Coulomb excitation **1979Ri13,1979Wa15,1977Ke06**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. M. Baglin[1], E. A. Mccutchan[2], S. Basunia[1]	NDS 153, 1 (2018)	1-Oct-2018

1980An27: ^{170}Yb(^{86}Kr,^{86}Kr′γ), E=350 MeV; measured $\gamma(\theta$,H); deduced g(J).
1979Ri13: ^{170}Yb(^{16}O,^{16}Oγ), E=58-62 MeV, 81.4% ^{170}Yb target; measured σ(E), Eγ, Iγ, ^{16}O′γ-coin, B(E2).
1979Wa15: ^{170}Yb(^{40}Ca,^{40}Ca′γ), E=168 MeV; measured ^{40}Ca′γ-coin, $\gamma(\theta$,H); deduced g(J).
1977Ke06: ^{170}Yb(^{56}Fe,^{56}Fe′γ) and (^{84}Kr,^{84}Kr′γ), E(^{56}Fe)=232 MeV, E(^{84}Kr)=348 MeV, measured Eγ, Doppler-broadened lineshapes.
Others: 1960El07, 1965Ti02.

^{170}Yb Levels

g-factor data:

g(84 level)=0.32 *2* (1965Ti02);
g(J)=g(0$^+$)[1-2.4×10^{-3} *13* J^2] for g.s. band (J=4 to 12 members) (1980An27);
g(J)=g(0$^+$)[1-0.5×10^{-3} *11* J^2] for g.s. band (J=2 to 10 members) (1979Wa15).

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	Comments
0[&]	0$^+$		
84.2[&] *7*	2$^+$	1.58 ns *5*	B(E2)↑=5.53 *25* (1960El07) g=0.32 *2* (1965Ti02) T$_{1/2}$: from pulsed beam γ(t) (1965Ti02). Other: 1.66 ns *9* from B(E2).
277.6[&] *13*	4$^+$		
573.9[&] *16*	6$^+$		
963.8[&] *17*	8$^+$	2.97 ps *25*	
1138.2[a] *8*	2$^+$	2.1[@] ps *4*	B(E2)↑=0.030 *6* (1979Ri13)
1145.4[b] *8*	2$^+$	0.83[@] ps *16*	B(E2)↑=0.077 *15* (1979Ri13)
1228.1 *13*	0$^+$	0.51 ps *10*	B(E2; 0$^+$ to 2$^+$) = 0.057 *11* (1979Ri13). T$_{1/2}$: from B(E2) and adopted 1144γ branching.
1305.6 *16*	2$^+$		
1331.8[b] *16*	4$^+$		
1438.0[&] *18*	10$^+$	1.16 ps *8*	
1983.9[&] *18*	12$^+$	0.77 ps *6*	

[†] From Eγ, allowing uncertainty of 1 keV for Eγ values for which authors did not state uncertainty.
[‡] B(E2) deduced from measured T$_{1/2}$ (1977Ke06) is within 8% of rotational model value for 965, 1437 levels, and 25% low (attributed to backbending) for 1983 level. For other levels, J$^\pi$ is from Adopted Levels.
[#] From Doppler-broadened lineshape (1977Ke06), except as noted.
[@] From measured B(E2).
[&] Band(A): K$^\pi$=0$^+$ g.s. band.
[a] Band(B): K$^\pi$=0$^+$ band.
[b] Band(C): K$^\pi$=2$^+$ band.

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$\gamma(^{170}Yb)$

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[@]	Comments
84.3	84.2	2^+	0	0^+	E2	6.27	Mult.: from Adopted Gammas.
193.4	277.6	4^+	84.2	2^+			
296.3	573.9	6^+	277.6	4^+			
389.9[#] *5*	963.8	8^+	573.9	6^+	E2	0.0346	
474.2[#] *5*	1438.0	10^+	963.8	8^+	E2	0.0204	
545.9[#] *5*	1983.9	12^+	1438.0	10^+	E2	0.01431	
1028	1305.6	2^+	277.6	4^+			
1054.2[&]	1138.2	2^+	84.2	2^+			
1054.2[&]	1331.8	4^+	277.6	4^+			
1061.0	1145.4	2^+	84.2	2^+			
1137.9	1138.2	2^+	0	0^+			E_γ: from 45° spectrum.
1143.9	1228.1	0^+	84.2	2^+			E_γ: from 90° spectrum.
1145.5	1145.4	2^+	0	0^+			E_γ: from 45° spectrum.

[†] From 1979Ri13.
[‡] Based on reduced transition rates B(E2)exp/B(E2)rot (1977Ke06).
[#] From 1977Ke06.
[@] 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.
[&] Multiply placed.

