^{168}Er(α,2nγ) 1983Ko28,1981Wa14

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

2017Ka10: E(α)=27 MeV. Measured Eγ, Iγ, $\gamma\gamma$(t) using fast-timing technique with HPGe and $LaBr_3$(Ce) detectors. Deduced $T_{1/2}$ of yrast band levels.
1983Ko28: E(α)=27 MeV; measured $\alpha\gamma$(t); Nilsson-plus-pairing calculations.
1981Wa14: E(α)=27 MeV; measured Eγ, Iγ, $\gamma\gamma$-coin, $\alpha\gamma$(t), $\gamma(\theta)$, Ice. See also 1979Wa16.
1970Se15: E(α)≈26 MeV, 6.4% ^{168}Er target; measured Eγ, Iγ, $\gamma(\theta)$.
1983Ko28 support results of 1981Wa14.

^{170}Yb Levels

Data are from 1981Wa14, except as noted.

E(level)[†]	J$^{\pi}$[#]	$T_{1/2}$[‡]	Comments
0.0[&]	0$^+$		
84.3[&] *1*	2$^+$	1.62 ns *2*	$T_{1/2}$: From 2017Ka10.
277.60[&] *15*	4$^+$	98 ps *4*	$T_{1/2}$: From 2017Ka10.
573.54[&] *17*	6$^+$	13 ps *3*	$T_{1/2}$: From 2017Ka10.
963.67[&] *19*	8$^+$		
1258.70[e] *18*	4$^-$	370[@] ns *15*	
1294.3[a] *6*	(4$^+$)		
1329.7[c] *6*	(4$^+$)		
1345.38[e] *17*	5$^-$		
1408.8[h] *6*	(4$^+$)		
1437.97[&] *21*	10$^+$		
1450.5[e] *3*	6$^-$		
1460.0[c] *5*	(5$^+$)		
1510.4[b] *6*	(5)		
1521.6[a] *4*	6$^+$		
1529.1[h] *4*	5$^+$		
1573.04[e] *19*	7$^-$		
1601.9[c] *5*	(6$^+$)		
1660.5[d] *4*	5$^-$		
1669.5[h] *5*	6$^+$		
1712.6[b] *6*	(7)		
1716.1[e] *4*	8$^-$		
1762.8[d] *4*	6$^-$		
1780.8[c] *5*	(7$^+$)		
1803.8[a] *4*	8$^+$		
1834.6[h] *4*	7$^{(+)}$		J$^{\pi}$: π=(+) from K$^{\pi}$=(4)$^+$ band assignment.
1851.4[f] *4*	6$^-$	<0.2 ns	Other $T_{1/2}$:<1 ns (1981Wa14).
1872.4[e] *4*	9$^-$		
1903.6[d] *4*	7$^-$		
1954.8[c] *4*	8$^+$		
1964.9[f] *5*	7$^-$		
1983.78[&] *23*	12$^+$		
2005.8[b] *6*	(9)$^-$		

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^{168}Er(α,2nγ) 1983Ko28,1981Wa14 (continued)

^{170}Yb Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$[‡]	Comments
2009.6[h] 4	8^+		
2045.0[d] 5	8^-		
2057.1[e] 4	10^-		
2098.9[f] 7	8^-		
2135.9[a] 4	$(10)^+$		
2189.8[g] 4	7^-	2.5 ns 3	$T_{1/2}$: weighted average of 2.8 ns 3 (1981Wa14) and 2.2 ns 3 (1983Ko28).
2215.0[c]	(9^+)		
2221.3[d] 4	9^-		
2242.4[e] 4	11^-		
2253.9[f] 8	9^-		
2341.6[g] 6	8^-		
2373.7[c] 5	10^+		
2388.5[b] 6	$(11)^-$		
2399.0[d] 5	10^-		
2412.8[h] 5	$(10)^+$		
2429.4[f] 8	10^-		
2474.3[e] 5	12^-		
2524.7[a] 5	$(12)^+$		
2525.3[g] 6	9^-		
2580.9[&] 6	14^+		
2604.3[d] 6	11^-		
2681.9[e] 5	13^-		
2732.7[g] 7	10^-		
2816.5[d] 6	12^-		
2827.6[c] 7	(12^+)		
2856.0?[b]	(13^-)		
2959.8[g] 7	11^-		
2967.2[e] 7	14^-		
3051.0[d] 7	13^-		
3187.0[e] 7	(15^-)		
3196.3[&] 8	16^+		
3202.6[g] 9	(12)		
3307.6?[c]	(14^+)		
3399.1?[b]	(15^-)		
3532.3?[e]	(16^-)		
3757.3?[e]	(17^-)		
3808.2[&] 9	18^+		
4438.9?[&]	(20^+)		

[†] From least-squares fit to Eγ.
[‡] From γ(t) measurement (1983Ko28), except as noted.
[#] From 1981Wa14; based on measured γ multipolarities and deduced band structure.
[@] From γ(t) measurement (1981Wa14).
[&] Band(A): $K^{\pi}=0^+$ g.s. band.
[a] Band(B): $K^{\pi}=(0)^+$ band.
[b] Band(C): $K^{\pi}=(1)^-$ band.

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^{168}Er(α,2nγ) 1983Ko28,1981Wa14 (continued)

^{170}Yb Levels (continued)

[c] Band(D): $K^{\pi}=(2)^{+}$ band.
[d] Band(E): $K^{\pi}=(3)^{-}$ band.
[e] Band(F): $K^{\pi}=4^{-}$ band.
[f] Band(G): $K^{\pi}=6^{-}$ band.
[g] Band(H): $K^{\pi}=7^{-}$ band.
[h] Band(I): $K^{\pi}=(3,4)^{+}$ band. K=3 favored, by analogy with ^{172}Yb (1981Wa14).

