	3.55

12C(12C,11C)13C EX=3.76 93.8 MEV
13C(3.684,(3/2)-) + 13C(3.834,(5/2)+)

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
11.80	1.917	19.	1.03
14.10	1.522	8.	1.12
16.50	1.559	6.	1.22
18.90	.881	10.	1.32
21.20	.692	7.	1.43
23.60	.464	7.	1.54
26.00	.436	6.	1.66
29.60	.293	11.	1.84
30.80	.271	7.	1.90
33.10	.267	13.	2.01
35.50	.217	7.	2.14
37.90	.199	7.	2.26
42.80	.173	19.	2.50
47.60	.106	11.	2.75
52.50	.084	10.	2.99
57.50	.061	13.	3.23
62.50	.075	9.	3.47
67.50	.049	8.	3.71
72.70	.036	9.	3.94

12C(12C,13C)11C EX=03.76 93.8 MEV
13C(3.684,(3/2)-) + 13C(3.854,(5/2)+)

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
10.70	2.045	21.	.99
12.90	1.247	12.	1.07
15.00	1.440	10.	1.15
17.20	1.293	9.	1.25
19.30	.653	9.	1.34
21.50	.506	8.	1.44
23.60	.463	7.	1.54
26.90	.391	9.	1.70
28.00	.342	7.	1.76
30.10	.189	16.	1.86
32.30	.244	7.	1.97
34.40	.204	8.	2.08
38.80	.226	20.	2.30
43.10	.127	10.	2.52
47.40	.099	10.	2.74
51.80	.109	10.	2.95
56.20	.068	12.	3.17
60.60	.063	9.	3.38
65.00	.070	8.	3.59

12C(12C,13N)11B EX=0.00 93.8 MEV

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
11.40	2.586	15.	.90
13.70	1.440	8.	1.01
16.00	1.715	6.	1.11

18.30	1.238	8.	1.23
20.60	.660	7.	1.35
22.90	.316	9.	1.46
25.20	.268	8.	1.59
28.70	.288	9.	1.77
29.80	.105	12.	1.83
32.10	.109	19.	1.95
34.40	.102	9.	2.08
36.80	.059	13.	2.20
41.40	.041	17.	2.45
46.10	.043	16.	2.70
50.80	.037	16.	2.94
55.50	.030	15.	3.18
60.30	.016	22.	3.43
70.00	.004	27.	3.90

12C(12C,11B)13N EX=0.00 93.8 MEV

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
10.40	4.319	12.	.86
12.50	2.100	8.	.95
14.60	1.770	6.	1.05
16.70	1.256	9.	1.15
18.80	.981	6.	1.25
20.90	.560	7.	1.36
23.00	.371	7.	1.47
26.10	.351	9.	1.63
27.20	.389	7.	1.69
29.30	.255	13.	1.80
31.40	.175	8.	1.92
33.50	.215	7.	2.03
37.60	.069	15.	2.25
41.80	.039	20.	2.47
46.10	.046	14.	2.70
50.30	.059	13.	2.92
54.50	.042	13.	3.13
58.70	.019	13.	3.35
63.00	.011	19.	3.56

12C(12C,11B)13N EX=2.25 93.8 MEV
11B(2.14,(1/2)-) + 13N(2.366,(1/2)+)

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
10.60	.107	50.	.94
12.80	.090	45.	1.03
14.90	.150	25.	1.11
17.00	.112	36.	1.21
19.10	.081	25.	1.31
21.30	.085	18.	1.41
23.40	.077	15.	1.52
26.60	.062	24.	1.68
27.70	.051	20.	1.73
29.80	.023	57.	1.84
31.90	.033	20.	1.95

34.10	.019	35.	2.06
38.30	.014	39.	2.28
42.60	.028	21.	2.50
46.90	.003	80.	2.72
51.20	.004	67.	2.94
55.50	.004	38.	3.15
59.90	.001	67.	3.37
64.20	.005	37.	3.58

12C(12C,13N)11B EX=2.25 93.8 MEV
11B(2.14,(1/2)-) + 13N(2.366,(1/2)+)

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
14.00	.091	37.	1.08
16.30	.143	19.	1.18
18.60	.073	37.	1.28
21.00	.053	23.	1.40
23.30	.067	19.	1.51
25.70	.049	17.	1.63
29.20	.014	43.	1.81
30.40	.022	28.	1.87
32.70	.017	50.	1.99
35.10	.021	20.	2.11
37.40	.009	37.	2.23
42.20	.015	32.	2.48
47.00	.016	25.	2.72
56.70	.002	67.	3.21
61.60	.005	40.	3.45
71.40	.001	67.	3.91

12C(12C,11B)13N EX=3.53 93.8 MEV
13N(3.509,(3/2)-) + 13N(3.547,(5/2)+)

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
10.70	2.146	22.	.99
12.90	1.467	9.	1.07
15.00	1.632	6.	1.15
17.20	1.055	10.	1.25
19.30	.791	7.	1.34
21.50	.580	7.	1.44
23.60	.426	6.	1.54
26.90	.373	9.	1.70
28.00	.339	7.	1.76
30.10	.276	12.	1.86
32.30	.200	7.	1.97
34.40	.191	8.	2.08
43.10	.105	11.	2.52
47.50	.060	14.	2.74
51.80	.092	11.	2.95
56.20	.087	9.	3.17
60.60	.070	6.	3.38
65.00	.045	10.	3.59

12C(12C,13N)11B EX=4.44 93.8 MEV
11B(4.444,(5/2)-)

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
16.70	.090	29.	1.25
19.00	.064	40.	1.35
23.80	.064	19.	1.57
26.20	.031	24.	1.68
29.80	.047	25.	1.86
31.00	.050	19.	1.92
33.40	.029	37.	2.03
35.90	.022	21.	2.16
38.30	.022	22.	2.28
43.20	.022	24.	2.52
48.10	.007	45.	2.76
58.00	.009	25.	3.24
63.10	.013	20.	3.49
73.50	.009	17.	3.96

12C(12C,14N)10B EX=0.00 93.8 MEV

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
14.50	.238	26.	1.08
17.00	.215	18.	1.19
19.40	.178	28.	1.31
21.80	.149	11.	1.43
24.30	.105	16.	1.55
26.70	.163	50.	1.68
30.40	.095	20.	1.87
31.60	.161	50.	1.93
34.10	.135	17.	2.06
36.50	.121	10.	2.19
39.00	.105	52.	2.32
44.00	.076	17.	2.58
49.00	.056	41.	2.83
54.10	.045	27.	3.09
59.20	.054	44.	3.35
64.40	.041	16.	3.60

12C(12C,10B)14N EX=0.00 93.8 MEV

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
12.10	.400	14.	.98
14.10	.293	29.	1.06
16.10	.169	16.	1.15
18.10	.119	19.	1.25
20.10	.143	9.	1.34
22.10	.129	12.	1.44
25.20	.156	20.	1.60
26.20	.144	8.	1.65
28.20	.129	12.	1.75

30.20	.104	10.	1.86
32.20	.087	13.	1.96
36.20	.103	32.	2.17
40.30	.109	29.	2.38
44.30	.096	12.	2.59
48.30	.080	17.	2.80
52.40	.074	17.	3.01
56.40	.054	23.	3.21
60.40	.083	54.	3.40

12C(12C,14N)10B EX=0.72 93.8 MEV
10B(0.717,1+)

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
14.60	.250	25.	1.10
17.10	.221	17.	1.21
19.50	.067	46.	1.33
22.00	.066	17.	1.45
24.40	.084	20.	1.57
26.90	.029	50.	1.69
30.60	.068	23.	1.88
31.80	.047	50.	1.94
34.30	.030	34.	2.07
36.80	.020	28.	2.20
39.30	.038	60.	2.33
44.30	.029	30.	2.59
49.40	.011	47.	2.85
54.50	.006	60.	3.10
59.70	.012	91.	3.36
64.90	.014	31.	3.61

12C(12C,10B)14N EX=0.72 93.8 MEV
10B(0.717,1+)

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
12.10	.264	17.	1.00
14.20	.320	25.	1.09
16.20	.220	12.	1.17
18.20	.134	15.	1.27
20.20	.086	12.	1.36
22.30	.057	18.	1.46
25.30	.057	25.	1.61
26.30	.060	14.	1.66
28.30	.059	19.	1.76
30.40	.032	16.	1.87
32.40	.034	22.	1.97
36.40	.089	36.	2.18
40.50	.045	35.	2.39
44.60	.020	29.	2.60
48.60	.012	40.	2.81
48.60	.012	31.	2.81
52.70	.006	70.	3.01
56.70	.020	28.	3.21
60.80	.021	67.	3.41

12C(12C,10B)14N EX=4.91 93.8 MEV
14N(4.91,0-,1-) + 14N(5.105,2-)

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
10.50	.385	43.	1.09
12.60	.103	20.	1.16
14.70	.233	17.	1.23
16.80	.115	29.	1.31
18.90	.077	27.	1.39
21.00	.058	31.	1.48
23.10	.082	20.	1.57
26.20	.051	35.	1.71
27.30	.045	27.	1.76
29.40	.075	23.	1.86
31.50	.029	36.	1.96
33.60	.060	32.	2.06
46.20	.027	25.	2.66
50.40	.031	29.	2.86
54.70	.024	36.	3.06

