Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 93,33 (2001)	11-May-2001

Q(β^-)=−2.20×10^3 *4*; S(n)=8.37×10^3 *4*; S(p)=3.85×10^3 *3*; Q(α)=3.0×10^2 *3* 2012Wa38
Note: Current evaluation has used the following Q record −2211 syst 8395 syst 3893 syst 250 syst 1995Au04.
Δ(Q(β^-))=646, Δ(S(n))=211, Δ(S(p))=Δ(Q(α))=205.

^{130}La Levels

Cross Reference (XREF) Flags

A	^{130}Ce ε decay (22.9 min)
B	^{51}V(^{82}Se,3nγ)
C	^{98}Mo(^{36}S,3npγ),^{115}In(^{18}O,3nγ)
D	^{116}Cd(^{19}F,5nγ),^{124}Te(^{10}B,4nγ)

E(level)	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0	3$^{(+)}$	8.7 min *1*	A	%ε+%β^+=100 J$^\pi$: ε feeding of 2$^+$ and 4$^+$ states in ^{130}Ba; γ's from 1$^+$. T$_{1/2}$: from 1963Ya05. Others: 1961Sh17, 1965Ge03.
110.44 *9*	(1$^+$,2,3$^+$)	17 ns *5*	A	J$^\pi$: γ to 3$^{(+)}$; γ from (1$^+$). T$_{1/2}$: From $\gamma\gamma$(t) in ^{130}Ce ε decay.
131.01 *8*	1$^+$	77 ns *10*	A	J$^\pi$: log *ft*=4.9 from 0$^+$. T$_{1/2}$: From $\gamma\gamma$(t) in ^{130}Ce ε decay.
219.73 *9*	(1$^+$)		A	J$^\pi$: log *ft*=5.7 from 0$^+$; γ to 3$^{(+)}$.
267.31 *9*	(1$^+$)		A	J$^\pi$: log *ft*=5.5 from 0$^+$; γ to 3$^{(+)}$.
304.10 *12*	(1)		A	J$^\pi$: γ to 3$^{(+)}$; possible ε feeding from 0$^+$.
307.48 *9*	(1)		A	J$^\pi$: log *ft*=6.1 from 0$^+$; γ to 3$^{(+)}$.
340.61 *9*	(1$^+$)		A	J$^\pi$: log *ft*=5.9 from 0$^+$; γ to 3$^{(+)}$.
350.71 *10*	(1)		A	J$^\pi$: log *ft*=6.3 from 0$^+$; γ to 3$^{(+)}$.
384.78 *9*	(1)		A	J$^\pi$: γ to 3$^{(+)}$; possible ε feeding from 0$^+$.
430.18 *17*	(1)		A	J$^\pi$: log *ft*=6.2 from 0$^+$; γ to 3$^{(+)}$.
431.51 *15*	(1)		A	J$^\pi$: log *ft*=6.5 from 0$^+$; γ to 3$^{(+)}$.
443.22 *13*	(1)		A	J$^\pi$: γ to 3$^{(+)}$; possible ε feeding from 0$^+$.
444.39 *9*	(1$^+$)		A	J$^\pi$: log *ft*=5.8 from 0$^+$; γ to 3$^{(+)}$.
477.15 *18*	(1)		A	J$^\pi$: log *ft*=6.5 from 0$^+$; γ to 3$^{(+)}$.
477.96 *13*	(1$^+$)		A	J$^\pi$: log *ft*=5.9 from 0$^+$; γ to 3$^{(+)}$.
481.89 *16*	(1)		A	J$^\pi$: log *ft*=6.5 from 0$^+$; γ to 3$^{(+)}$.
523.88 *11*	(1$^+$)		A	J$^\pi$: log *ft*=5.7 from 0$^+$; γ to 3$^{(+)}$.
589.06 *16*	(1)		A	J$^\pi$: log *ft*=6.3 from 0$^+$; γ to 3$^{(+)}$.
594.28 *18*	(1)		A	J$^\pi$: log *ft*=6.3 from 0$^+$; γ to 3$^{(+)}$.
606.75 *18*	(1)		A	J$^\pi$: log *ft*=6.3 from 0$^+$; γ to 3$^{(+)}$.
645.49 *14*	(1)		A	J$^\pi$: log *ft*=6.3 from 0$^+$; γ to 3$^{(+)}$.
672.93 *23*	(0,1)		A	J$^\pi$: log *ft*=6.3 from 0$^+$.
697.01 *14*	(1)		A	J$^\pi$: log *ft*=6.2 from 0$^+$; γ to 3$^{(+)}$.
810.47 *22*	(1)		A	J$^\pi$: log *ft*=6.6 from 0$^+$; γ to 3$^{(+)}$.
827.5 *4*	(0,1)		A	J$^\pi$: log *ft*=6.5 from 0$^+$.
913.62 *13*	(1$^+$)		A	J$^\pi$: log *ft*=5.9 from 0$^+$.
985.91 *22*	(0,1)		A	J$^\pi$: log *ft*=6.5 from 0$^+$.
1032.45 *12*	(1$^+$)		A	J$^\pi$: log *ft*=5.8 from 0$^+$; γ to 3$^{(+)}$.
1168.72 *13*	(1$^+$)		A	J$^\pi$: log *ft*=5.4 from 0$^+$.
1196.79 *10*	1$^+$		A	J$^\pi$: log *ft*=4.8 from 0$^+$.
1289.04 *12*	1$^+$		A	J$^\pi$: log *ft*=5.1 from 0$^+$.

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Adopted Levels, Gammas (continued)

^{130}La Levels (continued)

E(level)	J$^{\pi}$	XREF	Comments
1431.19 *13*	(1^{+})	A	J$^{\pi}$: log *ft*=5.6 from 0^{+}; γ to (3)$^{+}$.
0+x		BCD	J$^{\pi}$: γ from (9^{+}).
5.1+x *5*	‡	B	J$^{\pi}$: ΔJ=2 γ from (9^{+}).
45.1+x *10*		B	
88.4+x[d] *7*	(6^{-})†	BCD	J$^{\pi}$: γ's from (8^{-}) and (7^{-}).
113.9+x *4*	‡	BCD	J$^{\pi}$: γ's from (9^{+}) and possibly from (7^{-}).
150.3+x *8*	‡	B	J$^{\pi}$: γ from (9^{+}).
160.3+x *5*	‡	B	J$^{\pi}$: γ from (9^{+}).
160.4+x[c] *5*	(7^{-})†	BCD	
279.0+x[d] *5*	(8^{-})†	BCD	
385.4+x[e] *4*	(9^{+})†	BCD	
456.3+x[c] *5*	(9^{-})†	BCD	
522.9+x[f] *5*	(10^{+})†	BCD	
677.5+x[d] *6*	(10^{-})†	BCD	
802.2+x[e] *5*	(11^{+})†	BCD	
947.0+x[c] *6*	(11^{-})†	BCD	
1048.5+x[f] *5*	(12^{+})†	BCD	
1077.9+x[g] *10*	(11^{+})†	D	
1250.2+x[d] *6*	(12^{-})†	BCD	
1422.8+x[e] *6*	(13^{+})†	B D	
1434.5+x[h] *10*	(12^{+})†	D	
1597.3+x[c] *6*	(13^{-})†	BCD	
1748.5+x[f] *6*	(14^{+})†	B D	
1778.2+x[g] *10*	(13^{+})†	D	
1970.1+x[d] *7*	(14^{-})†	BCD	
2163.0+x[h] *10*	(14^{+})†	D	
2194.1+x[e] *6*	(15^{+})†	B D	
2384.4+x[c] *7*	(15^{-})†	BCD	
2586.7+x[f] *6*	(16^{+})†	B D	
2590.3+x[g] *10*	(15^{+})†	D	
2818.2+x[d] *7*	(16^{-})†	BCD	
2961.0+x[h] *10*	(16^{+})†	D	
3096.1+x[e] *7*	(17^{+})†	B D	
3289.5+x[c] *7*	(17^{-})†	BCD	
3541.5+x[f] *7*	(18^{+})†	B D	
3771.4+x[d] *8*	(18^{-})†	BCD	
4105.0+x[e] *7*	(19^{+})†	B	
4271.6+x[c] *8*	(19^{-})†	BC	
4589.6+x[f] *7*	(20^{+})†	B D	E(level): population of this level is uncertain in (^{19}F,5nγ) and (^{10}B,4nγ).
4720.2+x[d] *8*	(20^{-})†	B	
5185.0+x[c] *8*	(21^{-})†	B	
5185.2+x[e] *8*	(21^{+})†	B	
5644.5+x[d] *8*	(22^{-})†	B	
5696.8+x[f] *10*	(22^{+})†	B	

