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ENDF/B-VII.1
versus
ENDFB/-VII.0:
What's Different?

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Overview

Recently the new ENDF/B-VII.1 library was released; this completely replaces the earlier ENDF/B-VII.0 library. One of the first questions we ask about a new library is: **What's Different?** Here I attempt to at least partially answer this question. I present results in both tabulated form (so you can quickly determine if any evaluations of interest to you have changed), and graphic form (so that you can see how much evaluations have changed and in what energy ranges).

For the table I have compared what I refer to as the ENDF neutron data, namely MF=1 through 6. Here I did a character-by-character comparison of the same sections (MF/MT) that appear I both ENDF/B-VII.0 and VII.1; here I found differences in 170 evaluations.

For the plots I have only compared the total cross sections for all evaluations that are common to both libraries, and I found that of the 423 evaluations in ENDF/B-VII.1, 120 of these have total cross sections that differ by 1% or more from the evaluation of the same isotope in ENDF/B-VII.0.

WARNING: This should be considered only a preliminary comparison; obviously there can be more subtle important differences that do not effect of total cross sections.

Here I present plots comparing the total cross section of these 120 isotopes. The plots are only broad overviews of the total cross sections over their entire energy range. If you have interest in more detailed plots for specific evaluations, you can download the evaluations [1, 2]
http://www-nds.iaea.org/point2009/pt2009.htm
http://www.nndc.bnl.gov/exfor/POINT2012/POINT2012.htm

and the PREPRO [3] codes
http://www-nds.iaea.org/ndspub/endf/prepro/

I used to prepare and view the data. This is all I needed to do my comparisons, and is all you should need to do any more detailed comparisons to meet your individual needs.

What I present in the plots is the original ENDF/B-VII.0 and VII.1 data after it has been processed by my PREPRO codes [3]; these codes linearized all of the data and added any resonance contributions to the cross sections. The result is “cold” 0 Kelvin data [1, 2]

120 Evaluations where total cross section differs by 1% or more

The below tables defines all 120 evaluations where the total cross section differs by 1% or more between ENDF/B-VII.0 and VII.1. From this table you should be able to quickly see whether or not any material of interest to you is affected; for more details see the plots later in his report.

The follow page lists all 423 evaluations included in ENDF/B-VII.1. Comparing these two tables you can see that many evaluations are identical in both ENDF/B-VII.0 and VII.1.

1-H -3	28-Ni-58	47-Ag-109	72-Hf-179	92-U -232	96-Cm-243
2-He-4	28-Ni-60	48-Cd-106	72-Hf-180	92-U -233	96-Cm-244
3-Li-6	28-Ni-61	48-Cd-108	73-Ta-181	92-U -237	96-Cm-245
4-Be-9	28-Ni-62	48-Cd-110	74-W -182	92-U -239	96-Cm-246
15-P -31	28-Ni-64	48-Cd-111	74-W -183	93-Np-235	96-Cm-247
17-Cl-35	33-As-75	48-Cd-112	74-W -184	93-Np-236	96-Cm-248
17-Cl-37	36-Kr-78	48-Cd-113	74-W -186	93-Np-237	96-Cm-249
19-K -39	36-Kr-86	48-Cd-114	75-Re-185	93-Np-238	96-Cm-250
19-K -41	39-Y -89	48-Cd-116	75-Re-187	93-Np-239	97-Bk-249
22-Ti-46	40-Zr-90	50-Sn-125	89-Ac-225	94-Pu-236	97-Bk-250
22-Ti-47	40-Zr-91	54-Xe-123	89-Ac-226	94-Pu-237	98-Cf-249
22-Ti-48	40-Zr-92	54-Xe-124	89-Ac-227	94-Pu-238	98-Cf-250
22-Ti-49	40-Zr-93	55-Cs-133	90-Th-227	94-Pu-240	98-Cf-251
22-Ti-50	40-Zr-94	60-Nd-145	90-Th-228	94-Pu-242	98-Cf-252
24-Cr-50	40-Zr-95	63-Eu-153	90-Th-229	94-Pu-244	98-Cf-253
24-Cr-52	40-Zr-96	64-Gd-157	90-Th-230	94-Pu-246	98-Cf-254
24-Cr-53	42-Mo-92	72-Hf-174	90-Th-232	95-Am-241	99-Es-253
24-Cr-54	42-Mo-95	72-Hf-176	90-Th-233	95-Am-243	99-Es-254
25-Mn-55	43-Tc-99	72-Hf-177	90-Th-234	96-Cm-241	99-Es-255
27-Co-58	45-Rh-103	72-Hf-178	91-Pa-232	96-Cm-242	100-Fm-255

423 Evaluations in VII.1 (32 new evaluations in RED)

1-H -1	20-Ca-44	32-Ge-74	42-Mo-92	49-In-115	54-Xe-131	61-Pm-147	68-Er-166	88-Ra-224	94-Pu-242
1-H -2	20-Ca-46	32-Ge-76	42-Mo-94	50-Sn-112	54-Xe-132	61-Pm-148	68-Er-167	88-Ra-225	94-Pu-243
1-H -3	20-Ca-48	33-As-74	42-Mo-95	50-Sn-113	54-Xe-133	61-Pm-148m	68-Er-168	88-Ra-226	94-Pu-244
2-He-3	21-Sc-45	33-As-75	42-Mo-96	50-Sn-114	54-Xe-134	61-Pm-149	68-Er-170	89-Ac-225	94-Pu-246
2-He-4	22-Ti-46	34-Se-74	42-Mo-97	50-Sn-115	54-Xe-135	61-Pm-151	69-Tm-168	89-Ac-226	95-Am-240
3-Li-6	22-Ti-47	34-Se-76	42-Mo-98	50-Sn-116	54-Xe-136	62-Sm-144	69-Tm-169	89-Ac-227	95-Am-241
3-Li-7	22-Ti-48	34-Se-77	42-Mo-99	50-Sn-117	55-Cs-133	62-Sm-147	69-Tm-170	90-Th-227	95-Am-242
4-Be-7	22-Ti-49	34-Se-78	42-Mo-100	50-Sn-118	55-Cs-134	62-Sm-148	71-Lu-175	90-Th-228	95-Am-242m
4-Be-9	22-Ti-50	34-Se-79	43-Tc-99	50-Sn-119	55-Cs-135	62-Sm-149	71-Lu-176	90-Th-229	95-Am-243
5-B -10	23-V -50	34-Se-80	44-Ru-96	50-Sn-120	55-Cs-136	62-Sm-150	72-Hf-174	90-Th-230	95-Am-244
5-B -11	23-V -51	34-Se-82	44-Ru-98	50-Sn-122	55-Cs-137	62-Sm-151	72-Hf-176	90-Th-231	95-Am-244m
6-C -Nat	24-Cr-50	35-Br-79	44-Ru-99	50-Sn-123	56-Ba-130	62-Sm-152	72-Hf-177	90-Th-232	96-Cm-240
7-N -14	24-Cr-52	35-Br-81	44-Ru-100	50-Sn-124	56-Ba-132	62-Sm-153	72-Hf-178	90-Th-233	96-Cm-241
7-N -15	24-Cr-53	36-Kr-78	44-Ru-101	50-Sn-125	56-Ba-133	62-Sm-154	72-Hf-179	90-Th-234	96-Cm-242
8-O -16	24-Cr-54	36-Kr-80	44-Ru-102	50-Sn-126	56-Ba-134	63-Eu-151	72-Hf-180	91-Pa-229	96-Cm-243
8-O -17	25-Mn-55	36-Kr-82	44-Ru-103	51-Sb-121	56-Ba-135	63-Eu-152	73-Ta-180	91-Pa-230	96-Cm-244
9-F -19	26-Fe-54	36-Kr-83	44-Ru-104	51-Sb-123	56-Ba-136	63-Eu-153	73-Ta-181	91-Pa-231	96-Cm-245
11-Na-22	26-Fe-56	36-Kr-84	44-Ru-105	51-Sb-124	56-Ba-137	63-Eu-154	73-Ta-182	91-Pa-232	96-Cm-246
11-Na-23	26-Fe-57	36-Kr-85	44-Ru-106	51-Sb-125	56-Ba-138	63-Eu-155	74-W -180	91-Pa-233	96-Cm-247
12-Mg-24	26-Fe-58	36-Kr-86	45-Rh-103	51-Sb-126	56-Ba-140	63-Eu-156	74-W -182	92-U -230	96-Cm-248
12-Mg-25	27-Co-58	37-Rb-85	45-Rh-105	52-Te-120	57-La-138	63-Eu-157	74-W -183	92-U -231	96-Cm-249
12-Mg-26	27-Co-58m	37-Rb-86	46-Pd-102	52-Te-122	57-La-139	64-Gd-152	74-W -184	92-U -232	96-Cm-250
13-Al-27	27-Co-59	37-Rb-87	46-Pd-104	52-Te-123	57-La-140	64-Gd-153	74-W -186	92-U -233	97-Bk-245
14-Si-28	28-Ni-58	38-Sr-84	46-Pd-105	52-Te-124	58-Ce-136	64-Gd-154	75-Re-185	92-U -234	97-Bk-246
14-Si-29	28-Ni-59	38-Sr-86	46-Pd-106	52-Te-125	58-Ce-138	64-Gd-155	75-Re-187	92-U -235	97-Bk-247
14-Si-30	28-Ni-60	38-Sr-87	46-Pd-107	52-Te-126	58-Ce-139	64-Gd-156	77-Ir-191	92-U -236	97-Bk-248
15-P -31	28-Ni-61	38-Sr-88	46-Pd-108	52-Te-127m	58-Ce-140	64-Gd-157	77-Ir-193	92-U -237	97-Bk-249
16-S -32	28-Ni-62	38-Sr-89	46-Pd-110	52-Te-128	58-Ce-141	64-Gd-158	79-Au-197	92-U -238	97-Bk-250
16-S -33	28-Ni-64	38-Sr-90	47-Ag-107	52-Te-129m	58-Ce-142	64-Gd-160	80-Hg-196	92-U -239	98-Cf-246
16-S -34	29-Cu-63	39-Y -89	47-Ag-109	52-Te-130	58-Ce-143	65-Tb-159	80-Hg-198	92-U -240	98-Cf-248
16-S -36	29-Cu-65	39-Y -90	47-Ag-110m	52-Te-132	58-Ce-144	65-Tb-160	80-Hg-199	92-U -241	98-Cf-249
17-Cl-35	30-Zn-64	39-Y -91	47-Ag-111	53-I -127	59-Pr-141	66-Dy-156	80-Hg-200	93-Np-234	98-Cf-250
17-Cl-37	30-Zn-65	40-Zr-90	48-Cd-106	53-I -129	59-Pr-142	66-Dy-158	80-Hg-201	93-Np-235	98-Cf-251
18-Ar-36	30-Zn-66	40-Zr-91	48-Cd-108	53-I -130	59-Pr-143	66-Dy-160	80-Hg-202	93-Np-236	98-Cf-252
18-Ar-38	30-Zn-67	40-Zr-92	48-Cd-110	53-I -131	60-Nd-142	66-Dy-161	80-Hg-204	93-Np-237	98-Cf-253
18-Ar-40	30-Zn-68	40-Zr-93	48-Cd-111	53-I -135	60-Nd-143	66-Dy-162	81-Tl-203	93-Np-238	98-Cf-254
19-K -39	30-Zn-70	40-Zr-94	48-Cd-112	54-Xe-123	60-Nd-144	66-Dy-163	81-Tl-205	93-Np-239	99-Es-251
19-K -40	31-Ga-69	40-Zr-95	48-Cd-113	54-Xe-124	60-Nd-145	66-Dy-164	82-Pb-204	94-Pu-236	99-Es-252
19-K -41	31-Ga-71	40-Zr-96	48-Cd-114	54-Xe-126	60-Nd-146	67-Ho-165	82-Pb-206	94-Pu-237	99-Es-253
20-Ca-40	32-Ge-70	41-Nb-93	48-Cd-115m	54-Xe-128	60-Nd-147	67-Ho-166m	82-Pb-207	94-Pu-238	99-Es-254
20-Ca-42	32-Ge-72	41-Nb-94	48-Cd-116	54-Xe-129	60-Nd-148	68-Er-162	82-Pb-208	94-Pu-239	99-Es-254m
20-Ca-43	32-Ge-73	41-Nb-95	49-In-113	54-Xe-130	60-Nd-150	68-Er-164	83-Bi-209	94-Pu-240	99-Es-255
							88-Ra-223	94-Pu-241	100-Fm-255

Detailed Differences

I have compared in more detail the original evaluations, exactly as distributed by the National Nuclear data Center (NNDC), Brookhaven. For this comparison I have not changed the original evaluations in any way; that is I have not performed any processing of the files; these are what are identified at the on-line POINT libraries as “Original” [1, 2].

Of the 423 evaluation in VII.1, 391 were also included in VII.0. I have checked what I will call the “neutron” ENDF files, MF=1 through 6, and major reactions (MT=2, 102, 18, 4 and 16), character by character for differences between the evaluations in VII.1 and VII.0. I have found differences in 170 of these evaluations, i.e., the remaining 221 evaluations are character by character identical in both libraries.

The below table summarizes my results. I have only listed results for the 170 evaluations where I found differences**. An “X” in any position indicates that both VII.1 and VII.0 include the same section (the same MF/MT), but these sections are NOT IDENTICA in VII.1 and VII.0.**.

What I have checked and listed in the below table, reading left to right,

1) The evaluation identification
2) MF=1/MT=452 = total neutrons per fission
3) MF=2 = resonance parameters

Beyond this point the organization of the table switches to group results by MT, including MT=2 (elastic), MT=102 (capture), MF=18 (fission), MT=4 (total inelastic), and M T=16 (n,2n). Under each of these 5 reactions I define whether or not I found differences in MF=3 through 6,
3 = cross sections
4 = angular distributions
5 = energy distributions
6 = double differential distributions

For example, if you look at the below table, for 17-Cl-35, I found differences for resonance parameters (MF=2), tabulated elastic cross sections (MT/MF=2/3), and tabulated capture cross sections (MT/MF=102/3).

Evaluation	MF=1	MF=2	MT=2				MT=102				MT=18				MT=4				MT=16			
MF	Nu	Res	3	4	5	6	3	4	5	6	3	4	5	6	3	4	5	6	3	4	5	6
1-H -1										X												
1-H -3																			X			
2-He-3							X															
2-He-4			X	X																		
3-Li-6			X	X											X							
4-Be-9			X				X												X			
6-C -Nat							X															
8-O -16							X															
11-Na-22		X																				
15-P -31			X				X															
16-S -33				X																		
16-S -34				X																		
17-Cl-35		X	X				X															
17-Cl-37		X	X				X															
18-Ar-40				X																		
19-K -39		X	X	X			X															
19-K -41		X	X				X															
21-Sc-45																				X		
22-Ti-46		X	X	X			X												X			X
22-Ti-47		X	X	X			X												X			X
22-Ti-48		X	X	X			X												X			X
22-Ti-49		X	X	X			X												X			X
22-Ti-50		X	X	X			X												X			X
24-Cr-50		X	X				X												X			X
24-Cr-52		X	X				X												X			X
24-Cr-53		X	X				X								X				X			X
24-Cr-54		X	X				X															
25-Mn-55		X	X	X			X								X				X			X
27-Co-58		X	X	X			X								X				X			
28-Ni-58		X	X	X			X															
28-Ni-60		X	X				X															
28-Ni-61		X	X				X												X			X
28-Ni-62		X	X				X												X			X
28-Ni-64		X	X				X												X			X
31-Ga-69																					X	
33-As-75			X	X			X								X				X			X
36-Kr-78			X	X			X												X			
36-Kr-86							X															
37-Rb-86		X																				
39-Y -89		X	X				X								X				X			
40-Zr-90		X	X	X			X			X					X				X			X
40-Zr-91		X	X	X			X								X				X			X
40-Zr-92			X	X			X								X				X			X
40-Zr-93		X	X	X			X								X				X			
40-Zr-94			X	X			X								X				X			X
40-Zr-95		X	X	X			X								X				X			
40-Zr-96			X	X			X								X				X			X
42-Mo-92		X					X															
42-Mo-95		X																				
43-Tc-99		X	X				X								X							

Evaluation	MF=1	MF=2	MT=2				MT=102				MT=18				MT=4				MT=16			
MF	Nu	Res	3	4	5	6	3	4	5	6	3	4	5	6	3	4	5	6	3	4	5	6
45-Rh-103		X																				
47-Ag-109		X	X				X								X							
48-Cd-106		X																				
48-Cd-108		X																				
48-Cd-110		X																				
48-Cd-111		X																				
48-Cd-112		X																				
48-Cd-113		X																				
48-Cd-114		X																				
48-Cd-116		X																				
50-Sn-115		X																				
50-Sn-125			X																			X
51-Sb-123				X																		
52-Te-124		X																				
52-Te-126		X																				
54-Xe-123			X	X			X												X			
54-Xe-124		X	X	X			X												X			
54-Xe-126				X																		
54-Xe-130				X																		
55-Cs-133		X																				
56-Ba-137							X															
57-La-139				X			X															
58-Ce-139																						X
58-Ce-141		X																				
60-Nd-144																						X
60-Nd-145		X																				
61-Pm-148				X																		
62-Sm-148																						X
63-Eu-152		X																				
63-Eu-153		X																				
64-Gd-157		X	X																			
72-Hf-174		X	X	X			X								X				X	X	X	
72-Hf-176		X	X	X			X								X				X	X	X	
72-Hf-177		X	X	X			X								X				X	X	X	
72-Hf-178		X	X	X			X								X				X	X	X	
72-Hf-179		X	X	X			X								X				X	X	X	
72-Hf-180		X	X	X			X								X				X	X	X	
73-Ta-181			X	X			X												X			
74-W -182		X	X	X			X								X				X			
74-W -183		X	X	X			X								X				X			
74-W -184		X	X	X			X								X				X			
74-W -186		X	X	X			X								X				X			
75-Re-185			X	X			X												X			
75-Re-187			X	X			X												X			
80-Hg-196				X																		
80-Hg-198				X																		
80-Hg-199				X																		
80-Hg-200				X																		
80-Hg-201				X																		
80-Hg-202				X																		

Evaluation	MF=1	MF=2	MT=2				MT=102				MT=18				MT=4				MT=16			
MF	Nu	Res	3	4	5	6	3	4	5	6	3	4	5	6	3	4	5	6	3	4	5	6
80-Hg-204				X																		
82-Pb-206				X																		
82-Pb-207				X																		
82-Pb-208				X																		X
89-Ac-225		X	X	X			X								X				X			
89-Ac-226		X	X	X			X								X				X			
89-Ac-227	X	X	X	X			X				X	X	X		X				X			
90-Th-227		X	X	X			X				X	X	X		X				X			
90-Th-228	X	X	X	X			X				X	X	X		X				X			
90-Th-229	X	X	X	X			X				X	X	X		X				X			
90-Th-230	X	X	X	X			X				X	X	X		X				X			
90-Th-232		X	X	X			X			X	X			X	X				X			X
90-Th-233	X	X	X	X			X				X	X	X		X				X			
90-Th-234	X	X	X	X			X				X	X	X		X				X			
91-Pa-231		X									X			X								
91-Pa-232	X	X	X	X			X				X	X	X		X				X			
91-Pa-233											X											
92-U -232	X	X	X	X			X				X	X	X		X				X			X
92-U -233	X		X	X			X								X							
92-U -234		X																				X
92-U -235		X									X		X									
92-U -236		X	X	X			X				X											X
92-U -237		X	X				X				X											X
92-U -238				X							X											
92-U -239		X	X				X				X								X			
92-U -240				X							X											
92-U -241											X											
93-Np-235	X	X	X	X			X				X		X		X				X			
93-Np-236	X	X	X	X			X				X	X	X		X				X			
93-Np-237		X	X																X			X
93-Np-238	X	X	X	X			X				X	X	X		X				X			
93-Np-239	X	X	X	X			X				X	X	X		X				X			
94-Pu-236	X	X	X	X			X				X	X	X		X				X			
94-Pu-237	X	X	X	X			X				X		X		X				X			
94-Pu-238	X	X	X	X			X				X	X	X		X				X			
94-Pu-239		X									X		X									
94-Pu-240	X		X	X			X				X	X	X		X				X			
94-Pu-241		X																				
94-Pu-242	X	X	X	X			X				X		X		X				X			
94-Pu-243											X											
94-Pu-244	X	X	X	X			X				X		X		X				X			
94-Pu-246	X	X	X	X			X				X		X		X				X			
95-Am-241		X	X				X				X				X							X
95-Am-242											X											X
95-Am-242.M											X				X							X
95-Am-243	X	X	X				X				X				X				X			
95-Am-244				X							X											
95-Am-244.M				X							X											
96-Cm-241	X	X	X	X			X				X		X		X				X			
96-Cm-242	X	X	X	X			X				X		X		X				X			

Evaluation	MF=1	MF=2	MT=2				MT=102				MT=18				MT=4				MT=16			
MF	Nu	Res	3	4	5	6	3	4	5	6	3	4	5	6	3	4	5	6	3	4	5	6
96-Cm-243		X	X	X			X				X		X		X				X			
96-Cm-244	X	X	X	X			X				X		X		X				X			
96-Cm-245	X	X	X	X			X				X		X		X				X			
96-Cm-246	X	X	X	X			X				X		X		X				X			
96-Cm-247		X	X	X			X				X		X		X				X			
96-Cm-248	X	X	X	X			X				X		X		X				X			
96-Cm-249		X	X	X			X				X		X		X				X			
96-Cm-250	X	X	X	X			X				X		X		X				X			
97-Bk-249	X	X	X	X			X				X	X	X		X				X			
97-Bk-250		X	X	X			X				X	X	X		X				X			
98-Cf-249	X	X	X	X			X				X	X	X		X				X			
98-Cf-250	X	X	X	X			X				X		X		X				X			
98-Cf-251	X	X	X	X			X				X		X		X				X			
98-Cf-252	X	X	X	X			X				X		X		X				X			
98-Cf-253	X	X	X	X			X				X	X	X									
98-Cf-254		X	X	X			X				X	X	X		X				X			
99-Es-253		X	X	X			X															
99-Es-254		X	X	X			X				X	X	X		X				X			
99-Es-255		X	X	X			X				X	X	X		X				X			
100-Fm-255	X	X	X	X			X				X	X	X		X				X			

Acknowledgments

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References

1) "**POINT 2012**: ENDF/B-VII.1 **Final** Temperature Dependent Cross Section Library", LLNL-TR-534938, January 2012, by D.E. Cullen.
http://www.nndc.bnl.gov/exfor/POINT2012/POINT2012.htm

2) "**POINT 2009**: A Temperature Dependent ENDF/B-VII.0 data Cross Section Library", June 2009, by D.E. Cullen.
http://www-nds.iaea.org/point2009/pt2009.htm

3) "**PREPRO 2010**: 2010 ENDF/B Pre-Processing Codes", IAEA-NDS-39, Rev. 14, October 2010, by D.E. Cullen; particularly the code COMPLOT, which was used to produce the plots in this report.
http://www-nds.iaea.org/ndspub/endf/prepro/

120 Plots

The following plots only present an overview of the difference in the total cross section (MF/MT=3/2) for the 120 cases where I found differences of 1% on more. For each evaluation there is only one plot covering the entire energy range of each evaluation; for most ENDF/B evaluations this spans the energy range from 10^{-5} eV to 20 MeV, or more.

