$^{12}C(^{14}C,^{13}N)$ 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

2000Ka21: $^{12}C(^{14}C,^{13}N)$ E=336.8 MeV. Measured excitation energy spectra for θ=1.4°−5.0° using the Q3D spectrometer at HMI. Ambiguity exists in the reported angular coverage. Deduced excited states, discussed reaction mechanism and likely J^{π} values. Typo on the last line of p.454: 4^- should be 4^+.

^{13}B Levels

E(level)†	J^{π}‡	Γ‡	Comments
0	$3/2^-$		dσ/dΩ(5.4°)=2.2 μb/sr *2* (2000Ka21).
3680	$(5/2^-)$		E(level): doublet consisting of unresolved states at 3680 and 3710 keV. dσ/dΩ(5.4°)= 5.3 μb/sr *3*.
4130			dσ/dΩ(5.4°)=1.2 μb/sr *2*.
4910			dσ/dΩ(5.4°)=1.8 μb/sr *2*.
5390			dσ/dΩ(5.4°)=5.8 μb/sr *4*.
6370	(5/2,7/2,9/2,11/2)	30 keV	J^{π}: Authors suggest this formed via a two-step process with a p-wave proton pickup to ^{15}N followed by a 2n transfer to ^{13}N. dσ/dΩ(5.4°)=15.1 μb/sr *6*.
6960		150 keV	dσ/dΩ(5.4°)=2.0 μb/sr *2*.
7580		170 keV	E(level): This group appears as a small shoulder on the 8.14 MeV peak and may correspond to unresolved states at 7.51 and 7.86 MeV. dσ/dΩ(5.4°)=1.1 μb/sr *2*.
8140		70 keV	dσ/dΩ(5.4°)=5.3 μb/sr *3*.
8690		≤80 keV	dσ/dΩ(5.4°)=1.9 μb/sr *2*.
9440		≤80 keV	dσ/dΩ(5.4°)=1.6 μb/sr *2*.
10220		170 keV	dσ/dΩ(5.4°)=4.0 μb/sr *3*.
10980			E(level): this may be several unresolved states. dσ/dΩ(5.4°)=6.4 μb/sr *4*.

† 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).