Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. J. Martin	NDS 114, 1497 (2013)	31-Aug-2013

Q(β^-)=−12848 (syst) *246*; S(n)=1.28×10^4 *3*; S(p)=2.79×10^3 *15*; Q(α)=2.78×10^3 *15* 2017Wa10
Q(ε)=5.45×10^3 *14*; S(2n)=23775 *3*; S(2p)=3.02×10^3 *15*; Q(εp)=4.71×10^3 *15* 2017Wa10
Additional information 1.

^{152}Yb Levels

Calculations:
Gamow-Teller β^+ decay: 1988Ku20, 1988Su16.
Isotope shift: 1992Be07, 1991Ho27, 1990Sp05, 1990Bi08, 1989Sp04.
2$^+$ g-factor: 2007An16.

Cross Reference (XREF) Flags

- A ^{152}Yb IT decay
- B ^{152}Lu ε decay (0.7 s)
- C ^{156}Hf α decay (23 ms)
- D ^{156}Hf α decay (0.52 ms)

E(level)	J$^\pi$[†]	T$_{1/2}$	XREF	Comments
0.0	0$^+$	3.03 s *6*	ABCD	%ε+%β^+=100; %β^+p=? T$_{1/2}$: From 1988BaZS. Other: 3.1 s *2* (1987To02), 3.2 s *3* (1982No13). %β^+p: Although energetically possible, this decay has not been seen. Δ<r^2>(^{152}Yb,^{176}Yb)=2.30 fm^2 *5* (1994Ma57, using isotope shift data of 1989Sp04). <r^2>$^{1/2}$=5.030 fm 14 (2004An14).
1531.4 *5*	2$^+$		AB	J$^\pi$: First excited state in even-even nucleus. Predicted B(E2)↑=0.33 *8* (1989Ra16, best fit in global systematics). This corresponds to a halflife of 0.10 ps +4-2.
1890.1 *6*	(3)$^-$		AB	J$^\pi$: E1 γ to 2$^+$.
2202.7 *7*	(5)$^-$		AB	J$^\pi$: E2 γ to (3)$^-$.
2550.1 *7*	(7)$^-$		A	J$^\pi$: E2 γ to (5)$^-$.
2689.9 *8*	(8)$^+$		A	J$^\pi$: E1 γ to (7)$^-$.
2744.5	(10$^+$)	30 μs *1*	A	%IT=100 T$_{1/2}$: from IT decay (1995Ni10).

[†] Syst. For N=82 nuclei and mults as noted. The mults of the cascading γ's, with no observed crossover transitions, tend to confirm the assignments.

γ(^{152}Yb)

E$_i$(level)	J$_i^\pi$	E$_\gamma$[†]	E$_f$	J$_f^\pi$	Mult.[‡]	α[&]	Comments
1531.4	2$^+$	1531.4 *5*	0.0	0$^+$	[E2]		
1890.1	(3)$^-$	358.7 *3*	1531.4	2$^+$	E1	0.0130	
2202.7	(5)$^-$	312.6 *3*	1890.1	(3)$^-$	E2	0.0653	
2550.1	(7)$^-$	347.6[#] *3*	2202.7	(5)$^-$	E2	0.0479	
2689.9	(8)$^+$	140.0[#] *3*	2550.1	(7)$^-$	E1	0.141	Mult.: from IT decay.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

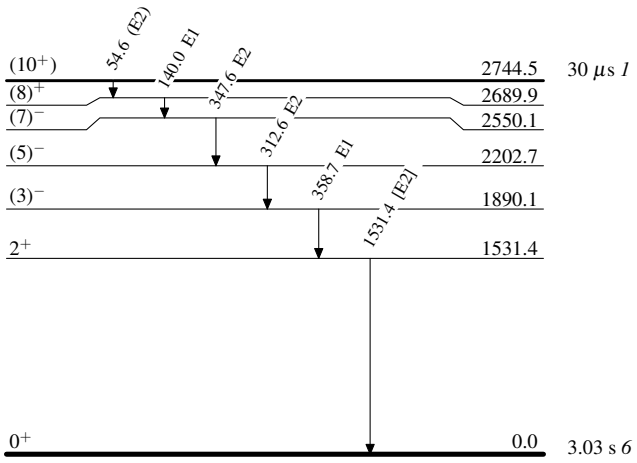
$\gamma(^{152}Yb)$ (continued)

E_i(level)	J_i^π	E_γ[†]	E_f	J_f^π	Mult.[‡]	α[&]	Comments
2744.5	(10^+)	54.6[@] *10*	2689.9	$(8)^+$	(E2)	39 *4*	B(E2)(W.u.)=0.020 *3* α: The uncertainty given is that due to the uncertainty in Eγ.

† From ^{152}Lu ε decay, unless otherwise noted.
‡ From IT decay.
# From IT decay (1982No13). No uncertainties have been assigned by these authors. From a comparison with the 313, 359, and 1531γ's reported in ε decay, the evaluator has increased the energies from 1982No13 by 0.2 keV and has assigned an uncertainty of 0.3 keV.
@ From IT decay (1995Ni10).
& 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.

Adopted Levels, Gammas

Level Scheme



$^{152}_{70}Yb_{82}$