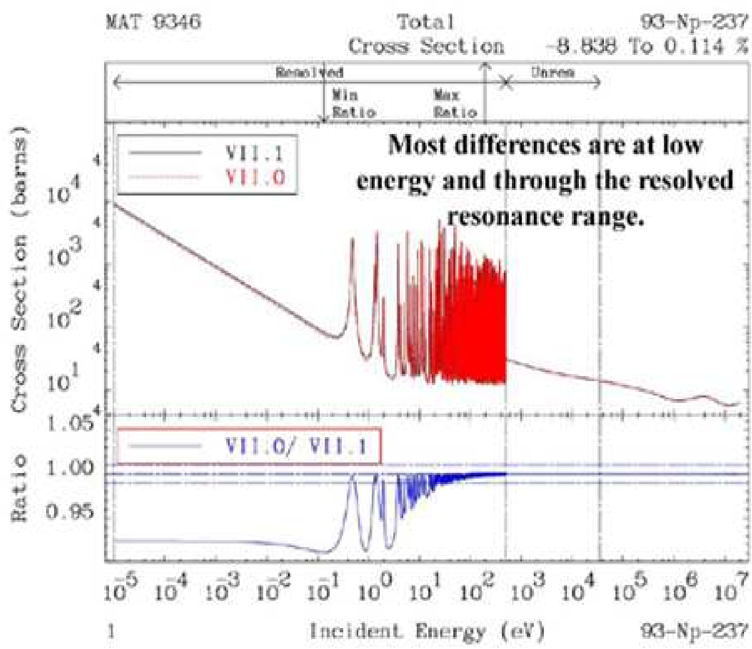
The 120 plots are grouped 4 per page, for a total of 30 pages; I judged 120 pages of plots to be excessive and larger plots add little additional information.

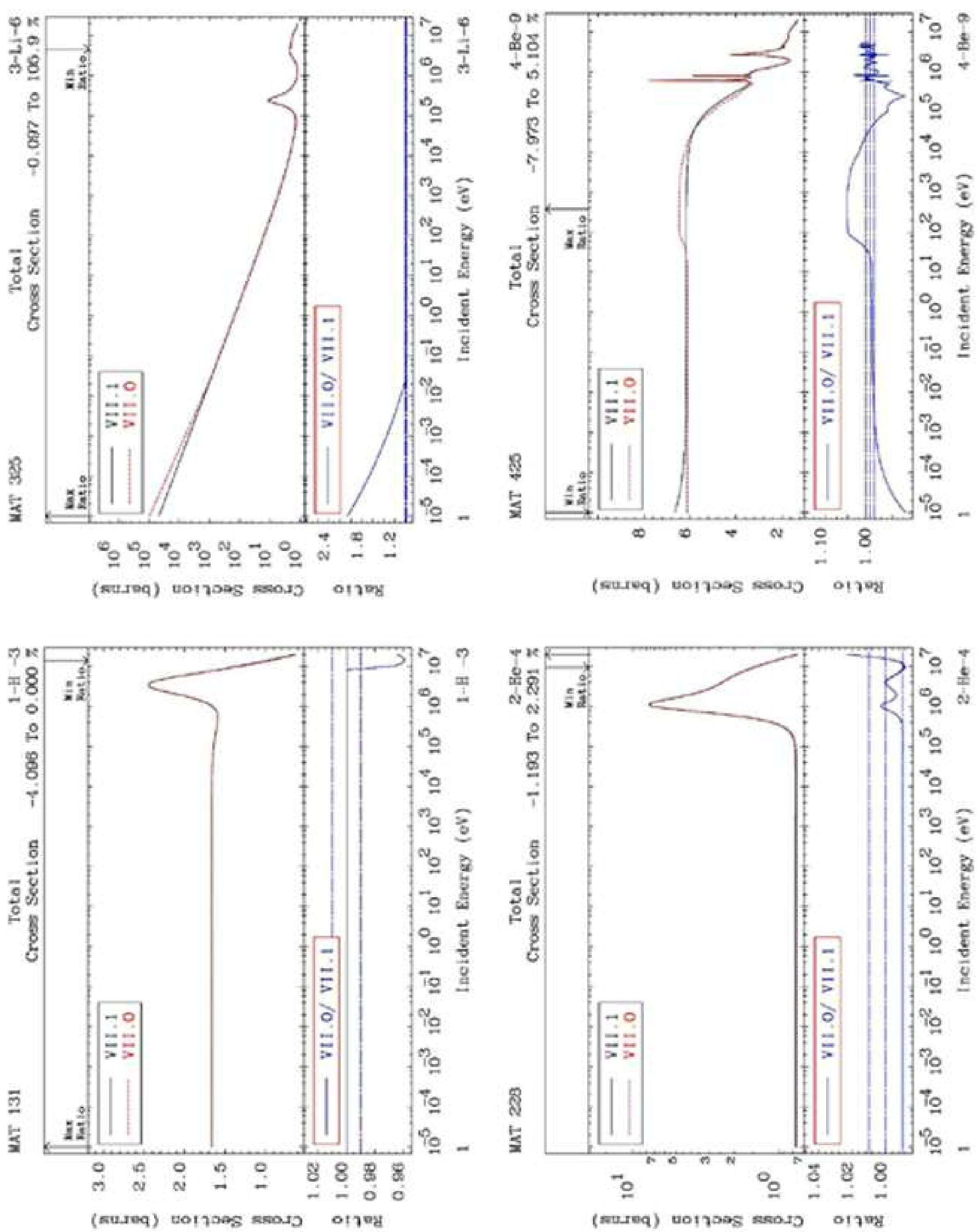
Each plot is divided into the upper two-thirds to show the total cross section for VII.1 (**black**) and VII.0 (**red**). The lower third of each plot shows the ratio of the VII.0 total divided by the VII.1 total.

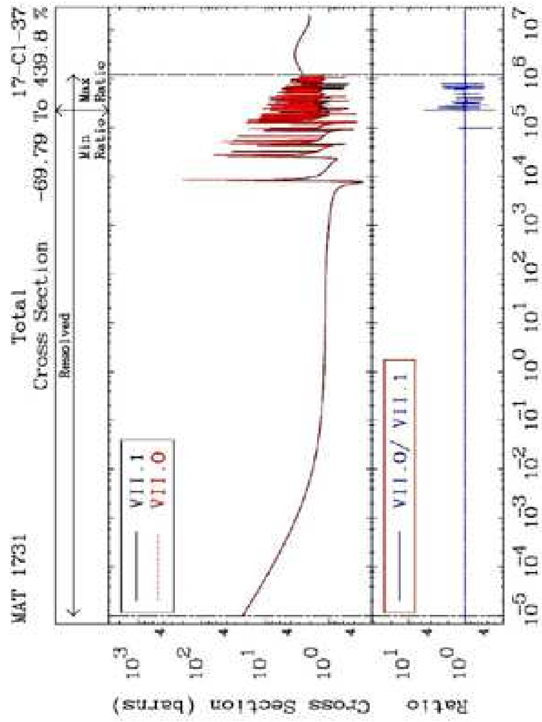
From each plot you can see,

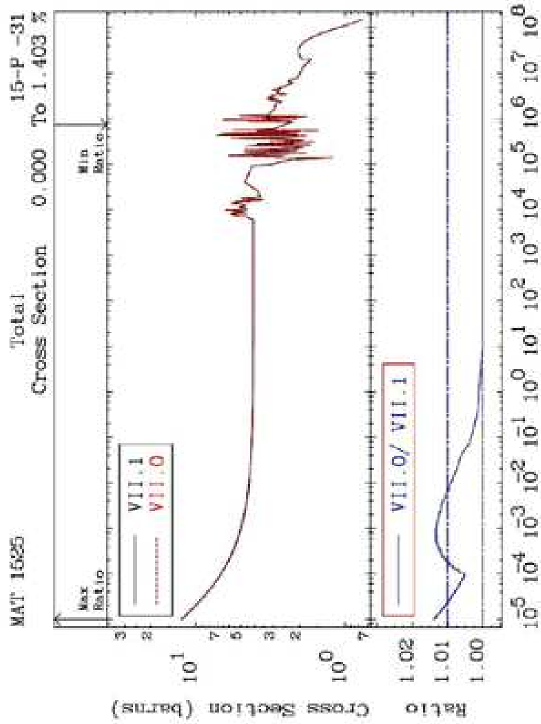
1) The isotope identification, in the upper right hand corner
2) Maximum negative and positive % differences, below isotope id
3) The energy range of resolved and unresolved energy ranges, if any
4) Vertical arrows show the position of maximum differences
5) The energy and cross section scales.

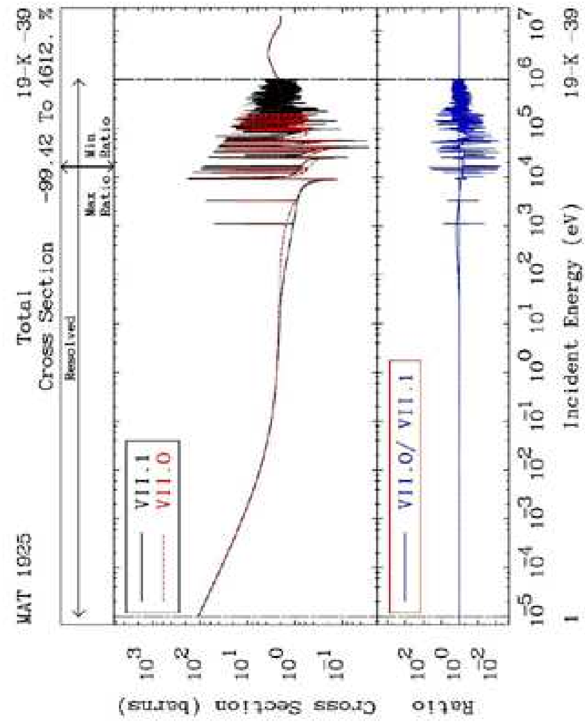
Below is an example to which I added an explanatory comment

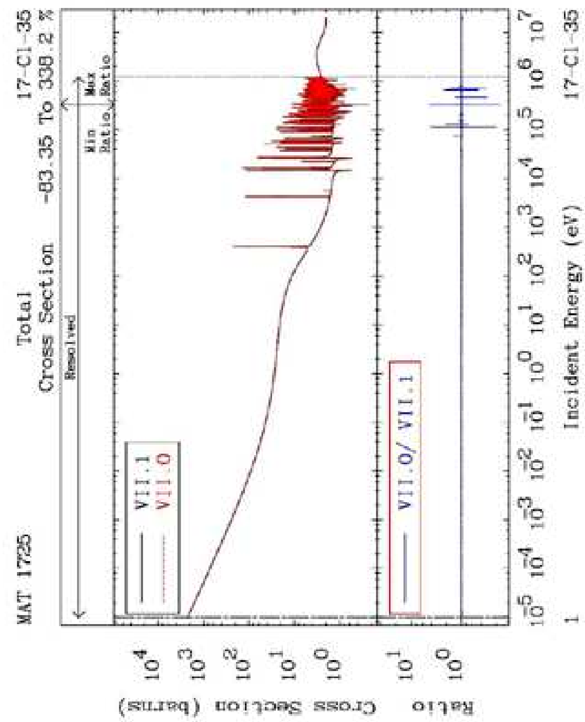


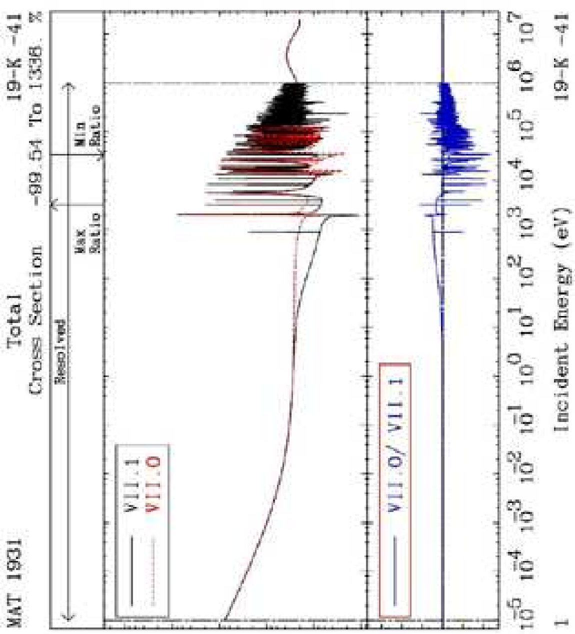

MAT 131
Total Cross Section
-4.096 To 0.000 %
1-H -3
MAT 228
Total Cross Section
-1.193 To 2.291 %
2-He-4
MAT 325
Total Cross Section
-0.097 To 105.9 %
3-Li-6
MAT 425
Total Cross Section
-7.973 To 5.104 %
4-Be-9
VII.1
VII.0
VII.0/ VII.1
Max Ratio
Min Ratio
Cross Section (barns)
Ratio
Incident Energy (eV)

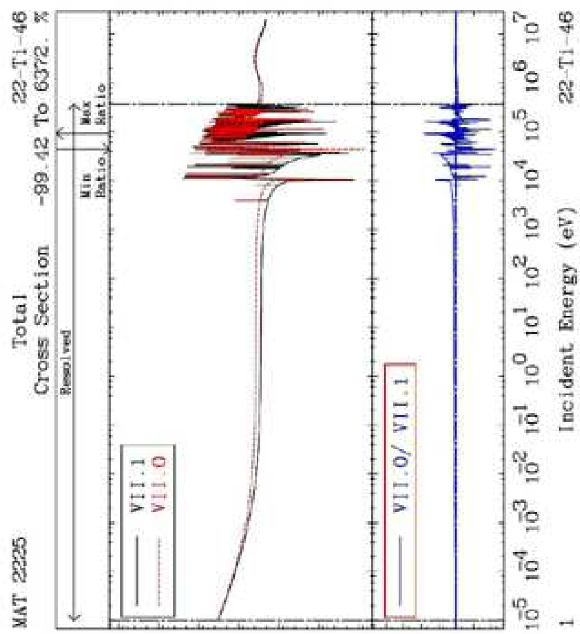

MAT 1731
Total
Cross Section
-69.79 To 439.8 %
17-Cl-37
Resolved
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

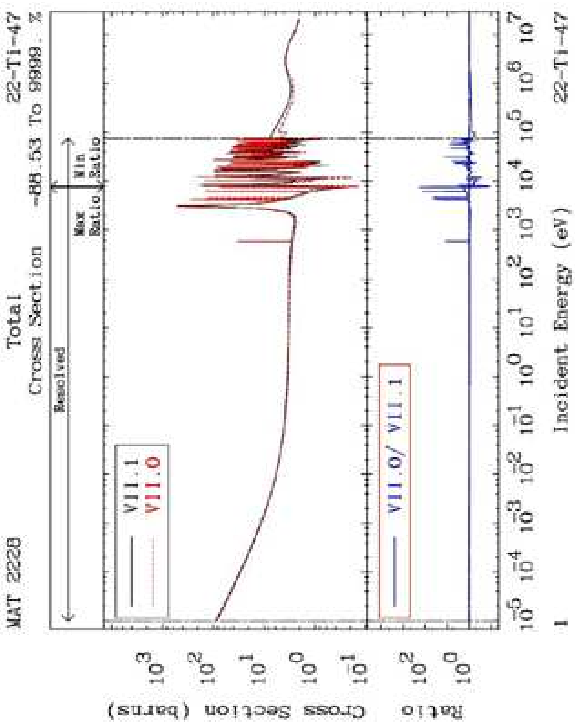

MAT 1525
Total
Cross Section
0.000 To 1.403 %
15-P -31
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

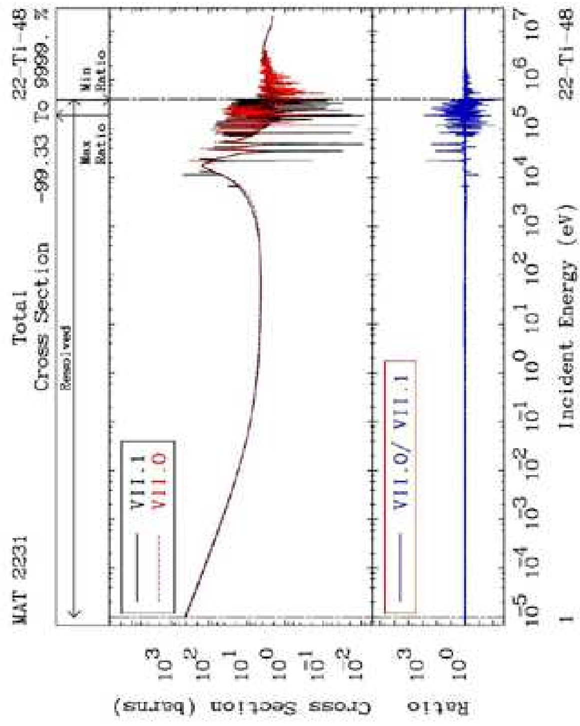

MAT 1925
Total
Cross Section
-99.42 To 4612. %
19-K -39
Resolved
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

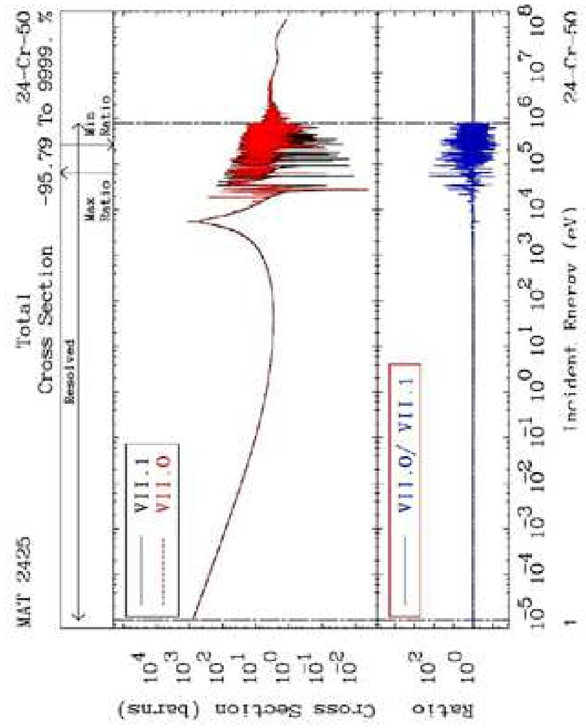

MAT 1725
Total
Cross Section
-83.35 To 338.2 %
17-Cl-35
Resolved
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

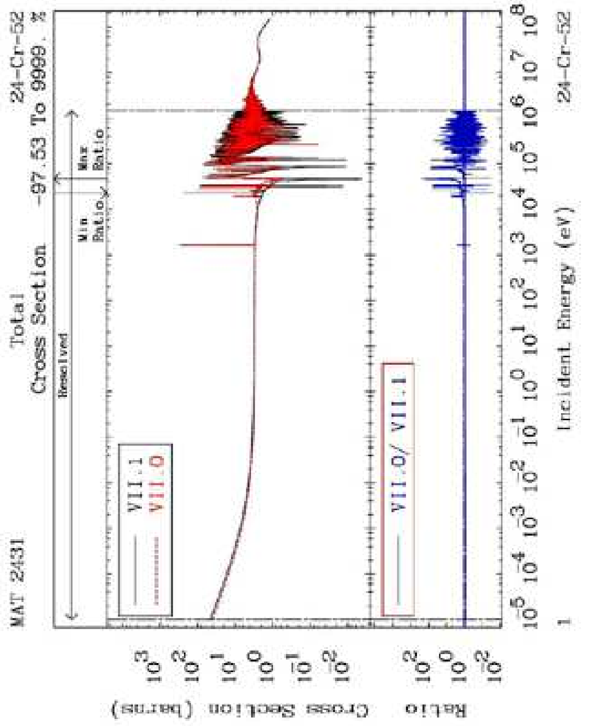

MAT 1931
Total
Cross Section
-99.54 To 1338. %
19-K -41
Resolved
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

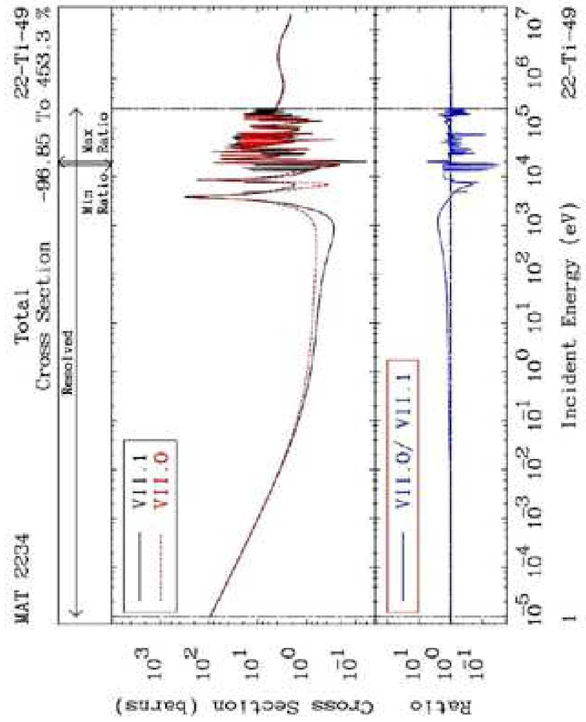

MAT 2225
Total
Cross Section
-99.42 To 6372. %
22-Ti-46
Resolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

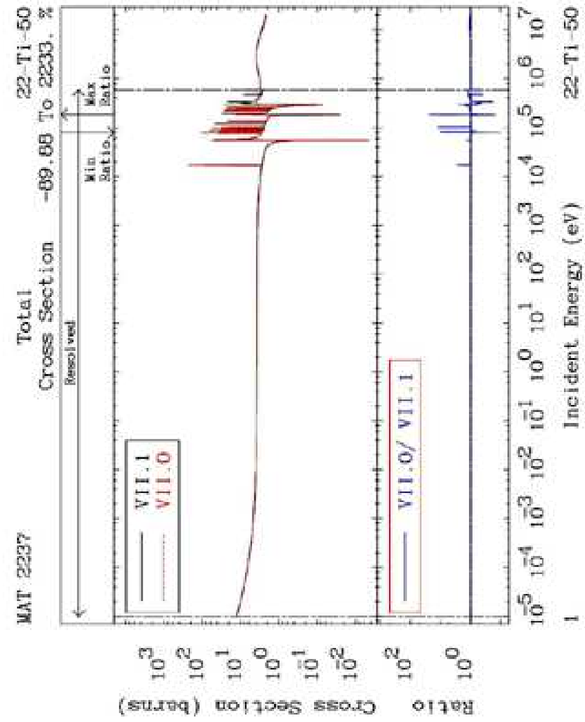

MAT 2228
Total
Cross Section
-88.53 To 9999. %
22-Ti-47
Resolved
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