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Adopted Levels, Gammas (continued)

^{130}La Levels (continued)

E(level)	J^π	XREF	E(level)	J^π	XREF
6156.8+x[c] *8*	(23$^-$)[†]	B	2807.9+y[j] *10*	(16)[b]	B
6658.1+x[d] *8*	(24$^-$)[†]	B	3340.0+y[i] *11*	(17)[b]	B
6818.8+x[f] *17*	(24$^+$)[†]	B	3889.5+y[j] *12*	(18)[b]	B
7203.2+x[c] *10*	(25$^-$)[†]	B	4462.0+y[i] *13*	(19)[b]	B
7759.0+x[d] *10*	(26$^-$)[†]	B	5054.8+y[j] *13*	(20)[b]	B
7949.8+x[f] *22*	(26$^+$)[†]	B	5638.0+y[i] *14*	(21)[b]	B
8282.7+x[c] *11*	(27$^-$)[†]	B	z[k]	J≈(16)[@]	B
0.0+y[a]	(7)[b]	B	762.4+z[k]	J+2	B
86.9+y[#] *9*	(9)[b]	B	1613.9+z[k]	J+4	B
358.8+y[i] *5*	(9)[b]	B	2534.4+z[k]	J+6	B
489.7+y[&j] *7*	(10)[b]	B	3532.1+z[k]	J+8	B
732.6+y[i] *8*	(11)[b]	B	4604.7+z[k]	J+10	B
1046.6+y[j] *9*	(12)[b]	B	5753.0+z[k]	J+12	B
1418.2+y[i] *9*	(13)[b]	B	6982.4+z[k]	J+14	B
1841.2+y[j] *10*	(14)[b]	B	8301.0+z[k]	J+16	B
2305.6+y[i] *10*	(15)[b]	B	9713.4+z[k]	J+18	B

† Based on the assignments from 1987Pa27, 2001Ko30 and 1996Li13. The assignment of J^π=(9$^+$) to the bandhead of $\pi h_{11/2}\nu h_{11/2}$ configuration is based on detailed systematics analysis (1996Li13) of odd-odd nuclides in A=130 region. It should Be noted that J^π assignments given by 1989Go04 and 1989Go06 are lower by 3 units of spin for $\pi h_{11/2}\nu h_{11/2}$ and $\pi h_{11/2}\nu g_{7/2}$ bands.

‡ (4) for 5.1+x and 160.3+x; (5) for 113.9+x and 150.3+x, proposed (1989Go04,1989Go06) in (^{82}Se,3nγ) seem lower by 3 units of spin in view of feeding transition from higher levels whose J^π's have been revised by 2001Ko30 and 1996Li13.

\# Decays to 802+x, (11$^+$) through unidentified transitions.

@ From 1989Go13.

& Decays to 677+x, (10$^-$) also through unidentified transitions.

a Decays to 456+x, (9$^-$) through unidentified transitions.

b From 1989Go06, but it is likely to Be higher by 3 units of spin, based on J^π assignments of $\pi h_{11/2}\nu g_{7/2}$ and $\pi h_{11/2}\nu h_{11/2}$ bands from 2001Ko30, 1996Li13 and 1987Pa23.

c Band(A): $\pi h_{11/2}\nu g_{7/2}$, α=1.

d Band(a): $\pi h_{11/2}\nu g_{7/2}$, α=0.

e Band(B): $\pi h_{11/2}\nu h_{11/2}$, α=1.

f Band(b): $\pi h_{11/2}\nu h_{11/2}$, α=0.

g Band(C): Doublet (Chiral) partner of $\pi h_{11/2}\nu h_{11/2}$, α=1 (2001Ko30).

h Band(c): Doublet (Chiral) partner of $\pi h_{11/2}\nu h_{11/2}$, α=0 (2001Ko30).

i Band(D): Collective oblate band, α=1.

j Band(d): Collective oblate band, α=0.

k Band(E): SD band (1989Go13). Percent population=10 in ^{51}V(^{82}Se,3nγ) (1989Go13). Proposed (1989Go13) configuration= $\nu((N=5)^{10}(N=6)^1)\pi((N=4)^{14}(N=5)^3)$, where N=principal quantum number.

Adopted Levels, Gammas (continued)

$\gamma(^{130}La)$

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.@	αg
110.44	(1+,2,3+)	110.4‡ 2	100	0.0	3(+)	[D,E2]	0.8 6
131.01	1+	131.1‡ 2	100	0.0	3(+)	[E2]	0.77
219.73	(1+)	88.9‡ 2	15.2 8	131.01	1+	[M1,E2]	0.23 8
		109.3‡ 3	37 4	110.44	(1+,2,3+)	[D,E2]	0.8 6
		219.8 2	100 10	0.0	3(+)	[E2]	0.13
267.31	(1+)	47.5‡ 3	0.7 4	219.73	(1+)	[M1,E2]	21 11
		136.4‡ 2	100.0 22	131.01	1+	[M1,E2]	0.56 11
		267.3‡ 2	94.2 22	0.0	3(+)	[E2]	0.07
304.10	(1)	193.6 2	15 4	110.44	(1+,2,3+)	[D,E2]	0.12 8
		304.1 2	100 5	0.0	3(+)	[D,E2]	0.03 2
307.48	(1)	87.9‡ 3	2.4 7	219.73	(1+)	[D,E2]	1.8 14
		196.9 2	17.1 11	110.44	(1+,2,3+)	[D,E2]	0.11 7
		307.5 2	100.0 7	0.0	3(+)	[D,E2]	0.03 2
340.61	(1+)	73.5 3	1.1 5	267.31	(1+)	[M1,E2]	4.4 17
		209.6‡ 2	100.0 17	131.01	1+	[M1,E2]	0.15
		230.5 2	6.9 17	110.44	(1+,2,3+)	[D,E2]	0.07 5
		340.6 2	36.1 8	0.0	3(+)	[D,E2]	0.03 2
350.71	(1)	46.7‡ 3	4.1 18	304.10	(1)	[D,E2]	18 16
		83.4 2	16 4	267.31	(1+)	[D,E2]	2.2 18
		131.0‡ 3	51 3	219.73	(1+)	[D,E2]	0.44 33
		240.1 2	42 6	110.44	(1+,2,3+)	[D,E2]	0.06 4
		350.8 2	100 9	0.0	3(+)		
384.78	(1)	77.6 2	1.2 8	307.48	(1)	[D,E2]	2.8 23
		80.5 3	1.5 10	304.10	(1)	[D,E2]	2.4 20
		253.7 2	100 8	131.01	1+	[D,E2]	0.05 3
		274.2 2	62 3	110.44	(1+,2,3+)	[D,E2]	0.04 3
		384.8 2	48 10	0.0	3(+)		
430.18	(1)	163.0 3	100 24	267.31	(1+)	[D,E2]	0.21 15
		430.2‡ 3	90 29	0.0	3(+)		
431.51	(1)	127.5 3	2.8 18	304.10	(1)	[D,E2]	0.5 4
		300.5 2	100 6	131.01	1+	[D,E2]	0.03 2
		431.5‡ 3	32 18	0.0	3(+)		
443.22	(1)	139.0 3	3.5 24	304.10	(1)	[D,E2]	0.36 27
		175.8‡ 3	31 15	267.31	(1+)	[D,E2]	0.17 14
		443.2‡ 3	100 29	0.0	3(+)		
444.39	(1+)	59.6 2	11.7 20	384.78	(1)	[D,E2]	7.5 65
		103.9 2	18 4	340.61	(1+)	[M1,E2]	1.4 4
		136.6‡ 3	27 9	307.48	(1)	[D,E2]	0.38 28
		176.9‡ 2	100 4	267.31	(1+)	[D,E2]	0.16 11
		313.3 2	19 4	131.01	1+		
		333.9 2	18 4	110.44	(1+,2,3+)		
		444.2‡ 3	37 11	0.0	3(+)		
477.15	(1)	209.9‡ 2	85 8	267.31	(1+)	[D,E2]	0.09 6
		477.0 3	100 30	0.0	3(+)		
477.96	(1+)	93.3 2	30 6	384.78	(1)	[D,E2]	1.4 11
		170.5 3	23 3	307.48	(1)	[D,E2]	0.18 13
		346.8 2	100 10	131.01	1+		
		478.0 3	33 10	0.0	3(+)		
481.89	(1)	141.3 2	91 60	340.61	(1+)	[D,E2]	0.34 25

