^{14}C(^{14}C,pγ) 2002Co11

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 112, 1875 (2011)	30-Nov-2010

Others: 2002Ta10, 2001Co05.

2002Co11,2002Ta10,2001Co05 (same research group): target: ^{14}C; Projectile: ^{14}C, E=22 MeV; Detectors: Si ΔE-E particle telescope, 3 Compton-suppressed Clover and 7 HPGe Compton-suppressed detectors; Measured: Eγ, Iγ, particle-γ and P-γγ coin; deduced level scheme.

^{27}Na Levels

E(level)[†]	Jπ[‡]	Comments
0[@]	5/2$^+$	Jπ: From Adopted Levels.
62.1 *8*	3/2$^+$	Jπ: Presumably, this state is analogous to the 90 keV *3/2*$^+$ state in ^{25}Na.
1725.1 *13*	(1/2$^-$)	
1815.2 *10*	(1/2$^+$)	
2191.2 *10*	(7/2$^+$)	
2224.2[@] *9*	(9/2$^+$)	
2729.1[#] *10*	(5/2$^+$)	
3017.2[#] *10*	(3/2$^+$)	
3638.3 *10*		
3657.2 *13*	(9/2$^+$)	
3837.3 *15*	(5/2$^+$)	
4235.4 *9*	(7/2$^+$)	
4525.4 *10*		
4716.4 *9*	(3/2$^+$)	
5190.3[@] *13*	(13/2$^+$)	
5408.5 *10*	(11/2$^+$)	
5704.5 *8*	(11/2$^+$)	
5762.7 *10*		
5947.6 *13*	(9/2$^+$)	
6158.6 *8*	(9/2$^+$)	
6518.4[#] *15*	(5/2$^+$)	
6741.6 *13*	(7/2$^+$,9/2,11/2$^+$)	
9186.7[@] *17*	(17/2$^+$)	

[†] From a least-square fit to γ-ray energies, assuming ΔE=1 keV for all γ-rays.

[‡] Proposed in 2002Co11, based on systematics and comparison of the experimental level energies with values calculated using shell model, except otherwise noted.

[#] Depopulating γ-ray from this level has been shown to feed the g.s. in the decay scheme. If the γ-ray feed the 62 keV state, then the energy of the state would be 62 keV higher (2002Co11).

[@] Band(A): g.s. band.

γ(^{27}Na)

E_i(level)	J_i^π	E_γ	E_f	J_f^π	Mult.[†]	E_i(level)	J_i^π	E_γ	E_f	J_f^π
62.1	3/2$^+$	62	0	5/2$^+$	M1+E2	3017.2	(3/2$^+$)	3017	0	5/2$^+$
1725.1	(1/2$^-$)	1663	62.1	3/2$^+$		3638.3		3638	0	5/2$^+$
1815.2	(1/2$^+$)	1753	62.1	3/2$^+$		3657.2	(9/2$^+$)	1433	2224.2	(9/2$^+$)
2191.2	(7/2$^+$)	2129	62.1	3/2$^+$	E2	3837.3	(5/2$^+$)	1646	2191.2	(7/2$^+$)
2224.2	(9/2$^+$)	2224	0	5/2$^+$	E2	4235.4	(7/2$^+$)	4235	0	5/2$^+$
2729.1	(5/2$^+$)	2729	0	5/2$^+$		4525.4		4525	0	5/2$^+$

Continued on next page (footnotes at end of table)

^{14}C(^{14}C,pγ) 2002Co11 (continued)

γ(^{27}Na) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π
4716.4	$(3/2^+)$	2901	26	1815.2	$(1/2^+)$	6158.6	$(9/2^+)$	454	50	5704.5	$(11/2^+)$
		4716	74	0	$5/2^+$			750	25	5408.5	$(11/2^+)$
5190.3	$(13/2^+)$	2966		2224.2	$(9/2^+)$			6158	25	0	$5/2^+$
5408.5	$(11/2^+)$	3217		2191.2	$(7/2^+)$	6518.4	$(5/2^+)$	3789		2729.1	$(5/2^+)$
5704.5	$(11/2^+)$	1469	38	4235.4	$(7/2^+)$	6741.6	$(7/2^+,9/2,11/2^+)$	794	44	5947.6	$(9/2^+)$
		3480	62	2224.2	$(9/2^+)$			4550	56	2191.2	$(7/2^+)$
5762.7		5762		0	$5/2^+$	9186.7	$(17/2^+)$	3996		5190.3	$(13/2^+)$
5947.6	$(9/2^+)$	539		5408.5	$(11/2^+)$						

† Based on γ-ray angular distribution measurement (2002Co11).