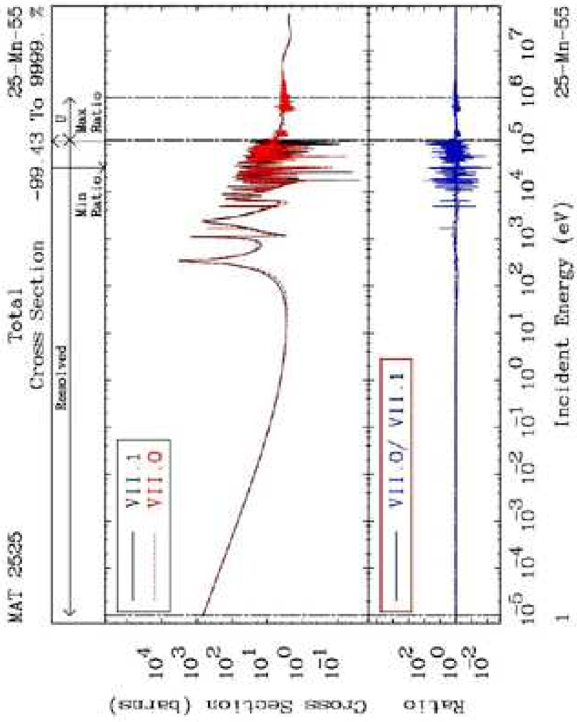
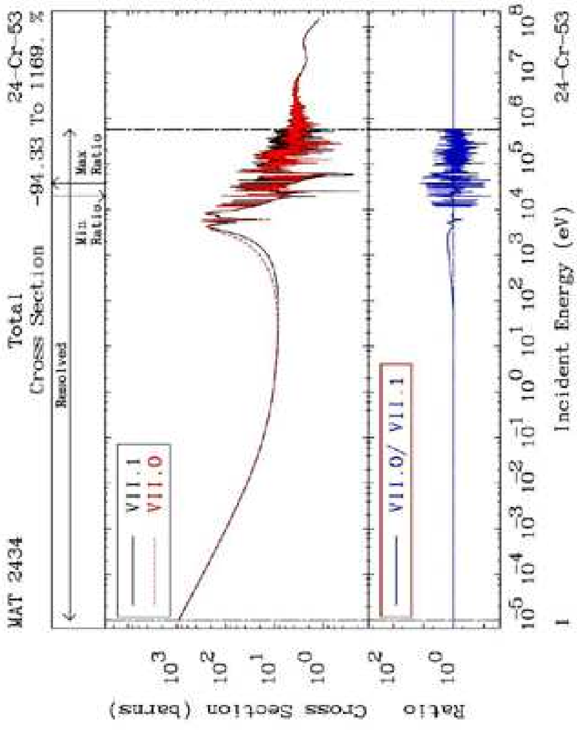
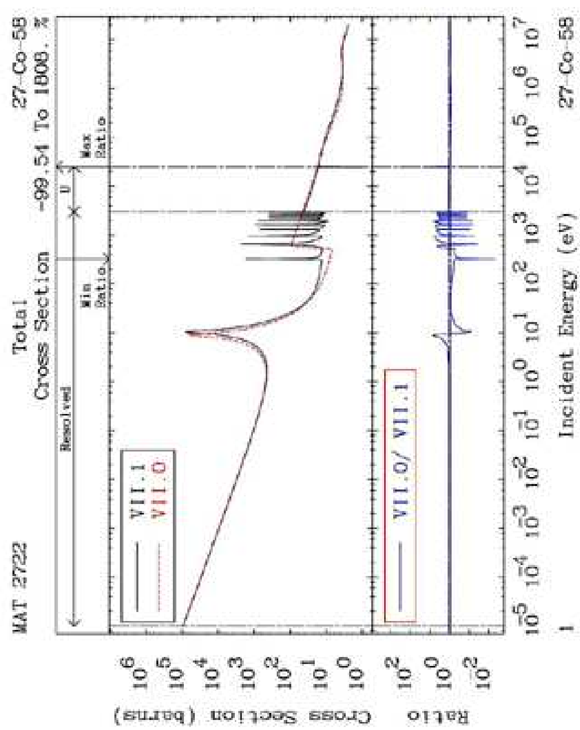
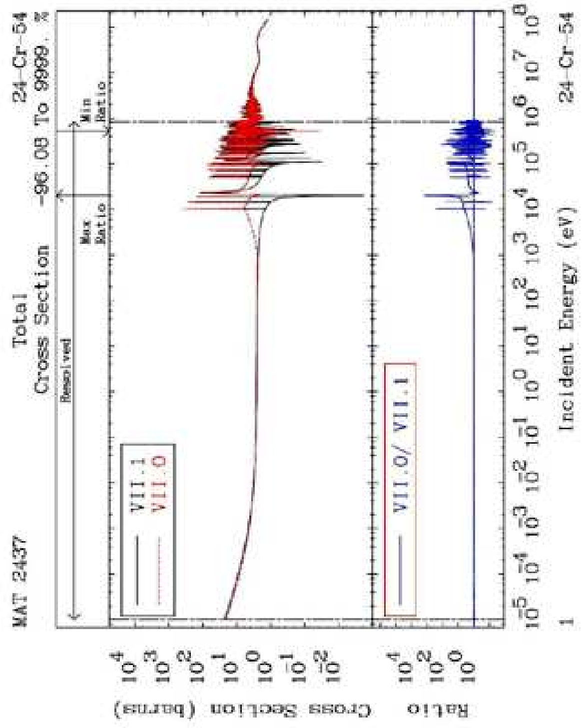

MAT 2231
Total
Cross Section
-99.33 To 9999. %
22-Ti-48
Resolved
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

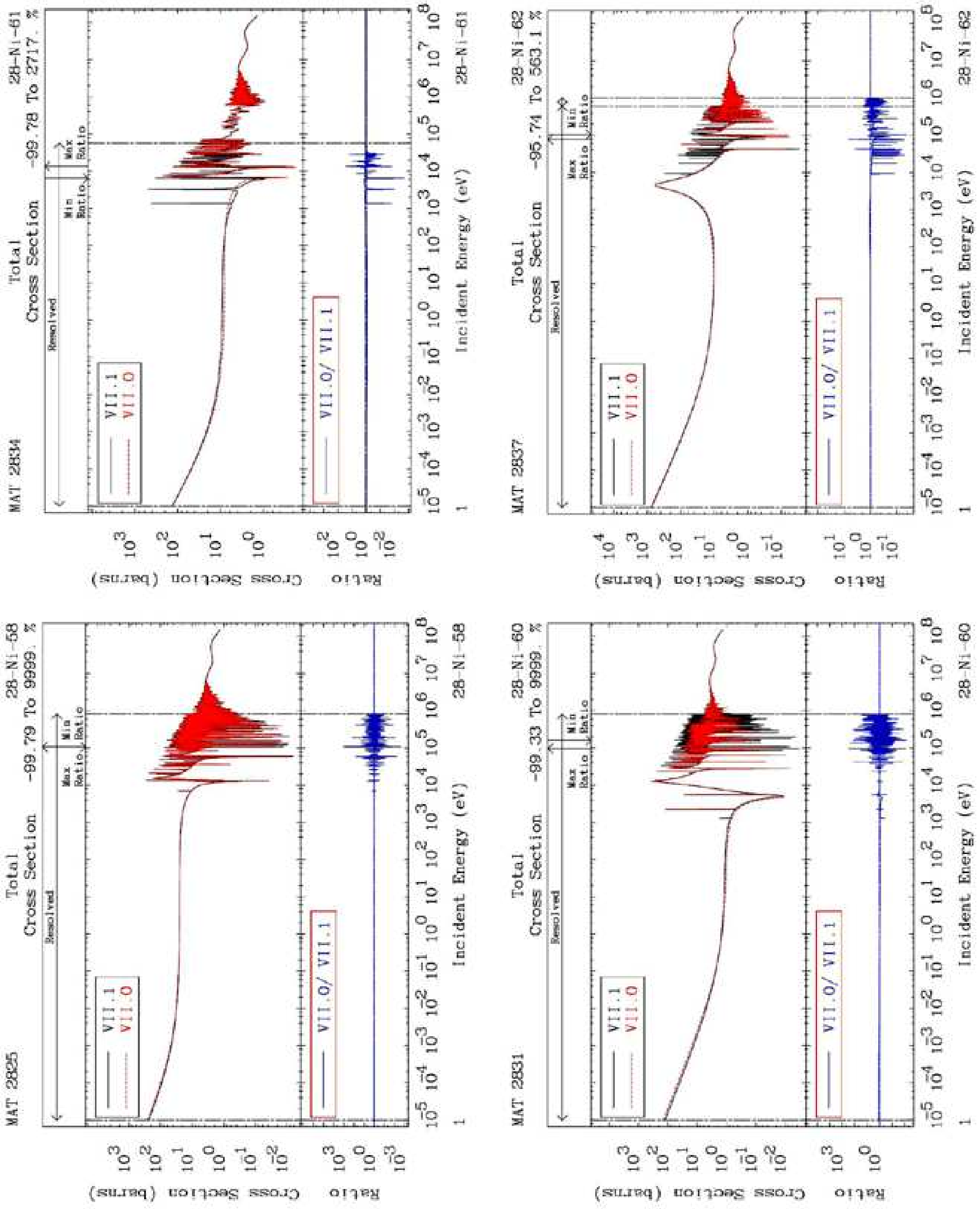

MAT 2425
Total
Cross Section
-95.79 To 9999. %
24-Cr-50
Resolved
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

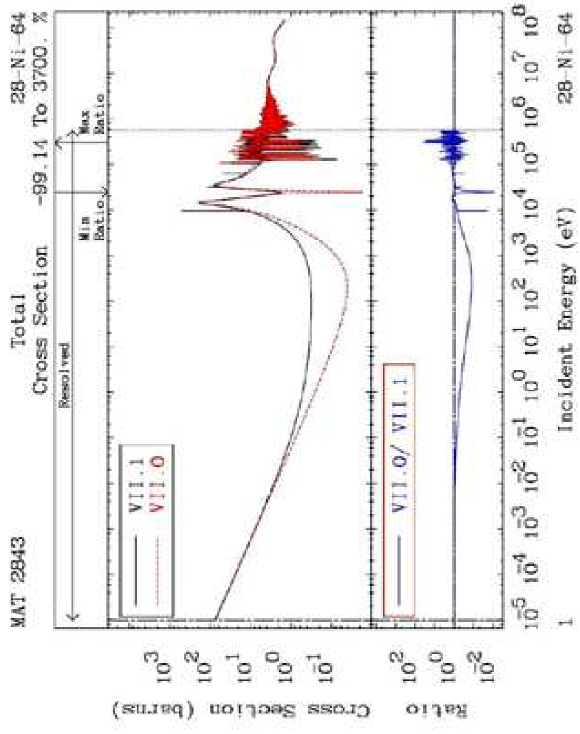

MAT 2431
Total
Cross Section
-97.53 To 9999. %
24-Cr-52
Resolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

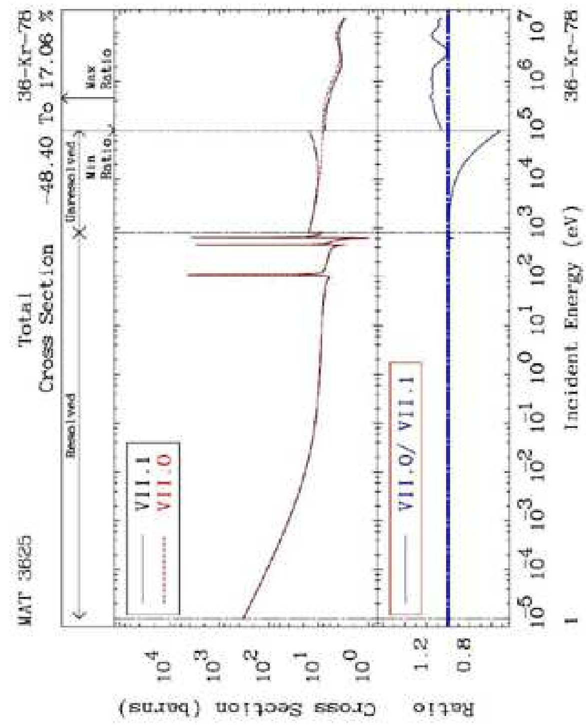

MAT 2234
Total
Cross Section
-96.85 To 453.3 %
22-Ti-49
Resolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

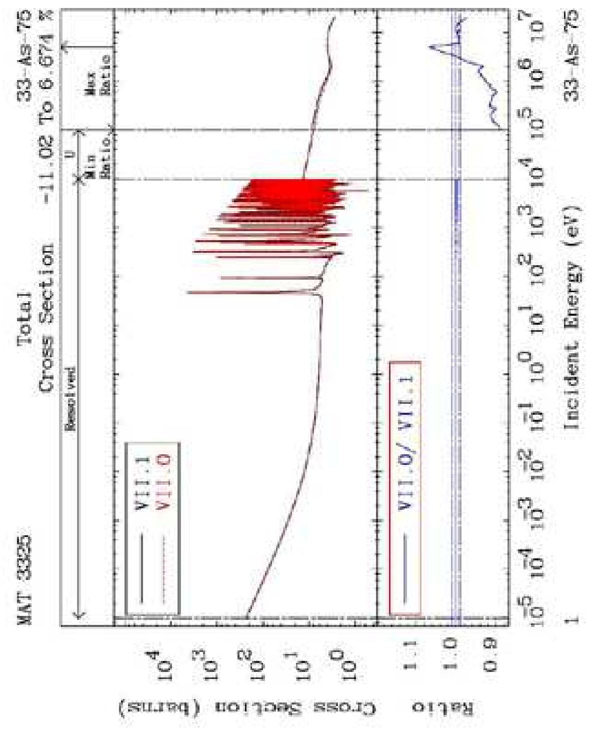

MAT 2237
Total
Cross Section
-89.68 To 2233. %
22-Ti-50
Resolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

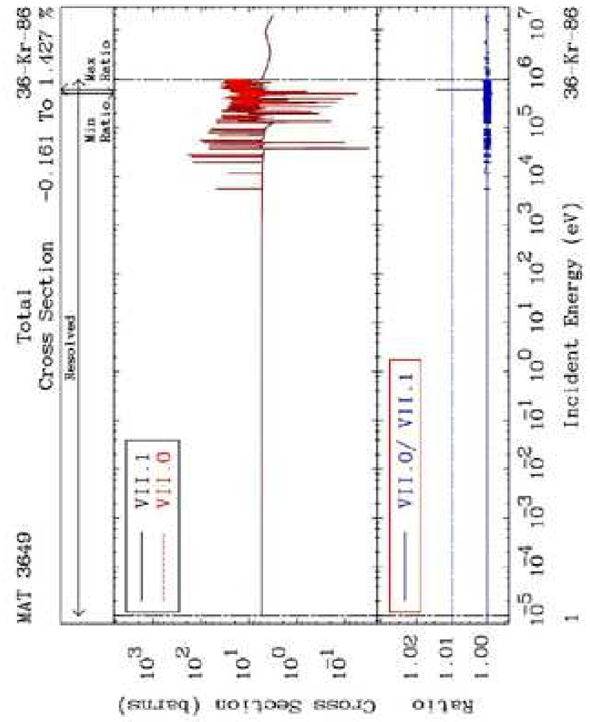





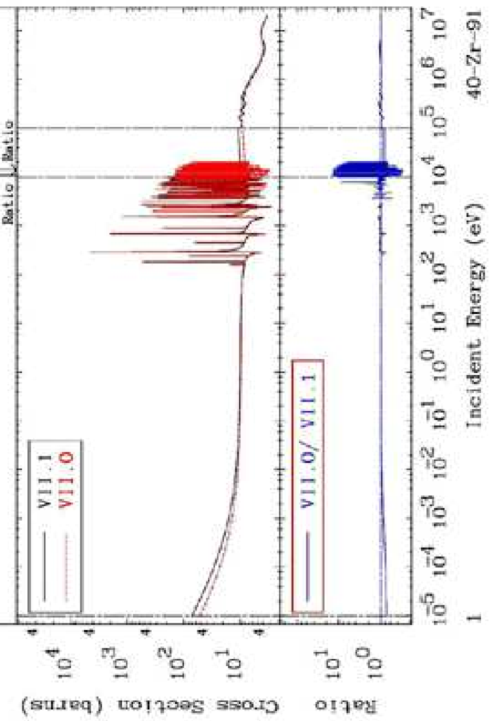

MAT 2825
Total Cross Section
28-Ni-58
-99.79 To 9999. %
MAT 2834
Total Cross Section
28-Ni-61
-99.78 To 2717. %
MAT 2831
Total Cross Section
28-Ni-60
-99.33 To 9999. %
MAT 2837
Total Cross Section
28-Ni-62
-95.74 To 563.1 %
Resolved
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

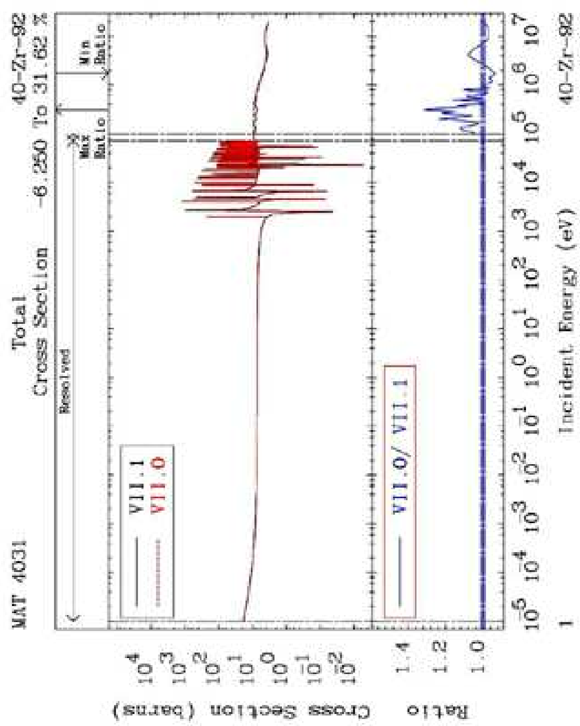

MAT 2843
Total
Cross Section
28-Ni-64
-99.14 To 3700. %
Resolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

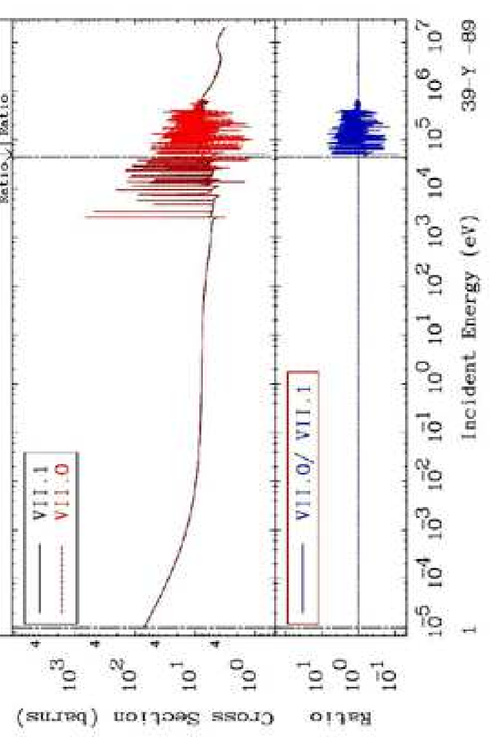

MAT 3625
Total
Cross Section
36-Kr-78
-48.40 To 17.06 %
Resolved
Unresolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

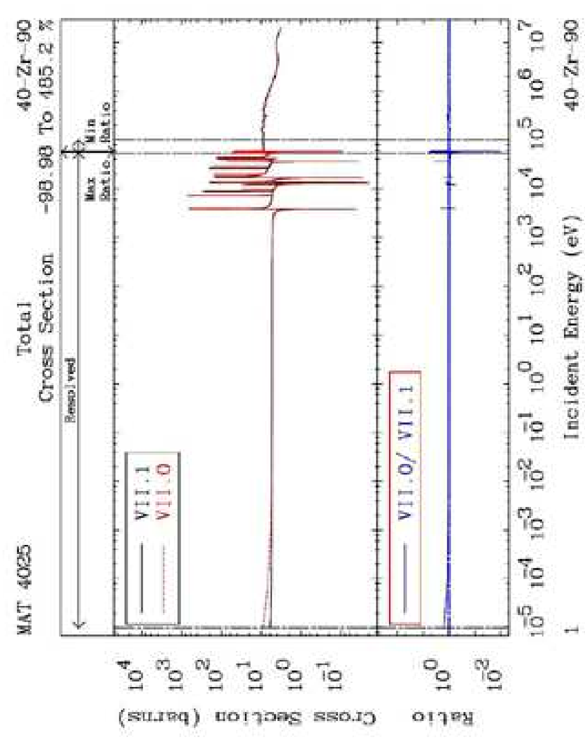

MAT 3325
Total
Cross Section
33-As-75
-11.02 To 6.674 %
Resolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

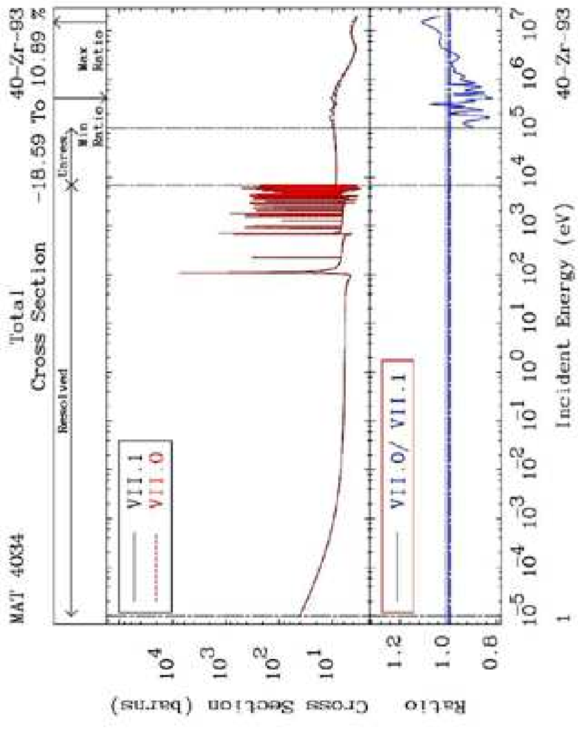

MAT 3649
Total
Cross Section
36-Kr-86
-0.161 To 1.427 %
Resolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

