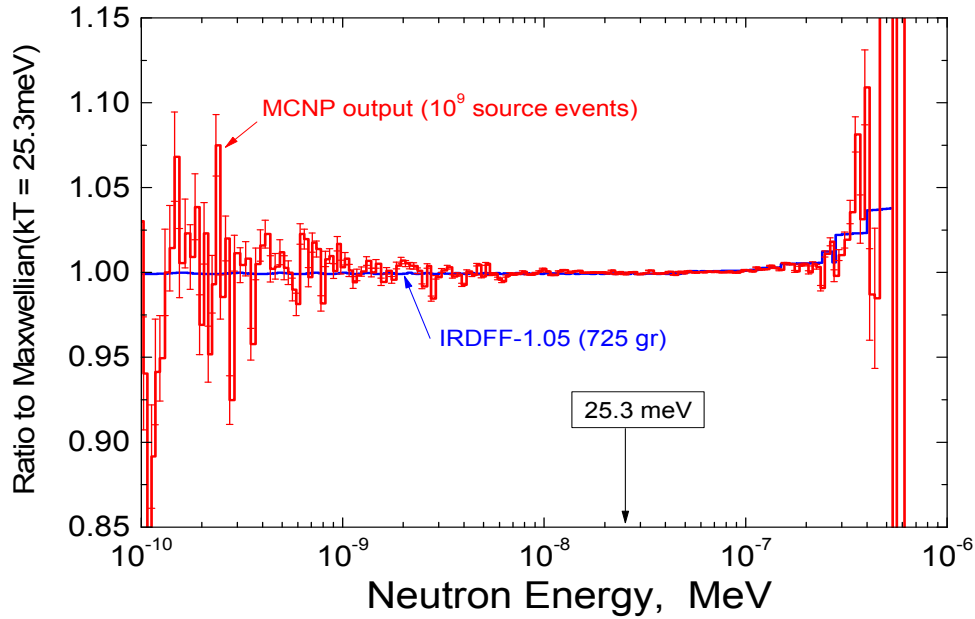


Comparison of thermal Maxwellian (kT = 25.3 meV) spectrum averaged cross sections calculated by MCNP5 and RR_UNC from IRDFF v.1-05

SPA calculated by RR_UNC with the Maxwellian spectrum are normalized to $2/\sqrt{\pi} = 1.128379$

