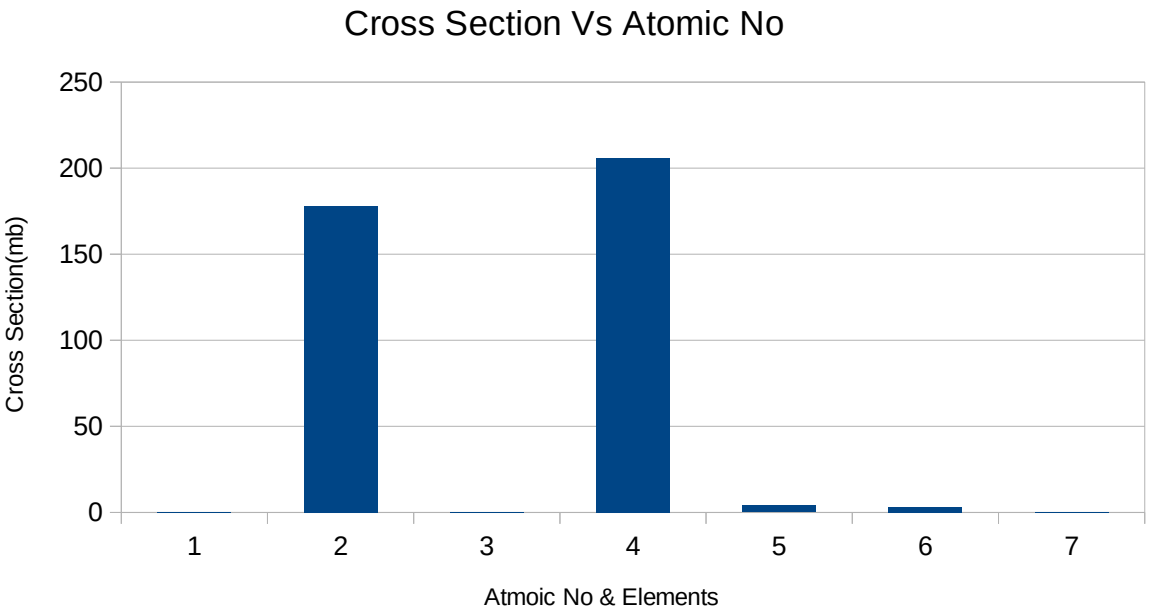
B,Pb

11B+	208Pb	=	219Fr
5	82		87

E=57Mev

	Z	N	A	events	percent	x-section(mb)
1	87	130	217 Fr	5	0,05%	0,2
2	87	129	216 Fr	4448	44,50%	178
3	86	130	216 Rn	4	0,04%	0,16
4	87	128	215 Fr	5143	51,40%	206
5	85	128	213 At	101	1,01%	4,04
6	85	127	212 At	75	0,75%	3
7	83	127	210 Bi	3	0,03%	0,12



