

¹⁵⁹Tb(³⁶S,F γ) 2002St06

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 114, 1293 (2013)	1-Sep-2013

E=165 MeV; GAMMASPHERE array (93 Compton-suppressed Ge detectors arranged in 17 angular rings); measured E γ , I γ , $\gamma\gamma$ coin, $\gamma\gamma(\theta)$ (DCO); minimum of four coincident γ rays required.
See 2013Hw01 for further discussion of data from 2002St06.

⁹¹Sr Levels

E(level) [†]	J π [‡]	Comments
0.0 [#]	5/2 ⁺	
993.21 [#] 10	(9/2 ⁺)	
2076.81 15	(11/2 ⁻)	possible one-phonon octupole vibrational state, (ν d _{5/2}) \otimes 3 ⁻ (2013Hw01).
3115.10 [@] 18	(15/2 ⁻)	
3302.9 4	(15/2 ⁻)	J π : from 2013Hw01, by analogy with ⁸⁹ Sr. Possible structure: ν d _{5/2} \otimes 5 ⁻ (2013Hw01).
3574.59 [@] 20	(17/2 ⁻)	
3944.8 [@] 3	(19/2 ⁻)	
4276.6 4	(21/2 ⁺)	possible structure: (15/2 ⁻) \otimes 3 ⁻ (2013Hw01).
4461.5 4		
4624.3 5		
4679.5? 6		
4689.2 5		
4828.1 5		
5002.3 6		
5248.7 7		
5365.2? 8		
5741.8 8		

[†] From least-squares fit to E γ .

[‡] From 2002St06, based on deduced level structure and measured transition multiplicities, except As noted; consistent with Adopted J π values. however, see 2013Hw01 for discussion of structure of levels above 1 MeV.

[#] Band(A): $\pi=+$ sequence based on g.s..

[@] Band(B): $\pi=-$ intruder state (2013Hw01).

γ (⁹¹Sr)

E γ [†]	I γ	E _i (level)	J π _i	E _f	J π _f	Mult. [‡]	Comments
174.3 [@] 5		5002.3		4828.1			
246.4 3	10.1 9	5248.7		5002.3			
271.4 5	6.4 9	3574.59	(17/2 ⁻)	3302.9	(15/2 ⁻)		
313.1 5	2.6 4	5002.3		4689.2			
331.8 3	17 1	4276.6	(21/2 ⁺)	3944.8	(19/2 ⁻)	D	DCO=0.94 25 (D gated); DCO=0.39 19 (Q gated). $\Delta\pi$ =yes proposed by 2013Hw01 by analogy with ⁸⁹ Sr.
370.2 3	18 1	3944.8	(19/2 ⁻)	3574.59	(17/2 ⁻)	D	DCO=1.0 3 (D gated); 0.5 3 (Q gated).
377.5 [#] [@] 5	[#]	5002.3		4624.3		D	DCO=1.1 3 (D gated). contaminated by 378 γ from ⁹⁹ Tc complementary fragment.
459.5 1	30 2	3574.59	(17/2 ⁻)	3115.10	(15/2 ⁻)		
493.1 5	4.9 5	5741.8		5248.7		D	DCO=0.9 6 (D gated); DCO=0.5 3 (Q gated).
685.7 [#] [@] 5	6 [#] 1	5365.2?		4679.5?			contaminated by 686 γ from ⁹⁹ Tc complementary fragment.

Continued on next page (footnotes at end of table)

$^{159}\text{Tb}(^{36}\text{S},\text{F}\gamma)$ 2002St06 (continued) $\gamma(^{91}\text{Sr})$ (continued)

E_γ †	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. ‡	Comments
829.7 3	17 2	3944.8	(19/2 ⁻)	3115.10	(15/2 ⁻)		E_γ, I_γ : contaminated by 830 γ from ^{99}Tc complementary fragment.
993.2 1	130 10	993.21	(9/2 ⁺)	0.0	5/2 ⁺		
1038.3 1	100 5	3115.10	(15/2 ⁻)	2076.81	(11/2 ⁻)	Q	DCO=1.08 11 (Q gated); DCO=1.31 17 (D gated).
1083.6 1	115 8	2076.81	(11/2 ⁻)	993.21	(9/2 ⁺)	D	DCO=0.7 3.
1225.7 5	8 2	3302.9	(15/2 ⁻)	2076.81	(11/2 ⁻)		
1346.4 3	13 2	4461.5		3115.10	(15/2 ⁻)		
1509.1 5	7.1 9	4624.3		3115.10	(15/2 ⁻)		
1564.4 5	3 2	4679.5?		3115.10	(15/2 ⁻)		
1574.2 @ 5	3.9 9	4689.2		3115.10	(15/2 ⁻)		
1713.0 5	5.3 9	4828.1		3115.10	(15/2 ⁻)		

† Uncertainty is stated by 2002St06 as 0.1-0.5 keV. Based on this, the evaluator has assigned uncertainties as follows: 0.1 keV for $I_\gamma > 20$, 0.3 keV for $I_\gamma = 10-20$, and 0.5 keV for $I_\gamma < 10$.

