^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01

History

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

Target (^{173}Yb(J^π=5/2$^-$)).

1987Ge01: target: 94.86% enriched ^{173}Yb. Measured primary and secondary γ rays. Detectors: bent-crystal spectrometer,Ge(Li),Ge(Li) pair spectrometer. Measured conversion electrons. Detector: magnetic spectrometer. Deduced S(n)=7464.58 keV *35*.

1981Gr01: target: 92.6% enriched ^{173}Yb. Measured primary and secondary γ rays. Detector:Ge(Li). Deduced S(n)=7464.8 keV *5*.

Others: 1981Ra09, 1982Is05, 1978La14, 1977Al39, 1973Wi19, 1973Ca22, 1971Al14, 1969Na08.

^{174}Yb Levels

Additional levels at 1704.0 (J^π=(6$^-$)), 1957.3 (J^π=(6$^+$)), 2054.1, 2191.6, and 2198.6 (J^π=(1$^-$)) were reported by 1981Gr01 only.

E(level)[‡]	J^π[†]	$T_{1/2}$	Comments
0.0[#]	0$^+$		
76.471[#] *1*	2$^+$		
253.117[#] *2*	4$^+$		
526.034[#] *9*	6$^+$		
889.93?[#] *5*	(8$^+$)		
1318.361[@] *6*	2$^-$	0.486 ns *15*	$T_{1/2}$: from 1974Lo13.
1382.013[@] *6*	3$^-$		
1468.195[@] *6*	4$^-$		
1487.12[&] *3*	(0$^+$)[j]		
1518.148[d] *13*	6$^+$		
1561.021[&] *20*	2$^+$		
1572.126[@] *10*	(5$^-$)		
1606.358[a] *6*	3$^+$		
1624.40[b] *3*	1$^+$		
1633.973[c] *7*	2$^+$		
1671.216[d] *14*	7$^+$		
1674.82[b] *3*	2$^+$		
1701.568[a] *10*	4$^+$		
1709.42[c] *6*	3$^+$		
1710.859 *50*	1		
1715.449[&] *27*	4$^+$		
1733.64[b] *1*	3$^+$		
1785.90[e] *4*	3$^-$		
1805.40[c] *15*	4$^+$		
1819.817[a] *7*	5$^+$		
1851.408[f] *10*	3$^-$		
1859.232[b] *25*	4$^+$		
1883.95[g] *25*	(0$^+$)[j]		
1884.674 *14*	(5$^-$)		
1933.951 *25*	(3$^-$)		
1949.696[f] *6*	(4$^-$)		
1958.52[g] *3*	2$^+$		
2016.126 *20*	(3$^+$)		

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^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01 (continued)

^{174}Yb Levels (continued)

E(level)‡	Jπ†	E(level)‡	E(level)‡	E(level)‡
2020.622 *50*	6⁻	2519.7[i] *7*	2845.4 *4*	3395.3[i] *6*
2038.83 *3*		2527.4 *7*	2870.1 *7*	3410.1[i] *6*
2049.967 *9*	3⁻	2540.8 *1*	2882.8 *4*	3446.1[i] *7*
2068.984 *60*	(1⁺)	2547.6?[i] *9*	2895.4 *5*	3462.0[i] *6*
2088.746 *18*	(4)⁻	2549.1 *11*	2902.4 *4*	3480.1[i] *6*
2101.209 *23*		2581.4 *4*	2909.1 *5*	3491.2[i] *6*
2111.876 *14*		2588.2 *4*	2918.2 *5*	3519.8[i] *3*
2123.04[g] *10*	4⁺	2600.0 *4*	2944.5 *4*	3553.4[i] *7*
2160.918 *10*	4⁻	2623.3 *5*	2965.3[i] *7*	3597.8[i] *6*
2163.144 *11*	2⁺	2642.5 *4*	3038.9[i] *7*	3602.8[i] *7*
2171.982[h] *26*	(2⁺)	2657.5 *5*	3049.0[i] *7*	3614.5[i] *6*
2186.864 *26*	(3,4⁺)	2663.1 *5*	3062.4[i] *7*	3648.1[i] *12*
2237.715 *19*	(2)⁺	2680.3 *4*	3075.2[i] *10*	3655.8[i] *6*
2246.825 *15*	2⁺,3⁺	2705.3 *5*	3095.6[i] *7*	3692.2[i] *8*
2256.416 *8*	3⁺	2712.4 *4*	3122.3[i] *11*	3725.6[i] *6*
2295.773 *30*	2⁺	2732.3 *4*	3136.1[i] *8*	3733.3[i] *6*
2336.876 *7*	4⁺	2749.4 *5*	3163.0[i] *6*	3757.1[i] *6*
2341.502 *17*	1⁻	2767.9 *6*	3174.6[i] *6*	3772.5[i] *8*
2361.838 *10*	1⁺,4⁺	2774.4?[i] *7*	3210.6[i] *7*	3886.2[i] *7*
2378.7 *2*	5⁻	2784.0 *6*	3217.2[i] *3*	3895.5[i] *6*
2384.056 *25*	4⁺	2793.1 *4*	3236.3[i] *6*	3901.5[i] *6*
2403.332 *13*	2⁻	2799.3 *6*	3268.0?[i] *7*	3918.8[i] *6*
2438.165 *10*	4⁺	2808.8 *5*	3314.9[i] *8*	7464.58[k] *35*
2464.965 *17*	2⁺,3⁺	2818.6 *4*	3349.1[i] *9*	
2501.3 *5*		2824.4 *5*	3356.0[i] *7*	
2514.3 *7*		2839.5 *5*	3383.4[i] *7*	

† Based on multipolarities of secondary γ rays. Spins of levels populated by primary γ rays are 1, 2, 3, and 4, based on the assumption that primary γ rays carry one unit of angular momentum, and that Jπ for the neutron-capture states are 2⁻ and 3⁻. Additional arguments for lower-lying levels include γ-ray deexcitation patterns and rotational structure.

‡ From a least-squares fit to γ-ray energies (1987Ge01), unless otherwise specified.

Band(A): Kπ=0⁺ g.s. rotational band.

@ Band(B): Kπ=2⁻ octupole-vibrational band.

& Band(C): Kπ=0⁺ band.

a Band(D): Kπ=3⁺ band. Probable Configuration=(ν 7/2(514))-(ν 1/2(512)).

b Band(E): Kπ=1⁺ band.

c Band(F): Kπ=2⁺ γ-vibrational band.

d Band(G): Kπ=6⁺ band. Probable Configuration=(ν 7/2(514))+(ν 1/2(512)).

e Band(H): Kπ=0⁻ octupole-vibrational band.

f Band(I): Kπ=3⁻ octupole-vibrational band.

g Band(J): Kπ=0⁺ band.

h Band(K): Kπ=0⁺ band.

i From 1981Gr01. Uncertainties of levels populated by primary γ rays only are too low. Values given here have been recalculated by evaluator.

j Conversion electrons to the g.s. were not observed (<0.0004 per 100 neutron captures) (1978La14).

k Capture state.

^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01 (continued)

γ(^{174}Yb)

Iγ normalization: Normalization to γ-ray intensities per 100 neutron captures is from 1987Ge01.