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Adopted Levels, Gammas (continued)

$\gamma(^{130}La)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.@	α g
481.89	(1)	214.7 3	55 11	267.31	(1+)	[D,E2]	0.09 5
		481.7 3	100 15	0.0	3(+)		
523.88	(1+)	173.1 2	13 3	350.71	(1)	[D,E2]	0.17 12
		183.2 2	53 3	340.61	(1+)	[M1,E2]	0.22 2
		256.5 2	100 3	267.31	(1+)	[M1,E2]	0.08
		393.0 2	21 4	131.01	1+		
		524.0 3	24 5	0.0	3(+)		
589.06	(1)	248.4 2	52 18	340.61	(1+)		
		321.7 3	36 10	267.31	(1+)		
		589.2 3	100 14	0.0	3(+)		
594.28	(1)	463.3 2	100 10	131.01	1+		
		594.2 3	11 5	0.0	3(+)		
606.75	(1)	387.0 2	41 3	219.73	(1+)		
		606.8 3	100 33	0.0	3(+)		
645.49	(1)	294.8 2	84 25	350.71	(1)		
		535.1 2	100 50	110.44	(1+,2,3+)		
		645.3 3	76 19	0.0	3(+)		
672.93	(0,1)	541.7 3	100 5	131.01	1+		
		562.7 3	10 6	110.44	(1+,2,3+)		
697.01	(1)	266.9‡ 2	63 8	430.18	(1)		
		389.2 3	25 13	307.48	(1)		
		566.2 2	100 23	131.01	1+		
		696.7 3	13 8	0.0	3(+)		
810.47	(1)	590.7 3	84 16	219.73	(1+)		
		810.5 3	100 50	0.0	3(+)		
827.5	(0,1)	520.0 3	100	307.48	(1)		
913.62	(1+)	470.5 2	37 9	443.22	(1)		
		528.8 2	82 16	384.78	(1)		
		605.8 3	100 33	307.48	(1)		
		694.2 3	25 13	219.73	(1+)		
		782.5 3	30 4	131.01	1+		
985.91	(0,1)	718.6 2	100	267.31	(1+)		
1032.45	(1+)	724.9 2	66 11	307.48	(1)		
		765.2 3	45 9	267.31	(1+)		
		901.3 2	100 11	131.01	1+		
		922.0 3	28 9	110.44	(1+,2,3+)		
		1032.8 3	39 12	0.0	3(+)		
1168.72	(1+)	737.3 3	36 7	431.51	(1)		
		818.0 2	43 5	350.71	(1)		
		828.3 3	24 5	340.61	(1+)		
		861.2 2	100 6	307.48	(1)		
		1037.5 3	66 7	131.01	1+		
1196.79	1+	752.2 2	30.1 24	444.39	(1+)		
		812.0 3	16 4	384.78	(1)		
		856.3 2	36.5 19	340.61	(1+)		
		889.4 2	31.2 19	307.48	(1)		
		977.2 2	100 8	219.73	(1+)		
		1065.8 3	19.1 19	131.01	1+		
		1196.6 2	49.2 25	0.0	3(+)		
1289.04	1+	845.6 2	19 3	443.22	(1)		
		948.8 3	29 5	340.61	(1+)		
		1069.3 3	14 3	219.73	(1+)		
		1158.0 3	49 4	131.01	1+		
		1289.1 2	100 5	0.0	3(+)		

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Adopted Levels, Gammas (continued)

