$^{12}C(^{13}C,^{12}N)$ 2000Ka21

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, C. G. Sheu and J. E. Purcell	NDS 198,1 (2024)	1-Aug-2024

1986Vo02: $^{12}C(^{13}C,^{13}B)$ E=30 MeV/nucleon at Grenoble; measured $\sigma(E(^{13}B_{g.s.}))$ using a QD spectrometer at θ=1.8° with $\Delta E\approx 800$ keV.

1993Bo03: $^{12}C(^{13}C,^{12}N)$ E=336 MeV at the HMI/VICKSI facility. Measured $\sigma(\theta)$ at θ=3.8° using a Q3D spectrometer. Deduced states at ^{13}B(0, 3.65, 5.21, 6.33, 8.24, 10.25 MeV) with no associated uncertainties; the differential cross sections are reported in Table 1.

1994Ic02: $^{13}C(^{12}C,^{12}N)$ E=135 MeV/nucleon from the RIKEN/K=540 MeV ring cyclotron. Measured $\sigma(^{13}B_{g.s.})$ for $\theta<10°$ using the SMART spectrograph. Deduced model parameters, reaction mechanism, strong selectivity of $\Delta S=1$, $\Delta T=1$ transitions.

2000Ka21: $^{12}C(^{13}C,^{12}N)$ E=336.4 MeV. Measured excitation energy spectra for θ=1.8°−5.2° using the Q3D spectrometer at HMI. Ambiguity exists in the reported angular coverage. Deduced excited states, discussed the reaction mechanism and likely J^{π} values.

^{13}B Levels

E(level)[†]	J^{π}[‡]	Γ[‡]	Comments
0	$3/2^{-}$		dσ/dΩ(6.2°)=1.0 μb/sr *3* (2000Ka21).
3690	$(5/2^{-})$		E(level): doublet consisting of unresolved states at 3680 and 3710 keV. dσ/dΩ(6.2°)=1.8 μb/sr *4*.
4120			dσ/dΩ(6.2°)=1.4 μb/sr *3*.
5000			dσ/dΩ(6.2°)=1.4 μb/sr *3*.
5370			dσ/dΩ(6.2°)=3.2 μb/sr *5*.
6400		30 keV	dσ/dΩ(6.2°)=19.0 μb/sr *12*.
7200?		170 keV	E(level): This group appears as a shoulder on the 6.40 MeV peak and may correspond to unresolved states at 7.51 and 7.86 MeV. dσ/dΩ(6.2°)=1.9 μb/sr *4*.
8160		70 keV	dσ/dΩ(6.2°)=3.9 μb/sr *6*.
8680		≤80 keV	dσ/dΩ(6.2°)=3.4 μb/sr *5*.
9310		≤80 keV	dσ/dΩ(6.2°)=2.6 μb/sr *4*.
10220		170 keV	E(level): other: 10250 (1993Bo03). dσ/dΩ(6.2°)=15.1 μb/sr *11*.
11180			E(level): broad structure which may be due to several unresolved states. dσ/dΩ(6.2°)=7.1 μb/sr *7*.

[†] From (2000Ka21); ΔE≈300 keV.

[‡] From analysis of $^{12}C(^{13}C,^{12}N)$,$(^{14}C,^{13}N)$ and $(^{15}N,^{14}O)$ multi-nucleon transfer reactions in (2000Ka21).