^{170}Er(α,2nγ) 1981Cr03,1980Wa15

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 75,199 (1995)	31-May-1995

1981Cr03: E=19 MeV. Measured γ, $\gamma\gamma$, $\gamma(\theta)$ (θ=20° to 90°), ce.
1980Wa15 (also 1979Wa18): E=27 MeV. Measured γ, $\gamma\gamma$, γ(t), $\gamma(\theta)$, Ag(t) by centroid-shift method.
Other studies:
1983Ko28: E=27 MeV. Measured Ag(t) (centroid-shift method).
1972Li25: E=34 MeV. γ rays in g.s. band (up to 12^+) reported.
1972Mo44: measured γ, $\gamma\gamma$. 6 γ rays reported in g.s. band.
1969No05: measured γ, ce, Ag(t). Delayed intensities of 15 γ rays associated with the decay of the 3.6−μs isomer are listed.
1966Mo01: γ rays in g.s. band (up to 10^+) reported.

^{172}Yb Levels

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	Comments
0.0[&]	0^+		
78.81[&] *7*	2^+		
260.35[&] *8*	4^+		
540.10[&] *8*	6^+		
912.25[&] *11*	8^+		
1042.88[#a] *11*	0^+		
1118.05[a] *8*	2^+		
1155.03[i] *8*	1^-		
1172.41[g] *8*	3^+	8.3 ns *4*	T$_{1/2}$: 1094γ(t) (1980Wa15). Other: 8.1 ns *8* from 912γ(t) (1980Wa15).
1198.65[i] *9*	2^-		
1221.78[i] *9*	3^-		
1263.05[g] *9*	4^+	0.50 ns *10*	T$_{1/2}$: 1003γ(t) (1980Wa15).
1286.64[a] *9*	4^+		
1330.75[i] *9*	4^-		
1353.04[i] *12*	(5^-)		
1370.19[&] *13*	10^+		
1375.92[g] *8*	5^+	0.21 ns *6*	T$_{1/2}$: weighted average of 0.23 ns *10* (1115γ(t) 1980Wa15) and 0.20 ns *7* (1983Ko28).
1406.0[#b] *4*	0^+		
1466.07[#e] *8*	2^+		
1476.69[#b] *11*	2^+		
1510.13[g] *10*	6^+		
1537.63[a] *10*	6^+		
1540.73[i] *10*	6^-		
1549.48[#e] *11*	3^+		
1550.59[l] *10*	6^-	3.6 μs *1*	T$_{1/2}$: γ(t) (1969No05).
1557.71[i] *10*	7^-		
1600.45[#j] *19*	1^-		
1608.61[#f] *10*	2^+		
1633.23[#b] *11*	$(4)^+$		
1640.65[n] *11*	4^-	0.5 ns *2*	T$_{1/2}$: Ag(t) (1983Ko28).
1657.49[#e] *14*	$(4)^+$		
1662.84[#h] *10*	3^+		
1666.17[g] *10*	(7^+)		
1670.79[l] *13*	(7^-)		
1700.53[#f] *9*	3^+		

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^{170}Er(α,2nγ) 1981Cr03,1980Wa15 (continued)

^{172}Yb Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	Comments
1706.46[n] *10*	5$^-$		
1707.9?[#] *3*			
1711.44[#j] *18*	3$^{(-)}$		
1749.38[#h] *13*	4$^+$		
1757.33[#k] *15*	(2)$^-$		
1779.16?[#] *13*	5$^+$		
1795.5[#c] *3*	0$^+$		
1802.39[@n] *16*	6$^-$		
1802.78[f] *10*	4$^+$		
1809.84[l] *16*	(8$^-$)		
1821.5[#k] *2*	3$^-$		
1828.87[i] *17*	8$^-$		
1839.92[i] *14*	9$^-$		
1841.80[g] *12*	(8$^+$)		
1849.44[#c] *14*	2$^+$		
1853.59[a] *13*	8$^+$		
1862.89[#h] *18*	(5)$^+$		
1869.62 *23*	(4,5)$^-$		
1899.39?[#] *22*			
1907.60[&] *17*	(12$^+$)		
1919.91[#] *11*	(5,6)		
1921.74[@n] *17*	(7$^-$)		
1926.97[#f] *16*	5$^+$		
1956.85[#d] *17*	2$^+$		
1967.78?[l] *17*	(9$^-$)		
1975.73[#c] *15*	(4$^+$)		
2007.91[#h] *16*	(6$^+$)		
2010.39[#m] *25*	1$^+$		
2039.38[g] *24*	(9$^+$)		
2048.1[#m] *10*	(2)$^+$		
2063.95[@n] *20*	(8$^-$)		
2073.23[#] *19*	4$^+$		
2075.37[#] *13*	(6$^+$)		
2084.91?[#] *22*			
2100.34[#d] *19*	(4$^+$)		
2144.59[@l] *25*	(10$^-$)		
2154.42[@] *22*	(7)	0.17 ns *10*	$T_{1/2}$: 604γ(t) (1980Wa15).
2156.6?[#c] *4*	(6$^+$)		
2174.99[#] *18*	3$^+$		
2193.14[@i] *25*	(10$^-$)		
2193.24[#] *15*	(4$^+$)		
2199.59[@i] *23*	(11$^-$)		
2212.64[@a] *25*	(10$^+$)		
2225.18[@n] *25*	9$^-$		
2248.33[#] *16*			
2256.3[@g] *4*	(10$^+$)		
2299.10[@] *24*		0.15 ns *10*	$T_{1/2}$: 628γ(t) (1980Wa15).
2340.2[@l] *3*	(11$^-$)		

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^{170}Er(α,2nγ) 1981Cr03,1980Wa15 (continued)

^{172}Yb Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	Comments
2392.3?[#] *4*			
2411.4[n] *3*	(10$^-$)		
2465.18 *23*	(7,8)	0.13 ns *10*	$T_{1/2}$: 794γ(t) (1980Wa15).
2492.2[g] *4*	(11$^+$)		
2518.8[&] *4*	(14$^+$)		
2553.8[l] *3*	(12$^-$)		
2607.4[a] *4*	(12$^+$)		
2609.1[n] *4*	(11$^-$)		
2629.9[i] *4*	(12$^-$)		
2636.2[i] *3*	(13$^-$)		
2653.0 *3*			
2689.8[o] *4*	(9$^-$)	0.7 ns *1*	$T_{1/2}$: 225γ(t) (1983Ko28).
2746.5[g] *5*	(12$^+$)		
2786.4[l] *4*	(13$^-$)		
2840.8[n] *5*	(12)$^-$		
2856.4[o] *5*	(10$^-$)		
3020.0[g] *5*	(13$^+$)		
3033.8[l] *4*	(14$^-$)		
3044.0[a] *5*	(14$^+$)		
3044.5[o] *6*	(11$^-$)		
3134.7[i] *5*	(14$^-$)		
3198.5[&] *5*	(16$^+$)		
3252.9[o] *7*	(12$^-$)		
3309.5[g] *6*	(14$^+$)		
3481.6[o] *8*	(13$^-$)		

[†] From least-squares fit to Eγ's. Above 2400, levels are from 1980Wa15 only.
[‡] From Adopted Levels.
[#] Level from 1981Cr03.
[@] Level from 1980Wa15.
[&] Band(A): K$^{\pi}$=0$^+$ g.s. band.
[a] Band(B): K$^{\pi}$=0$^+$ β band. Configuration=((ν 5/2(512))(ν 5/2(512)))(44%) + ((ν 1/2[521]) (ν 1/2[521]))(18%) + ((ν 7/2[633])(ν 7/2[633]))(13%) (quoted by 1980Wa15 from calculation by Grigoriev and Soloviev).
[b] Band(C): K$^{\pi}$=0$^+$ band.
[c] Band(D): K$^{\pi}$=0$^+$ band.
[d] Band(E): K$^{\pi}$=0$^+$ band.
[e] Band(F): K$^{\pi}$=2$^+$ band.
[f] Band(G): K$^{\pi}$=2$^+$ band.
[g] Band(H): K$^{\pi}$=3$^+$ band. Configuration=((ν 5/2(512))(ν 1/2(521)))(81%) + ((ν 7/2[404])(π 1/2[411])) (19%) (1980Wa15,1972On01,1967Bu21). From (p,α); 1982Bu23 suggest 27% 10 admixture of the latter configuration.
[h] Band(I): K$^{\pi}$=3$^+$ band.
[i] Band(J): K$^{\pi}$=1$^-$ octupole band. Configuration=((ν 7/2(633))(ν 5/2(512))) (94%) (πredictedvaluequotedby1980Wa15).
[j] Band(K): K$^{\pi}$=0$^-$ octupole band.
[k] Band(L): K$^{\pi}$=2$^-$ octupole band.
[l] Band(M): K$^{\pi}$=6$^-$ band. probable Configuration=((ν 7/2(633))(ν 5/2(512))) (quoted by 1980Wa15 from 1972Oν01).
[m] Band(N): K$^{\pi}$=1$^+$ band.
[n] Band(O): K$^{\pi}$=4$^-$ band. probable Configuration=((ν 7/2(633))(ν 1/2(521))) (1980Wa15).
[o] Band(P): K$^{\pi}$=(9$^-$) band. probable Configuration=((ν 7/2(633))(ν 11/2(505))) (1980Wa15).

^{170}Er(α,2nγ) 1981Cr03,1980Wa15 (continued)

$\gamma(^{172}Yb)$

A_2 and A_4 values are from 1980Wa15 unless otherwise stated.
Iγ's for levels above 2400 are available from 1980Wa15 only. These are given under comments.

