

$^{14}\text{C}(^{12}\text{C},\alpha)$  2011To14,2011To07

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia		NDS 127, 69(2015)	1-Apr-2015

**2011To14,2011To07:** Target: 80% enriched in  $^{14}\text{C}$  self-supporting carbon foil of thickness 280  $\mu\text{g}/\text{cm}^2$ . Projectile:  $^{12}\text{C}$  beam,  $E=44$  MeV. The primary  $\alpha$ -particles were detected with two 10 mm<sup>2</sup> silicon detectors at forward angles and  $\alpha$ -particle from  $^{22}\text{Ne}$  decay were detected by  $\Delta E$ -E telescopes of a position-sensitive gas proportional counter as  $\Delta E$  detector and 10 silicon PIN diodes as E detectors at angles from 34° to 74°. Measured  $\sigma(E_\alpha, \theta)$ ,  $\alpha\alpha(\theta)$ . Deduced levels,  $J^\pi$ .

 $^{22}\text{Ne}$  Levels

E(level)	$J^\pi$ <sup>‡</sup>	$\Gamma$	Comments
17.00×10 <sup>3</sup> <sup>†</sup> 10			
18.45×10 <sup>3</sup> 10		≈330 keV	
19.13×10 <sup>3</sup> <sup>†</sup> 10			
20.00×10 <sup>3</sup> 10	9 <sup>-</sup>	≈270 keV	
20.70×10 <sup>3</sup> <sup>#</sup> 10	11 <sup>-</sup>	≈340 keV	
21.60×10 <sup>3</sup> <sup>#</sup> 10	9 <sup>-</sup>	≈350 keV	
22.20×10 <sup>3</sup> 10	12 <sup>+</sup>	≈250 keV	E(level): yrast state.
22.90×10 <sup>3</sup> 10		≈290 keV	
24.00×10 <sup>3</sup> <sup>†</sup> 10			
25.00×10 <sup>3</sup> 10	9 <sup>-</sup>	≈350 keV	
25.90×10 <sup>3</sup> <sup>†</sup> 10			
27.00×10 <sup>3</sup> <sup>†</sup> 10			

<sup>†</sup> Unresolved group of levels.

<sup>‡</sup> From the analysis of double ( $\alpha, \alpha$ ) angular correlations with the residual  $^{18}\text{O}$  nucleus in the 0<sup>+</sup> ground state.

<sup>#</sup> Member of  $\alpha$ -cluster rotational band.