Coulomb excitation **1976Wa06,1977Ke06,1977Si15**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, Huo Junde	NDS 87, 15 (1999)	1-Nov-1998

1976Wa06: enriched ^{174}Yb. E(^{136}Xe)=595 MeV; E(^{86}Kr)=365 MeV. Measured γ rays, $\gamma\gamma$ coin, detectors:Ge(Li).
1977Ke06: enriched ^{174}Yb. E(^{56}Fe)=232 MeV; E(^{84}Kr)=348 MeV. Measured γ rays, detector:Ge(Li).
1977Si15: 98.5% enriched ^{174}Yb. E(^{32}S)=120-140 MeV, measured γ rays, detector:Ge(Li).
1979Ri13: 96% enriched ^{174}Yb. E(^{16}O)=9.2, 4.4 MeV, detector:Ge(Li).
Measured γ rays in coincidence with scattered projectiles, detectors:Ge(Li), semi (1976Wa06,1977Ke06,1979Ri13).
Other measurements: determination of g-factor deviation from rotational behavior (constant g-factor) for g.s. rotational band members (1979Wa15,1980An27).
Others: 1960El07, 1964De07, 1966Ec04, 1967Ec01, 1967Ec02, 1970Be36, 1974WoZB.

^{174}Yb Levels

E(level)	J^{π}&	$T_{1/2}$	Comments
0.0†	0^+		
76.460† *10*	2^+	1.80 ns *5*	$T_{1/2}$: from 1966Ti01, pγ(t). Other values: 1.91 ns *21* from 1962Bi05, Ag(t); 1.87 ns *12* calculated by 1991Br01 from B(E2)=5.54 *30* (1963Bj04); 1.74 ns *5* calculated by 1991Br01 from B(E2)=5.95 *6* (1974Sh12,1975Wo08). g-factor=0.247 *13* if $T_{1/2}$=1.80 ns *5* (1966Ti01), $\gamma(\theta$,H,t).
253.1† *3*	4^+	144 ps *4*	$T_{1/2}$: from 1977Si15, recoil distance. B(E4)=0.05 *+6−4* (1975Wo08,1974Sh12).
526.0† *5*	6^+	16 ps *2*	$T_{1/2}$: weighted average from: 16.3 ps *24* (1977Si15), 14 ps *4* (1976Wa06), recoil distance.
889.1† *7*	8^+	3.8 ps *2*	$T_{1/2}$: weighted average from: 3.7 ps *2* (1977Si15), 3.6 ps *5* (1976Wa06), recoil distance 4.0 ps *3* (1977Ke06,1974Ke04), Doppler broadening.
1336.3† *13*	10^+	1.6 ps *1*	$T_{1/2}$: weighted average from: 1.5 ps *1* (1976Wa06), recoil distance 1.7 ps *1* (1977Ke06,1974Ke04), Doppler broadening.
1382‡	3^-		E(level): from 1979Ri13. B(E3)=0.093 *33* (1979Ri13).
1487#	0^+	1.3 ps *6*	E(level): from 1979Ri13. $T_{1/2}$: calculated by 1991Br01 from B(E2)(2^+ to 0^+)=0.0016 *7* for 1410γ (1979Ri13), Iγ(1410γ)-branching=100%.
1634@	2^+	0.20 ps *3*	E(level): from 1979Ri13. $T_{1/2}$: calculated by 1991Br01 from B(E2)=0.050 *7* (1979Ri13) and Iγ(1634γ)-branching=39.6% from (n,γ) (1981Gr01).
1805@	4^+		E(level): from 1979Ri13.
1860.7† *18*	12^+	0.66 ps *4*	$T_{1/2}$: from 1977Ke06, 1974Ke04, Doppler broadening. Other: 1976Wa06.
2456.6† *25*	14^+	0.4 ps *1*	$T_{1/2}$: from 1976Wa06, Doppler broadening.
3117† *4*	16^+		
3836† *5*	18^+		
4610† *7*	20^+		

† Band(A): $K^{\pi}= 0^+$ g.s. rotational band.
‡ Band(B): $K^{\pi}= 2^-$ octupole-vibrational band.
# Band(C): $K^{\pi}= 0^+$ band.
@ Band(D): $K^{\pi}= 2^+$ γ-vibrational band.
& Based on comparison of experimental cross sections and lifetimes with theory.