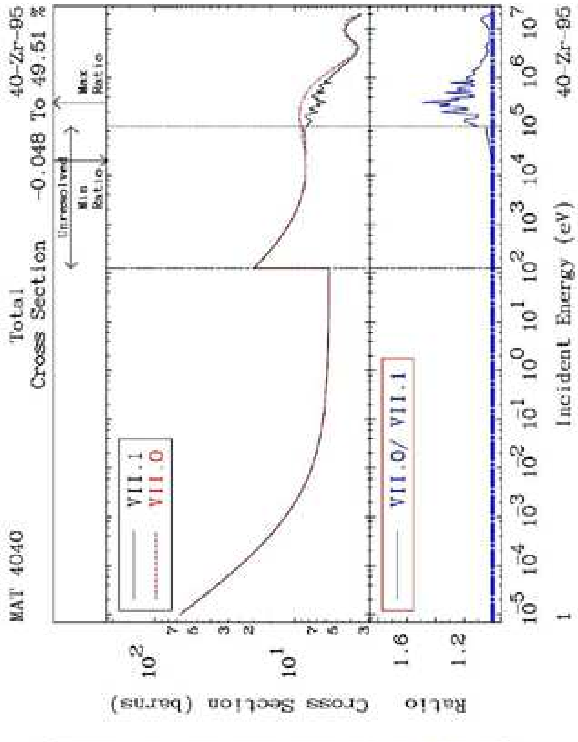


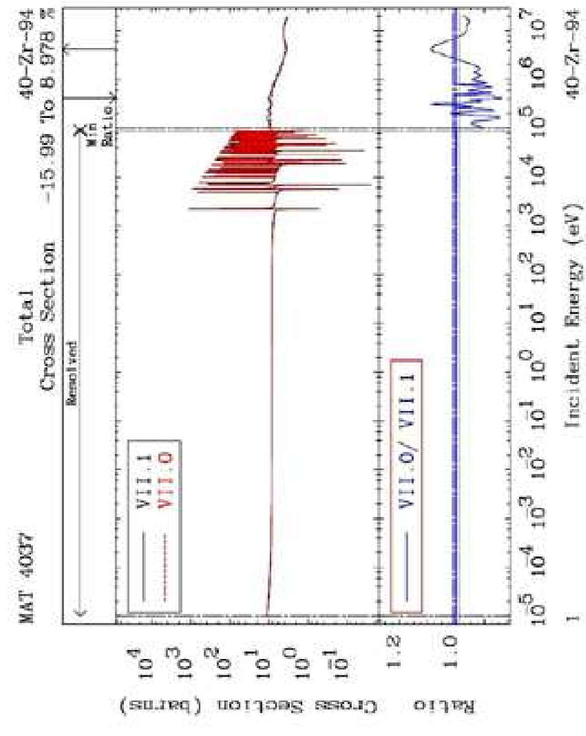


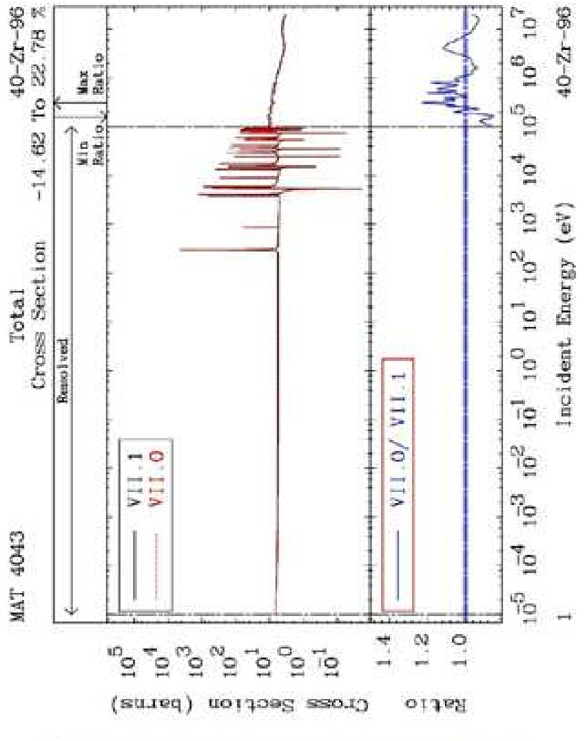


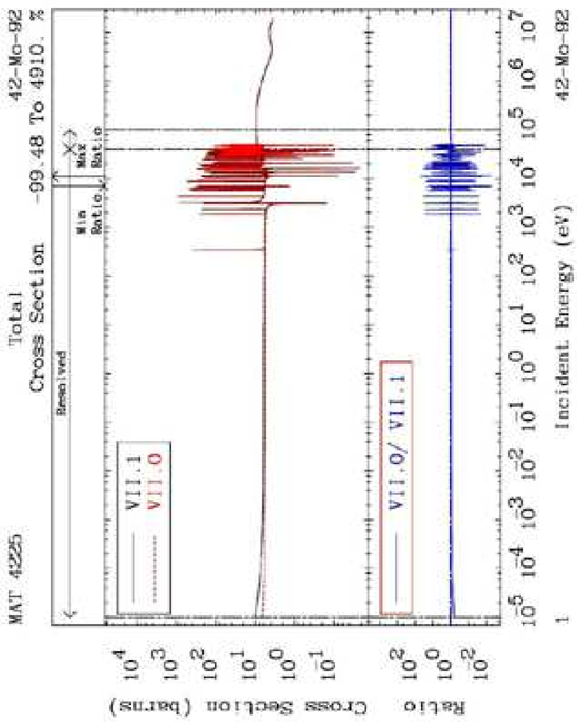


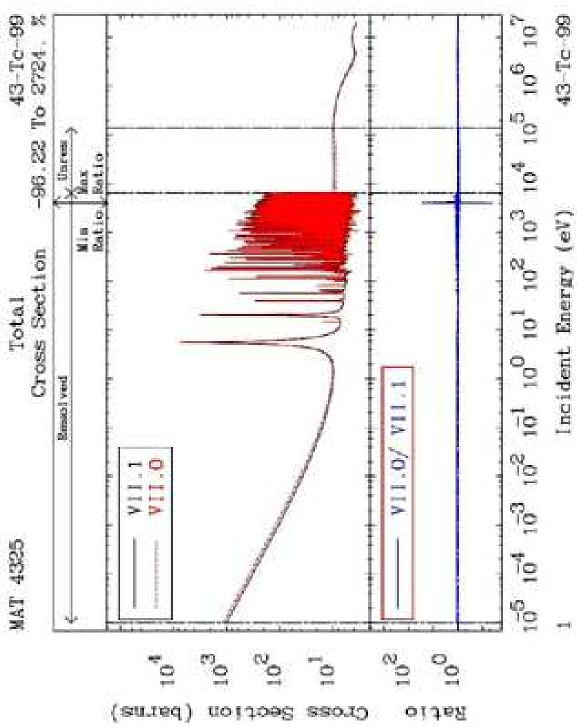

MAT 4034
Total
Cross Section
40-Zr-93
-18.59 To 10.89 %
Resolved
Unres.
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
40-Zr-93

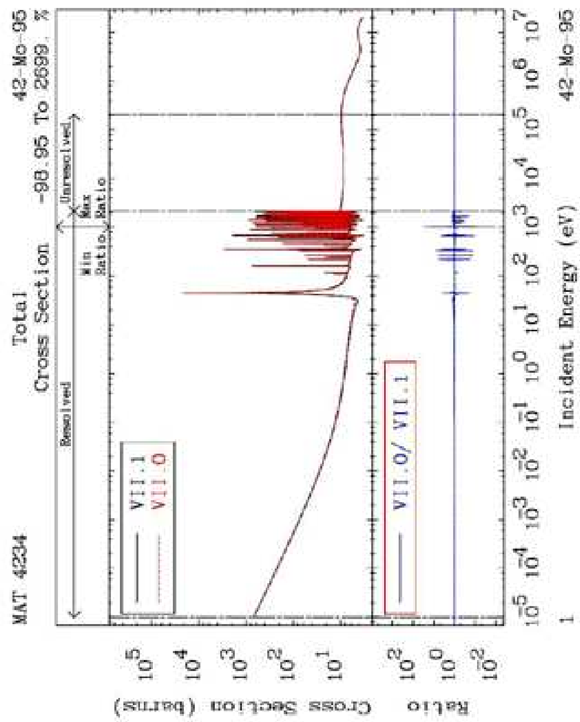

MAT 4040
Total
Cross Section
40-Zr-95
-0.048 To 49.51 %
Unresolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
40-Zr-95

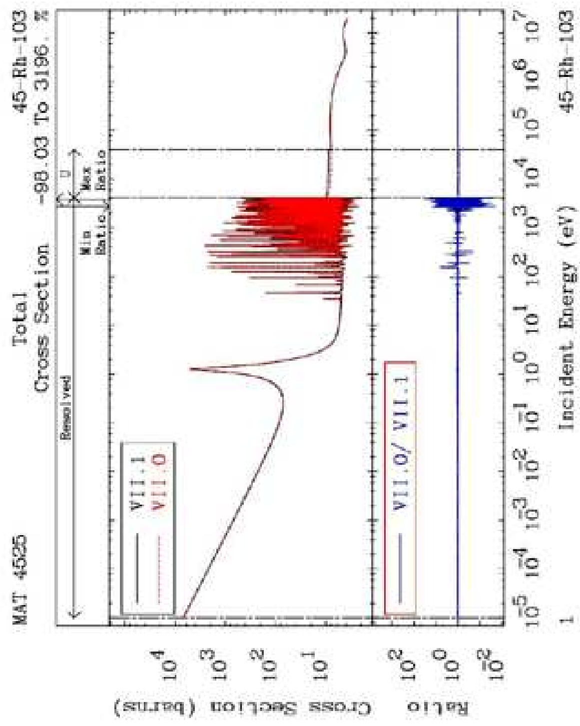

MAT 4037
Total
Cross Section
40-Zr-94
-15.99 To 8.978 %
Resolved
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
40-Zr-94

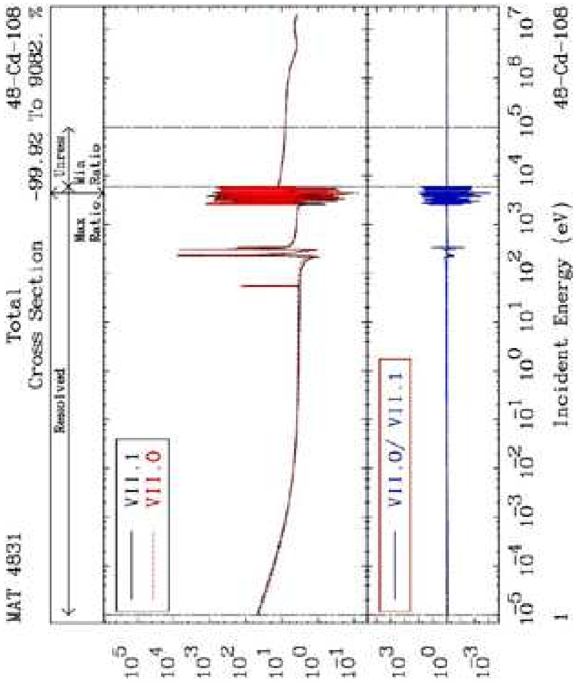

MAT 4043
Total
Cross Section
40-Zr-96
-14.62 To 22.78 %
Resolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
40-Zr-96

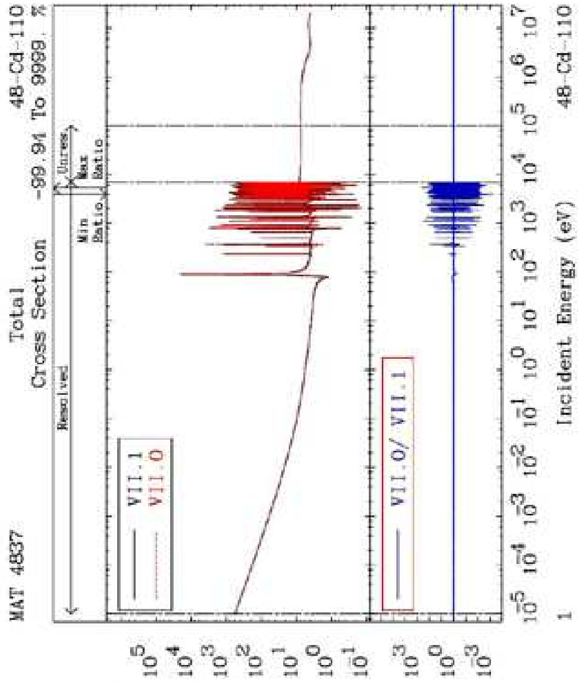

MAT 4225
Total Cross Section
42-Mo-92
-99.48 To 4910. %
Resolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
42-Mo-92

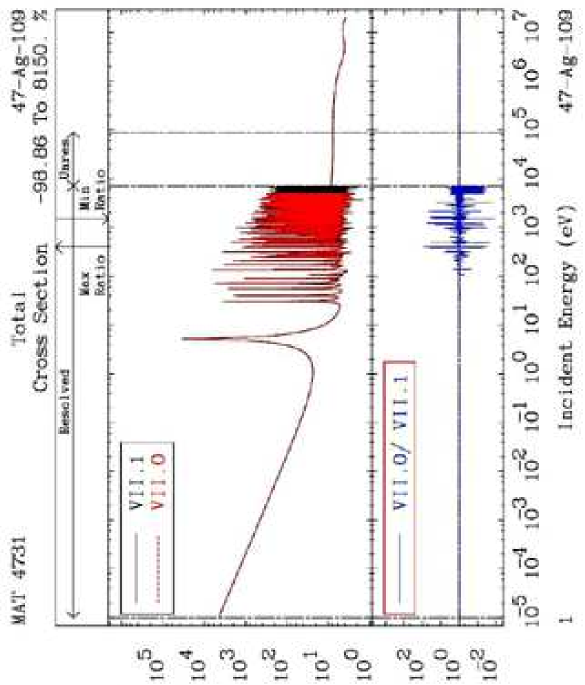

MAT 4325
Total Cross Section
43-Tc-99
-96.22 To 2724. %
Resolved
Unres
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
43-Tc-99

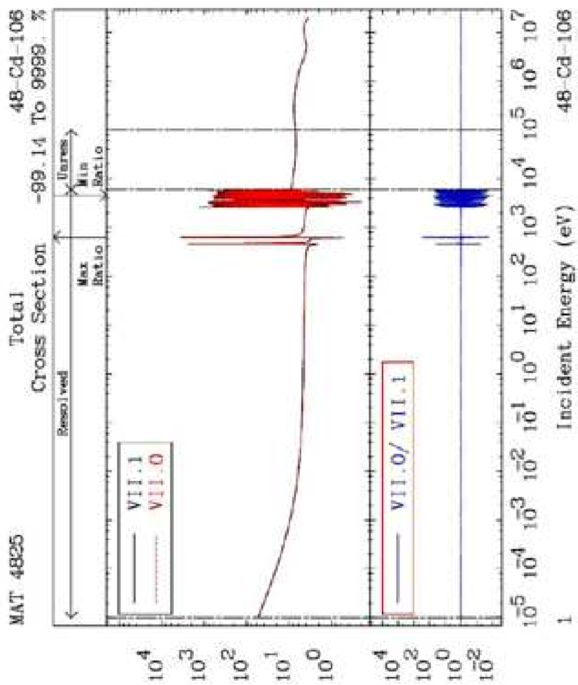

MAT 4234
Total Cross Section
42-Mo-95
-98.95 To 2699. %
Resolved
Unresolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
42-Mo-95

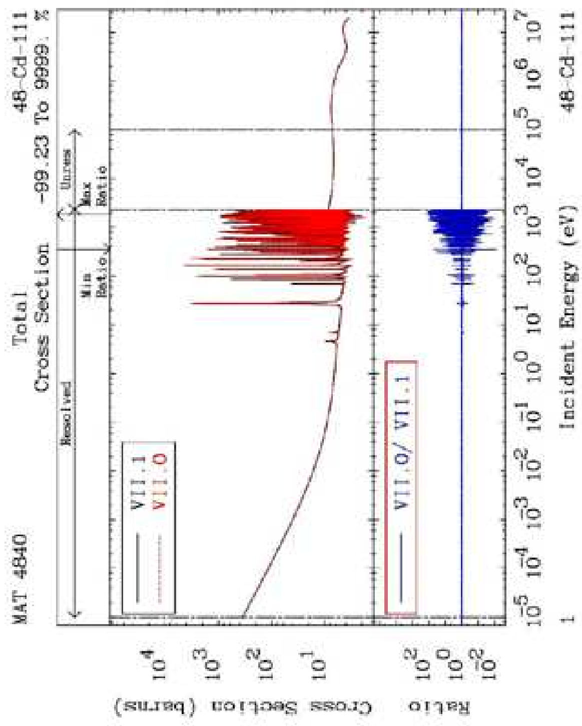

MAT 4525
Total Cross Section
45-Rh-103
-98.03 To 3196. %
Resolved
U
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
45-Rh-103

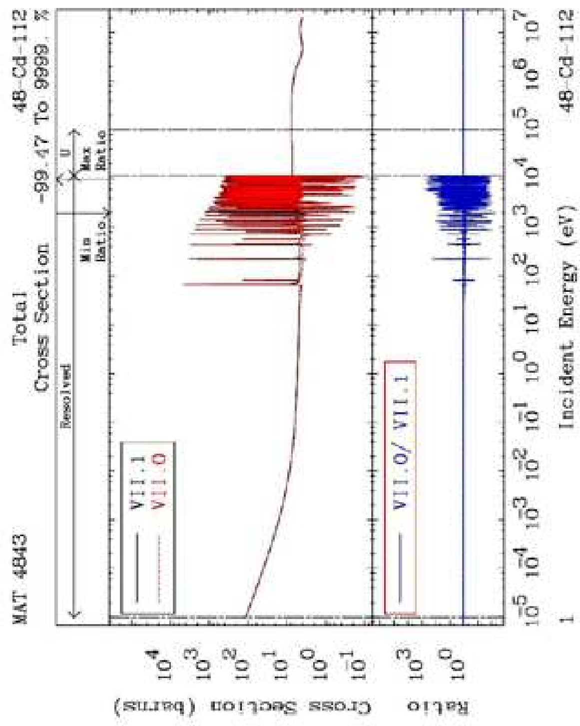

MAT 4831
Total
Cross Section
48-Cd-108
-99.82 To 9082. %
Resolved
Unres
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

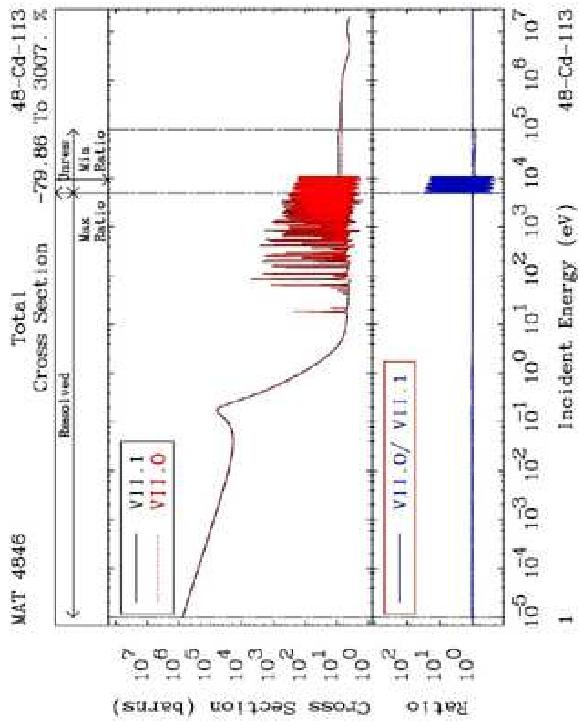

MAT 4837
Total
Cross Section
48-Cd-110
-99.94 To 9999. %
Resolved
Unres
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

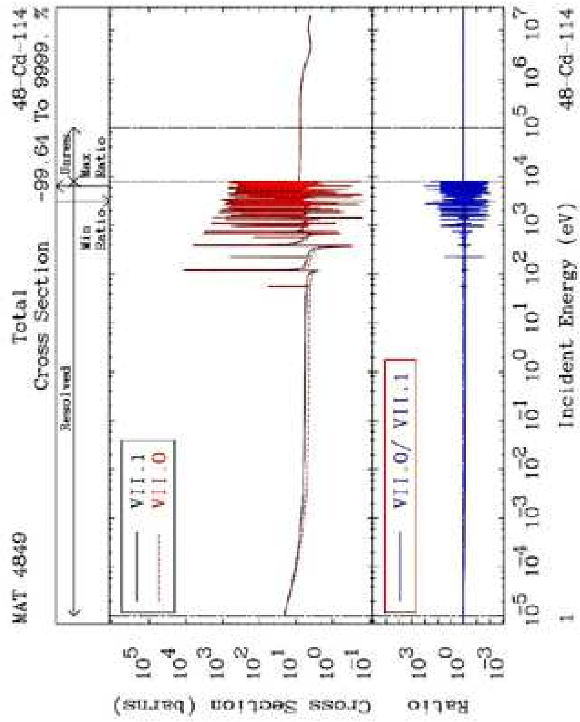

MAT 4731
Total
Cross Section
47-Ag-109
-98.86 To 8150. %
Resolved
Unres
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

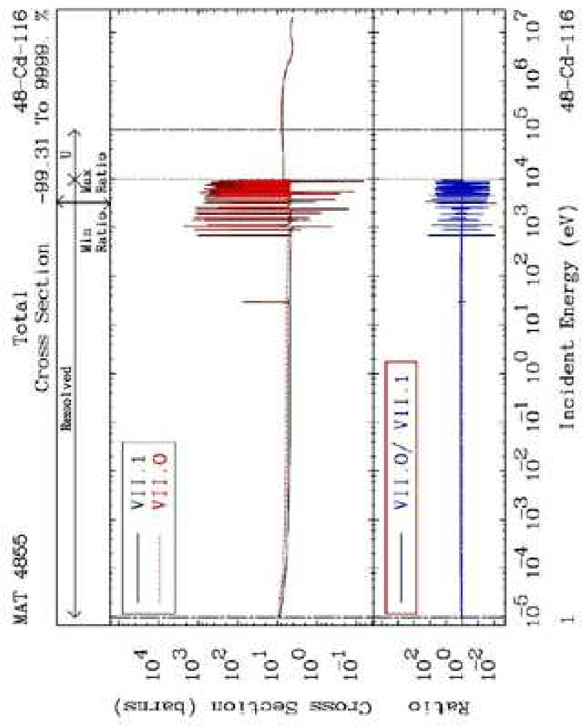

MAT 4825
Total
Cross Section
48-Cd-106
-99.14 To 9999. %
Resolved
Unres
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

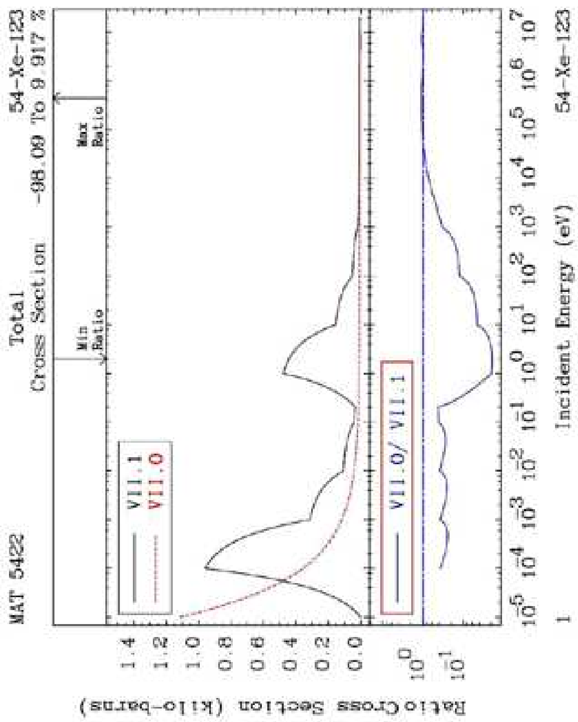

MAT 4840
Total
Cross Section
48-Cd-111
-99.23 To 9999. %
Resolved
Unres
Min
Ratio
Max
Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
48-Cd-111

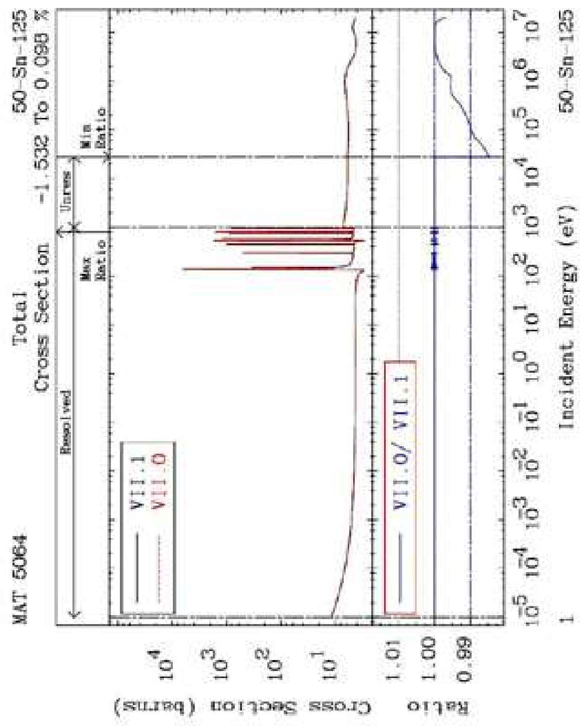

MAT 4843
Total
Cross Section
48-Cd-112
-99.47 To 9999. %
Resolved
U
Min
Ratio
Max
Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
48-Cd-112