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[c]	α[f]	Comments
65.8[@] *3*	0.12 *6*	1706.46	5^-	1640.65	4^-			I_γ: from Iγ(66γ)/Iγ(330γ)=2 *1*/34 *3* (1980Wa15).
[x]75.0[e] *3*	[e]							
78.7[#] *1*		78.81	2^+	0.0	0^+	E2	8.4	Mult.: from adopted gammas. I_γ: 24.1 *12*. A_2=0.040 *8*, A_4=−0.020 *10*.
[x]84.93[e] *20*	4.33[e] *24*							
90.82 *12*	4.42[&] *24*	1263.05	4^+	1172.41	3^+			A_2=−0.321 *15*, A_4=−0.003 *20*.
95.9[@] *3*		1802.39	6^-	1706.46	5^-			I_γ: 0.3 *1* (1980Wa15). A_2=−1.09 *9*, A_4=0.19 *12*.
[x]105.80[e] *25*	0.82[e] *4*							
112.85 *10*	3.33 *10*	1375.92	5^+	1263.05	4^+			A_2=−0.305 *19*, A_4=0.05 *3*.
119.3[@] *3*		1921.74	(7^-)	1802.39	6^-			I_γ: 0.4 *1* (1980Wa15).
120.21 *10*	2.60 *15*	1670.79	(7^-)	1550.59	6^-			A_2=−0.530 *11*, A_4=0.021 *15*.
132.2 *3*	0.4[&] *2*	1330.75	4^-	1198.65	2^-			I_γ: from Iγ(132γ)/Iγ(1070γ)=2 *1*/28 *2* (1980Wa15).
134.3 *3*	0.53 *5*	1510.13	6^+	1375.92	5^+			A_2=−0.76 *8*, A_4=−0.08 *10*.
139.1[#] *1*	0.51 *5*	1809.84	(8^-)	1670.79	(7^-)			E_γ: 139.87 *6* (1981Cr03). A_2=−0.566 *10*, A_4=−0.013 *14*.
142.3[@] *3*		2063.95	(8^-)	1921.74	(7^-)			I_γ: 0.5 *1* (1980Wa15). A_2=−0.7 *3*, A_4=0.1 *3*.
155.99 *8*	0.47 *5*	1666.17	(7^+)	1510.13	6^+			A_2=−0.77 *6*, A_4=−0.06 *8*.
157.92 *8*	0.66 *6*	1967.78?	(9^-)	1809.84	(8^-)			A_2=−0.573 *10*, A_4=0.020 *12*.
161.3[@] *3*		2225.18	9^-	2063.95	(8^-)			I_γ: 0.4 *1* (1980Wa15). For 162 doublet: A_2=−0.41 *11*, A_4=0.25 *15*.
161.8[@] *3*		1802.39	6^-	1640.65	4^-			I_γ: 0.2 *1* (1980Wa15).
162.20[e] *25*	0.31[e] *5*	1802.78	4^+	1640.65	4^-			
166.6 *3*		2856.4	(10^-)	2689.8	(9^-)			I_γ: 1.0 *1*. A_2=−0.78 *5*, A_4=0.18 *7*.
174.74 *10*	7.9 *3*	1550.59	6^-	1375.92	5^+	(E1)		Mult.: from ce(K)(175γ)/ce(K)(182γ,mult=E2)=0.6 *1* (1969No05).
175.2[e] *3*	[e]	1841.80	(8^+)	1666.17	(7^+)			
176.9[@] *3*		2144.59	(10^-)	1967.78?	(9^-)			I_γ: 3.8 *3* (1980Wa15). A_2=−0.59 *4*, A_4=0.00 *5*.
181.6[#] *1*	100 *5*	260.35	4^+	78.81	2^+	E2		Mult.: from A_2=0.242 *4*, A_4=−0.047 *5* (1981Cr03) and adopted gammas. Additional information 1.
186.2 *3*		2411.4	(10^-)	2225.18	9^-			I_γ: 0.2 *1*.
187.5[@h] *3*	0.14 *7*	1540.73	6^-	1353.04	(5^-)			I_γ: from Iγ(187γ)/Iγ(1001γ)=2 *1*/38 *4* (1980Wa15).

$^{172}_{70}Yb_{102}$-4

^{170}Er(α,2nγ) 1981Cr03,1980Wa15 (continued)

$\gamma(^{172}Yb)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [c]	Comments
188.1 *3*		3044.5	(11^-)	2856.4	(10^-)		I_γ: 0.4 *1*. A_2=−0.46 *12*, A_4=0.09 *17*.
195.7[@] *3*		2340.2	(11^-)	2144.59	(10^-)		I_γ: 2.5 *2* (1980Wa15). A_2=−0.61 *6*, A_4=0.01 *7*.
196.3[@] *3*	0.37 *12*	1706.46	5^-	1510.13	6^+		I_γ: from Iγ(196γ)/Iγ(330γ)=6 *2*/34 *3* (1980Wa15).
197.2[ea] *3*	0.20[e] *10*	2039.38	(9^+)	1841.80	(8^+)		
197.6[@] *3*	0.57[&] *12*	1550.59	6^-	1353.04	(5^-)		I_γ: from Iγ(198γ)/Iγ(175γ)=15 *3*/209 *10* (1980Wa15). A_2=−0.04 *18*.
203.45 *6*	10.63 *20*	1375.92	5^+	1172.41	3^+	(E2)	A_2=0.154 *8*, A_4=−0.043 *10*.
208.4 *3*		3252.9	(12^-)	3044.5	(11^-)		I_γ: 0.3 *1*.
209.96 *10*	0.67 *3*	1540.73	6^-	1330.75	4^-	(E2)	A_2=0.38 *8*, A_4=−0.02 *11*.
213.6 *3*		2553.8	(12^-)	2340.2	(11^-)		I_γ: 1.4 *2*. A_2=−0.65 *8*, A_4=0.01 *10*.
[x]215.10[e] *25*	0.26[e] *3*						
215.4[@] *3*		1921.74	(7^-)	1706.46	5^-		I_γ: 1.2 *2* (1980Wa15). A_2=0.27 *6*, A_4=0.07 *8*.
224.6 *3*		2689.8	(9^-)	2465.18	(7,8)		I_γ: 1.8 *2*. A_2=−0.20 *6*, A_4=0.04 *8*.
228.7 *3*	[&]	3481.6	(13^-)	3252.9	(12^-)		I_γ: 0.2 *1*.
228.97 *20*	1.31 *11*	1869.62	$(4,5)^-$	1640.65	4^-		
232.7 *3*		2786.4	(13^-)	2553.8	(12^-)		I_γ: 0.5 *1*.
[x]233.87[e] *20*	1.37[e] *11*						
247.2[#] *1*	5.53 *22*	1510.13	6^+	1263.05	4^+	E2	A_2=0.310 *8*, A_4=−0.073 *10* (1980Wa15). Additional information 14.
247.4 *3*		3033.8	(14^-)	2786.4	(13^-)		I_γ: 0.2 *1*.
251.43[b] *12*	0.22[b] *5*	1537.63	6^+	1286.64	4^+		E_γ: poor fit. Level energy difference is 250.98.
253.75[e] *10*	0.27[e] *5*	1919.91	(5,6)	1666.17	(7^+)		
255.7[@b] *3*	[b]	1921.74	(7^-)	1666.17	(7^+)		I_γ: 0.5 *1* (1980Wa15). A_2=0.22 *10*.
259.3[@] *3*	0.056 *7*	1809.84	(8^-)	1550.59	6^-		I_γ: from Iγ(259γ)/Iγ(139γ)=8 *1*/73 *4* (1980Wa15). A_2=0.24 *9*.
261.6[@] *3*		2063.95	(8^-)	1802.39	6^-	(E2)	I_γ: 1.8 *2* (1980Wa15). A_2=0.37 *5*, A_4=−0.17 *7*.
264.73 *8*	0.58 *4*	1640.65	4^-	1375.92	5^+		A_2=−0.18 *25*.
[x]272.11[e] *10*	4.8[e] *3*						
279.70 *6*	47.4 *8*	540.10	6^+	260.35	4^+	(E2)	A_2=0.317 *6*, A_4=−0.073 *7* (1981Cr03). Additional information 2.
282.3[@] *3*	0.07 *3*	1839.92	9^-	1557.71	7^-		I_γ: from Iγ(282γ)/Iγ(928γ)=3 *1*/40 *3* (1980Wa15).
287.2[e] *5*	0.45[e] *20*	1406.0	0^+	1118.05	2^+		
288.0 *3*	0.45 *20*	1828.87	8^-	1540.73	6^-	(E2)	A_2=0.35 *3*, A_4=−0.07 *4*.

$^{172}_{70}Yb_{102}$-5

^{170}Er(α,2nγ) 1981Cr03,1980Wa15 (continued)

