^{121}Sb(^{3}He,3nγ) 1982Ha46

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. Ohya	NDS 111, 1619 (2010)	20-Jan-2009

The level scheme is that proposed by 1982Ha46 based on excitation functions, γ, $\gamma\gamma$, γ(t), $\gamma(\theta)$, $\gamma(\theta$,T,H). Evaluator has modified the level scheme to accommodate the results of other in beam studies: 1) replaced 715γ to the $15/2^+$ to $11/2^+$ transition, 2) removed 716.8γ (from 1529L) and 835.6γ (from 2076L).

^{121}I Levels

E(level)	J$^\pi$[a]	$T_{1/2}$	Comments
0.0†	$5/2^+$		
95.80 *17*	$1/2^+$		
132.80† *9*	$7/2^+$		
175.90 *17*	$3/2^+$		
252.80 *20*	$3/2^+$		
310.50 *20*	$5/2^+$		
433.80‡ *12*	$(9/2)^+$	10.0 ns *4*	$T_{1/2}$: from γ(t).
445.39# *15*	$(7/2)^+$		
529.39† *14*	$(9/2)^+$		
649.98 *14*	$(9/2)^+$		
748.51‡ *15*	$(11/2)^+$		
801.5† *4*	$(11/2^+)$		
811.79@ *15*	$(11/2)^-$		
1031.3# *4*	$(11/2)^+$		
1077.03‡ *17*	$(13/2)^+$		
1134.1† *4*	$(13/2)^+$		
1239.89@ *25*	$(15/2)^-$		
1326.7& *4*	$(11/2^-)$		
1435.43‡ *19*	$(15/2)^+$		
1575.2† *5*	$(15/2^+)$		
1721.6& *4*			
1746.7?# *5*	$(15/2^+)$		
1781.2@ *4*	$(19/2)^-$		
1813.93‡ *21*	$(17/2)^+$		
1864.4† *5*	$(17/2)^+$		
2131.8& *5*			
2218.3‡ *3*	$(19/2)^+$		
2353.1 *3*	(21/2)	80 ns *12*	g-factor(21/2)=+1.20 *10* (DPAD). $T_{1/2}$: from γ(t).
2426.5@ *5*	$(23/2^-)$		
2728.9† *6*	$(21/2^+)$		
3274.0@ *6*	$(27/2^-)$		

† Band(A): $2d_{5/2}$ (g.s.).
‡ Band(B): $9/2^+[404]$.
# Band(C): $1g_{7/2}$.
@ Band(D): $1h_{11/2}$ or $1/2^-[550]$.
& Band(E): $11/2^-[505]$.
[a] From Adopted Levels.

^{121}Sb(^{3}He,3nγ) 1982Ha46 (continued)

