
 ${}^9\text{Be}({}^9\text{C}, {}^8\text{C})$ [2010Ch42,2011Ch32](#)

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. E. Purcell, C. G. Sheu	ENSDF	13-Aug-2018

[2010Ch42](#): The authors measured the multiproton decay properties of ${}^8\text{C}$ by measuring the complete kinematics of remnant $\alpha+4\text{p}$ decay products. The proton correlations indicate that the decay follows a ${}^8\text{C}\rightarrow{}^6\text{Be}+2\text{p}\rightarrow\alpha+2\text{p}+2\text{p}$ multi-step path. A beam of 70 MeV/nucleon ${}^9\text{C}$ was produced by fragmentation of a ${}^{16}\text{O}$ beam at the NSCL. The ${}^9\text{C}$ beam impinged on a ${}^9\text{Be}$ target and short lived unbound nuclei produced in the reactions were studied by reconstruction of the of the breakup particle kinematics. The proton-proton pairing correlations indicate that 92% 5 of events proceed through the $2\text{p}+{}^6\text{Be}_{\text{g.s.}}$ decay channel. Combined with results on ${}^6\text{Be}$, this indicates a ${}^8\text{C}\rightarrow{}^6\text{Be}+2\text{p}\rightarrow\alpha+2\text{p}+2\text{p}$ decay path. Data on ${}^8\text{B}^*$ decay is consistent with 2p decay from ${}^8\text{B}^*(10.61\text{ MeV})$ which is the IAS of ${}^8\text{C}_{\text{g.s.}}$.

[2011Ch32](#): The authors impinged a 70 MeV/nucleon ${}^9\text{C}$ beam on a thick ${}^9\text{Be}$ target and detected ejected reaction products with a large area position sensitive $\Delta\text{E-E}$ array. Reconstruction of the complete kinematics permitted an analysis of excitation energies, decay pathways and associated branching ratios for several nuclei. A beam of 150 MeV/nucleon ${}^{16}\text{O}$ ions was fragmented in a thick ${}^9\text{Be}$ target to produce a 70 MeV/nucleon ${}^9\text{C}$ beam in the NSCL A 1900 fragment separator. The ${}^9\text{C}$ beam impinged on a 1mm thick ${}^9\text{Be}$ target and reaction products were detected in 14 position sensitive $\Delta\text{E-E}$ elements of the HiRA array. The coincident reaction products were analyzed via kinematic energy reconstruction to evaluate excitation energies and decay paths. The authors obtained the ${}^8\text{C}$ mass excess $\Delta\text{M}({}^8\text{C})=35.030\text{ MeV}$ 30 and the width $\Gamma=130\text{ keV}$ 50.

 ${}^8\text{C}$ Levels

E(level)	Γ	Comments
0	130 keV 50	Obtained mass excess 35.030 MeV.