^{154}Yb $\varepsilon+\beta^+$ decay 1988Vi02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 200,2 (2025)	22-Aug-2022

Parent: ^{154}Yb: E=0; $J^\pi=0^+$; $T_{1/2}$=0.409 s *2*; Q(ε)=4495 *14*; %ε+%β^+ decay=7.4 *12*
^{154}Yb-Q($\varepsilon+\beta^+$): From 2021Wa16.
^{154}Yb-%ε+%β^+ decay: Additional information 1.
Additional information 2.
^{154}Tm produced from the ε decay of ^{154}Yb which was made by bombardment of Mo targets with 285-MeV ^{64}Zn followed by isotope separation.
Level scheme is incomplete.

^{154}Tm Levels

E(level)	J^π †	$T_{1/2}$ †	Comments
0	(2^-)	8.1 s *3*	
133.2 *2*	1^+		J^π: allowed ε transition from the ^{154}Yb g.s. ($J^\pi=0^+$).

† From ^{154}Tm Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	Iβ^+ †	Iε†	Log *ft*	I($\varepsilon+\beta^+$)†	Comments
(4362 *14*)	133.2	3.1 *8*	2.5 *6*	3.60 *11*	5.6 *14*	av Eβ=1513.0 *65*; εK=0.379 *3*; εL=0.0583 *4*; εM+=0.01746 *12* Log *ft*: Computed by the evaluator from the listed decay data. Other: log*ft*=3.6 *3* (1988Vi02). Additional information 3. I($\varepsilon+\beta^+$): Computed from the Iγ value for the 133.2 γ; this transition occurs in 75% *15* of the ^{154}Yb ε decays (1988Vi02).

† Absolute intensity per 100 decays.

$\gamma(^{154}Tm)$

Iγ normalization: From determination of Iγ(133) from I(Kx)/Iγ(133) (1988Vi02). The authors report that the total intensity [Iγ(1+α)] of the 133.2 transition accounts for 75% *15%* of the $\varepsilon+\beta^+$ decays of ^{154}Yb.

E_γ	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α‡	Comments
133.2 *2*	100	133.2	1^+	0	(2^-)	E1	0.1562	α(K)=0.1302 *19*; α(L)=0.0203 *3*; α(M)=0.00452 *7*; α(N+..)=0.001186 *18* α(N)=0.001040 *16*; α(O)=0.0001402 *21*; α(P)=6.05×10^{-6} *9* %Iγ=4.8 *12* Mult.: From α_K(exp)=0.11 *4* (1988Vi02).

† For absolute intensity per 100 decays, multiply by 0.048 *+19−16*.
‡ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with "Frozen Orbitals" approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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Decay Scheme

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