^{152}Tm ε decay (5.2 s) 1980Li18

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

Parent: ^{152}Tm: E=0+x; $J^\pi=(9)^+$; $T_{1/2}$=5.2 s *6*; Q(ε)=8720 *70*; %ε+%β^+ decay=100.0
Measured: Eγ, Iγ, $\beta^+\gamma$.

^{152}Er Levels

E(level)†	J^π‡
0.0	0^+
808.2 *1*	2^+
1480.8 *2*	4^+
1903.3 *2*	6^+
2183.2 *2*	8^+

† From a least-squares fit to the Eγ data and rounded off by the evaluator to one decimal digit.
‡ From Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	Iβ^+ ‡	Iε‡	Log *ft*	I($\varepsilon+\beta^+$)‡	Comments
(6.54×10^3 *7*)	2183.2	67 *17*	13 *4*	4.30 *16*	80† *20*	av Eβ=2470 *140*; εK=0.134 *20*; εL=0.020 *3*; εM+=0.0060 *9* av Eβ, I(β^+), I(ce), and log *ft* are calculated for a parent isomer energy of x=0.

† 1980Li18 estimate from the relative Iγ that ≈50% of $\varepsilon+\beta^+$ decay goes to the 8^+ level. Additional feeding must then go to the 6^+ level (if J^π(parent)=7^+), or to levels above the 8^+ level, namely to the 10^+ level at 2948 keV (if J^π(parent)=9^+). However, from Iγ(422.5γ), an Iβ to the 6^+ level =18 *18*; and 1980Li18 do not see the 764.4-keV γ from the 10^+ level. No other levels with suitable spins have been seen in (HI,xnγ) reaction. It is therefore likely that most, if not all, the decay goes to the 8^+ level.
‡ Absolute intensity per 100 decays.

γ(^{152}Er)

Iγ normalization: From I(808γ)=100.

E$_\gamma$	I$_\gamma$‡	E$_i$(level)	J^π_i	E$_f$	J^π_f	Mult.†	α#	Comments
279.9 *1*	46 *10*	2183.2	8^+	1903.3	6^+	E2	0.0854	α(K)=0.0615 *9*; α(L)=0.0185 *3*; α(M)=0.00433 *6*; α(N+..)=0.001121 *16* α(N)=0.000991 *14*; α(O)=0.0001264 *18*; α(P)=3.12×10^{-6} *5*
422.5 *1*	66 *15*	1903.3	6^+	1480.8	4^+	E2	0.0257	α(K)=0.0200 *3*; α(L)=0.00440 *7*; α(M)=0.001011 *15*; α(N+..)=0.000265 *4* α(N)=0.000233 *4*; α(O)=3.10×10^{-5} *5*; α(P)=1.089×10^{-6} *16*
672.6 *1*	76 *17*	1480.8	4^+	808.2	2^+	E2	0.00797	α(K)=0.00652 *10*; α(L)=0.001129 *16*; α(M)=0.000254 *4*; α(N+..)=6.74×10^{-5} *10* α(N)=5.89×10^{-5} *9*; α(O)=8.16×10^{-6} *12*; α(P)=3.68×10^{-7} *6*
808.2 *1*	100	808.2	2^+	0.0	0^+	E2	0.00528	α(K)=0.00437 *7*; α(L)=0.000708 *10*; α(M)=0.0001586 *23*;

Continued on next page (footnotes at end of table)

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

E_γ	E_i(level)	Comments
		α(N+..)=4.22×10^{-5} *6* α(N)=3.68×10^{-5} *6*; α(O)=5.16×10^{-6} *8*; α(P)=2.48×10^{-7} *4*

† From adopted gammas.

‡ Absolute intensity per 100 decays.

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