Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	N. Nica and M. Bostan	NDS 110,2815 (2009)	30-Sep-2009

Q(β^-)=−2473 *7*; S(n)=9760 *20*; S(p)=4385 *8*; Q(α)=−4143 *5* 2012Wa38
Note: Current evaluation has used the following Q record −2472 7 *9759* 19 *4384* 8 −4142 5 2009AuZZ.
Values in 2003Au03 are: Q(β^-)=−2670 *220* (syst), S(n)=9900 *100*, S(p)=4650 *90*, Q(α)=−4410 *90*.
^{84}Y evaluated by N. Nica and M. Bostan.

Mass measurement: 2008We10 (Penning-trap method: JYFL and SHIPTRAP) for mixed ^{84}Y g.s. and isomer.
Mass re-evaluation: 2007Ke09.
Theory: 1993Be30, 1987Fr14 (cranking model).

^{84}Y Levels

Cross Reference (XREF) Flags

- A ^{84}Zr ε decay
- B ^{58}Ni(^{29}Si,3pγ):SD
- C ^{59}Co(^{28}Si,2pnγ)
- D ^{84}Sr(p,nγ)

E(level)†	J$^\pi$‡	T$_{1/2}$#	XREF	Comments
0.0@ b	(6$^+$)	39.5 min *8*	A CD	%ε+%β^+=100 J$^\pi$: 4,5,6 from log *ft*=6.3 to 6$^+$, 2808 in ^{84}Sr daughter (^{84}Y ε decay (39.5 min)); (6$^+$) based on identification of γ-vibrational band up to (7$^+$) in ^{84}Sr daughter (^{84}Zr ε decay, 2000Do10). T$_{1/2}$: weighted average from 43 min *2* (1962Ya02), 39 min *2* (1962Ma44), 38.5 min *20* (1971Do01), 40 min *4* (1976Ia01), and 39 min *1* (1981DeZD).
16.8e *10*	(4$^-$)		C	T$_{1/2}$: >2.2 ms from RUL with α(M2)=525, if the level decays only to g.s.
67.0@ *2*	1$^+$	4.6 s *2*	A D	%ε+%β^+=100 Additional information 1. J$^\pi$: log *ft*=4.5 to 0$^+$, g.s., and log *ft*=4.5 to 2$^+$, 793, in ^{84}Sr daughter (^{84}Y ε decay (4.6 s)). T$_{1/2}$: from 1976Ia01.
112.40 *15*	(4$^+$)	79& ns *2*	A D	g=+0.578 *7* (2005Io02) J$^\pi$: ΔJ=0 γ from (4$^-$), 210 keV; π=(+) from E2 γ to (6$^+$), g.s. Possible configuration=π1g$_{9/2}\otimes\nu$1g$_{9/2}$.
130.4 *3*	(2$^-$)		D	J$^\pi$: E2 γ from (4$^-$), 210 keV; (E1) γ to 1$^+$, 67 keV.
148.66 *17*	(5$^+$)		D	J$^\pi$: (E1) γ from (4$^-$), 210 keV and (D(+Q)) γ to (6$^+$), g.s.
156.70b *9*	(8$^+$)	14.6 ns *7*	C	
157.36 *19*			A	J$^\pi$: (3$^+$) from 2000Do10 is not adopted (no arguments).
162.88 *10*	(5$^-$)	32 ns *4*	C	
198.53 *17*			A	J$^\pi$: (2$^+$) from 2000Do10 is not adopted (no arguments).
210.42 *16*	(4$^-$)	292& ns *10*	D	g=+0.234 *6* (2005Io02) J$^\pi$: 0 to 4 from E2 and D γ cascade to 1$^+$, 67 keV; 4 to 8 from D plus D γ cascade to (6$^+$) g.s.. π=(−) from (E1) γ to (4$^+$), 112 keV. Configuration=π3/2[301]$\otimes\nu$5/2[422].
216.11d *9*	(5$^-$)	18.7 ns *21*	C	
419.79e *13*	(6$^-$)	17 ps *4*	C	
564.70 *15*	(6$^-$)		C	
668.81c *12*	(9$^+$)		C	

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Adopted Levels, Gammas (continued)

^{84}Y Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	XREF	Comments
743.98[d] *11*	(7⁻)		C	
936.22 *12*	(7⁻)		C	
1070.62[b] *12*	(10⁺)	1.7 ps *3*	C	
1211.61[e] *14*	(8⁻)	1.4 ps *6*	C	
1591.59[d] *12*	(9⁻)	1.3 ps *6*	C	
1603.21[c] *13*	(11⁺)	0.42 ps *11*	C	
1644.13 *13*	(9⁻)	2.5 ps *7*	C	
2076.75 *14*	(10⁻)		C	
2123.15 *16*	(10⁻)		C	
2132.72[e] *13*	(10⁻)	1.0 ps *4*	C	
2196.36[b] *17*	(12⁺)	0.31 ps *9*	C	
2244.74 *15*	(10⁻)	1.8 ps *8*	C	
2285.26 *15*	(11⁻)		C	
2528.98[d] *13*	(11⁻)	1.7 ps *6*	C	
2608.17 *17*	(11⁻)		C	
2741.15[c] *18*	(13⁺)	0.25 ps *8*	C	
2888.55[e] *13*	(12⁻)	1.4 ps *3*	C	
3222.33 *15*	(13⁻)		C	
3400.8[d] *4*	(13⁻)	0.62 ps *24*	C	
3502.59[b] *21*	(14⁺)	0.17 ps *4*	C	
3592.7 *4*	(13⁻)		C	
3872.3[e] *4*	(14⁻)	0.19 ps *7*	C	
3903.4 *4*	(14)		C	
4019.61[c] *23*	(15⁺)	0.15 ps *4*	C	
4024.4 *12*	(14⁻)		C	
4235.4 *10*	(15⁻)		C	
4500.4[d] *5*	(15⁻)	0.55 ps *21*	C	
4746.7 *11*	(15⁻)		C	
4969.4[b] *3*	(16⁺)	0.11 ps *3*	C	
5005.4[e] *7*	(16⁻)	0.14 ps *5*	C	
5445.4[c] *3*	(17⁺)	0.12 ps *3*	C	
5700.4[d] *12*	(17⁻)	0.52 ps *19*	C	
6281.4[e] *14*	(18⁻)	0.17[a] ps *6*	C	
6591.4[b] *7*	(18⁺)	0.10[a] ps *3*	C	
7001.4[c] *8*	(19⁺)	0.09 ps *3*	C	
7096.4[d] *20*	(19⁻)		C	
7717.4[e] *17*	(20⁻)		C	
8330.5[b] *14*	(20⁺)		C	
8632.5[c] *12*	(21⁺)	0.12[a] ps *4*	C	
10120[b]	(22⁺)		C	
10329.5[c] *24*	(23⁺)		C	
12080[c] *5*	(25⁺)		C	
13890[c]	(27⁺)		C	
15770[c]	(29⁺)		C	
17800[c]	(31⁺)		C	
z[f]	J≈(17)		B	Additional information 2.
1460.0+z[f] *10*	J+2		B	
3068.0+z[f] *15*	J+4		B	
4831.1+z[f] *18*	J+6		B	

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Adopted Levels, Gammas (continued)

^{84}Y Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
6743.1+z[f] *20*	J+8	B	
8802.1+z[f] *23*	J+10	B	
11010.1+z[f] *25*	J+12	B	
13364+z[f] *3*	J+14	B	
15870+z[f] *3*	J+16	B	
u[g]	J1≈(19)	B	Additional information 3.
1810.0+u[g] *10*	J1+2	B	
3769.0+u[g] *15*	J1+4	B	
5880.1+u[g] *18*	J1+6	B	
8144.1+u[g] *20*	J1+8	B	
10556.1+u[g] *23*	J1+10	B	
13118.2+u[g] *25*	J1+12	B	
v[h]	J2≈(19)	B	Additional information 4.
1880.0+v[h] *10*	J2+2	B	
3918.0+v[h] *15*	J2+4	B	
6115.1+v[h] *18*	J2+6	B	
8465.1+v[h] *20*	J2+8	B	
10973.2+v[h] *23*	J2+10	B	

[†] From least squares fit to Eγ (ΔEγ=1 keV was assumed when not known).