$\langle \Sigma \rangle_{Maxw} = 2/\sqrt{\pi} * \langle \Sigma \rangle_{SPA}$



NN	Target					MCNP5			RR_UNC		Ratio MCNP5/RR_UNC	
	Isotope	MAT	Z AID	MT (ACE file)	Reaction	E (50%) MeV	SPA b	Statist Uncert	E (50%) MeV	SPA_Maxw mb		
1	6-Li-6	325	3006	105	(n,α)H-3		8.3164E+02		2.993-8	9.3850E+05	0.9999	
2	5-B-00	500	5000	102	(n,γ)		9.2037E-02		2.992-8	1.0382E+02	1.0003	
3				103	(n,p)		9.9819E-05		2.993-8	1.1260E-01	1.0003	
4				106	(n,He3)		0.0000E+00					
5				107	(n,αα)		6.7763E+02		2.993-8	7.6439E+05	1.0003	
6	5-B-10	525	5010	107	(n,αα)		3.4049E+03			3.8424E+06	0.9999	
7				800	(n,α0)Li-7		2.1417E+02			2.4168E+05	0.9999	
8				801	(n,α1)Li-7		3.1908E+03			3.6007E+06	0.9999	
9	9-F-19	925	9019	16	(n,2n)F-18		0.0000E+00					
10	11-Na-23	1125	11023	16	(n,2n)Na-22		0.0000E+00					
11				102	(n,γ)Na-24		4.6826E-01			5.2822E+02	1.0003	
12	12-Mg-24	1225	12024	103	(n,p)Na-24		0.0000E+00					
13	13-Al-27	1325	13027	103	(n,p)Mg-27		0.0000E+00					
14				107	(n,αα)Na-24		0.0000E+00					
15	14-Si-28			103	(n,p)Al-28		0.0000E+00					
16	14-Si-29			10005	(n,x)Al-28		0.0000E+00					
17	15-P-31	1525	15031	103	(n,p)Si-31		0.0000E+00					
18	16-S-32	1625	16032	103	(n,p)P-32		0.0000E+00					
19	21-Sc-45	2125	21045	102	(n,γ)Sc-46		2.4124E+01			2.7213E+04	1.0003	
20	22-Ti-46	2225	22046	16	(n,2n)Ti-45		0.0000E+00					
21				103	(n,p)Sc-46		0.0000E+00					
22				103	(n,p)Sc-47		0.0000E+00					
23	22-Ti-47	2228	22047	10005	(n,x)Sc-46		0.0000E+00					
24				103	(n,p)Sc-48		0.0000E+00					
25	22-Ti-48	2231	22048	10005	(n,x)Sc-47		0.0000E+00					
26				10005	(n,x)Sc-48		0.0000E+00					
27	23-V-51	2328	23051	107	(n,αα)Sc-48		0.0000E+00					
28	24-Cr-52	2431	24052	16	(n,2n)Cr-51		0.0000E+00					
29	25-Mn-55	2525	25055	16	(n,2n)Mn-54		0.0000E+00					
30				102	(n,γ)Mn-56		1.1768E+01			1.3275E+04	1.0003	
31	26-Fe-54	2625	26054	16	(n,2n)Fe-53		0.0000E+00					
32				103	(n,p)Mn-54		0.0000E+00					
33				107	(n,αα)Cr-51		0.0000E+00					
34	26-Fe-56	2631	26056	103	(n,p)Mn-56		0.0000E+00					
35	26-Fe-58	2637	26058	102	(n,γ)Fe-59		1.1651E+00			1.3143E+03	1.0003	
36	27-Co-59	2725	27059	16	(n,2n)Co-58		0.0000E+00					
37				17	(n,3n)Co-57		0.0000E+00					
38				102	(n,γ)Co-60		3.2969E+01			3.7190E+04	1.0003	
39				103	(n,p)Fe-59		0.0000E+00					
40				107	(n,αα)Mn-56		0.0000E+00					