γ(^{170}Yb)

All data are from 1981Wa14, unless noted to the contrary.

E_γ	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	α[c]	Comments
84.3 *1*	180 *10*	84.3	2^+	0.0	0^+	E2[a]	6.27	A_2=+0.136 *7*; A_4=−0.017 *10*.
86.8 *5*	14 *1*	1345.38	5^-	1258.70	4^-	E2+M1	5.3 *3*	Mult.: δ(D,Q)=−0.42 *7* or −1.65 *20* from $\gamma(\theta)$; not E1+M2 from RUL. A_2=−0.69 *3*; A_4=−0.03 *4*.
102.3 *5*	3 *1*	1762.8	6^-	1660.5	5^-	D		A_2=−0.36 *10*; A_4=+0.21 *13*.
105.1 *5*	23 *2*	1450.5	6^-	1345.38	5^-	D+Q		A_2=−0.759 *17*; A_4=+0.043 *24*. δ(D,Q)=−0.41 *5* or −1.75 *15* from $\gamma(\theta)$.
113.6 *5*	6 *1*	1964.9	7^-	1851.4	6^-	D+Q		A_2=−0.62 *6*; A_4=+0.03 *7*.
122.4 *5*	6 *1*	1573.04	7^-	1450.5	6^-	D+Q		A_2=−0.77 *6*; A_4=+0.02 *8*. δ(D,Q)=−0.37 *7* or −1.95 *25* from $\gamma(\theta)$.
[x]133.0 *5*	2 *1*							Tentatively placed from an otherwise unsupported 1794 level which is omitted from authors′ level scheme (1981Wa14).
134.0 *5*	6 *1*	2098.9	8^-	1964.9	7^-	D		A_2=−0.61 *8*; A_4=−0.03 *11*.
140.9 *5*	2 *1*	1903.6	7^-	1762.8	6^-			A_2=−0.07 *11*; A_4=+0.09 *14*.
141.6[&] *5*	3[&] *1*	2045.0	8^-	1903.6	7^-	(D+Q)		A_2=−0.59 *11*; A_4=+0.34 *15*.
143.1 *5*	13 *1*	1716.1	8^-	1573.04	7^-	D+Q		A_2=−0.921 *26*; A_4=+0.11 *4*. δ(D,Q)=−0.51 *6* or −1.50 *20* from $\gamma(\theta)$.
152.0 *5*	9 *1*	2341.6	8^-	2189.8	7^-			A_2=+0.26 *3*; A_4=+0.06 *4*. ΔJ=1 transition (1981Wa14).
154.9 *5*	7 *1*	2253.9	9^-	2098.9	8^-	D		A_2=−0.39 *4*; A_4=−0.05 *6*.
156.4[&] *5*	4[&] *1*	1872.4	9^-	1716.1	8^-	D		A_2=−0.53 *6*; A_4=+0.03 *8*.
175.5 *5*	3 *1*	2429.4	10^-	2253.9	9^-			A_2=−0.64 *8*; A_4=−0.09 *11* for doublet.
176.2 *5*	2 *1*	2221.3	9^-	2045.0	8^-			A_2=−0.64 *8*; A_4=−0.09 *11* for doublet.
177.9 *5*	3 *1*	2399.0	10^-	2221.3	9^-	D		A_2=−0.68 *14*; A_4=−0.11 *16*.
183.8[&] *5*	7[&] *2*	2525.3	9^-	2341.6	8^-			A_2=−0.149 *22*; A_4=−0.04 *3* for triplet.
184.7[&] *5*	7[&] *2*	2057.1	10^-	1872.4	9^-			A_2=−0.149 *22*; A_4=−0.04 *3* for triplet.
185.3 *5*	3 *1*	2242.4	11^-	2057.1	10^-			A_2=−0.149 *22*; A_4=−0.04 *3* for triplet.
191.8 *5*	24 *4*	1450.5	6^-	1258.70	4^-	E2[a]	0.309 *6*	A_2=+0.29 *3*; A_4=−0.06 *4*.
193.3 *1*	1000 *50*	277.60	4^+	84.3	2^+	E2[a]	0.301	A_2=+0.289 *7*; A_4=−0.039 *10*.
205.4[&] *5*	3[&] *1*	2604.3	11^-	2399.0	10^-			A_2=+0.04 *7*; A_4=−0.12 *10*.
207.5 *5*	4 *1*	2732.7	10^-	2525.3	9^-			A_2=+0.23 *10*; A_4=+0.06 *13*.
212.2 *5*	2 *1*	2816.5	12^-	2604.3	11^-			
227.2[&] *5*	3[&] *1*	2959.8	11^-	2732.7	10^-			A_2=+0.44 *12*; A_4=−0.03 *18*.
227.6 *5*	14 *2*	1573.04	7^-	1345.38	5^-	E2[a]	0.176 *3*	A_2=+0.41 *4*; A_4=−0.04 *6*.
232.0 *5*	2 *1*	2474.3	12^-	2242.4	11^-			
234.4[f] *5*	2 *1*	1903.6	7^-	1669.5	6^+			
234.5 *5*	2 *1*	3051.0	13^-	2816.5	12^-			
242.8[&] *5*	2[&] *1*	3202.6	(12)	2959.8	11^-			

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^{168}Er(α,2nγ) 1983Ko28,1981Wa14 (continued)