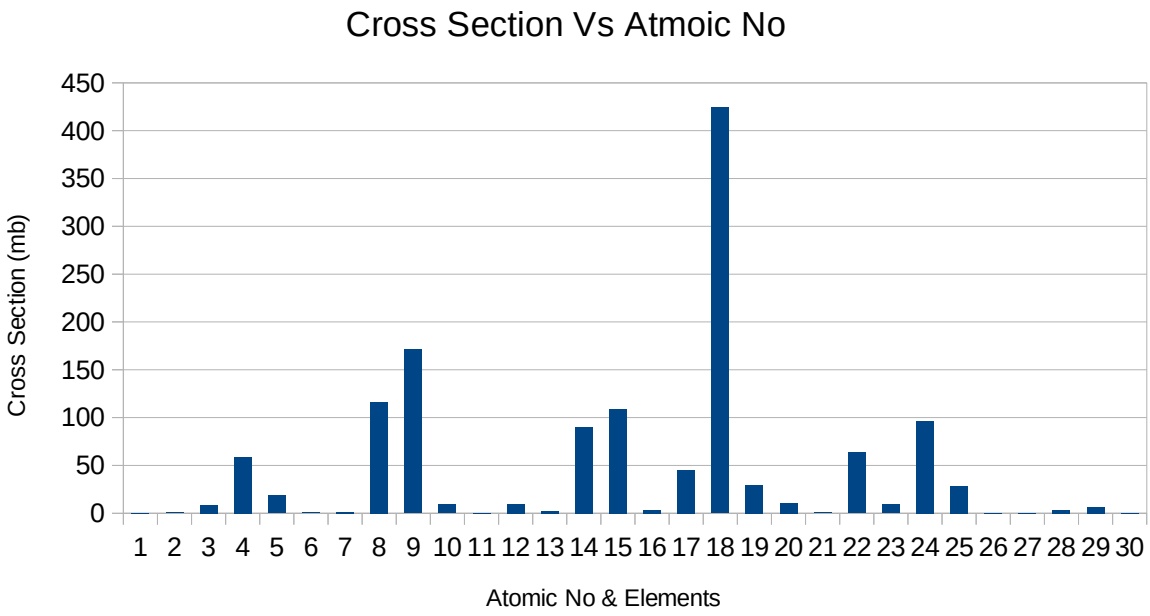
B,Fe

11B+	56Fe	=	67Ga
5	26		31

E=57Mev

	Z	N	A	events	percent	x-section(mb)
1	31	34	65 Ga	2	0,02%	0,26
2	30	35	65 Zn	5	0,05%	0,66
3	31	33	64 Ga	65	0,65%	8,57
4	30	34	64 Zn	446	4,46%	58,8
5	29	35	64 Cu	142	1,42%	18,7
6	28	36	64 Ni	5	0,05%	0,66
7	31	32	63 Ga	12	0,12%	1,58
8	30	33	63 Zn	879	8,79%	116
9	29	34	63 Cu	1293	12,90%	171
10	28	35	63 Ni	70	0,70%	9,23
11	30	32	62 Zn	2	0,02%	0,26
12	29	33	62 Cu	74	0,74%	9,76
13	28	34	62 Ni	20	0,20%	2,64
14	29	32	61 Cu	684	6,84%	90,2
15	28	33	61 Ni	826	8,26%	109
16	27	34	61 Co	25	0,25%	3,3
17	29	31	60 Cu	344	3,44%	45,4
18	28	32	60 Ni	3217	32,20%	424
19	27	33	60 Co	223	2,23%	29,4
20	28	31	59 Ni	80	0,80%	10,6
21	27	32	59 Co	6	0,06%	0,79
22	27	31	58 Co	483	4,83%	63,7
23	26	32	58 Fe	68	0,68%	8,97
24	27	30	57 Co	733	7,33%	96,7
25	26	31	57 Fe	216	2,16%	28,5
26	25	32	57 Mn	1	0,01%	0,13
27	26	30	56 Fe	2	0,02%	0,26
28	25	30	55 Mn	27	0,27%	3,56
29	25	29	54 Mn	48	0,48%	6,33
30	24	30	54 Cr	2	0,02%	0,26