E_γ †	I_γ ‡b	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	δ	Comments
x68.214 *4*	0.19 *8*							
76.471 *1*	7.8 *10*	76.471	2^+	0.0	0^+	E2		δ: from α(K)exp=1.81 *60*, and ce(L1):ce(L2):ce(L3) exp=22 *2*:252 *62*:251 *62*.
x79.01a *20*	0.26 *5*							
86.181c *2*	0.24c *8*	1468.195	4^-	1382.013	3^-			
86.181c *2*	0.24c *8*	1819.817	5^+	1733.64	3^+			
88.23 *4*	0.45 *9*	2384.056	4^+	2295.773	2^+			
95.212 *2*	0.33 *6*	1701.568	4^+	1606.358	3^+	M1+E2	0.56 *18*	δ: from α(L1)exp=0.26 *8*, and ce(L1):ce(L2):ce(L3) exp=26 *8*:12 *4*:15 *5*.
103.929 *7*	0.09 *2*	1572.126	(5^-)	1468.195	4^-			
105.421 *5*	0.04 *1*	2361.838	1^+,4^+	2256.416	3^+			
118.272 *9*	0.128 *9*	1819.817	5^+	1701.568	4^+			
138.170 *14*	0.05 *2*	1606.358	3^+	1468.195	4^-			
x149.041 *5*	0.21 *2*					E1		Mult.: from α(K)exp=0.100 *16*.
149.832 *7*	≈0.28	1468.195	4^-	1318.361	2^-			I_γ: from Iγ(1215γ)=1.93 *9*, Iγ(149γ)/Iγ(1214γ)≈0.14 in ^{174}Tm β^- decay, and Iγ(149γ doublet)=0.30 *5*. M1+E2 assigned by 1987Ge01 is not consistent with α(K)exp=0.128 *36*, α(L1)exp=1.8 *3*, α(L2)exp=3.2 *4*, and α(L3)exp=2.6 *3* are apparently typographical errors. In addition, M1+E2 is not consistent with decay scheme spin assignments.
149.832 *7*	≈0.02	1710.859	1	1561.021	2^+			I_γ: from Iγ(149γ doublet)=0.30 *5* and Iγ(149γ, 1468 level)≈0.28.
153.074 *20*	0.04 *2*	1671.216	7^+	1518.148	6^+			
172.64c *8*	0.025c *8*	1733.64	3^+	1561.021	2^+			
172.64c *8*	0.025c *8*	1958.52	2^+	1785.90	3^-			
172.64c *8*	0.025c *8*	2295.773	2^+	2123.04	4^+			
176.645 *2*	20.0 *13*	253.117	4^+	76.471	2^+	E2		Mult.: from α(K)exp=0.293 *45*, and ce(L1):ce(L2):ce(L3) exp=33 *5*:77 *12*: 60 *10*.
x182.983 *4*	0.16 *1*					E2		Mult.: from α(K)exp=0.213 *24*.
198.560 *7*	0.049 *10*	2049.967	3^-	1851.408	3^-			
213.458c *4*	0.16c *2*	1819.817	5^+	1606.358	3^+			
213.458c *4*	0.16c *2*	2163.144	2^+	1949.696	(4^-)			
213.458c *4*	0.16c *2*	2171.982	(2^+)	1958.52	2^+			
217.434 *4*	0.168 *16*	1851.408	3^-	1633.973	2^+			
x223.758 *6*	0.37 *3*					M1+E2	0.82 *+30−25*	δ: from α(K)exp=0.228 *28* and ce(K):ce(L1) exp=228 *28*:28 *13*.
224.346 *4*	1.12 *9*	1606.358	3^+	1382.013	3^-	E1		Mult.: from α(K)exp=0.028 *3*.
233.376c *5*	0.25c *2*	1701.568	4^+	1468.195	4^-			
233.376c *5*	0.25c *2*	2038.83		1805.40	4^+			
x236.291 *8*	0.054 *7*							
240.291c *7*	0.09c *1*	2256.416	3^+	2016.126	(3^+)			
240.291c *7*	0.09c *1*	2341.502	1^-	2101.209				
245.044 *4*	0.66 *5*	1851.408	3^-	1606.358	3^+	E1		Mult.: from α(K)exp=0.024 *4*.

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^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01 (continued)

γ(^{174}Yb) (continued)

E_γ [†]	I_γ [‡b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ	Comments
247.675[c] 25	0.045[c] 7	1819.817	5^+	1572.126	(5^-)			
247.675[c] 25	0.045[c] 7	1958.52	2^+	1710.859	1			
248.138[c] 4	0.16[c] 2	1949.696	(4^-)	1701.568	4^+			
248.138[c] 4	0.16[c] 2	2336.876	4^+	2088.746	$(4)^-$			
[x]252.187 5	0.16 2					(M1)+E2	≥0.42	δ: from α(K)exp=0.223 36.
[x]255.67 8	0.04 2					E2+M1		Mult.: from α(K)exp=0.13 6.
[x]259.043 24	0.042 6							
[x]264.352 19	0.03 1							
268.944 9	0.044 5	2088.746	$(4)^-$	1819.817	5^+			
272.918 6	2.75 11	526.034	6^+	253.117	4^+	E2		Mult.: from α(K)exp=0.069 10, and ce(L1):ce(L2):ce(L3) exp=108 17:152 22:85 15.
287.997 2	4.60 21	1606.358	3^+	1318.361	2^-	E1		Mult.: from α(K)exp=0.0195 29 and ce(K):ce(L1) exp=195 29:27 5.
291.662 8	0.06 2	2403.332	2^-	2111.876				
291.977 23	0.101 20	2111.876		1819.817	5^+			
314.546 13	0.147 19	2016.126	(3^+)	1701.568	4^+	M1		Mult.: from α(K)exp=0.131 26.
319.546 5	1.05 8	1701.568	4^+	1382.013	3^-	E1		Mult.: from α(K)exp=0.015 3.
341.090[c] 23	0.047[c] 10	1859.232	4^+	1518.148	6^+			
341.090[c] 23	0.047[c] 10	2160.918	4^-	1819.817	5^+			
343.321 5	0.269 20	1949.696	(4^-)	1606.358	3^+			
348.395 8	0.042 6	2049.967	3^-	1701.568	4^+			
349.421[c] 5	0.064[c] 7	2020.622	6^-	1671.216	7^+			
349.421[c] 5	0.064[c] 7	2438.165	4^+	2088.746	$(4)^-$			
351.615[c] 6	0.31[c] 6	1733.64	3^+	1382.013	3^-			
351.615[c] 6	0.31[c] 6	1819.817	5^+	1468.195	4^-			
363.90[e] 5	0.077	889.93?	(8^+)	526.034	6^+			E_γ,I_γ: from 1973Wi19. Line masked by impurity from ^{175}Yb(n,γ), Eγ=363.75 (1987Ge01).
[x]365.72 8	0.044 9							
366.526 5	0.77 7	1884.674	(5^-)	1518.148	6^+			
[x]370.112 7	0.05 1							
[x]378.902 11	0.051 7							
383.02[c] 8	0.08[c] 3	1851.408	3^-	1468.195	4^-			
383.02[c] 8	0.08[c] 3	2341.502	1^-	1958.52	2^+			
[x]384.887 9	0.08 1							
[x]387.183 5	0.27 2					M1		Mult.: from α(K)exp=0.070 13.
[x]394.64 8	0.036 9							
399.638 16	0.083 9	2101.209		1701.568	4^+			
[x]408.571 29	0.056 6							
409.768 8	1.46 9	2016.126	(3^+)	1606.358	3^+	M1		Mult.: from α(K)exp=0.055 12 and ce(K):ce(L1) exp=55 12:7.7 9.
[x]443.611 4	0.51 7					E2		Mult.: from α(K)exp=0.0173 27.
[x]451.989 20	0.04 1							
456.4 4	0.06 1	2171.982	(2^+)	1715.449	4^+			
[x]458.400 15	0.11 1							
[x]459.350 5	0.16 2					M1+E2	0.97 +46−32	δ: from α(K)exp=0.031 5.
469.398[c] 22	0.064[c] 7	1851.408	3^-	1382.013	3^-			
469.398[c] 22	0.064[c] 7	2403.332	2^-	1933.951	(3^-)			
482.385 17	0.14 3	2088.746	$(4)^-$	1606.358	3^+			
494.164 16	0.063 8	2378.7	5^-	1884.674	(5^-)			
497.120 21	0.06 1	2171.982	(2^+)	1674.82	2^+			
502.46 4	0.028 7	2020.622	6^-	1518.148	6^+			
[x]505.101 9	0.15 2							
517.048 8	0.10 2	2336.876	4^+	1819.817	5^+			

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^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01 (continued)

γ(^{174}Yb) (continued)

E_γ [†]	I_γ [‡b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ	Comments
526.830 17	0.043 5	2237.715	(2)$^+$	1710.859	1			
x529.492 9	0.052 5							
533.039 8	0.44 3	1851.408	3$^-$	1318.361	2$^-$			
546.999 10	0.119 20	2256.416	3$^+$	1709.42	3$^+$			
x548.74 4	0.042 7							
554.56 1	0.160 19	2160.918	4$^-$	1606.358	3$^+$			
567.688 8	0.183 15	1949.696	(4$^-$)	1382.013	3$^-$			
570.60 9	0.020 6	2038.83		1468.195	4$^-$			
578.605 17	0.07 1	2384.056	4$^+$	1805.40	4$^+$			
x581.217 16	0.042 5							
586.282 13	0.081 9	2295.773	2$^+$	1709.42	3$^+$			
x597.59 4	0.030 4							
x602.54 4	0.06 2							
603.29[c] 19	0.027[c] 4	2237.715	(2)$^+$	1633.973	2$^+$			
603.29[c] 19	0.027[c] 4	2336.876	4$^+$	1733.64	3$^+$			
612.841 16	0.055 8	2246.825	2$^+$,3$^+$	1633.973	2$^+$			
622.432[c] 8	0.15[c] 2	2246.825	2$^+$,3$^+$	1624.40	1$^+$			
622.432[c] 8	0.15[c] 2	2256.416	3$^+$	1633.973	2$^+$			
628.37 4	0.02 1	1518.148	6$^+$	889.93?	(8$^+$)			
x629.949 21	0.036 7							
631.394 18	0.053 6	2237.715	(2)$^+$	1606.358	3$^+$			
x637.342 12	0.10 2					M1+E2	0.8 +6−4	δ: from α(K)exp=0.015 3.
643.57 5	0.016 3	2111.876		1468.195	4$^-$			
652.64 7	0.05 2	2361.838	1$^+$,4$^+$	1709.42	3$^+$			
x655.62 4	0.038 5							
661.758 9	0.37 4	2295.773	2$^+$	1633.973	2$^+$	M1+E2	0.9 +7−4	δ: from α(K)exp=0.0128 26.
x669.16[@] 30	0.12[@] 2							
x674.510 12	0.16 2					M1+E2	1.4 +12−5	δ: from α(K)exp=0.0102 19.
676.68 8	0.06 2	2237.715	(2)$^+$	1561.021	2$^+$			
685.808 21	0.046 8	2246.825	2$^+$,3$^+$	1561.021	2$^+$			
689.380 17	0.07 1	2295.773	2$^+$	1606.358	3$^+$			
695.46 3	0.034 5	2256.416	3$^+$	1561.021	2$^+$			
x696.46[@] 15	0.11[@] 2							
x710.37 12	0.023 8							
718.67 3	0.10 2	2186.864	(3,4$^+$)	1468.195	4$^-$			
x736.272 28	0.08 2							
750.632[c] 28	0.08[c] 3	2068.984	(1$^+$)	1318.361	2$^-$			
750.632[c] 28	0.08[c] 4	2237.715	(2)$^+$	1487.12	(0$^+$)			
763.22 6	0.06 2	2438.165	4$^+$	1674.82	2$^+$			
763.22 6	0.06 2	2464.965	2$^+$,3$^+$	1701.568	4$^+$			
779.01[c] 8	0.08[c] 2	2160.918	4$^-$	1382.013	3$^-$			
779.01[c] 8	0.08[c] 2	2403.332	2$^-$	1624.40	1$^+$			
x786.58 21	0.04 2							
788.29 4	0.07 2	2256.416	3$^+$	1468.195	4$^-$			
793.36 3	0.06 1	2111.876		1318.361	2$^-$			
808.26 12	0.04 2	2295.773	2$^+$	1487.12	(0$^+$)			
x827.94 5	0.10 2							
x848.96 5	0.05 1							
854.48 6	0.07 2	2341.502	1$^-$	1487.12	(0$^+$)			
x858.242 24	0.20 3							
866.04[c] 5	0.06[c] 2	2384.056	4$^+$	1518.148	6$^+$			
866.04[c] 5	0.06[c] 2	2438.165	4$^+$	1572.126	(5$^-$)			
x893.84[@] 20	0.23[@] 9							
938.07 5	0.06 1	2256.416	3$^+$	1318.361	2$^-$			