12C(12C,10B)14N EX=5.69 93.8 MEV
14N(5.69,1-) + 14N(5.83,3-)

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
10.60	.597	19.	1.12
12.70	.384	8.	1.19
14.80	.453	12.	1.26
16.90	.324	15.	1.34
19.00	.258	14.	1.42
21.10	.251	12.	1.50
23.20	.214	11.	1.59
26.40	.254	13.	1.73
27.50	.181	10.	1.78
29.60	.169	14.	1.88
31.70	.133	11.	1.97
33.80	.160	25.	2.07
38.00	.168	70.	2.27
42.30	.123	19.	2.47
46.60	.080	14.	2.68
50.80	.088	20.	2.87
55.10	.080	20.	3.07

12C(12C,10B)14N EX=6.30 93.8 MEV
14N(6.198,1+) + 14N(6.444,3+)

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
10.60	.857	19.	1.15
12.70	.380	8.	1.21
14.90	.437	13.	1.28
17.00	.264	19.	1.36
19.10	.255	14.	1.44
21.20	.209	13.	1.52
23.40	.110	17.	1.61

26.50	.151	17.	1.75
27.60	.105	13.	1.80
29.70	.100	20.	1.89
31.90	.099	14.	1.99
34.00	.126	38.	2.09
38.30	.094	90.	2.29
46.80	.043	20.	2.68
51.10	.058	30.	2.88
55.40	.057	28.	3.08

12C(12C,10B)14N EX=6.95 93.8 MEV
14N(7.03,2+)

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
10.70	.159	67.	1.18
12.80	.079	25.	1.24
15.00	.112	29.	1.31
17.10	.150	27.	1.38
19.20	.043	40.	1.46
21.40	.580	30.	1.55
23.50	.026	50.	1.63
26.70	.044	34.	1.77
27.80	.033	31.	1.82
29.90	.046	36.	1.91
32.10	.019	57.	2.01
34.20	.066	90.	2.10
42.80	.044	41.	2.50
51.50	.035	62.	2.90
55.80	.027	64.	3.09

12C(12C,10B)14N EX=8.96 93.8 MEV
14N(8.907,3-) +14N(8.963,5+) + 14N(8.97

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
10.90	1.174	18.	1.28
13.10	.569	20.	1.33
15.30	.716	18.	1.40
17.40	.690	18.	1.46
19.60	.436	18.	1.54
21.80	.432	8.	1.62
24.00	.474	11.	1.70
27.30	.536	12.	1.84
28.40	.492	10.	1.88
30.60	.372	11.	1.97
32.80	.398	11.	2.06
35.00	.288	10.	2.16
39.40	.296	8.	2.35
43.80	.359	9.	2.55
52.70	.266	7.	2.94
57.10	.261	15.	3.13
61.60	.171	9.	3.33
66.10	.218	25.	3.52

12C(12C,10B)14N EX=9.68 93.8 MEV
14N(9.702,1+)

ANGLE (DEG-CM)	SIGMA (MB/SR)	ERRØR (%)	PTRAN (INV-FM)
11.00	.701	22.	1.31
13.20	.382	22.	1.37
15.40	.478	23.	1.43
17.60	.328	23.	1.50
19.80	.192	31.	1.57
22.00	.061	30.	1.65
24.20	.095	31.	1.73
27.50	.118	24.	1.86
28.60	.133	19.	1.90
33.00	.089	32.	2.08
35.30	.088	47.	2.18
44.10	.078	27.	2.56
48.60	.053	27.	2.76
53.10	.027	41.	2.95
57.60	.072	64.	3.15
62.20	.027	35.	3.34

TABLE III

Excitation function for elastic scattering at 90° c.m. The errors are statistical errors only.

$E_{c.m.}$ (MeV)	$d\sigma/d\Omega$[a] mb/sr	Error %	$E_{c.m.}$ (MeV)	$d\sigma/d\Omega$[a] mb/sr	Error %	$E_{c.m.}$ (MeV)	$d\sigma/d\Omega$[a] mb/sr	Error %
36.565	0.269	5	47.000	0.241	5	51.900	0.0085	14
36.975	0.273	5	47.685	0.224	5	51.940	0.0094	14
37.910	0.389	5	48.695	0.134	7	51.905	0.0085	12
37.965	0.384	5	49.230	0.088	7	52.675	0.0303	10
39.095	0.324	5	49.330	0.077	5	53.190	0.0377	10
39.195	0.299	5	49.385	0.061	6	53.600	0.0624	8
39.814	0.335	7	49.590	0.060	17	54.730	0.0689	6
39.816	0.341	5	49.980	0.036	7	54.990	0.0767	5
40.585	0.239	5	50.255	0.016	17	55.350	0.0754	5
41.150	0.241	5	50.370	0.0046	17	56.480	0.0689	8
41.925	0.341	5	50.720	0.0046	17	57.305	0.0858	8
42.840	0.443	5	50.790	0.0043	18	58.050	0.0689	8
43.260	0.413	5	50.875	0.0075	12	58.450	0.0585	9
43.695	0.384	5	51.030	0.0026	20	59.310	0.0481	11
44.250	0.476	5	51.135	0.0021	25	60.340	0.0429	9
45.430	0.441	5	51.275	0.0038	17	61.250	0.0312	17
46.500	0.317	5	51.575	0.0048	16			

[a] The cross sections in this table are a factor of 1.3 larger than those given in ref. 5 and in the ORNL portion of Fig. 12. They have been so normalized to agree with the values of $d\sigma/d\Omega$ (θ = 90°) inferred from the angular distributions in Table II. The values given in this table are considered the best values for the excitation function.

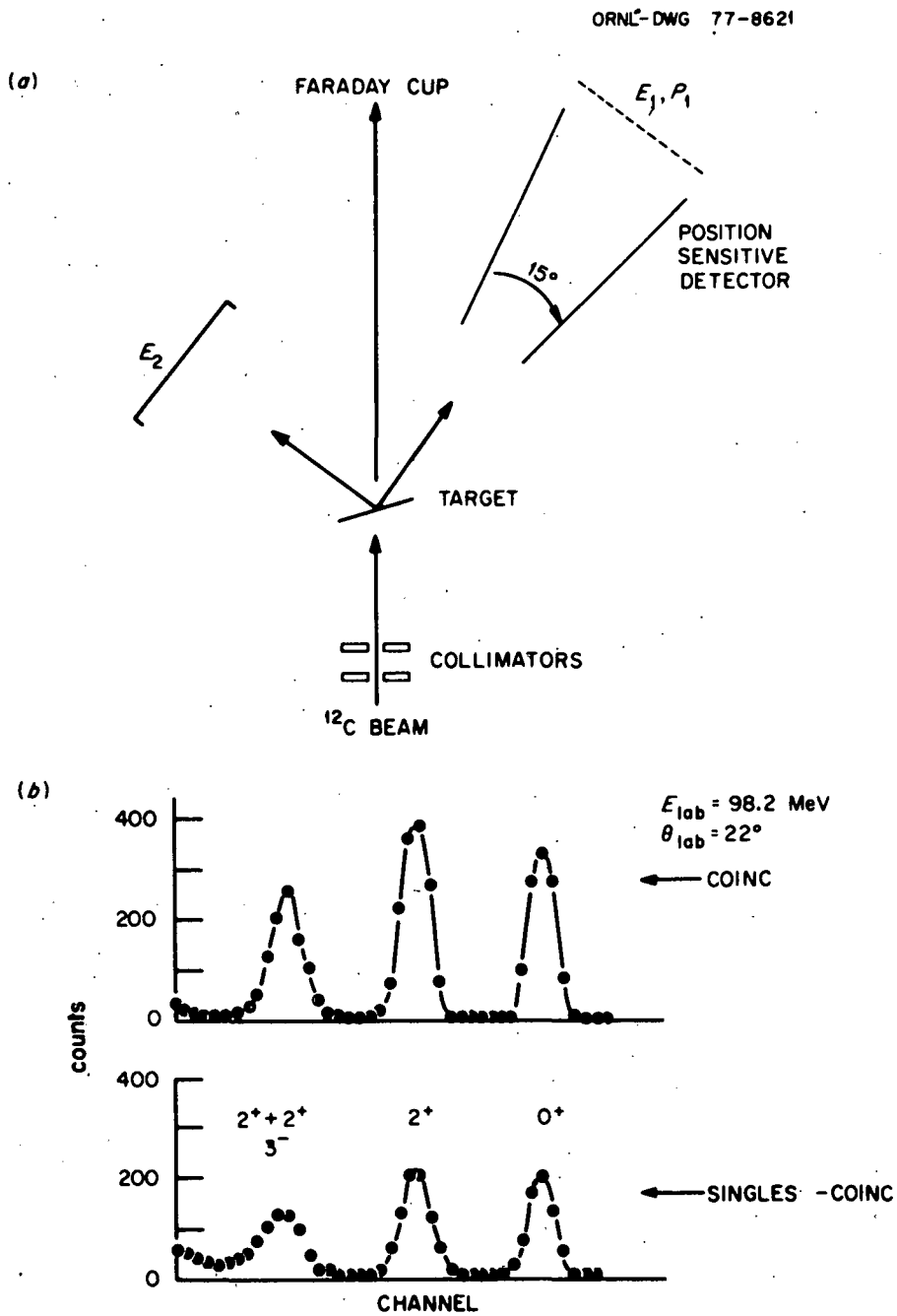

FIG. 1. (a) Schematic diagram of the experimental arrangement used for the kinematic-coincidence measurements.
(b) A typical energy spectrum for one of the apertures; a coincidence has been required with the recoil detector (E2). The lower spectrum shows those events for which there was no coincident particle of the appropriate energy in the E2 detector.