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$\gamma(^{174}Yb)$

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Comments
76.46 *1*		76.460	2^+	0.0	0^+	E_γ: from 1958Ch36, cryst.
176.6 *3*		253.1	4^+	76.460	2^+	E_γ: from 1970Sa09,Ge(Li).
272.9 *4*	100	526.0	6^+	253.1	4^+	E_γ: from 1970Sa09,Ge(Li).
363.1[‡] *5*	44	889.1	8^+	526.0	6^+	
447.2[‡] *10*	20	1336.3	10^+	889.1	8^+	
524.4[‡] *13*		1860.7	12^+	1336.3	10^+	E_γ: other: 1977Ke06.
595.9[‡] *17*		2456.6	14^+	1860.7	12^+	
660[‡] *2*		3117	16^+	2456.6	14^+	
719[‡] *3*		3836	18^+	3117	16^+	
774[‡] *5*		4610	20^+	3836	18^+	
1306		1382	3^-	76.460	2^+	
1411		1487	0^+	76.460	2^+	
1552[#]		1805	4^+	253.1	4^+	
1558[#]		1634	2^+	76.460	2^+	
1634[#] *CA*		1634	2^+	0.0	0^+	

[†] Relative photon intensities from 1976Wa06 using ^{86}Kr projectiles.
[‡] From 1976Wa06.
[#] Calculated from level energies of 1979Ri13.

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Level Scheme

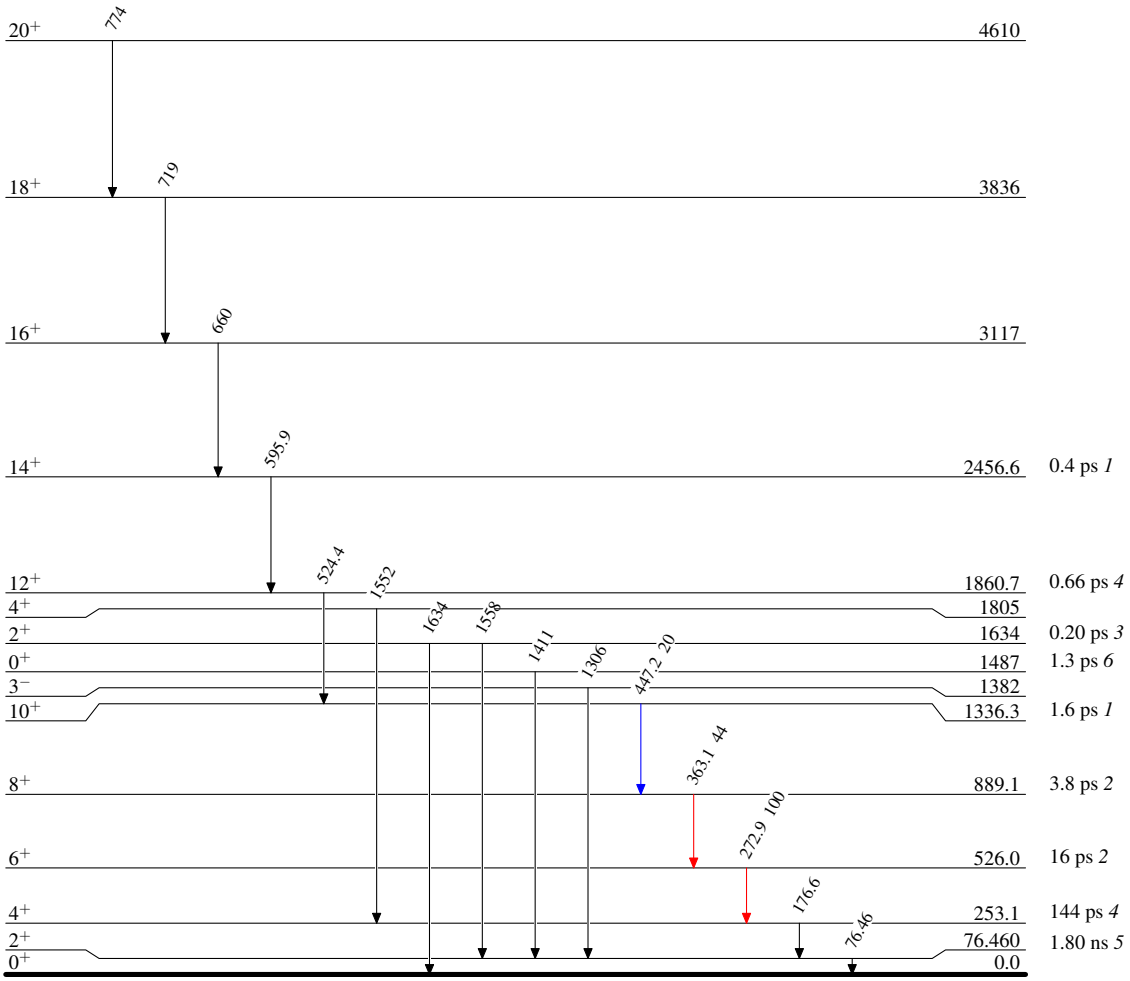
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