$\gamma(^{172}Yb)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[c]	Comments
290.28 *6*	3.03 *15*	1666.17	(7^+)	1375.92	5^+	(E2)	A_2=0.334 *14*, A_4=−0.097 *18*.
[x]292.03[e] *8*	0.78[e] *10*						
292.2[@] *3*		1802.39	6^-	1510.13	6^+		I_γ: 1.8 *2* (1980Wa15). A_2=0.30 *9*, A_4=−0.07 *11*.
297.1[@] *3*	0.19 *2*	1967.78?	(9^-)	1670.79	(7^-)		I_γ: from Iγ(297γ)/Iγ(158γ)=16 *2*/55 *3* (1980Wa15).
303.4[@] *3*		2225.18	9^-	1921.74	(7^-)		I_γ: 1.6 *3* (1980Wa15). For 303 doublet: A_2=0.11 *6*, A_4=−0.07 *8*.
[x]303.8[@] *3*							I_γ: 1.0 *3*. 1980Wa15 suggest placement above 2690 level.
310.6 *3*		2465.18	(7,8)	2154.42	(7)		I_γ: 1.2 *2*. A_2=−0.20 *9*, A_4=−0.03 *12*.
[x]315.90[e] *25*	0.31[e] *2*						
316.3[@] *3*	0.25 *6*	1853.59	8^+	1537.63	6^+		I_γ: from Iγ(316γ)/Iγ(941γ)=8 *2*/23 *2* (1980Wa15).
330.47 *6*	2.09 *10*	1706.46	5^-	1375.92	5^+	D	A_2=0.35 *4*, A_4=−0.09 *5*.
331.67 *8*	1.47 *6*	1841.80	(8^+)	1510.13	6^+	(E2)	A_2=0.273 *20*, A_4=−0.073 *25*.
334.8[@] *3*		2144.59	(10^-)	1809.84	(8^-)	(E2)	I_γ: 1.8 *2* (1980Wa15). A_2=0.34 *5*, A_4=−0.14 *7*.
[x]339.5[@] *3*							I_γ: 0.6 *2*. A_2=−0.13 *13*. 1980Wa15 suggest placement below 2465 level.
347.4 *3*		2411.4	(10^-)	2063.95	(8^-)		I_γ: 1.6 *2*. A_2=0.59 *6*, A_4=0.02 *8*.
350.65[e] *20*	0.92[e] *10*	2007.91	(6^+)	1657.49	$(4)^+$		
353.9 *3*		2653.0		2299.10			I_γ: 0.5 *2*.
358.7[e] *3*	0.70[e] *4*	1476.69	2^+	1118.05	2^+		
358.9 *3*		2212.64	(10^+)	1853.59	8^+		I_γ: 1.3 *2* (1980Wa15). A_2=0.14 *7*, A_4=−0.06 *10*.
359.9[@] *3*		2199.59	(11^-)	1839.92	9^-		I_γ: 0.7 *2* (1980Wa15). A_2=0.27 *12*.
364.2[@] *3*		2193.14	(10^-)	1828.87	8^-	(E2)	I_γ: 2.7 *2* (1980Wa15). A_2=0.31 *3*, A_4=−0.12 *4*.
372.06 *10*	9.94 *10*	912.25	8^+	540.10	6^+	E2	Mult.: from adopted gammas. A_2=0.350 *7*, A_4=−0.113 *9* (1981Cr03). Additional information 3.
372.3[@] *3*		2340.2	(11^-)	1967.78?	(9^-)		I_γ: 1.5 *2* (1980Wa15).
373.6[#] *3*		2039.38	(9^+)	1666.17	(7^+)	(E2)	I_γ: 5.4 *4*. A_2=0.372 *22*, A_4=−0.14 *3*.
377.7[#] *3*	4.44 *18*	1640.65	4^-	1263.05	4^+		A_2=0.27 *5*, A_4=0.04 *7*.
383.9 *3*		2609.1	(11^-)	2225.18	9^-	(E2)	I_γ: 1.8 *2*. A_2=0.29 *3*, A_4=−0.12 *5*.

$^{172}_{70}Yb_{102}$-6

^{170}Er(α,2nγ) 1981Cr03,1980Wa15 (continued)

$\gamma(^{172}Yb)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[c]	Comments
394.7 *3*		2607.4	(12^+)	2212.64	(10^+)		I_γ: 0.8 *2*. A_2=0.40 *15*.
397.7[@] *3*		2063.95	(8^-)	1666.17	(7^+)		I_γ: 0.3 *1* (1980Wa15).
409.3 *3*		2553.8	(12^-)	2144.59	(10^-)		I_γ: 1.4 *2*. A_2=0.29 *12*.
410.8[eb] *3*	0.29[eb] *3*	1919.91	(5,6)	1510.13	6^+		E_γ: level energy difference is 409.8.
411.4[@] *3*		1921.74	(7^-)	1510.13	6^+		I_γ: 1.1 *2* (1980Wa15). A_2=−0.31 *9*, A_4=−0.16 *12*.
414.5[@] *3*		2256.3	(10^+)	1841.80	(8^+)		I_γ: 2.9 *3* (1980Wa15). A_2=0.31 *9*, A_4=−0.10 *12*.
426.5[@] *3*		1802.39	6^-	1375.92	5^+		I_γ: 0.9 *2* (1980Wa15). A_2=−0.44 *6*, A_4=−0.03 *8*.
426.62[eb] *10*	0.66[eb] *7*	1802.78	4^+	1375.92	5^+		E_γ: level energy difference is 426.86.
429.4 *3*	&	2840.8	$(12)^-$	2411.4	(10^-)	(E2)	I_γ: 0.8 *2*. A_2=0.42 *6*, A_4=−0.15 *8*.
436.7[g] *3*	g	2636.2	(13^-)	2199.59	(11^-)		I_γ: 0.5 *2*.
436.7[g] *3*	g	3044.0	(14^+)	2607.4	(12^+)		I_γ: 0.5 *2*.
436.8 *3*		2629.9	(12^-)	2193.14	(10^-)		I_γ: 1.6 *3*. For 436 triplet, A_2=0.38 *2*, A_4=−0.05 *3*.
443.60 *10*	0.54 *3*	1706.46	5^-	1263.05	4^+		
446.0 *3*		2786.4	(13^-)	2340.2	(11^-)		I_γ: 1.0 *2*. A_2=0.31 *6*, A_4=0.01 *8*.
452.8 *3*		2492.2	(11^+)	2039.38	(9^+)		I_γ: 2.3 *2*. A_2=0.36 *4*, A_4=−0.01 *5*.
457.86 *10*	2.52 *7*	1370.19	10^+	912.25	8^+	(E2)	Additional information 13. A_2=0.363 *10*, A_4=−0.093 *14* (1980Wa15).
469.75 *20*	0.15 *5*	1839.92	9^-	1370.19	10^+		
480.0 *3*		3033.8	(14^-)	2553.8	(12^-)		I_γ: 0.5 *2*. A_2=0.24 *10*.
483.26[eb] *12*	0.52[eb] *5*	1853.59	8^+	1370.19	10^+		
483.6[@b] *3*	b	2154.42	(7)	1670.79	(7^-)		I_γ: 1.4 *3*.
489.2[@] *3*		2299.10		1809.84	(8^-)		I_γ: 0.5 *2* (1980Wa15).
490[e] *1*	e	1821.5	3^-	1330.75	4^-		
490.2 *3*		2746.5	(12^+)	2256.3	(10^+)		I_γ: 1.6 *2*. A_2=0.39 *4*, A_4=−0.05 *6*.
490.32[e] *10*	0.80[e] *5*	1662.84	3^+	1172.41	3^+		
504.8 *3*		3134.7	(14^-)	2629.9	(12^-)		I_γ: 0.6 *2*.
527.8 *3*		3020.0	(13^+)	2492.2	(11^+)		I_γ: 1.1 *2*. A_2=0.26 *8*, A_4=0.01 *12*.
528.25[e] *6*	1.19[e] *6*	1700.53	3^+	1172.41	3^+		E_γ: from ^{172}Lu ε decay (1970Se05).

$^{172}_{70}Yb_{102}$-7

^{170}Er(α,2nγ) 1981Cr03,1980Wa15 (continued)

$\gamma(^{172}Yb)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[c]	Comments
537.4[#] *1*	0.41 *4*	1907.60	(12^+)	1370.19	10^+	(E2)	A_2=0.365 *13*, A_4=−0.068 *18*.
551.07[e] *20*	0.30[e] *5*	1926.97	5^+	1375.92	5^+		
558.6[e] *2*	0.57[e] *4*	1757.33	$(2)^-$	1198.65	2^-		
563.0 *3*		3309.5	(14^+)	2746.5	(12^+)		I_γ: 0.5 *2*.
[x]564.1[e] *3*	0.75[e] *20*						
565.6[e] *3*	0.75[e] *20*	2075.37	(6^+)	1510.13	6^+		
[x]601.1[e] *2*	0.44[e] *7*						
602.4[e] *2*	0.45[e] *10*	1757.33	$(2)^-$	1155.03	1^-		
603.7[@] *3*		2154.42	(7)	1550.59	6^-		I_γ: 1.0 *2* (1980Wa15). A_2=−0.40 *14*, A_4=0.13 *19*.
611.2 *3*		2518.8	(14^+)	1907.60	(12^+)	(E2)	I_γ: 2.6 *2*. A_2=0.29 *5*, A_4=−0.12 *6*.
625.1[e] *5*	0.25[e] *5*	1537.63	6^+	912.25	8^+		
628.4[@] *3*		2299.10		1670.79	(7^-)		I_γ: 0.9 *2* (1980Wa15). A_2=−0.84 *17*, A_4=0.03 *22*.
630.57[e] *16*	0.60[e] *4*	1802.78	4^+	1172.41	3^+		
645.41 *10*	0.98 *14*	1557.71	7^-	912.25	8^+		A_2=−0.07 *12*, A_4=0.03 *17*.
656.0 *3*		2465.18	(7,8)	1809.84	(8^-)		I_γ: 0.8 *2*. E_γ: level energy difference is 655.3. A_2=−0.16 *12*, A_4=−0.19 *16*.
679.7 *3*		3198.5	(16^+)	2518.8	(14^+)		I_γ: 0.2 *1*.
685.2 *3*		2653.0		1967.78?	(9^-)		I_γ: 0.5 *2*. A_2=−0.53 *18*.
708.99[e] *20*	0.38[e] *5*	2084.91?		1375.92	5^+		
722.89[e] *20*	0.38[e] *6*	1263.05	4^+	540.10	6^+		
728.6 *3*		2636.2	(13^-)	1907.60	(12^+)		I_γ: 1.2 *2*. A_2=−0.28 *10*, A_4=0.00 *13*.
747.01[eb] *14*	1.34[eb] *5*	1286.64	4^+	540.10	6^+		E_γ: poor fit. Level energy difference is 746.54. A_2=0.21 *5* (1981Cr03).
[x]767.15[e] *20*	0.72[e] *5*						
793.9 *3*		2465.18	(7,8)	1670.79	(7^-)		I_γ: 1.3 *3*. A_2=−0.21 *13*, A_4=−0.02 *17*.
809.8[e] *3*	0.22[e] *4*	2073.23	4^+	1263.05	4^+		
812.98 *10*	2.14 *10*	1353.04	(5^-)	540.10	6^+		A_2=−0.26 *10*, A_4=0.00 *14*.
816.95[e] *25*	0.12[e] *4*	2193.24	(4^+)	1375.92	5^+		
823.0[@] *3*		2193.14	(10^-)	1370.19	10^+		I_γ: 0.6 *2* (1980Wa15). A_2=0.38 *20*, A_4=0.17 *27*.
829.2[@] *3*		2199.59	(11^-)	1370.19	10^+		I_γ: 3.6 *3* (1980Wa15). A_2=−0.20 *5*, A_4=0.00 *6*.
835.0[e] *4*	0.9[e] *2*	1375.92	5^+	540.10	6^+		
842.6[@b] *3*	[b]	2212.64	(10^+)	1370.19	10^+		I_γ: 1.6 *3* (1980Wa15).

