

^{156}Tb IT decay (24.4 h) 1970To11

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 113, 2537 (2012)	1-Mar-2012

Parent: ^{156}Tb : $E=49.630+x$; $J^\pi=(7^-)$; $T_{1/2}=24.4$ h 10; %IT decay=100.0

^{156}Tb -%IT decay: Since there is no evidence for the existence of an ε -decay branch, the evaluator assumes that 100% of the decays are by isomeric decay and that all of these are via the 49-keV γ .

Additional information 1.

1970To11 produced this activity by the $^{157}\text{Gd}(p,2n)$ reaction on enriched (93.7%) and natural (15.6%) targets with chemical separation. ce measured in magnetic spectrometer. One γ reported. Existence of this activity confirmed by 1975ViZP.

 ^{156}Tb Levels

E(level)	J^π [†]	$T_{1/2}$	Comments
0.0 [‡]	3 ⁻	5.35 d 10	$T_{1/2}$: From Adopted Levels.
49.630 [#] 10	4 ⁺		
49.630+x [@]	(7 ⁻)	24.4 h 10	%IT=100 %IT: Value assumed by evaluator since β^- and ε decays have not been reported. E(level): Level postulated to explain $T_{1/2}$. If $T_{1/2}$ were associated with the 49-keV level, E1 hindrance would be very large (6×10^{16}); and $T_{1/2}$ of 49-keV level is known to be short (1982Be46). $T_{1/2}$: From ce(t) for the 49.6 γ (1970To11).

[†] From ^{156}Tb Adopted Levels.

[‡] Band(A): $K^\pi=3^-$ Bandhead, conf= $\pi 3/2[411]+\nu 3/2[521]$.

[#] Band(B): $K^\pi=4^+$ Bandhead, conf= $\pi 3/2[411]-\nu 5/2[642]$.

[@] Band(C): $K^\pi=7^-$ Bandhead, conf= $\pi 3/2[411]+\nu 11/2[505]$.

 $\gamma(^{156}\text{Tb})$

I γ normalization: Since there is no evidence for the existence of an ε -decay branch, the evaluator assumes that 100% of the decays are by isomeric decay and that all of these are via the 49-keV γ .

E_γ	I_γ [‡]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	α [#]	Comments
x		49.630+x	(7 ⁻)	49.630	4 ⁺	[E3]		E_γ : 1975ViZP failed to see this γ in coincidence with the 49 γ with two Si(Li) detectors. Mult.: E3 is expected if this transition takes place between 7 ⁻ and 4 ⁺ states, as proposed here.
49.630 10	100	49.630	4 ⁺	0.0	3 ⁻	E1	0.350	$\alpha(\text{L})=0.275$ 4; $\alpha(\text{M})=0.0602$ 9; $\alpha(\text{N}+..)=0.01543$ 22 $\alpha(\text{N})=0.01350$ 19; $\alpha(\text{O})=0.00186$ 3; $\alpha(\text{P})=7.79 \times 10^{-5}$ 11

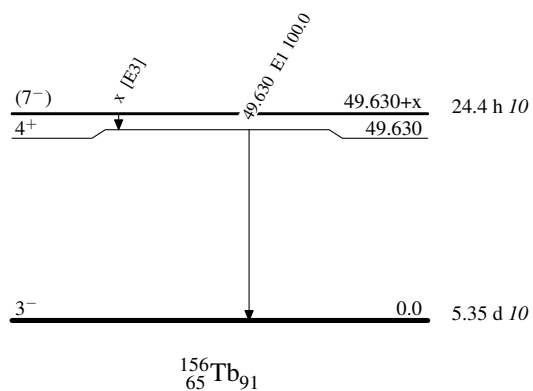
[†] From ^{156}Tb Adopted γ radiations.

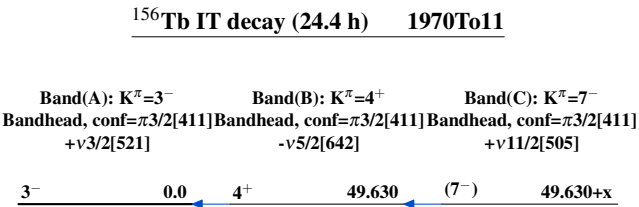
[‡] For absolute intensity per 100 decays, multiply by 0.741 3.

[#] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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Intensities: $I_{(\gamma+ce)}$ per 100 decays through this branch
%IT=100.0





¹⁵⁶Tb₉₁