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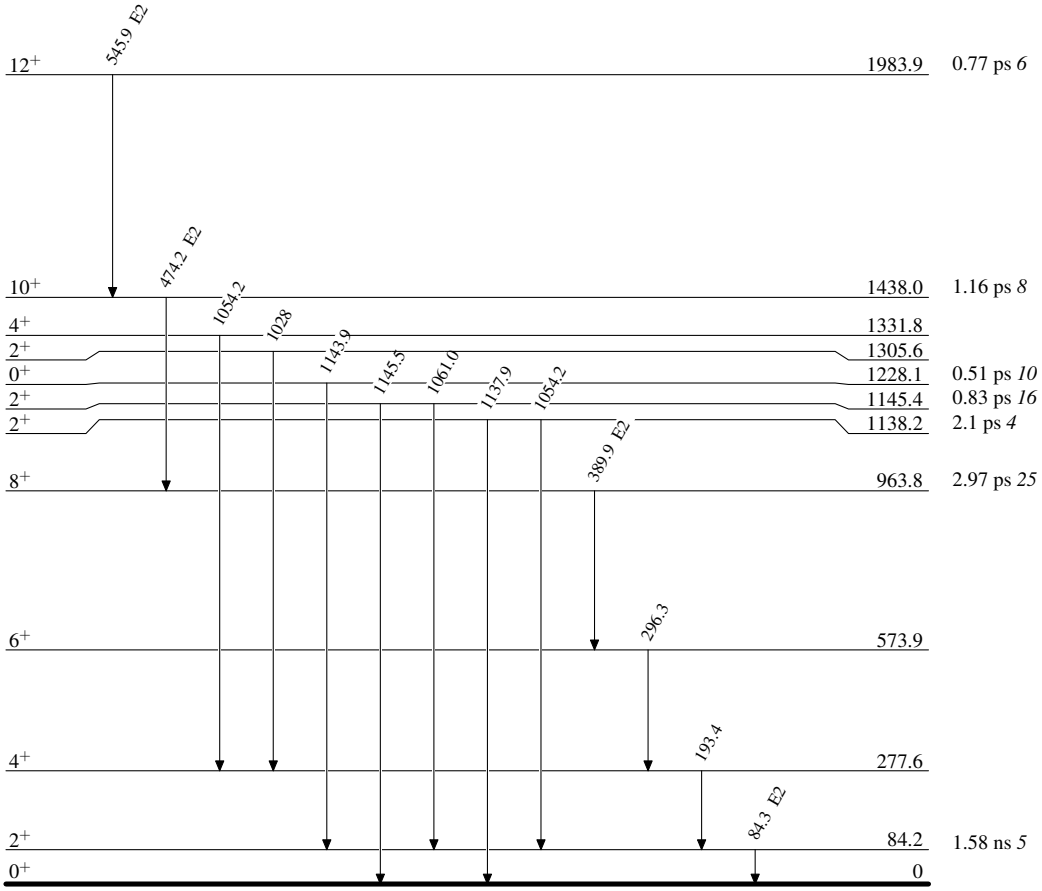
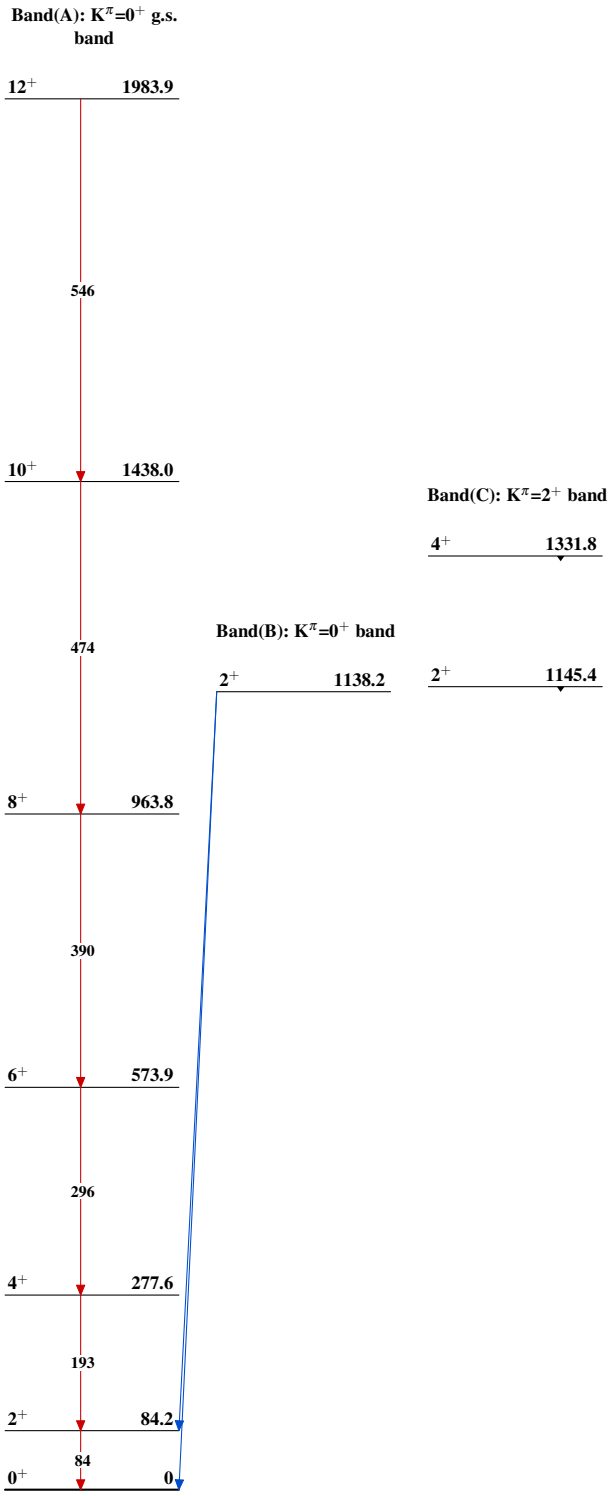
Level Scheme



$^{170}_{70}Yb_{100}$

Coulomb excitation 1979Ri13,1979Wa15,1977Ke06



$^{170}_{70}Yb_{100}$