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^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01 (continued)

γ(^{174}Yb) (continued)

E_γ [†]	I_γ [‡b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ	Comments
x944.84[a@] 20	0.22[@] 5							
x953.75[@] 20	0.27[@] 5							
x962.05[@] 20	0.34[@] 3							
x967.56 5	0.06 2							
x971.82 4	0.06 1							
992.128 13	0.83 6	1518.148	6^+	526.034	6^+	E2		Mult.: from α(K)exp=0.0027 5.
x1045.95 4	0.18 3							
1056.13 3	0.08 4	2438.165	4^+	1382.013	3^-			
x1058.60 9	0.05 1							
x1082.41 7	0.09 1							
x1097.71 6	0.082 10							
x1106.79 5	0.13 1							
1128.895 14	1.39 13	1382.013	3^-	253.117	4^+	E1		Mult.: from α(K)exp=0.0008 2.
x1164.96 13	0.06 1							
1175.38 10	0.211 20	1701.568	4^+	526.034	6^+			M1 from α(K)exp=0.0050 8 is not consistent with decay scheme.
x1177.66[@] 13	0.37[@] 7							
x1186.73[@] 25	0.26[@] 8							
1189.44 9	0.209 20	1715.449	4^+	526.034	6^+			
x1201.08 12	0.13 2							Eγ=1200.92 12, Iγ=0.69 7 (1981Gr01).
1215.05 4	1.93 9	1468.195	4^-	253.117	4^+	E1		Mult.: from α(K)exp=0.0007 1.
1241.90 9	11.7 5	1318.361	2^-	76.471	2^+	E1		Mult.: from α(K)exp=0.0009 2.
x1252.4 5	0.12 4							
x1276.98 40	0.07 2							
x1282.81 15	0.27 2					M1		Mult.: from α(K)exp=0.0036 7.
1293.64 15	0.24 3	1819.817	5^+	526.034	6^+			
1305.53 13	6.0 3	1382.013	3^-	76.471	2^+	E1		Mult.: from α(K)exp=0.0007 1 and ce(K):ce(L1) exp=7 1:1.0 2.
1307.88 10	1.92 12	1561.021	2^+	253.117	4^+	E2		Mult.: from α(K)exp=0.014 2 and ce(K):ce(L1) exp=14 2:4 1.
1319.02 15	0.80 5	1572.126	(5^-)	253.117	4^+			
x1329.6[@] 5	0.31[@] 6							
1333.10 30	0.15 2	1859.232	4^+	526.034	6^+			
x1337.87 35	0.14 2							Eγ=1338.98 25, Iγ=0.41 5 (1981Gr01).
x1340.75 20	0.23 2							
x1344.04 25	0.11 2							
x1346.43[@] 15	0.32[@] 5							
1353.18 15	0.42 3	1606.358	3^+	253.117	4^+			
x1371.45[@] 25	0.23[@] 5							
x1377.7 3	0.10 3							
1380.98 15	0.21 3	1633.973	2^+	253.117	4^+			
x1397.06 25	0.15 2					M1		Mult.: from α(K)exp=0.0029 13.
x1407.01 25	0.46 5							
1410.73 10	0.75 7	1487.12	(0^+)	76.471	2^+			
x1437.63[@] 15	0.44[@] 7							
x1442.36[@] 15	0.42[@] 6							
1448.46 8	0.64 5	1701.568	4^+	253.117	4^+	M1+E2	0.5 +5−5	δ: from α(K)exp=0.0023 3.
1456.15 7	0.73 7	1709.42	3^+	253.117	4^+	E2		Mult.: from α(K)exp=0.0012 2.
1462.32 6	1.00 6	1715.449	4^+	253.117	4^+	E2		Mult.: from α(K)exp=0.0014 2.
1480.78 7	0.38 4	1733.64	3^+	253.117	4^+	E2		Mult.: from α(K)exp=0.0012 4.
1484.54 7	1.23 6	1561.021	2^+	76.471	2^+	M1+E2	1.3 +9−5	δ: from α(K)exp=0.0018 2.
x1525.98 19	0.50 7							
1529.68 16	0.86 7	1606.358	3^+	76.471	2^+			α(K)exp=0.0008 2 suggests E1.

Continued on next page (footnotes at end of table)

^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01 (continued)

γ(^{174}Yb) (continued)

E_γ[†]	I_γ[‡b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
							Placement in decay scheme implies M1,E2 multipolarity.
1532.79 *10*	1.29 *7*	1785.90	3^-	253.117	4^+	E1	Mult.: from α(K)exp=0.0008 *2*.
[x]1543.91[@] *13*	0.82[@] *20*						
1547.97 *10*	1.53 *10*	1624.40	1^+	76.471	2^+	E2	Mult.: from α(K)exp=0.0014 *2*.
1552.13 *10*	1.07 *7*	1805.40	4^+	253.117	4^+	E2	Mult.: from α(K)exp=0.0013 *2*.
1557.49 *10*	2.92 *12*	1633.973	2^+	76.471	2^+	E2	Mult.: from α(K)exp=0.0012 *1*.
[x]1565.13[a@] *13*	0.63[@] *9*						
[x]1577.16 *20*	0.25 *5*						
[x]1588.8 *4*	0.27 *6*						
1598.36 *10*	1.02 *8*	1674.82	2^+	76.471	2^+	E2	Mult.: from α(K)exp=0.0013 *2*.
[x]1621.09 *25*	0.43 *4*						Eγ=1622.14 *60*, Iγ=0.35 *6* (1981Gr01).
1624.28 *23*	0.76 *7*	1624.40	1^+	0.0	0^+		
1632.92 *20*	1.9 *3*	1709.42	3^+	76.471	2^+		α(K)exp=0.0009 *2*.
1634.2[d] *3*	1.6[d]	1633.973	2^+	0.0	0^+		I_γ: from 1981Gr01. Iγ(1634γ doublet)=2.9 *5*. α(K)exp=0.0006 *1*.
1634.2[d] *3*	1.3[d]	1710.859	1	76.471	2^+		I_γ: from 1981Gr01. Iγ(1634γ doublet)=2.9 *5*.
1639.4 *4*	0.15 *3*	1715.449	4^+	76.471	2^+		
1657.33 *10*	1.44 *7*	1733.64	3^+	76.471	2^+	E2	Mult.: from α(K)exp=0.0009 *1*.
1674.76 *10*	1.42 *8*	1674.82	2^+	0.0	0^+	E2	Mult.: from α(K)exp=0.0009 *1*.
[x]1679.6 *8*	0.34 *6*						
1681.13[@] *17*	0.55[@] *7*	1933.951	(3^-)	253.117	4^+		
[x]1689.29[@] *17*	0.43[@] *14*						
1696.61[@e] *30*	0.26[@] *6*	1949.696	(4^-)	253.117	4^+		
1709.05 *20*	1.17 *13*	1785.90	3^-	76.471	2^+		E_γ,I_γ: from 1981Gr01. Eγ=1709.8 *5*, doublet (1987Ge01). α(K)exp(1711γ + 1709γ)=0.0005 *1*.
1710.87 *20*	1.24 *17*	1710.859	1	0.0	0^+		E_γ,I_γ: from 1981Gr01. Eγ=1709.8 *5*, doublet (1987Ge01). α(K)exp(1711γ + 1709γ)=0.0005 *1*.
1729.4 *5*	0.38 *4*	1805.40	4^+	76.471	2^+		
1774.25[@] *30*	0.44[@] *8*	1851.408	3^-	76.471	2^+		
1782.3 *3*	0.84 *9*	1859.232	4^+	76.471	2^+		
[x]1784.6[@] *3*	0.56[@] *12*						
1807.48 *25*	0.58 *9*	1883.95	(0^+)	76.471	2^+		
1857.8 *3*	0.48 *4*	1933.951	(3^-)	76.471	2^+		
1869.87 *20*	0.70 *6*	2123.04	4^+	253.117	4^+	E2	Mult.: from α(K)exp=0.0009 *1*.
1882.07 *20*	0.90 *7*	1958.52	2^+	76.471	2^+	(E2)	Mult.: α(K)exp=0.0006 *2* is consistent with E2 or E1. Decay scheme requires E2.
[x]1886.4[a@] *4*	0.48[@] *9*						
1918.96 *18*	0.89 *7*	2171.982	(2^+)	253.117	4^+		
1933.66 *25*	0.49 *5*	2186.864	$(3,4^+)$	253.117	4^+		
[x]1979.74[@] *20*	0.54[@] *8*						
[x]1984.07 *25*	0.55 *7*						
1992.3 *5*	0.39 *4*	2068.984	(1^+)	76.471	2^+		
[x]1998.15[a@] *25*	0.44[@] *33*						
2003.90[@e] *25*	0.44[@] *9*	2256.416	3^+	253.117	4^+		
2024.79 *14*	1.58 *9*	2101.209		76.471	2^+	(E1)	Mult.: from α(K)exp=0.0005 *1*.
[x]2036.92 *27*	0.5 *1*						
[x]2044.6 *3*	0.6 *1*						
[x]2067.8 *5*	0.5 *1*						
2083.3[@] *3*	0.56[@] *12*	2336.876	4^+	253.117	4^+		
2085.9 *5*	1.20 *6*	2163.144	2^+	76.471	2^+		

