^{151}Yb IT decay (20 μs) 1995Ni10,1993Ni05,1987Br14

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

Parent: ^{151}Yb: E=2448+z; J^π=(27/2$^-$); $T_{1/2}$=20 μs *1*; %IT decay=100.0

1995Ni10: ^{151}Yb isomer produced by ^{96}Ru(^{58}Ni,2pn) E=255 MeV. The ^{151}Yb nuclei were mass separated by Fragment Mass Analyzer and mass gated conversion electrons and γ rays were studied in coincidence modes.

1993Ni05, 1987Br14: ^{96}Ru(^{58}Ni,2pnγ) E=255 MeV. Fragment Mass Analyzer used to extract nuclei of ^{154}Hf. The ^{154}Hf nuclei were transported to a collector foil where decay of microsecond states were studied. Measured γ, γγ, recoil-γ(t).

^{151}Yb Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0+x	(11/2$^-$)		E(level): x≈740 (estimated from syst 1990Ak01).
1531.3+x	(15/2$^-$)		
1734.7+x	(17/2$^+$)		
1791.2+x			
1791.2+y		2.6 μs *7*	%IT=100 $T_{1/2}$: from recoil-γ(t) (1993Ni05). E(level): level is above 1791.2+x.
1791.2+z			E(level): level is above 1791.2+x.
1993.2+z?			
2165.4+z?			
2391+z	(23/2$^-$)		
2448+z	(27/2$^-$)	20 μs *1*	%IT=100 E(level): based on estimated Eγ=57 *2* (1995Ni10) deexciting this isomer. $T_{1/2}$: from recoil-γ(t) (1993Ni05). Other: 26 μs *5* (1987Br14). J^π: from analogy to ^{147}Dy and ^{149}Er. Probable configuration=$\pi h_{11/2}\otimes\nu h^{-1}_{11/2}$, seniority=3.

γ(^{151}Yb)

The ordering of the 226-172-202 cascade is not established. The placement of these γ rays is based on matching of 600γ with sum of 226, 172 and 202 γ rays.

E_γ †	I_γ †‡	E_i(level)	J^π_i	E_f	J^π_f	Mult.	α#	Comments
57 *2*		2448+z	(27/2$^-$)	2391+z	(23/2$^-$)	[E2]	32 *6*	E_γ: from mass gated ce spectrum (1995Ni10).
57.1 *2*	11 *3*	1791.2+x		1734.7+x	(17/2$^+$)			
x90.0 *5*	5 *1*							
172.2@ *4*	5 *2*	2165.4+z?		1993.2+z?				
202.0@ *4*	5 *2*	1993.2+z?		1791.2+z				
203.4 *5*	88 *8*	1734.7+x	(17/2$^+$)	1531.3+x	(15/2$^-$)	E1	0.0531	α(K)=0.044; α(L)=0.0067; α(M)=0.00150 Mult.: from α(K)exp=0.068 *18* (1995Ni10).
226.0@ *4*	6 *1*	2391+z	(23/2$^-$)	2165.4+z?				
259.4 *3*	20 *3*	1791.2+x		1531.3+x	(15/2$^-$)			
599.9 *4*	69 *5*	2391+z	(23/2$^-$)	1791.2+z				
1531.3 *5*	100 *9*	1531.3+x	(15/2$^-$)	0.0+x	(11/2$^-$)			

† From 1993Ni05. 1987Br14 report five γ rays, their energies agree well with those from 1993Ni05.

‡ Absolute intensity per 100 decays.

Continued on next page (footnotes at end of table)

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$\gamma(^{151}Yb)$ (continued)

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.
x γ ray not placed in level scheme.

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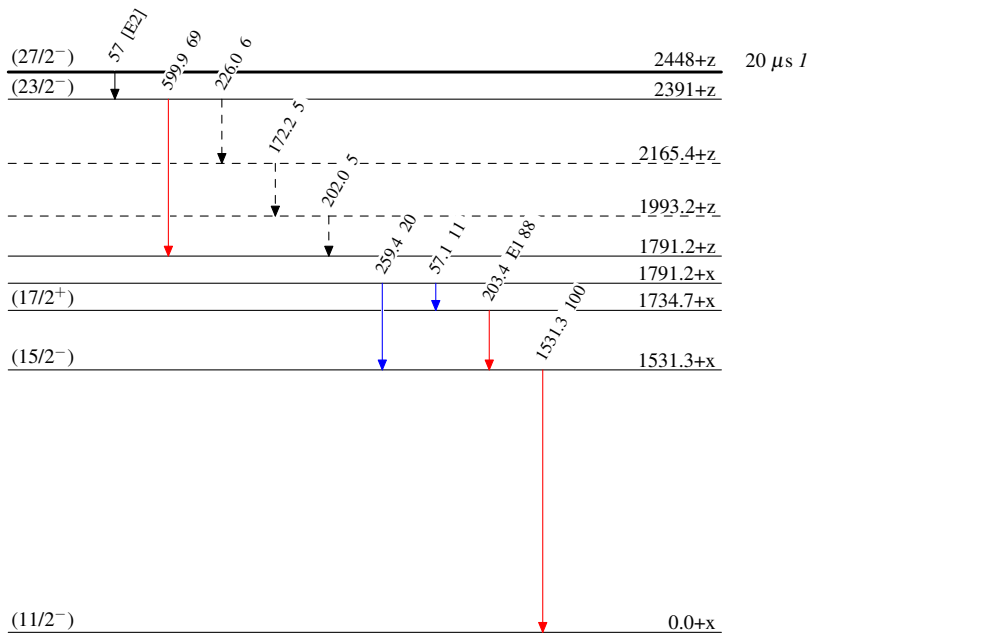
Decay Scheme

Intensities: Relative I_γ

%IT=100.0



$^{151}_{70}Yb_{81}$