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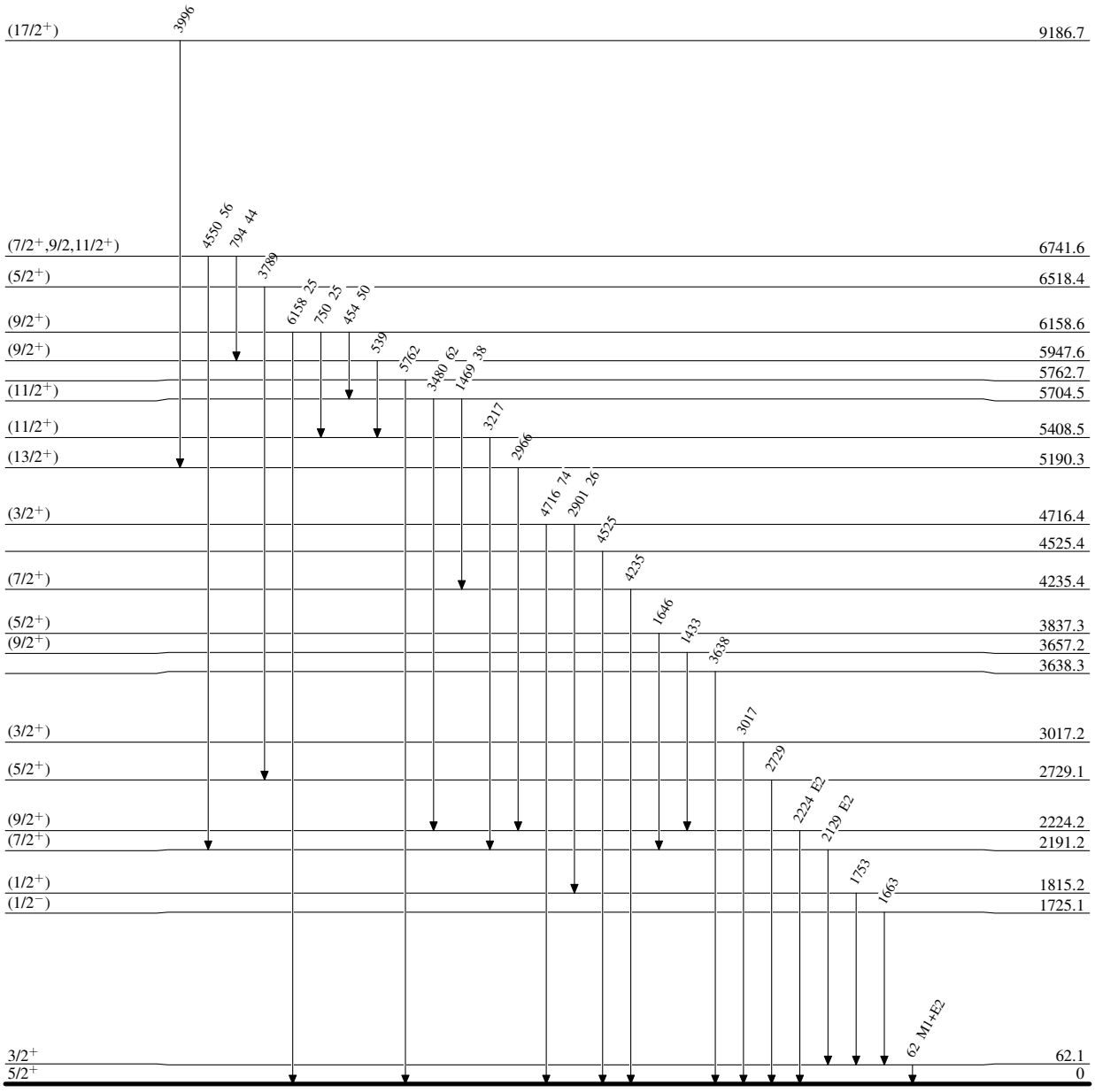
Level Scheme

Intensities: % photon branching from each level



$^{27}_{11}Na_{16}$

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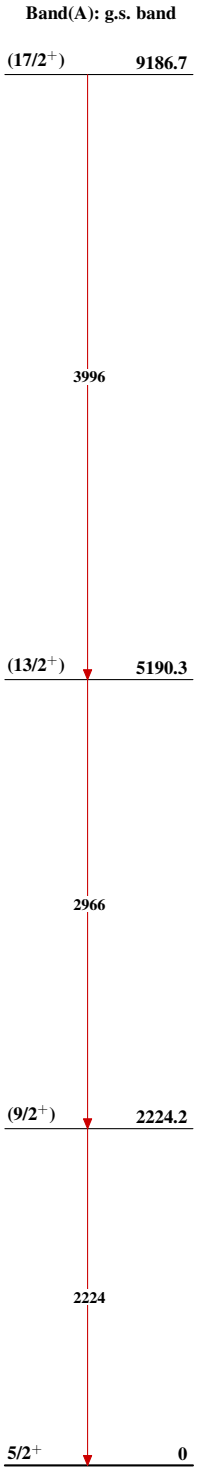

$^{27}_{11}Na_{16}$