[‡] J^{π} are based on γ-ray multipolarities and band structures for levels from ^{59}Co(^{28}Si,2pnγ). For SD bands (^{58}Ni(^{29}Si,3pγ):SD), estimated spins are from observed feeding into known spin levels in the normal-deformed region, checked by a fitting of measured dynamic moments of inertia as a function of rotational frequencies. For levels from ^{84}Zr ε decay and ^{84}Sr(p,nγ), see comments in levels table.

[#] From ^{59}Co(^{28}Si,2pnγ), unless indicated otherwise.

[@] The ordering of the (6^+) and 1^+ states adopted here was proposed independently by 2000Do10 (^{84}Zr ε decay dataset) and by 2005Io02 (^{84}Sr(p,nγ) dataset) (except for the 112γ, the reactions and details of the level schemes are different). This supersedes the reversed ordering, with the 1^+ as g.s., and with (5^-) (instead of (6^+)) for the 39.5-min activity, adopted previously (1997Tu02 and references therein).

[&] From ^{84}Sr(p,nγ) (2005Io02, γγ(t)).

[a] Upper limit, deduced from line shape in ^{59}Co(^{28}Si,2pnγ).

[b] Band(A): (π,α)=(+,0). Expected configuration=((π $1g_{9/2}$)(ν $1g_{9/2}$)).

[c] Band(B): (π,α)=(+,1).

[d] Band(C): (π,α)=(-,1).

[e] Band(D): (π,α)=(-,0).

[f] Band(E): SD-1 band (2003Le08). Percent population=3.02. Q(transition)=3.6 *+5−9* (2003Le08). Configuration=$\nu 5^1 \pi 5^0$; non-intruder orbitals: π($f_{5/2}$,$p_{3/2}$(1/2[310])). This band is isospectral with SD band in ^{83}Sr.

[g] Band(F): SD-2 band (2003Le08). Percent population=2.72.

[h] Band(G): SD-3 band (2003Le08). Percent population=0.76.

Adopted Levels, Gammas (continued)

$\gamma(^{84}Y)$

For unplaced γ's see ^{84}Zr ε decay and ^{84}Sr(p,nγ) datasets.

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[‡]	α[†]	Comments
112.40	(4$^+$)	112.4 *2*	100	0.0	(6$^+$)	E2[#]	0.694	α(K)=0.583 *9*; α(L)=0.0929 *15*; α(M)=0.0160 *3*; α(N+..)=0.00208 *4* α(N)=0.00200 *4*; α(O)=8.80×10^{-5} *14* B(E2)(W.u.)=10.8 *3*
130.4	(2$^-$)	63.4 *2*	100	67.0	1$^+$	(E1)[#]	0.407 *7*	α(K)=0.358 *6*; α(L)=0.0410 *7*; α(M)=0.00693 *12*; α(N+..)=0.000955 *16* α(N)=0.000901 *16*; α(O)=5.39×10^{-5} *9*
148.66	(5$^+$)	148.6 *2*	100	0.0	(6$^+$)	(M1(+E2))[#]	0.16 *10*	α(K)=0.13 *8*; α(L)=0.018 *13*; α(M)=0.0031 *21*; α(N+..)=0.0004 *3* α(N)=0.0004 *3*; α(O)=2.2×10^{-5} *12*
156.70	(8$^+$)	156.7 *1*	100	0.0	(6$^+$)	E2	0.206	α(K)=0.177 *3*; α(L)=0.0247 *4*; α(M)=0.00423 *6*; α(N+..)=0.000568 *8* α(N)=0.000540 *8*; α(O)=2.77×10^{-5} *4* B(E2)(W.u.)=15.6 *8*
157.36		44.9 *2*	100	112.40	(4$^+$)			
162.88	(5$^-$)	162.9 *1*	100	0.0	(6$^+$)	(E1)	0.0257	B(E1)(W.u.)=2.5×10^{-6} *4* α(K)=0.0227 *4*; α(L)=0.00251 *4*; α(M)=0.000427 *6*; α(N+..)=6.04×10^{-5} *9* α(N)=5.67×10^{-5} *8*; α(O)=3.72×10^{-6} *6*
198.53		41.1 *2*	100 *11*	157.36				
		131.6 *2*	76 *11*	67.0	1$^+$			
210.42	(4$^-$)	61.7 *2*	42 *4*	148.66	(5$^+$)	(E1)[#]	0.440 *8*	α(K)=0.387 *7*; α(L)=0.0444 *8*; α(M)=0.00750 *13*; α(N+..)=0.001034 *18* α(N)=0.000976 *17*; α(O)=5.81×10^{-5} *10* B(E1)(W.u.)=1.16×10^{-6} *14*
		80.0 *2*	4.0 *6*	130.4	(2$^-$)	E2[#]	2.40	α(K)=1.95 *4*; α(L)=0.380 *7*; α(M)=0.0655 *12*; α(N+..)=0.00828 *15* α(N)=0.00800 *14*; α(O)=0.000280 *5* B(E2)(W.u.)=0.58 *10*
		98.1 *2*	100 *9*	112.40	(4$^+$)	(E1)[#]	0.1137	α(K)=0.1003 *16*; α(L)=0.01123 *18*; α(M)=0.00190 *3*; α(N+..)=0.000266 *4* α(N)=0.000251 *4*; α(O)=1.580×10^{-5} *24* B(E1)(W.u.)=6.9×10^{-7} *8*
216.11	(5$^-$)	216.1 *1*	100	0.0	(6$^+$)	(E1)	0.01139	α(K)=0.01007 *15*; α(L)=0.001108 *16*; α(M)=0.000189 *3*; α(N+..)=2.68×10^{-5} *4* α(N)=2.51×10^{-5} *4*; α(O)=1.677×10^{-6} *24* B(E1)(W.u.)=1.85×10^{-6} *21*
419.79	(6$^-$)	203.7 *2*	100 *6*	216.11	(5$^-$)	(M1+E2)	0.05 *3*	α(K)=0.046 *23*; α(L)=0.006 *4*; α(M)=0.0010 *6*; α(N+..)=0.00014 *8* α(N)=0.00013 *7*; α(O)=8.E−6 *4*
		403 *1*	17 *6*	16.8	(4$^-$)			
		419.7 *3*	17 *4*	0.0	(6$^+$)			
564.70	(6$^-$)	145.0 *2*	<50	419.79	(6$^-$)			
		348.5 *2*	100 *20*	216.11	(5$^-$)	(M1+E2)	0.010 *3*	α(K)=0.0084 *24*; α(L)=0.0010 *3*; α(M)=0.00017 *6*; α(N+..)=2.4×10^{-5} *7* α(N)=2.2×10^{-5} *7*; α(O)=1.4×10^{-6} *4*