B,Fe

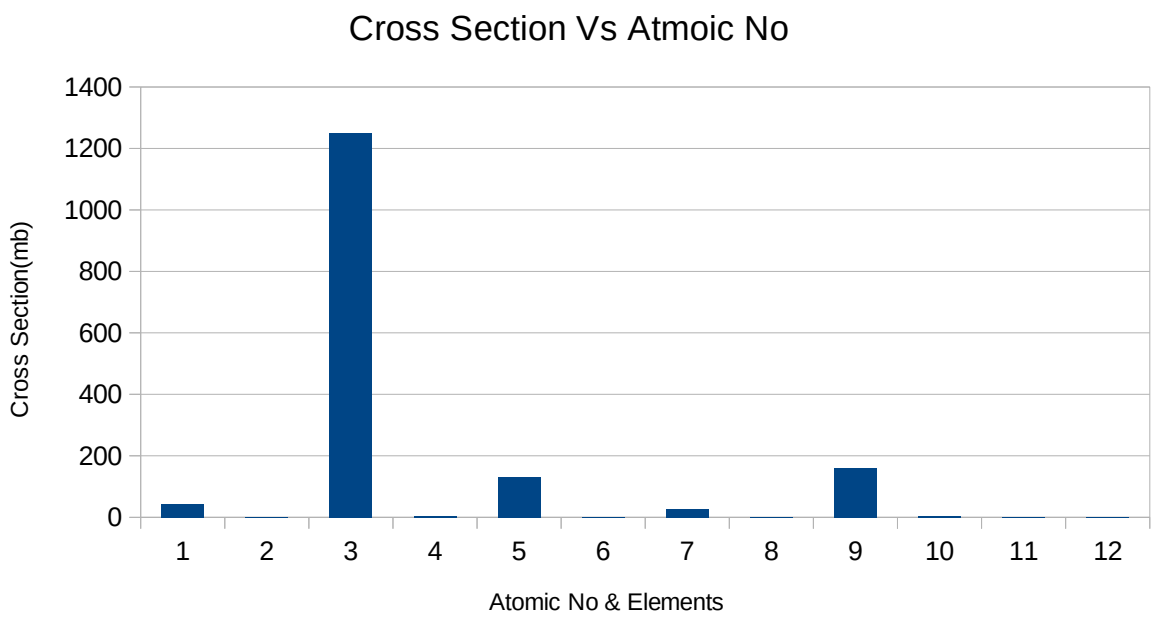

Cross Section Vs Atmoic No
Cross Section (mb)
450
400
350
300
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Atomic No & Elements

Li,Pb

7Li+	208Pb	=	215At
3	82		85

E=57Mev

	Z	N	A	events	percent	x-section(mb)
1	85	126	211 At	271	2,71%	44,3
2	84	127	211 Po	2	0,02%	0,33
3	85	125	210 At	7642	76,40%	1,25E+03
4	84	126	210 Po	24	0,24%	3,93
5	85	124	209 At	809	8,09%	132
6	84	125	209 Po	1	0,01%	0,16
7	83	125	208 Bi	166	1,66%	27,2
8	82	126	208 Pb	1	0,01%	0,16
9	83	124	207 Bi	977	9,77%	160
10	83	123	206 Bi	24	0,24%	3,93
11	81	124	205 Tl	1	0,01%	0,16
12	81	123	204 Tl	1	0,01%	0,16