γ(^{130}La) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$[†]	I$_\gamma$[†]	E$_f$	J$^\pi_f$	Mult.[@]
1431.19	(1$^+$)	986.6 *2*	100 *57*	444.39	(1$^+$)	
		1123.8 *3*	53 *7*	307.48	(1)	
		1164.0 *3*	80 *24*	267.31	(1$^+$)	
		1300.3 *3*	81 *23*	131.01	1$^+$	
		1431.3 *3*	81 *23*	0.0	3$^{(+)}$	
113.9+x		113.9 *5*	100	0+x		
150.3+x		105.2 *5*	100	45.1+x		
160.4+x	(7$^-$)	46.4 *5*	<16	113.9+x		
		72.0 *5*	100 *3*	88.4+x	(6$^-$)	
279.0+x	(8$^-$)	118.7 *3*	100.0 *6*	160.4+x	(7$^-$)	M1+E2[&]
		190.7[‡] *7*	2.6 *9*	88.4+x	(6$^-$)	
385.4+x	(9$^+$)	106.4 *5*	7.2 *6*	279.0+x	(8$^-$)	
		225.1 *3*	27.3 *13*	160.3+x		Q
		235.1[‡] *7*	>55	150.3+x		
		271.5 *3*	100 *4*	113.9+x		
		380.3 *3*	40.1 *18*	5.1+x		Q
		385.4 *5*	13.1 *9*	0+x		
456.3+x	(9$^-$)	177.2 *3*	100.0 *16*	279.0+x	(8$^-$)	D+Q
		295.9 *3*	13.8[a] *16*	160.4+x	(7$^-$)	
522.9+x	(10$^+$)	137.5 *3*	100	385.4+x	(9$^+$)	D+Q
677.5+x	(10$^-$)	221.2 *3*	100.0 *23*	456.3+x	(9$^-$)	M1+E2[&]
		398.4 *3*	46.6[b] *23*	279.0+x	(8$^-$)	
802.2+x	(11$^+$)	279.4 *3*	100.0 *21*	522.9+x	(10$^+$)	M1+E2[&]
		416.9 *5*	3.6 *21*	385.4+x	(9$^+$)	
947.0+x	(11$^-$)	269.5[‡] *7*	87.6 *21*	677.5+x	(10$^-$)	D+Q
		490.7 *3*	100.0 *21*	456.3+x	(9$^-$)	(Q)
1048.5+x	(12$^+$)	246.3 *3*	100.0 *20*	802.2+x	(11$^+$)	M1+E2[&]
		525.7 *3*	44.5 *20*	522.9+x	(10$^+$)	
1077.9+x	(11$^+$)	555		522.9+x	(10$^+$)	
1250.2+x	(12$^-$)	303.2 *3*	54.3[c] *20*	947.0+x	(11$^-$)	D+Q
		572.7 *3*	100.0 *20*	677.5+x	(10$^-$)	(Q)
1422.8+x	(13$^+$)	374.3[‡] *7*	100.0 *26*	1048.5+x	(12$^+$)	
		620.6 *3*	39.4 *26*	802.2+x	(11$^+$)	
1434.5+x	(12$^+$)	357		1077.9+x	(11$^+$)	
		632		802.2+x	(11$^+$)	
1597.3+x	(13$^-$)	347.1[‡] *7*	39.3[d] *21*	1250.2+x	(12$^-$)	
		650.3 *3*	100.0 *21*	947.0+x	(11$^-$)	(Q)
1748.5+x	(14$^+$)	325.7 *3*	68.1 *19*	1422.8+x	(13$^+$)	
		700.0 *3*	100.0 *19*	1048.5+x	(12$^+$)	
1778.2+x	(13$^+$)	700		1077.9+x	(11$^+$)	
		730		1048.5+x	(12$^+$)	
1970.1+x	(14$^-$)	372.8[‡] *7*	39.5 *22*	1597.3+x	(13$^-$)	
		719.9 *3*	100.0 *22*	1250.2+x	(12$^-$)	Q
2163.0+x	(14$^+$)	385		1778.2+x	(13$^+$)	
		728[h]		1434.5+x	(12$^+$)	
		740		1422.8+x	(13$^+$)	
2194.1+x	(15$^+$)	445.6[‡] *7*	100 *5*	1748.5+x	(14$^+$)	
		771.3 *3*	72[e] *5*	1422.8+x	(13$^+$)	
2384.4+x	(15$^-$)	414.3 *5*	16.8[f] *21*	1970.1+x	(14$^-$)	
		787.1 *3*	100.0 *21*	1597.3+x	(13$^-$)	(Q)
2586.7+x	(16$^+$)	392.6 *3*	31 *5*	2194.1+x	(15$^+$)	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{130}La)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[@]
2586.7+x	(16+)	838.2 3	100 5	1748.5+x	(14+)	
2590.3+x	(15+)	426[h]		2163.0+x	(14+)	
		812		1778.2+x	(13+)	
		842		1748.5+x	(14+)	
2818.2+x	(16−)	433.8 5	22.1 26	2384.4+x	(15−)	
		848.1 3	100.0 26	1970.1+x	(14−)	
2961.0+x	(16+)	372[h]		2590.3+x	(15+)	
		767[h]		2194.1+x	(15+)	
		798		2163.0+x	(14+)	
3096.1+x	(17+)	509.5[‡] 7	82 6	2586.7+x	(16+)	
		902.1[‡] 7	100 6	2194.1+x	(15+)	
3289.5+x	(17−)	471.3 5	17 3	2818.2+x	(16−)	
		905.1[‡] 7	100 3	2384.4+x	(15−)	
3541.5+x	(18+)	445.4[‡] 7	24 4	3096.1+x	(17+)	
		954.9[‡] 7	100 4	2586.7+x	(16+)	
3771.4+x	(18−)	481.8 5		3289.5+x	(17−)	
		953.1[‡] 7		2818.2+x	(16−)	
4105.0+x	(19+)	563.5 5	33 5	3541.5+x	(18+)	
		1008.9 3	100 5	3096.1+x	(17+)	
4271.6+x	(19−)	500.2[‡] 7	28 7	3771.4+x	(18−)	
		982.0 3	100 7	3289.5+x	(17−)	
4589.6+x	(20+)	484.6[‡] 7	19 5	4105.0+x	(19+)	
		1048.1 3	100 5	3541.5+x	(18+)	
4720.2+x	(20−)	448.6 5	69 9	4271.6+x	(19−)	
		948.8[‡] 7	100 9	3771.4+x	(18−)	
5185.0+x	(21−)	464.8 5	100 6	4720.2+x	(20−)	
		913.4 5	92 6	4271.6+x	(19−)	
5185.2+x	(21+)	595.6 5	32 7	4589.6+x	(20+)	
		1080.2 5	100 7	4105.0+x	(19+)	
5644.5+x	(22−)	459.4 5	69 4	5185.0+x	(21−)	
		924.2 5	100 4	4720.2+x	(20−)	
5696.8+x	(22+)	511.7[‡] 7	30 9	5185.2+x	(21+)	
		1107 1	100 9	4589.6+x	(20+)	
6156.8+x	(23−)	512.4 5	55 6	5644.5+x	(22−)	
		971.8 5	100 6	5185.0+x	(21−)	
6658.1+x	(24−)	501.5[‡] 7	30 5	6156.8+x	(23−)	
		1013.4 5	100 5	5644.5+x	(22−)	
6818.8+x	(24+)	1122.0 14	100	5696.8+x	(22+)	
7203.2+x	(25−)	545.0[‡] 7		6658.1+x	(24−)	
		1046.5 5		6156.8+x	(23−)	
7759.0+x	(26−)	555.8[‡] 7	11 6	7203.2+x	(25−)	
		1100.8 14	100 6	6658.1+x	(24−)	
7949.8+x	(26+)	1131.0 14	100	6818.8+x	(24+)	
8282.7+x	(27−)	523.7 5	11 6	7759.0+x	(26−)	
		1079.5 14	100 6	7203.2+x	(25−)	
358.8+y	(9)	358.8 5	100	0.0+y	(7)	Q
489.7+y	(10)	130.9 5	100 7	358.8+y	(9)	D
		402.8 5	57 5	86.9+y	(9)	
732.6+y	(11)	242.9 3	100	489.7+y	(10)	
1046.6+y	(12)	314.0 3	100	732.6+y	(11)	
1418.2+y	(13)	371.6 3	100	1046.6+y	(12)	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{130}La)$ (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
1841.2+y	(14)	423.0 *3*	100	1418.2+y	(13)
2305.6+y	(15)	464.4 *3*	100	1841.2+y	(14)
2807.9+y	(16)	502.3 *5*	100 *9*	2305.6+y	(15)
		966.7 *5*	18 *2*	1841.2+y	(14)
3340.0+y	(17)	532.1 *5*	100 *10*	2807.9+y	(16)
		1034.4 *14*	31 *5*	2305.6+y	(15)
3889.5+y	(18)	549.5 *5*	100 *11*	3340.0+y	(17)
		1081.6 *14*	44 *11*	2807.9+y	(16)
4462.0+y	(19)	572.5 *5*	100 *13*	3889.5+y	(18)
		1122.0 *14*	33 *5*	3340.0+y	(17)
5054.8+y	(20)	592.8 *5*	100 *15*	4462.0+y	(19)
		1165.3 *14*	92 *15*	3889.5+y	(18)
5638.0+y	(21)	583.2 *5*	100	5054.8+y	(20)
762.4+z	J+2	762.4	0.35#	z	J≈(16)
1613.9+z	J+4	851.5	0.80#	762.4+z	J+2
2534.4+z	J+6	920.5	1.00#	1613.9+z	J+4
3532.1+z	J+8	997.7	1.00#	2534.4+z	J+6
4604.7+z	J+10	1072.6	1.00#	3532.1+z	J+8
5753.0+z	J+12	1148.3	0.75#	4604.7+z	J+10
6982.4+z	J+14	1229.4	0.65#	5753.0+z	J+12
8301.0+z	J+16	1318.6	0.50#	6982.4+z	J+14
9713.4+z	J+18	1412.4	0.40#	8301.0+z	J+16

† For high-spin (J>3) values are adopted from $^{51}V(^{82}Se,3n\gamma)$. Although, some Eγ's are more precisely quoted in $(^{19}F,5n\gamma)$, but the information is more complete in $(^{82}Se,3n\gamma)$. Also, Eγ's from $(^{19}F,5n\gamma)$ seem to be systematically higher by 0.5 to 1.5 keV as compared to those in $(^{82}Se,3n\gamma)$. For the Chiral doublet partner of $\pi h_{11/2}\nu h_{11/2}$ band, Eγ's are from 2001Ko30.

