A5 A6

Z	A6	A7	Z1	Z2	Z3	Z4
1	- -	- -	- -	- -	- -	- -
2	14.5 28.	28. 50.	- -	- -	- -	- -
3	14.5 73.	73. 135.	1.3 2.0	- -	- -	9.0 15.5
4	17. 160.	160. 200.	1.05 2.4	2.3 2.4	- -	7.6 28.
5	18.5 240.	- -	.83 2.6	1.7 2.6	- -	6.5 46.
6	22. 275.	- -	.82 3.15	1.7 3.15	- -	6.5 69.
7	22. 300.	- -	.70 3.3	1.45 3.3	- -	6.0 105.
8	26. 330.	- -	.64 3.55	1.3 3.55	- -	6.0 145.
9	26. 330.	- -	.54 3.55	1.05 3.55	- -	5.5 215.
10	28. 390.	- -	.54 3.55	1.05 3.55	- -	5.5 300.
11	31. 390.	- -	.46 3.55	.89 3.55	- -	5.5 390.
12	31. 420.	- -	.46 3.9	.89 3.9	- -	5.5 420.
13	33. 460.	- -	.42 3.9	.82 3.9	- -	5.45 460.
14	36. 460.	- -	.385 3.9	.755 3.9	- -	5.45 460.
26	41.5 700.	- -	.215 3.9	.42 3.9	3.1 8.8	5.5 700.

Z	P1	P2	P3	P4	P5	P7	P8	P9	P10	P11	A1	A2	A3	A4
1	.29 .50	.50 .96	.96 2.0	2.0 4.6	4.6 7.4	15.0 25.	25. 48.	48. 96.	96. 145.	190. 440.	— —	— —	— —	— —
2	.105 .16	.16 .28	.28 1.8	1.8 2.2	2.2 2.8	60. 145.	142. 146.	— —	— —	— —	.59 1.14	1.14 1.8	1.8 4.2	4.3 12.
3	.071 .113	.113 .19	.19 2.0	2.0 2.2	2.2 2.5	— —	— —	— —	— —	— —	.36 .64	.64 2.0	2.0 3.0	3.3 14.
4	.062 .09	.09 .15	.15 2.4	2.4 2.6	2.6 2.8	— —	— —	— —	— —	— —	.31 .54	.54 2.4	2.4 3.3	3.3 16.
5	.054 .08	.08 .14	.14 2.6	2.6 2.8	2.8 3.0	— —	— —	— —	— —	— —	.27 .46	.46 2.6	2.6 3.3	3.3 18.
6	.054 .078	.078 .14	.14 3.15	3.15 3.3	3.3 3.5	— —	— —	— —	— —	— —	.25 .43	.43 3.15	3.15 3.9	3.9 22.
7	.053 .076	.076 .13	.13 3.3	3.3 3.5	— —	— —	— —	— —	— —	— —	.22 .385	.385 3.3	3.3 3.9	3.9 22.
8	.048 .071	.071 .11	.11 3.5	— —	3.65 3.75	— —	— —	— —	— —	— —	.22 .355	.355 3.55	3.55 3.9	3.9 25.
9	.041 .054	.054 .091	.091 3.55	— —	3.65 3.75	— —	— —	— —	— —	— —	.17 .305	.305 3.55	3.55 3.9	3.9 25.
10	.040 .054	.054 .093	.093 3.55	3.55 3.75	— —	— —	— —	— —	— —	— —	.17 .295	.295 3.55	3.55 4.25	4.25 28.
11	.036 .047	.047 .081	.081 3.55	3.55 3.75	— —	— —	— —	— —	— —	— —	.15 .255	.255 3.55	3.55 4.25	4.25 28.
12	.036 .054	.054 .077	.077 3.75	— —	4.05 4.15	— —	— —	— —	— —	— —	.15 .255	.255 3.85	3.85 4.25	4.25 31.
13	.031 .042	.042 .071	.071 3.9	— —	— —	— —	— —	— —	— —	— —	.13 .215	.215 3.9	3.9 4.25	4.25 33.
14	.031 .042	.042 .070	.070 3.9	3.9 4.15	— —	— —	— —	— —	— —	— —	.13 .215	.215 3.9	3.9 4.55	4.55 33.
26	.023 .030	.030 .041	.041 3.9	3.9 4.15	— —	— —	— —	— —	— —	— —	.071 .115	.115 3.9	3.9 4.55	4.55 41.5