γ(^{170}Yb) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[#]	α[c]	Comments
243.4[&] 5	2[&] 1	1903.6	7⁻	1660.5	5⁻				
265.6 5	46 3	1716.1	8⁻	1450.5	6⁻	E2[a]		0.1074 17	A_2=+0.38 3; A_4=−0.07 4.
282.0[&] 5	10[&] 2	2045.0	8⁻	1762.8	6⁻	(Q)			A_2=+0.36 8; A_4=−0.06 10.
295.9 1	720 40	573.54	6⁺	277.60	4⁺	E2		0.0771	α(K)exp=0.060 10 (1981Wa14) Additional information 1. A_2=+0.342 7; A_4=−0.059 10.
299.4 5	16 2	1872.4	9⁻	1573.04	7⁻	E2[a]		0.0744	A_2=+0.31 7; A_4=+0.01 10.
317.7 5	3 1	2221.3	9⁻	1903.6	7⁻				
320.8[&] 5	3[&] 1	1780.8	(7⁺)	1460.0	(5⁺)				
330.5[&] 5	4[&] 1	2429.4	10⁻	2098.9	8⁻				A_2=+0.21 5; A_4=+0.01 7.
332.2[f] 5	4 1	2135.9	(10)⁺	1803.8	8⁺				A_2=+0.21 5; A_4=+0.01 7 for doublet.
335.3 5	2 1	2525.3	9⁻	2189.8	7⁻				
338.5 5	17 2	2189.8	7⁻	1851.4	6⁻	M1(+E2)		0.08 4	α(K)exp=0.086 18 (1981Wa14) A_2=−0.18 4; A_4=−0.05 5. ΔJ=1 transition (1981Wa14).
340.0 5	5 2	2009.6	8⁺	1669.5	6⁺				
341.0 1	39 4	2057.1	10⁻	1716.1	8⁻	E2		0.0506	α(K)exp=0.042 10 (1981Wa14) Additional information 24. A_2=+0.401 25; A_4=−0.10 3.
352.9 5	3 1	1954.8	8⁺	1601.9	(6⁺)				
354.0 5	9 2	2399.0	10⁻	2045.0	8⁻				A_2=+0.38 6; A_4=−0.05 8.
370.1 5	16 2	2242.4	11⁻	1872.4	9⁻	E2		0.0400	α(K)exp=0.027 6 (1981Wa14) Additional information 27. A_2=+0.38 5; A_4=−0.10 6.
382.7 5	3 1	2604.3	11⁻	2221.3	9⁻				
390.1 1	440 30	963.67	8⁺	573.54	6⁺	E2		0.0345	α(K)exp=0.031 5 (1981Wa14) Additional information 2. A_2=+0.361 9; A_4=−0.066 12.
401.0 5	10 1	1851.4	6⁻	1450.5	6⁻	M1+E2	0.7 +6−4	0.059 13	α(K)exp=0.049 10 (1981Wa14) Additional information 16. A_2=+0.28 4; A_4=+0.09 5.
403.2 5	3 1	2412.8	(10)⁺	2009.6	8⁺				
417.2 5	20 2	2474.3	12⁻	2057.1	10⁻	E2		0.0287	α(K)exp=0.026 5 (1981Wa14) Additional information 30. α(K)exp is for doublet dominated by this transition. A_2=+0.35 4; A_4=−0.06 7 for doublet.
417.7 5	4 1	2816.5	12⁻	2399.0	10⁻				Additional information 33. α(K)exp=0.026 5 (1981Wa14) for doublet in which this transition is a minor component. A_2=+0.35 4, A_4=−0.06 7 for doublet.
418.7 5	8 2	2373.7	10⁺	1954.8	8⁺	Q			A_2=+0.42 6; A_4=−0.08 8.

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^{168}Er(α,2nγ) 1983Ko28,1981Wa14 (continued)

γ(^{170}Yb) (continued)

E_γ	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#]	α[c]	Comments
434.2[ef] 5	3[e] 1	1872.4	9⁻	1437.97	10⁺				A_2=+0.32 4, A_4=−0.10 5, mult=E1 for triplet.
434.2[ef] 5	5[e] 2	2215.0	(9⁺)	1780.8	(7⁺)				A_2=+0.32 4; A_4=−0.10 5 for triplet.
434.5 5	5 2	2959.8	11⁻	2525.3	9⁻				A_2=+0.32 4; A_4=−0.10 5 for triplet.
439.5[&] 5	10[&] 2	2681.9	13⁻	2242.4	11⁻	E2[a]		0.0250	A_2=+0.29 4; A_4=−0.03 6.
446.7 5	3 1	3051.0	13⁻	2604.3	11⁻				
453.9 5	4 1	2827.6	(12⁺)	2373.7	10⁺				
474.3 1	160 10	1437.97	10⁺	963.67	8⁺	E2			α(K)exp=0.020 4 (1981Wa14) Additional information 7. A_2=+0.379 14; A_4=−0.078 18.
480.2[f] 5	6 2	3307.6?	(14⁺)	2827.6	(12⁺)				
492.8 5	8 1	2967.2	14⁻	2474.3	12⁻				
505.1 5	<4	3187.0	(15⁻)	2681.9	13⁻				
506.2 5	49 4	1851.4	6⁻	1345.38	5⁻	M1+E2	0.9 +6−4	0.030 6	α(K)exp=0.025 5 (1981Wa14) Additional information 17. A_2=−0.183 18; A_4=−0.021 23. J to J-1 transition (1981Wa14).
514.3[&] 5	11[&] 3	1964.9	7⁻	1450.5	6⁻				
540.7 5	7 1	2524.7	(12)⁺	1983.78	12⁺	M1(+E2)	≤1.0	0.029 5	α(K)exp=0.027 7 (1981Wa14) Additional information 31. A_2=+0.07 10; A_4=+0.11 13. δ: from α(K)exp.
543.1[f] 5	4 2	3399.1?	(15⁻)	2856.0?	(13⁻)				
545.8 1	74 5	1983.78	12⁺	1437.97	10⁺	E2[b]		0.01432	α(K)exp=0.012 1 (1981Wa14) Additional information 22. A_2=+0.360 11; A_4=−0.090 19.
565.1[f] 5	<3	3532.3?	(16⁻)	2967.2	14⁻				
570.3[f] 5	<3	3757.3?	(17⁻)	3187.0	(15⁻)				
597.1[&] 5	20[&] 2	2580.9	14⁺	1983.78	12⁺				
609.3 5	12 2	1573.04	7⁻	963.67	8⁺	E1			α(K)exp=0.0046 12 (1981Wa14) Additional information 11. A_2=−0.16 6; A_4=−0.02 8.
611.9 5	<3	3808.2	18⁺	3196.3	16⁺				
615.4 5	<3	3196.3	16⁺	2580.9	14⁺				
630.8[f] 5	<3	4438.9?	(20⁺)	3808.2	18⁺				
698.0 5	6 2	2135.9	(10)⁺	1437.97	10⁺	M1(+E0)			α(K)exp=0.030 10 (1981Wa14) Additional information 25. α(K)exp corrected for assumed E1 multipolarity of relatively weak 698.1-keV component of doublet (1981Wa14). A_2=+0.32 5; A_4=+0.12 7 for 698.0γ+698.1γ doublet.
698.1 5	6 2	2681.9	13⁻	1983.78	12⁺	(E1)[@]			A_2=+0.32 5; A_4=+0.12 7 for doublet.