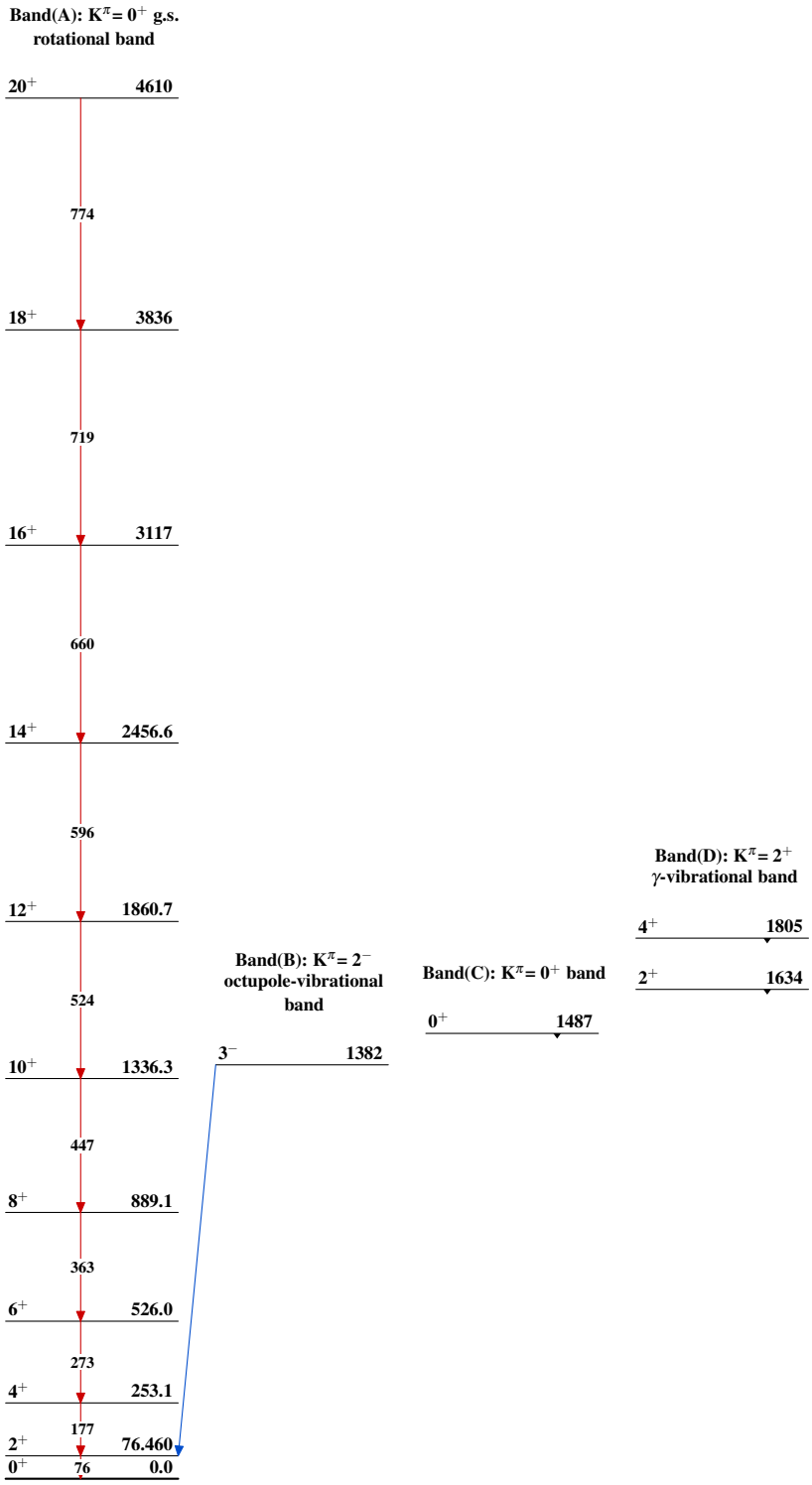
$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{174}_{70}Yb_{104}$

Coulomb excitation 1976Wa06,1977Ke06,1977Si15



$^{174}_{70}Yb_{104}$