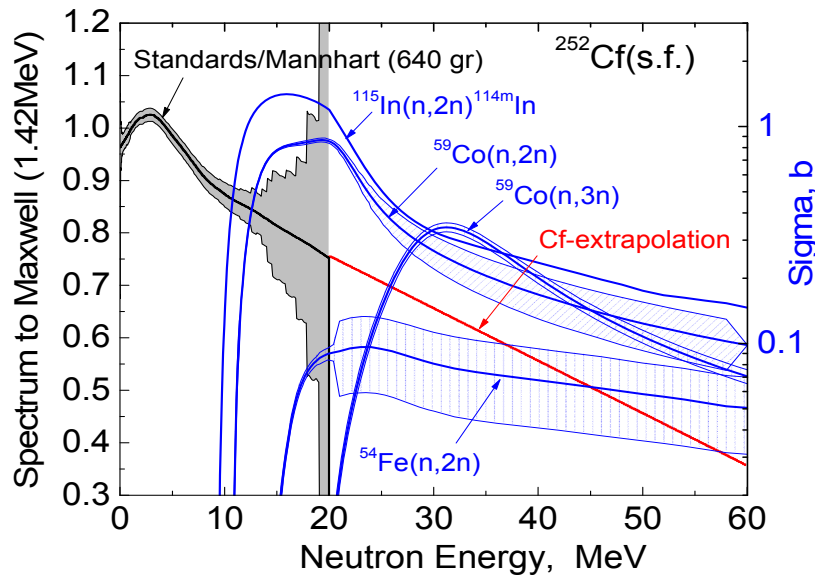


Differences 0.6 - 3.9% for the high threshold reactions are result of extrapolation of the Cf-252 spectrum above 30 MeV only in the MCNP calculations



NN	Target					MCNP5 (< 60 MeV)			RR_UNC (< 30 MeV)		Ratio MCNP5/RR_UNC
	Isotope	MAT	ZAID	MT (ACE file)	Reaction	E (50%) MeV	SPA b	Statist Uncert	E (50%) MeV	SPA mb	
1	6-Li-6	325	3006	105	(n,α)H-3		3.2154E-01	0.0001	0.661	3.2133E+02	1.001
2	5-B-00	500	5000	102	(n,γ)		8.1859E-06	0.0002	0.398	8.1798E-03	1.001
3				103	(n,p)		2.1249E-03	0.0001	3.099	2.1246E+00	1.000
4				106	(n,He3)		9.2994E-12	0.0002	25.433	8.9540E-09	1.039
5				107	(n,xα)		8.8946E-02	0.0001	0.903	8.8896E+01	1.001
6	5-B-10	525	5010	107	(n,xα)		4.4660E-01	0.0001	0.901	4.4636E+02	1.001
7				800	(n,α0)Li-7		1.8464E-01	0.0001	1.856	1.8457E+02	1.000
8				801	(n,α1)Li-7		2.6196E-01	0.0001	0.436	2.6179E+02	1.001
9	9-F-19	925	9019	16	(n,2n)F-18		1.6341E-05	0.0001	14.052	1.6341E-02	1.000
10	11-Na-23	1125	11023	16	(n,2n)Na-22		8.7656E-06	0.0001	15.454	8.7651E-03	1.000
11				102	(n,γ)Na-24		2.7160E-04	0.0004	0.962	2.7147E-01	1.000
12	12-Mg-24	1225	12024	103	(n,p)Na-24		2.1034E-03	0.0001	8.260	2.1026E+00	1.000
13	13-Al-27	1325	13027	103	(n,p)Mg-27		4.7474E-03	0.0001	5.843	4.7467E+00	1.000
14				107	(n,xα)Na-24		1.0175E-03	0.0001	8.668	1.0171E+00	1.000
15	14-Si-28			103	(n,p)Al-28		7.1122E-03	0.0001	7.226	7.1099E+00	1.000
16	14-Si-29			10005	(n,x)Al-28		9.2776E-06	0.0001	16.105	9.2758E-03	1.000
17	15-P-31	1525	15031	103	(n,p)Si-31		3.8025E-02	0.0001	3.732	3.8026E+01	1.000
18	16-S-32	1625	16032	103	(n,p)P-32		7.4044E-02	0.0001	4.074	7.4044E+01	1.000
19	21-Sc-45	2125	21045	102	(n,γ)Sc-46		4.9071E-03	0.0001	0.567	4.9035E+00	1.001
20	22-Ti-46	2225	22046	16	(n,2n)Ti-45		1.2589E-05	0.0001	16.120	1.2588E-02	1.000
21				103	(n,p)Sc-46		1.3822E-02	0.0001	6.081	1.3820E+01	1.000
22	22-Ti-47	2228	22047	103	(n,p)Sc-47		1.9541E-02	0.0001	3.817	1.9540E+01	1.000
23				10005	(n,x)Sc-46		1.9817E-05	0.0001	14.988	1.9815E-02	1.000
24	22-Ti-48	2231	22048	103	(n,p)Sc-48		4.2668E-04	0.0001	8.353	4.2652E-01	1.000
25				10005	(n,x)Sc-47		4.6467E-06	0.0001	16.103	4.6456E-03	1.000
26	22-Ti-49	2234	22049	10005	(n,x)Sc-48		2.8211E-06	0.0001	16.159	2.8205E-03	1.000
27	23-V-51	2328	23051	107	(n,xα)Sc-48		3.8578E-05	0.0001	9.975	3.8565E-02	1.000
28	24-Cr-52	2431	24052	16	(n,2n)Cr-51		9.7632E-05	0.0001	14.719	9.7637E-02	1.000
29	25-Mn-55	2525	25055	16	(n,2n)Mn-54		4.1627E-04	0.0001	13.091	4.1624E-01	1.000
30				102	(n,γ)Mn-56		2.8094E-03	0.0001	0.750	2.8075E+00	1.001