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^{168}Er(α,2nγ) 1983Ko28,1981Wa14 (continued)

γ(^{170}Yb) (continued)

E_γ	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#]	α[c]	Comments
739.2 *5*	4 *1*	2189.8	7⁻	1450.5	6⁻	E2(+M1)	≥1.1		α(K)exp=0.0073 *19* (1981Wa14) Additional information 26.
771.8 *1*	25 *3*	1345.38	5⁻	573.54	6⁺	E1			α(K)exp=0.0024 *4* (1981Wa14) Additional information 4. A_2=−0.12 *3*; A_4=−0.04 *5*. ΔJ=1 transition (1981Wa14).
804.3 *5*	15 *2*	2242.4	11⁻	1437.97	10⁺	E1			α(K)exp=0.0027 *6* (1981Wa14) Additional information 28. A_2=−0.26 *6*; A_4=+0.04 *8*.
817.1 *5*	6 *2*	1780.8	(7⁺)	963.67	8⁺	M1(+E2)			α(K)exp=0.0083 *28* (1981Wa14)
840.0 *5*	11 *2*	1803.8	8⁺	963.67	8⁺	M1		0.01101	α(K)exp=0.012 *3* (1981Wa14) Additional information 15. A_2=+0.44 *9*; A_4=−0.02 *11*.
844.3[&] *5*	6[&] *2*	2189.8	7⁻	1345.38	5⁻	(E2)			α(K)exp=0.009 *4* (1981Wa14) Mult.: E2,M1 from α(K)exp; M1 inconsistent with placement.
870.6 *5*	6 *2*	1834.6	7$^{(+)}$	963.67	8⁺				
872.3[f] *5*	6 *1*	2856.0?	(13⁻)	1983.78	12⁺				
887.0[f] *5*	5 *2*	1460.0	(5⁺)	573.54	6⁺				
908.8 *5*	37 *4*	1872.4	9⁻	963.67	8⁺	E1			α(K)exp=0.0020 *4* (1981Wa14) Additional information 18. A_2=−0.29 *3*; A_4=−0.08 *4*.
935.9 *5*	10 *2*	2373.7	10⁺	1437.97	10⁺	M1+E2			α(K)exp=0.0051 *12* (1981Wa14)
939.6 *5*	5 *1*	1903.6	7⁻	963.67	8⁺	E1			α(K)exp=0.0020 *7* (1981Wa14) Additional information 19.
948.0 *5*	8 *2*	1521.6	6⁺	573.54	6⁺	M1			α(K)exp=0.0089 *24* (1981Wa14) Additional information 9. A_2=+0.23 *15*; A_4=+0.01 *20*.
950.5 *5*	12 *2*	2388.5	(11)⁻	1437.97	10⁺	E1			α(K)exp=0.0019 *6* (1981Wa14) Additional information 29. A_2=−0.40 *7*; A_4=−0.05 *9*.
955.4 *5*	7 *2*	1529.1	5⁺	573.54	6⁺	M1(+E2)			α(K)exp=0.0052 *16* (1981Wa14) A_2=−0.14 *8*; A_4=−0.11 *11*.
974.7 *5*	5 *2*	2412.8	(10)⁺	1437.97	10⁺	M1,E2			α(K)exp=0.0058 *15* (1981Wa14)
981.1 *1*	150 *10*	1258.70	4⁻	277.60	4⁺	E1			α(K)exp=0.0013 *2* (1981Wa14) Additional information 3. A_2=+0.063 *11*; A_4=+0.013 *15*.
991.0 *5*	14 *2*	1954.8	8⁺	963.67	8⁺	M1+E2			α(K)exp=0.0044 *8* (1981Wa14) Additional information 21. A_2=−0.21 *7*; A_4=−0.26 *9*.
999.5 *1*	59 *5*	1573.04	7⁻	573.54	6⁺	(E1)[@]			A_2=−0.203 *18*; A_4=−0.009 *25*.
1016.7[&] *5*	8[&] *2*	1294.3	(4⁺)	277.60	4⁺	M1(+E2)			α(K)exp=0.0050 *12* (1981Wa14)
1028.4 *5*	16 *2*	1601.9	(6⁺)	573.54	6⁺	E2(+M1)	>1.5		α(K)exp=0.0031 *7* (1981Wa14) Additional