$^{84}_{39}Y_{45}$-4

Adopted Levels, Gammas (continued)

γ(^{84}Y) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.‡	δ	α†	Comments
668.81	(9$^+$)	512.1 *1*	100	156.70	(8$^+$)	(M1+E2)		0.0032 *5*	α(K)=0.0028 *4*; α(L)=0.00032 *6*; α(M)=5.4×10^{-5} *9*; α(N+..)=7.7×10^{-6} *12* α(N)=7.3×10^{-6} *12*; α(O)=4.9×10^{-7} *6*
743.98	(7$^-$)	179.3 *2*	21 *6*	564.70	(6$^-$)	(M1+E2)		0.08 *5*	α(K)=0.07 *4*; α(L)=0.009 *6*; α(M)=0.0016 *10*; α(N+..)=0.00022 *13* α(N)=0.00020 *12*; α(O)=1.2×10^{-5} *6*
		324.1 *2*	79 *12*	419.79	(6$^-$)	(M1+E2)		0.012 *4*	α(K)=0.011 *4*; α(L)=0.0012 *5*; α(M)=0.00021 *8*; α(N+..)=3.0×10^{-5} *10* α(N)=2.8×10^{-5} *10*; α(O)=1.8×10^{-6} *5*
		527.9 *2*	43 *6*	216.11	(5$^-$)	E2		0.00334 *5*	α(K)=0.00294 *5*; α(L)=0.000337 *5*; α(M)=5.75×10^{-5} *8*; α(N+..)=8.15×10^{-6} *12* α(N)=7.65×10^{-6} *11*; α(O)=5.04×10^{-7} *7*
		581.2 *2*	1.0×10^2 *3*	162.88	(5$^-$)	E2		0.00253 *4*	α(K)=0.00222 *4*; α(L)=0.000253 *4*; α(M)=4.32×10^{-5} *6*; α(N+..)=6.14×10^{-6} *9* α(N)=5.75×10^{-6} *8*; α(O)=3.83×10^{-7} *6*
		744.1 *5*	<14	0.0	(6$^+$)	(E1)			
936.22	(7$^-$)	720.1 *1*	100 *20*	216.11	(5$^-$)	E2			
		936 *1*	10 *5*	0.0	(6$^+$)				
1070.62	(10$^+$)	401.8 *1*	8.6 *15*	668.81	(9$^+$)	(M1+E2)	−0.11 *4*	0.00491 *8*	α(K)=0.00433 *7*; α(L)=0.000481 *8*; α(M)=8.22×10^{-5} *13*; α(N+..)=1.183×10^{-5} *19* α(N)=1.106×10^{-5} *17*; α(O)=7.70×10^{-7} *12* B(M1)(W.u.)=(0.016 *4*); B(E2)(W.u.)=(1.4 *11*)
		913.9 *1*	100 *3*	156.70	(8$^+$)	E2			B(E2)(W.u.)=22 *4*
1211.61	(8$^-$)	275 *1*	<25	936.22	(7$^-$)				
		467.7 *2*	75 *13*	743.98	(7$^-$)	(M1+E2)		0.0041 *8*	α(K)=0.0036 *7*; α(L)=0.00041 *8*; α(M)=7.0×10^{-5} *14*; α(N+..)=1.00×10^{-5} *19* α(N)=9.3×10^{-6} *18*; α(O)=6.3×10^{-7} *10*
		791.8 *2*	100 *25*	419.79	(6$^-$)	E2			B(E2)(W.u.)=32 *17*
1591.59	(9$^-$)	380.0 *2*	6.0 *15*	1211.61	(8$^-$)				
		847.6 *1*	100 *10*	743.98	(7$^-$)	E2			B(E2)(W.u.)=35 *17*
		922.7 *4*	<5	668.81	(9$^+$)				
		1435.0 *5*	20.0 *25*	156.70	(8$^+$)	(E1)			B(E1)(W.u.)=1.4×10^{-5} *7*
1603.21	(11$^+$)	532.6 *1*	100 *4*	1070.62	(10$^+$)	(M1+E2)	−0.13 *5*	0.00251 *4*	α(K)=0.00222 *4*; α(L)=0.000245 *4*; α(M)=4.18×10^{-5} *7*; α(N+..)=6.02×10^{-6} *9* α(N)=5.63×10^{-6} *9*; α(O)=3.94×10^{-7} *6* B(M1)(W.u.)=(0.28 *8*); B(E2)(W.u.)=(19 *16*)
		934.4 *1*	24 *4*	668.81	(9$^+$)	E2			B(E2)(W.u.)=17 *6*
1644.13	(9$^-$)	707.9 *1*	100	936.22	(7$^-$)	E2			B(E2)(W.u.)=58 *17*
2076.75	(10$^-$)	432.6 *1*	100 *17*	1644.13	(9$^-$)	(M1+E2)		0.0051 *11*	α(K)=0.0045 *9*; α(L)=0.00051 *12*; α(M)=8.8×10^{-5} *20*; α(N+..)=1.2×10^{-5} *3* α(N)=1.2×10^{-5} *3*; α(O)=7.8×10^{-7} *14*

$^{84}_{39}Y_{45}$-5

Adopted Levels, Gammas (continued)