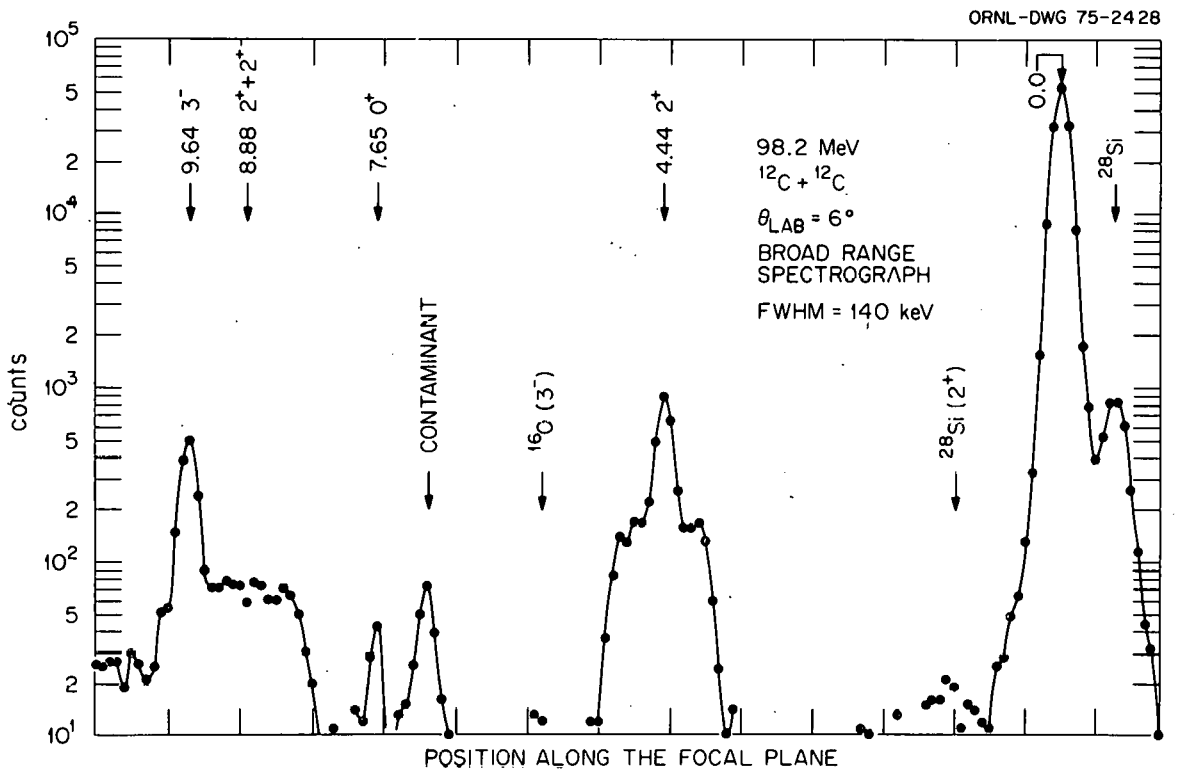

FIG. 2. A high-resolution spectrum taken at $\theta_{lab} = 6°$ and $E_{lab} = 98.2$ MeV with the broad range spectrograph. The resolution was 140 keV fwhm for an angular acceptance of ∿ ½°. Note the interesting shape of the particle group corresponding to excitation of the 2^+ state. The narrow peak results from detection of the ^{12}C nucleus which was not excited to the 2^+ state. The broad peak corresponds to detection of the partner which was excited and experienced a change in energy and angle upon emission of a 4.44-MeV gamma ray. The peak representing the mutual excitation is the superposition of two such Doppler-broadened groups. The excitation of the 3^- state is observed as a sharp group, since only the ^{12}C nucleus which remained in its ground state lives to be detected.

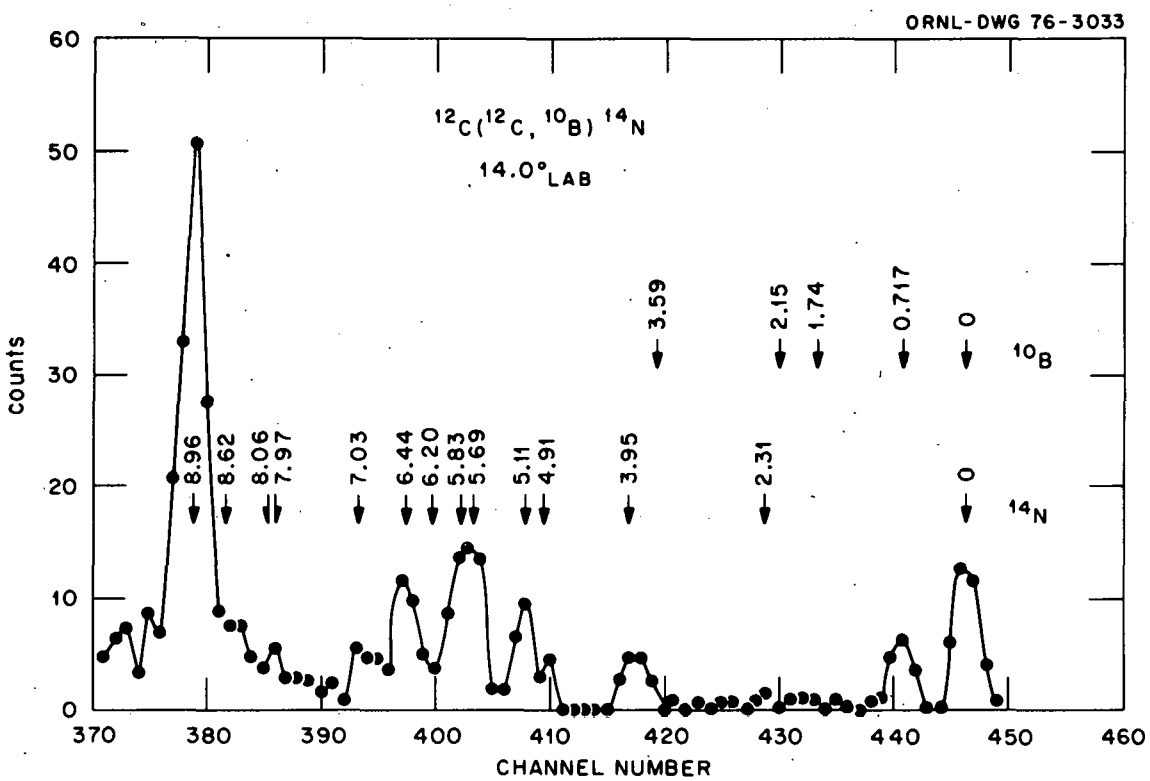

FIG. 3. Energy spectrum of ^{10}B ions observed in the $^{12}C(^{12}C,^{10}B)^{14}N$ reaction at E_{lab} = 93.8 MeV and θ_{lab} = 14°. Excited states in ^{14}N below 9 MeV and in ^{10}B below 3.6 MeV are indicated by the arrows to illustrate the selective nature of the reaction.

