^{18}O(^{14}C,pnγ) 2008Hi05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia, A. Chakraborty	NDS 197,1 (2024)	31-May-2024

Target: ^{18}O on Ta backing; Projectile: ^{14}C, E=22 MeV; Detectors: E-ΔE Si telescope, 3 Clover HPGe detectors at 90° and 6 HPGe detectors each two at 35°, 90°, and 145° with respect to the beam direction; identified charged particle, measured Eγ, Iγ, $\gamma\gamma$-coin; p-γ coin, γ-ray angular distribution, deduced level scheme, J^π. Measurement was performed at NSCL.

^{30}Al Levels

E(level)†	J$^\pi$‡	Comments
0	3$^+$	
243.8 *5*	2$^+$	
687.9 *7*	1$^+$	
1120.0 *7*	3$^+$,2$^+$	
1246.0 *8*	(4$^+$)	
1562.3 *16*		
1801.8 *17*		
2298.8 *9*		
2845.3 *13*		
2906.8 *11*		
3463.5 *17*		
3904.2 *17*		
4291.6? *18*		E(level): uncertain level in 2008Hi05. 2010St13 also did not report. Not adopted.
5509 *3*		
6421 *4*		

† From a least-squares fit to the γ-ray energies.
‡ From the Adopted Levels.

γ(^{30}Al)

Eγ	Iγ	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
243.7 *5*	100	243.8	2$^+$	0	3$^+$	
387.4†‡ *10*	10 *1*	4291.6?		3904.2		
444.1 *5*	19 *2*	687.9	1$^+$	243.8	2$^+$	
607.7 *9*	37 *5*	2906.8		2298.8		
875.9 *9*	22 *2*	1120.0	3$^+$,2$^+$	243.8	2$^+$	
997.4 *13*	25 *3*	3904.2		2906.8		
1120.2 *10*	10 *2*	1120.0	3$^+$,2$^+$	0	3$^+$	
1178 *3*	3.3 *6*	2298.8		1120.0	3$^+$,2$^+$	
1246.2 *8*	60 *3*	1246.0	(4$^+$)	0	3$^+$	
1318.5 *15*	0.9 *3*	1562.3		243.8	2$^+$	Eγ: no evidence of this 1319γ is found by 2010St13 (^{18}O,pnγ), thus no state is reported. Level and γ-ray are not adopted.
1558.0 *16*	1.8 *5*	1801.8		243.8	2$^+$	
1605.1†‡ *25*	2 *1*	3904.2		2298.8		Eγ: uncertain placement in 2008Hi05. 2010St13 also did not observe. Placed from 5500.73 keV level in the adopted dataset.
1605.1 *25*	8 *4*	5509		3904.2		$\gamma(\theta)$ of 1605- to 1607-keV possible doublet shows predominately ΔJ=1 character, a weaker transition of E2 not ruled out.
1661.5 *14*	16 *5*	2906.8		1246.0	(4$^+$)	
1725.3 *10*	17 *2*	2845.3		1120.0	3$^+$,2$^+$	
2217.4 *15*	1.1 *2*	3463.5		1246.0	(4$^+$)	
2298.4 *10*	40 *8*	2298.8		0	3$^+$	
2517 *3*	7 *2*	6421		3904.2		$\gamma(\theta)$ of 2517γ is consistent with only ΔJ=1 transition.

Continued on next page (footnotes at end of table)

^{18}O(^{14}C,pnγ) 2008Hi05 (continued)

$\gamma(^{30}Al)$ (continued)

† γ-ray is not adopted because of uncertain placement.
‡ Placement of transition in the level scheme is uncertain.

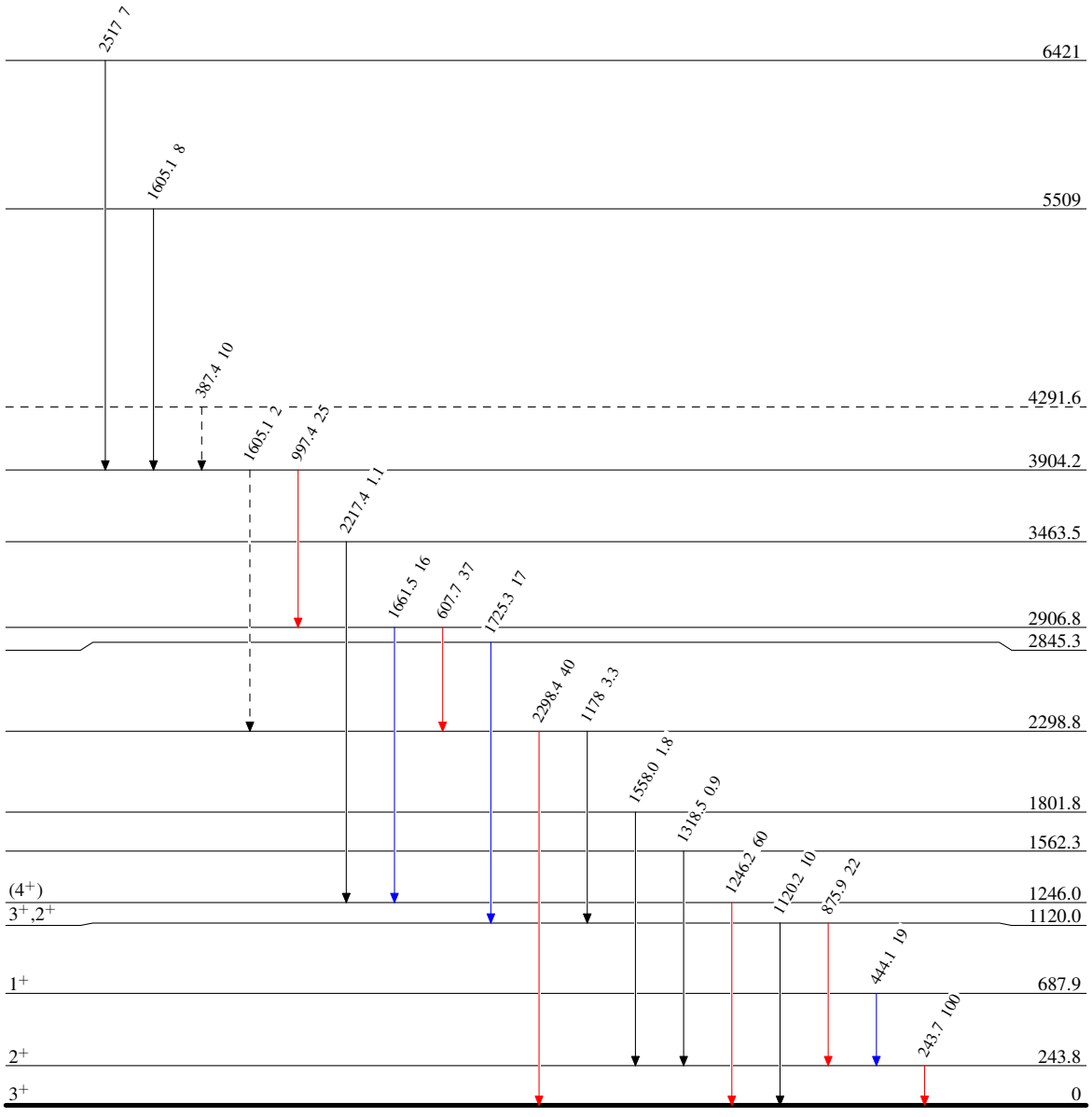
$^{18}O(^{14}C,pn\gamma)$ 2008Hi05

Level Scheme

Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{30}_{13}Al_{17}$