‡ The γ-ray peak is a part of an unresolved doublet.

\# Relative intensity within the SD band.

@ From $\gamma(\theta)$ in $^{116}Cd(^{19}F,5n\gamma)$, unless otherwise stated. Mult=d or D+Q is from $\Delta J=1$ and mult=Q for $\Delta J=2$, stretched (most likely E2) transition indicated by $\gamma(\theta)$.

& From ce data in $^{115}In(^{18}O,3n\gamma)$; $\Delta J=1$ γ from $\gamma(\theta)$ in $^{116}Cd(^{19}F,5n\gamma)$.

a Others: 6.8 *9* in $^{116}Cd(^{19}F,5n\gamma)$; 24.8 *15* in $^{115}In(^{18}O,3n\gamma)$.

b Others: 30.4 *21* in $^{116}Cd(^{19}F,5n\gamma)$; 58.7 *24* in $^{115}In(^{18}O,3n\gamma)$.

c Others: 84 *6* in $^{116}Cd(^{19}F,5n\gamma)$; 65 *3* in $^{115}In(^{18}O,3n\gamma)$.

d Others: 66 *6* in $^{116}Cd(^{19}F,5n\gamma)$; 56 *3* in $^{115}In(^{18}O,3n\gamma)$.

e Other: 127 *13* in $^{116}Cd(^{19}F,5n\gamma)$.

f Other: 32 *3* in $^{115}In(^{18}O,3n\gamma)$.

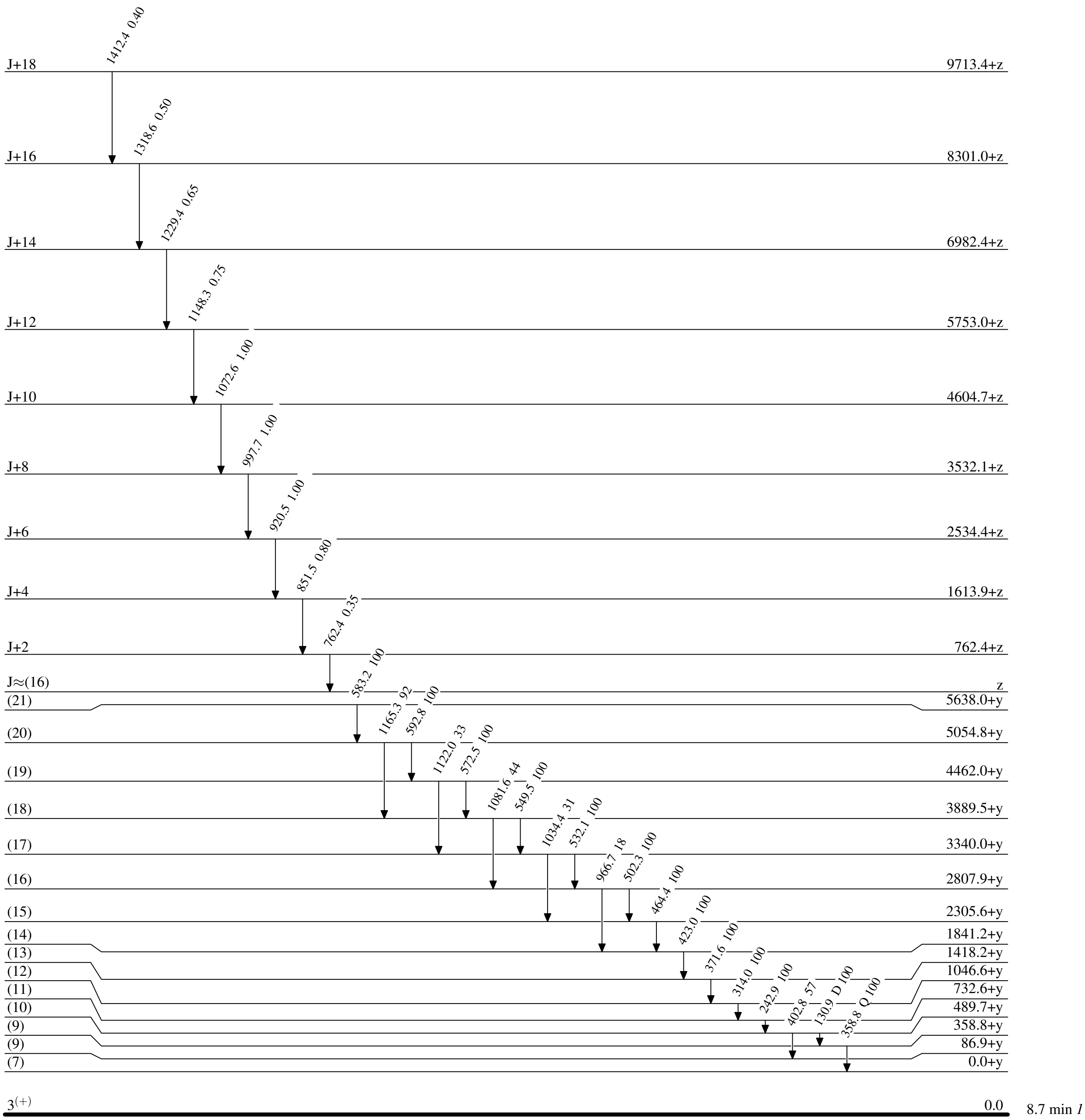
g Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

h Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

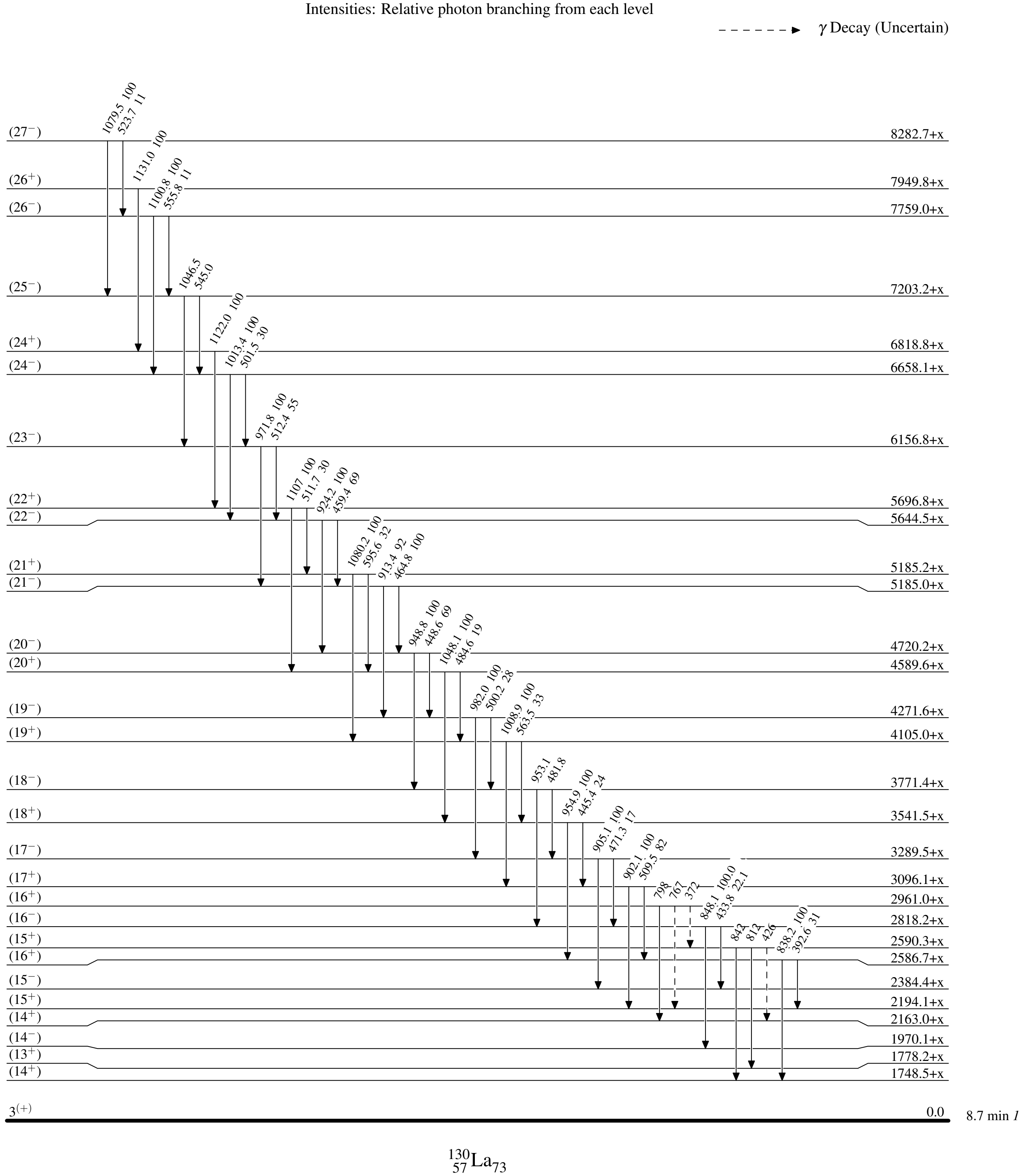


$^{130}_{57}La_{73}$

Adopted Levels, Gammas

Level Scheme (continued)

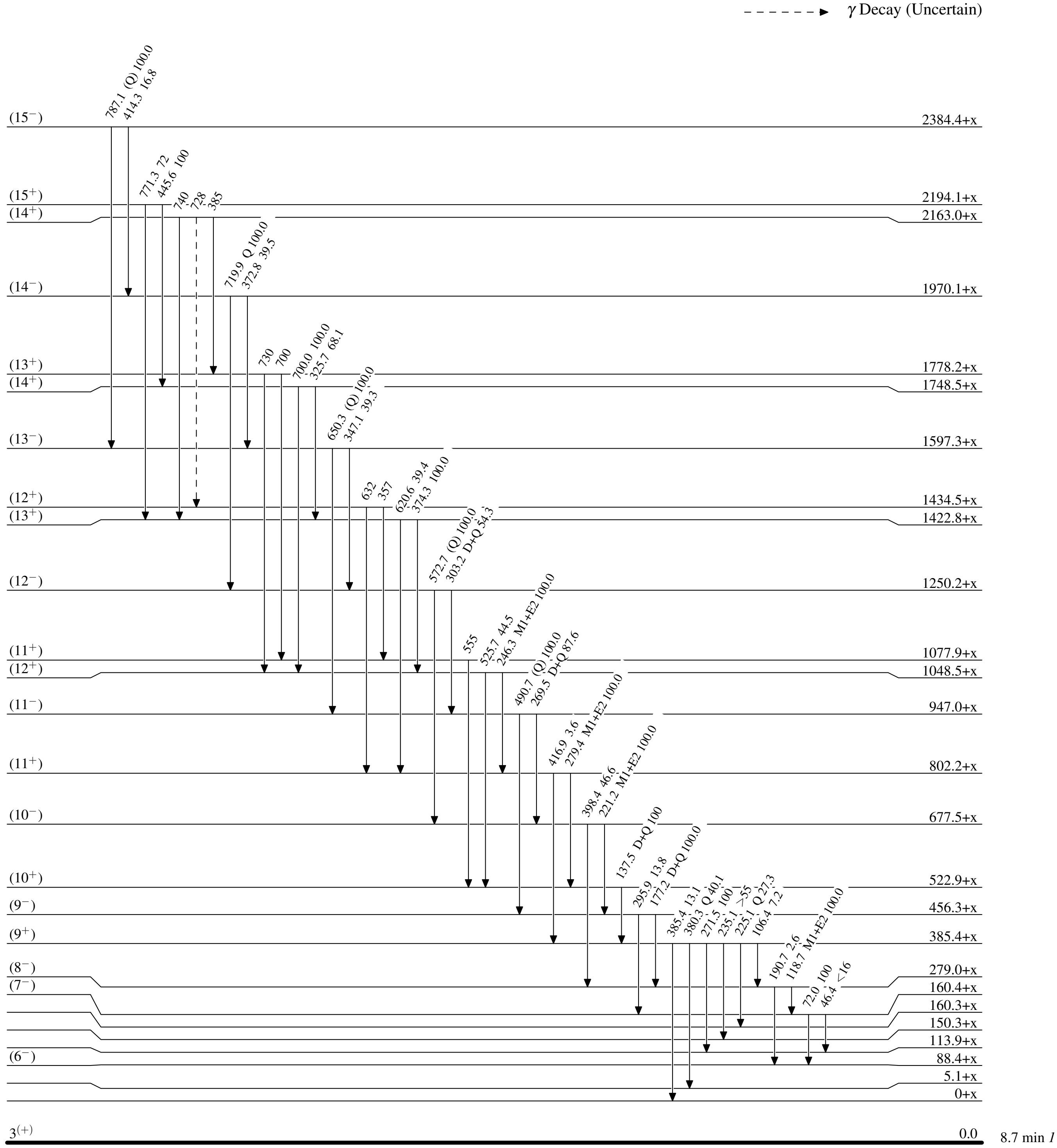
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

