

<sup>150</sup>Tm ε decay [1996Ga24,1987To05](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, A. A. Sonzogni		NDS 114, 435 (2013)	1-Apr-2013

Parent: <sup>150</sup>Tm: E=0.0; J<sup>π</sup>=(6<sup>-</sup>); T<sub>1/2</sub>=2.20 s 6; Q(ε)=11340 SY; %ε+%β<sup>+</sup> decay=100.0

<sup>150</sup>Er Levels

E(level)	J <sup>π</sup>	T <sub>1/2</sub>	E(level)	J <sup>π</sup>	E(level)	J <sup>π</sup>
0	0 <sup>+</sup>	18.5 s 7	2620.7 5	6 <sup>+</sup>	3187.0 6	(4 <sup>-</sup> )
1578.3 3	2 <sup>+</sup>		2632.7 5	7 <sup>-</sup>	3774.1 6	(5 <sup>-</sup> )
1785.9 3	3 <sup>-</sup>		2733.4 6	8 <sup>+</sup>	4437.7 6	(5 <sup>-</sup> )
2260.3 4	5 <sup>-</sup>		2854.5 5	6 <sup>-</sup>		
2294.2 6	4 <sup>+</sup>		2995.0 5	(5 <sup>-</sup> )		

ε,β<sup>+</sup> radiations

E(decay)	E(level)	Iβ <sup>+</sup> ‡	Iε ‡	Log ft	I(ε+β <sup>+</sup> ) †‡	Comments
(6902 SY)	4437.7	2.6 4	0.41 8	5.48 10	3.0 5	av Eβ=2646 95; εK=0.114 11; εL=0.0173 16; εM+=0.0051 5
(7565 SY)	3774.1	3.0 4	0.35 5	5.62 8	3.4 4	av Eβ=2962 96; εK=0.087 8; εL=0.0131 11; εM+=0.0039 4
(8153 SY)	3187.0	3.8 4	0.34 4	5.71 7	4.1 3	av Eβ=3243 96; εK=0.069 6; εL=0.0104 9; εM+=0.00309 25
(8345 SY)	2995.0	1.8 6	0.15 5	6.09 15	1.9 6	av Eβ=3335 96; εK=0.064 5; εL=0.0097 8; εM+=0.00288 23
(8485 SY)	2854.5	14.9 6	1.18 10	5.20 6	15.7 6	av Eβ=3402 96; εK=0.061 5; εL=0.0092 7; εM+=0.00273 21
(8606 SY)	2733.4	1.5 3	0.25 5	8.32 <sup>1u</sup> 11	1.4 3	av Eβ=3384 94; εK=0.118 9; εL=0.0180 14; εM+=0.0053 4
(8707 SY)	2632.7	7.6 5	0.55 5	5.55 6	8.2 4	av Eβ=3508 97; εK=0.057 5; εL=0.0085 7; εM+=0.00253 19
(8719 SY)	2620.7	4.6 7	0.33 5	5.78 9	4.8 7	av Eβ=3514 97; εK=0.056 5; εL=0.0085 7; εM+=0.00252 19
(9045 SY)	2294.2	6.7 18	0.92 25	7.84 <sup>1u</sup> 14	7.6 20	av Eβ=3589 94; εK=0.102 7; εL=0.0155 11; εM+=0.0046 4
(9079 SY)	2260.3	22 10	1.4 7	5.20 22	23 10	av Eβ=3688 97; εK=0.050 4; εL=0.0075 6; εM+=0.00222 16

† From I(γ+ce) balance. This procedure would give I(γ+ce)(2<sup>+</sup>)=12.3 and I(γ+ce)(3<sup>-</sup>)=13.6, which can't take place from the (6<sup>-</sup>) parent. As a result, the decay scheme is incomplete.

‡ Absolute intensity per 100 decays.

γ(<sup>150</sup>Er)

I<sub>γ</sub> normalization: from ΣI(γ+ce) to g.s.=100.

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>	α <sup>#</sup>	Comments
100.7 3	1.45 25	2733.4	8 <sup>+</sup>	2632.7 7 <sup>-</sup>			I <sub>γ</sub> : average of 1.7 3 (1996Ga24) and 1.2 3 (1987To05).
360.4 2	5.1 7	2620.7	6 <sup>+</sup>	2260.3 5 <sup>-</sup>			I <sub>γ</sub> : average of 5.2 10 (1996Ga24) and 5 1 (1987To05).
372.4 2	10.2 4	2632.7	7 <sup>-</sup>	2260.3 5 <sup>-</sup>			I <sub>γ</sub> : average of 10.2 4 (1996Ga24) and 10 2 (1987To05).
474.4 3	65 11	2260.3	5 <sup>-</sup>	1785.9 3 <sup>-</sup>			I <sub>γ</sub> : average of 61 3 (1996Ga24) and 95 8 (1987To05).
508.3 5	8.0 21	2294.2	4 <sup>+</sup>	1785.9 3 <sup>-</sup>		0.00692 10	α(K)exp=0.065 41 I <sub>γ</sub> : deduced from conversion electron spectrum assuming E1; average of 6 3 (1996Ga24) and 10 3 (1987To05).
594.2 2	16.7 6	2854.5	6 <sup>-</sup>	2260.3 5 <sup>-</sup>			I <sub>γ</sub> : average of 16.8 6 (1996Ga24) and 15 2 (1987To05).
734.7 2	2.0 6	2995.0	(5 <sup>-</sup> )	2260.3 5 <sup>-</sup>			I <sub>γ</sub> : average of 3.0 5 (1996Ga24) and 1.7 3 (1987To05).
1401.1 5	4.3 3	3187.0	(4 <sup>-</sup> )	1785.9 3 <sup>-</sup>			I <sub>γ</sub> : average of 4.0 4 (1996Ga24) and 4.5 4 (1987To05).
1513.8 4	3.6 4	3774.1	(5 <sup>-</sup> )	2260.3 5 <sup>-</sup>			E <sub>γ</sub> , I <sub>γ</sub> : from 1996Ga24.
1578.3 3	100 3	1578.3	2 <sup>+</sup>	0 0 <sup>+</sup>			
1785.9 3	5.9 6	1785.9	3 <sup>-</sup>	0 0 <sup>+</sup>			
2177.4 4	3.2 5	4437.7	(5 <sup>-</sup> )	2260.3 5 <sup>-</sup>			E <sub>γ</sub> , I <sub>γ</sub> : from 1996Ga24.

Continued on next page (footnotes at end of table)

---

$^{150}\text{Tm}$   $\varepsilon$  decay [1996Ga24](#), [1987To05](#) (continued)

$\gamma(^{150}\text{Er})$  (continued)

† From [1996Ga24](#).

‡ For absolute intensity per 100 decays, multiply by 0.94251.

# Total theoretical internal conversion coefficients, calculated using the BrIcc code ([2008Ki07](#)) with Frozen orbital approximation based on  $\gamma$ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

$^{150}\text{Tm}$   $\epsilon$  decay 1996Ga24,1987To05

Decay Scheme

Intensities:  $I_\gamma$  per 100 parent decays

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