Continued on next page (footnotes at end of table)

^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01 (continued)

γ(^{174}Yb) (continued)

E_γ [†]	I_γ [‡b]	E_i(level)	J_i^π	E_f	J_f^π	Comments
2095.64 *25*	1.24 *8*	2171.982	(2$^+$)	76.471	2$^+$	
x2112.8 *5*	0.9 *2*					
x2124.4 *5*	0.4 *1*					Eγ=2125.3? 5, Iγ=0.44 *9* (1981Gr01).
2163.1 *4*	0.67 *10*	2163.144	2$^+$	0.0	0$^+$	
2170.48 *25*	1.16 *12*	2246.825	2$^+$,3$^+$	76.471	2$^+$	
x2244.50[@] *25*	0.62[@] *9*					
x2258.36[a@] *30*	0.47[@] *9*					
x2274.0[a@] *3*	0.63[@] *13*					
x2277.1[a@] *4*	0.47[@] *9*					
2285.1 *3*	1.2 *2*	2361.838	1$^+$,4$^+$	76.471	2$^+$	
x2287.8[@] *3*	0.97[@] *20*					
x2314.2[a@] *3*	0.52[@] *10*					
x2339.0[a@] *5*	0.68[@] *13*					
x2349.4[a@] *4*	0.70[@] *18*					
2388.96 *25*	0.57 *12*	2464.965	2$^+$,3$^+$	76.471	2$^+$	
x2400.98[@] *25*	0.47[@] *7*					
x2452.0[@] *3*	1.2[@] *2*					Eγ: possible doublet.
x2478.42[@] *25*	0.53[@] *13*					
x2498.8[@] *3*	1.0[@] *2*					
x2511.1[a@] *4*	1.1[@] *2*					
x2515.4[a] *4*	0.90 *18*					
x2523.8[@] *3*	1.1[@] *2*					
x2541.0[@] *3*	0.90[@] *18*					
x2548.8[@] *3*	0.84[@] *23*					
x2586.6[a@] *4*	0.99[@] *20*					
x2605.1[a@] *4*	0.99[@] *20*					
x2635.9[@] *2*	1.3[@] *3*					
3545.9[@] *6*	0.21[@] *3*	7464.58		3918.8		
3563.2[@] *6*	0.24[@] *5*	7464.58		3901.5		
3569.0[@] *6*	0.24[@] *5*	7464.58		3895.5		
3578.5[@] *7*	0.15[@] *3*	7464.58		3886.2		
3692.2[@] *8*	0.17[@] *4*	7464.58		3772.5		
3707.6[@] *6*	0.13[@] *3*	7464.58		3757.1		
3731.4[@] *6*	0.20[@] *4*	7464.58		3733.3		
3739.1[@] *6*	0.20[@] *4*	7464.58		3725.6		
3772.5[@] *8*	0.068[@] *17*	7464.58		3692.2		
3808.9[@] *6*	0.25[@] *5*	7464.58		3655.8		
3816.6[@] *12*	0.15[@] *6*	7464.58		3648.1		
3850.2[@] *6*	0.10[@] *2*	7464.58		3614.5		
3861.9[@] *7*	0.15[@] *3*	7464.58		3602.8		
3866.9[@] *6*	0.14[@] *3*	7464.58		3597.8		
3911.3[@] *7*	0.11[@] *2*	7464.58		3553.4		
3944.9[@] *6*	0.18[@] *3*	7464.58		3519.8		
3973.5[@] *6*	0.08[@] *1*	7464.58		3491.2		
3984.6[@] *6*	0.25[@] *4*	7464.58		3480.1		
4002.7[@] *6*	0.09[@] *2*	7464.58		3462.0		

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^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01 (continued)

γ(^{174}Yb) (continued)

E_γ †	I_γ ‡ b	E_i(level)	E_f	E_γ †	I_γ ‡ b	E_i(level)	E_f	J_f^π
4018.6@ 7	0.056@ 11	7464.58	3446.1	4883.09 24	0.247 23	7464.58	2581.4	
4054.5@ 6	0.10@ 2	7464.58	3410.1	4915.4 10	0.047 19	7464.58	2549.1	
4069.3@ 6	0.12@ 2	7464.58	3395.3	4917.0@e 11	0.05@ 1	7464.58	2547.6?	
4081.2@ 7	0.16@ 2	7464.58	3383.4	4923.7 10	0.020 4	7464.58	2540.8	
4108.6@ 7	0.13@ 3	7464.58	3356.0	4937.1 6	0.037 4	7464.58	2527.4	
4115.5@ 9	0.11@ 3	7464.58	3349.1	4944.9@ 7	0.12@ 2	7464.58	2519.7	
4149.7@ 8	0.17@ 4	7464.58	3314.9	4950.2 6	0.055 6	7464.58	2514.3	
4196.6@e 7	0.17@ 4	7464.58	3268.0?	4963.2 4	0.043 8	7464.58	2501.3	
4228.3@ 6	0.27@ 4	7464.58	3236.3	4999.4 3	0.067 5	7464.58	2464.965	$2^+,3^+$
4247.4@ 6	0.13@ 3	7464.58	3217.2	5027.1 5	0.0147 20	7464.58	2438.165	4^+
4254.0@ 7	0.10@ 3	7464.58	3210.6	5060.9 5	0.0155 18	7464.58	2403.332	2^-
4290.0@ 6	0.16@ 2	7464.58	3174.6	5080.6 3	0.066 5	7464.58	2384.056	4^+
4301.6@ 6	0.38@ 4	7464.58	3163.0	5102.14 23	0.22 4	7464.58	2361.838	$1^+,4^+$
4328.5@ 8	0.084@ 20	7464.58	3136.1	5122.7 6	0.030 4	7464.58	2341.502	1^-
4342.3@ 11	0.053@ 16	7464.58	3122.3	5127.0 9	0.024 3	7464.58	2336.876	4^+
4369.0@ 7	0.062@ 12	7464.58	3095.6	5168.1 4	0.0177 20	7464.58	2295.773	2^+
4389.4@ 10	0.043@ 13	7464.58	3075.2	5208.04 23	0.277 21	7464.58	2256.416	3^+
4402.2@ 7	0.067@ 13	7464.58	3062.4	5217.60 23	0.304 21	7464.58	2246.825	$2^+,3^+$
4415.6@ 7	0.05@ 1	7464.58	3049.0	5226.95 24	0.165 13	7464.58	2237.715	$(2)^+$
4425.7@ 7	0.14@ 3	7464.58	3038.9	5276.5 5	0.064 7	7464.58	2186.864	$(3,4^+)$
4499.3@ 7	0.062@ 1	7464.58	2965.3	5292.33 23	0.371 24	7464.58	2171.982	(2^+)
4520.00 25	0.147 14	7464.58	2944.5	5301.12 23	0.49 3	7464.58	2163.144	2^+
4546.3 4	0.026 3	7464.58	2918.2	5341.19 23	0.174 10	7464.58	2123.04	4^+
4555.5 3	0.054 5	7464.58	2909.1	5352.4 8	0.0137 20	7464.58	2111.876	
4562.08 25	0.161 17	7464.58	2902.4	5363.04 23	0.392 23	7464.58	2101.209	
4569.1 3	0.236 17	7464.58	2895.4	5395.2 5	0.0108 20	7464.58	2068.984	(1^+)
4581.68 25	0.094 9	7464.58	2882.8	5426.2 4	0.019 3	7464.58	2038.83	
4594.4 6	0.021 3	7464.58	2870.1	5448.28& 23	0.208 14	7464.58	2016.126	(3^+)
4619.12 24	0.184 15	7464.58	2845.4	5505.9 3	0.033 3	7464.58	1958.52	2^+
4625.0 3	0.048 5	7464.58	2839.5	5528.9 3	0.0167 20	7464.58	1933.951	(3^-)
4640.2 3	0.076 7	7464.58	2824.4	5605.31 23	0.252 13	7464.58	1859.232	4^+
4646.0 3	0.167 15	7464.58	2818.6	5612.9 3	0.059 5	7464.58	1851.408	3^-
4655.7 4	0.039 4	7464.58	2808.8	5658.95 23	0.086 6	7464.58	1805.40	4^+
4665.2 5	0.025 5	7464.58	2799.3	5678.3 4	0.0170 18	7464.58	1785.90	3^-
4671.38 24	0.138 9	7464.58	2793.1	5730.5 4	0.020 4	7464.58	1733.64	3^+
4680.5 5	0.028 3	7464.58	2784.0	5748.81 25	0.12 8	7464.58	1715.449	4^+
4690.2@e 7	0.087@ 6	7464.58	2774.4?	5754.45 24	0.145 14	7464.58	1709.42	3^+
4696.6 5	0.039 4	7464.58	2767.9	5762.0 3	0.034 3	7464.58	1701.568	4^+
4715.2 3	0.087 8	7464.58	2749.4	5789.6 3	0.036 4	7464.58	1674.82	2^+
4732.20 24	0.31 3	7464.58	2732.3	5830.27 22	0.86 5	7464.58	1633.973	2^+
4752.13 23	0.57 4	7464.58	2712.4	5838.1 4	0.030 3	7464.58	1624.40	1^+
4759.3 3	0.228 17	7464.58	2705.3	5857.91 23	0.318 18	7464.58	1606.358	3^+
4784.17 23	0.243 15	7464.58	2680.3	5903.2 3	0.61 4	7464.58	1561.021	2^+
4801.4 3	0.112 9	7464.58	2663.1	5995.5 4	0.0114 17	7464.58	1468.195	4^-
4807.0 4	0.085 8	7464.58	2657.5	6082.1 4	0.0185 15	7464.58	1382.013	3^-
4822.0 3	0.082 8	7464.58	2642.5	6145.5 3	0.0151 10	7464.58	1318.361	2^-
4841.2 4	0.141 9	7464.58	2623.3	7211.3 3	0.524 23	7464.58	253.117	4^+
4864.51 23	0.235 17	7464.58	2600.0	7387.9 3	0.70 6	7464.58	76.471	2^+
4876.3 3	0.125 9	7464.58	2588.2					