$\gamma(^{84}Y)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.‡	δ	α†	Comments
2076.75	(10$^-$)	865 *1*	<17	1211.61	(8$^-$)				
2123.15	(10$^-$)	479.0 *2*	100	1644.13	(9$^-$)	(M1+E2)		0.0038 *7*	α(K)=0.0034 *6*; α(L)=0.00038 *7*; α(M)=6.5×10^{-5} *12*; α(N+..)=9.3×10^{-6} *17* α(N)=8.7×10^{-6} *16*; α(O)=5.9×10^{-7} *9*
2132.72	(10$^-$)	541.1 *3*	75 *17*	1591.59	(9$^-$)				
		921.1 *1*	100 *17*	1211.61	(8$^-$)	(E2)			B(E2)(W.u.)=22 *11*
2196.36	(12$^+$)	593.2 *2*	17 *3*	1603.21	(11$^+$)	E2		0.00238 *4*	B(E2)(W.u.)=1.7×10^2 *6* α(K)=0.00210 *3*; α(L)=0.000238 *4*; α(M)=4.07×10^{-5} *6*; α(N+..)=5.78×10^{-6} *9* α(N)=5.42×10^{-6} *8*; α(O)=3.61×10^{-7} *5*
		1125.7 *2*	100 *6*	1070.62	(10$^+$)	E2			B(E2)(W.u.)=39 *12*
2244.74	(10$^-$)	168.0 *1*	40 *10*	2076.75	(10$^-$)	(M1+E2)		0.10 *6*	α(K)=0.09 *5*; α(L)=0.012 *8*; α(M)=0.0020 *13*; α(N+..)=0.00027 *17* α(N)=0.00026 *16*; α(O)=1.4×10^{-5} *8*
		1174.1 *5*	40 *10*	1070.62	(10$^+$)	(E1)			B(E1)(W.u.)=2.6×10^{-5} *14*
		1576.2 *5*	100 *12*	668.81	(9$^+$)	(E1)			B(E1)(W.u.)=2.7×10^{-5} *13*
2285.26	(11$^-$)	162.1 *1*	100	2123.15	(10$^-$)	(M1+E2)		0.12 *7*	α(K)=0.10 *6*; α(L)=0.013 *9*; α(M)=0.0023 *15*; α(N+..)=0.00031 *19* α(N)=0.00029 *18*; α(O)=1.6×10^{-5} *9*
2528.98	(11$^-$)	396.4 *2*	9.1 *19*	2132.72	(10$^-$)	(M1+E2)		0.0066 *16*	α(K)=0.0058 *14*; α(L)=0.00066 *18*; α(M)=0.00011 *3*; α(N+..)=1.6×10^{-5} *4* α(N)=1.5×10^{-5} *4*; α(O)=1.00×10^{-6} *21*
		925.8 *4*	<4.5	1603.21	(11$^+$)	(E1)			B(E1)(W.u.)=4.E−6 *+5−4*
		937.4 *1*	100 *9*	1591.59	(9$^-$)	E2			B(E2)(W.u.)=15 *6*
		1458.2 *3*	32 *3*	1070.62	(10$^+$)	(E1)			B(E1)(W.u.)=1.5×10^{-5} *6*
2608.17	(11$^-$)	363.5 *2*	100 *20*	2244.74	(10$^-$)				
		964.5 *5*	40 *20*	1644.13	(9$^-$)	E2			
2741.15	(13$^+$)	544.8 *1*	100 *8*	2196.36	(12$^+$)	(M1+E2)	−0.15 *5*	0.00239 *4*	α(K)=0.00211 *4*; α(L)=0.000232 *4*; α(M)=3.97×10^{-5} *6*; α(N+..)=5.72×10^{-6} *9* α(N)=5.34×10^{-6} *8*; α(O)=3.74×10^{-7} *6* B(M1)(W.u.)=(0.27 *9*); B(E2)(W.u.)=(24 *18*)
		1137.9 *2*	100 *8*	1603.21	(11$^+$)	E2			B(E2)(W.u.)=27 *9*
2888.55	(12$^-$)	280.5 *2*	13 *5*	2608.17	(11$^-$)				
		359.6 *1*	100 *17*	2528.98	(11$^-$)	(M1+E2)		0.0088 *24*	α(K)=0.0077 *21*; α(L)=0.0009 *3*; α(M)=0.00015 *5*; α(N+..)=2.2×10^{-5} *7* α(N)=2.0×10^{-5} *6*; α(O)=1.3×10^{-6} *4*
		603.3 *1*	16.7 *25*	2285.26	(11$^-$)	(M1+E2)		0.00207 *20*	α(K)=0.00183 *18*; α(L)=0.000204 *23*; α(M)=3.5×10^{-5} *4*; α(N+..)=5.0×10^{-6} *6* α(N)=4.7×10^{-6} *5*; α(O)=3.2×10^{-7} *3*
		643.8 *2*	54 *13*	2244.74	(10$^-$)	E2			B(E2)(W.u.)=27 *9*
		692 *1*	<8.3	2196.36	(12$^+$)				

$^{84}_{39}Y_{45}$-6

Adopted Levels, Gammas (continued)

γ(^{84}Y) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.‡	δ	α†	Comments
2888.55	(12⁻)	755.8 *1*	83 *9*	2132.72	(10⁻)	E2			B(E2)(W.u.)=18 *5*
		811.7 *2*	33 *9*	2076.75	(10⁻)	E2			B(E2)(W.u.)=5.1 *19*
		1285.4 *7*	33 *5*	1603.21	(11⁺)	(E1)			B(E1)(W.u.)=1.2×10^{-5} *4*
3222.33	(13⁻)	333.8 *1*	100 *20*	2888.55	(12⁻)	(M1+E2)		0.011 *4*	α(K)=0.010 *3*; α(L)=0.0011 *4*; α(M)=0.00019 *7*; α(N+..)=2.7×10^{-5} *9* α(N)=2.5×10^{-5} *9*; α(O)=1.6×10^{-6} *5*
		614.2 *2*	40 *10*	2608.17	(11⁻)				
		693.3 *2*	40 *20*	2528.98	(11⁻)				
		937.0 *2*	40 *10*	2285.26	(11⁻)	E2			
3400.8	(13⁻)	512.2 *6*	100 *13*	2888.55	(12⁻)	(M1+E2)		0.0032 *5*	α(K)=0.0028 *4*; α(L)=0.00032 *6*; α(M)=5.4×10^{-5} *9*; α(N+..)=7.7×10^{-6} *12* α(N)=7.3×10^{-6} *12*; α(O)=4.9×10^{-7} *6*
		872 *1*	75 *25*	2528.98	(11⁻)	E2			B(E2)(W.u.)=36 *19*
3502.59	(14⁺)	761.4 *2*	18 *5*	2741.15	(13⁺)	(M1+E2)	−0.14 *5*		B(M1)(W.u.)=(0.044 *17*); B(E2)(W.u.)=(1.7 *14*)
		1306.2 *2*	100 *9*	2196.36	(12⁺)	E2			B(E2)(W.u.)=34 *9*
3592.7	(13⁻)	704.1 *7*	30 *10*	2888.55	(12⁻)	(M1+E2)			
		1063.8 *5*	100 *20*	2528.98	(11⁻)	E2			
3872.3	(14⁻)	471.5 *2*	100 *17*	3400.8	(13⁻)	(M1+E2)		0.0040 *7*	α(K)=0.0035 *6*; α(L)=0.00040 *8*; α(M)=6.8×10^{-5} *13*; α(N+..)=9.8×10^{-6} *18* α(N)=9.1×10^{-6} *17*; α(O)=6.1×10^{-7} *10*
		983.8 *5*	58 *25*	2888.55	(12⁻)	E2			B(E2)(W.u.)=5.E+1 *4*
3903.4	(14)	310.7 *2*	7.×10^{1} *4*	3592.7	(13⁻)				
		1014.7 *5*	1.0×10^{2} *5*	2888.55	(12⁻)				
4019.61	(15⁺)	517.0 *2*	41 *6*	3502.59	(14⁺)	(M1+E2)	−0.15 *5*	0.00270 *4*	α(K)=0.00238 *4*; α(L)=0.000263 *4*; α(M)=4.49×10^{-5} *7*; α(N+..)=6.47×10^{-6} *10* α(N)=6.05×10^{-6} *10*; α(O)=4.23×10^{-7} *7* B(M1)(W.u.)=(0.30 *10*); B(E2)(W.u.)=(30 *22*)
		1278.5 *2*	100 *12*	2741.15	(13⁺)	E2			B(E2)(W.u.)=36 *11*
4024.4	(14⁻)	802@		3222.33	(13⁻)				
		1136 *2*	100 *50*	2888.55	(12⁻)				
4235.4	(15⁻)	211		4024.4	(14⁻)				
		1013		3222.33	(13⁻)				
4500.4	(15⁻)	628.1 *3*	100 *31*	3872.3	(14⁻)	(M1+E2)			
		1099@		3400.8	(13⁻)				
4746.7	(15⁻)	1154 *1*	100	3592.7	(13⁻)				
4969.4	(16⁺)	949.9 *4*	9 *3*	4019.61	(15⁺)	(M1+E2)			
		1466.8 *2*	100 *9*	3502.59	(14⁺)	E2			B(E2)(W.u.)=32 *10*
5005.4	(16⁻)	505.0 *5*	1.0×10^{2} *3*	4500.4	(15⁻)	(M1+E2)		0.0033 *5*	α(K)=0.0029 *5*; α(L)=0.00033 *6*; α(M)=5.6×10^{-5} *10*; α(N+..)=8.1×10^{-6} *13* α(N)=7.5×10^{-6} *12*; α(O)=5.1×10^{-7} *7*