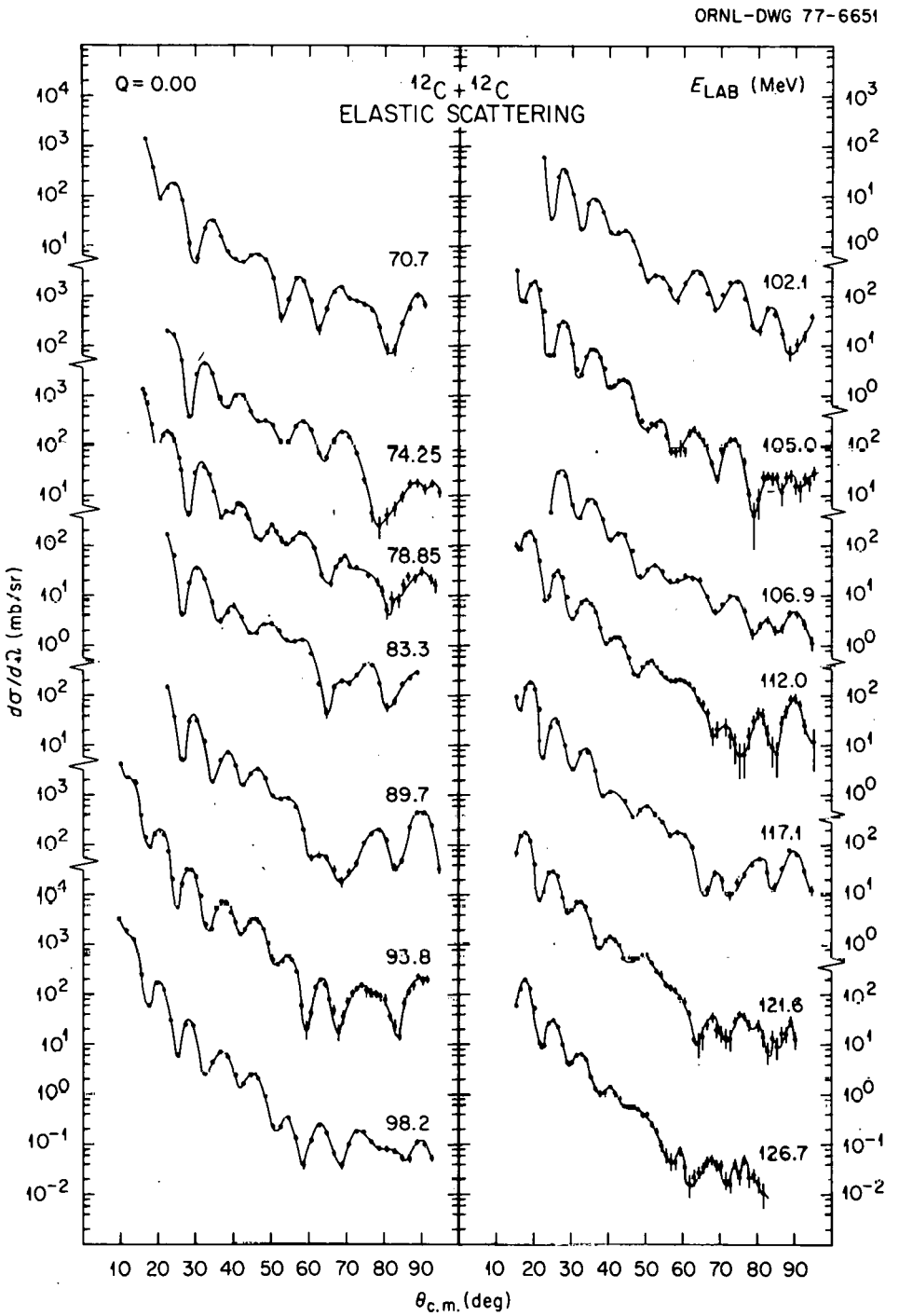

FIG. 4. The elastic scattering of ^{12}C by ^{12}C. The appropriate ordinate for each angular distribution is obtained by reading the cross section for the forward-most angle of each angular distribution. The data are tabulated in Table II.

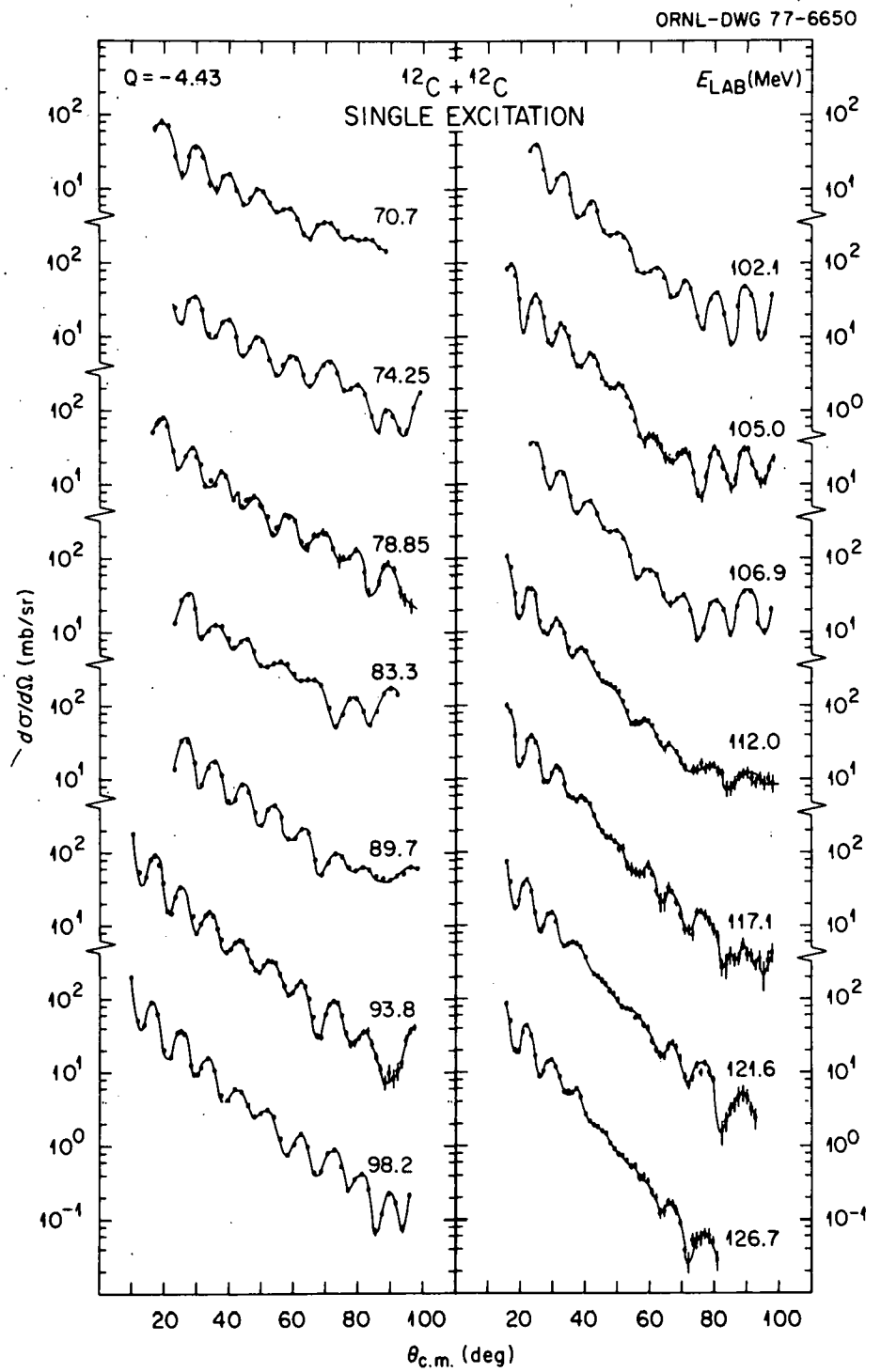

FIG. 5. The single excitation of ^{12}C by ^{12}C. See the text for the definition of the cross section. The ordinate is obtained in the same way as Fig. 4. The data are tabulated in Table II.

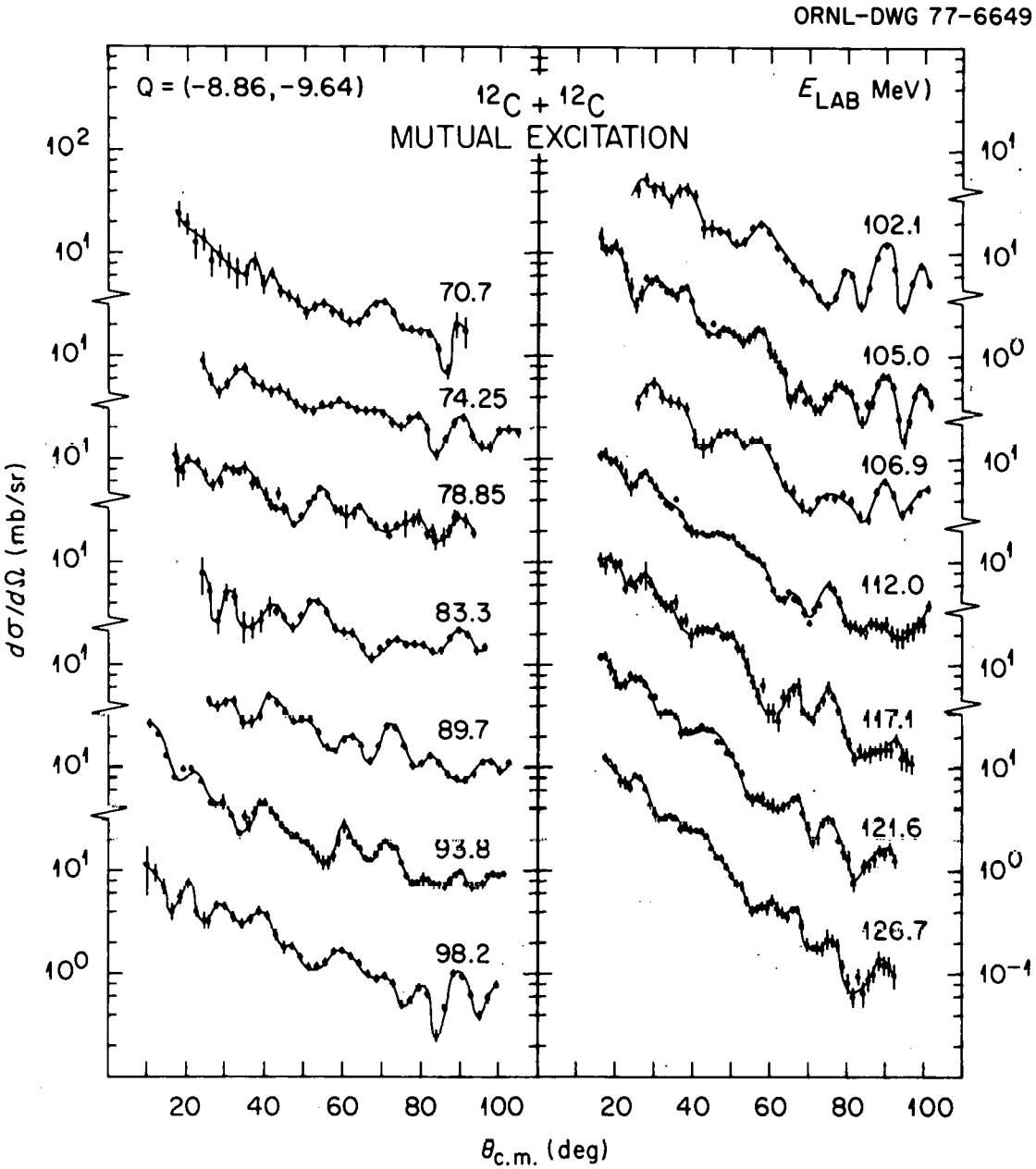

FIG. 6. The mutual excitation of ^{12}C by ^{12}C. See the text for the definition of the cross section and a discussion of the contribution of the 3^- state. The ordinate is obtained as in Fig. 4.