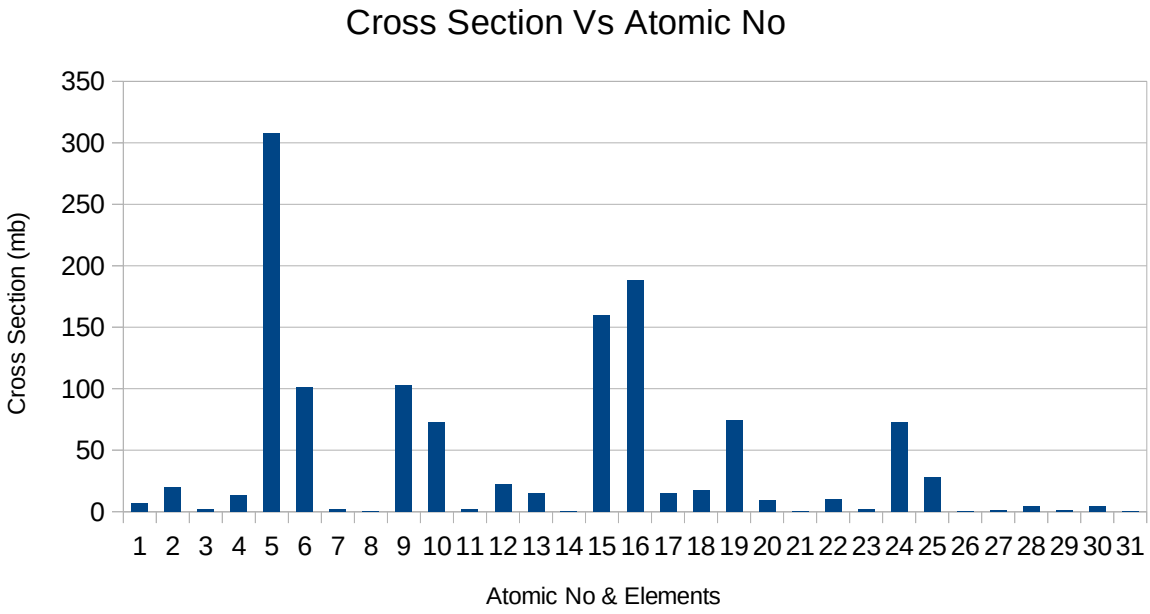


Li,Fe

7Li+	56Fe	=	63Cu
3	26		29

E=57Mev

	Z	N	A	events	percent	x-section(mb)
1	29	31	60 Cu	56	0,56%	7,04
2	28	32	60 Ni	157	1,57%	19,7
3	27	33	60 Co	13	0,13%	1,63
4	29	30	59 Cu	107	1,07%	13,5
5	28	31	59 Ni	2452	24,50%	308
6	27	32	59 Co	801	8,01%	101
7	26	33	59 Fe	18	0,18%	2,26
8	29	29	58 Cu	2	0,02%	0,25
9	28	30	58 Ni	818	8,18%	103
10	27	31	58 Co	578	5,78%	72,7
11	26	32	58 Fe	18	0,18%	2,26
12	27	30	57 Co	175	1,75%	22
13	26	31	57 Fe	118	1,18%	14,8
14	25	32	57 Mn	6	0,06%	0,75
15	27	29	56 Co	1269	12,70%	160
16	26	30	56 Fe	1497	15,00%	188
17	25	31	56 Mn	120	1,20%	15,1
18	27	28	55 Co	136	1,36%	17,1
19	26	29	55 Fe	592	5,92%	74,4
20	25	30	55 Mn	74	0,74%	9,3
21	24	31	55 Cr	1	0,01%	0,13
22	25	29	54 Mn	82	0,82%	10,3
23	24	30	54 Cr	16	0,16%	2,01
24	25	28	53 Mn	578	5,78%	72,7
25	24	29	53 Cr	226	2,26%	28,4
26	23	30	53 V	1	0,01%	0,13
27	25	27	52 Mn	11	0,11%	1,38
28	24	28	52 Cr	33	0,33%	4,15
29	23	28	51 V	7	0,07%	0,88
30	23	27	50 V	35	0,35%	4,4
31	22	28	50 Ti	3	0,03%	0,38

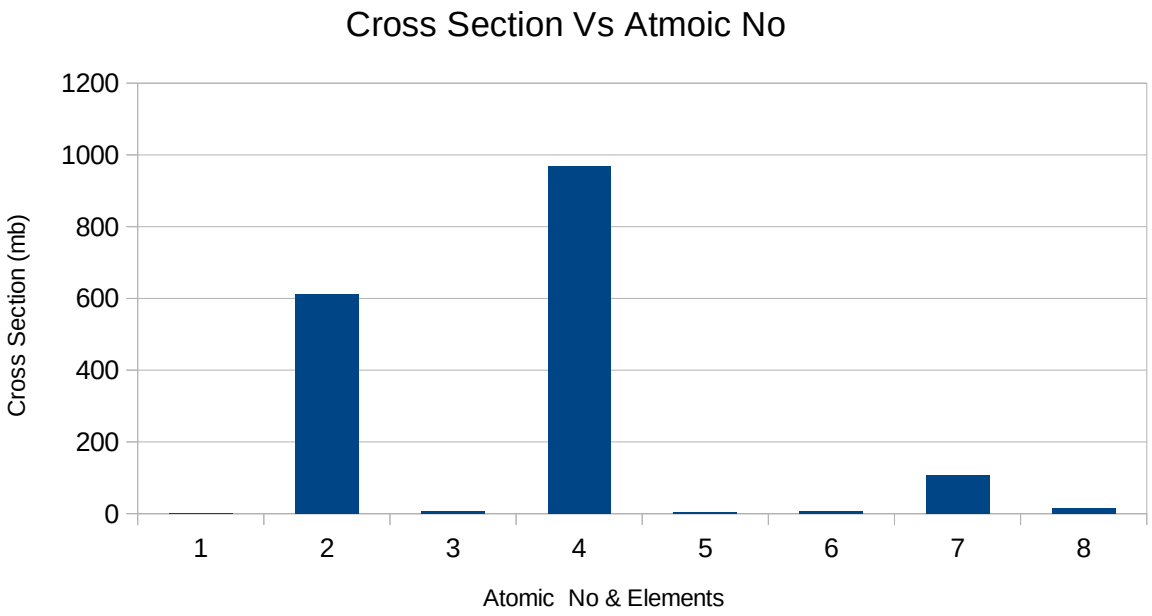

Cross Section Vs Atomic No
Cross Section (mb)
350
300
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Atomic No & Elements

