^{158}Tb IT decay (0.40 ms) 1984Bu30,1961Kr01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 141, 1 (2017)	1-Feb-2017

Parent: ^{158}Tb: E=388.4; $J^\pi=7^-$; $T_{1/2}$=0.40 ms *4*; %IT decay=100.0

Activity produced by ^{159}Tb(γ,n) with bremsstrahlung source (1961Kr01,1967Hi08,1968Ga17) and by ^{154}Sm(^{7}Li,3n) with E=27 MeV (1984Bu30).

^{158}Tb Levels

Additional information 1.

E(level)	J^π[†]	$T_{1/2}$[‡]	Comments
0.0[#]	3^-		Configuration=((π 3/2(411))+(ν 3/2(521))) (1984BU30).
55.04[@] *5*	4^+		Configuration=((π 3/2(411))+(ν 5/2(642))) (1984BU30).
128.24[@] *7*	5^+		
217.31[@] *8*	6^+		
322.64[@] *8*	7^+		
388.39[&] *8*	7^-	0.40 ms *4*	Configuration=((π 3/2(411))+(ν 11/2(505))) (1984BU30).

[†] From ^{158}Tb Adopted Levels.
[‡] From 1961Kr01.
[#] Band(A): $K^\pi=3^-$ band.
[@] Band(B): $K^\pi=4^+$ band.
[&] Band(C): $K^\pi=7^-$ band.

γ(^{158}Tb)

Iγ normalization: calculated to give an average of 100% decay through each of six planes in the scheme. This gives 108% from the isomer and 92% into the ground state. Small M2 admixtures to the 66 E1 γ depopulating the isomer or to the 55 E1 γ populating the g.s. can improve the intensity balance at these levels. Intensity balances within the scheme depend on the unknown δ(73) and δ(89) values.

E_γ[†]	I_γ[‡&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[@]	Comments
55.04 *5*	75 *2*	55.04	4^+	0.0	3^-	E1	1.439	α(K)=1.177 *17*; α(L)=0.206 *3*; α(M)=0.0450 *7* α(N)=0.01011 *15*; α(O)=0.001402 *20*; α(P)=6.08×10^{-5} *9*
65.76 *5*	56 *2*	388.39	7^-	322.64	7^+	E1	0.913	α(K)=0.754 *11*; α(L)=0.1247 *18*; α(M)=0.0272 *4* α(N)=0.00614 *9*; α(O)=0.000865 *13*; α(P)=3.95×10^{-5} *6*
73.21 *5*	24 *2*	128.24	5^+	55.04	4^+	[M1+E2]	7.0 *16*	α(K)=3.4 *12*; α(L)=2.7 *21*; α(M)=0.65 *51* α(N)=0.15 *12*; α(O)=0.019 *14*; α(P)=2.3×10^{-4} *12* δ,α: If one requires an intensity balance at the 55 level and assigns a 10% uncertainty to the I_γ values, one can deduce α(73)=5.8 *10* and then δ < 0.8.
89.08 *5*	34 *2*	217.31	6^+	128.24	5^+	[M1+E2]	3.5 *5*	α(K)=2.05 *54*; α(L)=1.15 *78*; α(M)=0.27 *19* α(N)=0.061 *42*; α(O)=0.0081 *52*; α(P)=1.34×10^{-4} *59*
105.33 *5*	28 *2*	322.64	7^+	217.31	6^+	[M1+E2]	2.02 *14*	α(K)=1.3 *3*; α(L)=0.56 *33*; α(M)=0.131 *81* α(N)=0.030 *18*; α(O)=0.0040 *22*; α(P)=8.4×10^{-5} *35*
162.22 *10*	15 *2*	217.31	6^+	55.04	4^+	[E2]	0.466	α(K)=0.293 *5*; α(L)=0.1334 *19*; α(M)=0.0313 *5*

Continued on next page (footnotes at end of table)

^{158}Tb IT decay (0.40 ms) 1984Bu30,1961Kr01 (continued)

$\gamma(^{158}Tb)$ (continued)

E_γ [†]	I_γ [‡&]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	α [@]	Comments
171.07 *5*	100 *2*	388.39	7^-	217.31	6^+	[E1]	0.0711	α(N)=0.00704 *10*; α(O)=0.000939 *14*; α(P)=1.594×10^{-5} *23* α(K)=0.0600 *9*; α(L)=0.00870 *13*; α(M)=0.00189 *3*
194.41 *5*	37 *2*	322.64	7^+	128.24	5^+	[E2]	0.252	α(N)=0.000432 *6*; α(O)=6.40×10^{-5} *9*; α(P)=3.58×10^{-6} *5* α(K)=0.1707 *24*; α(L)=0.0628 *9*; α(M)=0.01462 *21* α(N)=0.00330 *5*; α(O)=0.000446 *7*; α(P)=9.69×10^{-6} *14*

† From 1984Bu30, no uncertainties given.
‡ From 1984Bu30, no uncertainties given; other: 1968Ga17.
# From α deduced from intensity balances (1984Bu30) or from adopted J^π assignments.
@ Additional information 2.
& For absolute intensity per 100 decays, multiply by 0.504 *10*.