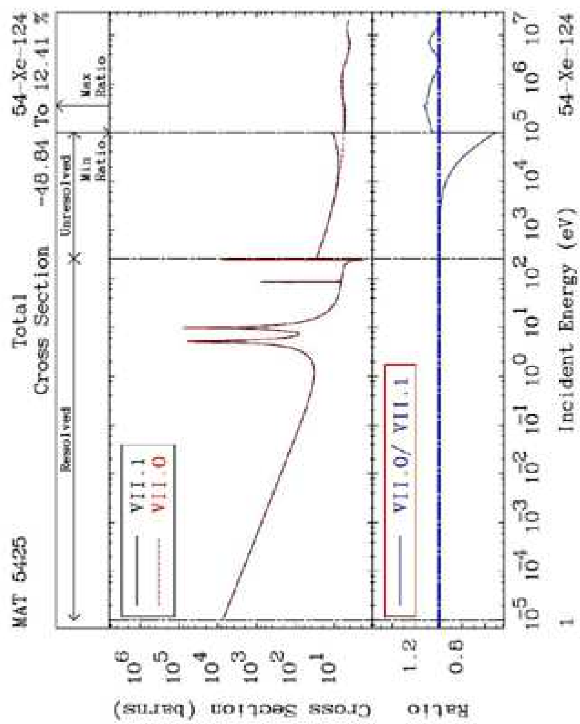

MAT 4846
Total
Cross Section
48-Cd-113
-79.86 To 3007. %
Resolved
Unres
Min
Ratio
Max
Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
48-Cd-113

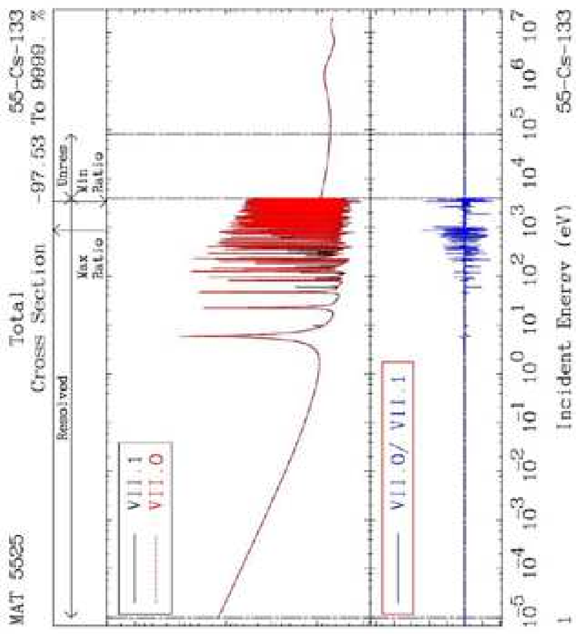

MAT 4849
Total
Cross Section
48-Cd-114
-99.64 To 9999. %
Resolved
Unres
Min
Ratio
Max
Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
48-Cd-114

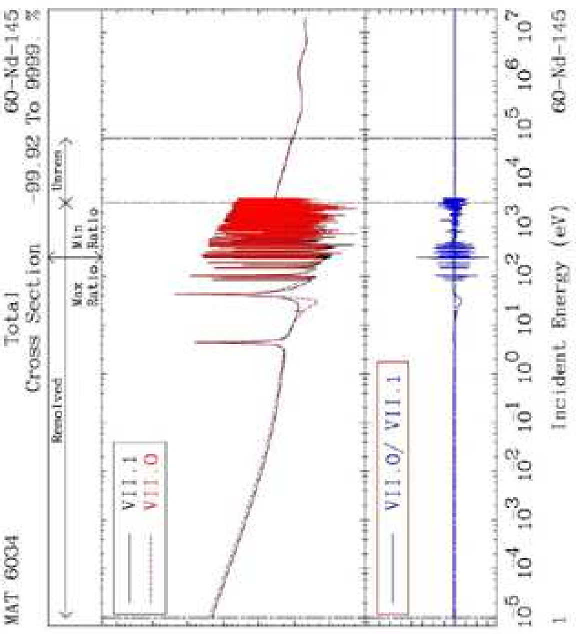

MAT 4855
Total
Cross Section
-99.31 To 9999. %
48-Cd-116
VII.1
VII.0
VII.0/ VII.1
Incident Energy (eV)
Cross Section (barns)
Ratio

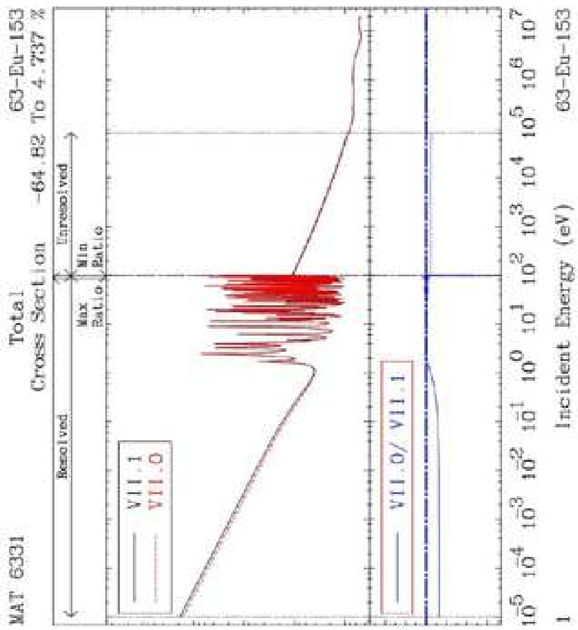

MAT 5422
Total
Cross Section
-98.09 To 9.917 %
54-Xe-123
VII.1
VII.0
VII.0/ VII.1
Incident Energy (eV)
Cross Section (kilo-barns)
Ratio

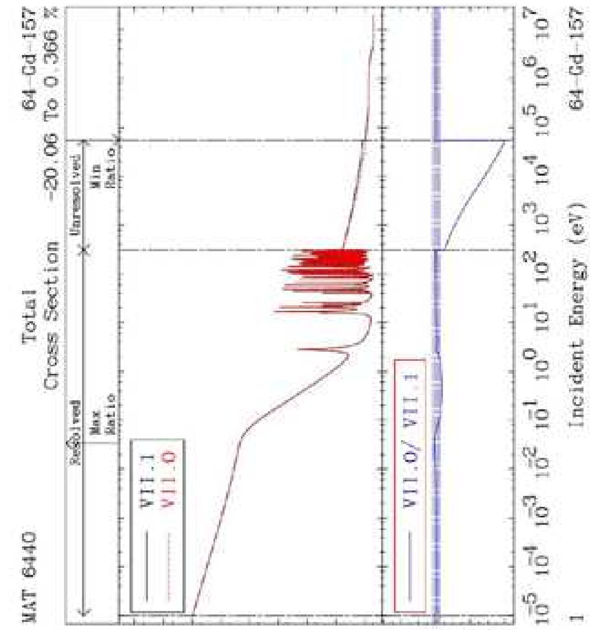

MAT 5064
Total
Cross Section
-1.532 To 0.098 %
50-Sn-125
VII.1
VII.0
VII.0/ VII.1
Incident Energy (eV)
Cross Section (barns)
Ratio

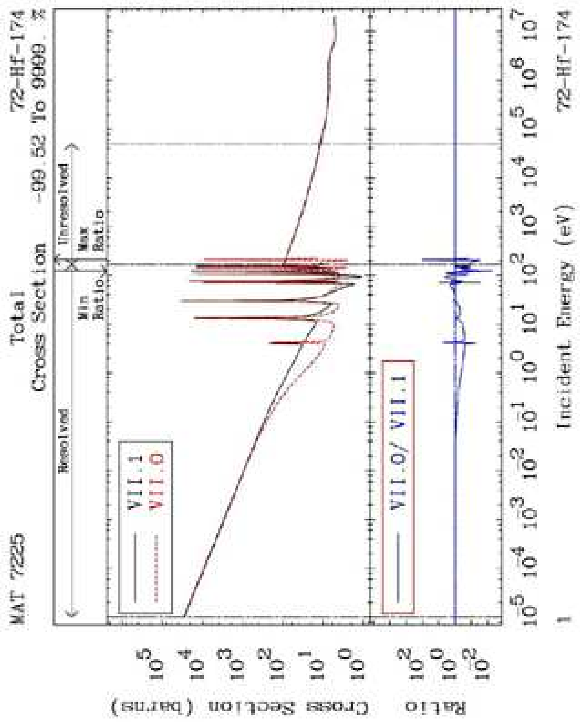

MAT 5425
Total
Cross Section
-48.81 To 12.41 %
54-Xe-124
VII.1
VII.0
VII.0/ VII.1
Incident Energy (eV)
Cross Section (barns)
Ratio

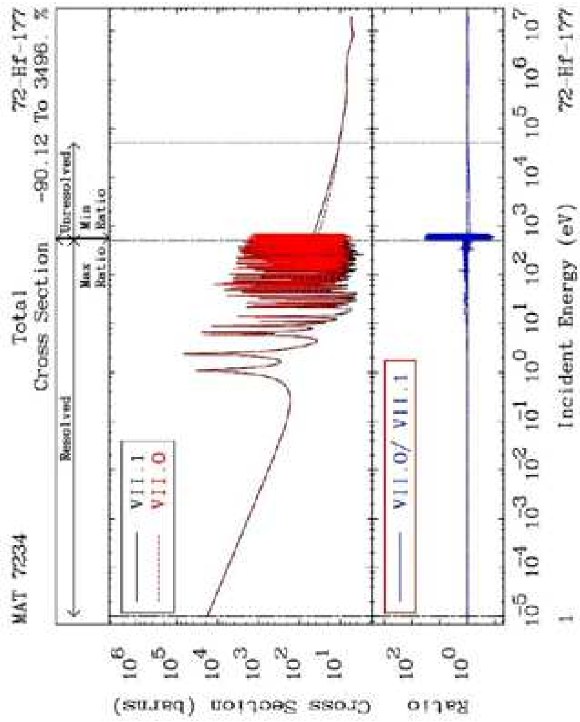

MAT 5525
Total
Cross Section
55-Cs-133
-97.53 To 9999. %
Resolved
Unres
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
55-Cs-133

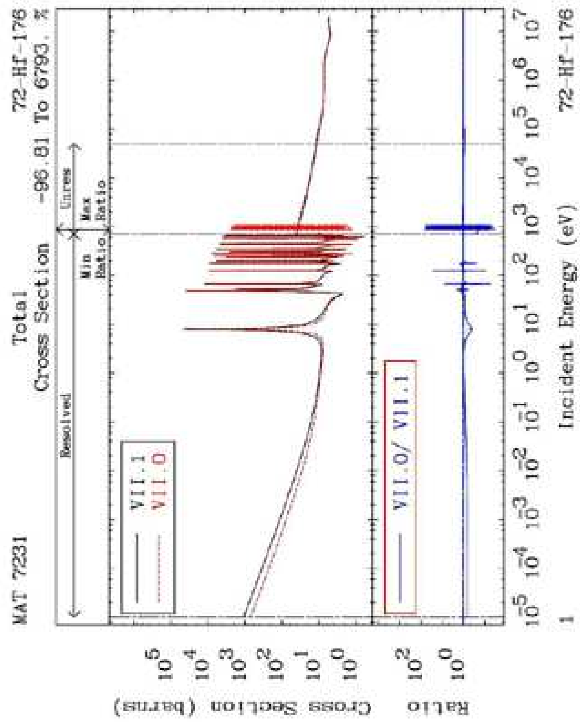

MAT 6034
Total
Cross Section
60-Nd-145
-99.92 To 9999. %
Resolved
Unres
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
60-Nd-145

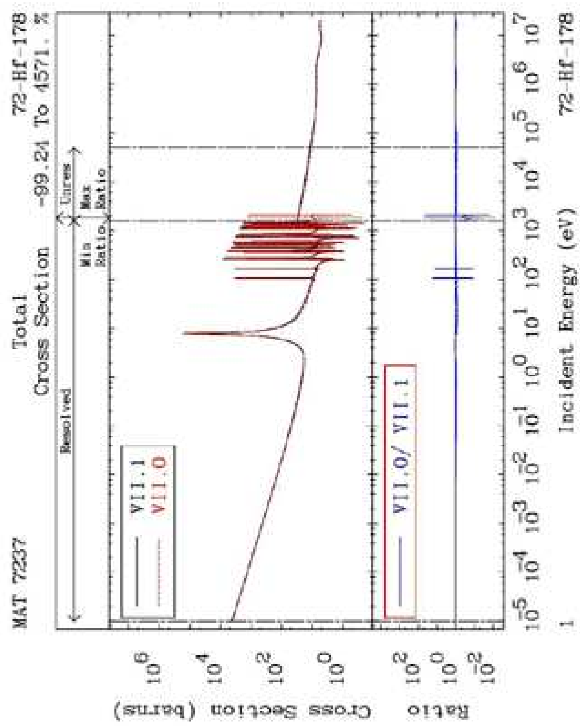

MAT 6331
Total
Cross Section
63-Eu-153
-64.82 To 4.737 %
Resolved
Unresolved
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
63-Eu-153

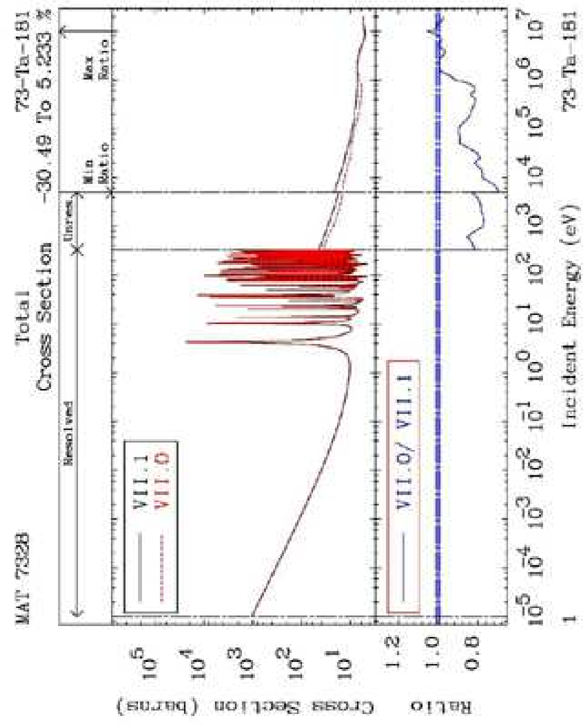

MAT 6440
Total
Cross Section
64-Gd-157
-20.06 To 0.366 %
Resolved
Unresolved
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
64-Gd-157

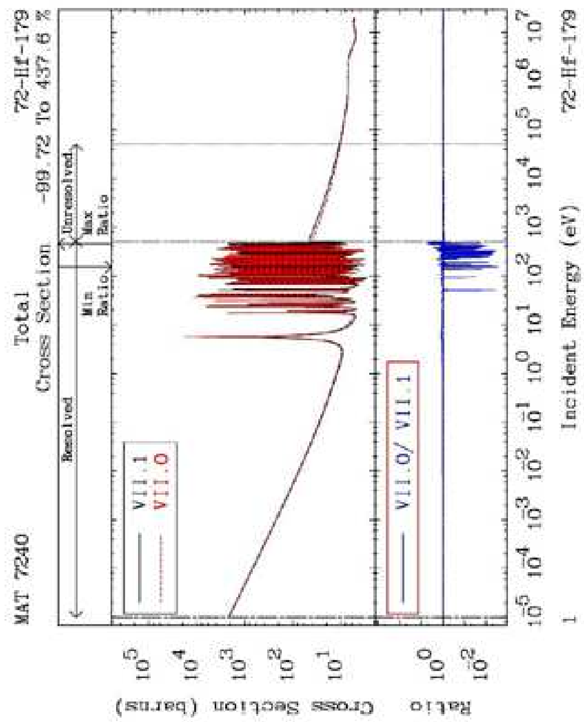

MAT 7225
Total
Cross Section
72-Hf-174
-99.52 To 9999. %
Resolved
Unresolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
72-Hf-174

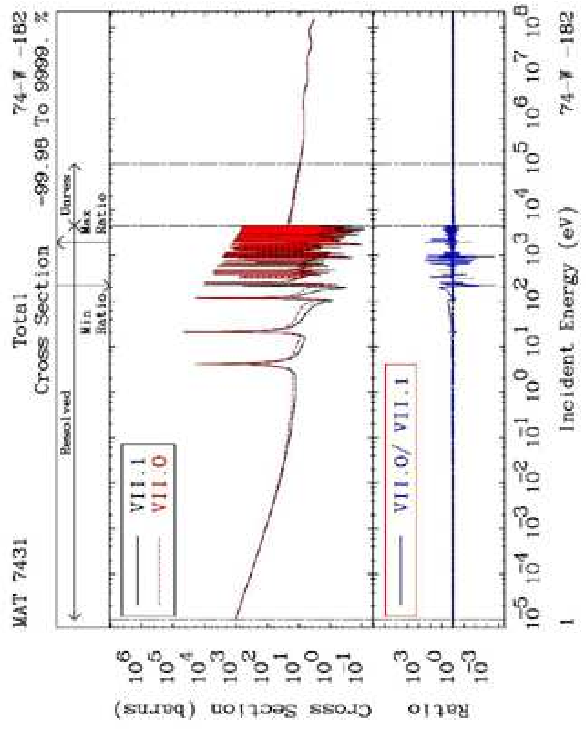

MAT 7234
Total
Cross Section
72-Hf-177
-90.12 To 3496. %
Resolved
Unresolved
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
72-Hf-177

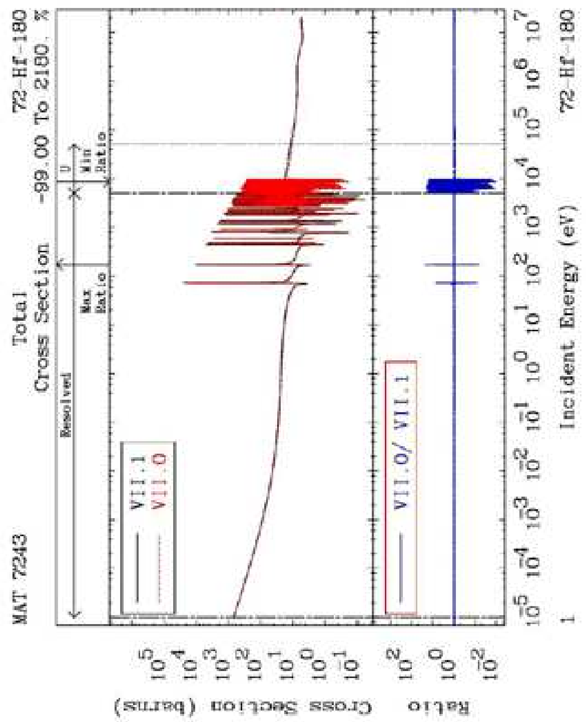

MAT 7231
Total
Cross Section
72-Hf-176
-96.81 To 6793. %
Resolved
Unres
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
72-Hf-176

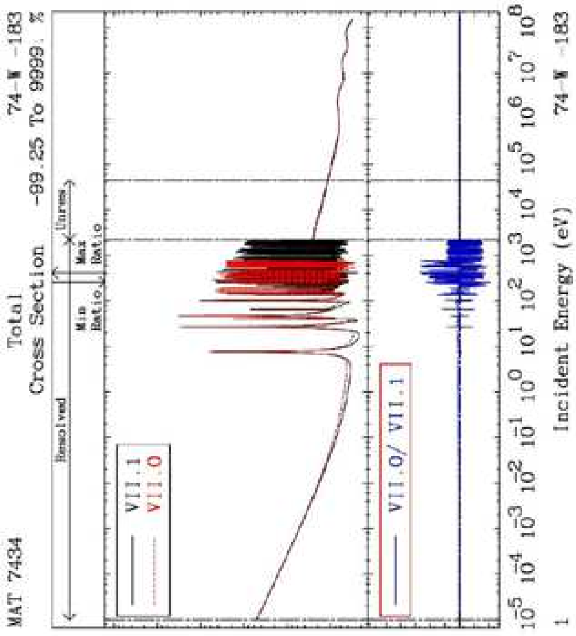

MAT 7237
Total
Cross Section
72-Hf-178
-99.24 To 4571. %
Resolved
Unres
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
72-Hf-178

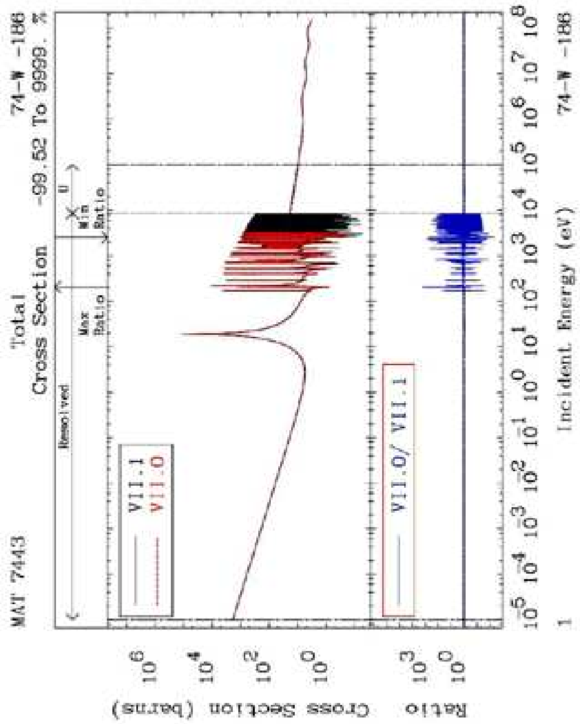

MAT 7328
Total Cross Section
73-Ta-181
-30.49 To 5.233 %
Resolved
Unres.
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
73-Ta-181

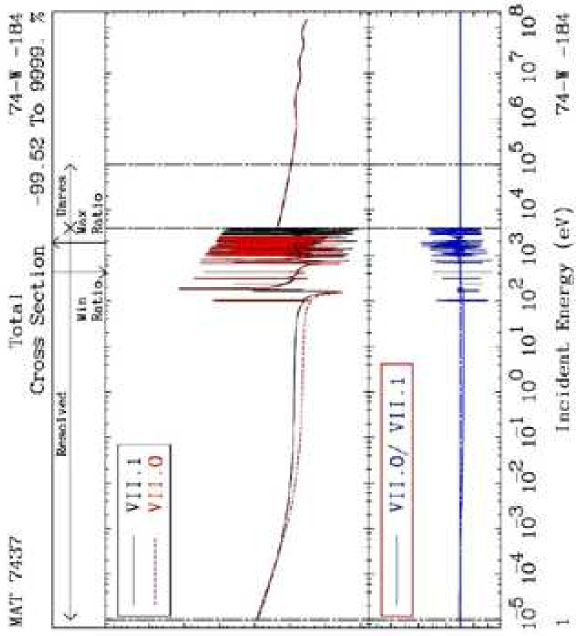

MAT 7240
Total Cross Section
72-Hf-179
-99.72 To 437.6 %
Resolved
Unresolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
72-Hf-179

