

$^9\text{Be}(^{14}\text{C},\text{p}\gamma)$ 2007Le28

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

^{14}C beam, E=22 MeV beam. Protons detected with segmented $\Delta\text{E-E}$ Si telescope. Measured $\text{E}\gamma$, $\text{I}\gamma$, $\text{p}\gamma$ coin, $\text{p}\gamma\gamma$ coin, $\text{p}\gamma(\theta)$ using Compton suppressed HPGe detectors arranged with one four-crystal clover detector and a single crystal detector at 90° , two clover detectors at 35° and three single detectors at 135° . Measured lifetimes by DSAM.

 ^{22}F Levels

E(level) [†]	J^π [#]	$\text{T}_{1/2}$ [‡]	Comments
0.0	(4 ⁺)		
72.6 4	3 ⁺ @		
709.9 7	2 ⁺ @	57 fs 28	
1413.5 5	(5 ⁺)	27 fs 14	
1628.0 8	1 ⁺	66 fs 10	
1632.9 4	(3 ⁺)	34 fs 21	
2007.5 8	2 ⁺ @	55 fs 14	
2571.2 8	1 ⁺ @	53 fs 28	
2833.0 6	(4 ⁺)	37 fs 28	J^π : 2759.4 γ angular distribution rules out E2 decay.
3377.3 8	1 ⁺ , 2 ⁺ @	44 fs 21	
3582.0 6	5 ⁺ @	76 fs 21	

[†] From least-squares fit to γ -ray energies, assuming $\Delta\text{E}=0.5$ keV.

[‡] Measured using Doppler Shift Attenuation Method (DSAM) (2007Le28).

[#] From Adopted Levels, except otherwise noted.

@ Assigned in 2007Le28, based on $\gamma(\theta)$ measurement and γ placement in the level scheme.

 $\gamma(^{22}\text{F})$

E_γ	I_γ	$\text{E}_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
72.1	120 5	72.6	3 ⁺	0.0	(4 ⁺)	I_γ : 72.1 γ intensity is lower than expectation (2007Le28), probably because of uncertain relative efficiency of the detector at low energy γ ray.
637.3	100	709.9	2 ⁺	72.6	3 ⁺	δ : nearly zero from $\gamma(\theta)$ (2007Le28) for 2 ⁺ assignment for 709.9 keV level.
748.3	3.4 1	3582.0	5 ⁺	2833.0	(4 ⁺)	
918.1	35 3	1628.0	1 ⁺	709.9	2 ⁺	
1297.5	14 2	2007.5	2 ⁺	709.9	2 ⁺	
1414.2	32 2	1413.5	(5 ⁺)	0.0	(4 ⁺)	
1560.5	14 2	1632.9	(3 ⁺)	72.6	3 ⁺	
1632.6	30 3	1632.9	(3 ⁺)	0.0	(4 ⁺)	
1861.2	13 2	2571.2	1 ⁺	709.9	2 ⁺	
2169.2	26 3	3582.0	5 ⁺	1413.5	(5 ⁺)	
2667.2	19 3	3377.3	1 ⁺ , 2 ⁺	709.9	2 ⁺	
2759.4	14 2	2833.0	(4 ⁺)	72.6	3 ⁺	

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Legend

Level Scheme

Intensities: Relative I_γ

- $\longrightarrow$ $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
 $\longrightarrow$ $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
 $\longrightarrow$ $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
 $\bullet$ Coincidence