$^{84}_{39}Y_{45}$-7

Adopted Levels, Gammas (continued)

$\gamma(^{84}Y)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[‡]	α[†]	Comments
5005.4	(16$^-$)	1133 *1*	9.×10^1 *3*	3872.3	(14$^-$)	E2		B(E2)(W.u.)=5.E+1 *3*
5445.4	(17$^+$)	476.0 *2*	22 *4*	4969.4	(16$^+$)	(M1+E2)	0.0039 *7*	α(K)=0.0034 *6*; α(L)=0.00039 *8*; α(M)=6.7×10^{-5} *13*; α(N+..)=9.5×10^{-6} *17* α(N)=8.9×10^{-6} *16*; α(O)=6.0×10^{-7} *9*
		1425.8 *2*	100 *13*	4019.61	(15$^+$)	E2		B(E2)(W.u.)=30 *9*
5700.4	(17$^-$)	695 *1*	100	5005.4	(16$^-$)	(M1+E2)		
6281.4	(18$^-$)	581 *1*	8.×10^1 *3*	5700.4	(17$^-$)			
		1276 *2*	1.0×10^2 *3*	5005.4	(16$^-$)			
6591.4	(18$^+$)	1146 *1*	10 *4*	5445.4	(17$^+$)	(M1+E2)		
		1622 *1*	1.0×10^2 *4*	4969.4	(16$^+$)			
7001.4	(19$^+$)	410 *1*	10 *3*	6591.4	(18$^+$)			
		1556 *1*	100 *10*	5445.4	(17$^+$)	E2		B(E2)(W.u.)=29 *11*
7096.4	(19$^-$)	815[@]		6281.4	(18$^-$)			
7717.4	(20$^-$)	621		7096.4	(19$^-$)			
		1436		6281.4	(18$^-$)			
8330.5	(20$^+$)	1329 *2*	<17	7001.4	(19$^+$)			
		1739 *2*	1.0×10^2 *5*	6591.4	(18$^+$)			
8632.5	(21$^+$)	302 *2*	<9	8330.5	(20$^+$)			
		1631 *1*	1.0×10^2 *3*	7001.4	(19$^+$)	E2		B(E2)(W.u.)=18 *10*
10120	(22$^+$)	1790[@] *5*	100	8330.5	(20$^+$)			
10329.5	(23$^+$)	1697 *2*	100	8632.5	(21$^+$)			
12080	(25$^+$)	1751 *4*	100	10329.5	(23$^+$)			
13890	(27$^+$)	1810[@] *5*	100	12080	(25$^+$)			
15770	(29$^+$)	1880[@] *5*	100	13890	(27$^+$)			
17800	(31$^+$)	2030[@] *5*	100	15770	(29$^+$)			
1460.0+z	J+2	1460 *1*		z	J≈(17)			
3068.0+z	J+4	1608 *1*		1460.0+z	J+2			
4831.1+z	J+6	1763 *1*		3068.0+z	J+4			
6743.1+z	J+8	1912 *1*		4831.1+z	J+6			
8802.1+z	J+10	2059 *1*		6743.1+z	J+8			
11010.1+z	J+12	2208 *1*		8802.1+z	J+10			
13364+z	J+14	2354 *1*		11010.1+z	J+12			
15870+z	J+16	2506 *1*		13364+z	J+14			
1810.0+u	J1+2	1810 *1*		u	J1≈(19)			
3769.0+u	J1+4	1959 *1*		1810.0+u	J1+2			
5880.1+u	J1+6	2111 *1*		3769.0+u	J1+4			
8144.1+u	J1+8	2264 *1*		5880.1+u	J1+6			
10556.1+u	J1+10	2412 *1*		8144.1+u	J1+8			
13118.2+u	J1+12	2562 *1*		10556.1+u	J1+10			
1880.0+v	J2+2	1880 *1*		v	J2≈(19)			

$^{84}_{39}Y_{45}$-8

Adopted Levels, Gammas (continued)

$\gamma(^{84}Y)$ (continued)

E_i(level)	J_i^π	E_γ	E_f	J_f^π
3918.0+v	J2+4	2038 *I*	1880.0+v	J2+2
6115.1+v	J2+6	2197 *I*	3918.0+v	J2+4
8465.1+v	J2+8	2350 *I*	6115.1+v	J2+6
10973.2+v	J2+10	2508 *I*	8465.1+v	J2+8

† Additional information 5.
‡ From $\gamma(\theta)$, DCO ratio, level half-life and band structure in $^{59}Co(^{28}Si,2pn\gamma)$, unless stated otherwise.
# From γ-ray experimental intensity ratios in $^{84}Sr(p,n\gamma)$ (2005Io02) for groups of two-by-two coincident transitions with same I(γ+ce), compared to ratios calculated assuming either of the M1, E1, and E2 multipolarities for the two transitions (for some γ's extra arguments are given in γ table of $^{84}Sr(p,n\gamma)$ dataset).
@ Placement of transition in the level scheme is uncertain.