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^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01 (continued)

$\gamma(^{174}Yb)$ (continued)

† From 1987Ge01, unless otherwise specified.
‡ Per 100 neutron captures. Weighted average with χ^2 minimization, from 1987Ge01 and 1981Gr01, unless otherwise specified. $\Delta I\gamma$ are for relative $I\gamma$. For absolute intensities add in quadrature: 50% for primary γ rays, 20% for secondary γ rays (1987Ge01). Relative $I\gamma$ of 1987Ge01 and 1981Gr01 are in good agreement. Absolute values (per 100 neutron captures) from 1981Gr01, however, are often factors of up to 2 (for primary γ rays) and up to 1.24 (for secondary γ rays) higher than those from 1987Ge01.
# From ce and $I\gamma$ data of 1987Ge01. Normalization of the corresponding intensity scales is based on assumption of E2 multipolarity for 76.5γ, 176.6γ, and 272.9γ.
@ From 1981Gr01 using a normalization factor of 0.117 for $I\gamma$.
& $E\gamma$=5488.28 given by 1987Ge01 is probably a typographical error.
a Uncertain γ ray.
b Intensity per 100 neutron captures.
c Multiply placed with undivided intensity.
d Multiply placed with intensity suitably divided.
e Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01

Level Scheme

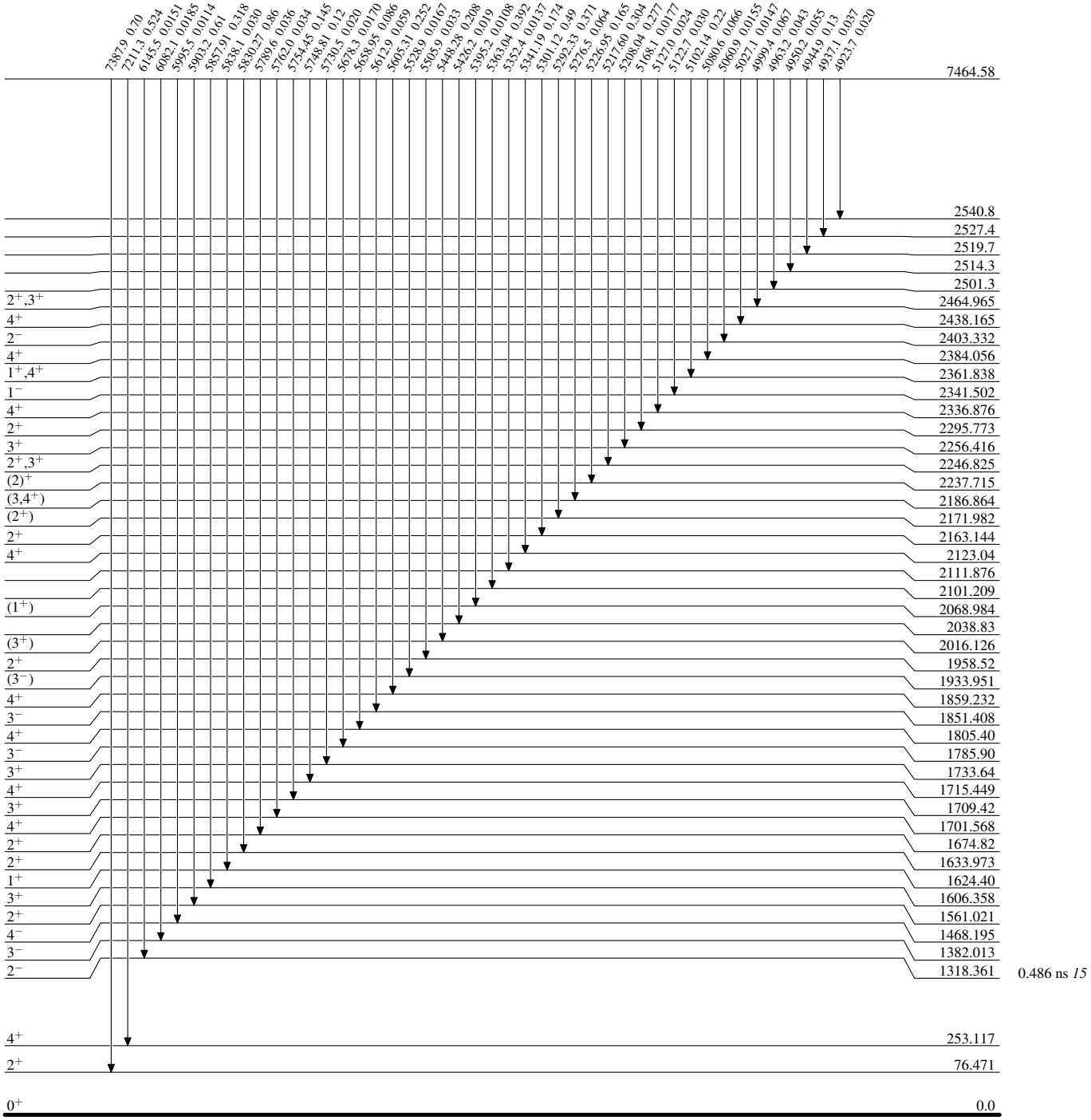
Intensities: I(γ+ce) per 100 neutrons captured

