^{122}Sn(^{14}N,4nγ) E=45 MeV 1989Ol01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. A. Rodionov and S. Sakharov, Balraj Singh	NDS 104, 497 (2005)	10-Feb-2005

Includes ^{126}Te(^{10}B,4nγ).
E(^{10}B)=45 MeV, E(^{14}N)=55 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$.

^{132}La Levels

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	Comments
188.20[@] *11*	6$^-$	24.3 min *5*	E(level),J$^\pi$,T$_{1/2}$: from Adopted Levels.
357.46[@] *22*	(7$^-$)		
390.92 *24*			
508.56 *23*			
584.46[@] *23*	(8$^-$)		
669.85 *22*	(7$^+$)		
737.0[#] *3*	(9$^+$)		
873.54[@] *25*	(9$^-$)		
897.9[#] *4*	(10$^+$)		
1191.7[#] *4*	(11$^+$)		
1254.1[@] *3*	(10$^-$)		
1485.7[#] *4*	(12$^+$)		
1878.2[#] *4*	(13$^+$)		
2264.7[#] *5*	(14$^+$)		
2719.3[#] *5*	(15$^+$)		

[†] From least-squares fit to Eγ's. The energies of all the positive-parity levels above 669.85 level should be adjusted upward by 38 keV as proposed by the level scheme of 2003Ti02 in which the 67.1-161.1-293.8−... cascade feeds a level decaying by 38-keV and 350-keV transitions.
[‡] Based on results from 2003Ti02, spins of 737.0 level and all positive parity levels above have been increased by one unit. This change is due to the addition of a 38γ between 67-161 cascade as proposed by 2003Ti02.
[#] Band(A): $\pi h_{11/2}\nu h_{11/2}$.
[@] Band(B): $\pi 3/2[422]\nu h_{11/2}$. 3/2[422] is from $g_{7/2}$ orbital.

γ(^{132}La)

E$_\gamma$	I$_\gamma$[#]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[†]	Comments
67.1 *2*	26.7 *13*	737.0	(9$^+$)	669.85	(7$^+$)		E$_\gamma$: in "Adopted Levels, gammas" this transition with mult=(M1) feeds an (8$^+$) level, not the 670.0, (7$^+$) level.
151.0 *2*	13.5 *10*	508.56		357.46	(7$^-$)	D	A$_2$=−0.32 *7*, A$_4$=+0.01 *9*.
161.1[@] *2*	18[@] *4*	669.85	(7$^+$)	508.56		D	I$_\gamma$: intensity divided based on Iγ(160.9)/Iγ(278.6)=0.33 *6* (2003Ti02). A$_2$=−0.33 *6*, A$_4$=−0.03 *5*.
161.1[@] *2*	90[@] *7*	897.9	(10$^+$)	737.0	(9$^+$)	D	I$_\gamma$: total intensity=108 *6*. A$_2$=−0.33 *6*, A$_4$=−0.03 *5*.
169.3 *2*	100 *6*	357.46	(7$^-$)	188.20	6$^-$	D	A$_2$=−0.58 *7*, A$_4$=−0.01 *4*.
193		584.46	(8$^-$)	390.92			E$_\gamma$: shown only in level scheme figure of 1989Ol01.
202.7 *2*	92 *6*	390.92		188.20	6$^-$	D	A$_2$=−0.58 *8*, A$_4$=−0.005 *5*.
227.3 *2*	26.7 *11*	584.46	(8$^-$)	357.46	(7$^-$)	D	A$_2$=−0.60 *10*, A$_4$=+0.03 *8*.
[x]230.6 *2*	11.2 *18*					D	A$_2$=−0.35 *11*, A$_4$=+0.09 *11*.

Continued on next page (footnotes at end of table)

^{122}Sn(^{14}N,4nγ) E=45 MeV 1989Ol01 (continued)

γ(^{132}La) (continued)