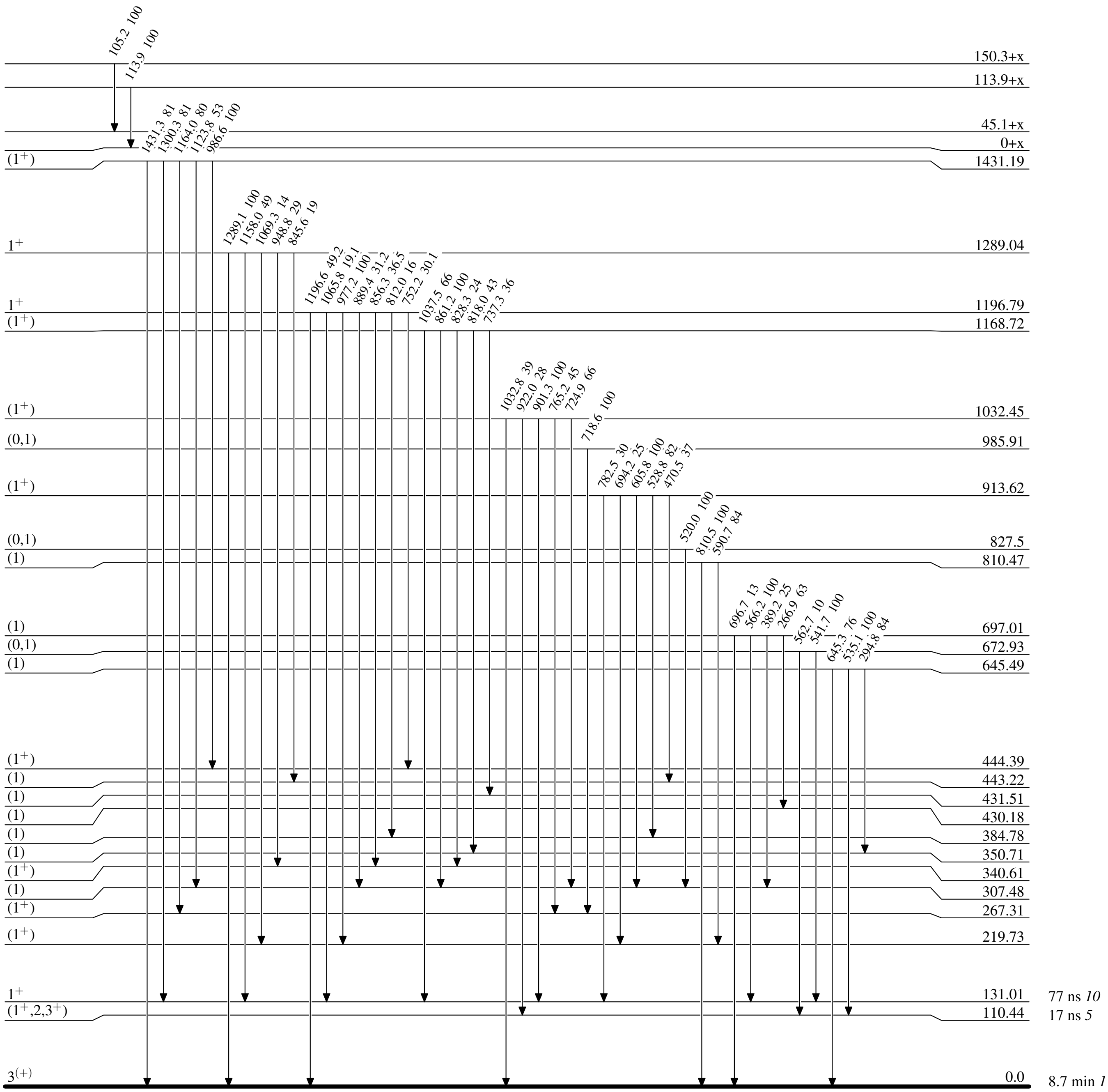


$^{130}_{57}La_{73}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

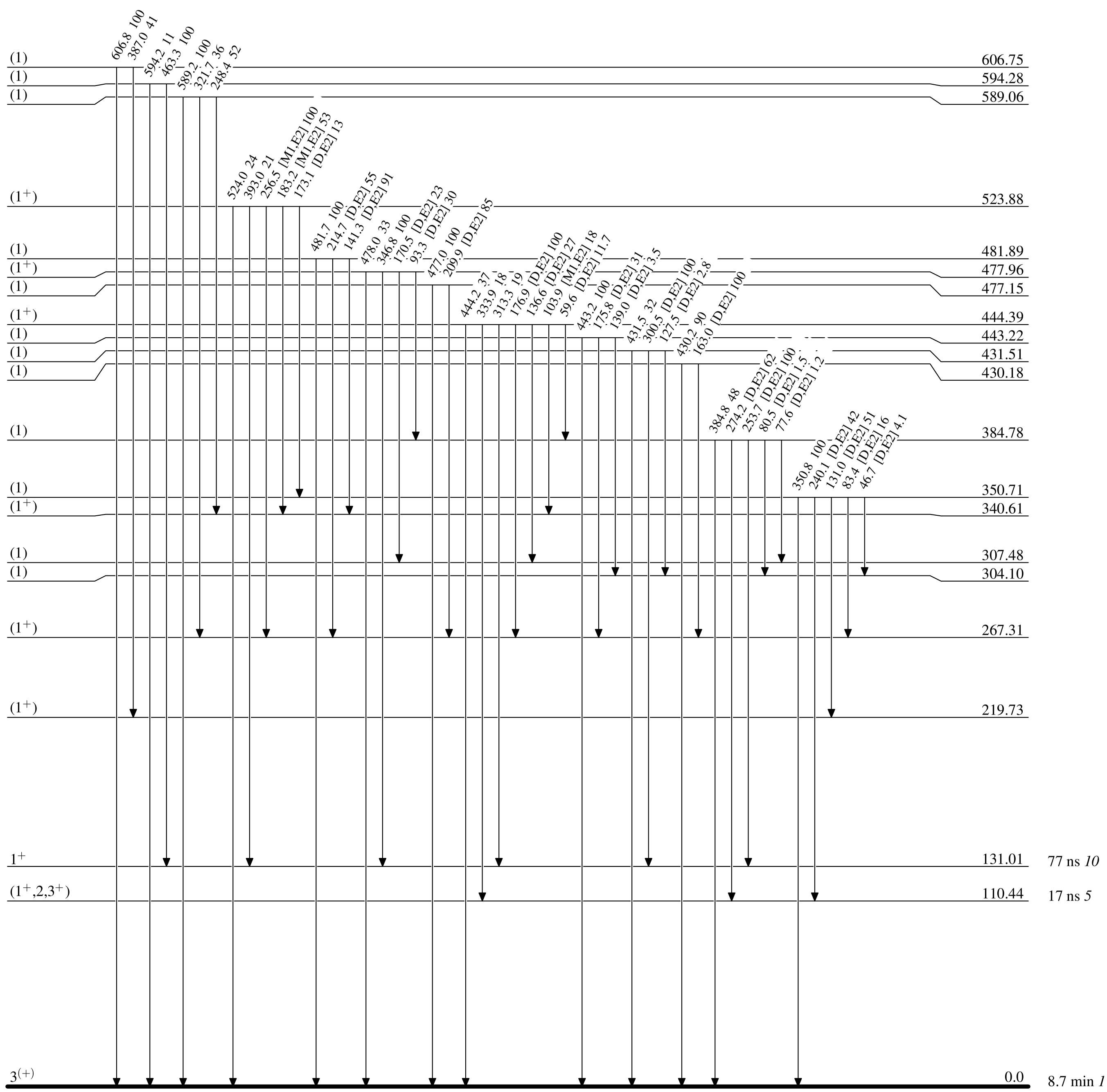


$^{130}_{57}La_{73}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

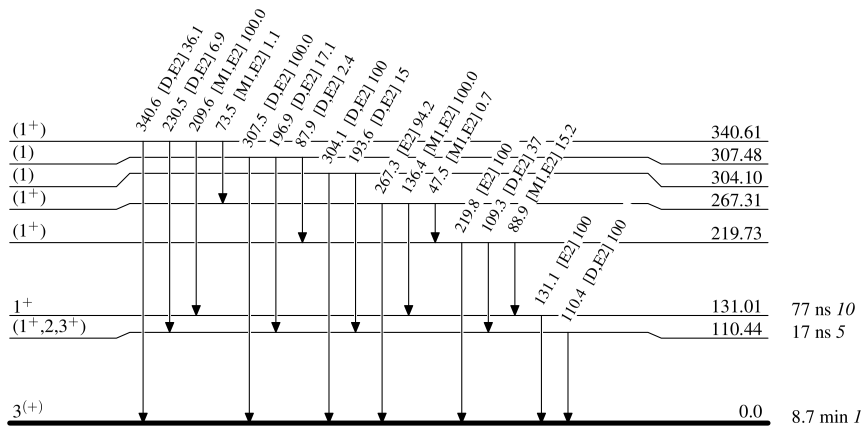


$^{130}_{57}La_{73}$