December 13, 1972

TO: S. M. Krimigis, R. E. Cashion, J. W. Kohl, J. C. Armstrong, CPME File

FROM: T. P. Armstrong

This is a summary of the proposed modifications to be effected before delivery.

1. Change the sectoring of P8 and A6 to A3 and Z2. This will provide a measure of the alpha and M-nuclei spectrum as a function of angle directly.

2. Change the logic in P6 from A1 B5 $\overline{M}$ to A1 B7 $\overline{M}$ and set the B7 level at 60 Mev energy loss. This creates a new M-nuclei channel for the interval from 5.5 to 140 Mev/nucleon. This gives us another spectral point for the M-nuclei bracketing the iron group channel.

3. Replace the 1 percent transmission screen in front of E1 by an opaque screen with a .1 mm diameter hole directly above the active area of the tube.

Attachment: Summary from computer run o f the new passbands.

Note: the logic on P7 also must be changed to implement (1) from B4 C4 B5 $\overline{M}$ to B4 $\overline{B7}$ C4 $\overline{M}$. The major result of that is to let the alpha passband of B7 extend down to 13 Mev/nucleon--comparable to the proton threshold.

T. P. Armstrong

TPA

TPA:dl
Attachments

IMP-J FINAL DATA

$A_0 = 177$ $C_0 = 268$
$B_0 = 185$

Logic

P1	A1 $\overline{A2}$ $\overline{B1}$ $\overline{M}$ ✓
P2	A2 $\overline{A3}$ $\overline{B1}$ $\overline{M}$ ✓
P3	A3 $\overline{B1}$ $\overline{M}$ ✓
P4	A1 B1 $\overline{B4}$ $\overline{C1}$ $\overline{M}$ ✓
P5	A1 B4 $\overline{B5}$ $\overline{C1}$ $\overline{M}$ ✓
P7	C4 B4 $\overline{B7}$ $\overline{M}$ *
P8	C4 B3 $\overline{B4}$ $\overline{M}$ ✓
P9	C3 $\overline{C4}$ B3 $\overline{B4}$ $\overline{M}$ ✓
P10	B3 C2 $\overline{C3}$ $\overline{M}$ ✓
P11	C1 $\overline{C2}$ $\overline{B3}$ B0 ✓
α1	A4 $\overline{A5}$ $\overline{B1}$ $\overline{M}$ ✓
α2	A5 $\overline{B1}$ $\overline{M}$ ✓
α3	A4 B1 $\overline{B6}$ $\overline{M}$ ✓
α4	A0 B6 $\overline{C1}$ $\overline{M}$ ✓
(A5) α6	B6 C5 $\overline{M}$ ✓
(A6) α7	B4 $\overline{B6}$ C5 $\overline{M}$ ✓
Z1	A6 $\overline{B1}$ $\overline{M}$ ✓
Z2	A7 $\overline{B1}$ $\overline{M}$ ✓
Z3	A8 $\overline{M}$ ✓
Z4	B7 A1 $\overline{M}$ *
E4	B1 $\overline{B5}$ $\overline{A1}$ $\overline{C2}$ $\overline{M}$
E5	B2 $\overline{B5}$ $\overline{A1}$ $\overline{C2}$ $\overline{M}$
E6	B3 $\overline{B5}$ $\overline{A1}$ $\overline{C2}$ $\overline{M}$

Thresholds (In-Orbit)