E_γ	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
[x]232.6 *2*	22.6 *24*					D	A_2=−0.51 *10*, A_4=+0.07 *9*.
279.0 *2*	54 *4*	669.85	(7$^+$)	390.92			Mult.: ΔJ=0, D+Q from $\gamma(\theta)$. A_2=+0.290 *17*, A_4=−0.073 *21*.
289.0 *2*	12 *4*	873.54	(9$^-$)	584.46	(8$^-$)		
293.8[@] *2*	74[@] *5*	1191.7	(11$^+$)	897.9	(10$^+$)	D	I_γ: total Iγ=91 *5*. Intensity divided based on intensity balance and corresponding intensities in (^{13}C,4nγ). A_2=−0.392 *24*, A_4=−0.026 *20*.
293.8[@] *2*	17[@] *5*	1485.7	(12$^+$)	1191.7	(11$^+$)	D	A_2=−0.392 *24*, A_4=−0.026 *20*.
312.4 *2*	17.4 *13*	669.85	(7$^+$)	357.46	(7$^-$)	D	A_2=+0.29 *3*, A_4=−0.02 *4*.
320.2 *2*	24.8 *19*	508.56		188.20	6$^-$		Mult.: ΔJ=0, dipole from $\gamma(\theta)$. A_2=+0.22 *3*, A_4=0.00 *4*.
[x]351.5[‡] *2*	24[‡] *3*						
380.4 *2*	6.0 *8*	1254.1	(10$^-$)	873.54	(9$^-$)	D+Q	A_2=−0.32 *6*, A_4=−0.26 *7*.
386.5 *2*	12.7 *13*	2264.7	(14$^+$)	1878.2	(13$^+$)		
392.6 *2*	16.7 *15*	1878.2	(13$^+$)	1485.7	(12$^+$)	D	A_2=−0.51 *8*, A_4=+0.05 *7*.
396.0 *2*	8.3 *12*	584.46	(8$^-$)	188.20	6$^-$		
[x]411 *1*							
454.6[@] *2*	5.8[@] *16*	1191.7	(11$^+$)	737.0	(9$^+$)		I_γ: total Iγ=7.2 *7*. Intensity divided from Iγ(453.6)/Iγ(839.2)=1.39 *6* (2002St13).
454.6[@] *2*	1.4[@] *14*	2719.3	(15$^+$)	2264.7	(14$^+$)		
481.7 *2*	30.6 *22*	669.85	(7$^+$)	188.20	6$^-$	D	A_2=−0.23 *6*, A_4=−0.04 *6*.
516.0[‡] *2*	31[‡] *3*	873.54	(9$^-$)	357.46	(7$^-$)	(Q)	A_2=+0.12 *9*, A_4=−0.03 *10*.
587.9 *2*	5.6 *21*	1485.7	(12$^+$)	897.9	(10$^+$)		
669.8[‡] *2*	24[‡] *4*	1254.1	(10$^-$)	584.46	(8$^-$)		
687 *1*	1.8 *7*	1878.2	(13$^+$)	1191.7	(11$^+$)		
778 *1*	<1	2264.7	(14$^+$)	1485.7	(12$^+$)		
841 *1*	<2	2719.3	(15$^+$)	1878.2	(13$^+$)		

[†] From $\gamma(\theta)$ assuming that D is ΔJ=1, and Q is ΔJ=2.
[‡] Unresolved doublet with contaminant lines.
[#] From ^{122}Sn(^{14}N,4nγ) reaction at 55 MeV.
[@] Multiply placed with intensity suitably divided.
[x] γ ray not placed in level scheme.