$^{84}_{39}Y_{45}$-9

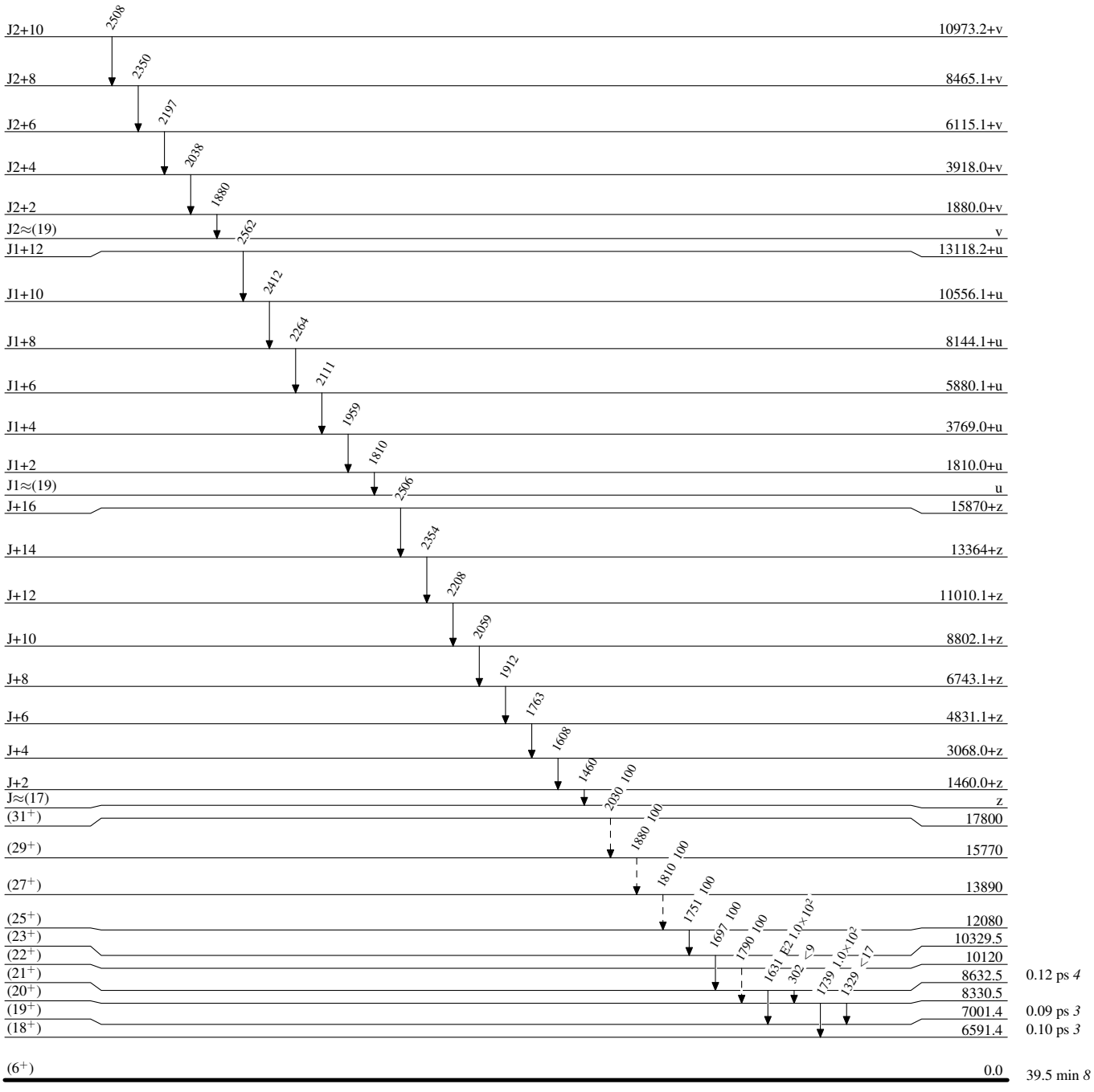
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{84}_{39}Y_{45}$

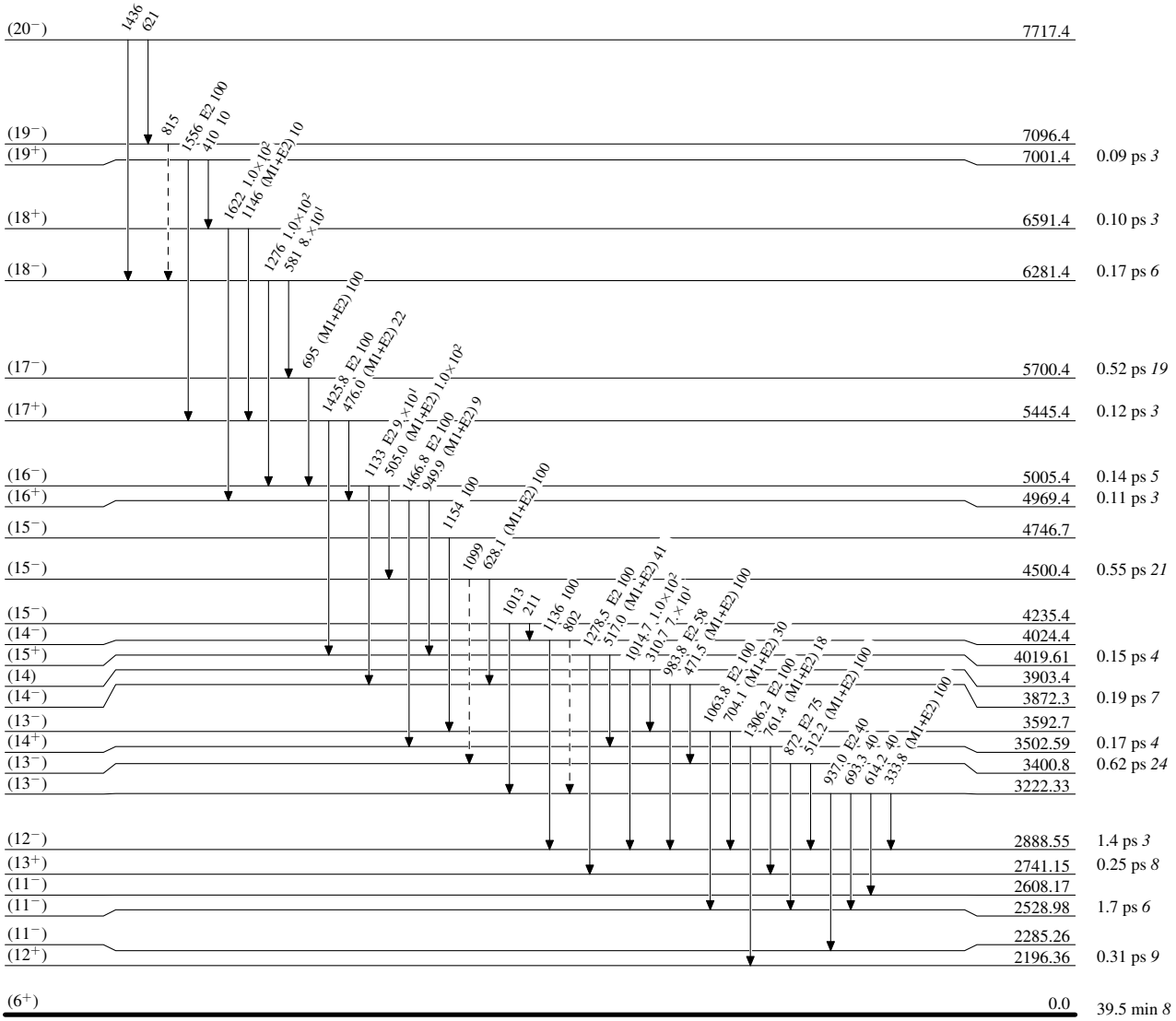
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