$^{172}_{70}Yb_{102}$-8

^{170}Er(α,2nγ) 1981Cr03,1980Wa15 (continued)

$\gamma(^{172}Yb)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[c]	δ[d]	Comments
[x]843.5[e] *3*	0.4[e] *2*							
857.67 *6*	2.97 *12*	1118.05	2^+	260.35	4^+	(E2)		α(K)exp=0.0059 *9*. A_2=0.09 *2*, A_4=0.04 *3* (1981Cr03). α(K)exp gives δ(E2/M1)=1.4 *+9−4*. Additional information 4.
[x]881.2[e] *3*	0.44[e] *5*							
[x]898.43[e] *20*	0.42[e] *4*							
901.0[e] *2*	0.60[e] *6*	2073.23	4^+	1172.41	3^+			
912.10 *6*	9.7 *5*	1172.41	3^+	260.35	4^+	E2+M1	−3.7 *+1−3*	Additional information 8. δ: −0.18 *4* allowed by $\gamma(\theta)$ is inconsistent with α(K)exp. α(K)exp=0.0037 *4*. A_2=0.057 *9*, A_4=−0.016 *13* (1981Cr03). A_2=0.044 *14*, A_4=0.033 *20* (1980Wa15).
916.66 *16*	0.52 *4*	1828.87	8^-	912.25	8^+	E1		A_2=0.42 *7*, A_4=0.01 *9*. α(K)exp=0.0023 *10* (1980Wa15) gives δ(M2/E1)<0.3.
927.68 *10*	0.98 *5*	1839.92	9^-	912.25	8^+	E1		A_2=−0.21 *3*, A_4=−0.01 *4*. α(K)exp=0.0020 *6* (1980Wa15) gives δ(M2/E1)<0.3.
930.13[e] *16*	0.52[e] *4*	2193.24	(4^+)	1263.05	4^+			
941.37 *10*	0.71 *4*	1853.59	8^+	912.25	8^+	(M1)		A_2=0.41 *4*, A_4=0.00 *6*. α(K)exp=0.0055 *28* (1981Cr03) gives M1,E2. α(K)exp=0.0103 *15* (1980Wa15) is larger by≈40% than that for M1. Additional information 17. Mult.: from 1980Wa15.
961.43 *6*	3.84 *24*	1221.78	3^-	260.35	4^+	E1		A_2=0.15 *15*, A_4=0.25 *20*. α(K)exp=0.0013 *8* (1981Cr03) gives δ(M2/E1)<0.2. Additional information 10.
964.06[e] *8*	1.44[e] *10*	1042.88	0^+	78.81	2^+			
969.81[e] *18*	0.38[e] *3*	1510.13	6^+	540.10	6^+			
997.42 *6*	2.67 *11*	1537.63	6^+	540.10	6^+	M1+E2	+0.63 *7*	A_2=0.48 *3*, A_4=−0.15 *4* (1981Cr03). Additional information 15. α(K)exp=0.0070 *10* (1980Wa15). ce(K) line is poorly resolved triplet. 1001γ is assumed as E1.
1000.62 *6*	2.78 *11*	1540.73	6^-	540.10	6^+	[E1]		A_2=0.25 *6*, A_4=0.12 *7*.
1002.8 *1*	5.11 *20*	1263.05	4^+	260.35	4^+	M1+E2		A_2=−0.07 *4*, A_4=−0.09 *5*. α(K)exp=0.0040 *5* (1980Wa15) gives δ(E2/M1)=1.5 *+9−4* but ce(K) line is a poorly resolved triplet.
1010.45 *6*	2.75 *11*	1550.59	6^-	540.10	6^+	E1+M2	−0.38 *5*	A_2=0.20 *2*, A_4=−0.07 *3* (1981Cr03). A_2=−0.06 *3*, A_4=0.05 *4* (1980Wa15). δ: α(K)exp=0.0037 *9* (1981Cr03) gives δ(M2/E1)=0.47 *11* or δ(E2/M1)>1. α(K)exp=0.0014 *3* (1980Wa15) gives E1. δ=+1.0 *2* allowed by $\gamma(\theta)$ is ruled out by α(K)exp. Additional information 16.
1017.63 *6*	2.19 *9*	1557.71	7^-	540.10	6^+	E1		A_2=−0.22 *6*, A_4=0.04 *7*. α(K)exp=0.0018 *5* (1980Wa15) gives δ(M2/E1)<0.3.
1026.32 *6*	3.27 *10*	1286.64	4^+	260.35	4^+	E2+M1(+E0)	+0.87 *13*	A_2=0.44 *4*, A_4=−0.14 *5* (1981Cr03).

$^{172}_{70}Yb_{102}$-9

^{170}Er(α,2nγ) 1981Cr03,1980Wa15 (continued)

$\gamma(^{172}Yb)$ (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult. [c]	δ [d]	Comments
								Additional information 11.
								α(K)exp=0.0048 *8*(1981Cr03), 0.0080 *30* (1980Wa15). α(K)exp (1981Cr03) is consistent with mult=M1+E2, δ=0.7 *+6−4*.
1039.27 [e] *8*	[e]	1118.05	2^+	78.81	2^+	E2+M1(+E0)	+5.0 *+25−16*	α(K)exp=0.0044 *9*. A_2=0.06 *3*, A_4=−0.02 *2* (1981Cr03). α(K)exp is also consistent with M1+E2, with δ=0.9 *+9−5*.
								Additional information 5.
1070.39 *6*	5.63 *8*	1330.75	4^-	260.35	4^+	E1		δ: $\gamma(\theta)$ gives δ=0.0 *+9−3*; α(K)exp (1981Cr03) gives δ<0.1. A_2=0.24 *2*, A_4=0.00 *3* (1981Cr03).
								Additional information 12.
								α(K)exp=0.0008 *4* (1981Cr03), 0.0020 *10* (1980Wa15).
1076.21 *6*	3.49 *8*	1155.03	1^-	78.81	2^+	E1(+M2)	<0.25	Mult.,δ: from α(K)exp=0.0013 *5* (1981Cr03).
								Additional information 7.
1092.27 *25*	3.8 *11*	1353.04	(5^-)	260.35	4^+			
1093.62 *6*	41.7 *14*	1172.41	3^+	78.81	2^+	E2(+M1)	−14.6 *+21−26*	Additional information 9.
								α(K)exp=0.0025 *2*. A_2=−0.006 *6*, A_4=0.090 *9* (1981Cr03).
1115.55 *12*	1.05 *4*	1375.92	5^+	260.35	4^+			A_2=−0.24 *14*.
1118.14 [e] *22*	[e]	1118.05	2^+	0.0	0^+			α(K)exp=0.0009 *5* (1981Cr03) gives E1 but ΔJ^π requires E2.
								Additional information 6.
1119.83 *6*	4.80 *21*	1198.65	2^-	78.81	2^+			A_2=0.14 *10*, A_4=0.03 *13*.
1142.96 *10*	3.71 *11*	1221.78	3^-	78.81	2^+			
1155.10 [e] *16*	0.98 [e] *6*	1155.03	1^-	0.0	0^+			
1166.58 [e] *20*	0.50 [e] *4*	1706.46	5^-	540.10	6^+			
1184.12 [e] *20*	0.56 [e] *5*	1263.05	4^+	78.81	2^+			
1215.9 [e] *4*	0.07 [e] *5*	1476.69	2^+	260.35	4^+			
[x]1238.61 [e] *25*	0.75 [e] *8*							
1262.2 [eb] *3*	0.28 [eb] *5*	1802.78	4^+	540.10	6^+			
1288.97 [e] *14*	0.75 [e] *6*	1549.48	3^+	260.35	4^+			
1323.11 [e] *25*	0.23 [e] *3*	1862.89	$(5)^+$	540.10	6^+			
1327.6 [eh] *4*	0.25 [e] *10*	1406.0	0^+	78.81	2^+			
1336.06 [e] *12*	0.98 [e] *11*	2248.33		912.25	8^+			
[x]1360.32 [e] *20*	0.43 [e] *7*							
1372.88 [e] *8*	1.64 [e] *8*	1633.23	$(4)^+$	260.35	4^+			
1379.76 [e] *14*	0.70 [e] *8*	1919.91	(5,6)	540.10	6^+			
1387.25 [e] *6*	2.41 [e] *7*	1466.07	2^+	78.81	2^+			
1397.3 [e] *3*	[e]	1657.49	$(4)^+$	260.35	4^+			
1398.4 [e] *4*	[e]	1476.69	2^+	78.81	2^+			I_γ: 2.1 *2* (from adopted gammas).
1402.2 [e] *3*	0.24 [e] *4*	1662.84	3^+	260.35	4^+			
1435.23 [e] *25*	0.19 [e] *3*	1975.73	(4^+)	540.10	6^+			
1440.35 [e] *25*	0.21 [e] *3*	1700.53	3^+	260.35	4^+			
1447.51 [e] *25*	0.29 [e] *3*	1707.9?		260.35	4^+			
1451.33 [e] *24*	0.78 [e] *4*	1711.44	$3^{(-)}$	260.35	4^+			

$^{172}_{70}Yb_{102}$-10

^{170}Er(α,2nγ) 1981Cr03,1980Wa15 (continued)