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^{168}Er(α,2nγ) 1983Ko28,1981Wa14 (continued)

γ(^{170}Yb) (continued)

E_γ	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	Comments
							information 12. Mult.: from $\gamma(\theta)$ and α(K)exp. A_2=−0.20 *6*; A_4=−0.14 *8*.
1042.5 *5*	15 *2*	2005.8	(9)$^-$	963.67	8$^+$	E1	α(K)exp=0.0012 *4* (1981Wa14) Additional information 23. A_2=−0.33 *13*; A_4=+0.13 *18*.
1046.2 *5*	10 *2*	2009.6	8$^+$	963.67	8$^+$	E2(+M1)	α(K)exp=0.0028 *7* (1981Wa14) Mult.: E2(+M1) from α(K)exp. A_2=−0.29 *8*, A_4=−0.18 *11* implies ΔJ=0 transition.
1052.1 *5*	10 *2*	1329.7	(4$^+$)	277.60	4$^+$	E2(+M1)	α(K)exp=0.0026 *8* (1981Wa14) A_2=−0.33 *10*; A_4=−0.01 *13*.
1067.8 *1*	75 *6*	1345.38	5$^-$	277.60	4$^+$	E1[b]	α(K)exp=0.0011 *1* (1981Wa14) Additional information 5. A_2=−0.226 *24*; A_4=−0.01 *3*. ΔJ=1 transition (1981Wa14).
1087.0[d] *5*	15[d] *2*	1660.5	5$^-$	573.54	6$^+$	(E1)	Additional information 13. Mult.: α(K)exp and $\gamma(\theta)$ consistent with E1+E2 for doublet. α(K)exp=0.0018 *4* (1981Wa14) for doublet. A_2=0.00 *6*; A_4=−0.16 *8* for doublet.
1087.0[d] *5*	15[d] *2*	2524.7	(12)$^+$	1437.97	10$^+$	(E2)	Additional information 32. Mult.: α(K)exp and $\gamma(\theta)$ consistent with E1+E2 doublet. α(K)exp=0.0018 *4* (1981Wa14) for doublet. A_2=0.00 *6*; A_4=−0.16 *8* for doublet.
1095.8 *5*	17 *3*	1669.5	6$^+$	573.54	6$^+$	E2(+M1)	α(K)exp=0.0029 *6* (1981Wa14) Additional information 14. A_2=−0.22 *5*; A_4=−0.22 *7*.
1131.2 *5*	12 *2*	1408.8	(4$^+$)	277.60	4$^+$	(M1+)E2	α(K)exp=0.0026 *6* (1981Wa14) Additional information 6. A_2=−0.30, A_4=−0.14 *10*.
1139.1 *5*	17 *2*	1712.6	(7)	573.54	6$^+$		A_2=−0.16 *10*; A_4=+0.12 *13*.
1172.2[&] *5*	7[&] *2*	2135.9	(10)$^+$	963.67	8$^+$		
1182.4 *5*	16 *2*	1460.0	(5$^+$)	277.60	4$^+$	E2(+M1)	α(K)exp=0.0020 *5* (1981Wa14) Additional information 8. A_2=−0.09 *4*; A_4=−0.02 *6*.
1207.7[&f] *5*	29[&] *4*	1780.8	(7$^+$)	573.54	6$^+$		A_2=−0.25 *7*, A_4=+0.26 *9*.
1230.4 *5*	10 *2*	1803.8	8$^+$	573.54	6$^+$		A_2=+0.44 *11*.
1232.8 *5*	7 *2*	1510.4	(5)	277.60	4$^+$		
1244.0 *5*	13 *2*	1521.6	6$^+$	277.60	4$^+$	E2[b]	α(K)exp=0.0020 *2* (1981Wa14) Additional information 10. A_2=+0.35 *8*; A_4=−0.22 *10*.
1251.6 *5*	15 *3*	1529.1	5$^+$	277.60	4$^+$	E2+M1	α(K)exp=0.0022 *5* (1981Wa14) A_2=−0.23 *7*, A_4=+0.21 *9* implies ΔJ=1 transition.
1257.7 *5*	19 *3*	2221.3	9$^-$	963.67	8$^+$		A_2=−0.46 *11*; A_4=0.00 *15*.
1261.3 *5*	17 *3*	1834.6	7$^{(+)}$	573.54	6$^+$	D	A_2=−0.38 *9*; A_4=+0.12 *12*.
1330.0 *5*	14 *2*	1903.6	7$^-$	573.54	6$^+$	E1	α(K)exp=0.0007 *2* (1981Wa14) Additional information 20. A_2=−0.25 *7*; A_4=+0.12 *9*.
1383.0 *5*	18 *2*	1660.5	5$^-$	277.60	4$^+$	D	α(K)exp=0.0025 *5* (1981Wa14) A_2=−0.22 *7*, A_4=−0.10 *9* implies ΔJ=1 (1981Wa14). Mult.: α(K)exp implies mult=M1+E2; however, $\Delta\pi$=yes from placement.

[†] Photon intensities from (α,2nγ) at 27 MeV (1981Wa14), relative to Iγ(193γ)=1000 *50*.

Continued on next page (footnotes at end of table)

^{168}Er(α,2nγ) 1983Ko28,1981Wa14 (continued)

γ(^{170}Yb) (continued)

‡ From α(K)exp and/or $\gamma(\theta)$.

From α(K)exp.

@ From 1979Wa16; authors assign E1 for transitions to π=+ g.s. band from π=− yrast band, based on $\gamma(\theta)$ and band structure.

& γ poorly resolved or unresolved from contaminant γ; A_2 and A_4 values, if determined, are subject to systematic error (1981Wa14).