Adopted Levels, Gammas

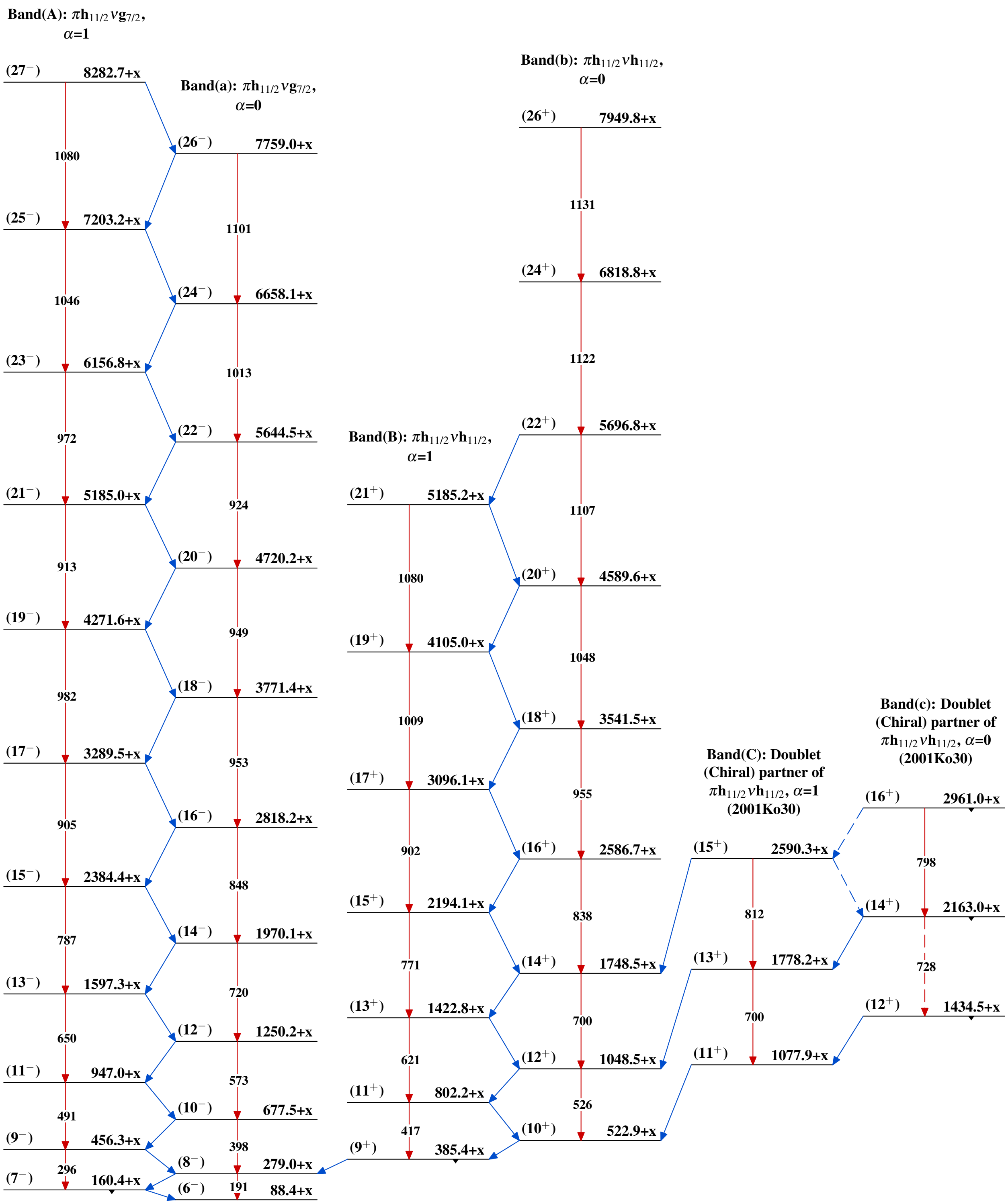
Level Scheme (continued)

Intensities: Relative photon branching from each level



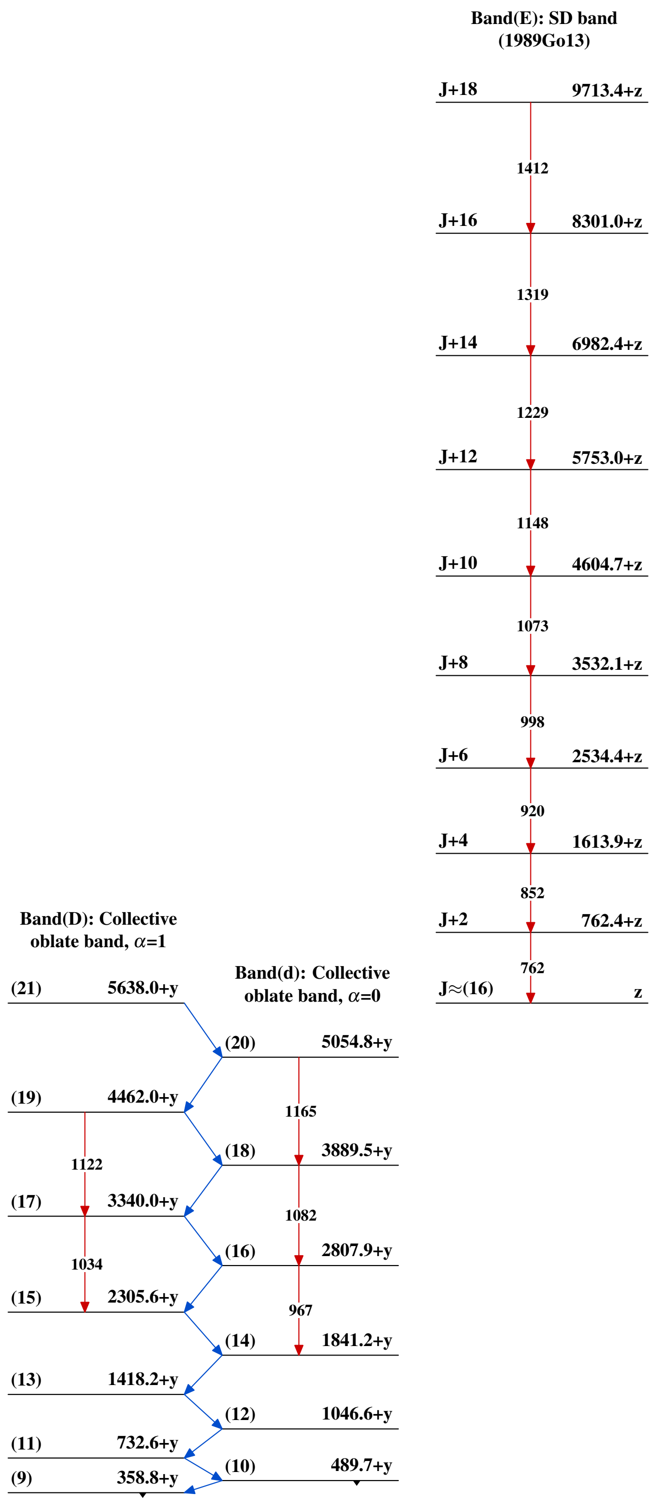
$^{130}_{57}La_{73}$

Adopted Levels, Gammas



$^{130}_{57}La_{73}$

Adopted Levels, Gammas (continued)



$^{130}_{57}La_{73}$