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Decay Scheme

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

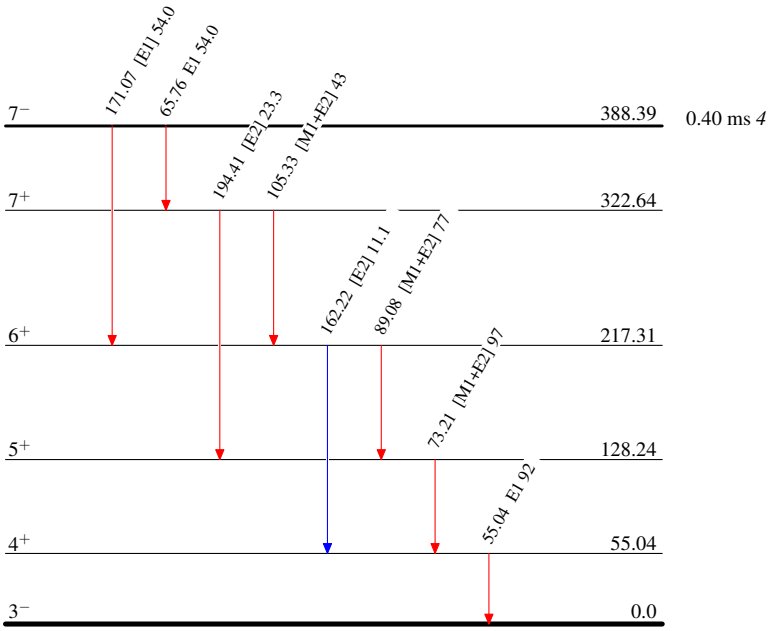
%IT=100.0

Legend

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

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

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



$^{158}_{65}Tb_{93}$

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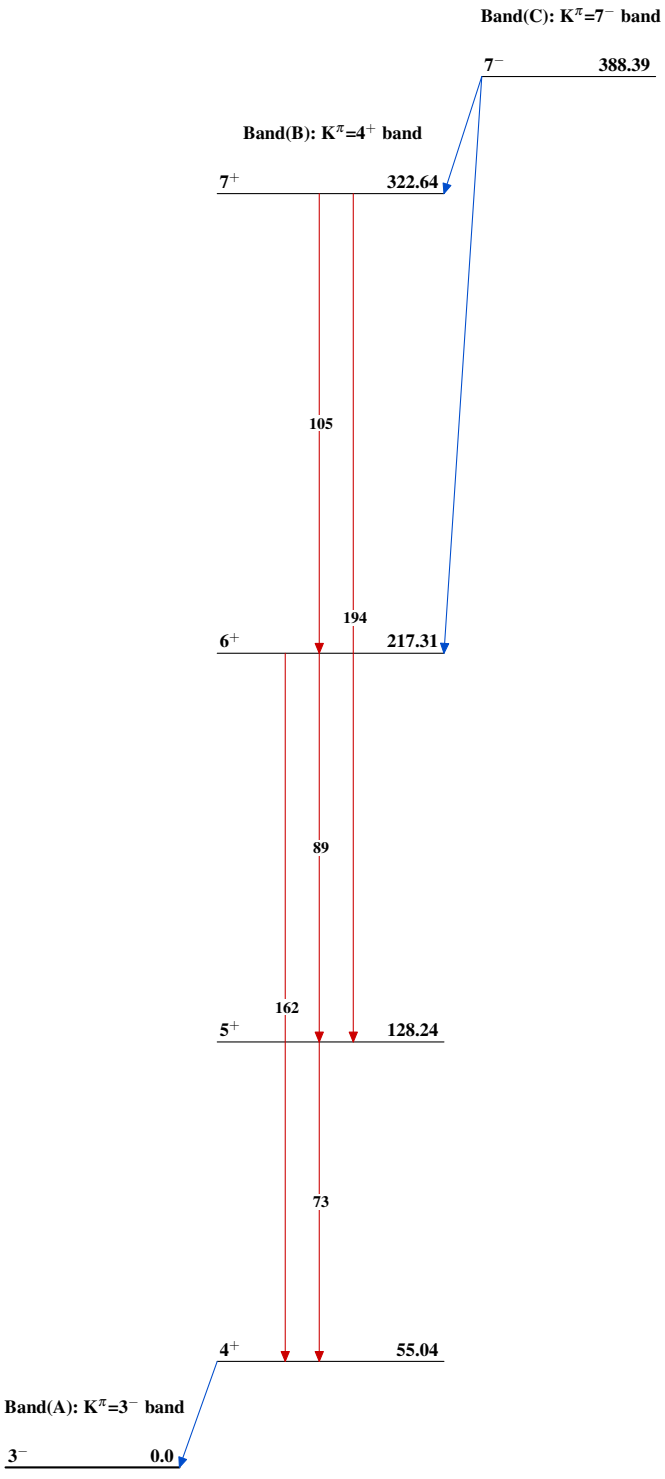

$^{158}_{65}Tb_{93}$