$\gamma(^{172}Yb)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[c]	δ[d]	Comments
1466.11[e] *14*	1.90[e] *7*	1466.07	2^+	0.0	0^+			
1468.42[e] *25*	0.74[e] *6*	2007.91	(6^+)	540.10	6^+			E_γ: level energy difference is 1467.80.
1470.74[e] *10*	2.47[e] *8*	1549.48	3^+	78.81	2^+	(M1+E2)	−11.4 *+26−8*	A_2=−0.017 *11*, A_4=0.035 *15* (1981Cr03).
1476.66[e] *12*	0.79[e] *4*	1476.69	2^+	0.0	0^+			
1489.09[e] *12*	0.80[e] *4*	1749.38	4^+	260.35	4^+	D(+Q)	0.0 *+13−3*	A_2=0.30 *8*, A_4=0.11 *10* (1981Cr03).
1518.81[e] *10*	1.38[e] *5*	1779.16?	5^+	260.35	4^+			
1521.69[e] *20*	0.73[e] *6*	1600.45	1^-	78.81	2^+			
1529.63[e] *14*	1.24[e] *11*	1608.61	2^+	78.81	2^+			
1535.18[e] *12*	1.04[e] *10*	2075.37	(6^+)	540.10	6^+			
1542.91[e] *18*	0.64[e] *7*	1802.78	4^+	260.35	4^+			E_γ: level energy difference is 1542.42.
1554.44[e] *20*	0.45[e] *6*	1633.23	$(4)^+$	78.81	2^+			
1560.09[e] *20*	0.10[e] *4*	2100.34	(4^+)	540.10	6^+			
1578.77[e] *16*	0.59[e] *3*	1657.49	$(4)^+$	78.81	2^+			
1584.17 *10*	1.14 *4*	1662.84	3^+	78.81	2^+			E_γ: from ^{172}Lu ε decay (1970Se05).
1589.21[e] *20*	0.31[e] *3*	1849.44	2^+	260.35	4^+			
1600.2[e] *4*	0.36[e] *8*	1600.45	1^-	0.0	0^+			
1602.32[e] *20*	0.95[e] *9*	1862.89	$(5)^+$	260.35	4^+			
1608.72[e] *12*	0.96[e] *4*	1608.61	2^+	0.0	0^+			
1616.5[e] *3*	0.76[e] *12*	2156.6?	(6^+)	540.10	6^+			
1621.22[eb] *12*	0.82[eb] *5*	1700.53	3^+	78.81	2^+			E_γ: poor fit. Level energy difference is 1621.71.
1632.42[e] *22*	0.95[e] *6*	1711.44	$3^{(-)}$	78.81	2^+			
1634.78[e] *20*	0.83[e] *5*	2174.99	3^+	540.10	6^+			
1639.03[e] *20*	0.61[e] *5*	1899.39?		260.35	4^+			
[x]1646.6[e] *3*	0.39[e] *5*							
1653.64[eb] *25*	0.39[eb] *7*	2193.24	(4^+)	540.10	6^+			E_γ: level energy difference is 1653.12.
1658.86[eb] *25*	0.26[eb] *8*	1919.91	(5,6)	260.35	4^+			E_γ: level energy difference is 1659.5.
1666.38[e] *20*	0.31[e] *7*	1926.97	5^+	260.35	4^+			
1670.37[e] *20*	0.31[e] *7*	1749.38	4^+	78.81	2^+			
1678.5[e] *3*	0.19[e] *4*	1757.33	$(2)^-$	78.81	2^+			
1696.56[e] *25*	0.24[e] *4*	1956.85	2^+	260.35	4^+			
1714.95[e] *25*	0.53[e] *10*	1975.73	(4^+)	260.35	4^+			
1716.7[e] *3*	0.41[e] *10*	1795.5	0^+	78.81	2^+			
1724.5[e] *3*	0.34[e] *3*	1802.78	4^+	78.81	2^+			
1742.7[e] *2*	0.68[e] *4*	1821.5	3^-	78.81	2^+			
1746.58[eb] *25*	0.35[eb] *4*	2007.91	(6^+)	260.35	4^+			E_γ: level energy difference is 1747.55.
1770.55[e] *15*	0.58[e] *4*	1849.44	2^+	78.81	2^+			
1788.75[eb] *20*	0.33[eb] *3*	2048.1	$(2)^+$	260.35	4^+			
1815.2[e] *3*	0.39[e] *6*	2075.37	(6^+)	260.35	4^+			
1840.3[e] *3*	0.21[e] *4*	2100.34	(4^+)	260.35	4^+			

$^{172}_{70}Yb_{102}$-11

^{170}Er(α,2nγ) 1981Cr03,1980Wa15 (continued)

$\gamma(^{172}Yb)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
1852.2[e] *4*	0.33[e] *5*	2392.3?		540.10	6^+	
[x]1858.9[e] *3*	0.22[e] *4*					
1878.01[e] *20*	0.32[e] *3*	1956.85	2^+	78.81	2^+	
1897.42[eb] *20*	0.28[eb] *3*	1975.73	(4^+)	78.81	2^+	E_γ: level energy difference is 1896.91.
1914.77[e] *25*	0.29[e] *10*	2174.99	3^+	260.35	4^+	E_γ: from ^{172}Lu ε decay (1970Se05).
1931.5[e] *3*	0.24[e] *10*	2010.39	1^+	78.81	2^+	
1956[e] *1*	0.10[e] *5*	1956.85	2^+	0.0	0^+	
1968.31[eb] *20*	0.75[eb] *10*	2048.1	$(2)^+$	78.81	2^+	
2010.5[e] *4*	0.25[e] *10*	2010.39	1^+	0.0	0^+	

[†] From 1981Cr03 except as noted. Transitions for levels above 2400 are from 1980Wa15 only.
[‡] From 1981Cr03 at Eα=19 MeV. Intensities at 27 MeV are given by 1980Wa15. In adopted gammas, both sets of intensities are considered in deducing branching ratios. For levels above 2400, transitions are from 1980Wa15 only. The intensities (relative to 100 for 182γ) for these γ rays are given under comments.
[#] From 1980Wa15.
[@] γ reported by 1980Wa15 only. Intensity (relative to Iγ(182γ)=100) is given under comments.
[&] Poorly resolved from a transition in an impurity.
[a] From $\gamma\gamma$ (1981Cr03).
[b] Energy considerations suggest that this γ ray is contaminated.
[c] From $\gamma(\theta)$ and ce data, unless otherwise stated. 1981Cr03 normalized ce data to 372γ, mult=E2. 1980Wa15 used α(K)exp(912γ)=0.0051 *2* and α(K)exp(1094γ)=0.0026 *1* for calibration. α(K)exp values given by 1980Wa15 (normalized to 912γ) may be systematically higher by≈20% since adopted α(K)exp(912γ,δ(E2/M1)=2.36)=0.0043; but those normalized to 1094γ should be correct. ΔJ=2 transitions from $\gamma(\theta)$ data are assumed as E2 from RUL for E2 and M2.
[d] From $\gamma(\theta)$ (1981Cr03), unless otherwise stated.
[e] γ reported by 1981Cr03 only.
[f] 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.
[g] Multiply placed with undivided intensity.
[h] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