‡ From DCO values obtained with gates on $\Delta J=2$, Q transitions, unless stated otherwise.

Contaminated by a line from ^{100}Tc .





@ Placement of transition in the level scheme is uncertain.

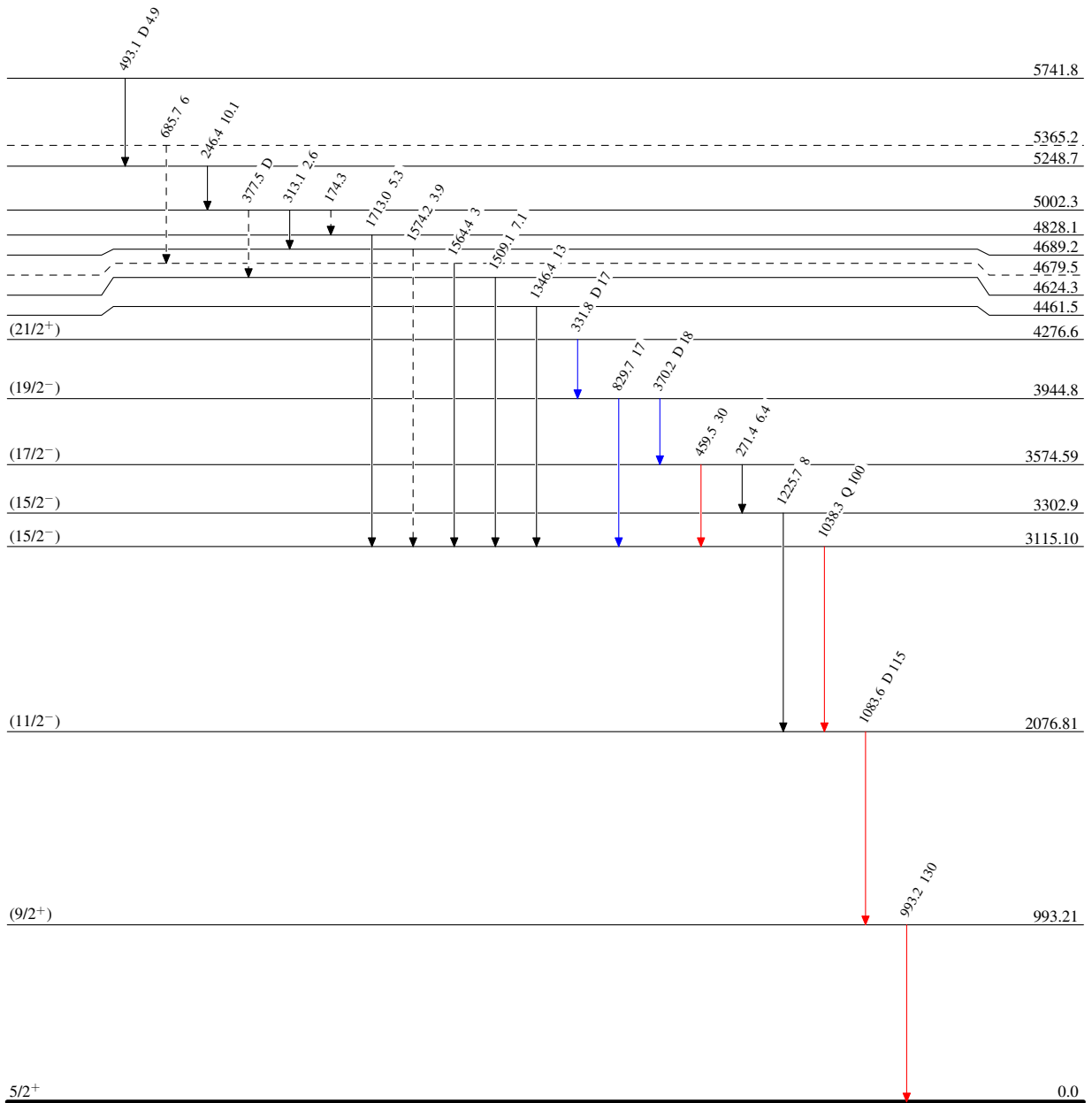
$^{159}\text{Tb} (^{36}\text{S}, \text{F}\gamma) \quad 2002\text{St06}$

Legend

Level Scheme

Intensities: Relative I_γ

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



$^{91}_{38}\text{Sr}_{53}$

${}^{159}\text{Tb}({}^{36}\text{S},\text{F}\gamma)$ 2002St06