^{152}Tb IT decay 1980Zo02,1971Bo12

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. J. Martin	NDS 114, 1497 (2013)	31-Aug-2013

Parent: ^{152}Tb: E=501.74 *19*; $J^{\pi}=8^{+}$; $T_{1/2}$=4.2 min *1*; %IT decay=78.9 *6*

^{152}Tb Levels

1980Zo02, 1971Bo12: measured: γ, ce, $\gamma\gamma$.

The level scheme is that proposed by 1971Bo12. Experimental results do not establish the order of the gammas in the level scheme below the 342.2-keV 0.96 μs isomer. The authors propose two possible decay schemes. The evaluator, on the basis of RUL, suggests that the alternate scheme to the one given here, with the 235.4, 277.2, and 283.3g′s deexciting the isomer, is less likely.

E(level)	J^{π}[†]	$T_{1/2}$	Comments
0.0	2^-		
235.4 *1*	3^-		
277.2 *1*	3^-		
283.29 *5*	4^-		
342.2 *2*	5^-	0.96 μs	$T_{1/2}$: from 1972BoYE (quoted in 1980Zo02).
501.74 *19*	8^+	4.2 min *1*	%IT=78.8 *8*; %ε+%β^+=21.2 *8*; %α<1.0×10^{-6} %α: From 1971Bo12, no α-decay found. $T_{1/2}$: From 1971Bo12. Others: 3.9 min *2* (1971Ar31), 4.0 min *5* (1959Ol22).

[†] From adopted level.

γ(^{152}Tb)

Iγ normalization: 0.0758 from ΣI(γ+ce)(to g.s.)=100.

E_γ[†]	I_γ[†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[@]	$I_{(\gamma+ce)}$[#]	Comments
(6.1)		283.29	4^-	277.2	3^-			114 *8*	E_γ,$I_{(\gamma+ce)}$: Existence required by coincidence data. I(γ+ce) is from an intensity balance at the 283 level.
48.0 *2*	19.7 *15*	283.29	4^-	235.4	3^-	M1	2.93 *6*		α(L)=2.29 *5*; α(M)=0.501 *10*; α(N+..)=0.135 *3* α(N)=0.1158 *22*; α(O)=0.0178 *4*; α(P)=0.001166 *22* Mult.: α(exp)=2.4 *3* deduced from intensity balance in the level scheme.
58.9 *2*	121 *9*	342.2	5^-	283.29	4^-	M1	10.11 *18*		α(K)=8.51 *15*; α(L)=1.257 *22*; α(M)=0.275 *5*; α(N+..)=0.0739 *13* α(N)=0.0635 *11*; α(O)=0.00977 *17*; α(P)=0.000640 *11* Mult.: α(exp)=10 *1* deduced from intensity balance in the level scheme.
65.0 *3*	3.1 *2*	342.2	5^-	277.2	3^-	[E2]	13.7 *4*		α(K)=2.69 *4*; α(L)=8.51 *23*; α(M)=2.03 *6*; α(N+..)=0.512 *14* α(N)=0.454 *12*; α(O)=0.0578 *16*; α(P)=0.000149 *3*
106.6 *3*	5.4 *3*	342.2	5^-	235.4	3^-	[E2]	2.06 *4*		α(K)=0.967 *16*; α(L)=0.845 *16*; α(M)=0.200 *4*; α(N+..)=0.0508 *10* α(N)=0.0450 *9*; α(O)=0.00583 *11*; α(P)=4.82×10^{-5} *8*

Continued on next page (footnotes at end of table)

^{152}Tb IT decay 1980Zo02,1971Bo12 (continued)

$\gamma(^{152}Tb)$ (continued)