$\gamma(^{121}I)$

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult. @	δ #	Comments
80.1 *2*	16 *5*	175.90	$3/2^+$	95.80	$1/2^+$			
84.0 *2*	15 *5*	529.39	$(9/2)^+$	445.39	$(7/2)^+$			
95.8 *2*	23 *7*	95.80	$1/2^+$	0.0	$5/2^+$			
132.8 *1*	1000	132.80	$7/2^+$	0.0	$5/2^+$	D+(Q)	+0.02 *4*	Mult.: A_2=−0.11 *2*, A_4=+0.04 *2*.
134.8 *1*	93 *14*	2353.1	(21/2)	2218.3	$(19/2)^+$			Mult.: A_2=+0.01 *7*, A_4=+0.03 *11*.
161.8 *1*	486 *24*	811.79	$(11/2)^-$	649.98	$(9/2)^+$	(D)	+0.01 *3*	Mult.: A_2=−0.15 *3*, A_4=+0.01 *4*.
175.9 *2*	23 *7*	175.90	$3/2^+$	0.0	$5/2^+$			Mult.: A_2=−0.08 *16*, A_4=+0.42 *33*.
204.6 *2*	37 *11*	649.98	$(9/2)^+$	445.39	$(7/2)^+$	D+Q	+0.03 *15*	Mult.: A_2=−0.12 *13*, A_4=−0.05 *25*.
252.8 *2*	55 *6*	252.80	$3/2^+$	0.0	$5/2^+$	(D+Q)	−7.1	Mult.: A_2=+0.14 *13*, A_4=−0.15 *20* δ −7.1 ±4 -infinity.
272.1& *2*	22 *7*	801.5	$(11/2^+)$	529.39	$(9/2)^+$			
282.4 *1*	177 *18*	811.79	$(11/2)^-$	529.39	$(9/2)^+$	(D)	+0.05 *+7−5*	Mult.: A_2=−0.10 *6*, A_4=−0.00 *6*.
301.0 *1*	578 *29*	433.80	$(9/2)^+$	132.80	$7/2^+$	D+Q	+0.15 *3*	Mult.: A_2=−0.01 *3*, A_4=+0.03 *5*. δ: calculated from $\gamma(\theta)$ without taking into account an additional attenuation due to the isomer.
310.5 *2*	35 *11*	310.50	$5/2^+$	0.0	$5/2^+$			
314.7 *1*	601 *42*	748.51	$(11/2)^+$	433.80	$(9/2)^+$	D+Q	+0.23 *4*	Mult.: A_2=+0.07 *4*, A_4=−0.01 *4*.
328.5 *1*	308 *15*	1077.03	$(13/2)^+$	748.51	$(11/2)^+$	D+Q	+0.19 *4*	Mult.: A_2=+0.04 *4*, A_4=−0.02 *6*.
332.5& *3*	10 *3*	1134.1	$(13/2)^+$	801.5	$(11/2^+)$			
358.4 *1*	223 *22*	1435.43	$(15/2)^+$	1077.03	$(13/2)^+$	D+Q	+0.20 *4*	Mult.: A_2=+0.07 *4*, A_4=−0.08 *7*.
378.5 *1*	110 *12*	1813.93	$(17/2)^+$	1435.43	$(15/2)^+$	D+Q	+0.19 *8*	Mult.: A_2=+0.06 *9*, A_4=+0.06 *13*.
394.9 *2*	53 *8*	1721.6		1326.7	$(11/2^-)$			
396.6 *2*	201 *20*	529.39	$(9/2)^+$	132.80	$7/2^+$	D+Q	−0.8 *+5−14*	Mult.: A_2=−0.56 *6*, A_4=+0.08 *10*.
404.4 *2*	95 *10*	2218.3	$(19/2)^+$	1813.93	$(17/2)^+$	D+Q	+0.20 *5*	Mult.: A_2=+0.08 *7*, A_4=+0.09 *11*.
410.2 *3*	29 *9*	2131.8		1721.6				
428.1 *2*	409 *21*	1239.89	$(15/2)^-$	811.79	$(11/2)^-$	Q		Mult.: A_2=+0.28 *4*, A_4=−0.08 *5*.
433.8 *2*	191 *19*	433.80	$(9/2)^+$	0.0	$5/2^+$	(Q)		Mult.: A_2=+0.04 *6*, A_4=−0.08 *5*.
445.4 *2*	270 *27*	445.39	$(7/2)^+$	0.0	$5/2^+$	D+Q	−0.8 *4*	Mult.: A_2=−0.45 *4*, A_4=+0.02 *6*.
517.1 *3*	126 *18*	649.98	$(9/2)^+$	132.80	$7/2^+$	D+Q		Mult.: A_2=−0.39 *7*, A_4=+0.12 *12*. δ: −0.32 *+13−17* or −1.9 *+5−7*.
529.4 *3*	261 *26*	529.39	$(9/2)^+$	0.0	$5/2^+$	Q		Mult.: A_2=+0.25 *5*, A_4=−0.10 *7*.
541.3 *3*	264 *26*	1781.2	$(19/2)^-$	1239.89	$(15/2)^-$	Q		Mult.: A_2=+0.38 *6*, A_4=−0.12 *9*.
578.2 *3*	103 *12*	1326.7	$(11/2^-)$	748.51	$(11/2)^+$	(Q)		Mult.: A_2=+0.35 *17*, A_4=−0.07 *22*.
585.9 *3*	118 *14*	1031.3	$(11/2)^+$	445.39	$(7/2)^+$			Mult.: A_2=+0.16 *7*, A_4=+0.04 *11*.
604.7 *3*	160 *19*	1134.1	$(13/2)^+$	529.39	$(9/2)^+$	Q		Mult.: A_2=+0.24 *9*, A_4=−0.27 *15*.
643.3 *3*	62 *12*	1077.03	$(13/2)^+$	433.80	$(9/2)^+$	Q		
645.3 *3*	106 *20*	2426.5	$(23/2^-)$	1781.2	$(19/2)^-$	(Q)		Mult.: A_2=+0.13 *12*, A_4=−0.27 *15*.
650.0 *3*	374 *30*	649.98	$(9/2)^+$	0.0	$5/2^+$	Q		Mult.: A_2=+0.23 *7*, A_4=−0.09 *9*.
668.7 *3*	162 *18*	801.5	$(11/2^+)$	132.80	$7/2^+$	Q		Mult.: A_2=+0.27 *8*, A_4=−0.28 *28*.
687.0 *3*	76 *11*	1435.43	$(15/2)^+$	748.51	$(11/2)^+$			
715.4 *3*	84 *13*	1746.7?	$(15/2^+)$	1031.3	$(11/2)^+$			E_γ: originally placed directly on the 445.3-keV level (1982Ha46).
x716.8 *3*	31 *9*							E_γ: this γ was originally placed from 1781 level in 1982Ha46, but removed from level scheme because of no supporting evidence in other in-beam studies.
730.3 *3*	87 *13*	1864.4	$(17/2)^+$	1134.1	$(13/2)^+$			
736.9 *3*	71 *11*	1813.93	$(17/2)^+$	1077.03	$(13/2)^+$			
773.7 *3*	87 *13*	1575.2	$(15/2^+)$	801.5	$(11/2^+)$	Q		Mult.: A_2=+0.32 *16*, A_4=−0.17 *23*.
782.9 *3*	73 *11*	2218.3	$(19/2)^+$	1435.43	$(15/2)^+$			
x835.6 *3*	40 *12*							E_γ: this γ was originally placed from 2075 level in 1982Ha46, but removed from level scheme because of no