Legend

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

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

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



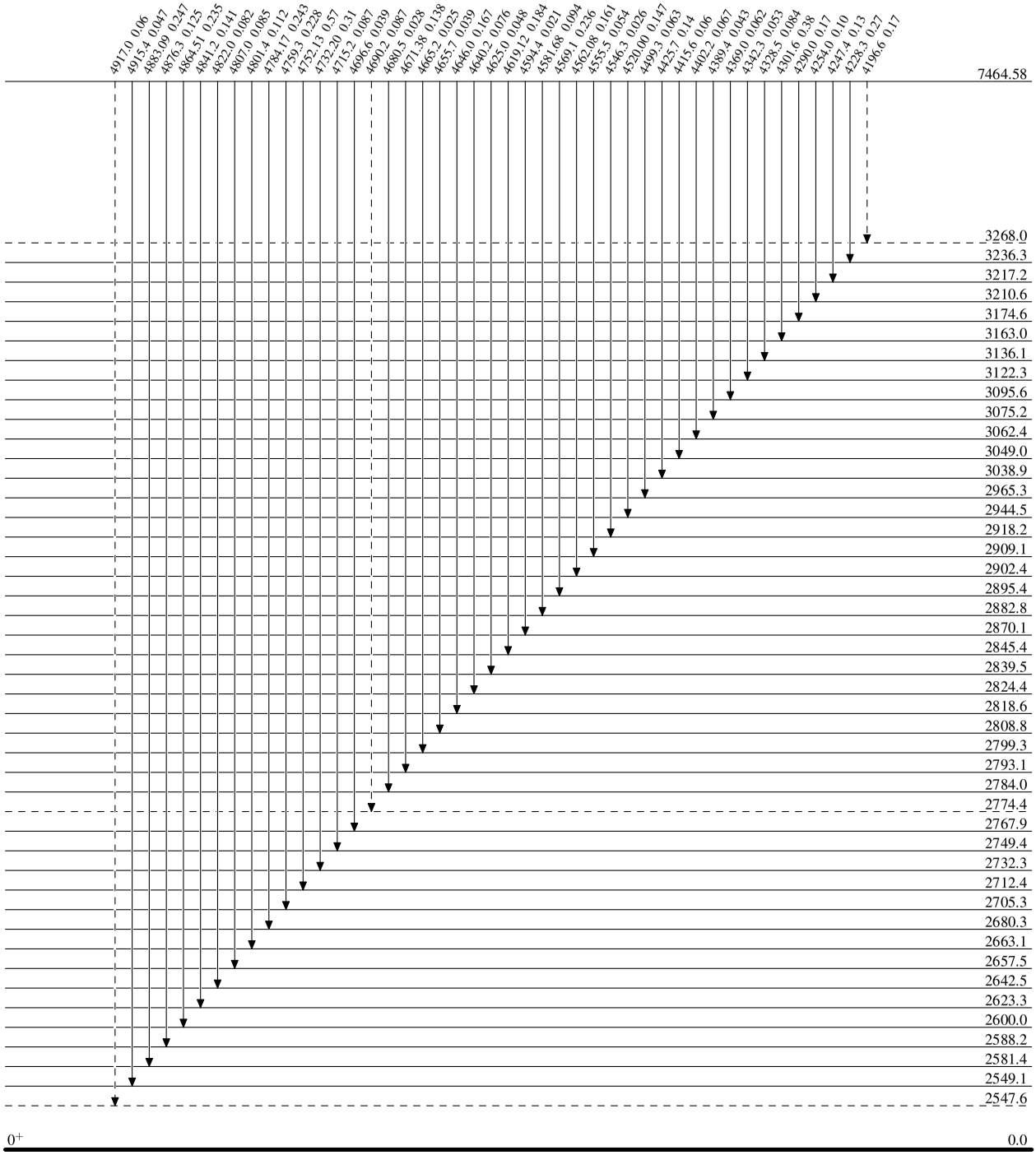
$^{174}_{70}Yb_{104}$

^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01

Level Scheme (continued)

Intensities: I(γ+ce) per 100 neutrons captured

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)



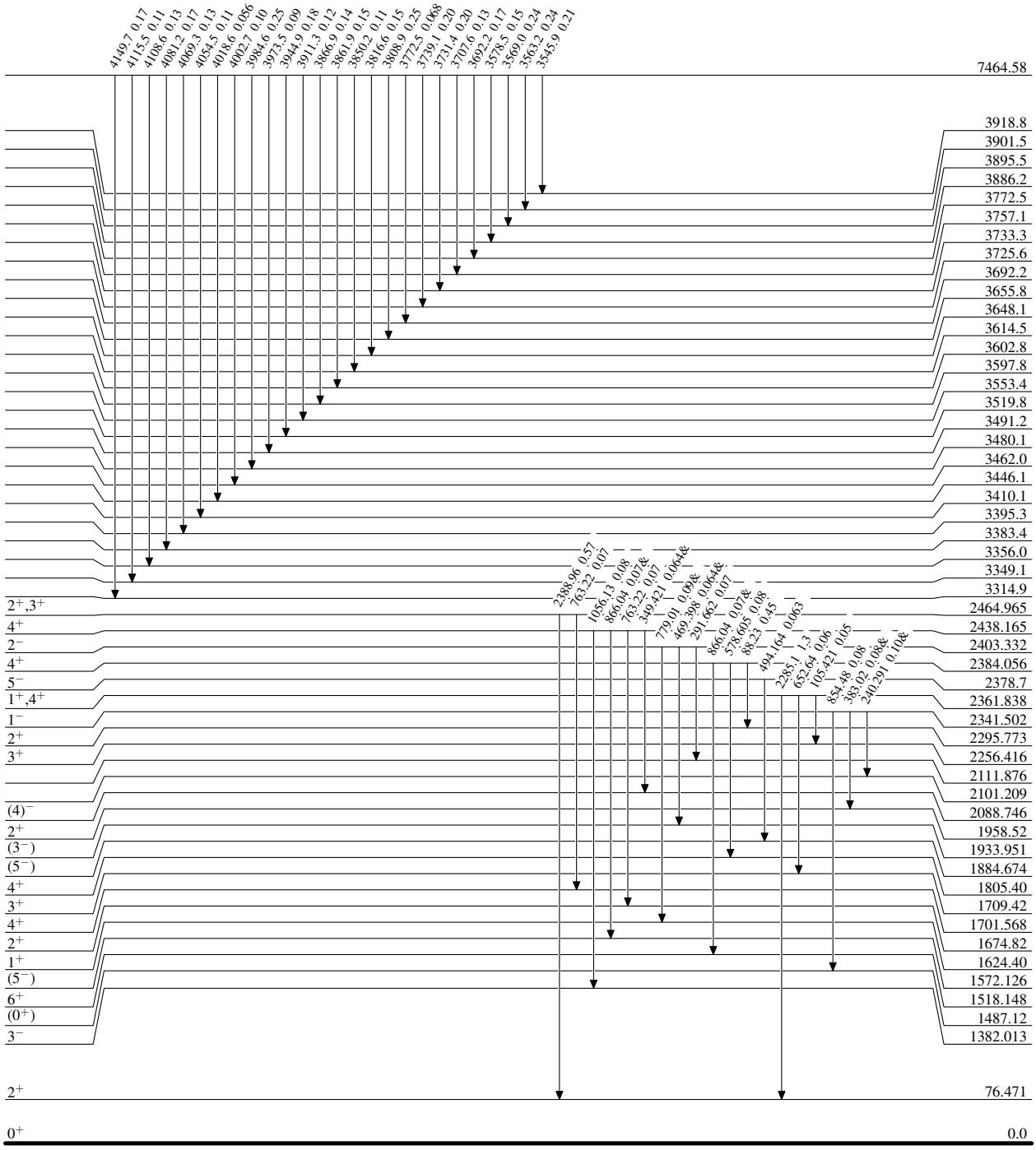
$^{174}_{70}Yb_{104}$

^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01

Level Scheme (continued)

Intensities: I(γ+ce) per 100 neutrons captured
& Multiply placed: undivided intensity given