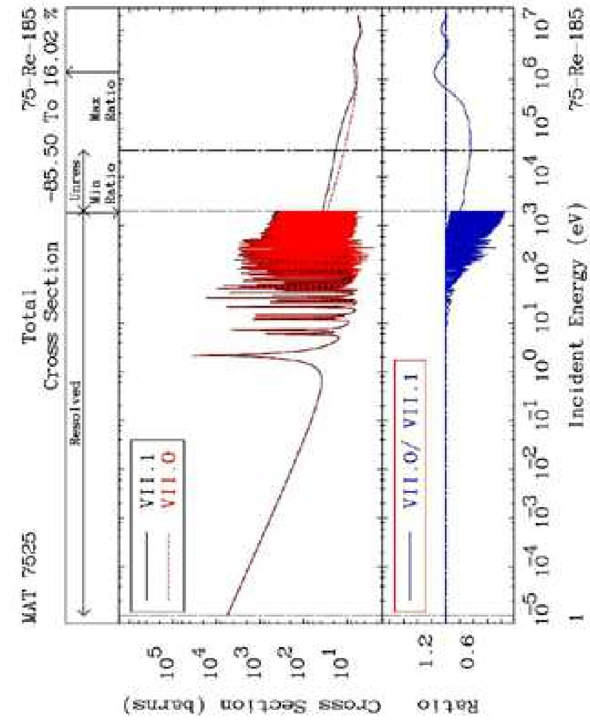

MAT 7431
Total Cross Section
74-W -182
-99.96 To 9999. %
Resolved
Unres.
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
74-W -182

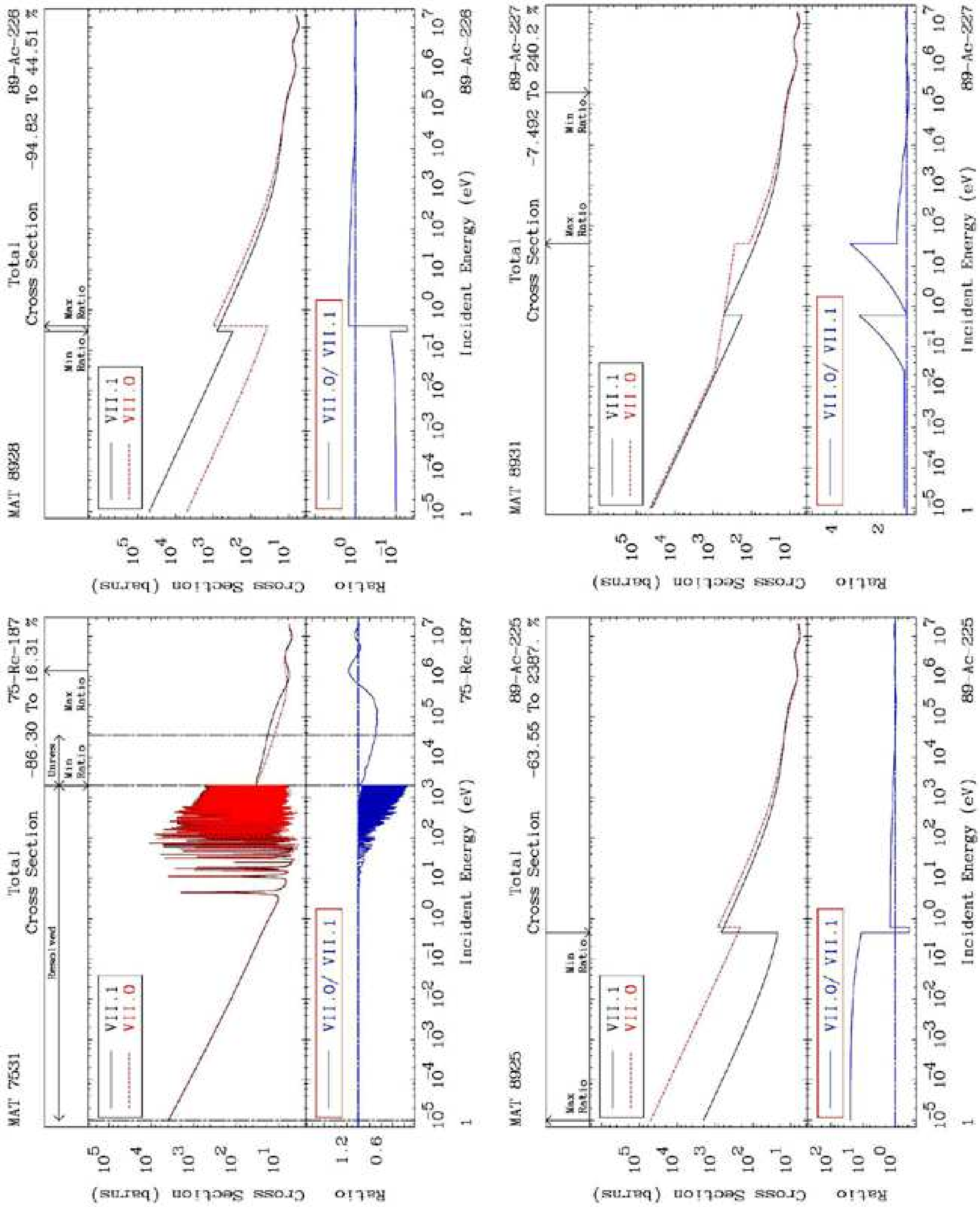

MAT 7243
Total Cross Section
72-Hf-180
-99.00 To 2180. %
Resolved
U
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
72-Hf-180

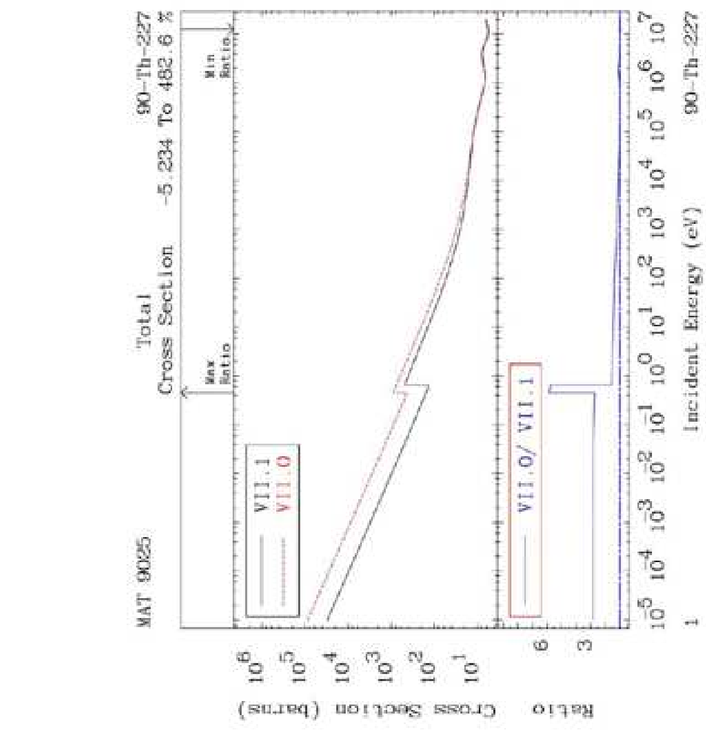

MAT 7434
Total
Cross Section
-99.25 To 9999. %
74-W -183
Resolved
Min Ratio
Max Ratio
Unres
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

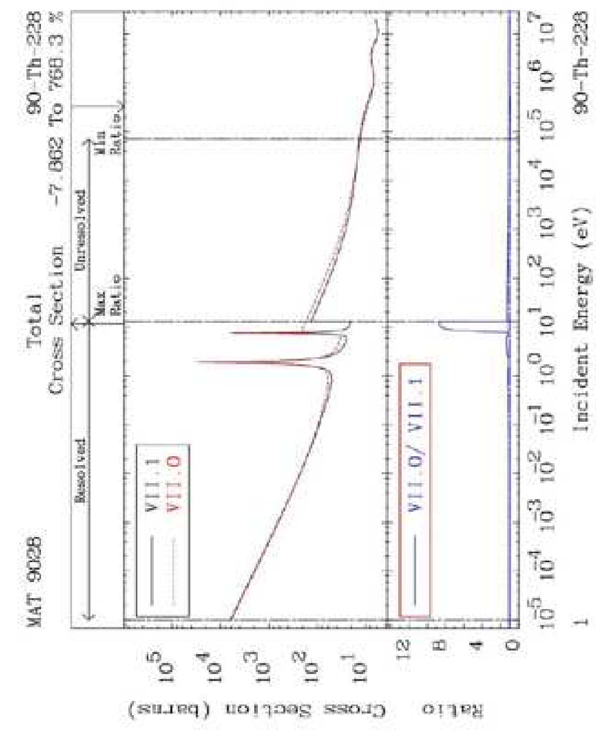

MAT 7443
Total
Cross Section
-99.52 To 9999. %
74-W -186
Resolved
Max Ratio
Min Ratio
U
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

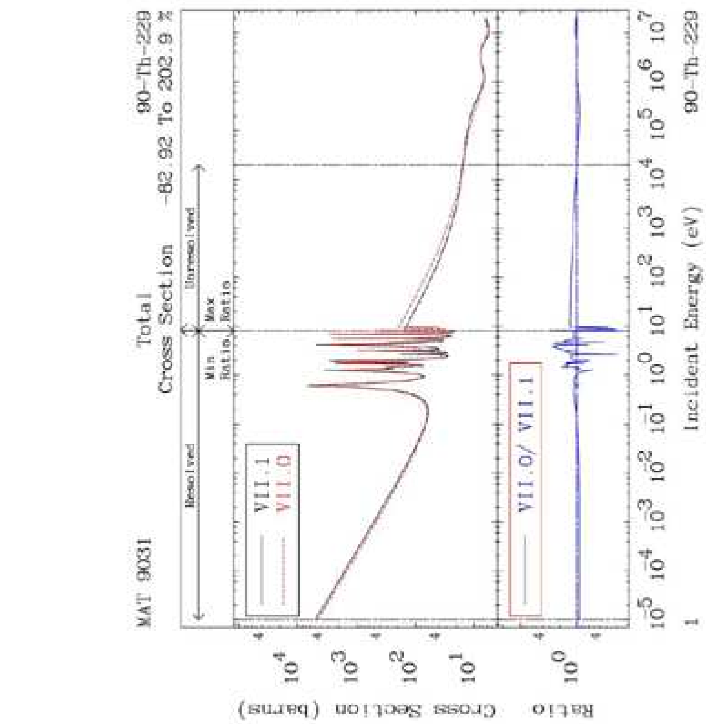

MAT 7437
Total
Cross Section
-99.52 To 9999. %
74-W -184
Resolved
Min Ratio
Max Ratio
Unres
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

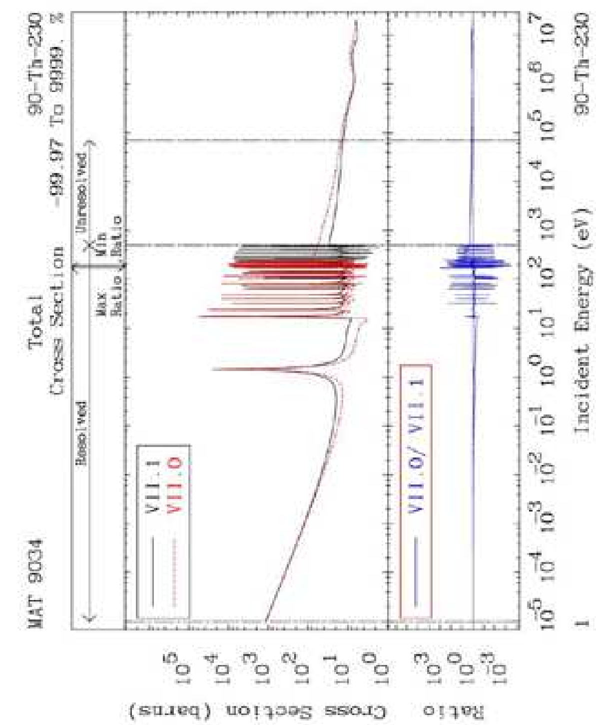

MAT 7525
Total
Cross Section
-85.50 To 16.02 %
75-Re-185
Resolved
Min Ratio
Unres
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

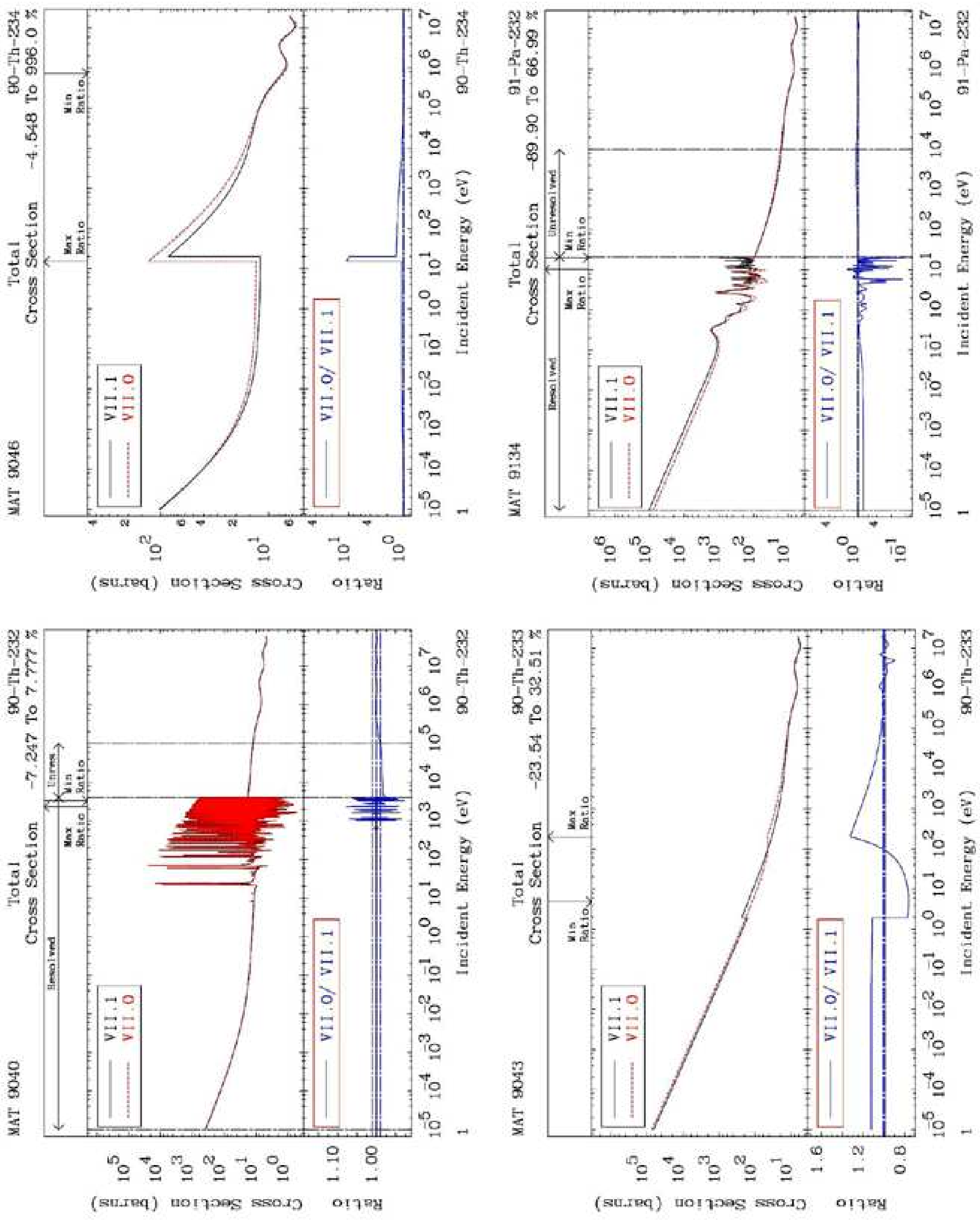

MAT 7531
Total
Cross Section
75-Re-187
-86.30 To 16.31 %
VII.1
VII.0
VII.0/ VII.1
Incident Energy (eV)
Cross Section (barns)
Ratio
MAT 8928
89-Ac-228
-94.82 To 44.51 %
MAT 8925
89-Ac-225
-63.55 To 2387. %
MAT 8931
89-Ac-227
-7.492 To 240.2 %
Max Ratio
Min Ratio

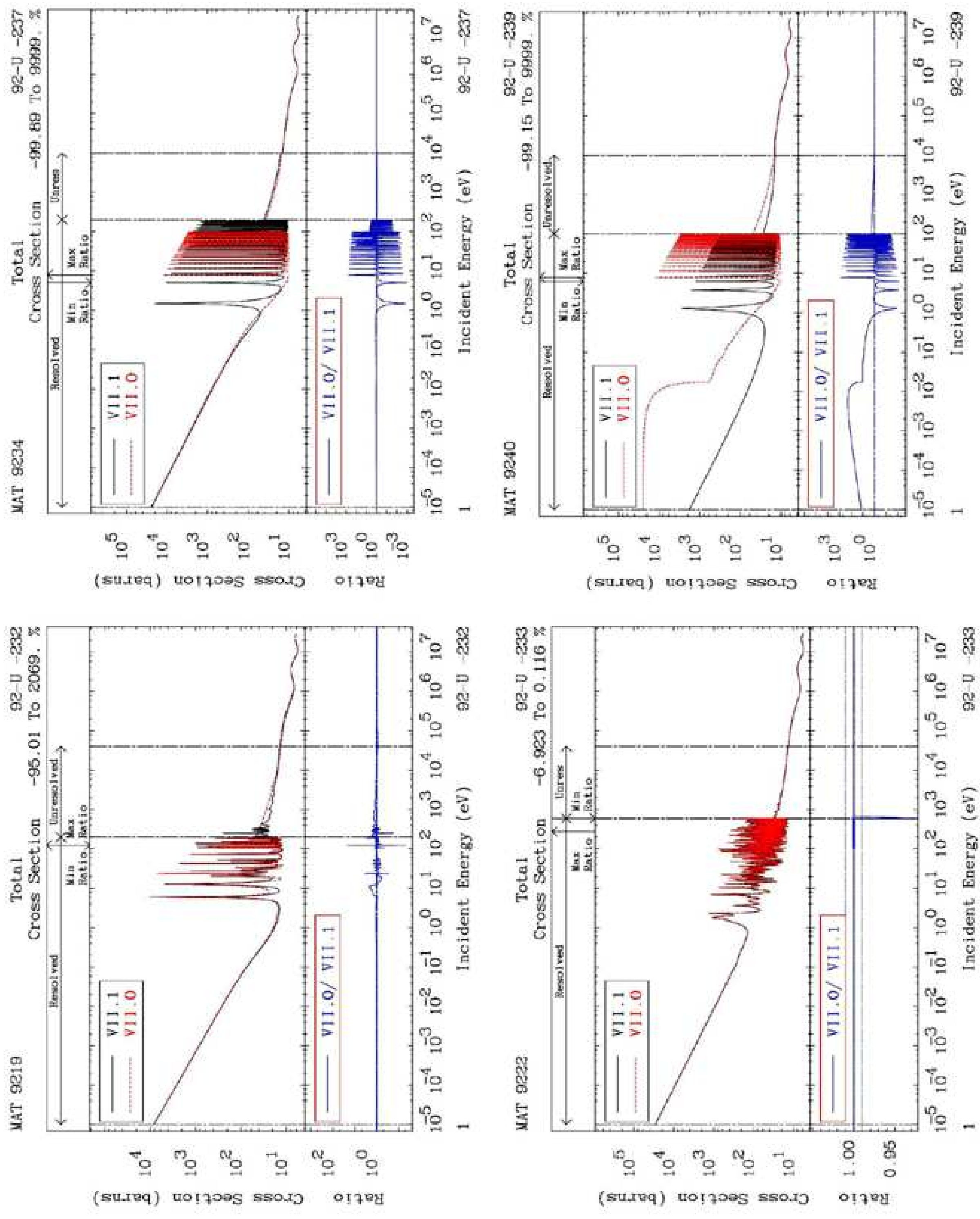

MAT 9025
Total
Cross Section
-5.234 To 482.6 %
90-Th-227
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
90-Th-227


MAT 9028
Total
Cross Section
-7.862 To 768.3 %
90-Th-228
Resolved
Unresolved
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
90-Th-228

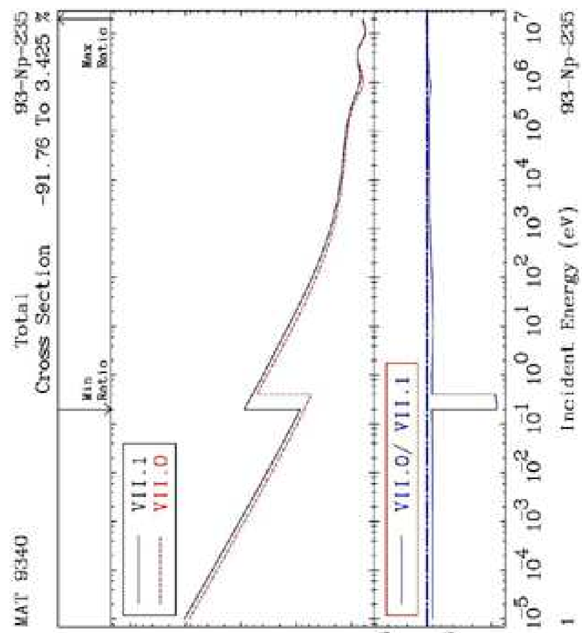

MAT 9031
Total
Cross Section
-82.92 To 202.9 %
90-Th-229
Resolved
Unresolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
90-Th-229


MAT 9034
Total
Cross Section
-99.97 To 9999. %
90-Th-230
Resolved
Unresolved
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
90-Th-230

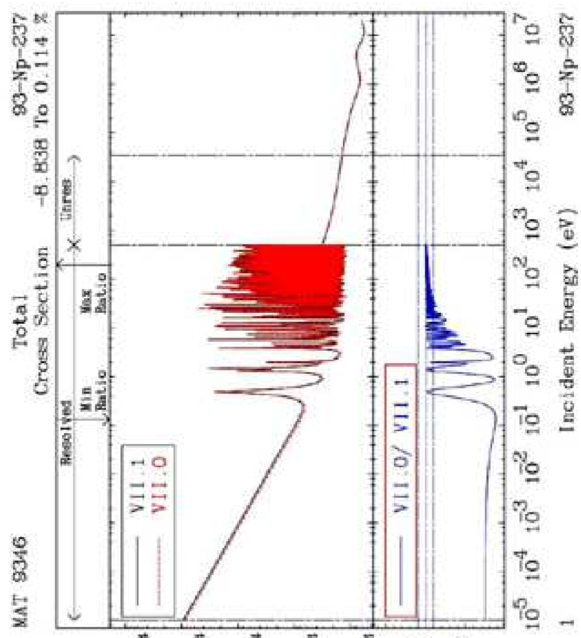

MAT 9040
Total Cross Section
90-Th-232
-7.247 To 7.777 %
MAT 9046
Total Cross Section
90-Th-234
-4.548 To 996.0 %
MAT 9043
Total Cross Section
90-Th-233
-23.54 To 32.51 %
MAT 9134
Total Cross Section
91-Pa-232
-89.90 To 66.99 %
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
Max Ratio
Min Ratio
Resolved
Unresolved