E_γ[†]	I_γ[†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[@]	Comments
159.59 *10*	277 *14*	501.74	8^+	342.2	5^-	E3	4.01	α(K)=1.125 *16*; α(L)=2.21 *4*; α(M)=0.543 *8*; α(N+..)=0.1383 *20* α(N)=0.1225 *18*; α(O)=0.01575 *23*; α(P)=6.95×10^{-5} *10* E_γ: from 1971Bo12. Mult.: α(K)exp=0.97 *12* (1980Zo02); K:L:M=0.50 *5*:1.00:0.27 *2* (1971Bo12).
235.4 *1*	71 *5*	235.4	3^-	0.0	2^-	M1	0.200	α(K)=0.1687 *24*; α(L)=0.0242 *4*; α(M)=0.00529 *8*; α(N+..)=0.001423 *20* α(N)=0.001222 *18*; α(O)=0.000188 *3*; α(P)=1.249×10^{-5} *18* Mult.: α(K)exp=0.159 *13*.
277.2 *1*	142 *6*	277.2	3^-	0.0	2^-	M1	0.1284	α(K)=0.1086 *16*; α(L)=0.01552 *22*; α(M)=0.00338 *5*; α(N+..)=0.000911 *13* α(N)=0.000783 *11*; α(O)=0.0001207 *17*; α(P)=8.01×10^{-6} *12* Mult.: α(K)exp=0.105 *8*.
283.29 *5*	1000	283.29	4^-	0.0	2^-	E2	0.0744	α(K)=0.0557 *8*; α(L)=0.01451 *21*; α(M)=0.00332 *5*; α(N+..)=0.000863 *12* α(N)=0.000754 *11*; α(O)=0.0001053 *15*; α(P)=3.44×10^{-6} *5* Mult.: α(K)exp=0.054 *4* (1980Zo02), K/L=4.0 *5* (71b012);

[†] From 1980Zo02, unless otherwise noted.
[‡] From 1980Zo02, unless otherwise noted. α(K)exp were normalized to α(K)(344γ in ^{152}Gd, E2)=0.0310.
[#] For absolute intensity per 100 decays, multiply by 0.0598 *5*.
[@] 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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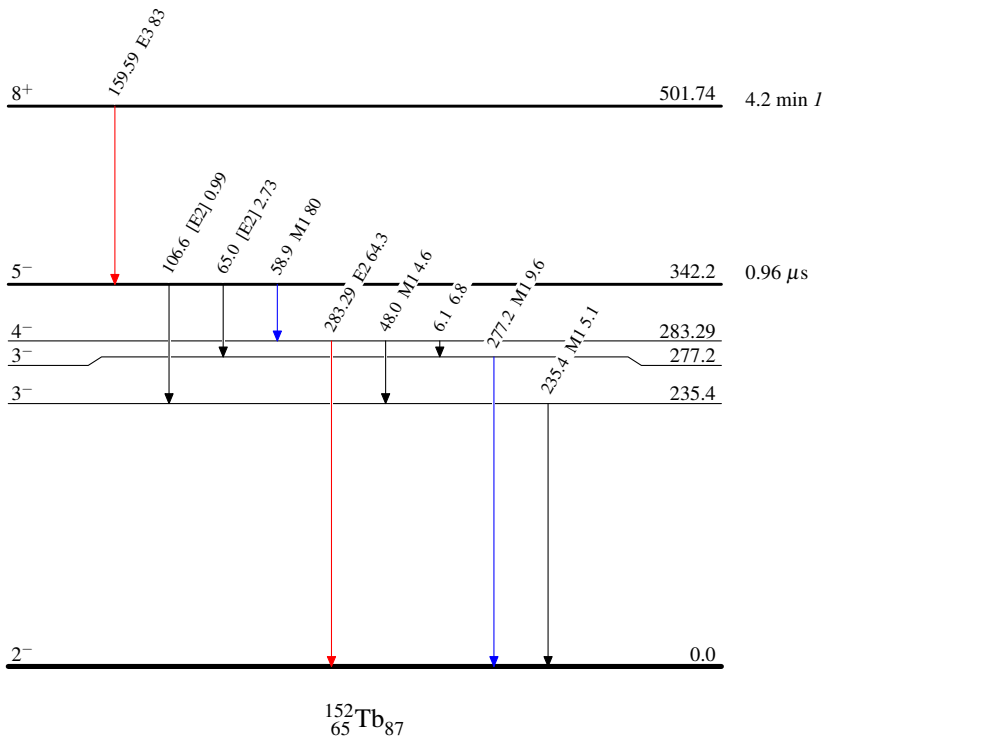
Decay Scheme

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

%IT=78.9 *6*



$^{152}_{65}Tb_{87}$