	Last check, inflight		d 314
A1	0.208	0.216 Mev	0.214
A2	0.430	0.439 Mev	0.432
A3	0.910	0.916 Mev	0.900
A4	2.17	2.17 Mev	2.137
A5	4.37	4.44 Mev	4.277
A6	8.42	8.74 Mev	8.580
A7	18.90	19.2 Mev	18.97
A8*	170.3	170.3 Mev	170.3
B1	0.206	0.207 Mev	0.211
B2	0.451	0.438 Mev	0.432
B3	0.813	0.789 Mev	0.805
B4	3.85	3.826 Mev	3.817
B5	7.60	7.45 Mev	7.307
B6	14.8	14.4 Mev	14.187
B7*	60.0	60.0 Mev	60.0
C1	* 1.47	1.47 Mev	1.47
C2	2.93	2.86 Mev	2.821
C3	3.97	3.87 Mev	3.822
C4	* 7.14	7.14 Mev	7.14
C5	* 26.9	26.9 Mev	26.9

* No inflight calibration for these levels

PARAMETERS OF ABSORBER STACK

ABSORBER THICKNESSES,MICRONS		0.347	38.700	900.000	2700.000	14572.992	5000.000
ABSORBER MATERIAL		3.	2.	2.	2.	4.	2.
THICKNESS VARIATION,MICRONS		0.0100	3.8700	5.0000	10.0000	0.0	50.0000
CONICAL HALF ANGLE,DEGREES		0.0	0.0	0.0	0.0	0.0	0.0
DETECTOR NOISE,MEV		0.0	0.070	0.027	0.023	0.0	0.100
ELECTRONIC NOISE,MEV		0.0	0.0	0.0	0.0	0.0	0.0
NUMBER OF THRESHOLDS SET		0.0	8.0	8.0	5.0	0.0	1.0
THRESHOLD LEVEL NO.MEV	1	0.0	0.1700	0.1960	1.4900	0.0	0.5000
THRESHOLD LEVEL NO.MEV	2	0.0	0.2100	0.2090	2.9800	0.0	0.0
THRESHOLD LEVEL NO.MEV	3	0.0	0.4400	0.4560	3.9500	0.0	0.0
THRESHOLD LEVEL NO.MEV	4	0.0	0.9250	0.8090	6.9500	0.0	0.0
THRESHOLD LEVEL NO.MEV	5	0.0	2.3800	3.8200	26.4000	0.0	0.0
THRESHOLD LEVEL NO.MEV	6	0.0	4.4800	7.5100	0.0	0.0	0.0
THRESHOLD LEVEL NO.MEV	7	0.0	9.4800	14.8000	0.0	0.0	0.0
THRESHOLD LEVEL NO.MEV	8	0.0	21.2000	60.0000	0.0	0.0	0.0
AVERAGE PROJECTED DEPTH,MIC		0.347	38.700	900.000	2700.000	14572.992	5000.000
EST.RMS VARN.PROJ.DEPTH,MIC		0.0	0.0	0.0	0.0	0.0	0.0
NET RMS THICKNESS VARN.(MIC)		0.0100	3.8700	5.0000	10.0000	0.0	50.0000
LOWER LIMIT THICKNESS(MIC)		0.337	34.830	895.000	2689.999	14572.992	4949.999
UPPER LIMIT THICKNESS(MIC)		0.357	42.570	904.999	2710.000	14572.992	5050.000

LOGIC TABLE FOR 3 CHANNELS

	A1			B4			$\overline{B5}$			$\overline{C1}$			$\overline{M}$													
2	2	1	3	5	1	5	6	-1	4	1	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	P5
	A1			B7			$\overline{M1}$																			
2	2	1	3	8	1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Z4
	B4			$\overline{B7}$			C4			$\overline{M}$																
3	5	1	3	8	-1	4	4	1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	P7

LOGICAL CHANNEL EFFICIENCIES FOR PARTICLES OF Z = 1. AND A = 1.