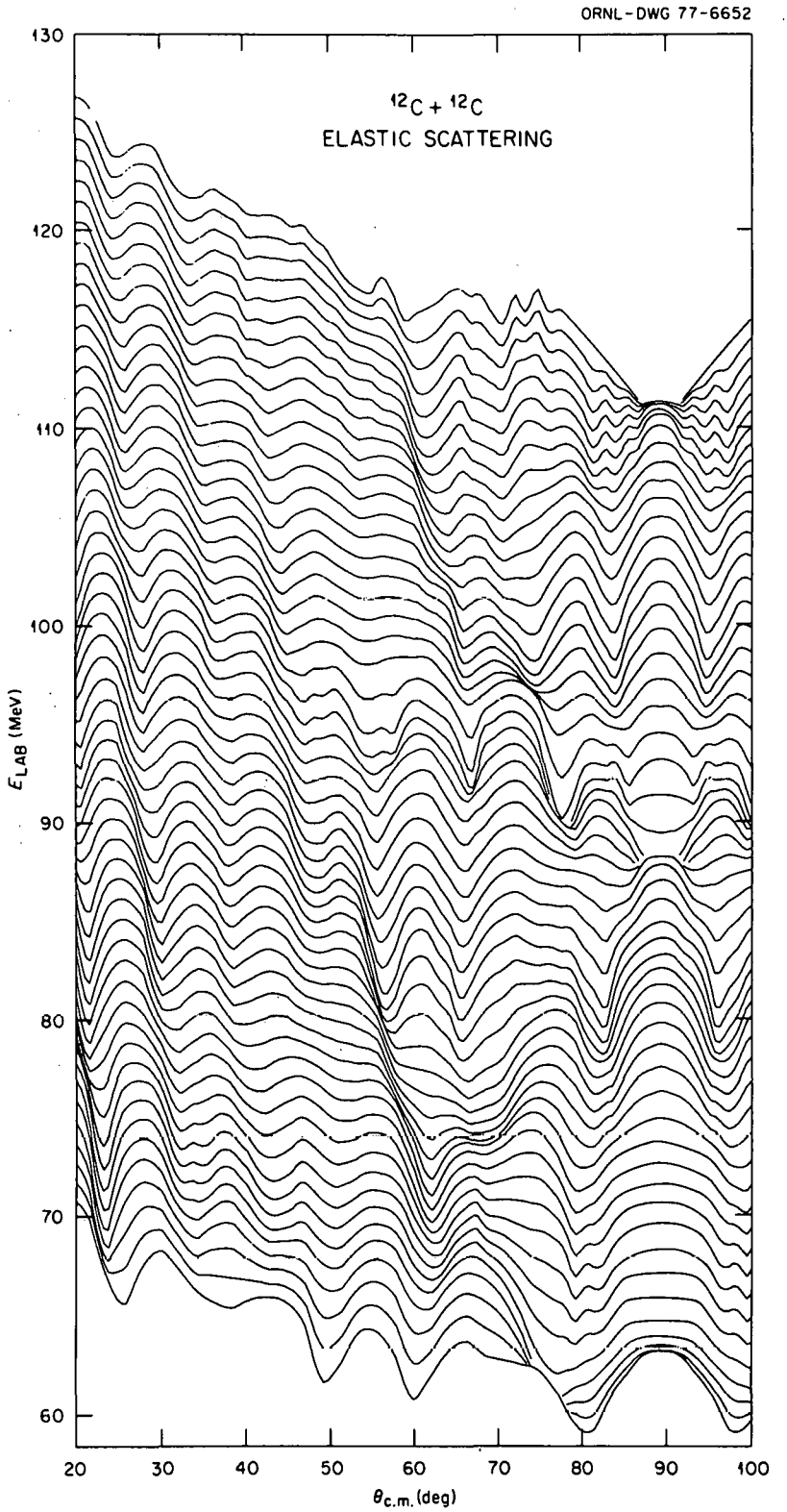

FIG. 7. Energy-angle plot of the differential cross section for elastic scattering. A two-dimensional logarithmic interpolation of the data has been made inorder to plot the cross sections at 1 MeV (lab) intervals and as a continuous function of angle.

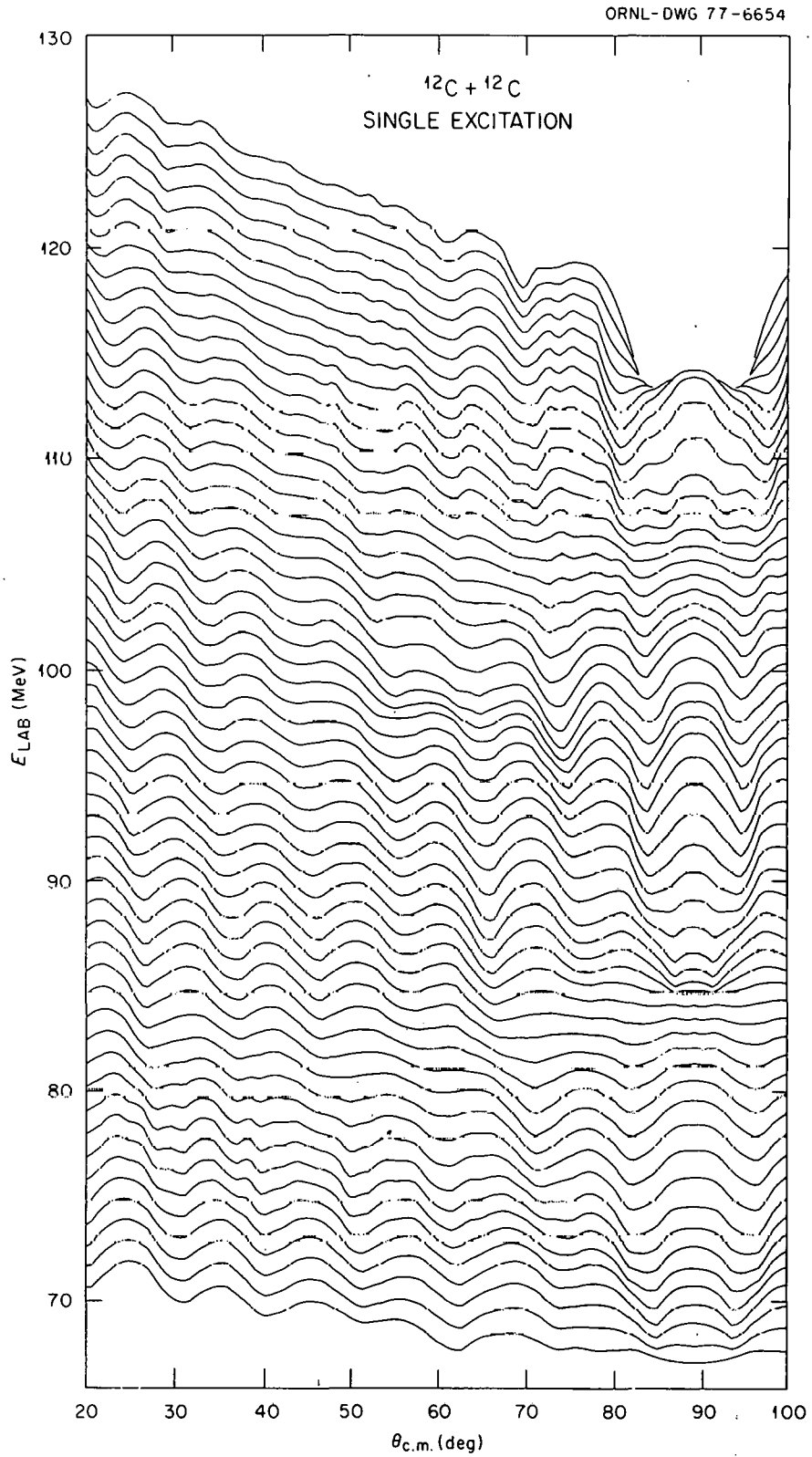

FIG. 8. Same as Fig. 7 except for the single excitation.