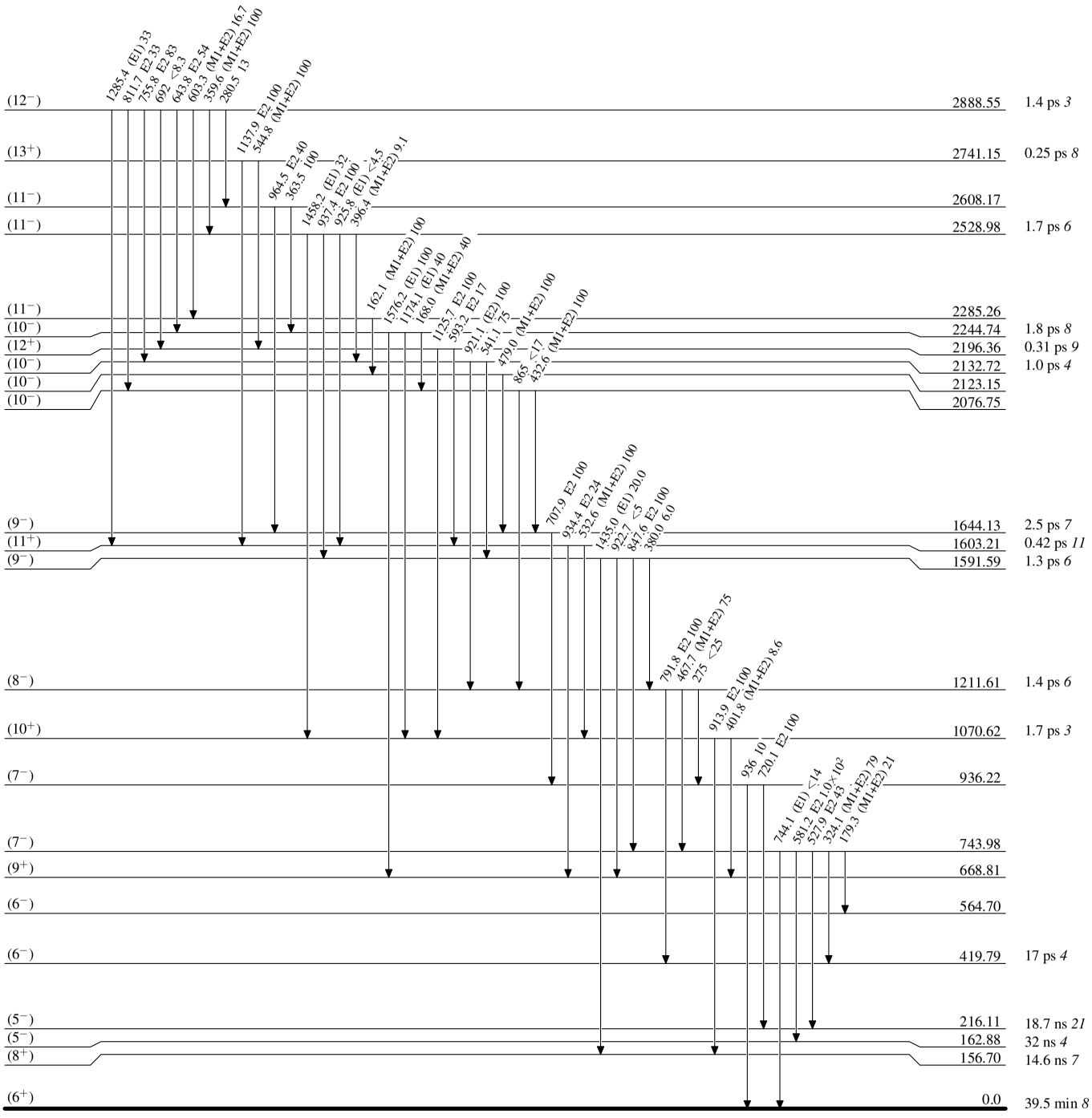


$^{84}_{39}Y_{45}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

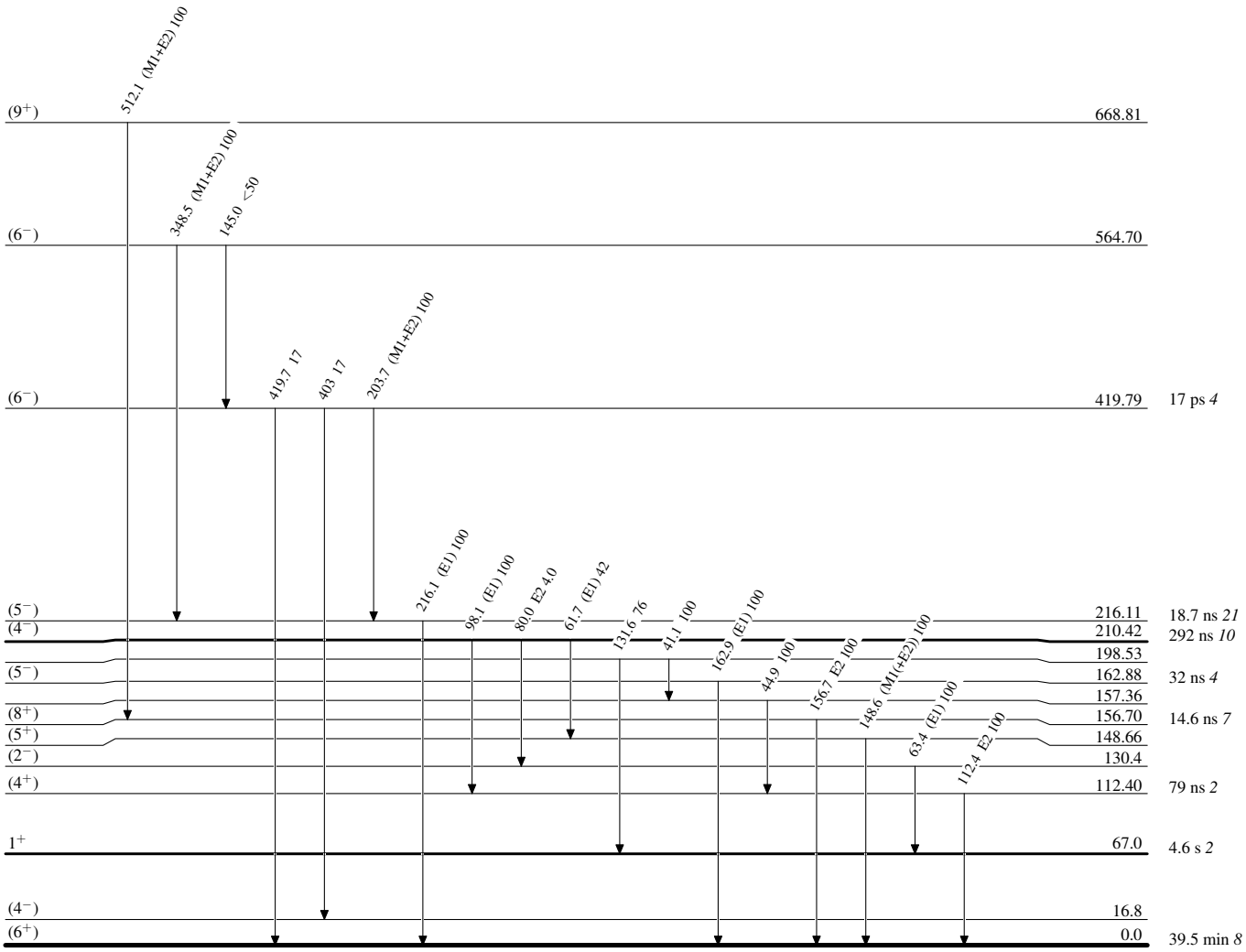


$^{84}_{39}Y_{45}$

Adopted Levels, Gammas

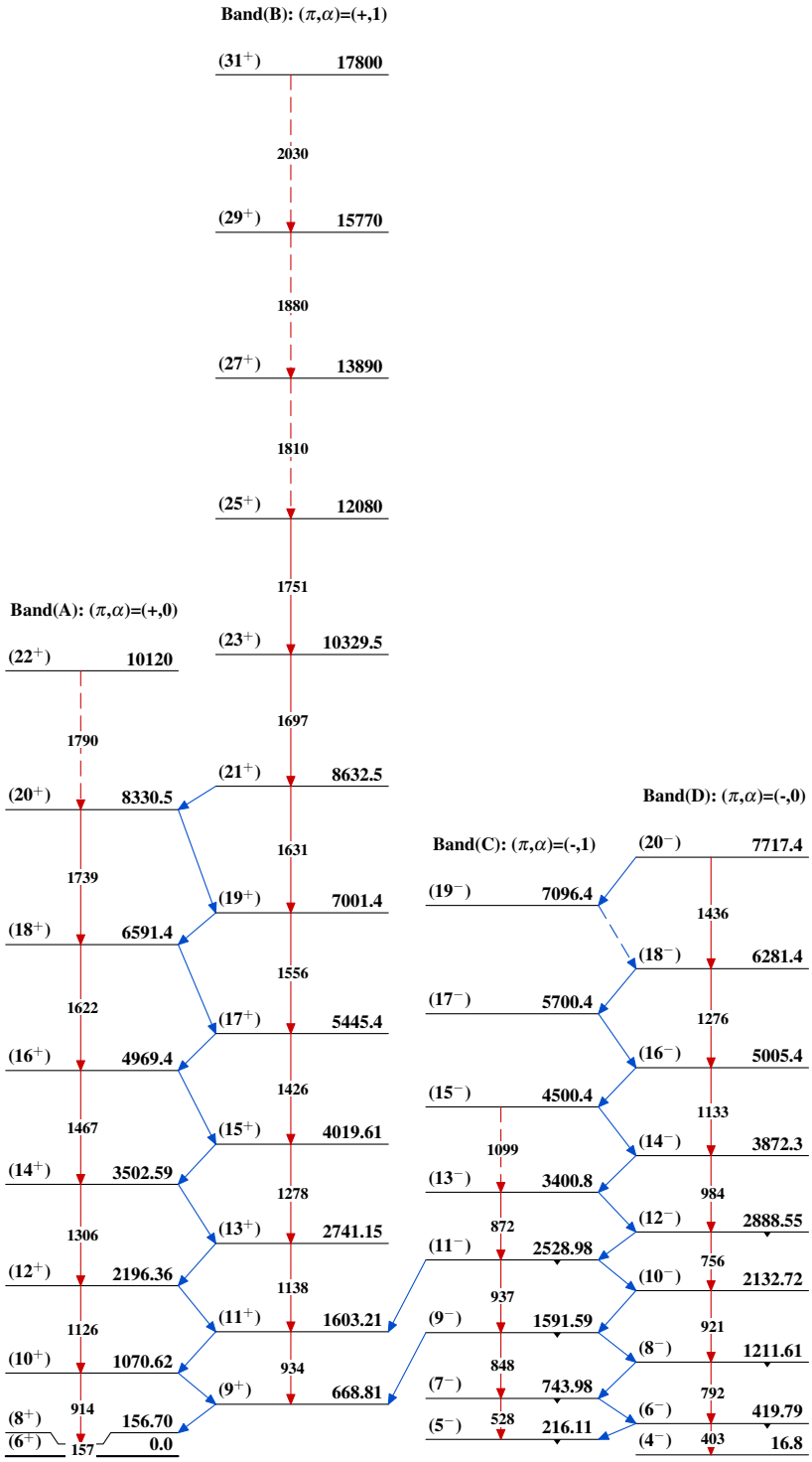
