

${}^1\text{H}({}^{19}\text{C}, {}^{18}\text{C}\gamma)$ 2009Ko02

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. Kelley, C. G. Sheu	ENSDF	01-May-2017

The authors produced a $E({}^{19}\text{C})=81$ MeV/nucleon beam by fragmenting ${}^{22}\text{Ne}$ ions at the RIKEN/RIPS facility. The beam impinged on a 120 mg/cm² liquid hydrogen target an the CRYPTA (cryogenic proton/ α) target system. The trajectory of the incident beam on target was measured, and the outgoing particles were momentum analyzed using a large acceptance magnetic spectrometer that selected ${}^{18}\text{C}$ particles following one-neutron removal. In addition, the 48 NaI crystal DALI γ -ray array surrounded the hydrogen target and measured γ -rays in coincidence with the ${}^{18}\text{C}$ fragments. Three γ -ray transitions were observed in coincidence with ${}^{18}\text{C}$ particles in the focal plane; the deduced level scheme is understood based on known levels.

In the analysis, transverse momentum distributions of ${}^{18}\text{C}$ reaction products were generated for coincidences with each of the γ transitions. The momentum distributions were then evaluated, via CDCC analysis, to obtain l values of the removed neutrons from ${}^{19}\text{C}$.

 ${}^{18}\text{C}$ Levels

E(level)	$J^{\pi\dagger}$	l^{\ddagger}
0	0^+	0
1600	2^+	2
2500	$(0,2)^+$	0,2
4000	$(2,3)^+$	2

[†] From shell model expectations.

[‡] Orbital angular momentum of removed neutron.

 $\gamma({}^{18}\text{C})$

E_{γ}	$E_i(\text{level})$	J_i^{π}	E_f	J_f^{π}
940 20	2500	$(0,2)^+$	1600	2^+
1600 20	1600	2^+	0	0^+
2370 20	4000	$(2,3)^+$	1600	2^+

${}^1\text{H}({}^{19}\text{C}, {}^{18}\text{C}\gamma)$ 2009Ko02Level Scheme