NN	Target					MCNP5			RR_UNC		Ratio MCNP5/RR_UNC
	Isotope	MAT	Z AID	MT	Reaction (ACE file)	E (50%) MeV	SPA b	Statist Uncert	E (50%) MeV	SPA_Maxw mb	
41	28-Ni-58	27825	28058	16	(n,2n)Ni-57		0.0000E+00				
42				103	(n,p)Co-58		0.0000E+00				
43	28-Ni-60	2831	28060	103	(n,p)Co-60		0.0000E+00				
44	29-Cu-63	2925	29063	16	(n,2n)Cu-62		0.0000E+00				
45				102	(n,γ)Cu-64		3.9627E+00		4.4701E+03		1.0003
46				107	(n,α)Co-60		0.0000E+00				
47	29-Cu-65	2931	29065	16	(n,2n)Cu-64		0.0000E+00				
48	30-Zn-64	3025	30064	103	(n,p)Cu-64		0.0000E+00				
49	30-Zn-67	3034	30067	103	(n,p)Cu-67		1.0906E-03		1.2302E+00		1.0003
50	33-As-75	3325	33075	16	(n,2n)As-74		0.0000E+00				
51	39-Y-89	3925	39089	16	(n,2n)Y-88		0.0000E+00				
52	40-Zr-90	4025	40090	16	(n,2n)Zr-89		0.0000E+00				
53	41-Nb-93	4125	41093	102	(n,γ)Nb-94		1.0186E+00		1.1490E+03		1.0003
54				11004	(n,n')Nb-93m		0.0000E+00				
55				11016	(n,2n)Nb-92m		0.0000E+00				
56				10102	(n,γ)Nb-94g		2.5438E-01	2.993-8	2.8695E+02		1.0003
57				11102	(n,γ)Nb-94m		7.6421E-01	2.993-8	8.6206E+02		1.0003
58	42-Mo-92	4225	42092	11103	(n,p)Nb-92m		0.0000E+00				
59	45-Rh-103	4525	45103	11004	(n,n')Rh-103m		0.0000E+00				
60	47-Ag-109	4731	47109	12102	(n,γ)Ag-110m		3.7689E+00		4.2515E+03		1.0003
61	48-Cd-0	4800	48000	102	(n,γ)		2.9302E+03		3.3069E+06		0.9998
62				103	(n,p)		1.0000E-10		1.1283E-07		1.0001
63				104	(n,d)		0.0000E+00				
64				105	(n,α)		0.0000E+00				0.0000
65				106	(n,He3)		0.0000E+00				
66				107	(n,αα)		3.5284E-18		3.9838E-15		0.9994
67	49-In-113	4925	49113	102	(n,γ)In-114		1.0812E+01	3.066-8	1.2197E+04		1.0003
68	49-In-113			11004	(n,n')In-113m		0.0000E+00				
69	49-In-113			10102	(n,γ)In-114g		3.5140E+00	3.066-8	3.9640E+03		1.0003
70	49-In-113			11102	(n,γ)In-114m		7.2984E+00	3.066-8	8.2330E+03		1.0003
71	49-In-115	4931	49115	102	(n,γ)In-116		1.8271E+02	3.105-8	2.0612E+05		1.0002
72				11004	(n,n')In-115m		0.0000E+00				
73				11016	(n,2n)In-114m		0.0000E+00				
74				10102	(n,γ)In-116g		3.8370E+01	3.105-8	4.3284E+04		1.0003
75				12102	(n,γ)In-116n		1.4434E+02	3.105-8	1.6283E+05		1.0003
76	53-I-127	5325	53127	16	(n,2n)I-126		0.0000E+00				
77	57-La-139	5728	57139	102	(n,γ)La-140		8.0030E+00		9.0277E+03		1.0003
78	59-Pr-141	5925	59141	16	(n,2n)Pr-140		0.0000E+00				
79	64-Gd-0	6400	64000	102	(n,γ)		3.4594E+04		3.9018E+07		1.0004
80	69-Tm-169	6925	69169	16	(n,2n)Tm-168		0.0000E+00				
81				17	(n,3n)Tm-167		0.0000E+00				
82	73-Ta-181	7328	73181	102	(n,γ)Ta-182		1.8387E+01		2.0741E+04		1.0003
83	74-W-186	7443	74186	102	(n,γ)W-187		3.3806E+01		3.8134E+04		1.0003
84	79-Au-197	7925	79197	16	(n,2n)Au-196		0.0000E+00				
85				102	(n,γ)Au-198		8.7917E+01		9.9175E+04		1.0003
86	80-Hg-199	8034	80199	11004	(n,n')Hg-199m		0.0000E+00				
87	82-Pb-204	8225	82204	11004	(n,n')Pb-204m		0.0000E+00				
88	83-Bi-209	8325	83209	17	(n,3n)Bi-207		0.0000E+00				
89	90-Th-232	9040	90232	18	(n,f)		4.7639E-05				
90				102	(n,γ)		6.4660E+00		7.2939E+03		1.0003
91	92-U-235	9228	92235	18	(n,f)		5.0611E+02				
92				102	(n,γ)		8.6651E+01		9.7744E+04		1.0003
93	92-U-238	9237	92238	16	(n,2n)		0.0000E+00				
94				18	(n,f)		1.4929E-05				
95				102	(n,γ)		2.3829E+00		2.6880E+03		1.0003
96	93-Np-237	9346	93237	18	(n,f)		1.8793E-02				
97	94-Pu-239	9437	94239	18	(n,f)		6.9976E+02				
98	95-Am-241	9543	95241	18	(n,f)		2.7127E+00				