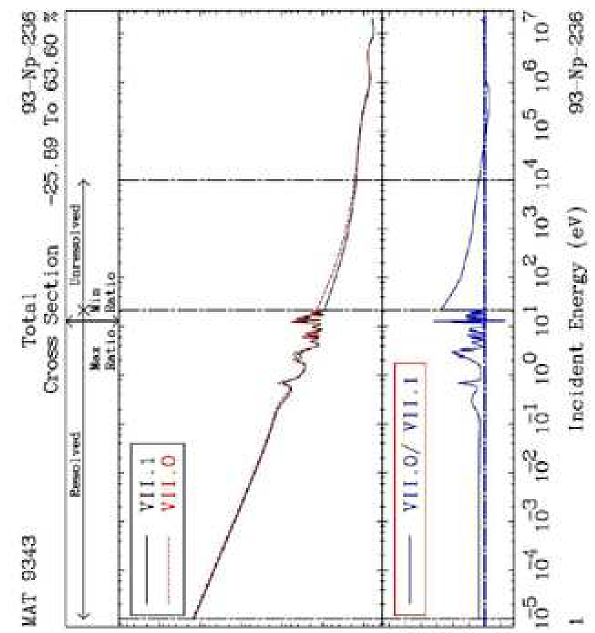
MAT 9234
Total Cross Section
-99.89 To 9999. %
92-U -237
VII.1
VII.0
VII.0/ VII.1
Incident Energy (eV)
Cross Section (barns)
Ratio
MAT 9240
Total Cross Section
-99.15 To 9999. %
92-U -239
VII.1
VII.0
VII.0/ VII.1
Incident Energy (eV)
Cross Section (barns)
Ratio
MAT 9219
Total Cross Section
-95.01 To 2069. %
92-U -232
VII.1
VII.0
VII.0/ VII.1
Incident Energy (eV)
Cross Section (barns)
Ratio
MAT 9222
Total Cross Section
-6.923 To 0.116 %
92-U -233
VII.1
VII.0
VII.0/ VII.1
Incident Energy (eV)
Cross Section (barns)
Ratio



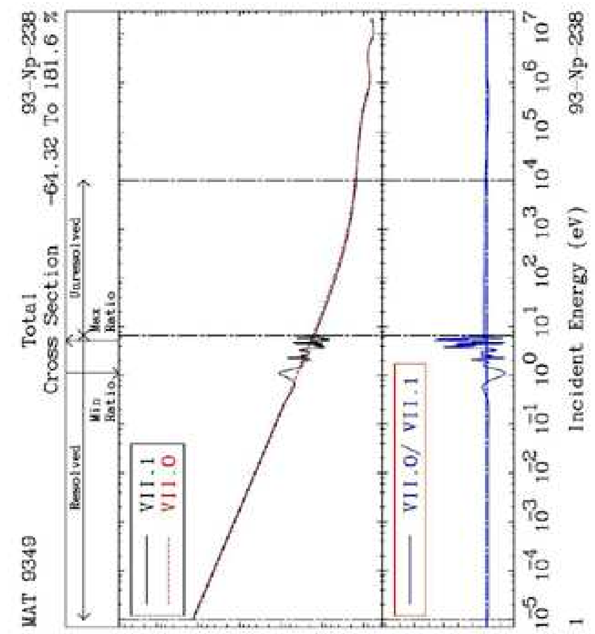
MAT 9340
Total
Cross Section
-91.76 To 3.425 %
93-Np-235
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)



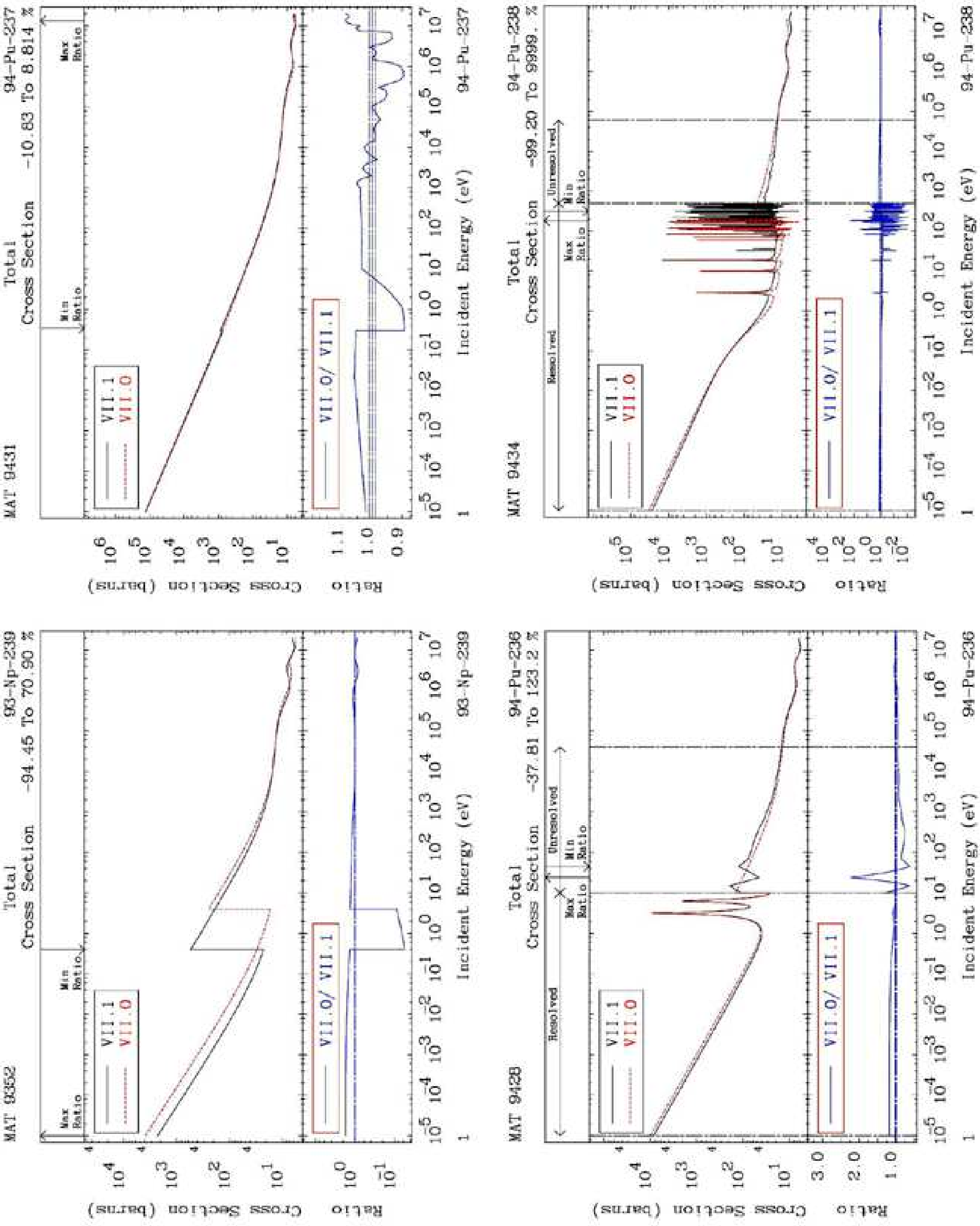
MAT 9346
Total
Cross Section
-8.838 To 0.114 %
93-Np-237
Resolved
Unres
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

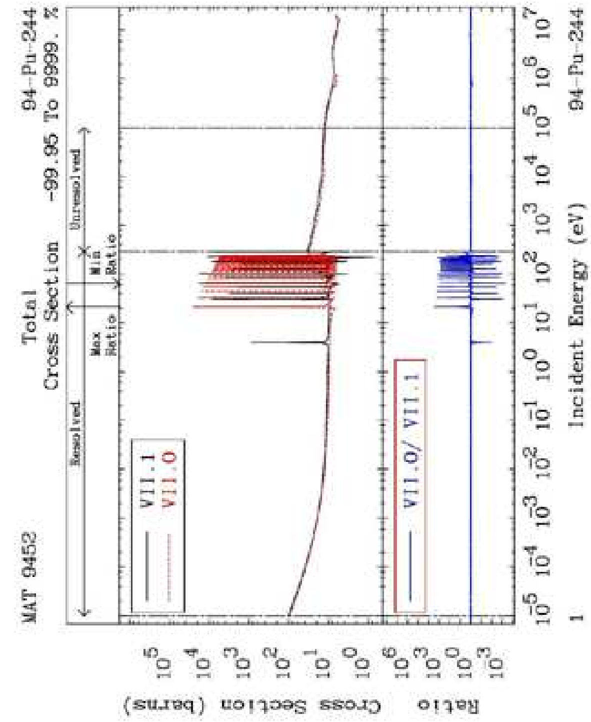


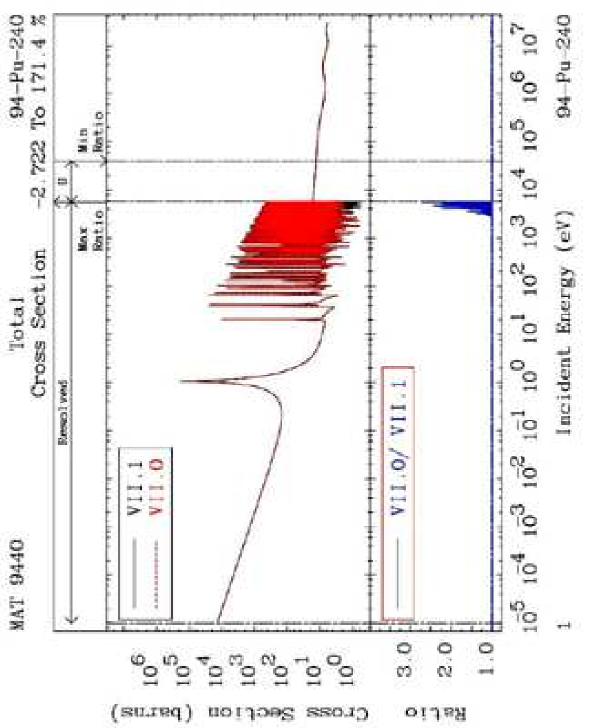
MAT 9343
Total
Cross Section
-25.89 To 63.60 %
93-Np-236
Resolved
Unresolved
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

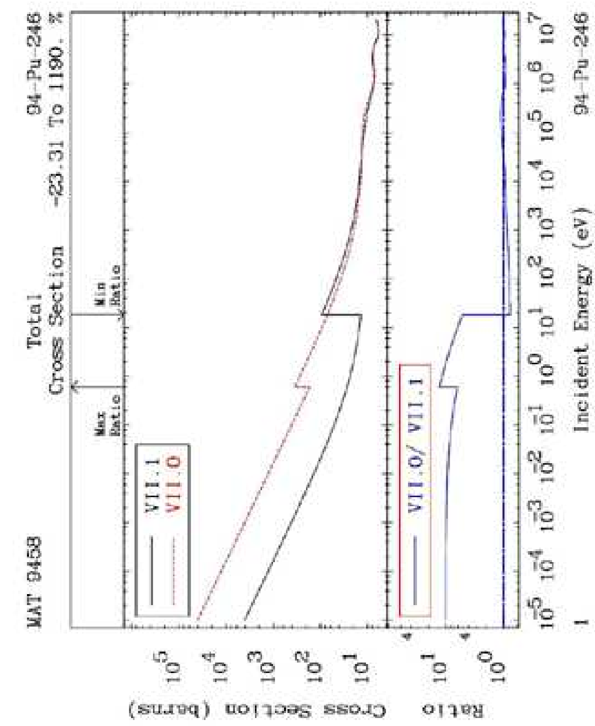


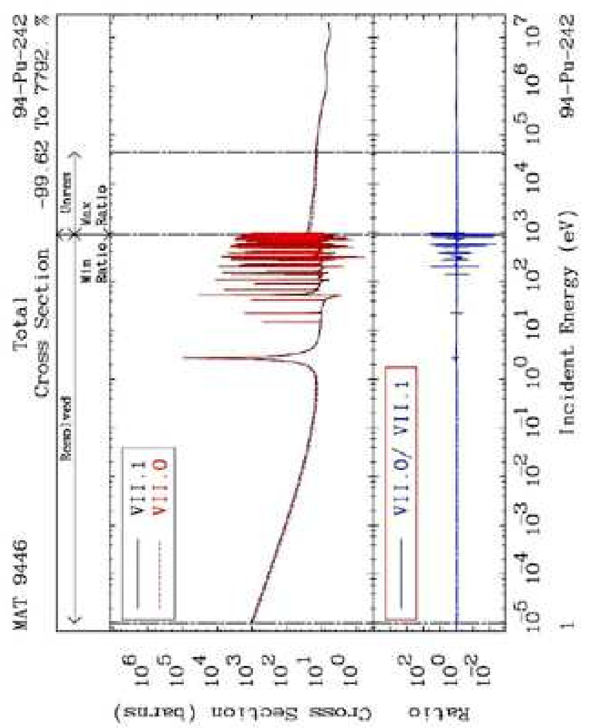
MAT 9349
Total
Cross Section
-64.32 To 181.6 %
93-Np-238
Resolved
Unresolved
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

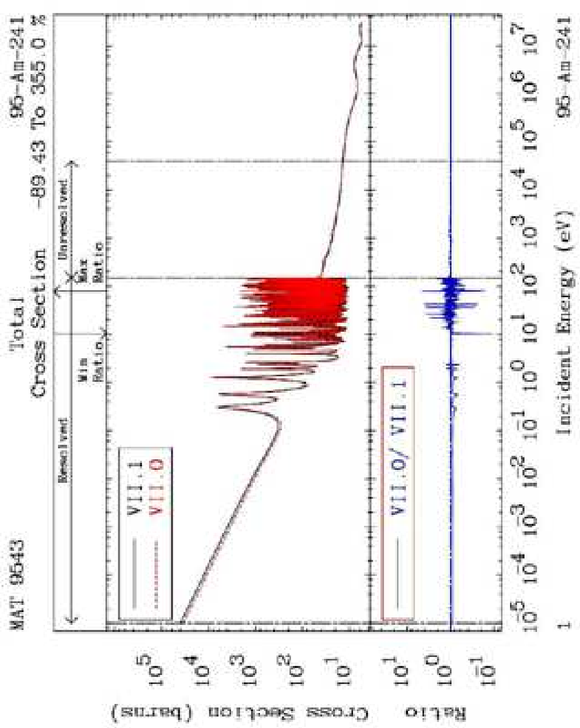

MAT 9352
Total
Cross Section
93-Np-239
-94.45 To 70.90 %
VII.1
VII.0
VII.0/ VII.1
MAT 9431
94-Pu-237
-10.83 To 8.814 %
MAT 9428
94-Pu-236
-37.81 To 123.2 %
Resolved
Unresolved
MAT 9434
94-Pu-238
-99.20 To 9999. %
Max Ratio
Min Ratio
Cross Section (barns)
Ratio
Incident Energy (eV)

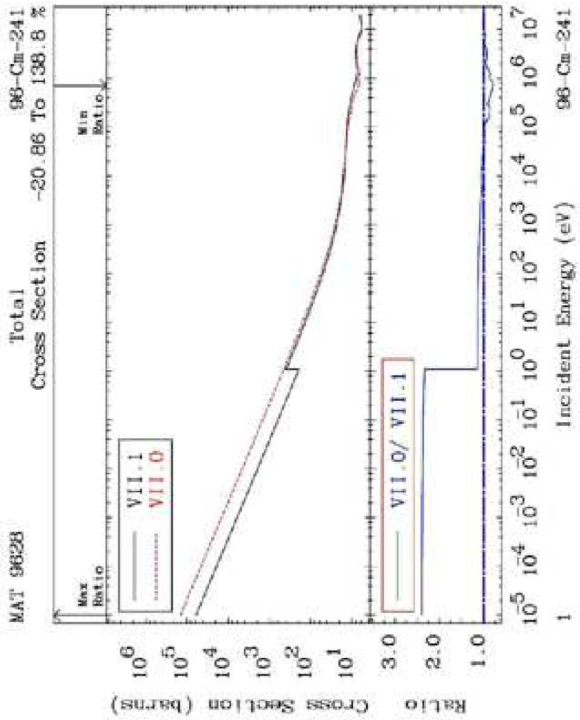

MAT 9452
Total Cross Section
-99.95 To 9999. %
94-Pu-244
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

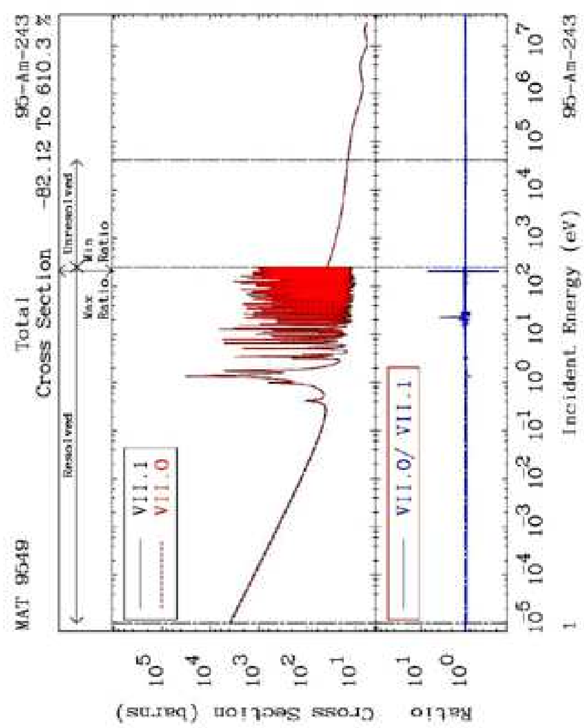

MAT 9440
Total Cross Section
-2.722 To 171.4 %
94-Pu-240
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

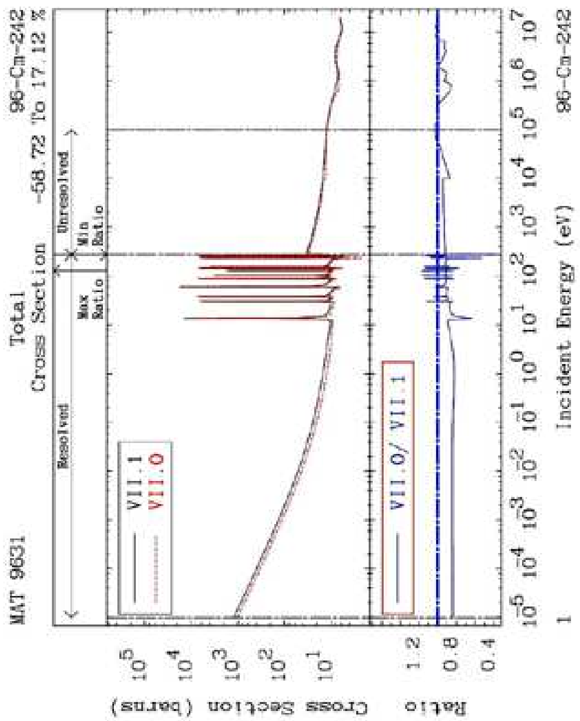

MAT 9458
Total Cross Section
-23.31 To 1190. %
94-Pu-246
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

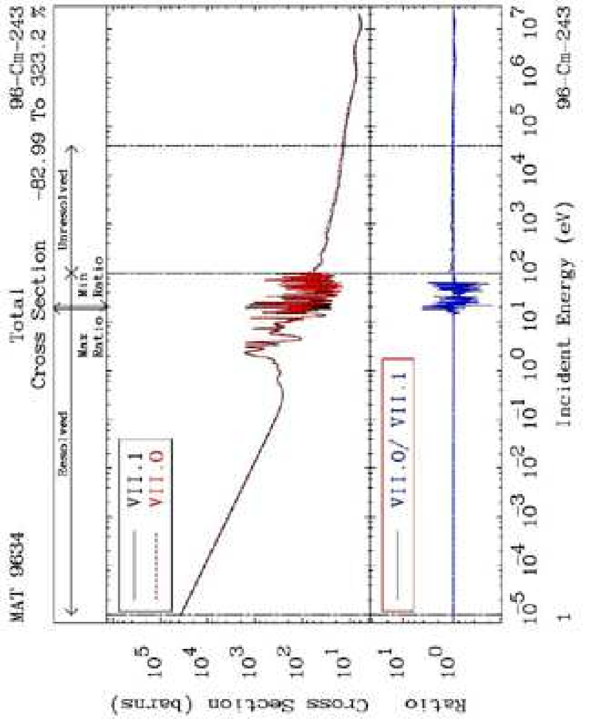

MAT 9446
Total Cross Section
-99.62 To 7792. %
94-Pu-242
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

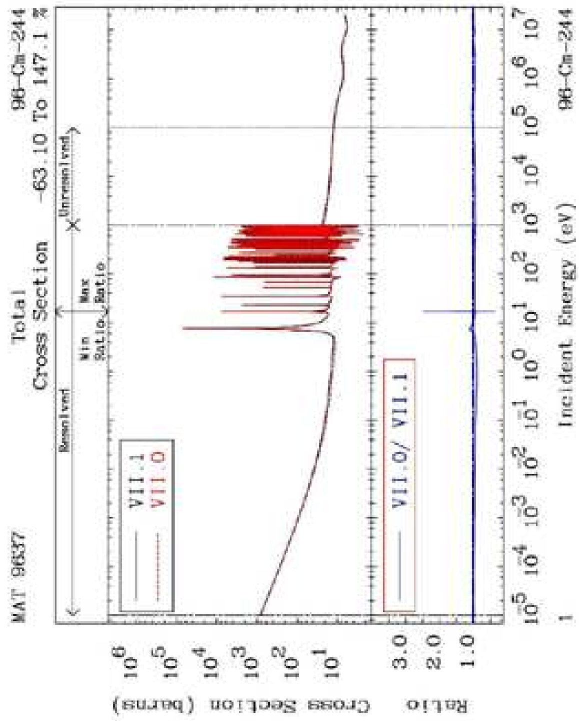

MAT 9543
Total
Cross Section
-89.43 To 355.0 %
95-Am-241
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

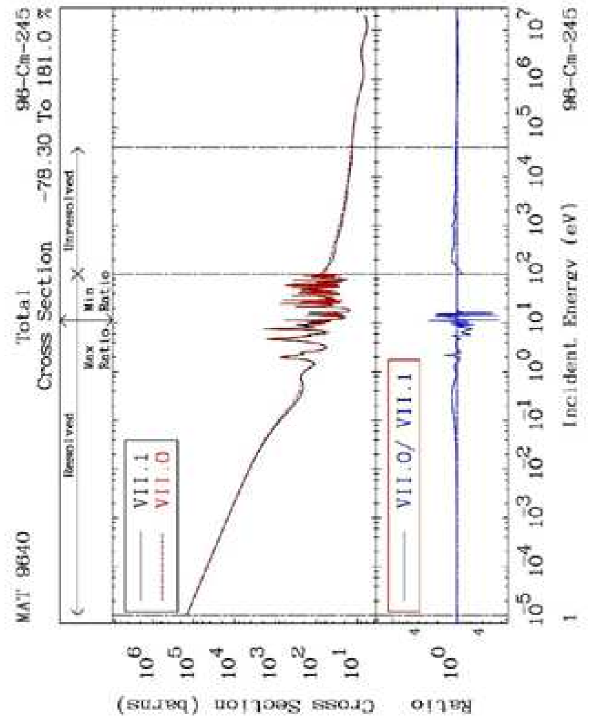

MAT 9628
Total
Cross Section
-20.86 To 138.8 %
96-Cm-241
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

