^{151}Yb ε decay (1.6 s):mixed 1985Kl10,1986To12,1990Ak01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 110, 1 (2009)	20-Nov-2008

Parent: ^{151}Yb: E=0.0; $J^\pi=(1/2^+)$; $T_{1/2}$=1.6 s *1*; Q(ε)=9.24×10^3 *30*; %ε+%β^+ decay=100.0
Parent: ^{151}Yb: E=0.0+x; $J^\pi=(11/2^-)$; $T_{1/2}$=1.6 s *1*; Q(ε)=9.24×10^3 *30*; %ε+%β^+ decay=100.0
Decay of two isomers in ^{151}Yb: $J^\pi=(1/2^+)$, $T_{1/2}\approx$1.6 s and $J^\pi=(11/2^-)$, $T_{1/2}\approx$1.6 s.
Source produced in ^{96}Ru(^{58}Ni,2pn).
Measured: γγ, Xγ, γ(t), p(t) and X(t) in 1985Kl10 and γ-p, xp, β^+p, X(t) and p(t) in 1986ToZT.
The two isomers of ^{151}Yb decay to levels in ^{151}Tm above 3.8 MeV. These levels in turn decay either by proton emission to ^{150}Er levels or by γ ray emission to low-lying single proton ($g_{7/2}$,$d_{5/2}$,$d_{3/2}$,$s_{1/2}$ and $h_{11/2}$) states in ^{151}Tm. The γ rays from the deexcitation of these latter states by M1 transitions were observed by 1985Kl10. The contributions from the two isomers to Iγ are not separated.

^{151}Tm Levels

E(level)	J^π[†]	Comments
0.0	$(11/2^-)$	
0.0+y	$(1/2^+)$	E(level): y≈50 keV, estimated by 1990Ak01 from systematics of isotones.
108.4+y *1*	$(3/2^+)$	
582.6+y *2*	$(5/2^+)$	
1074.0		
1102.7+y *3*	$(7/2^+)$	

[†] from 'Adopted Levels'.

γ(^{151}Tm)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[‡]	Comments
108.4 *1*	100 *5*	108.4+y	$(3/2^+)$	0.0+y	$(1/2^+)$	(M1)	2.46	α(K)exp=2.6 *12* (1985Kl10)
474.2 *2*	200 *17*	582.6+y	$(5/2^+)$	108.4+y	$(3/2^+)$	[M1]	0.0433	Mult.: from systematics of N=82 isotones.
520.1 *2*	160 *16*	1102.7+y	$(7/2^+)$	582.6+y	$(5/2^+)$	[M1]	0.0342	Mult.: from systematics of N=82 isotones.
[x]568.1 *5*	142 *29*							E_γ,I_γ: from 1990Ak01.
1074.0 *6*	380 *38*	1074.0		0.0	$(11/2^-)$			E_γ,I_γ: from 1990Ak01.

[†] Weighted average from 1985Kl10 and 1990Ak01, unless otherwise stated.
[‡] 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.
[x] γ ray not placed in level scheme.

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Decay Scheme

Intensities: Relative I_γ