$^{172}_{70}Yb_{102}$-12

^{170}Er(α,2nγ) 1981Cr03,1980Wa15

Level Scheme

Intensities: Relative I_γ

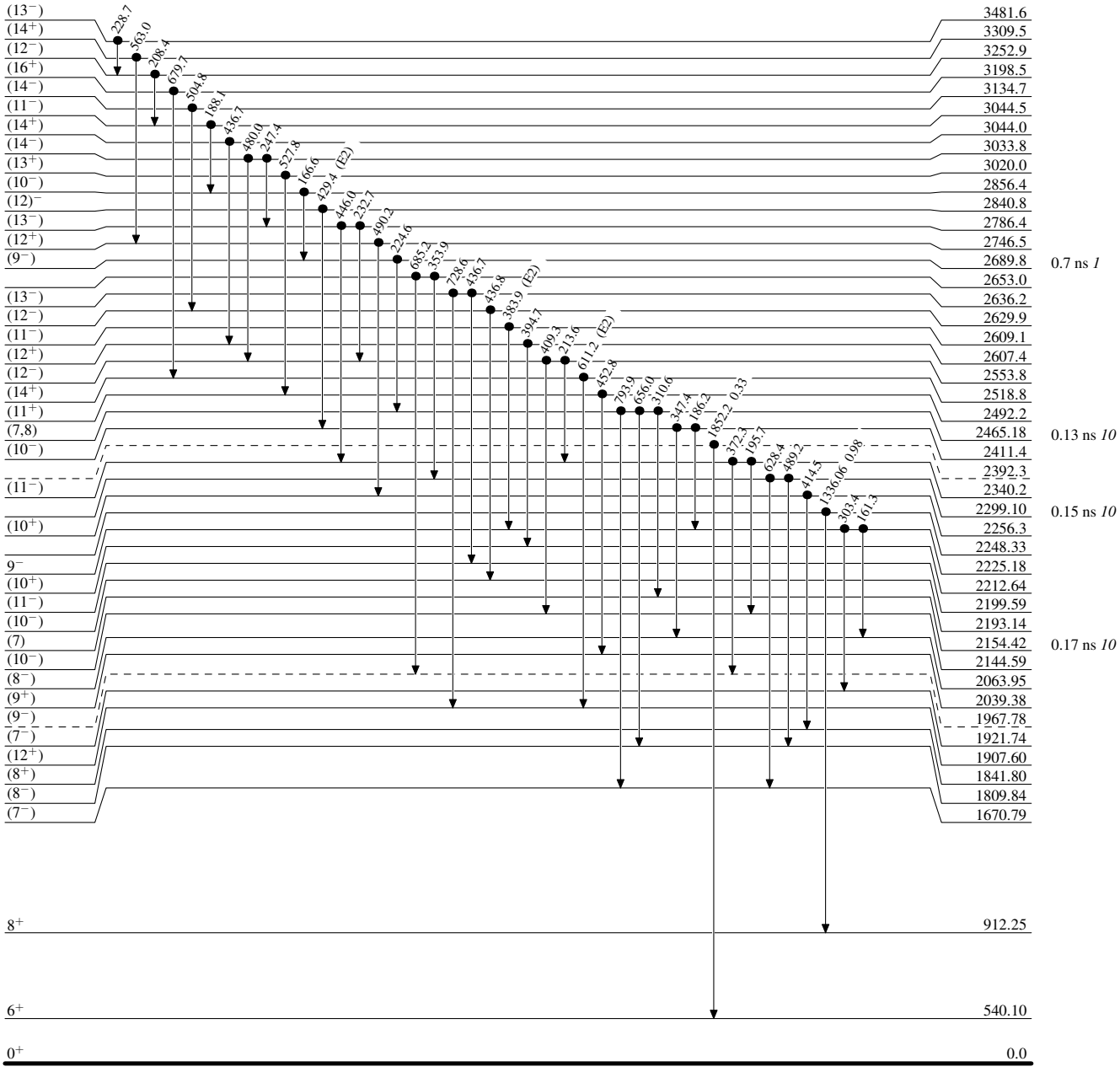
Legend

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

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

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

Coincidence



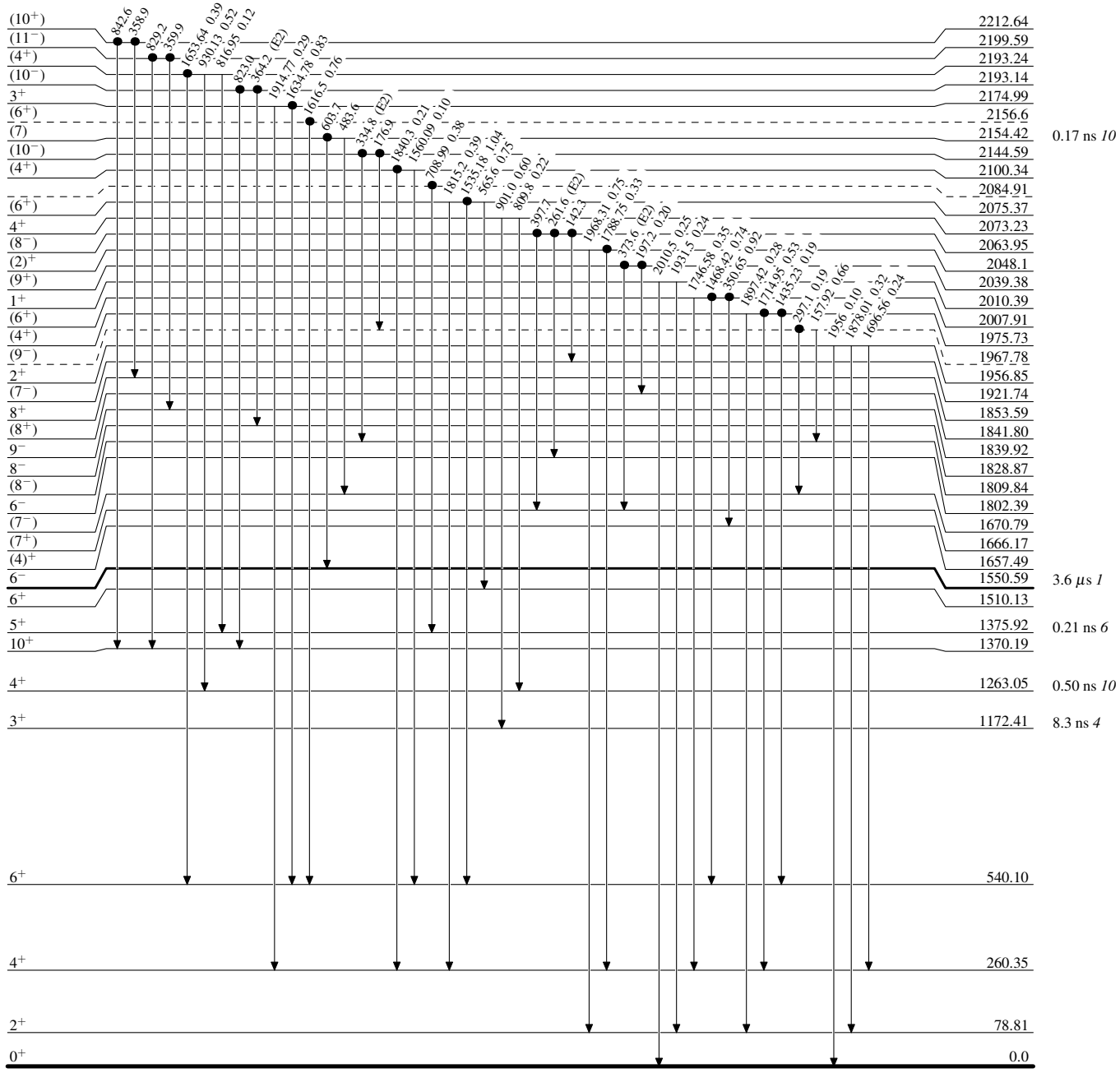
$^{172}_{70}Yb_{102}$

^{170}Er(α,2nγ) 1981Cr03,1980Wa15

Level Scheme (continued)

Intensities: Relative I_γ

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- Coincidence

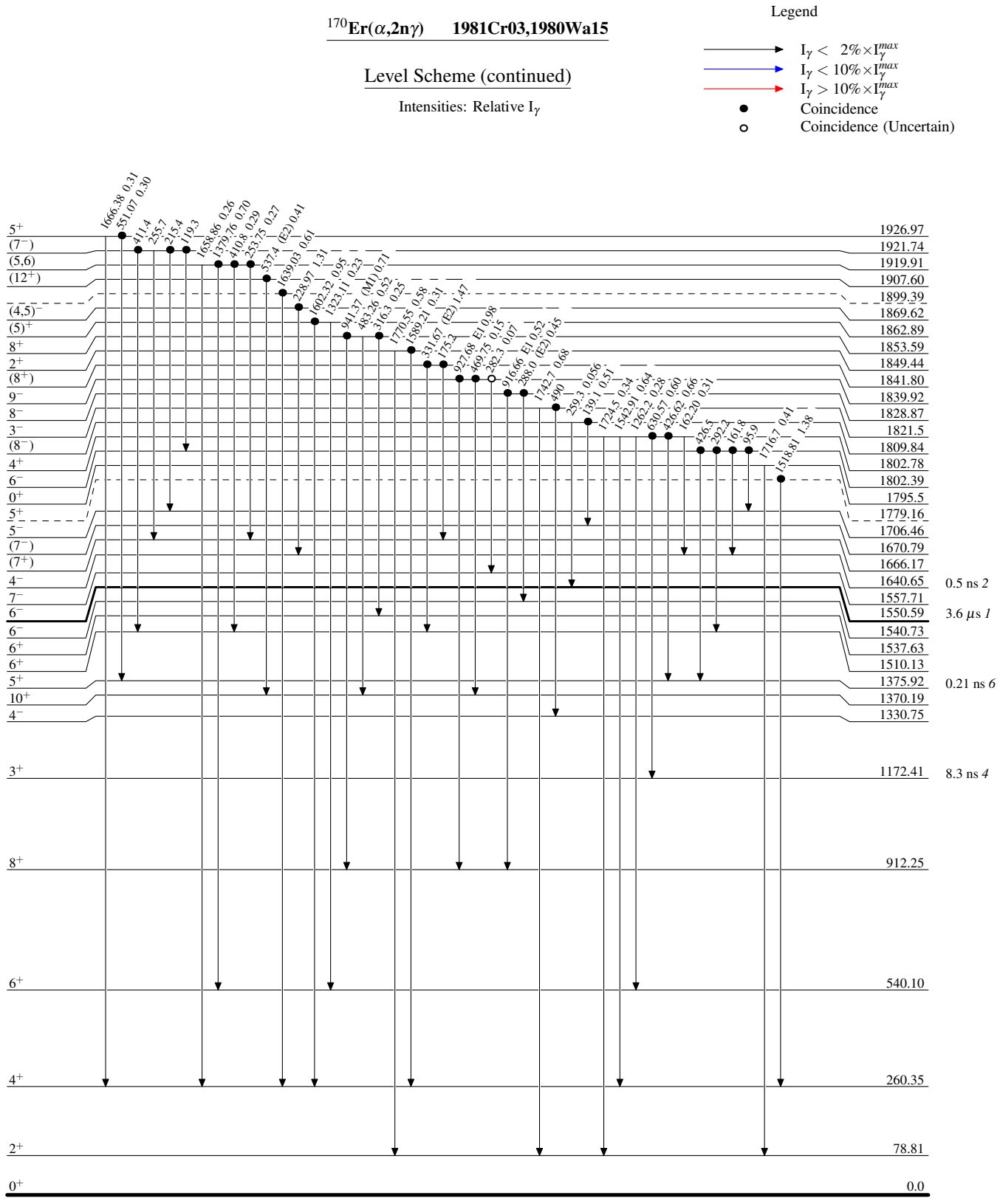


$^{172}_{70}Yb_{102}$

^{170}Er(α,2nγ) 1981Cr03,1980Wa15

Level Scheme (continued)

