^{151}Tb IT decay (25 s) 1978Al15,1978Ke12

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 110, 1 (2009)	20-Nov-2008

Parent: ^{151}Tb: E=99.53 *6*; J^{π}=(11/2$^-$); $T_{1/2}$=25 s *3*; %IT decay=93.4 *20*
^{151}Tb-%IT decay: %IT=93.4 *20*.
1978Al15: the isomer was populated in the ε decay of ^{151}Dy. Measured γ, $\gamma\gamma$, ce.
1978Ke12: the isomer was populated in (HI,xnγ) reaction. Measured prompt and delayed γ's.

^{151}Tb Levels

E(level)	J^{π}	$T_{1/2}$	Comments
0.0	1/2$^{(+)}$		
22.922 *20*	3/2$^{(+)}$		
72.39 *3*	(5/2$^+$)		
99.53 *6*	(11/2$^-$)	25 s *3*	$T_{1/2}$: from γ(t) in 1978Ke12.

^{151}Tb IT decay (25 s) 1978Al15,1978Ke12 (continued)

$\gamma(^{151}Tb)$

Iγ normalization: from intensity balance.

E_γ [†]	I_γ [‡@]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	δ [#]	α [a]	$I_{(\gamma+ce)}$ [&]	Comments
22.92 *2*	14 *2*	22.922	$3/2^{(+)}$	0.0	$1/2^{(+)}$	M1+E2	0.031 *4*	27.8 *7*		α(L)=21.8 *5*; α(M)=4.78 *11*; α(N+..)=1.28 *3* α(N)=1.10 *3*; α(O)=0.167 *4*; α(P)=0.01034 *15*
27.1 *1*		99.53	$(11/2^-)$	72.39	$(5/2^+)$	E3		8.74×10^4 *23*	100	ce(L)/(γ+ce)=0.737 *15*; ce(M)/(γ+ce)=0.209 *7*; ce(N+)/(γ+ce)=0.0534 *20* ce(N)/(γ+ce)=0.0477 *18*; ce(O)/(γ+ce)=0.00563 *21*; ce(P)/(γ+ce)=2.98×10^{-6} *11* Observed only in ce spectra by 1978Al15.
49.46 *2*	100	72.39	$(5/2^+)$	22.922	$3/2^{(+)}$	M1+E2	0.06 *2*	2.82 *12*		α(L)=2.21 *9*; α(M)=0.485 *21*; α(N+..)=0.130 *6* α(N)=0.112 *5*; α(O)=0.0170 *6*; α(P)=0.001065 *16*
72.50 *10*	≈0.5	72.39	$(5/2^+)$	0.0	$1/2^{(+)}$	(E2)		8.89		α(K)=2.31 *4*; α(L)=5.06 *8*; α(M)=1.207 *19*; α(N+..)=0.305 *5* α(N)=0.270 *5*; α(O)=0.0345 *6*; α(P)=0.0001185 *17* I_γ: from branching ratio of 49^- and 72^- keV γ rays in (1978Al15) and Iγ of 49^- keV line in (1978Ke12). 1978Ke12 give Iγ<4.

[†] From 1978Al15.
[‡] Relative intensity normalized to 100 for the 49-keV (1978Ke12).
[#] From 'adopted gammas'.
[@] For absolute intensity per 100 decays, multiply by 0.22 *6*.
[&] For absolute intensity per 100 decays, multiply by 0.934 *20*.
[a] 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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Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

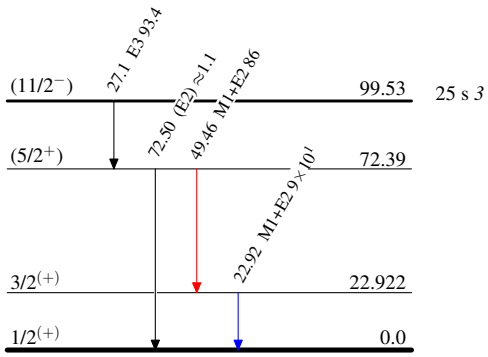
%IT=93.4 *20*

Legend

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

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

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



$^{151}_{65}Tb_{86}$