EINC	P5	Z4	P7	
0.1050	0.0	0.0	0.0	0.105
0.1200	0.0	0.0	0.0	0.120
0.1400	0.0	0.0	0.0	0.140
0.1600	0.0	0.0	0.0	0.160
0.1900	0.0	0.0	0.0	0.190
0.2300	0.0	0.0	0.0	0.230
0.2600	0.0	0.0	0.0	0.260
0.3100	0.0	0.0	0.0	0.310
0.3600	0.0	0.0	0.0	0.360
0.4300	0.0	0.0	0.0	0.430
0.5000	0.0	0.0	0.0	0.500
0.5900	0.0	0.0	0.0	0.590
0.6900	0.0	0.0	0.0	0.690
0.8100	0.0	0.0	0.0	0.810
0.9500	0.0	0.0	0.0	0.950
1.1000	0.0	0.0	0.0	1.100
1.3000	0.0	0.0	0.0	1.300
1.5000	0.0	0.0	0.0	1.500
1.7000	0.0	0.0	0.0	1.700
2.0000	0.0	0.0	0.0	2.000
2.4000	0.0	0.0	0.0	2.400
2.8000	0.0	0.0	0.0	2.800
3.3000	0.0	0.0	0.0	3.300
3.9000	0.0	0.0	0.0	3.900
4.5000	1.000	0.0	0.0	4.500
5.3000	1.000	0.0	0.0	5.300
6.2000	1.000	0.0	0.0	6.200
7.3000	1.000	0.0	0.0	7.300
8.5000	0.0	0.0	0.0	8.500
10.0000	0.0	0.0	0.0	10.000
11.0000	0.0	0.0	0.0	11.000
13.0000	0.0	0.0	0.0	13.000
16.0000	0.0	0.0	1.000	16.000
18.0000	0.0	0.0	1.000	18.000
22.0000	0.0	0.0	1.000	22.000
25.0000	0.0	0.0	0.999	25.000
30.0000	0.0	0.0	0.0	30.000
35.0000	0.0	0.0	0.0	35.000
41.0000	0.0	0.0	0.0	41.000
48.0000	0.0	0.0	0.0	48.000
56.0000	0.0	0.0	0.0	56.000
66.0000	0.0	0.0	0.0	66.000
77.0000	0.0	0.0	0.0	77.000
91.0000	0.0	0.0	0.0	91.000
100.0000	0.0	0.0	0.0	100.000
120.0000	0.0	0.0	0.0	120.000
140.0000	0.0	0.0	0.0	140.000
170.0000	0.0	0.0	0.0	170.000
190.0000	0.0	0.0	0.0	190.000

LOGICAL CHANNEL EFFICIENCIES FOR PARTICLES OF Z = 2. AND A = 4.

EINC	P5	Z4	P7	
0.1050	0.0	0.0	0.0	0.420
0.1200	0.0	0.0	0.0	0.480
0.1400	0.0	0.0	0.0	0.560
0.1600	0.0	0.0	0.0	0.640
0.1900	0.0	0.0	0.0	0.760
0.2300	0.0	0.0	0.0	0.920
0.2600	0.0	0.0	0.0	1.040
0.3100	0.0	0.0	0.0	1.240
0.3600	0.0	0.0	0.0	1.440
0.4300	0.0	0.0	0.0	1.720
0.5000	0.0	0.0	0.0	2.000
0.5900	0.0	0.0	0.0	2.360
0.6900	0.0	0.0	0.0	2.760
0.8100	0.0	0.0	0.0	3.240
0.9500	0.0	0.0	0.0	3.800
1.1000	0.0	0.0	0.0	4.400
1.3000	0.0	0.0	0.0	5.200
1.5000	0.0	0.0	0.0	6.000
1.7000	0.0	0.0	0.0	6.800
2.0000	0.0	0.0	0.0	8.000
2.4000	1.000	0.0	0.0	9.600
2.8000	0.018	0.0	0.0	11.200
3.3000	0.0	0.0	0.0	13.200
3.9000	0.0	0.0	0.0	15.600
4.5000	0.0	0.0	0.0	18.000
5.3000	0.0	0.0	0.0	21.200
6.2000	0.0	0.0	0.0	24.800
7.3000	0.0	0.0	0.0	29.200
8.5000	0.0	0.0	0.0	34.000
10.0000	0.0	0.0	0.0	40.000
11.0000	0.0	0.0	0.0	44.000
13.0000	0.0	0.0	1.000	52.000
16.0000	0.0	0.0	1.000	64.000
18.0000	0.0	0.0	1.000	72.000
22.0000	0.0	0.0	1.000	88.000
25.0000	0.0	0.0	1.000	100.000
30.0000	0.0	0.0	1.000	120.000
35.0000	0.0	0.0	1.000	140.000
41.0000	0.0	0.0	1.000	164.000
48.0000	0.0	0.0	1.000	192.000
56.0000	0.0	0.0	1.000	224.000
66.0000	0.0	0.0	1.000	264.000
77.0000	0.0	0.0	1.000	308.000
91.0000	0.0	0.0	1.000	364.000
100.0000	0.0	0.0	1.000	400.000
120.0000	0.0	0.0	1.000	480.000
140.0000	0.0	0.0	0.789	560.000
170.0000	0.0	0.0	0.0	680.000
190.0000	0.0	0.0	0.0	760.000

