

<sup>152</sup>Tm ε decay (8.0 s) 1987To02

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

Parent: <sup>152</sup>Tm: E=0.0; J<sup>π</sup>=(2)<sup>-</sup>; T<sub>1/2</sub>=8.0 s 10; Q(ε)=8720 70; %ε+%β<sup>+</sup> decay=100.0  
 Measured: γ, γγ, β<sup>+</sup>γ (1987To02), γ, γγ (1982No13).

<sup>152</sup>Er Levels

1987To02 observed (808γ)(β<sup>+</sup>) with Eβ+≈4.0 MeV indicating that there is strong feeding to level(s) at ≈3.6 MeV (given Q(ε)=8730 74). It appears that decay goes primarily via allowed decay(s) to level(s) with J<sup>π</sup>=1<sup>-</sup>,2<sup>-</sup>,3<sup>-</sup> at ≈3.6 MeV.

E(level) <sup>†</sup>	J <sup>π</sup> <sup>‡</sup>	Comments
0.0	0 <sup>+</sup>	
808.5 2	2 <sup>+</sup>	
1481.2 3	4 <sup>+</sup>	
1524.4 3	(3 <sup>-</sup> )	
1715.53 21	(2 <sup>+</sup> )	
≈3730?	(1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> )	E(level): from E(β <sup>+</sup> )≈4.0 MeV in (808γ)(β <sup>+</sup> ) coin (1987To02) and Q(ε). J <sup>π</sup> : probable low log ft suggests allowed decay to this level.

<sup>†</sup> From 1987To02.

<sup>‡</sup> From Adopted Levels, unless otherwise noted.

ε,β<sup>+</sup> radiations

E(decay)	E(level)	Iβ <sup>+</sup> <sup>‡</sup>	Iε <sup>‡</sup>	Log ft	I(ε+β <sup>+</sup> ) <sup>‡</sup>	Comments
≈5000 <sup>#</sup>	≈3730?					av Eβ=1804 33 E(decay): Eβ+≈4.0 MeV (1987To02, from (808γ)β <sup>+</sup> coin).
(7.00×10 <sup>3</sup> <sup>#</sup> 7)	1715.53	<8.1	<1.1	>5.6	<9.2 <sup>†</sup>	av Eβ=2752 34; εK=0.104 4; εL=0.0157 5; εM+=0.00465 14
(7.20×10 <sup>3</sup> <sup>#</sup> 7)	1524.4	<12	<1.6	>5.5	<14 <sup>†</sup>	av Eβ=2843 34; εK=0.096 3; εL=0.0145 5; εM+=0.00430 13
(7.24×10 <sup>3</sup> <sup>#</sup> 7)	1481.2	<1.2	<0.36	>8.4 <sup>1u</sup>	<1.6	av Eβ=2804 33; εK=0.186 5; εL=0.0285 8; εM+=0.00846 24 I(ε+β <sup>+</sup> ): calculated from log f <sup>1u</sup> t>8.5.
(7.91×10 <sup>3</sup> <sup>#</sup> 7)	808.5	<9.1	<0.87	>5.8	<10	av Eβ=3185 34; εK=0.0724 20; εL=0.0109 3; εM+=0.00324 9 I(ε+β <sup>+</sup> ): calculated from log ft>5.9.

<sup>†</sup> Limit calculated from intensity balance assuming no γ feeding from higher levels.

<sup>‡</sup> Absolute intensity per 100 decays.

<sup>#</sup> Existence of this branch is questionable.

γ(<sup>152</sup>Er)

E <sub>γ</sub>	I <sub>γ</sub>	E <sub>i</sub> (level)	J <sub>i</sub> <sup>π</sup>	E <sub>f</sub>	J <sub>f</sub> <sup>π</sup>	Mult. <sup>‡</sup>	α <sup>†</sup>	Comments
672.7 2	9.5 10	1481.2	4 <sup>+</sup>	808.5	2 <sup>+</sup>	E2	0.00797	α(K)=0.00652 10; α(L)=0.001128 16; α(M)=0.000254 4; α(N+..)=6.74×10 <sup>-5</sup> 10 α(N)=5.88×10 <sup>-5</sup> 9; α(O)=8.16×10 <sup>-6</sup> 12; α(P)=3.68×10 <sup>-7</sup> 6
715.9 2	13 1	1524.4	(3 <sup>-</sup> )	808.5	2 <sup>+</sup>			
808.3 2	100	808.5	2 <sup>+</sup>	0.0	0 <sup>+</sup>	E2	0.00527	α(K)=0.00436 7; α(L)=0.000708 10; α(M)=0.0001585

Continued on next page (footnotes at end of table)

$^{152}\text{Tm}$   $\varepsilon$  decay (8.0 s) [1987To02](#) (continued) $\gamma(^{152}\text{Er})$  (continued)

$E_\gamma$	$I_\gamma$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Comments
						$23; \alpha(\text{N}+..)=4.22 \times 10^{-5} \text{ } 6$
						$\alpha(\text{N})=3.67 \times 10^{-5} \text{ } 6; \alpha(\text{O})=5.16 \times 10^{-6} \text{ } 8; \alpha(\text{P})=2.48 \times 10^{-7} \text{ } 4$
906.8 2	6 1	1715.53	(2 <sup>+</sup> )	808.5	2 <sup>+</sup>	
<sup>x</sup> 1063.0 3	2.5 5					
<sup>x</sup> 1106.4 3	2.5 5					
1716.0 3	2.0 6	1715.53	(2 <sup>+</sup> )	0.0	0 <sup>+</sup>	

† [Additional information 1.](#)

‡ From adopted gammas.

<sup>x</sup>  $\gamma$  ray not placed in level scheme.

**$^{152}\text{Tm}$   $\epsilon$  decay (8.0 s) 1987To02**

Decay Scheme

Intensities: Relative  $I_\gamma$

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$

