^{159}Tb(^{36}S,fxng) 2002St06

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113, 2187 (2012)	15-Sep-2012

2002St06: ^{159}Tb(^{36}S,fxng), E=165 MeV; GAMMASPHERE detector array (93 Compton-suppressed Ge detectors In 17 angular rings, preceded by Ta and Cu absorbers to attenuate x rays); measured Eγ, Iγ, $\gamma\gamma\gamma$ coin, DCO ratios (triple angular correlations); shell-model calculations (π $f_{5/2}$, $p_{3/2}$, $p_{1/2}$, $g_{9/2}$ and ν $p_{1/2}$, $g_{9/2}$, $d_{5/2}$ orbitals relative to ^{66}Ni core).

^{92}Sr Levels

E(level)†	J$^\pi$‡	Comments
0.0#	0^+	J$^\pi$: from Adopted Levels.
814.5# *5*	2^+	J$^\pi$: from Adopted Levels.
1672.9# *7*	(4^+)	
2184.5 *7*	(3^-)	
2765.2 *7*	(5^-)	
2924.3 *9*		
3014.1@ *8*	(4^+)	J$^\pi$: authors note that 5^- or 6^+ cannot be totally excluded, but favor 4^+. possible dominant configuration: π $(1p^{-1}_{3/2}\ 1p_{1/2})_2$ $\nu(1d^4_{5/2})_2$) (2002St06).
3128.3 *9*	(6^+)	possible configuration: π $(1p^{-1}_{3/2}\ 1p_{1/2})_2$ $\nu(1d^4_{5/2})_4$) (2002St06).
3361.9 *7*	(5^-)	
3558.0 *9*	(7^-)	J$^\pi$: authors note that 6^- cannot be totally excluded.
3785.4@ *8*	(6^+)	J$^\pi$: authors note that 7^- cannot be totally excluded. Possible dominant configuration: π $(1p^{-1}_{3/2}\ 1p_{1/2})_2$ $\nu(1d^4_{5/2})_4$) (2002St06) if J=6; however, adopted π=− and shell-model calculations predict the second 6^+ state At somewhat higher energy.
4020.8 *8*	(7^-)	
4927.9 *9*		
5056.1 *10*		
5726.6@ *11*		
6527.1?@ *12*		

† From least-squares fit to Eγ.
‡ Authors′ tentative values, except As noted. Consistent with observed DCO ratios, but assigned primarily by analogy with ^{90}Sr.
# Band(A): π=+ sequence. Based on 0^+ g.s. principal configuration: ν $1d^4_{5/2}$ (2002St06).
@ Band(B): sequence based on 3014 level.

$\gamma(^{92}Sr)$

E$_\gamma$†	I$_\gamma$‡	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.#	Comments
235.4 *5*	8.1 *3*	4020.8	(7^-)	3785.4	(6^+)	(D)	Eγ,Iγ: contaminated by strong 235γ from ^{190}Tl. Mult.: DCO=0.63 *17*, ΔJ=2 858γ In gate.
580.7 *5*	21.0 *6*	2765.2	(5^-)	2184.5	(3^-)		Mult.: DCO=1.5 *6* for ΔJ=1 1370γ In gate.
658.9 *5*	13.6 *5*	4020.8	(7^-)	3361.9	(5^-)		
771.3 *5*	6.3 *3*	3785.4	(6^+)	3014.1	(4^+)		Eγ: contaminated by a ^{191}Tl line.
792.8 *5*		3558.0	(7^-)	2765.2	(5^-)		Eγ: contaminated by a ^{191}Tl line. Mult.: DCO=1.5 *5* for ΔJ=1 1092γ In gate; May be unreliable due to ^{191}Tl contamination of G.
798.7 *5*	7.9 *6*	5726.6		4927.9			
800.5@ *5*	4.3 *3*	6527.1?		5726.6			
814.5 *5*	149 *2*	814.5	2^+	0.0	0^+		
858.4 *5*	100 *1*	1672.9	(4^+)	814.5	2^+	Q	Mult.: see comment on 1092γ.
1020.2 *5*	26.6 *7*	3785.4	(6^+)	2765.2	(5^-)		Eγ,Iγ: possibly an unresolved doublet, so Iγ May be