LOGICAL CHANNEL EFFICIENCIES FOR PARTICLES OF Z = 6. AND A = 12.

EINC	P5	Z4	P7	
0.1050	0.0	0.0	0.0	1.260
0.1200	0.0	0.0	0.0	1.440
0.1400	0.0	0.0	0.0	1.680
0.1600	0.0	0.0	0.0	1.920
0.1900	0.0	0.0	0.0	2.280
0.2300	0.0	0.0	0.0	2.760
0.2600	0.0	0.0	0.0	3.120
0.3100	0.0	0.0	0.0	3.720
0.3600	0.0	0.0	0.0	4.320
0.4300	0.0	0.0	0.0	5.160
0.5000	0.0	0.0	0.0	6.000
0.5900	0.0	0.0	0.0	7.080
0.6900	0.0	0.0	0.0	8.280
0.8100	0.0	0.0	0.0	9.720
0.9500	0.0	0.0	0.0	11.400
1.1000	0.0	0.0	0.0	13.200
1.3000	0.0	0.0	0.0	15.600
1.5000	0.0	0.0	0.0	18.000
1.7000	0.0	0.0	0.0	20.400
2.0000	0.0	0.0	0.0	24.000
2.4000	0.0	0.0	0.0	28.800
2.8000	0.0	0.0	0.0	33.600
3.3000	1.000	0.0	0.0	39.600
3.9000	0.0	0.0	0.0	46.800
4.5000	0.0	0.0	0.0	54.000
5.3000	0.0	0.0	0.0	63.600
6.2000	0.0	0.0	0.0	74.400
7.3000	0.0	1.000	0.0	87.600
8.5000	0.0	1.000	0.0	102.000
10.0000	0.0	1.000	0.0	120.000
11.0000	0.0	1.000	0.0	132.000
13.0000	0.0	1.000	0.0	156.000
16.0000	0.0	1.000	0.0	192.000
18.0000	0.0	1.000	0.0	216.000
22.0000	0.0	1.000	0.0	264.000
25.0000	0.0	1.000	0.0	300.000
30.0000	0.0	1.000	0.0	360.000
35.0000	0.0	1.000	0.0	420.000
41.0000	0.0	1.000	0.0	492.000
48.0000	0.0	1.000	0.0	576.000
56.0000	0.0	1.000	0.0	672.000
66.0000	0.0	1.000	0.0	792.000
77.0000	0.0	0.0	1.000	924.000
91.0000	0.0	0.0	1.000	1092.000
100.0000	0.0	0.0	1.000	1200.000
120.0000	0.0	0.0	1.000	1440.000
140.0000	0.0	0.0	1.000	1680.000
170.0000	0.0	0.0	1.000	2040.000
190.0000	0.0	0.0	1.000	2280.000

LOGICAL CHANNEL EFFICIENCIES FOR PARTICLES OF Z = 8. AND A = 16.

