<sup>13</sup><sub>4</sub>Be<sub>9</sub>

## <sup>14</sup>C(π<sup>-</sup>,**p**) **1998Go30**

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

1998Go30: <sup>14</sup>C( $\pi$ -,p) E at rest. Measured missing mass spectra.

A 30 MeV  $\pi^-$  beam, from the LAMPF, was slowed in a beryllium moderator and stopped in a 25 mg/cm<sup>2</sup>  $\approx$ 77% enriched <sup>14</sup>C target. Protons from the <sup>14</sup>C( $\pi^-$ ,p) capture reactions were measured using the MEPI two-armed  $\Delta$ E-E semiconductor spectrometer; the <sup>13</sup>Be excited state energies were deduced by analysis of the missing mass spectra.

Three resolved peaks are observed above the <sup>12</sup>Be+n threshold at  $E_{res}$ =1.87, 2.95 and 4.96 MeV. However, poor statistics in the lower energy region yield two ambiguous interpretations; the region below  $E_{res}$ =1.5 MeV can be fit using either one peak at  $E_{res}$ =0.65 MeV *10* with  $\Gamma$ ≈250 keV or with two peaks at 0.09 MeV *10* and 0.68 MeV *10* each having  $\Gamma$ <200 keV. We take the single peak interpretation, but also highlight the poor quality of data below  $E_{c.m.}(n+{}^{12}Be_{g.s.})=1.5$  MeV.

## <sup>13</sup>Be Levels

E(level) <sup>‡</sup>	Г	$E' (MeV)^{\dagger}$	Comments
0.20×10 <sup>3</sup> 10	≈250 keV	0.65 10	E(level): Possible doublet involving the ground and first excited states.
1.42×10 <sup>3</sup> 10	0.3 MeV 1	1.87 10	
2.50×10 <sup>3</sup> 10	<150 keV	2.95 10	
4.51×10 <sup>3</sup> 10	≈1.7 MeV	4.96 20	

<sup>†</sup> 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.

<sup>‡</sup> The ground state is taken as  $E_{c.m.}(n+{}^{12}Be_{g.s.})=0.45$  MeV *1*; see Adopted Levels.