Continued on next page (footnotes at end of table)

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γ(^{92}Sr) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	Comments
							overestimated. Mult.: DCO=1.0 *3* for ΔJ=1 1092γ In gate; May be unreliable due to complex nature of G. Interpreted by authors As ΔJ=2 transition.
1035.3 *5*	10.1 *6*	5056.1		4020.8	(7⁻)		
[x]≈1037							assignment to ^{92}Sr is uncertain.
1092.3 *5*	36.2 *8*	2765.2	(5⁻)	1672.9	(4⁺)	D	DCO=0.56 *15*, Q 858γ In gate; consistent with pure stretched D for 1092γ and stretched Q for 858γ.
1142.5 *5*	10.3 *4*	4927.9		3785.4	(6⁺)		
1177.4 *5*	14.3 *4*	3361.9	(5⁻)	2184.5	(3⁻)		
1251.4 *5*	5.8 *5*	2924.3		1672.9	(4⁺)		
1341.2 *5*	5.8 *3*	3014.1	(4⁺)	1672.9	(4⁺)		E_γ: contaminated by a 1345γ of unknown origin. Mult.: DCO=1.0 *4*, Q 858γ In gate; however, result May be unreliable due to contamination of this transition by an impurity G. interpreted by authors As ΔJ=0 transition.
1370.0 *5*	34.2 *7*	2184.5	(3⁻)	814.5	2⁺		
1455.4 *5*	11.0 *6*	3128.3	(6⁺)	1672.9	(4⁺)		Mult.: DCO=1.1 *6*, ΔJ=2 858γ In gate.
1689.0 *5*	5.2 *3*	3361.9	(5⁻)	1672.9	(4⁺)		
1799.6[@] *5*	3.2 *3*	4927.9		3128.3	(6⁺)		

[†] Authors state that uncertainties range from 0.1 keV to 0.5 keV; evaluator has conservatively assigned 0.5 keV for all transitions.
[‡] Relative intensity from spectrum gated on the 814.5γ and normalized so I(858γ)=100.
[#] Based on measured DCO ratio; expected DCO ratios are 0.9-1.1 for ΔJ=2 (or D ΔJ=0) γ gated by ΔJ=2 γ or ΔJ=1 γ gated by ΔJ=1 γ, 0.6-0.8 for pure D γ gated by ΔJ=2 γ, and 1.25-1.67 for ΔJ=2 (or D ΔJ=0) γ gated by pure D transition.
[@] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