EINC	P5	Z4	P7	
0.1050	0.0	0.0	0.0	1.680
0.1200	0.0	0.0	0.0	1.920
0.1400	0.0	0.0	0.0	2.240
0.1600	0.0	0.0	0.0	2.560
0.1900	0.0	0.0	0.0	3.040
0.2300	0.0	0.0	0.0	3.680
0.2600	0.0	0.0	0.0	4.160
0.3100	0.0	0.0	0.0	4.960
0.3600	0.0	0.0	0.0	5.760
0.4300	0.0	0.0	0.0	6.880
0.5000	0.0	0.0	0.0	8.000
0.5900	0.0	0.0	0.0	9.440
0.6900	0.0	0.0	0.0	11.040
0.8100	0.0	0.0	0.0	12.960
0.9500	0.0	0.0	0.0	15.200
1.1000	0.0	0.0	0.0	17.600
1.3000	0.0	0.0	0.0	20.800
1.5000	0.0	0.0	0.0	24.000
1.7000	0.0	0.0	0.0	27.200
2.0000	0.0	0.0	0.0	32.000
2.4000	0.0	0.0	0.0	38.400
2.8000	0.0	0.0	0.0	44.800
3.3000	0.0	0.0	0.0	52.800
3.9000	0.0	0.0	0.0	62.400
4.5000	0.0	0.0	0.0	72.000
5.3000	0.0	0.0	0.0	84.800
6.2000	0.0	1.000	0.0	99.200
7.3000	0.0	1.000	0.0	116.800
8.5000	0.0	1.000	0.0	136.000
10.0000	0.0	1.000	0.0	160.000
11.0000	0.0	1.000	0.0	176.000
13.0000	0.0	1.000	0.0	208.000
16.0000	0.0	1.000	0.0	256.000
18.0000	0.0	1.000	0.0	288.000
22.0000	0.0	1.000	0.0	352.000
25.0000	0.0	1.000	0.0	400.000
30.0000	0.0	1.000	0.0	480.000
35.0000	0.0	1.000	0.0	560.000
41.0000	0.0	1.000	0.0	656.000
48.0000	0.0	1.000	0.0	768.000
56.0000	0.0	1.000	0.0	896.000
66.0000	0.0	1.000	0.0	1056.000
77.0000	0.0	1.000	0.0	1232.000
91.0000	0.0	1.000	0.0	1456.000
100.0000	0.0	1.000	0.0	1600.000
120.0000	0.0	1.000	0.0	1920.000
140.0000	0.0	1.000	0.0	2240.000
170.0000	0.0	0.0	1.000	2720.000
190.0000	0.0	0.0	1.000	3040.000

LOGICAL CHANNEL EFFICIENCIES FOR PARTICLES OF Z = 26. AND A = 56.

EINC	P5	Z4	P7	
0.1050	0.0	0.0	0.0	5.880
0.1200	0.0	0.0	0.0	6.720
0.1400	0.0	0.0	0.0	7.840
0.1600	0.0	0.0	0.0	8.960
0.1900	0.0	0.0	0.0	10.640
0.2300	0.0	0.0	0.0	12.880
0.2600	0.0	0.0	0.0	14.560
0.3100	0.0	0.0	0.0	17.360
0.3600	0.0	0.0	0.0	20.160
0.4300	0.0	0.0	0.0	24.080
0.5000	0.0	0.0	0.0	28.000
0.5900	0.0	0.0	0.0	33.040
0.6900	0.0	0.0	0.0	38.640
0.8100	0.0	0.0	0.0	45.360
0.9500	0.0	0.0	0.0	53.200
1.1000	0.0	0.0	0.0	61.600
1.3000	0.0	0.0	0.0	72.800
1.5000	0.0	0.0	0.0	84.000
1.7000	0.0	0.0	0.0	95.200
2.0000	0.0	0.0	0.0	112.000
2.4000	0.0	0.0	0.0	134.400
2.8000	0.0	0.0	0.0	156.800
3.3000	0.0	0.0	0.0	184.800
3.9000	0.0	0.0	0.0	218.400
4.5000	0.0	0.0	0.0	252.000
5.3000	0.0	1.000	0.0	296.800
6.2000	0.0	1.000	0.0	347.200
7.3000	0.0	1.000	0.0	408.800
8.5000	0.0	1.000	0.0	476.000
10.0000	0.0	1.000	0.0	560.000
11.0000	0.0	1.000	0.0	616.000
13.0000	0.0	1.000	0.0	728.000
16.0000	0.0	1.000	0.0	896.000
18.0000	0.0	1.000	0.0	1008.000
22.0000	0.0	1.000	0.0	1232.000
25.0000	0.0	1.000	0.0	1400.000
30.0000	0.0	1.000	0.0	1680.000
35.0000	0.0	1.000	0.0	1960.000
41.0000	0.0	1.000	0.0	2296.000
48.0000	0.0	1.000	0.0	2688.000
56.0000	0.0	1.000	0.0	3136.000
66.0000	0.0	1.000	0.0	3696.000
77.0000	0.0	1.000	0.0	4312.000
91.0000	0.0	1.000	0.0	5096.000
100.0000	0.0	1.000	0.0	5600.000
120.0000	0.0	1.000	0.0	6720.000
140.0000	0.0	1.000	0.0	7840.000
170.0000	0.0	1.000	0.0	9520.000
190.0000	0.0	1.000	0.0	********