Continued on next page (footnotes at end of table)

^{121}Sb(^{3}He,3nγ) 1982Ha46 (continued)

$\gamma(^{121}I)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	Comments
							supporting evidence in other in-beam studies.
847.5 *3*	105 *16*	3274.0	(27/2$^-$)	2426.5	(23/2$^-$)	(Q)	Mult.: A_2=+0.22 *11*, A_4=+0.11 *16*.
864.5 *3*	87 *13*	2728.9	(21/2$^+$)	1864.4	(17/2)$^+$	(Q)	Mult.: A_2=+0.23 *19*, A_4=+0.08 *27*.

† Uncertainties of E(γ's) were not given for each transition by the authors; evaluators estimate 0.1 keV for low energy and/or strong γ, 0.2 keV for medium energy γ, and 0.3 keV for high energy and weak γ.

‡ Relative to I(132.8 γ)=1000 at θ=125° at E(^{3}He)=32 MeV; uncertainties of E(γ) were estimated by evaluators as 5% for I(γ)=500-300, 10% for I(γ)=300-100, 15% for I(γ)=100-50 and 30% for I(γ)=50-16. Also given Iγ's for E(^{3}He)=24.3 MeV.

Deduced from A_2, A_4 values in $\gamma(\theta)$ (1982Ha46).

@ Deduced from $\gamma(\theta)$, unless noted otherwise.

& Placement of transition in the level scheme is uncertain.

x γ ray not placed in level scheme.

