

^{144}Tb ε decay (4.25 s) 1986Re11

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	A. A. Sonzogni	NDS 93, 599 (2001)	1-Dec-2000

Parent: ^{144}Tb : E=396.9 5; $J^\pi=(6^-)$; $T_{1/2}=4.25$ s 15; Q(ε)=9074 SY; % ε +% β^+ decay=34.0

Source: ^{35}Cl on ^{112}Sn , ms. Measured (K x ray) γ , $\gamma\gamma$, $\gamma\gamma(\theta)$.

 ^{144}Gd Levels

E(level) [‡]	J^π [†]	Comments
0.0	0 ⁺	
743.0 3	2 ⁺	
1702.3 4	(3 ⁻)	since $\Delta J=3$, level is very unlikely to be fed by ε , β decays.
1744.6 4	(4 ⁺)	
2302.7 5	(5 ⁻)	
2330.5 5	(4 ⁻ , 5 ⁻)	J^π : a logft=6.0 favors a (5 ⁻) assignment.
2354.3	(6 ⁺)	
2442.4 5	(5 ⁻)	
2471.9 6	(7 ⁻)	
2787.1 6	(7 ⁻)	
2788.0 6		
2862.0 5	(6 ⁺)	
2912.6 6		
3015.5 6	(5 ⁻ , 6 ⁻ , 7 ⁻)	

[†] From Adopted Levels.

[‡] From least-square fit.

 ε, β^+ radiations

Authors' I ε and log ft values are given.

E(decay)	E(level)	Log ft	I($\varepsilon + \beta^+$) [†]	E(decay)	E(level)	Log ft	I($\varepsilon + \beta^+$) [†]
(6455 SY)	3015.5	5.5	3.5	(7028 SY)	2442.4	5.6	4.9
(6558 SY)	2912.6	6.1	1	(7116 SY)	2354.3	6.3	1
(6608 SY)	2862.0	6.8	0.3	(7140 SY)	2330.5	6.0	2.1
(6682 SY)	2788.0	5.9	2.4	(7168 SY)	2302.7	5.4	8.0
(6683 SY)	2787.1	5.5	5.6	(7726 SY)	1744.6	>6.3 ^{1u}	<1.1
(6999 SY)	2471.9	5.9	2.7	(7768 SY)	1702.3	>6.3	<1.4

[†] Absolute intensity per 100 decays.

 $\gamma(^{144}\text{Gd})$

Normalization factor from Ti(743 γ)=34% is 0.62 but it does not reproduce all the level feedings given by the authors. Authors also give log ft .

Continued on next page (footnotes at end of table)

^{144}Tb ε decay (4.25 s) **1986Re11** (continued) $\gamma(^{144}\text{Gd})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	δ	$\alpha^\dagger$	Comments
139.7 3	2.7 27	2442.4	(5 ⁻)	2302.7	(5 ⁻)	[M1,E2]		0.78 1	$\alpha(\text{K})=0.56$ 11; $\alpha(\text{L})=0.17$ 7; $\alpha(\text{M})=0.038$ 18; $\alpha(\text{N}+..)=0.011$ 5
169.2 3	13.4 13	2471.9	(7 ⁻)	2302.7	(5 ⁻)	[E2]		0.395	$\alpha(\text{K})=0.259$ 8; $\alpha(\text{L})=0.105$ 4; $\alpha(\text{M})=0.0242$ 8; $\alpha(\text{N}+..)=0.00673$ 21
315.2 3	9.0 9	2787.1	(7 ⁻)	2471.9	(7 ⁻)				
470.2 3	1.60 16	2912.6		2442.4	(5 ⁻)				
485.3 3	3.9 4	2788.0		2302.7	(5 ⁻)				
558.1 3	22.0 22	2302.7	(5 ⁻)	1744.6	(4 ⁺)				
573.5 [‡] 3	1.60 16	3015.5	(5 ⁻ ,6 ⁻ ,7 ⁻)	2442.4	(5 ⁻)				
600.3 3	17.0 17	2302.7	(5 ⁻)	1702.3	(3 ⁻)				
609.7 [‡] 3	1.60 16	2354.3	(6 ⁺)	1744.6	(4 ⁺)				
628.2 3	3.4 3	2330.5	(4 ⁻ ,5 ⁻)	1702.3	(3 ⁻)				
697.9 3	6.3 6	2442.4	(5 ⁻)	1744.6	(4 ⁺)				
712.8 3	4.0 4	3015.5	(5 ⁻ ,6 ⁻ ,7 ⁻)	2302.7	(5 ⁻)				
743.0 3	55 6	743.0	2 ⁺	0.0	0 ⁺				
959.3 3	22.5 23	1702.3	(3 ⁻)	743.0	2 ⁺	(E1+M2)	+0.12 5	0.00140 17	$\alpha=0.00140$ 17; $\alpha(\text{K})=0.00119$ 14; $\alpha(\text{L})=0.00016$ 2 Mult., δ : from $\gamma\gamma(\theta)$.
1001.6 3	32 3	1744.6	(4 ⁺)	743.0	2 ⁺				
1117.4 3	0.50 5	2862.0	(6 ⁺)	1744.6	(4 ⁺)				

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

[‡] Placement of transition in the level scheme is uncertain.

^{144}Tb ϵ decay (4.25 s) 1986Re11

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - - -→ γ Decay (Uncertain)

Decay Scheme

Intensities: Type not specified