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Level Scheme

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided

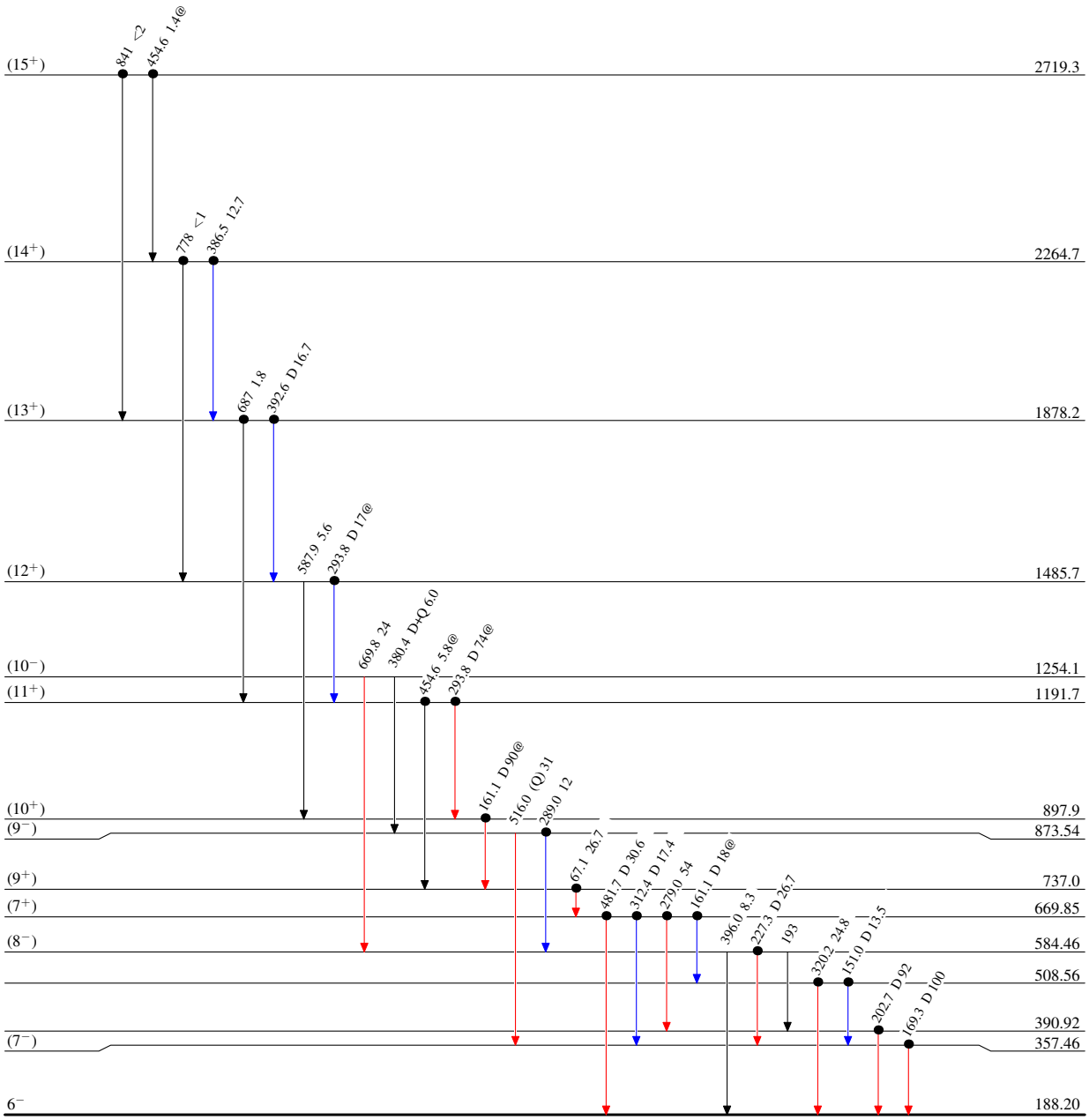
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$

Coincidence



$^{132}_{57}La_{75}$

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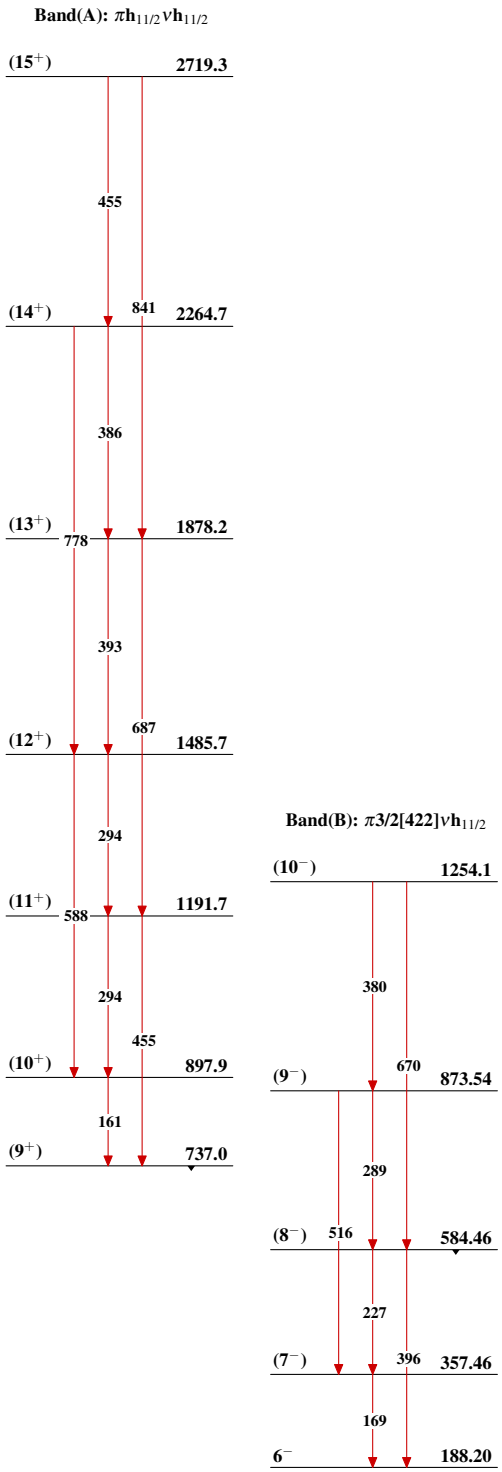

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