[a] Stretched Q from $\gamma(\theta)$; not M2 from RUL, assuming $T_{1/2}\leq5$ ns (1981Wa14) (based on observation of prompt $\gamma\gamma$ coin).

[b] Based on α(K)exp data resulting from an approximate α(K)exp normalization (deduced from measurement in identical geometry of known ^{172}Yb lines) combined with $\gamma(\theta)$ data for the 546, 1068, 1244 transitions, the latter were deduced to have mult=E2, E1, E2, respectively. These lines were then used to refine the α(K)exp normalization for ^{170}Yb data.

[c] 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.

[d] Multiply placed with undivided intensity.

[e] Multiply placed with intensity suitably divided.

[f] Placement of transition in the level scheme is uncertain.

[x] γ ray not placed in level scheme.

^{168}Er(α,2nγ) **1983Ko28,1981Wa14**

Level Scheme

Intensities: Relative I_γ

& Multiply placed: undivided intensity given

Legend

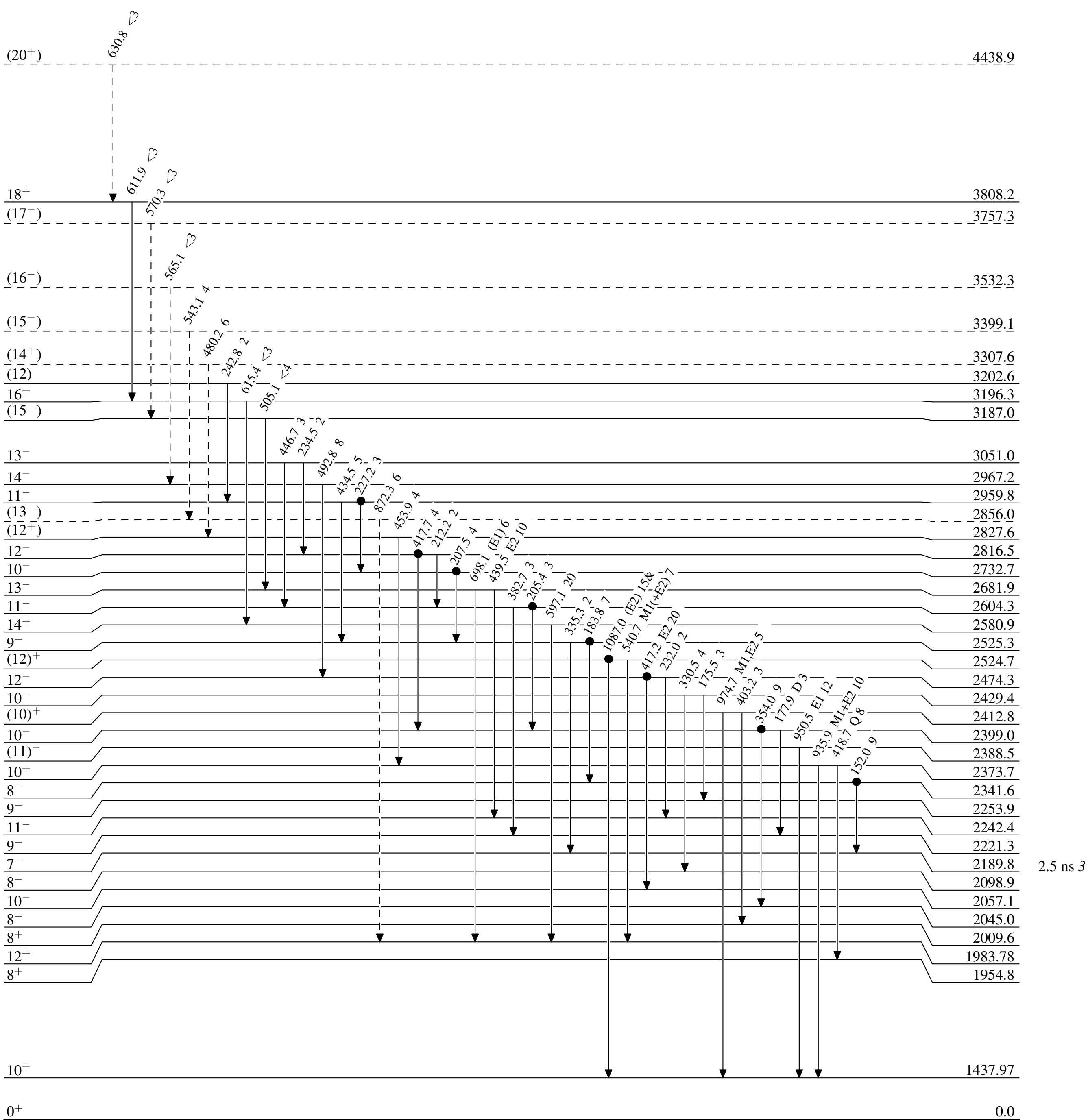
$I_\gamma < 2\% \times I_\gamma^{max}$

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

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

γ Decay (Uncertain)