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Level Scheme

Intensities: Relative I_γ

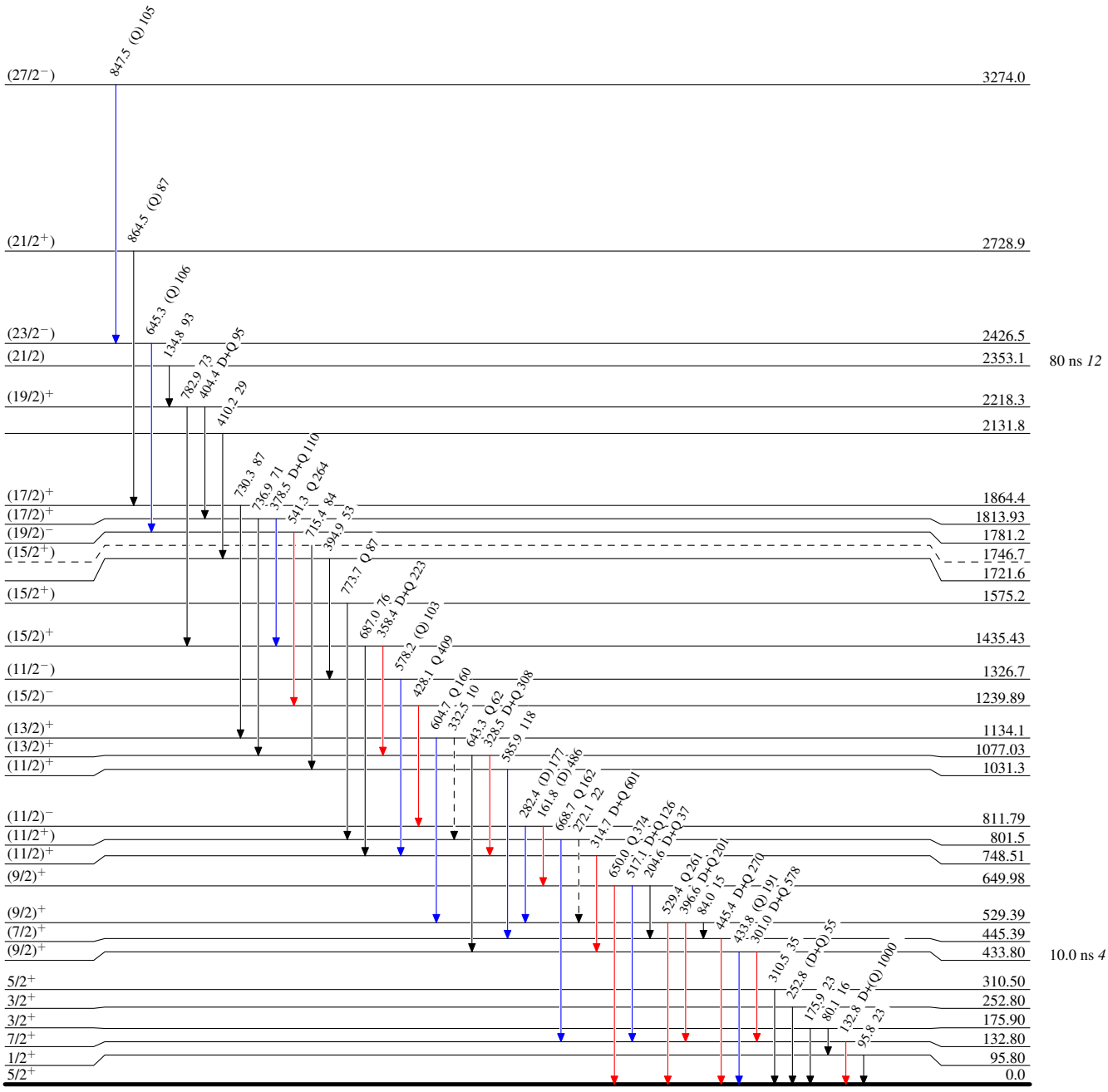
Legend

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

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

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

γ Decay (Uncertain)