Intensities: Relative I_γ

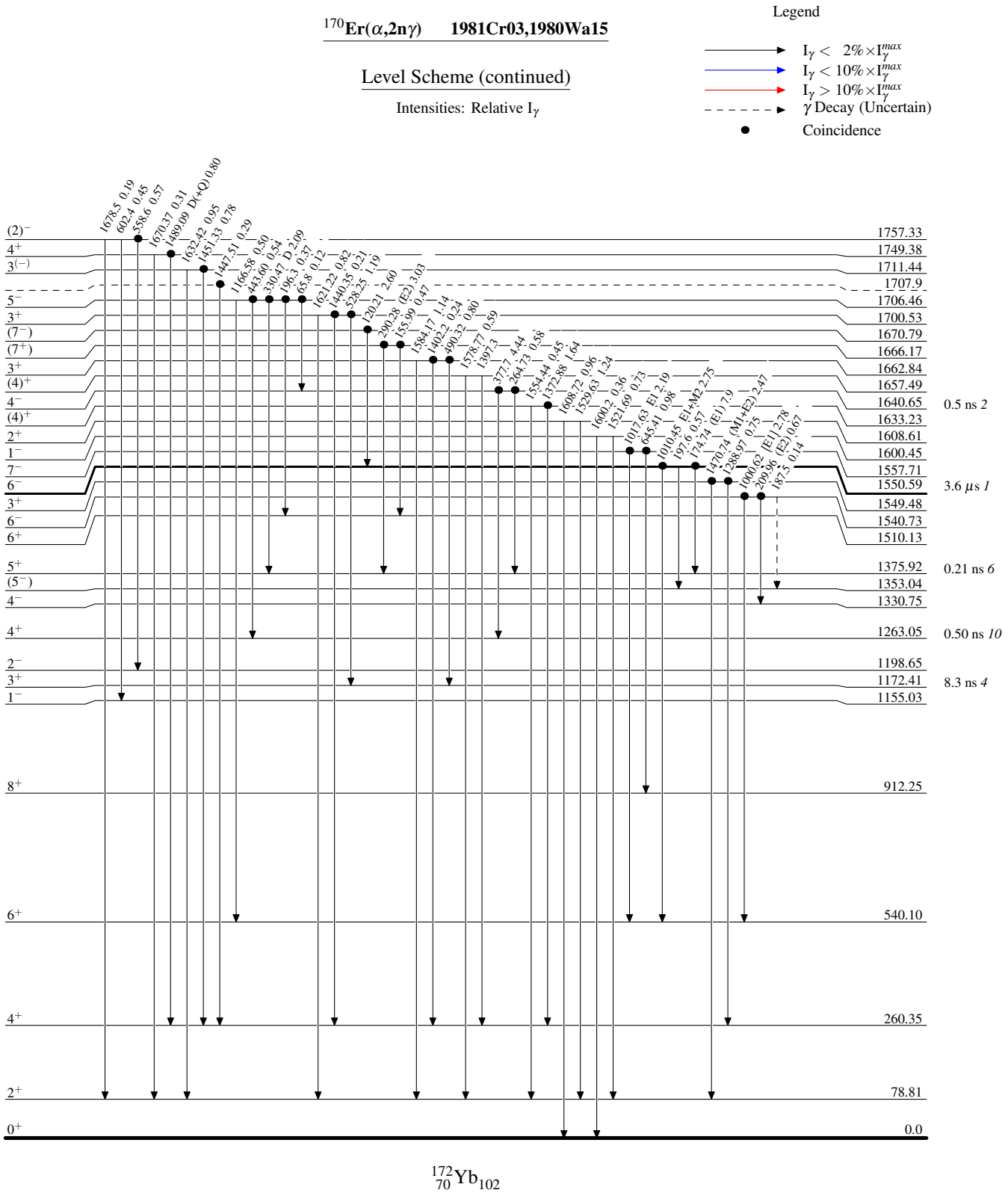


$^{172}_{70}Yb_{102}$

^{170}Er(α,2nγ) 1981Cr03,1980Wa15

Level Scheme (continued)

Intensities: Relative I_γ

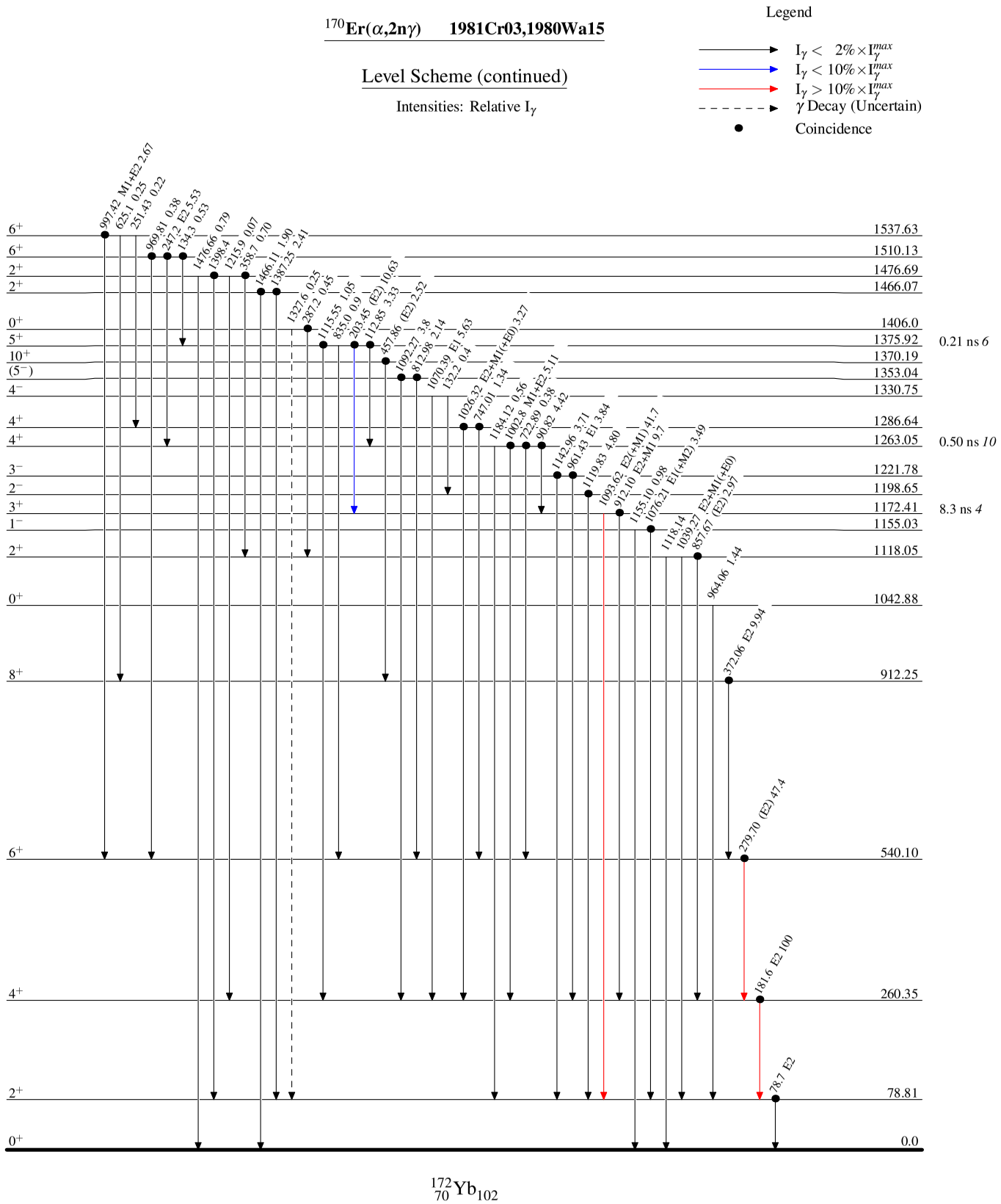


$^{172}_{70}Yb_{102}$

^{170}Er(α,2nγ) **1981Cr03,1980Wa15**

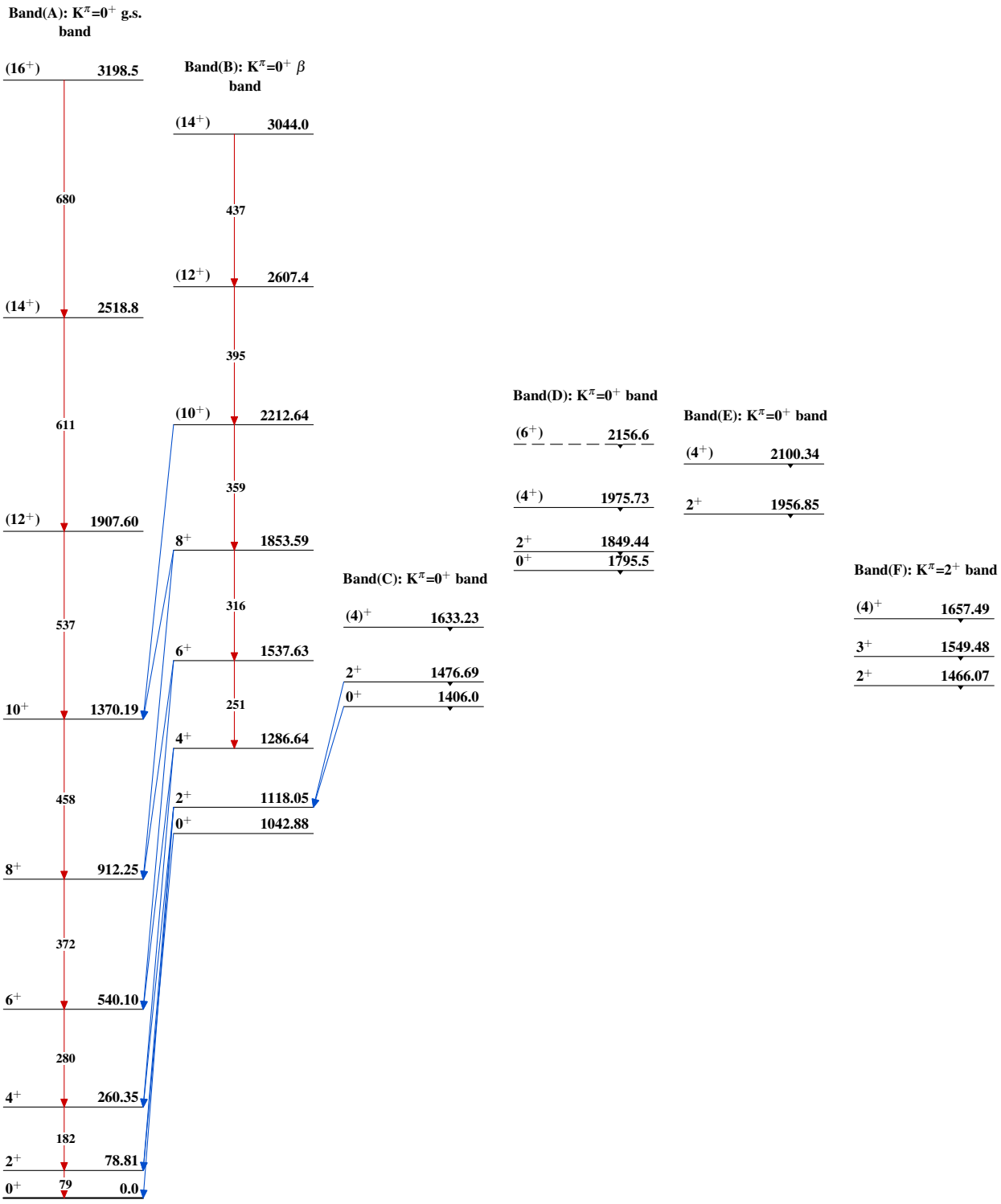
Level Scheme (continued)