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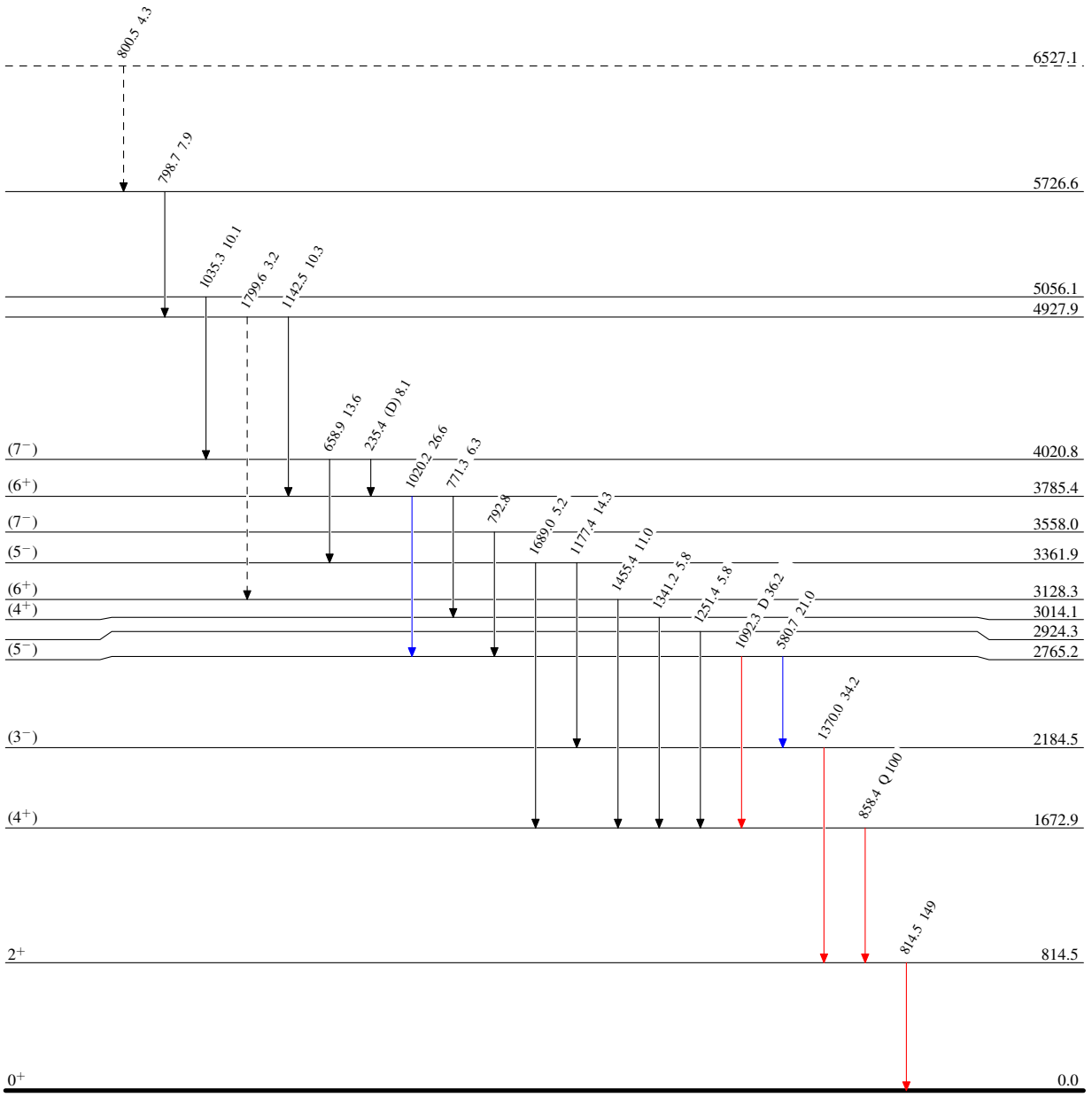
Level Scheme

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)



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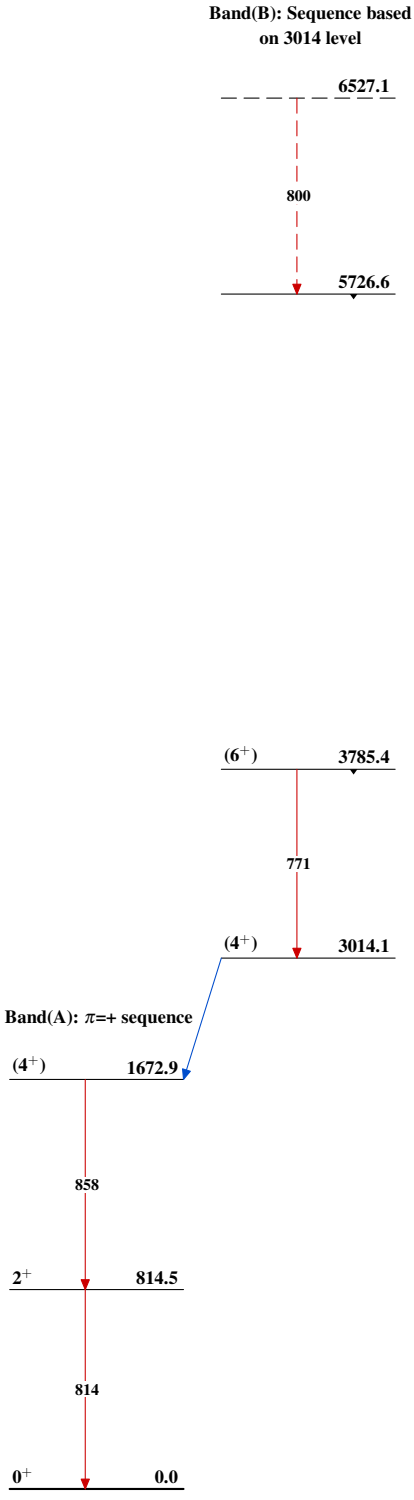

$^{92}_{38}Sr_{54}$