$^{121}_{53}I_{68}$

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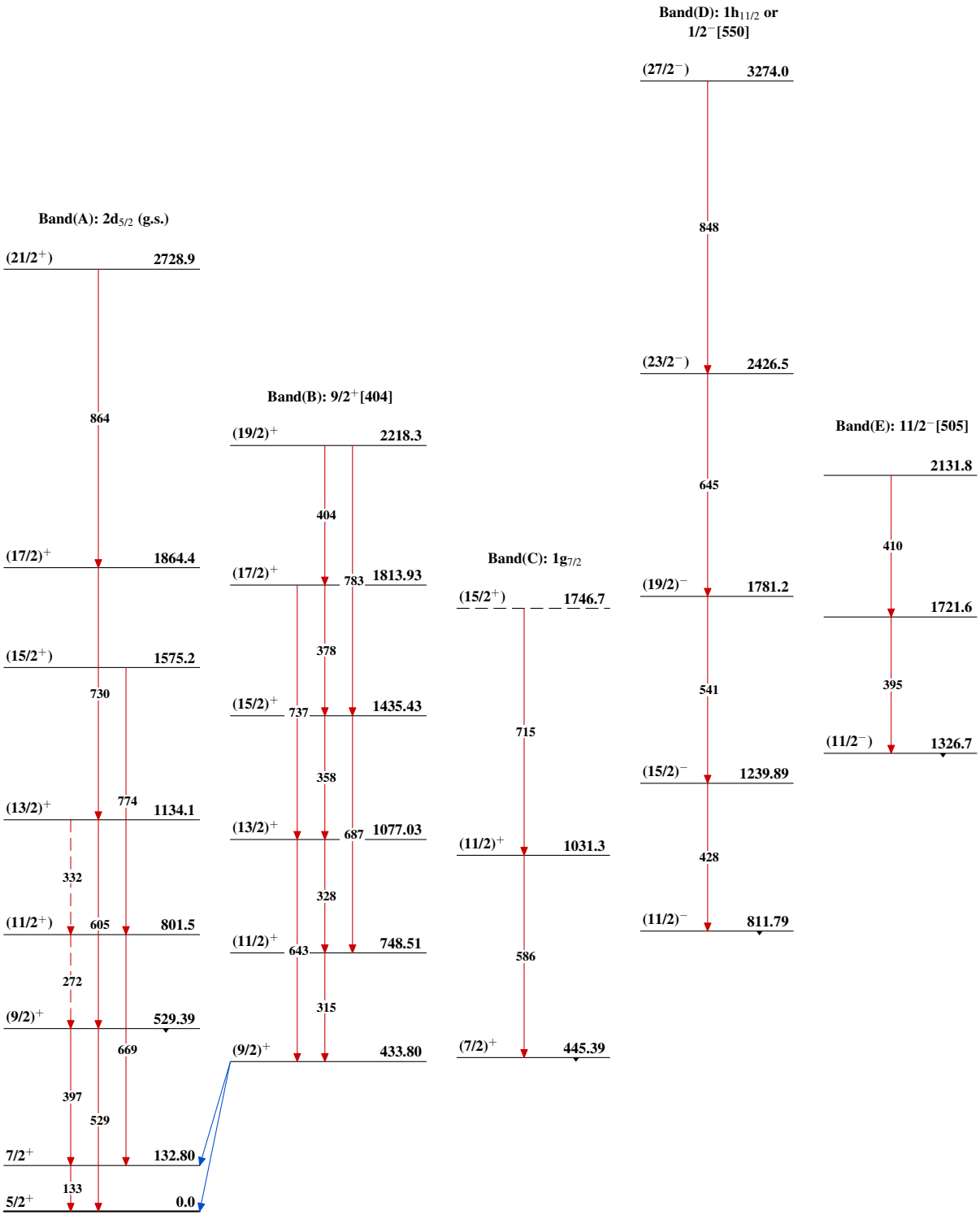

$^{121}_{53}I_{68}$