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



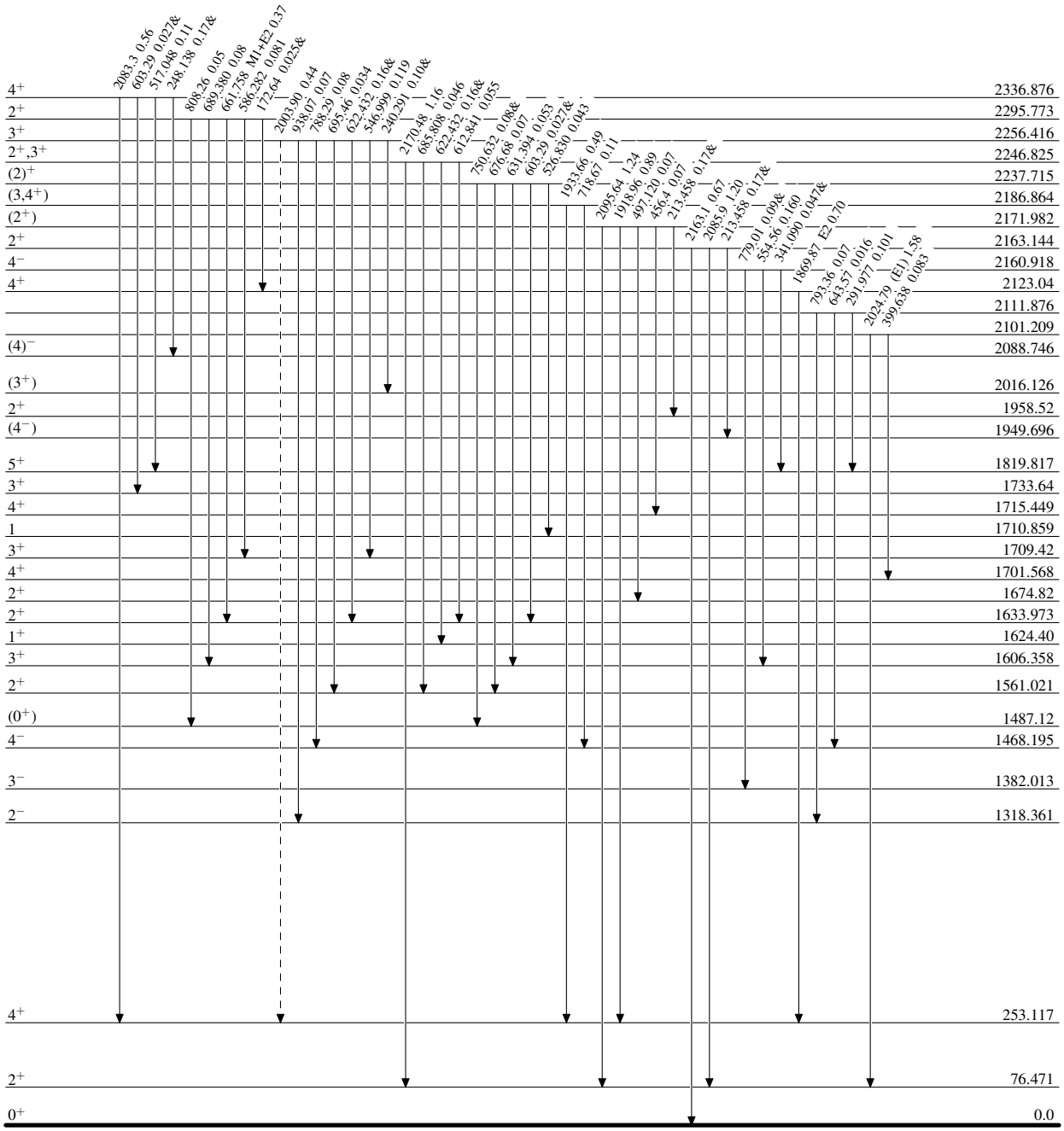
$^{174}_{70}Yb_{104}$

^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01

Level Scheme (continued)

Intensities: I(γ+ce) per 100 neutrons captured
& 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)



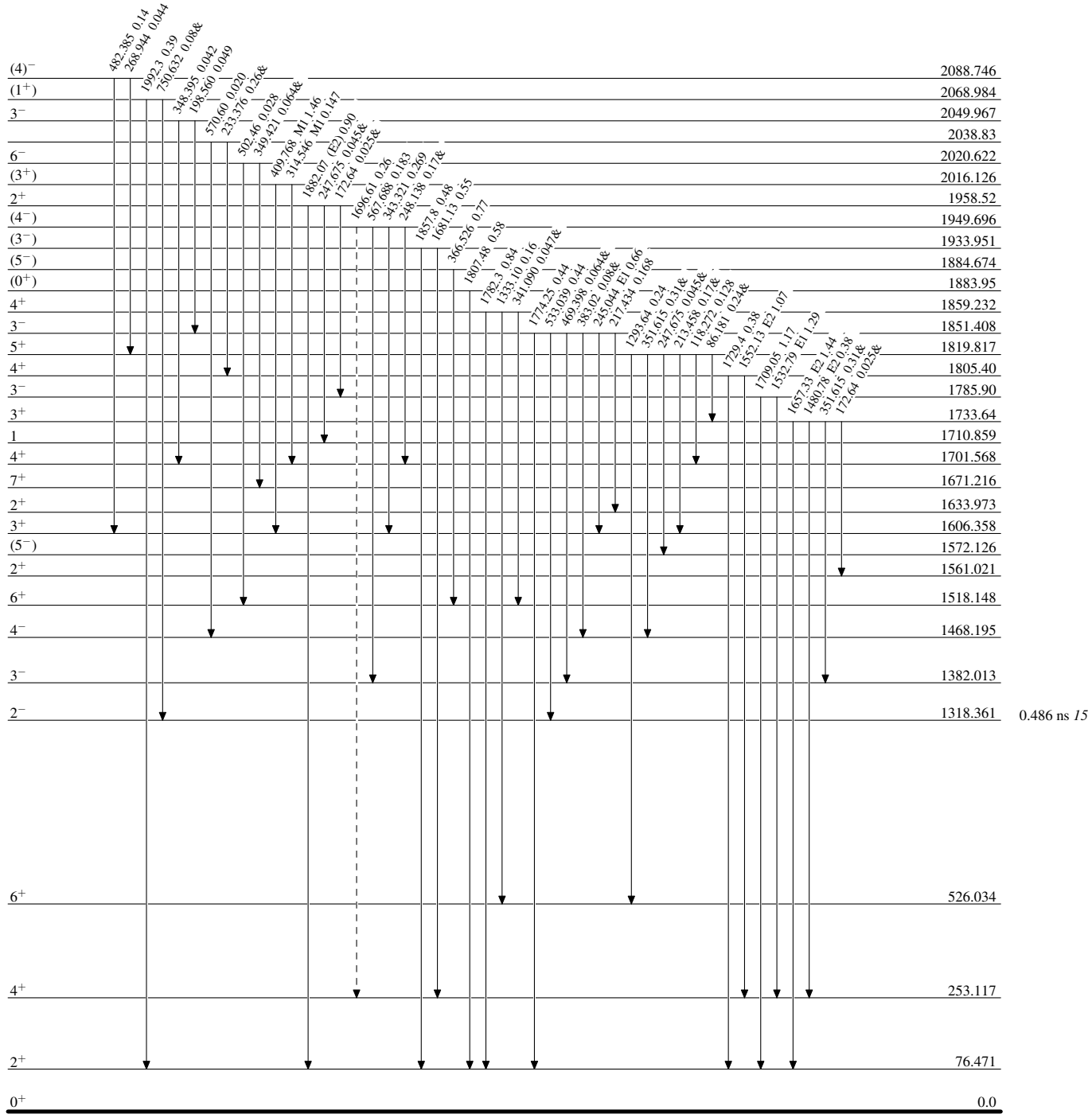
$^{174}_{70}Yb_{104}$

^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01

Level Scheme (continued)

Intensities: I(γ+ce) per 100 neutrons captured
& 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)



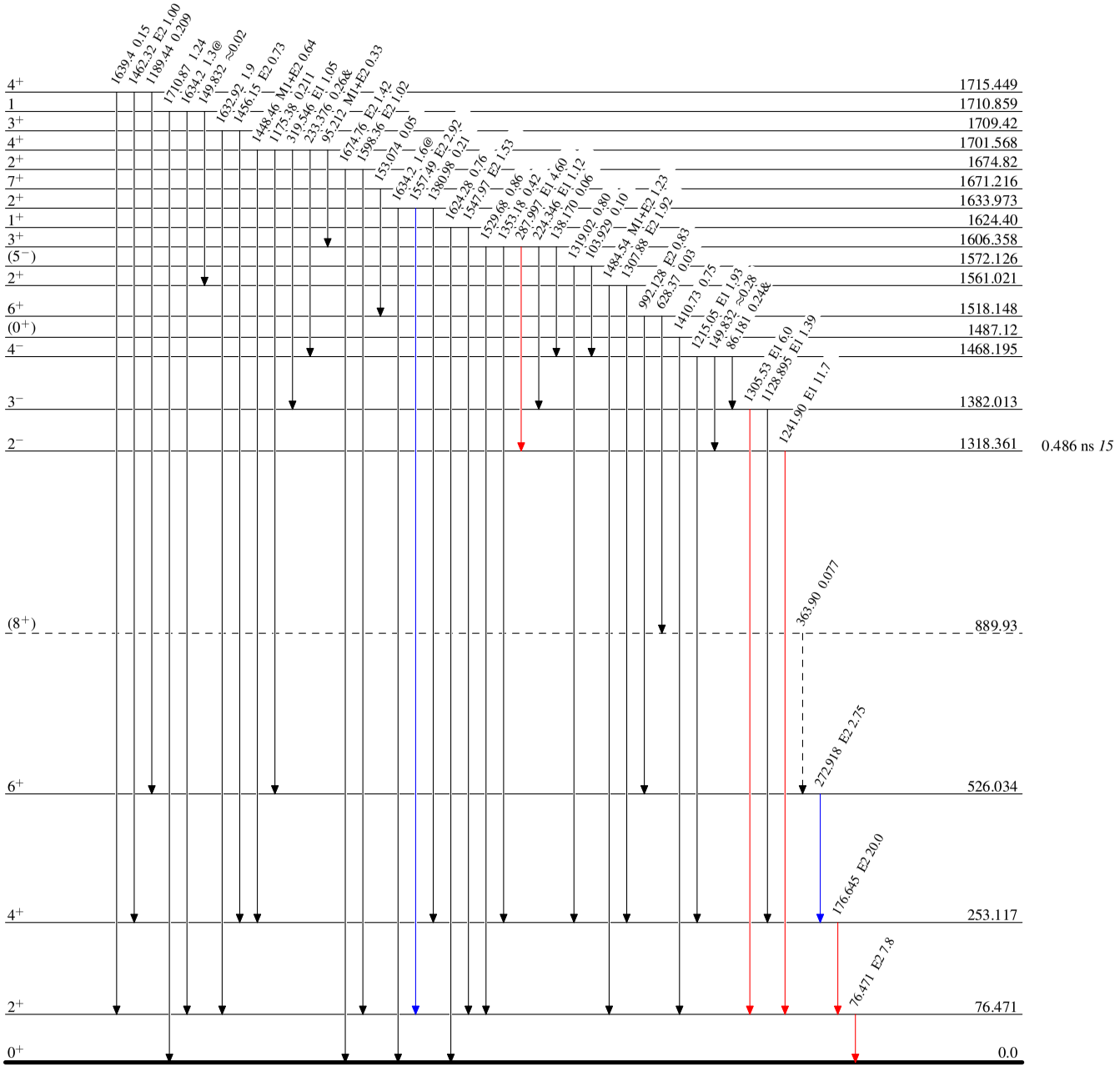
$^{174}_{70}Yb_{104}$

^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01

Level Scheme (continued)

