^{175}Er β^- decay   1996Zh03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 102, 719 (2004)	1-Jun-2004

Parent: ^{175}Er: E=0; J$^\pi$=(9/2$^+$); T$_{1/2}$=1.2 min *3*; Q(β^-)=3700 *SY*; %β^- decay=100.0

Source produced by ^{176}Yb(n,2p) E=14 MeV. Measured Eγ, Iγ, $\gamma\gamma$ coin, Xγ, γ(t).

^{175}Tm Levels

E(level)‡	J$^{\pi\dagger}$
0.0$^\#$	(1/2$^+$)
2.6$^\#$ *8*	(3/2$^+$)
123.7$^\#$ *6*	(5/2$^+$)
130.8$^\#$ *9*	(7/2$^+$)
357.9$^\#$ *8*	(9/2$^+$)
639.3 *10*	(11/2$^-$)
1291.2 *9*	
1367.7 *11*	(7/2$^+$)

† From Adopted Levels.

‡ Deduced by evaluator from a least-squares fit of the γ energies.

$^\#$ Member of the 1/2$^+$[411] rotational band. See also: ^{176}Yb(pol t,α) (1979Lo09).

β^- radiations

E(decay)	E(level)	I$\beta^{-\dagger\ddagger}$	Log ft	Comments
(2332$^\#$ *SY*)	1367.7			
(2408 *SY*)	1291.2	≈48	≈5.4	av Eβ=935.55 *40*
(3060 *SY*)	639.3	≈17	≈6.3	av Eβ=1227.19 *45*
(3342 *SY*)	357.9	≈35	≈6.2	av Eβ=1354.18 *37*

† From γ-ray transition intensity balance.

‡ Absolute intensity per 100 decays.

$^\#$ Existence of this branch is questionable.

γ(^{175}Tm)

Iγ normalization: from Σ I(γ+ce) to (g.s.+2.7+124+131)=100, assuming no β^- decay to levels below 358 keV. However, β^- branch to 7/2$^+$ level at 131 keV should surely be expected.

E$_\gamma$	I$_\gamma$†	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.	$\alpha^\ddagger$	Comments
2.6 *8*		2.6	(3/2$^+$)	0.0	(1/2$^+$)			E$_\gamma$: Transition not observed; Eγ from level energy difference.
76.5$^\#$ *6*		1367.7	(7/2$^+$)	1291.2				
120.9 *6*	≈97	123.7	(5/2$^+$)	2.6	(3/2$^+$)	[M1]	1.84	α(K)=1.54; α(L)=0.233; α(M)=0.0518; α(N+..)=0.0151
123.7 *6*		123.7	(5/2$^+$)	0.0	(1/2$^+$)	[E2]	1.41	α(K)=0.630; α(L)=0.593; α(M)=0.144; α(N+..)=0.0401 I$_\gamma$: from intensity balance this transition must be very weak.

^{175}Er β^- decay   **1996Zh03 (continued)**

γ(^{175}Tm) (continued)

E_γ	$I_\gamma{}^\dagger$	E_i(level)	J_i^π	E_f	J_f^π	Mult.	$\alpha^\ddagger$	Comments
128.5 6		130.8	(7/2$^+$)	2.6	(3/2$^+$)	[E2]	1.22	α(K)=0.570; α(L)=0.500; α(M)=0.121; α(N+..)=0.0337
227.3 6	$\approx$32	357.9	(9/2$^+$)	130.8	(7/2$^+$)	[M1]	0.314	α(K)=0.264; α(L)=0.0395; α(M)=0.0088; α(N+..)=0.00250
234.0 6	100	357.9	(9/2$^+$)	123.7	(5/2$^+$)	[E2]	0.157	α(K)=0.105; α(L)=0.0397; α(M)=0.0094; α(N+..)=0.00259
281.4 6	$\approx$50	639.3	(11/2$^-$)	357.9	(9/2$^+$)	[E1]	0.0226	α(K)=0.0190; α(L)=0.00279; α(M)=0.00061; α(N+..)=0.00017
1167.5 6	$\approx$150	1291.2		123.7	(5/2$^+$)			

† For absolute intensity per 100 decays, multiply by 0.32 8.

‡ 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.

$^\#$ Placement of transition in the level scheme is uncertain.

^{175}Er β^- decay   1996Zh03

Decay Scheme

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

Legend

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

(9/2$^+$)   0   1.2 min *3*

Q$_{\beta^-}$=3700 *SY*   %β^-=100.0

$^{175}_{68}$Er$_{107}$

Iβ^- Log *ft*

76.5
1167.5 ≈49

(7/2$^+$)   1367.7
≈48   ≈5.4   1291.2

281.4 [E1] ≈17

≈17   ≈6.3   (11/2$^-$)   639.3

234.0 [E2] 37
227.3 [M1] ≈15

≈35   ≈6.2   (9/2$^+$)   357.9

128.5 [E2]
123.7 [E2]
120.9 [M1] ≈89

(7/2$^+$)   130.8
(5/2$^+$)   123.7
2.6
(3/2$^+$)   2.6
(1/2$^+$)   0.0

$^{175}_{69}$Tm$_{106}$