To improve CPME telescope for IMP-J
I recommend the following three changes.

① change B6 from 15 to 60 MeV

② change B5 from 7.5 to 13 MeV

③ change P6 logic from $A1\,B5\,\overline{M}$
to $A1\,\overline{A4}\,B5\,\overline{M}$

result: P6 becomes new He^4 only channel
~4.5 to 30 MeV/nuc.

$\alpha 4$ becomes new $Z \geq 3$ channel
~ 5 to 20 MeV/nuc.

$\alpha 5$ becomes new $Z \geq 3$ channel
~ 20 to 100 MeV/nuc.

P5 & P7 close up

$\alpha 3$, P6, $\alpha 6$ are ~ contiguous α's

12/11/72

Desired changes to CPME on IMP J

(1) Sectoring

"minimum" can do (a) Replace P8 & A6 with A3 & Z2

"it possible" (b) Replace P1 with 2-position subcom to P1 & P4

(P4 & E4 ?)

"best" (c) Replace E4 with 2 pos. subcom to E4 & Z3

(2) Logic & Thresholds

P7 = B4 or P7 = B4 C4 $\overline{M}$ or $\overline{B7}$ C4 $\overline{M}$

(a) Change logic in P6 from A1B5$\overline{M}$ to A1B7$\overline{M}$ (best: A1B7C1C2$\overline{M}$), subject to (b). (It would be Z4, $6 \leq E_n < 23$) ok

effect of $\overline{B7}$ on P7?

(b) Change B7 to 60 MeV (from 2.5 MeV)

→ No! (c) Change B5 to 14 MeV (from 7.5 MeV)

lose E4, E5, E6

(d) Change P10 logic from B3C2$\overline{C3}$$\overline{M}$ to B3$\overline{B4}$C2$\overline{C3}$ ($\overline{B0}$ C2$\overline{C3}$ $\overline{B4}$ $\overline{M}$) B0C2$\overline{C3}$ $\overline{B4}$ $\overline{M}$

(e) Change P7 from B4$\overline{B5}$C4$\overline{M}$ to ~~B3$\overline{B4}$C2$\overline{C3}$$\overline{M}$~~ B4$\overline{B5}$C4$\overline{C5}$$\overline{M}$

P7 { B4C4$\overline{M}$ or B4$\overline{B7}$C4$\overline{M}$

No! (f) Change P5 from A1B4B5$\overline{C1}$$\overline{M}$ to A1$\overline{A4}$B4B5$\overline{C1}$$\overline{M}$

No. (g) Change P4 from A1B1$\overline{B4}$$\overline{C1}$$\overline{M}$ to A1$\overline{A4}$B1$\overline{B4}$$\overline{C1}$$\overline{M}$

(3) Replace 1% transmission screen by an opaque screen with a 0.1mm diameter hole directly above the active area of the tube

can do