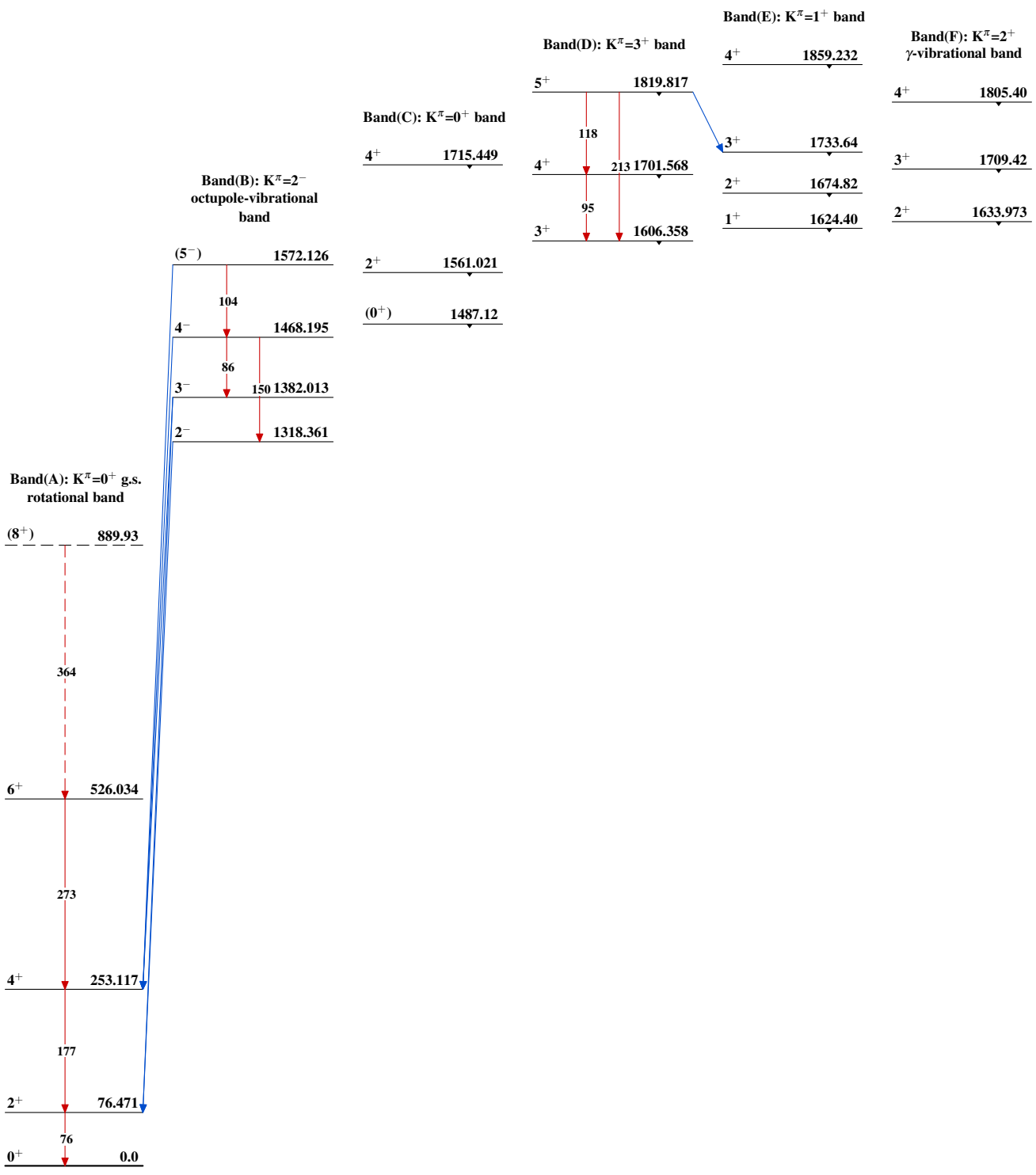
Intensities: I(γ+ce) per 100 neutrons captured
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

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)



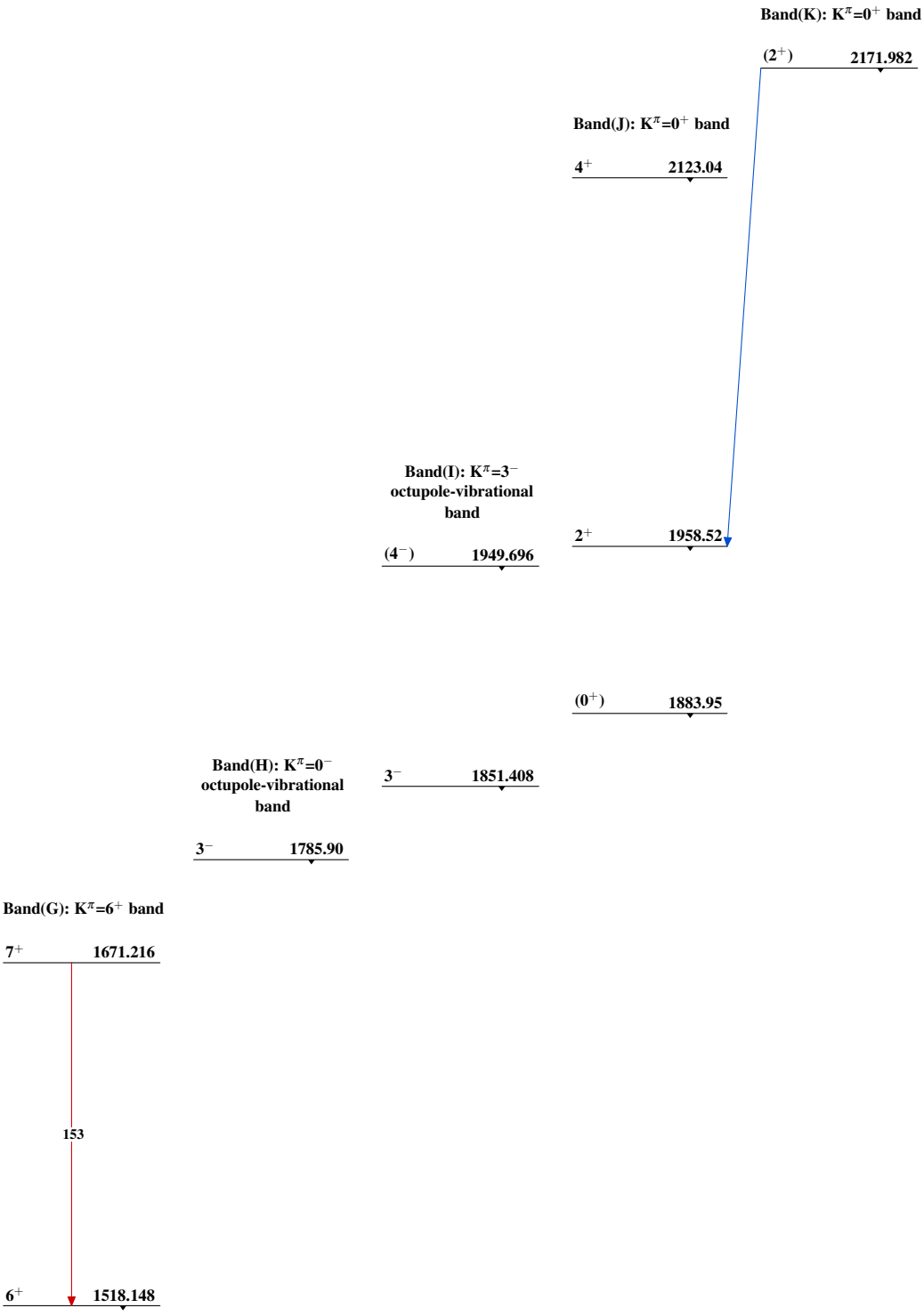
$^{174}_{70}Yb_{104}$

^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01



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

^{173}Yb(n,γ) E=thermal 1987Ge01,1981Gr01 (continued)



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