Coincidence



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

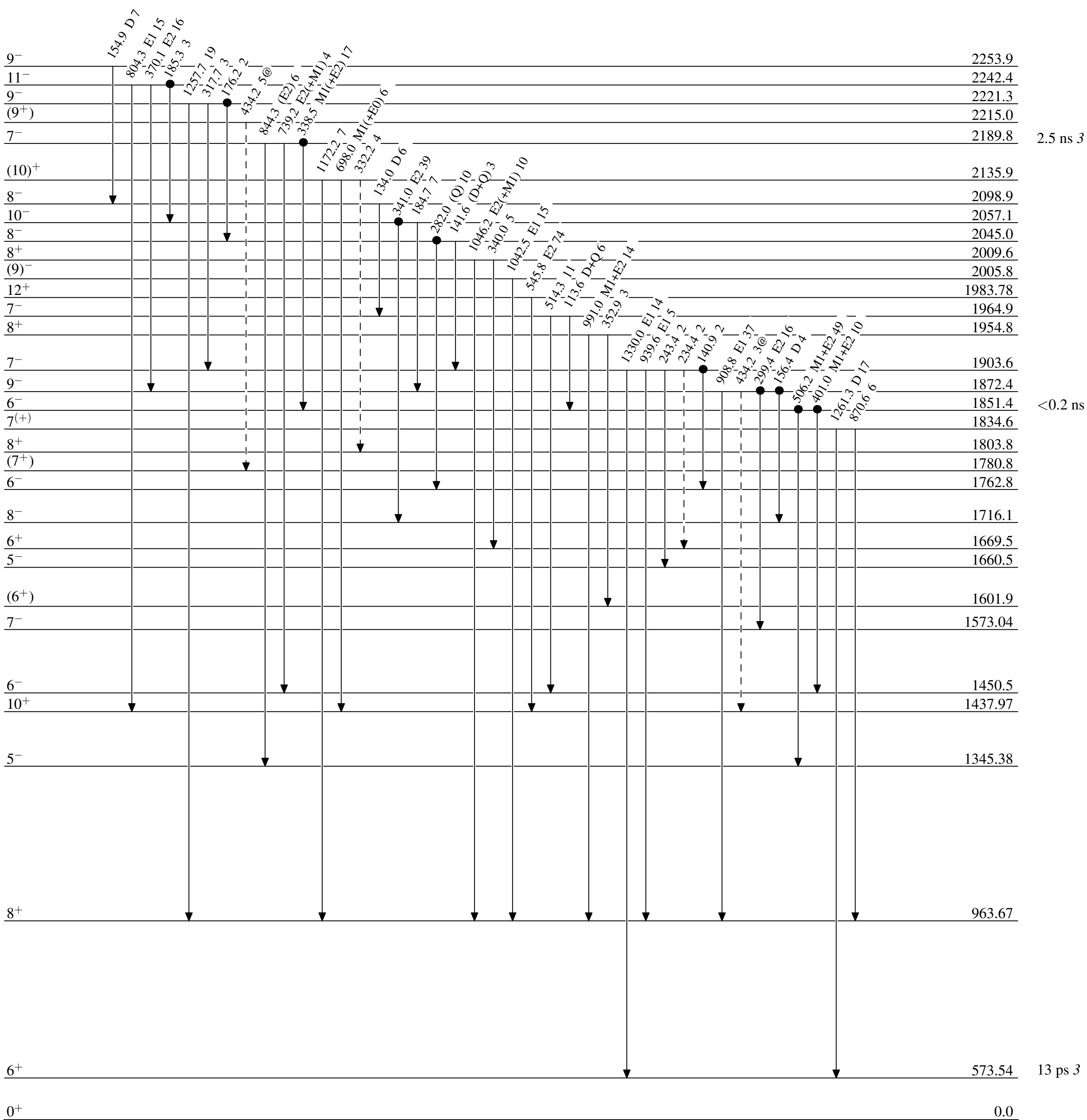
^{168}Er(α,2nγ) 1983Ko28,1981Wa14

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)
- Coincidence



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

^{168}Er(α,2nγ) 1983Ko28,1981Wa14

Level Scheme (continued)