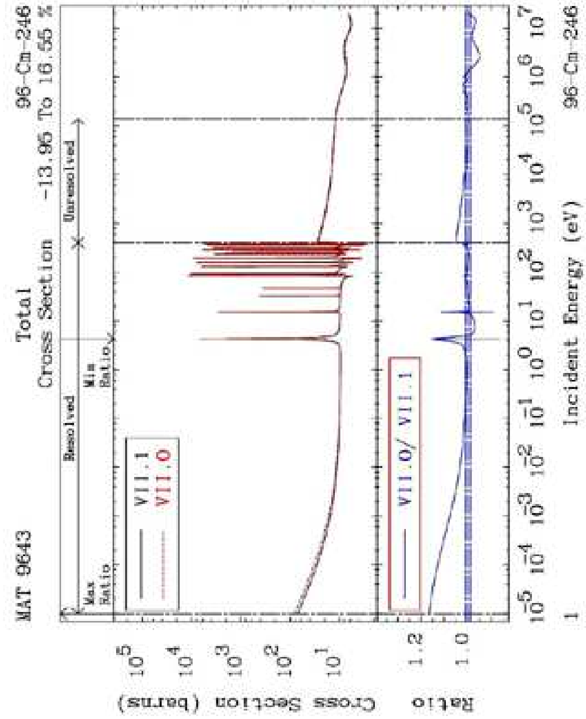

MAT 9549
Total
Cross Section
-82.12 To 610.3 %
95-Am-243
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

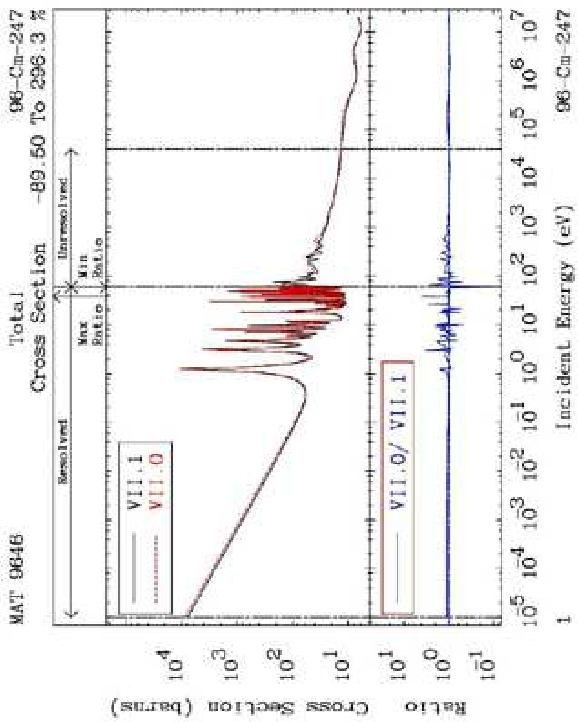

MAT 9631
Total
Cross Section
-58.72 To 17.12 %
96-Cm-242
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

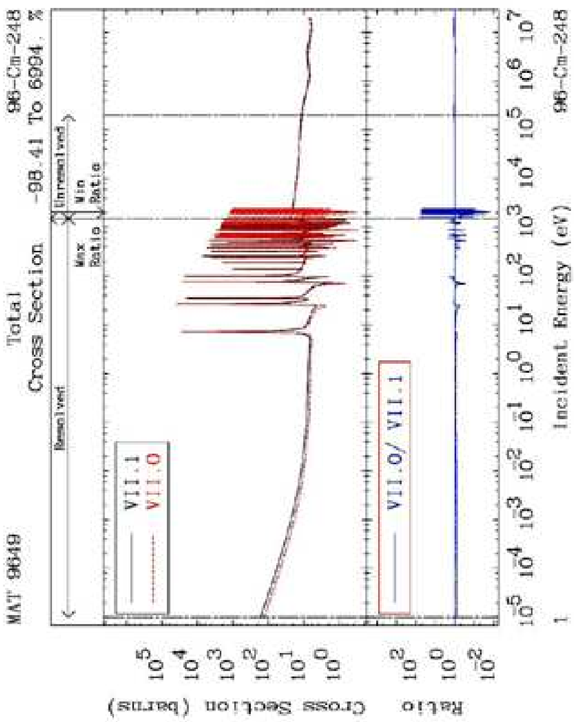

MAT 9634
Total
Cross Section
-82.99 To 323.2 %
96-Cm-243
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

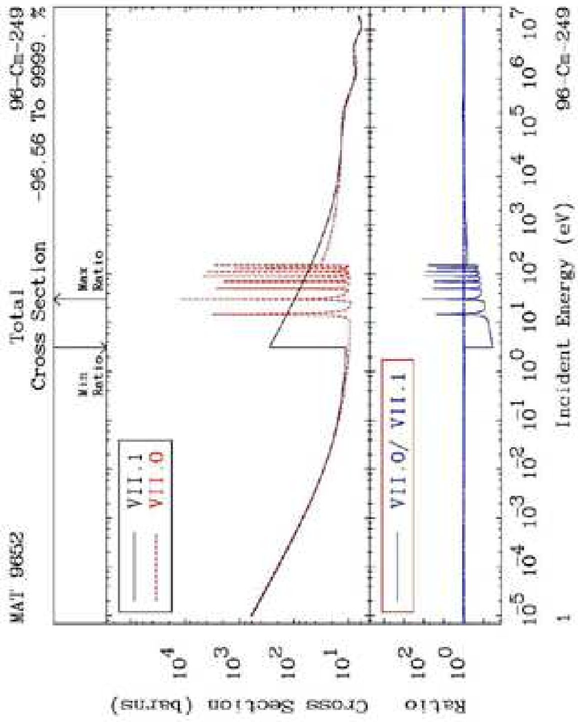

MAT 9637
Total
Cross Section
-63.10 To 147.1 %
96-Cm-244
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

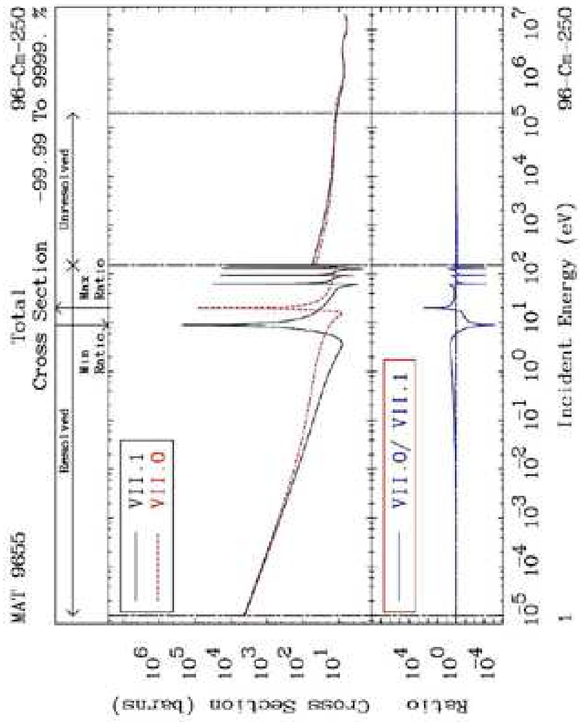

MAT 9640
Total
Cross Section
-78.30 To 181.0 %
96-Cm-245
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

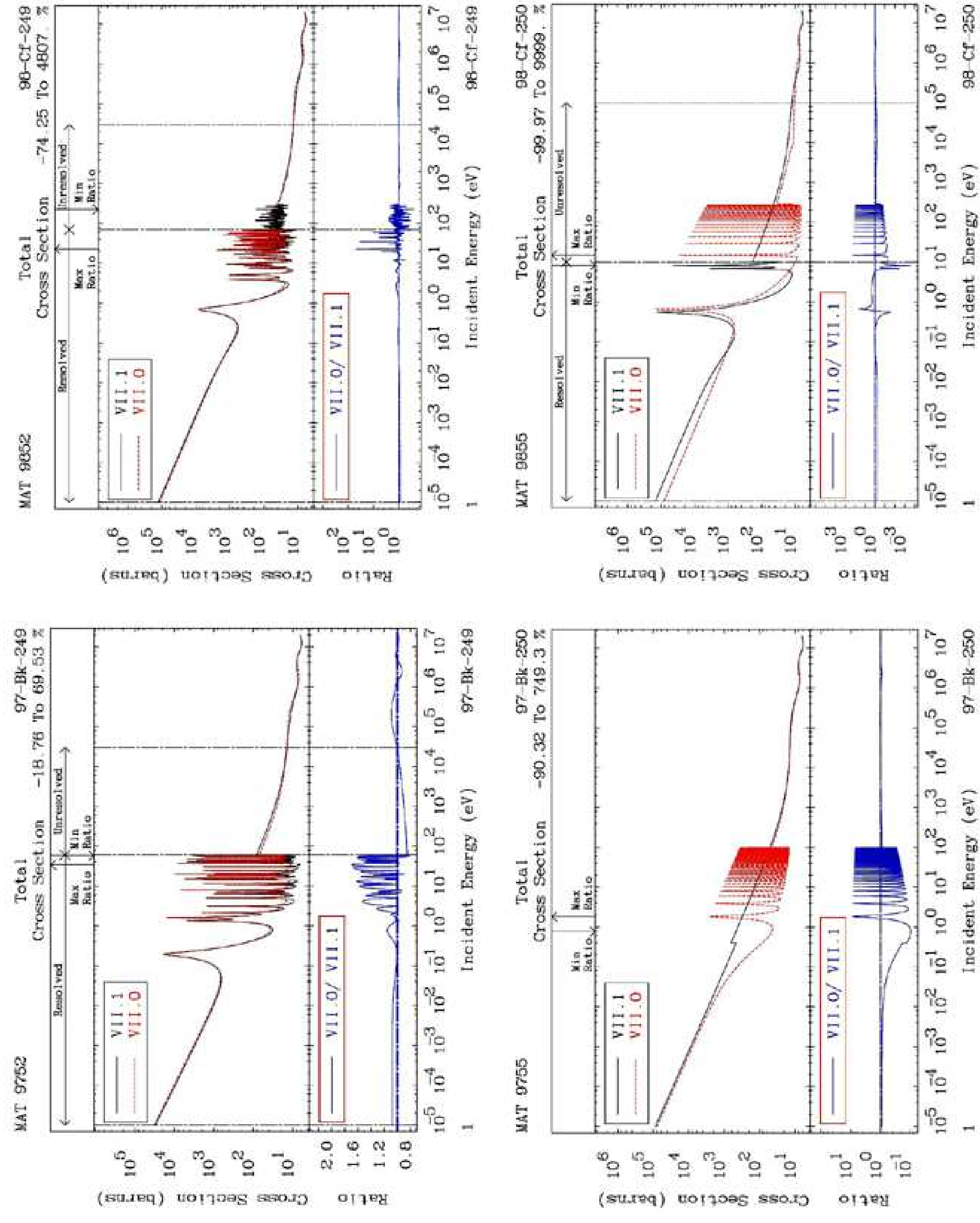

MAT 9643
Total
Cross Section
-13.95 To 16.55 %
96-Cm-246
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

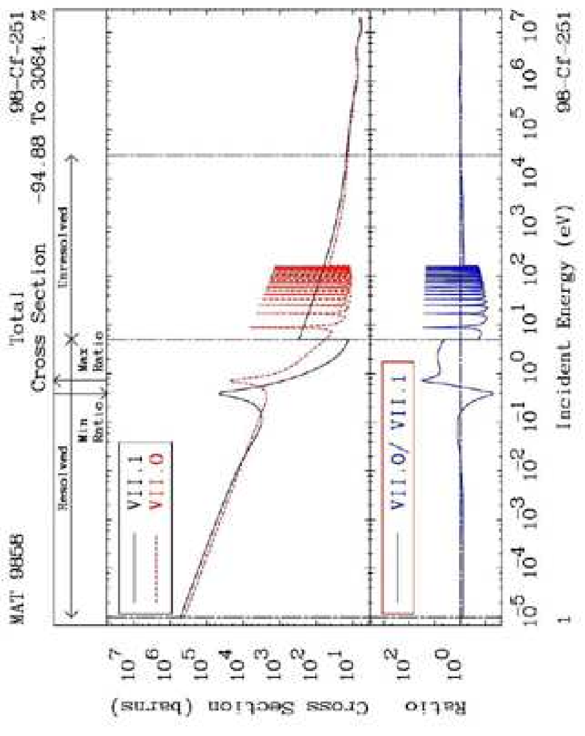

MAT 9646
Total Cross Section
96-Cm-247
-89.50 To 296.3 %
VII.1
VII.0
VII.0/ VII.1
Incident Energy (eV)
Cross Section (barns)
Ratio

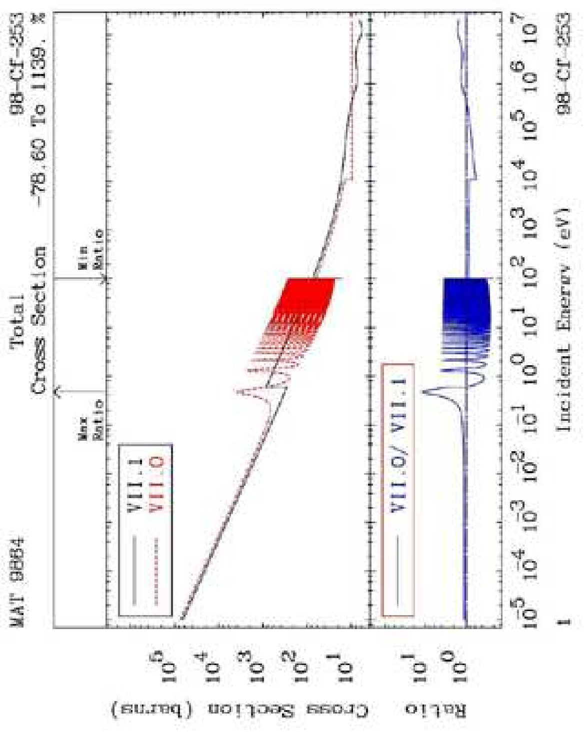

MAT 9649
Total Cross Section
96-Cm-248
-98.41 To 6994. %
VII.1
VII.0
VII.0/ VII.1
Incident Energy (eV)
Cross Section (barns)
Ratio

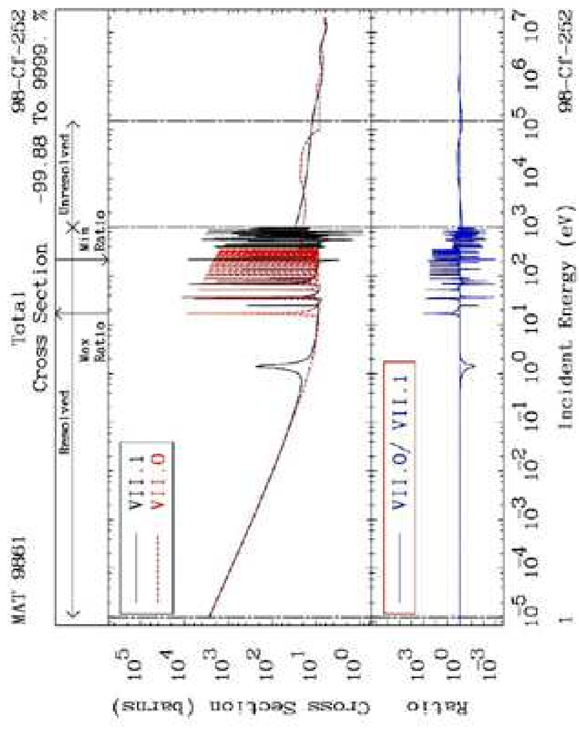

MAT 9652
Total Cross Section
96-Cm-249
-96.56 To 9999. %
VII.1
VII.0
VII.0/ VII.1
Incident Energy (eV)
Cross Section (barns)
Ratio

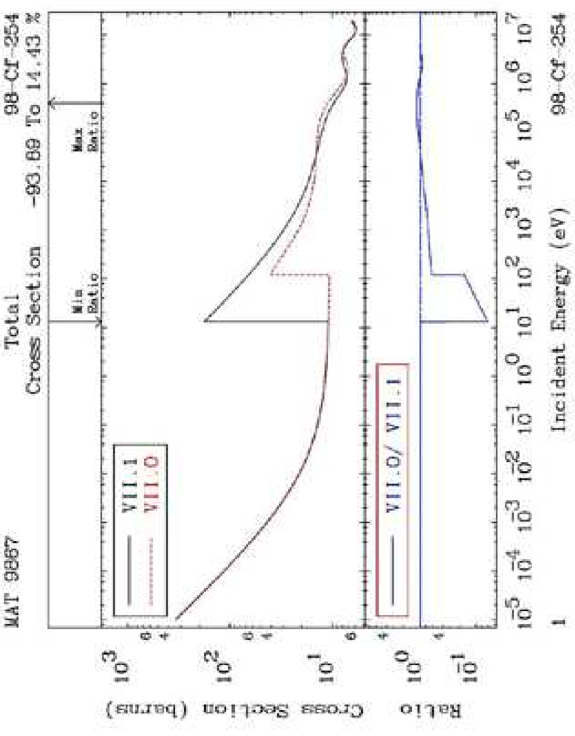

MAT 9655
Total Cross Section
96-Cm-250
-99.99 To 9999. %
VII.1
VII.0
VII.0/ VII.1
Incident Energy (eV)
Cross Section (barns)
Ratio

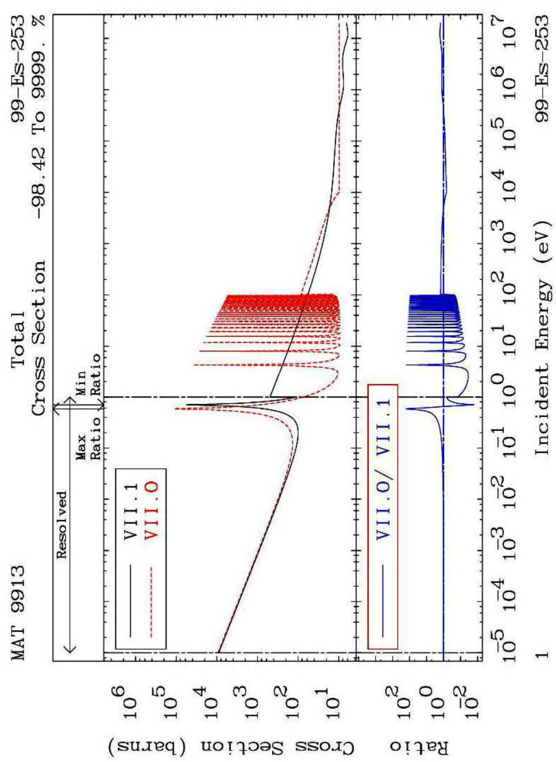

MAT 9752
Total Cross Section
-18.76 To 69.53 %
97-Bk-249
Resolved
Unresolved
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)
MAT 9852
Total Cross Section
-74.25 To 4807. %
98-Cf-249
MAT 9755
Total Cross Section
-90.32 To 749.3 %
97-Bk-250
MAT 9855
Total Cross Section
-99.97 To 9999. %
98-Cf-250

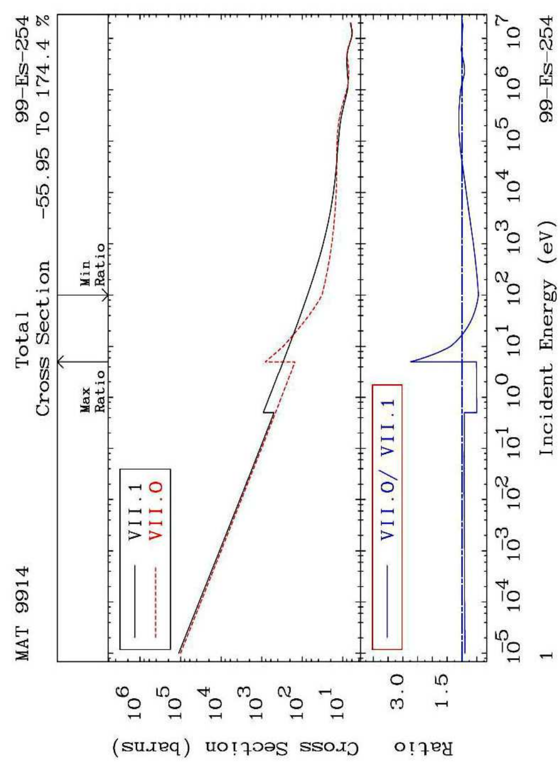

MAT 9858
Total
Cross Section
-94.88 To 3064. %
98-Cf-251
Resolved
Unresolved
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

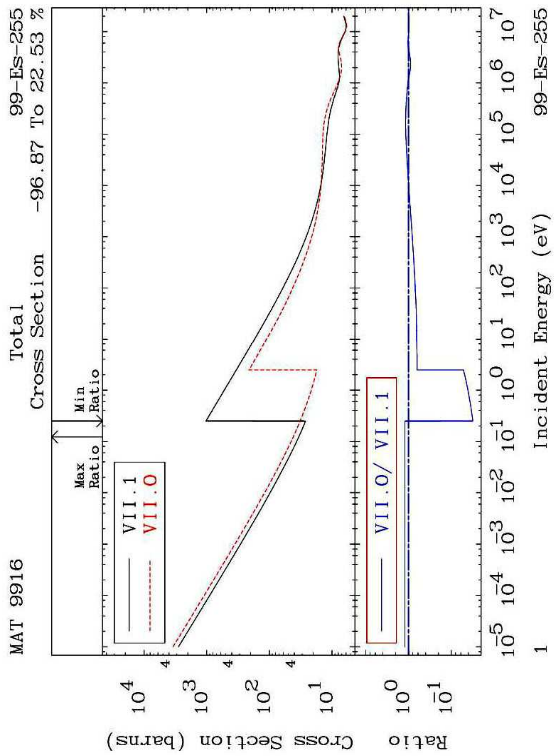

MAT 9864
Total
Cross Section
-78.60 To 1139. %
98-Cf-253
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)

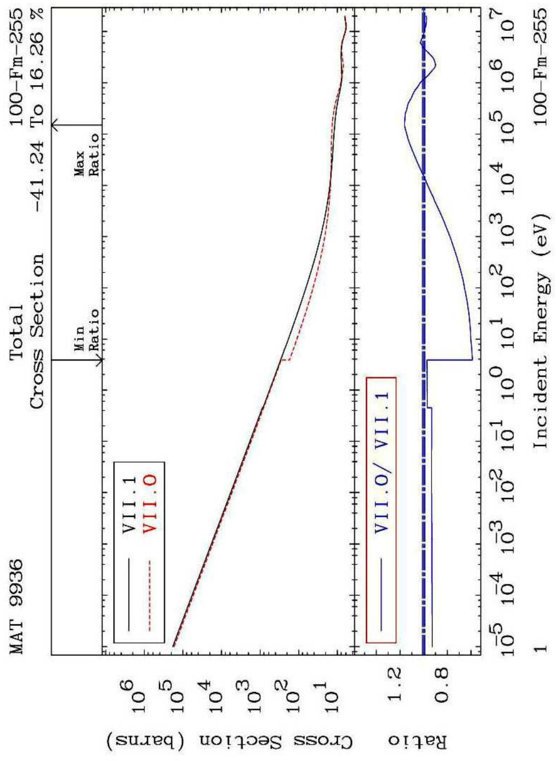

MAT 9861
Total
Cross Section
-99.88 To 9999. %
98-Cf-252
Resolved
Unresolved
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)


MAT 9867
Total
Cross Section
-93.69 To 14.43 %
98-Cf-254
Min Ratio
Max Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)


MAT 9913
Total Cross Section
-98.42 To 9999. %
99-Es-253
Resolved
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)


MAT 9914
Total Cross Section
-55.95 To 174.4 %
99-Es-254
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)


MAT 9916
Total Cross Section
-96.87 To 22.53 %
99-Es-255
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)


MAT 9936
Total Cross Section
-41.24 To 16.26 %
100-Fm-255
Max Ratio
Min Ratio
VII.1
VII.0
VII.0/ VII.1
Cross Section (barns)
Ratio
Incident Energy (eV)