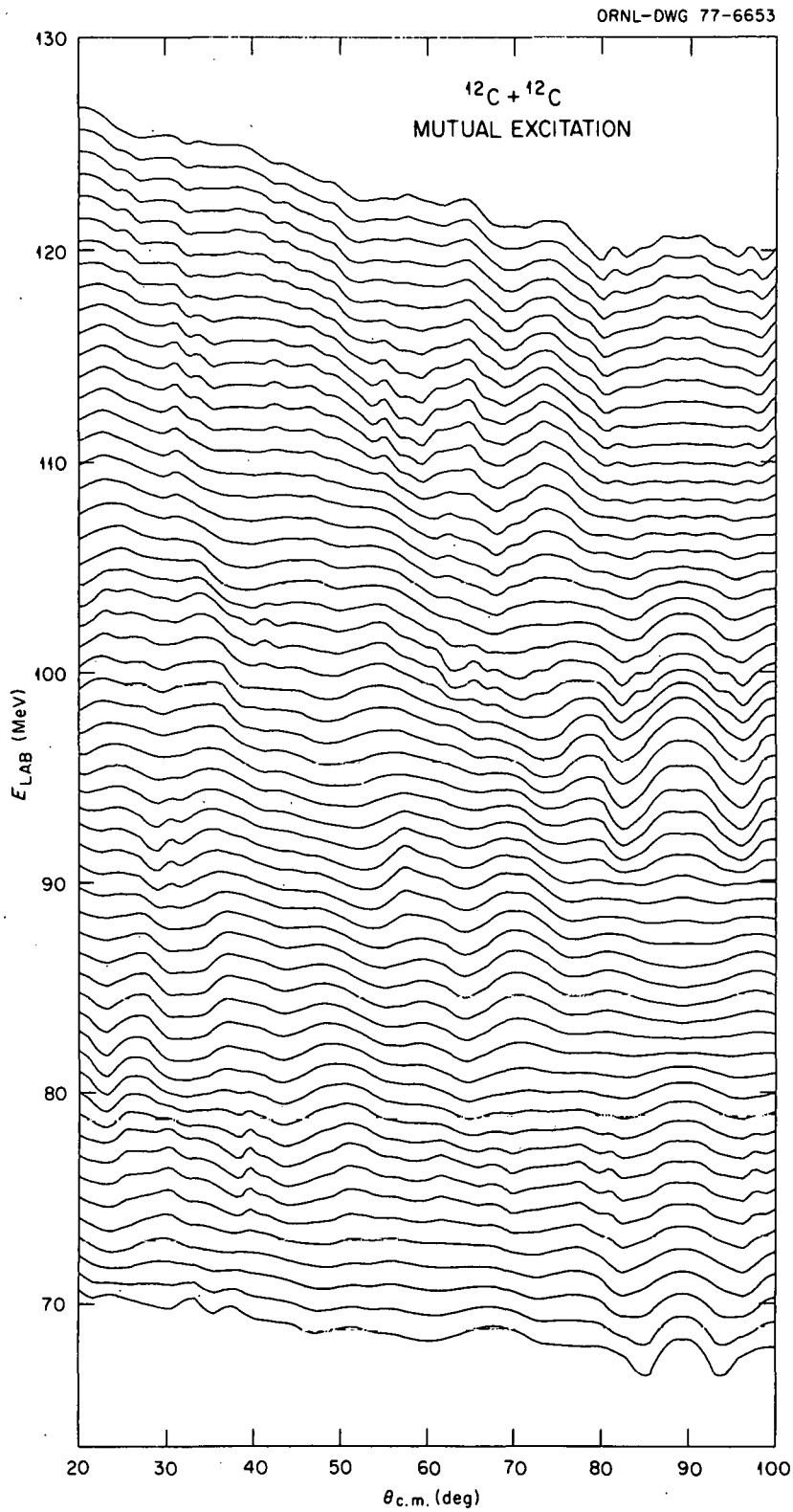

FIG. 9. Same as Fig. 7 except for the mutual excitation.

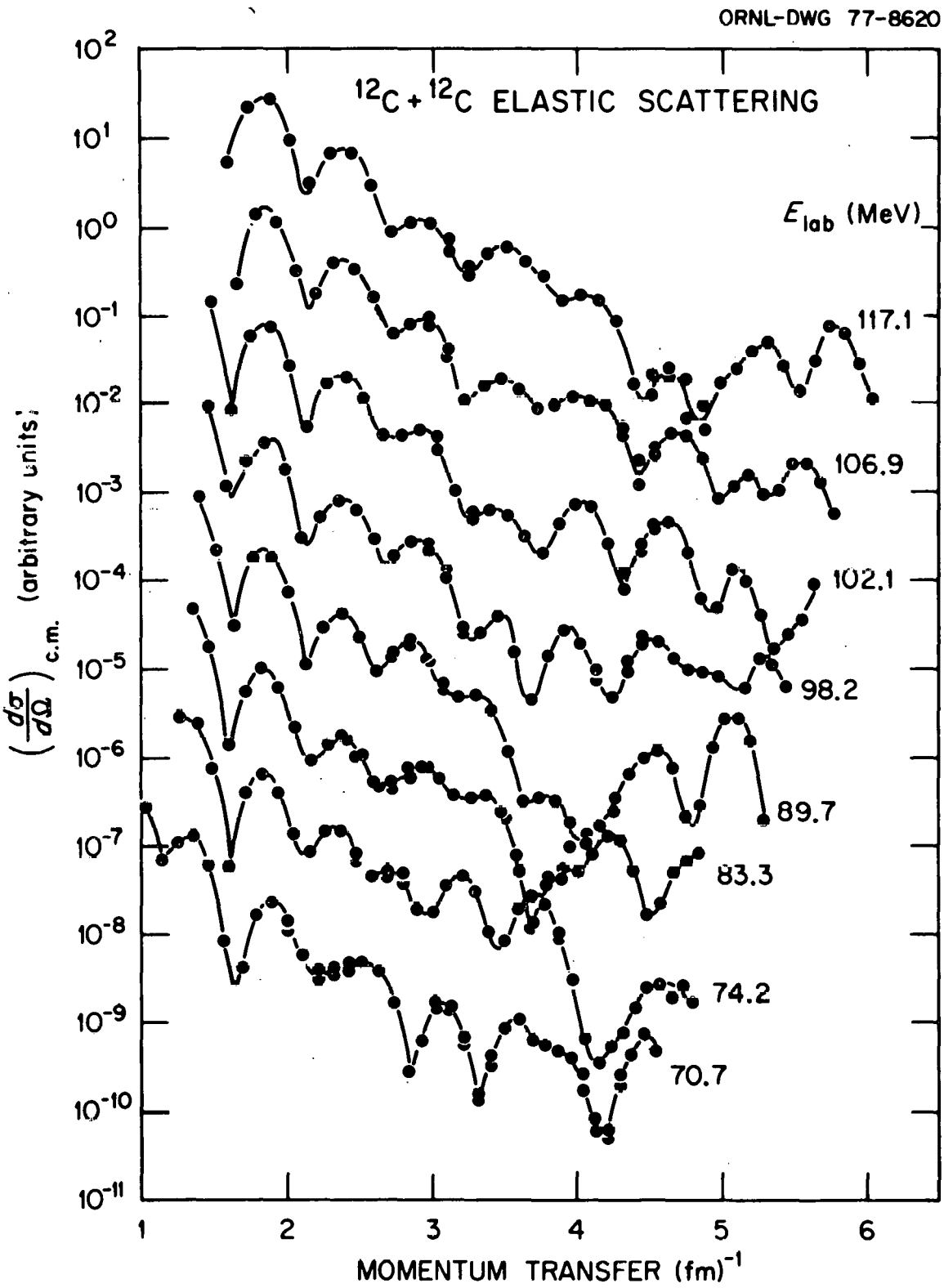

FIG. 10. The cross sections for elastic scattering as a function of momentum transfer for eight selected energies. The diffraction maxima and minima at forward angles are seen to occur at the same value of the momentum transfer.