31	26-Fe-54	2625	26054	16	(n,2n)Fe-53		3.6653E-06	0.0001	16.609	3.6644E-03	1.000
32				103	(n,p)Mn-54		8.6508E-02	0.0001	4.439	8.6507E+01	1.000
33				107	(n,xα)Cr-51		1.1123E-03	0.0001	7.430	1.1120E+00	1.000
34	26-Fe-56	2631	26056	103	(n,p)Mn-56		1.4637E-03	0.0001	7.579	1.4632E+00	1.000
35	26-Fe-58	2637	26058	102	(n,γ)Fe-59		2.0138E-03	0.0002	0.734	2.0127E+00	1.001
36	27-Co-59	2725	27059	16	(n,2n)Co-58		4.0796E-04	0.0001	13.090	4.0793E-01	1.000
37				17	(n,3n)Co-57		9.7804E-08	0.0002	22.369	9.7261E-05	1.006
38				102	(n,γ)Co-60		4.8632E-03	0.0001	0.903	4.8604E+00	1.001
39				103	(n,p)Fe-59		1.7142E-03	0.0001	5.943	1.7140E+00	1.000
40				107	(n,xα)Mn-56		2.2113E-04	0.0001	8.372	2.2105E-01	1.000

NN	Target					MCNP5 (< 60 MeV)			RR_UNC (< 30 MeV)		Ratio MCNP5/RR_UNC
	Isotope	MAT	Z AID	MT (ACE file)	Reaction	E (50%) MeV	SPA b	Statist Uncert	E (50%) MeV	SPA mb	
41	28-Ni-58	27825	28058	16	(n,2n)Ni-57	8.6490E-06	0.0001		14.986	8.6491E-03	1.000
42				103	(n,p)Co-58	1.1737E-01	0.0001		4.203	1.1737E+02	1.000
43	28-Ni-60	2831	28060	103	(n,p)Co-60	2.8009E-03	0.0001		7.055	2.8001E+00	1.000
44	29-Cu-63	2925	29063	16	(n,2n)Cu-62	1.9881E-04	0.0001		13.840	1.9881E-01	1.000
45				102	(n,γ)Cu-64	1.0407E-02	0.0001		0.964	1.0401E+01	1.001
46				107	(n,α)Co-60	6.9300E-04	0.0001		7.273	6.9279E-01	1.000
47	29-Cu-65	2931	29065	16	(n,2n)Cu-64	6.5386E-04	0.0001		12.680	6.5380E-01	1.000
48	30-Zn-64	3025	30064	103	(n,p)Cu-64	4.2683E-02	0.0001		4.168	4.2684E+01	1.000
49	30-Zn-67	3034	30067	103	(n,p)Cu-67	1.1056E-03	0.0001		4.709	1.1055E+00	1.000
50	33-As-75	3325	33075	16	(n,2n)As-74	6.2073E-04	0.0001		12.914	6.2068E-01	1.000
51	39-Y-89	3925	39089	16	(n,2n)Y-88	3.4610E-04	0.0001		13.902	3.4611E-01	1.000
52	40-Zr-90	4025	40090	16	(n,2n)Zr-89	2.1804E-04	0.0001		14.424	2.1806E-01	1.000
53	41-Nb-93	4125	41093	102	(n,γ)Nb-94	2.4206E-02	0.0001		0.652	2.4189E+01	1.001
54				11004	(n,n')Nb-93m	1.4606E-01	0.0001		2.686	1.4603E+02	1.000
55				11016	(n,2n)Nb-92m	7.9031E-04	0.0001		11.328	7.9014E-01	1.000
56				10102	(n,γ)Nb-94g	6.0450E-03	0.0001		0.652	6.0407E+00	1.001
57				11102	(n,γ)Nb-94m	1.8161E-02	0.0001		0.652	1.8148E+01	1.001
58	42-Mo-92	4225	42092	11103	(n,p)Nb-92m	7.8290E-03	0.0001		5.391	7.8283E+00	1.000
59	45-Rh-103	4525	45103	11004	(n,n')Rh-103m	7.2456E-01	0.0001		2.380	7.2438E+02	1.000
60	47-Ag-109	4731	47109	12102	(n,γ)Ag-110m	9.3444E-03	0.0001		0.734	9.3383E+00	1.001
61	48-Cd-0	4800	48000	102	(n,γ)	6.1975E-02	0.0001		0.993	6.1940E+01	1.001
62				103	(n,p)	5.1278E-05	0.0001		7.252	5.1269E-02	1.000
63				104	(n,d)	4.2681E-07	0.0001		15.843	4.2671E-04	1.000
