^{159}Tb(γ,γ') 1972Da35,1966Ra06,1959Me78

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 113, 157 (2012)	31-Dec-2010

Additional information 1.

Results from (γ,γ') studies (1959Me78,1972Da35,1978En01) and Mossbauer measurements (1966At05,1966Cz02,1966Ra06,1966Wo01) are included.

Relative μ measurements of 58 level compared to ground state were done by 1966At05 and 1978En01 from Mossbauer effect, see ^{159}Tb Adopted Levels for results.

Experimental methods:

1959Me78: measured $T_{1/2}$ of 363 level from Doppler broadening in resonance fluorescence and α_K of 363 γ.

1966At05: measured $T_{1/2}$ of 58 level from line width in Mossbauer effect.

1966Cz02: measured $T_{1/2}$ of 58 level from line width in Mossbauer effect.

1966Ra06: measured $T_{1/2}$ of 363 and 580 levels from resonance scattering.

1966Wo01: measured $T_{1/2}$ of 58 level from line width in Mossbauer effect.

1972Da35: measured $T_{1/2}$ of 363 level from resonance scattering.

1978En01: measured $T_{1/2}$ of 58 level from resonance scattering and Mossbauer effect; also determined isomer shift for 58 level.

^{159}Tb Levels

E(level)†	J$^\pi$‡	$T_{1/2}$#	Comments
0.0	3/2$^+$	stable	
58.0	5/2$^+$	59 ps *13*	$T_{1/2}$: From 1978En01, who report 58 ps *14* and 59 ps *13* from two measurements. However, note that these values are not consistent with other measurements and that the other measurements are not consistent with each other. The others are:≥105 ps (1966At05); 30 ps *3* (1966Cz02); and 96 ps *+37−21* (1966Wo01).
137.5	7/2$^+$		
363	5/2$^-$	145 ps *7*	$T_{1/2}$: Weighted average of 133 ps *17* (1972Da35), 133 ps *21* (1959Me78), and 152 ps *10* (1966Ra06).
580	1/2$^+$	0.76 ps *10*	$T_{1/2}$: From 1966Ra06.

† Nominal values from ^{159}Tb Adopted Levels.

‡ From ^{159}Tb Adopted Levels.

From (γ,γ') and Mossbauer measurements only, see ^{159}Tb Adopted Levels for values from other measurements.

$\gamma(^{159}Tb)$

E_i(level)	J_i^π	E_γ†	I_γ‡	E_f	J_f^π	Mult.	δ#
363	5/2$^-$	226	1.8	137.5	7/2$^+$		
		305	0.54	58.0	5/2$^+$		
		363	100	0.0	3/2$^+$	E1+M2	−0.06 *+2−1*
580	1/2$^+$	580		0.0	3/2$^+$		

† Nominal values from ^{159}Tb γ radiations.

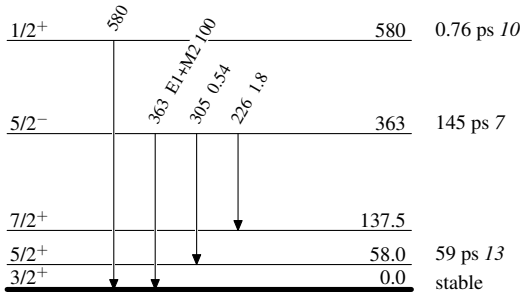
‡ From 1972Da35.

From 1966Ra06 based on $\gamma(\theta)$.

^{159}Tb(γ,γ') 1972Da35,1966Ra06,1959Me78

Level Scheme

Intensities: Relative photon branching from each level



$^{159}_{65}Tb_{94}$