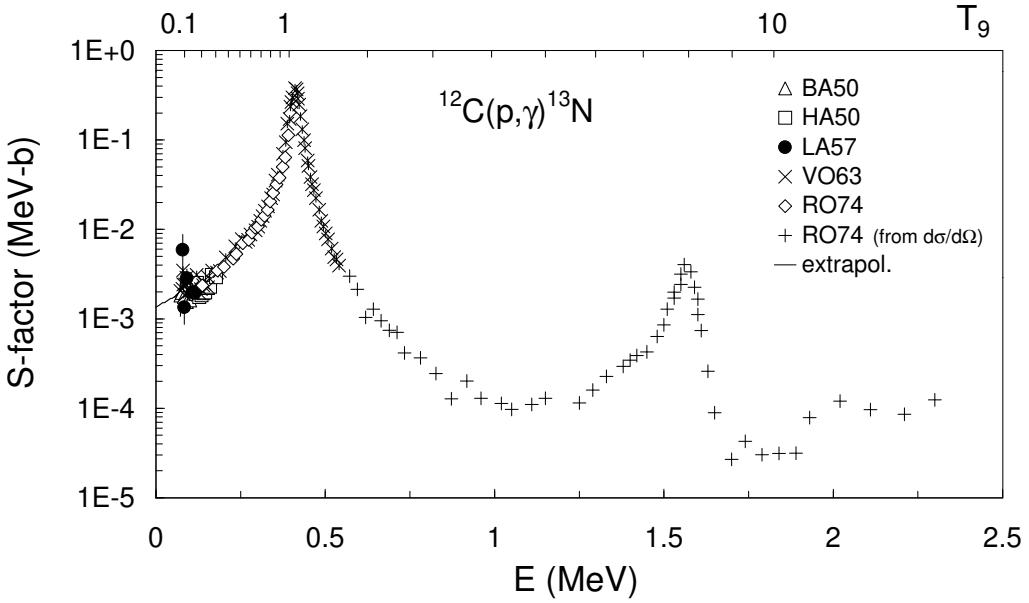
Reaction : $^{12}C(p,\gamma)^{13}N$

Experimental data from BA50, HA50, LA57a, VO63 and RO74a, covering the energy range from 72 to 541 keV, are adopted. For the calculation of the rates, a smooth spline fit to all data is adopted. For the extrapolation to $E = 0$, the direct capture results from [RO74a] are adopted. At higher energies, the 0° and 90° differential cross sections from RO74a multiplied by 4π are adopted, assuming a 40% error. The derived values are in very good agreement with the overlapping adopted data at lower energies. For $E > 2.3$ MeV, the S-factor is assumed to be energy independent, as suggested by direct capture studies [RO74a]. The adopted rates are very close to the CA88 ones, except around $T_9 = 0.3$. This is probably due to the numerical approach used here compared to the analytical approximation used by CA88.



T_9	low	adopt	high	exp	ratio	T_9	low	adopt	high	exp	ratio	T_9	low	adopt	high	exp	ratio
0.006	1.10	1.22	1.34	-24	1.0	0.07	5.52	6.13	6.75	-7	1.1	0.7	1.62	1.81	1.99	2	1.0
0.007	4.35	4.83	5.32	-23	1.0	0.08	2.21	2.45	2.70	-6	1.1	0.8	3.04	3.38	3.72	2	1.0
0.008	0.90	1.00	1.10	-21	1.0	0.09	7.13	7.93	8.72	-6	1.1	0.9	4.87	5.42	5.97	2	0.9
0.009	1.17	1.30	1.43	-20	1.0	0.1	1.96	2.18	2.40	-5	1.1	1	7.01	7.80	8.60	2	0.9
0.01	1.07	1.18	1.30	-19	1.0	0.11	4.76	5.29	5.82	-5	1.1	1.25	1.29	1.44	1.59	3	0.9
0.011	7.33	8.15	8.96	-19	1.0	0.12	1.05	1.16	1.28	-4	1.1	1.5	1.86	2.08	2.30	3	0.8
0.012	4.04	4.49	4.94	-18	1.0	0.13	2.13	2.36	2.60	-4	1.1	1.75	2.34	2.62	2.89	3	0.8
0.013	1.86	2.06	2.27	-17	1.0	0.14	4.04	4.49	4.94	-4	1.1	2	2.70	3.02	3.35	3	0.8
0.014	7.35	8.17	8.99	-17	1.0	0.15	7.27	8.08	8.88	-4	1.1	2.5	3.16	3.56	3.96	3	0.8
0.015	2.57	2.85	3.14	-16	1.0	0.16	1.25	1.39	1.53	-3	1.1	3	3.35	3.80	4.25	3	0.9
0.016	8.06	8.96	9.85	-16	1.0	0.18	3.30	3.67	4.04	-3	1.2	3.5	3.41	3.90	4.39	3	0.9
0.018	6.10	6.78	7.46	-15	1.0	0.2	7.80	8.66	9.53	-3	1.2	4	3.41	3.94	4.47	3	0.9
0.02	3.49	3.88	4.27	-14	1.0	0.25	4.95	5.50	6.05	-2	1.4	5	3.28	3.88	4.48	3	0.9
0.025	1.15	1.28	1.40	-12	1.0	0.3	2.50	2.78	3.05	-1	1.6	6	3.14	3.81	4.48	3	1.0
0.03	1.65	1.83	2.02	-11	1.0	0.35	1.04	1.15	1.27	0	1.5	7	2.97	3.69	4.42	3	1.0
0.035	1.38	1.54	1.69	-10	1.0	0.4	3.43	3.81	4.19	0	1.4	8	2.86	3.64	4.41	3	1.0
0.04	7.97	8.86	9.75	-10	1.0	0.45	0.92	1.02	1.12	1	1.3	9	2.70	3.52	4.34	3	1.0
0.05	1.26	1.40	1.54	-8	1.0	0.5	2.05	2.28	2.51	1	1.2	10	2.69	3.55	4.42	3	1.1
0.06	1.03	1.14	1.26	-7	1.0	0.6	6.90	7.67	8.44	1	1.1						