Level Scheme (continued)

Intensities: Relative photon branching from each level



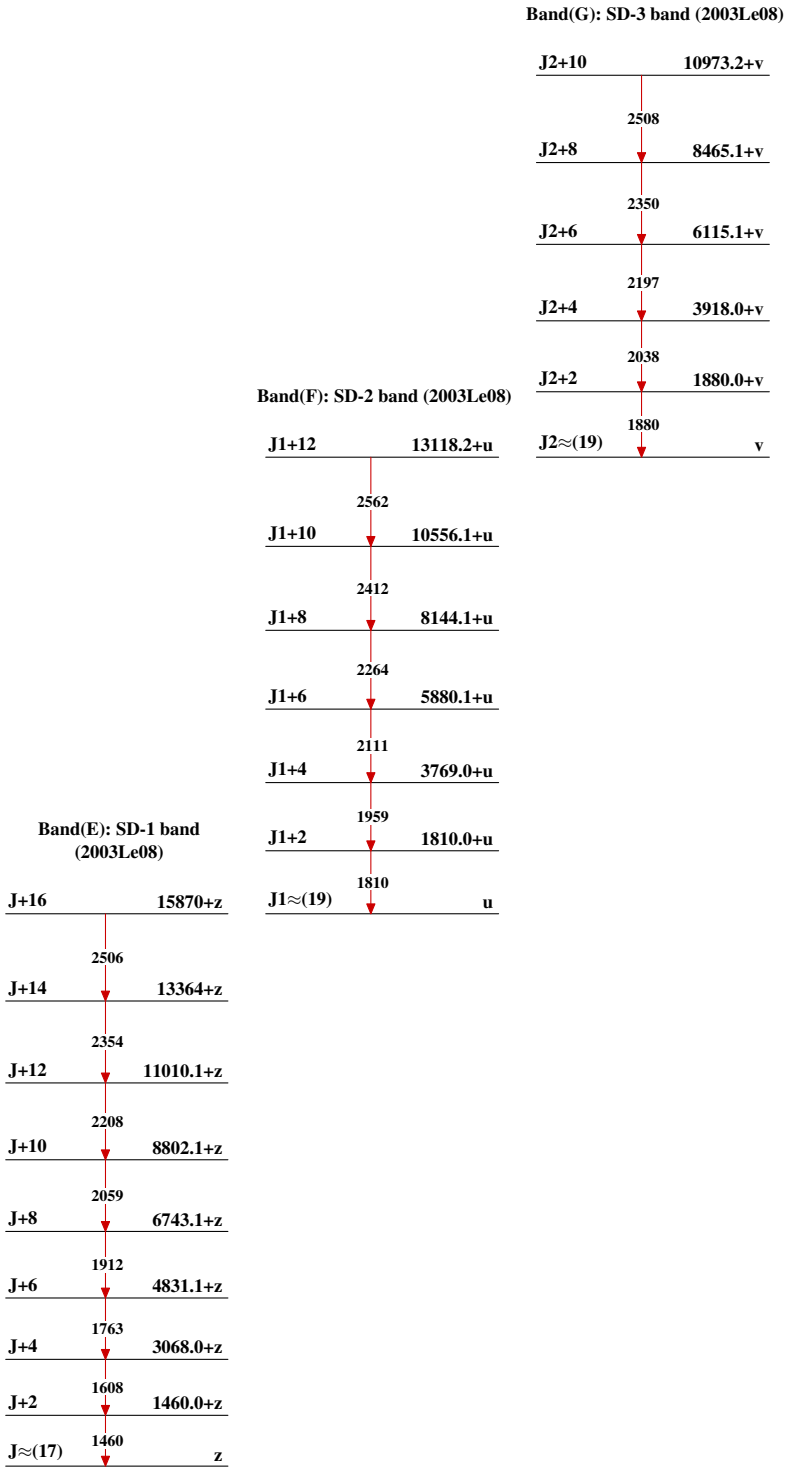
$^{84}_{39}Y_{45}$

Adopted Levels, Gammas



$^{84}_{39}Y_{45}$

Adopted Levels, Gammas (continued)



$^{84}_{39}Y_{45}$