64				105	(n,α)	3.5980E-08	0.0001		17.409	3.5959E-05	1.001
65				106	(n,He3)	2.5861E-10	0.0001		24.028	2.4155E-07	1.071
66				107	(n,xα)	8.9945E-05	0.0001		4.966	8.9939E-02	1.000
67	49-In-113	4925	49113	102	(n,γ)In-114	2.1341E-01	0.0001		1.135	2.1329E+02	1.001
68	49-In-113			11004	(n,n')In-113m	1.5803E-01	0.0001		2.731	1.5800E+02	1.000
69	49-In-113			10102	(n,γ)In-114g	4.2132E-02	0.0001		1.094	4.2107E+01	1.001
70	49-In-113			11102	(n,γ)In-114m	1.7128E-01	0.0001		1.144	1.7118E+02	1.001
71	49-In-115	4931	49115	102	(n,γ)In-116	1.5318E-01	0.0001		1.102	1.5309E+02	1.001
72				11004	(n,n')In-115m	1.9052E-01	0.0001		2.674	1.9049E+02	1.000
73				11016	(n,2n)In-114m	1.6312E-03	0.0001		11.808	1.6309E+00	1.000
74				10102	(n,γ)In-116g	2.9551E-02	0.0001		1.044	2.9534E+01	1.001
75				12102	(n,γ)In-116n	1.2363E-01	0.0001		1.116	1.2355E+02	1.001
76	53-I-127	5325	53127	16	(n,2n)I-126	2.1044E-03	0.0001		11.580	2.1040E+00	1.000
77	57-La-139	5728	57139	102	(n,γ)La-140	6.6332E-03	0.0001		1.293	6.6298E+00	1.001
78	59-Pr-141	5925	59141	16	(n,2n)Pr-140	1.9880E-03	0.0001		11.846	1.9877E+00	1.000
79	64-Gd-0	6400	64000	102	(n,γ)	9.1587E-02	0.0001		0.798	9.1528E+01	1.001
80	69-Tm-169	6925	69169	16	(n,2n)Tm-168	6.2608E-03	0.0001		10.400	6.2590E+00	1.000
81				17	(n,3n)Tm-167	1.4743E-05	0.0001		18.495	1.4733E-02	1.001
82	73-Ta-181	7328	73181	102	(n,γ)Ta-182	8.3417E-02	0.0001		0.818	8.3368E+01	1.001
83	74-W-186	7443	74186	102	(n,γ)W-187	3.2787E-02	0.0001		1.023	3.2768E+01	1.001
84	79-Au-197	7925	79197	16	(n,2n)Au-196	5.5247E-03	0.0001		10.542	5.5232E+00	1.000
85				102	(n,γ)Au-198	7.4821E-02	0.0001		0.724	7.4772E+01	1.001
86	80-Hg-199	8034	80199	11004	(n,n')Hg-199m	2.9608E-01	0.0001		3.100	2.9605E+02	1.000
87	82-Pb-204	8225	82204	11004	(n,n')Pb-204m	2.0384E-02	0.0001		5.041	2.0383E+01	1.000
88	83-Bi-209	8325	83209	17	(n,3n)Bi-207	1.9057E-05	0.0001		18.216	1.9046E-02	1.001
89	90-Th-232	9040	90232	18	(n,f)	7.9111E-02	0.0001		3.005	7.9099E+01	1.000
90				102	(n,γ)	9.1277E-02	0.0001		0.910	9.1221E+01	1.001
91	92-U-235	9228	92235	18	(n,f)	1.2249E+00	0.0001		1.706	1.2244E+03	1.000
92				102	(n,γ)	9.0513E-02	0.0001		0.735	9.0453E+01	1.001
93	92-U-238	9237	92238	16	(n,2n)	2.0593E-02	0.0001		8.276	2.0584E+01	1.000
94				18	(n,f)	3.1823E-01	0.0001		2.780	3.1817E+02	1.000
95				102	(n,γ)	6.7592E-02	0.0001		0.919	6.7550E+01	1.001
96	93-Np-237	9346	93237	18	(n,f)	1.3594E+00	0.0001		2.054	1.3590E+03	1.000
97	94-Pu-239	9437	94239	18	(n,f)	1.7962E+00	0.0001		1.778	1.7955E+03	1.000
98	95-Am-241	9543	95241	18	(n,f)	1.3966E+00	0.0001		2.228	1.3963E+03	1.000