Intensities: Relative I_γ



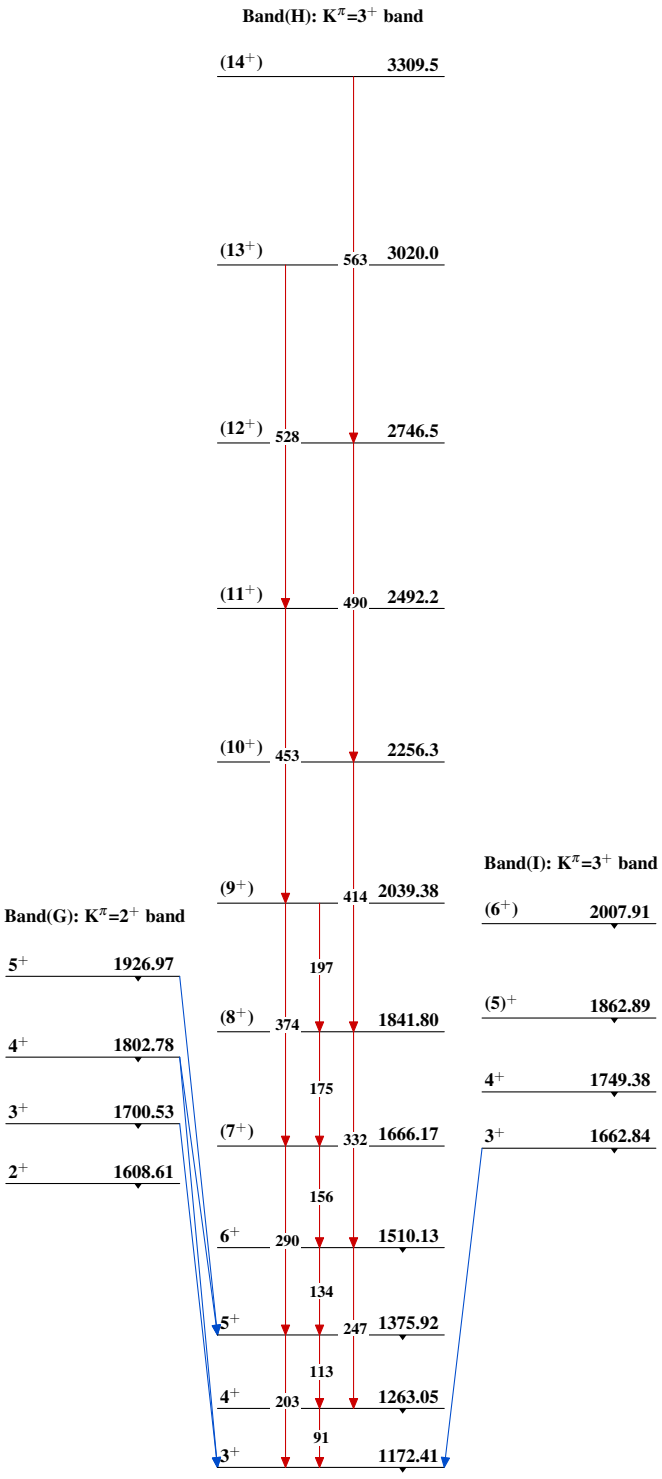
$^{172}_{70}Yb_{102}$

^{170}Er(α,2nγ) 1981Cr03,1980Wa15



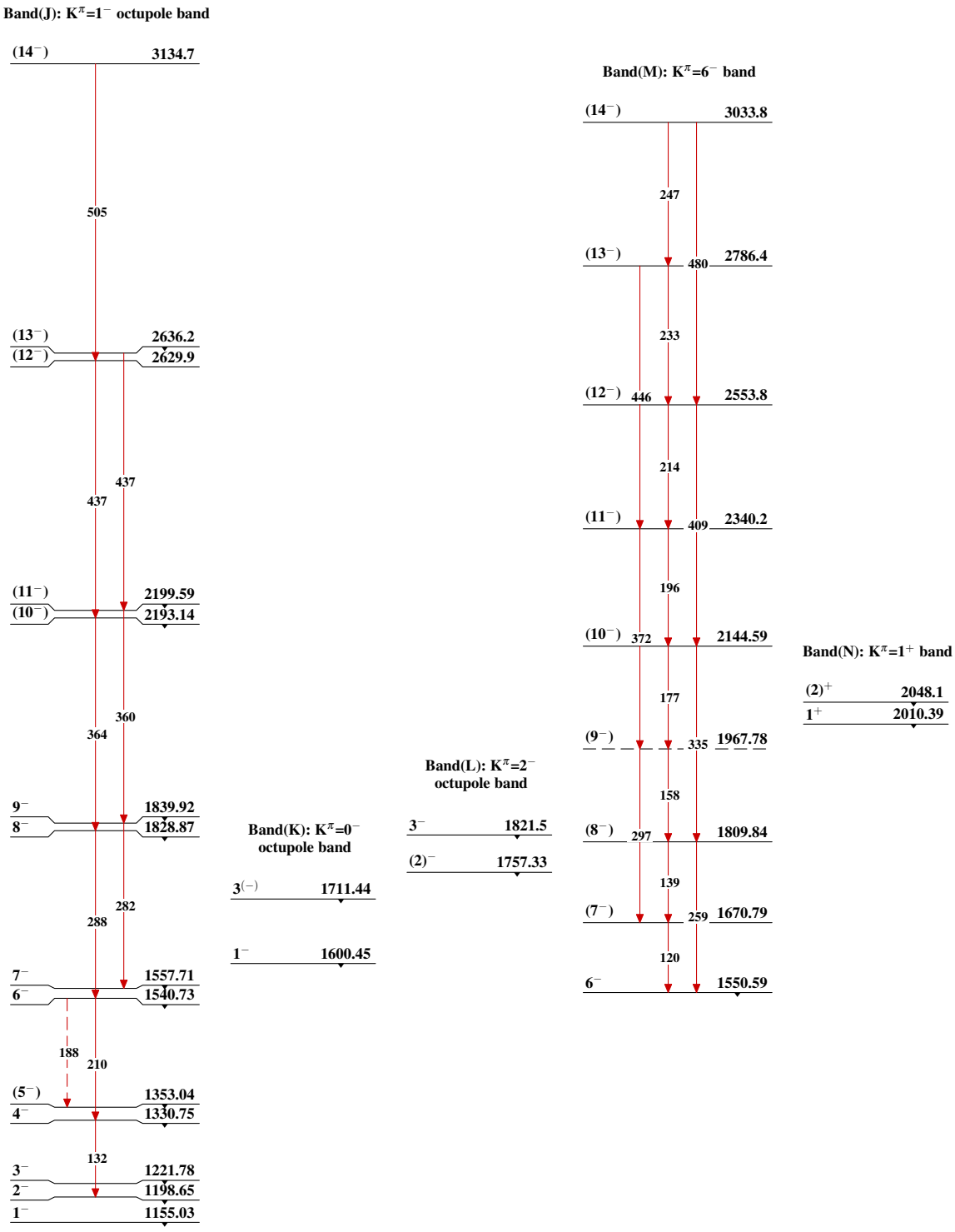
$^{172}_{70}Yb_{102}$

^{170}Er(α,2nγ) 1981Cr03,1980Wa15 (continued)



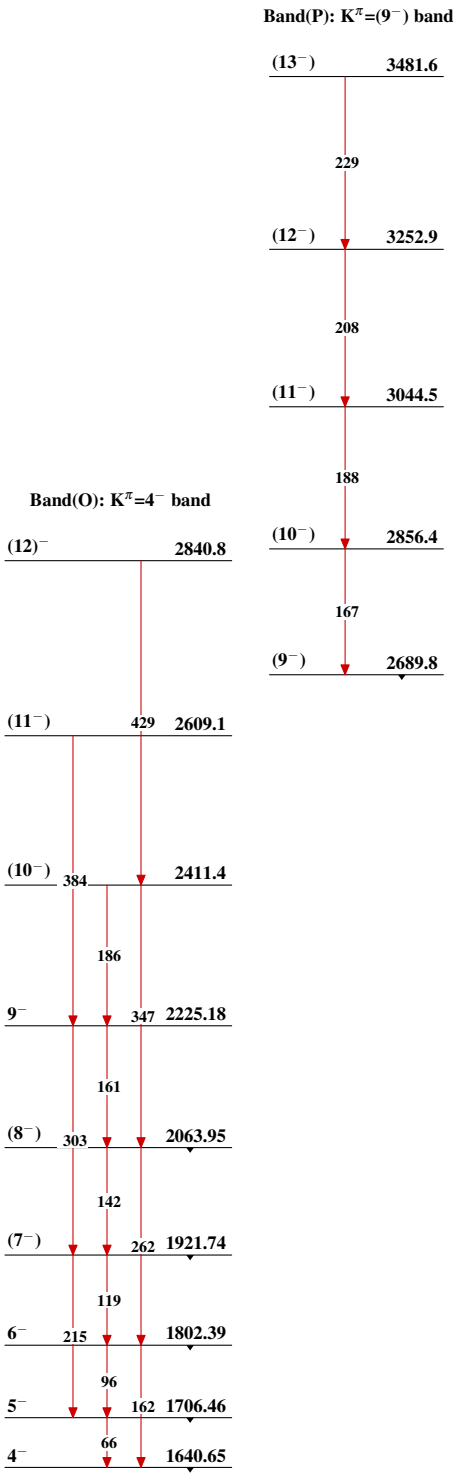
$^{172}_{70}Yb_{102}$

^{170}Er(α,2nγ) 1981Cr03,1980Wa15 (continued)



$^{172}_{70}Yb_{102}$

^{170}Er(α,2nγ) 1981Cr03,1980Wa15 (continued)



$^{172}_{70}Yb_{102}$