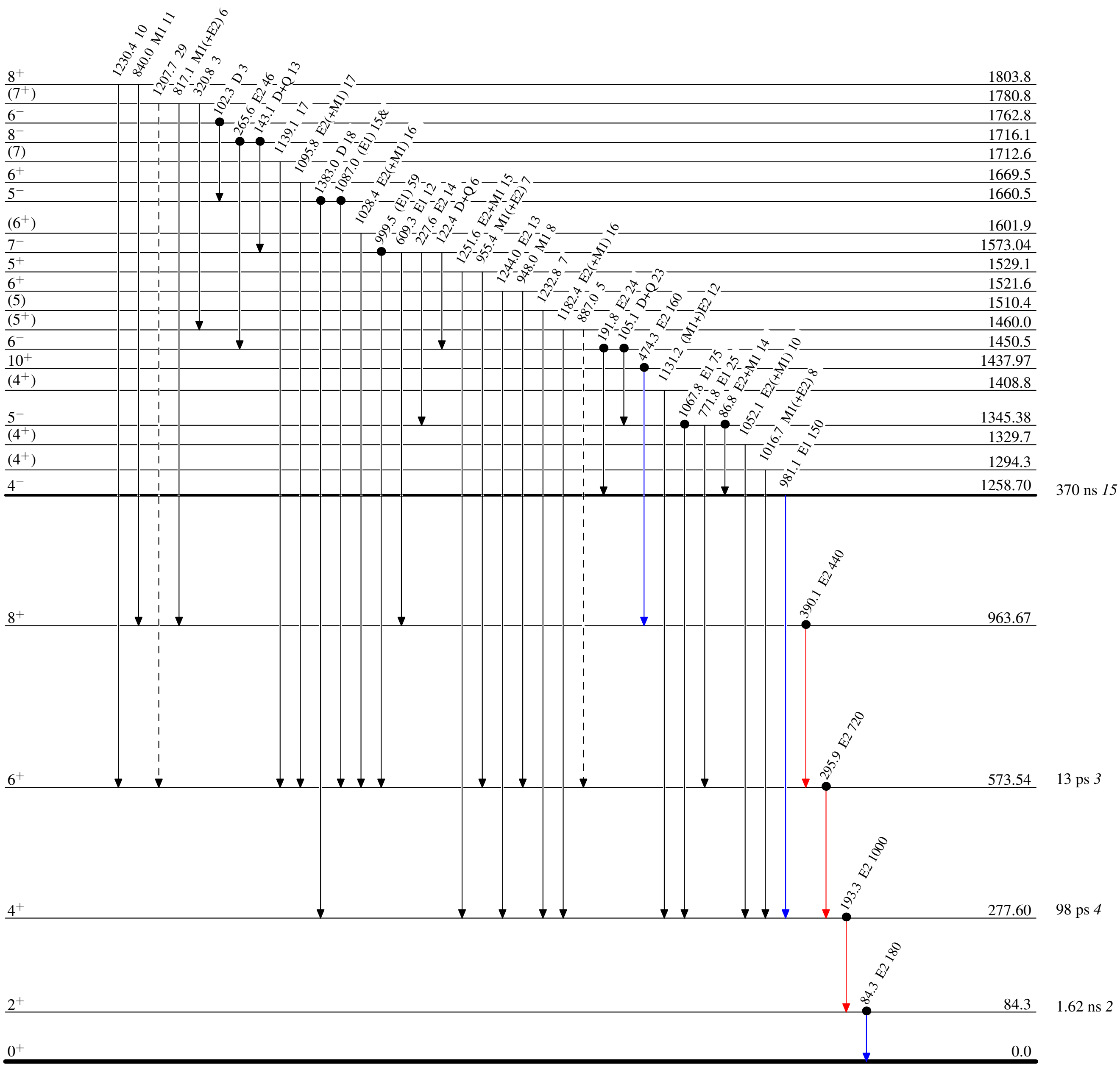
Intensities: Relative I_γ

& Multiply placed: undivided intensity given

@ Multiply placed: intensity suitably divided

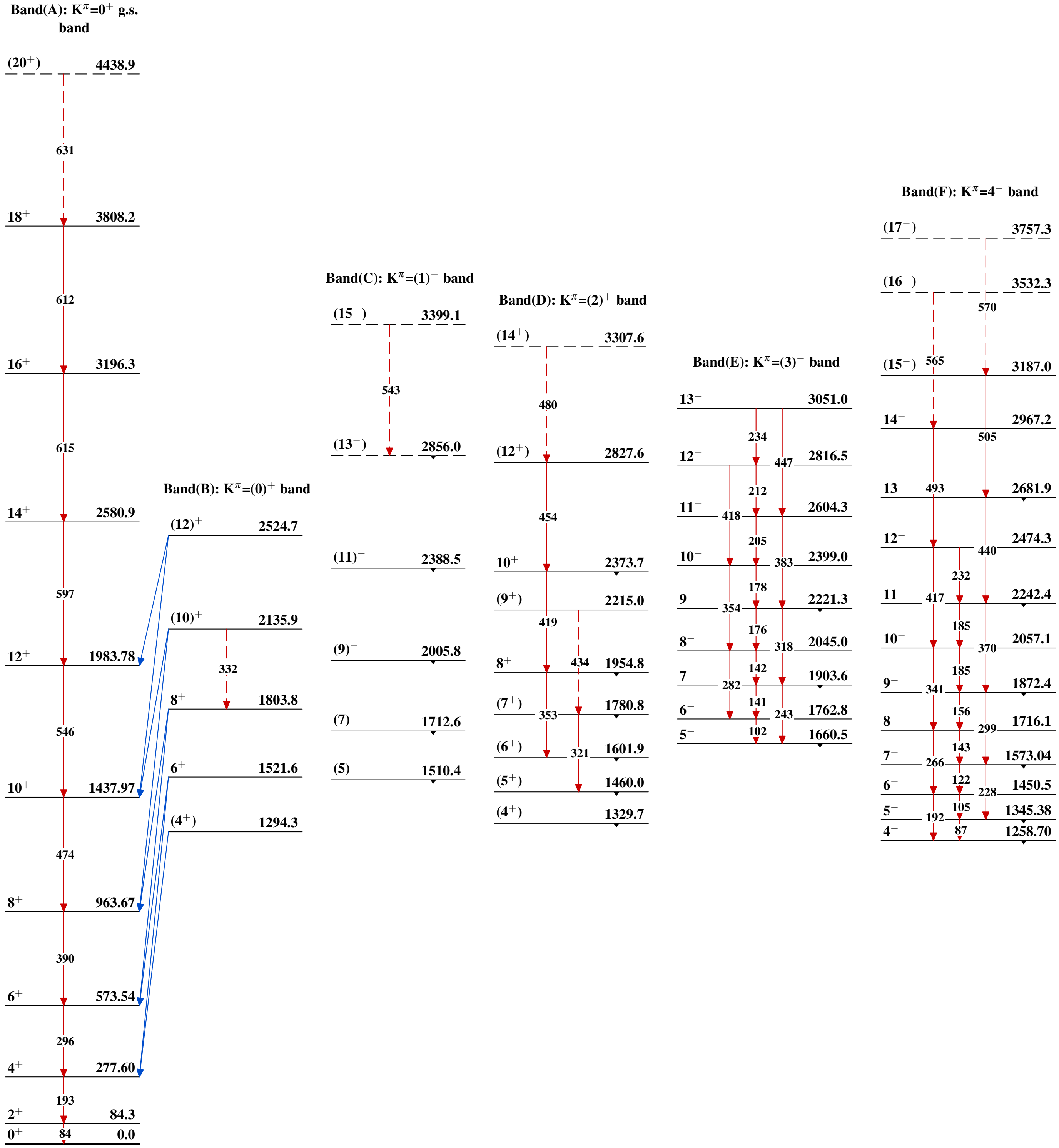
Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)
- Coincidence



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

^{168}Er(α,2nγ) 1983Ko28,1981Wa14



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

^{168}Er(α,2nγ) 1983Ko28,1981Wa14 (continued)