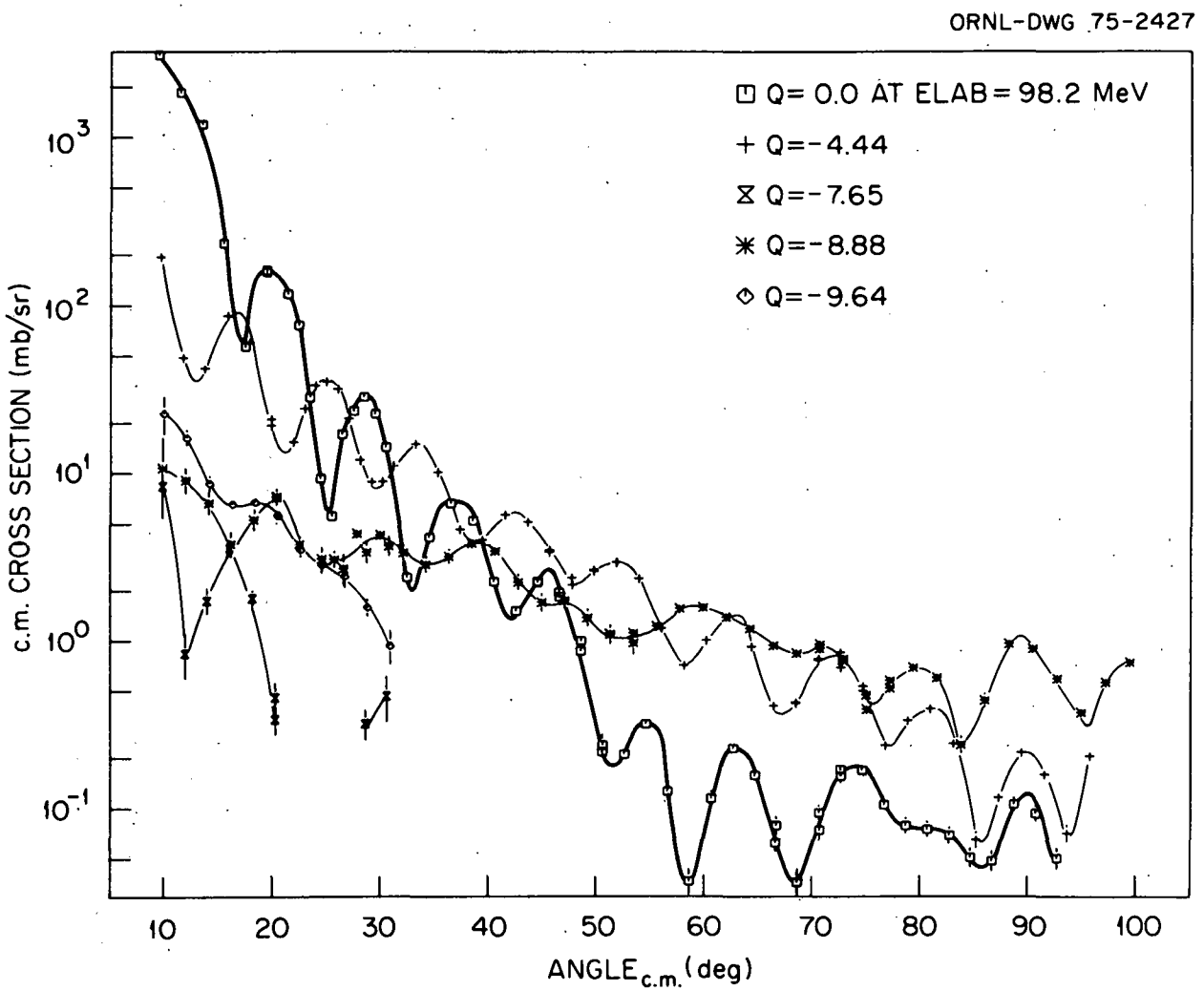

FIG. 11. A comparison of the angular distributions for elastic and inelastic scattering at 98.2 MeV. The cross sections at angles $\lesssim$ 22° c.m. were obtained with the broad range spectrograph. See the text for the definition of the various cross sections.

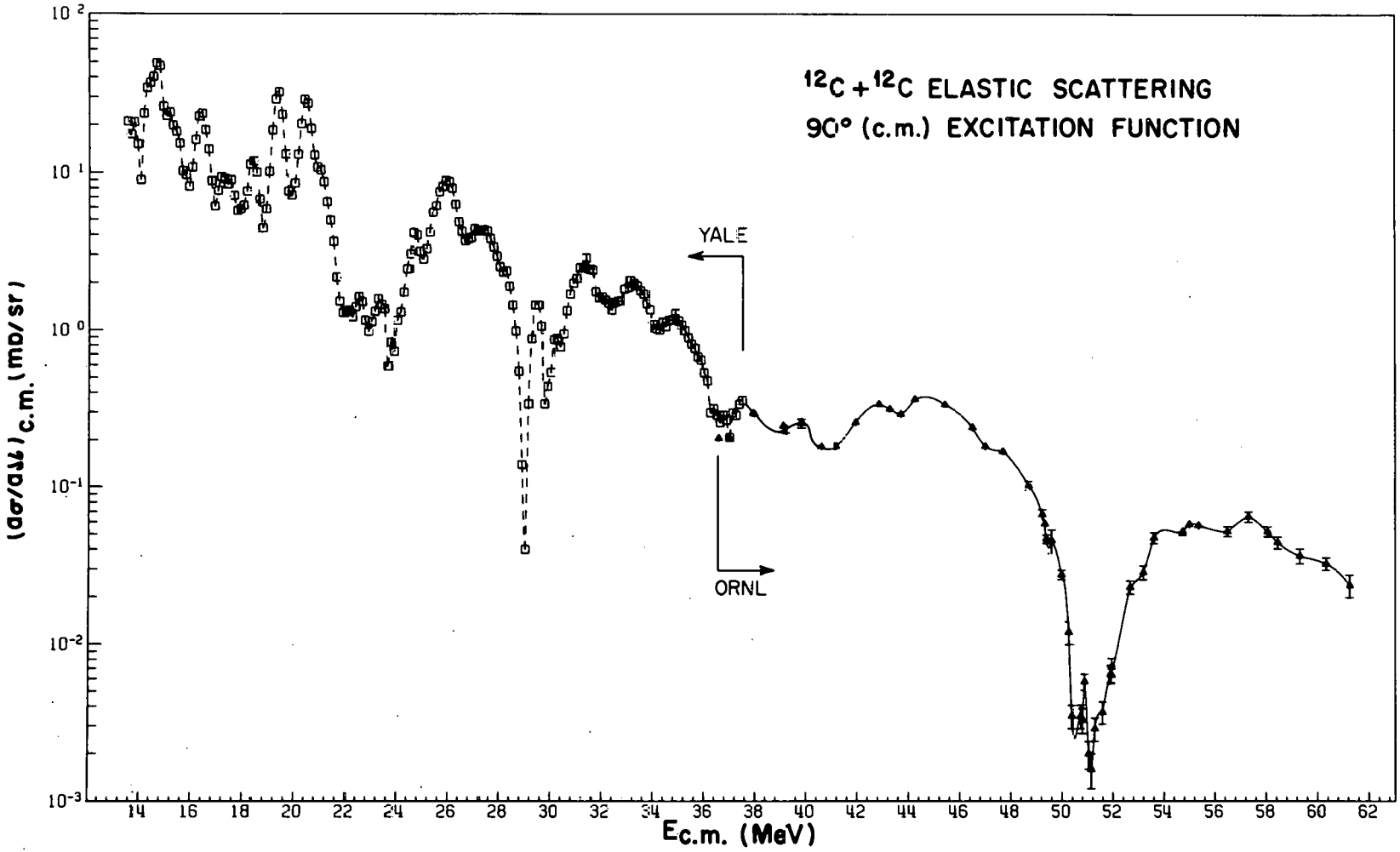

FIG. 12. The cross section for elastic scattering as a function of the center-of-mass bombarding energy. The experimental data labeled Yale are from ref. 11. The ORNL data (normalized upward by a factor of 1.3 relative to values shown in the figures) are tabulated in Table III.

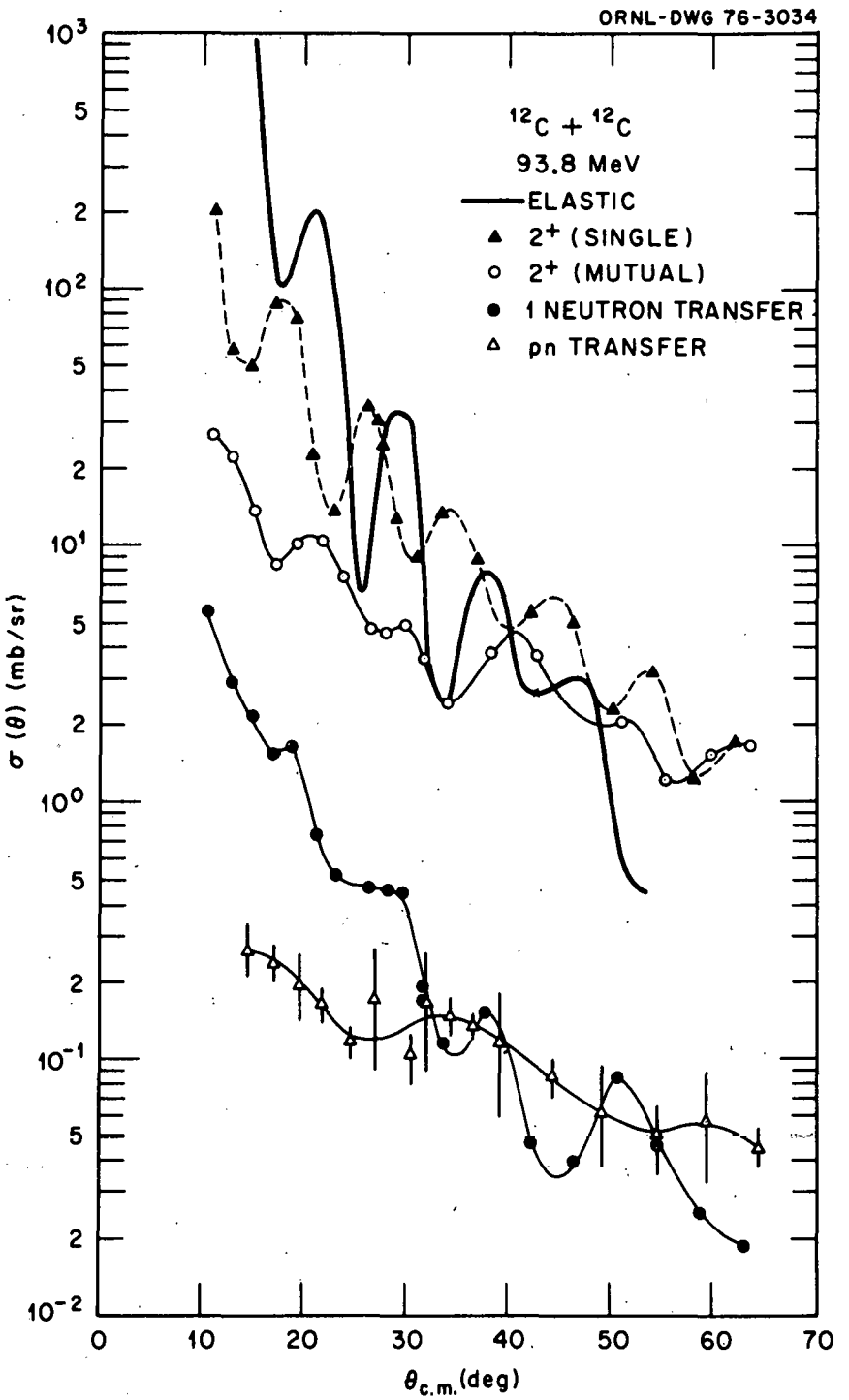

FIG. 13. A comparison of the measured angular distributions for elastic and inelastic scattering to representative transfer reactions at 93.8 MeV. The two transfer angular distributions shown are for the ground state reactions.

