^{13}C(^{14}C,^{14}O)   **1992Os04**

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

1992Os04: ^{13}C(^{14}C,^{14}O) E=337 MeV, measured spectra; deduced Q, ΔM, possible levels, J, π. Used a 300 μg/cm^2 highly enriched ^{13}C target at the VICKSI-facility at HMI. Momentum analyzed reaction products using Q3D spectrometer at θ=5°. Essentially three states are seen, initially presumed to be E_x=0 (Q_0=−37.02 MeV and ΔM=35.16 MeV), 3.12 MeV 7 and 6.5 MeV 2. The measured widths are analyzed and used to constrain possible J^π values. A J^π=1/2$^+$ ground state is expected from theory, but the lowest state reported here is inconsistent with this interpretation.

See also (1992BoZV,1993BoZP,1993BoZT,1993BoZW,1994PeZZ,1995Pe12, 1995OsZX).

^{13}Be Levels

E(level)[‡]	J^π	Γ	E′ (MeV)[†]	Comments
1.56×10^3 5	(5/2$^+$,1/2$^-$)	0.3 MeV 2	2.01 5	State is reported with Q_0=−37.02 MeV 5, which implies ΔM=35.16 MeV 5.
4.68×10^3 7		0.4 MeV 2	5.13 7	
8.1×10^3 2		0.9 MeV 3	8.5 2	

[†] E′ is a relative excitation energy scale with E′=0 at the neutron separation energy. We use this scale because most articles report level energies with respect to the n+^{12}Be$_{g.s.}$ center of mass energy.

[‡] The ground state is taken as $E_{c.m.}$(n+^{12}Be$_{g.s.}$)=0.45 MeV 1; see Adopted Levels.