He,Pb

4He+	208Pb	=	212Po
2	82		84

E=57Mev

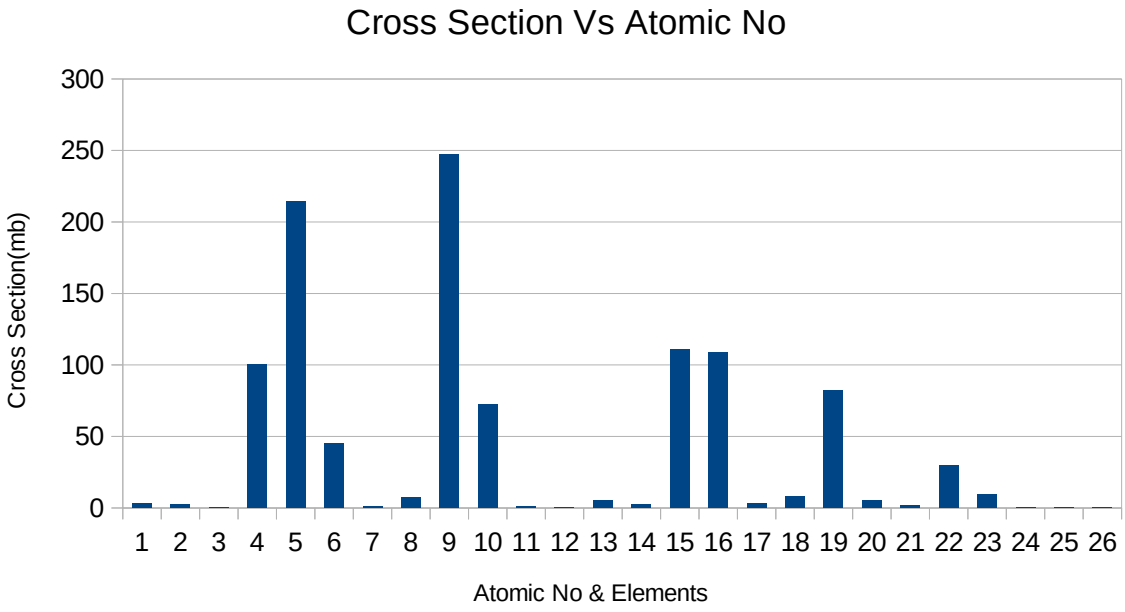
	Z	N	A	events	percent	x-section(mb)
1	84	125	209 Po	6	0,06%	1,11
2	84	124	208 Po	3323	33,20%	613
3	83	125	208 Bi	32	0,32%	5,9
4	84	123	207 Po	5246	52,50%	968
5	83	124	207 Bi	15	0,15%	2,77
6	82	124	206 Pb	33	0,33%	6,09
7	82	123	205 Pb	587	5,87%	108
8	82	122	204 Pb	89	0,89%	16,4



4He+	56Fe+	=	60Ni
2	26		28

E=57Mev

	Z	N	A	events	percent	x-section(mb)
1	28	30	58 Ni	30	0,30%	3,18
2	27	31	58 Co	25	0,25%	2,65
3	26	32	58 Fe	2	0,02%	0,21
4	28	29	57 Ni	943	9,43%	100
5	27	30	57 Co	2013	20,10%	214
6	26	31	57 Fe	422	4,22%	44,8
7	25	32	57 Mn	7	0,07%	0,74
8	28	28	56 Ni	71	0,71%	7,53
9	27	29	56 Co	2327	23,30%	247
10	26	30	56 Fe	682	6,82%	72,4
11	25	31	56 Mn	8	0,08%	0,85
12	27	28	55 Co	1	0,01%	0,11
13	26	29	55 Fe	51	0,51%	5,41
14	25	30	55 Mn	20	0,20%	2,12
15	26	28	54 Fe	1048	10,50%	111
16	25	29	54 Mn	1024	10,20%	109
17	24	30	54 Cr	30	0,30%	3,18
18	26	27	53 Fe	75	0,75%	7,96
19	25	28	53 Mn	775	7,75%	82,2
20	24	29	53 Cr	46	0,46%	4,88
21	24	28	52 Cr	17	0,17%	1,8
22	24	27	51 Cr	279	2,79%	29,6
23	23	28	51 V	92	0,92%	9,76
24	24	26	50 Cr	4	0,04%	0,42
25	23	27	50 V	4	0,04%	0,42
26	22	26	48 Ti	4	0,04%	0,42


Cross Section Vs Atomic No
Cross Section(mb)
300
250
200
150
100
50
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Atomic No & Elements