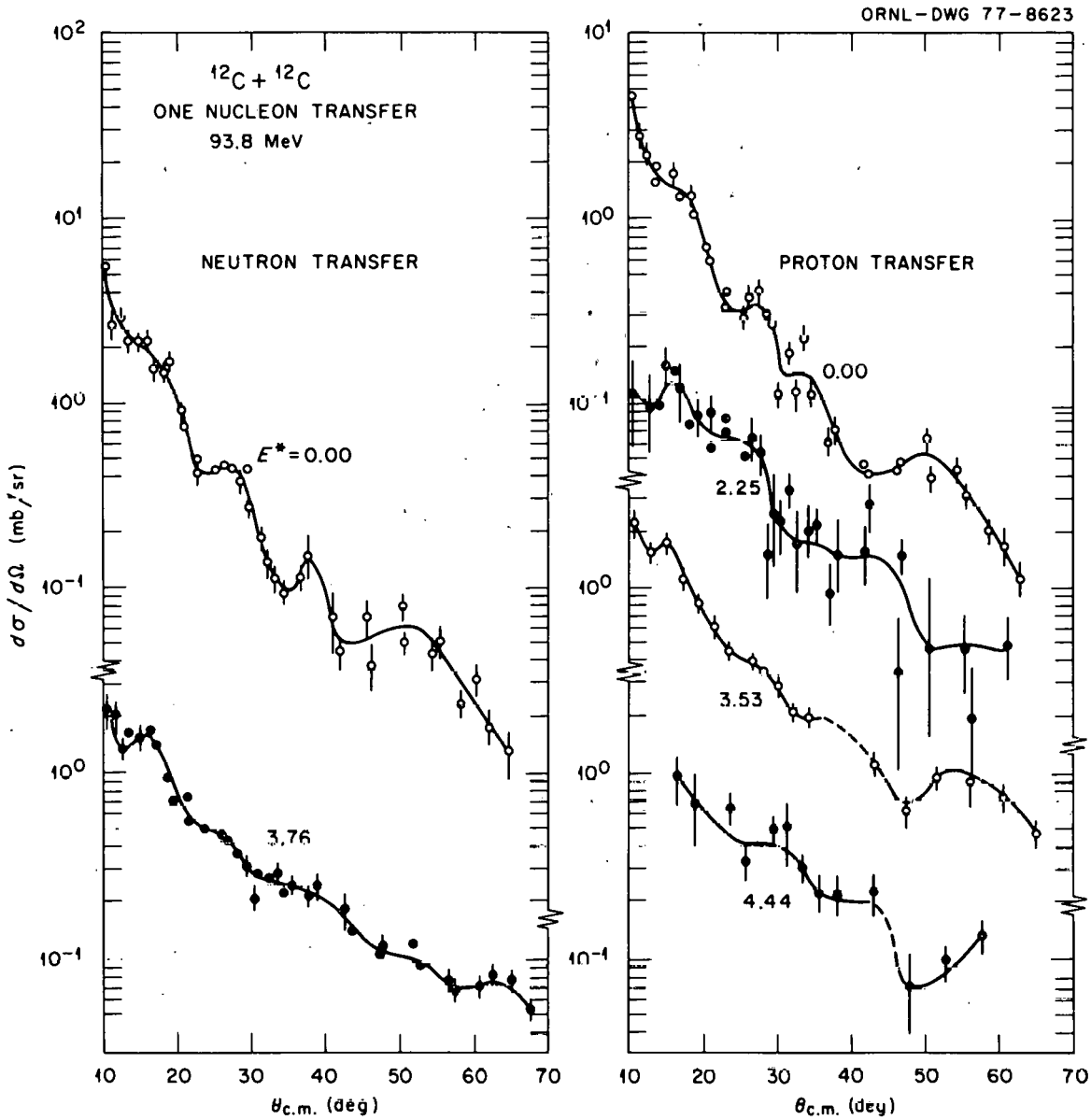

FIG. 14. The angular distributions for $^{12}C + ^{12}C$ single nucleon transfer reactions at 93.8 MeV.

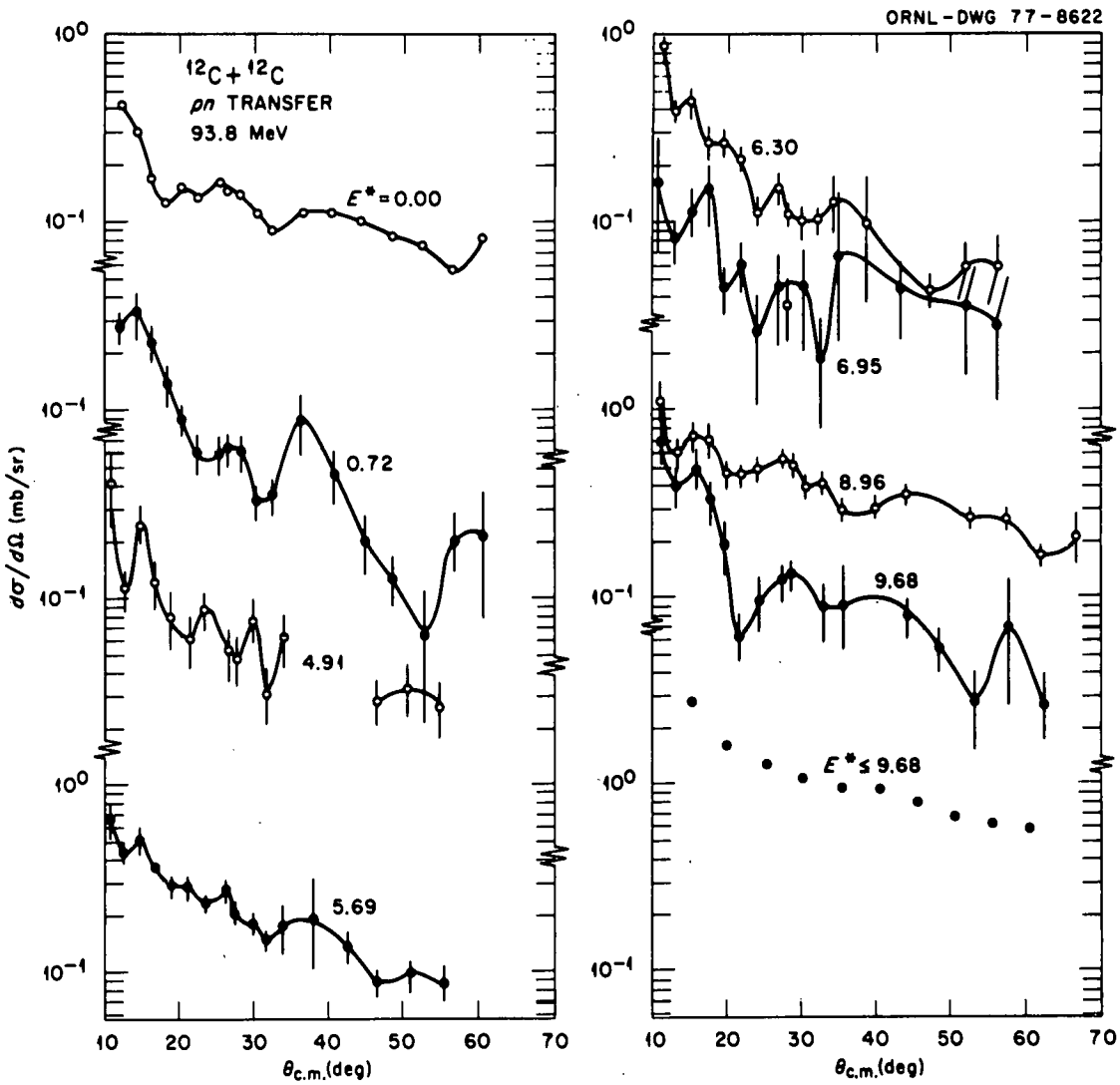

FIG. 15. The angular distributions for $^{12}C + ^{12}C$ two nucleon (np) transfer at 93.8 MeV.

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