Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 174, 1 (2021)	15-Apr-2021

Q(β^-)=−8370 *SY*; S(n)=12180 *SY*; S(p)=1330 *SY*; Q(α)=1230 *SY* 2021Wa16
ΔQ(β^-)=360, ΔS(n)=360, ΔS(p)=200, ΔQ(α)=200 (syst,2021Wa16).
S(2n)=22600 *360*, S(2p)=6130 *200*, Q(εp)=2210 *200* (syst,2021Wa16).
Structure calculations: 2018Se02, 2014Ag01, 2014Sh10.

^{123}La Levels

Cross Reference (XREF) Flags

- A ^{123}Ce ε decay (3.8 s)
- B ^{124}Pr εp decay (1.2 s)
- C ^{92}Mo(^{34}S,p2nγ),^{52}Cr(^{74}Se,p2nγ)
- D ^{92}Mo(^{40}Ca,2αpγ)

E(level)†	Jπ‡	$T_{1/2}$	XREF	Comments
0.0		16.3 s *3*	CD	%ε+%β^+=100 XREF: C(?)D(?). $T_{1/2}$: weighted average of 16.3 s *3* (1992Ic02, γ(t)), 16 s *1* (1988GeZR, γ(t)), and 17 s *3* (1978Bo32, x-ray(t)).
0+x	(5/2$^+$)		CD	Additional information 1. E(level): this level may correspond to the g.s., but it is not established from ^{123}La ε decay study.
0+y[d]	(9/2$^+$)		CD	Additional information 2.
35.6+x[#] *4*	(3/2$^+$)		CD	
39.8+x[&] *4*	(11/2$^-$)		CD	
209.57+y[c] *19*	(11/2$^+$)		CD	
224.7+x[#] *3*	(7/2$^+$)		CD	
270.6+x[&] *5*	(15/2$^-$)		CD	
449.00+y[d] *22*	(13/2$^+$)		CD	
549.6+x[#] *4*	(11/2$^+$)		CD	
674.0+x[&] *5*	(19/2$^-$)		CD	
716.12+y[c] *23*	(15/2$^+$)		CD	
957.4+x[a] *5*	(15/2$^-$)		D	
987.7+x[#] *4*	(15/2$^+$)		CD	
1008.33+y[d] *25*	(17/2$^+$)		CD	
1223.9+x[&] *5*	(23/2$^-$)		CD	
1322.6+y[c] *3*	(19/2$^+$)		CD	
1352.0+x[a] *5*	(19/2$^-$)		D	
1487.7+x[#] *5*	(19/2$^+$)		CD	
1656.1+y[d] *3*	(21/2$^+$)		CD	
1735.4+x[b] *8*	(21/2$^-$)		D	
1797.9+x[@] *6*	(21/2$^+$)		D	
1856.3+x[a] *5*	(23/2$^-$)		D	
1894.6+x[&] *5*	(27/2$^-$)		CD	
1979.7+x[#] *5*	(23/2$^+$)		CD	
2005.5+y[c] *3*	(23/2$^+$)		CD	
2304.2+x[b] *6*	(25/2$^-$)		D	

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Adopted Levels, Gammas (continued)

^{123}La Levels (continued)

E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF	E(level)†	Jπ‡	XREF
2325.7+x@ 5	(25/2+)	D	4937.8+yc 4	(39/2+)	D	8791.1+x# 11	(55/2+)	D
2365.5+yd 4	(25/2+)	CD	5189.8+x@ 6	(41/2+)	D	8863.1+x& 10	(55/2−)	D
2466.6+xa 5	(27/2−)	D	5374.0+yd 5	(41/2+)	D	9132.7+yc 8	(55/2+)	D
2519.3+x# 6	(27/2+)	CD	5438.2+x& 7	(43/2−)	CD	9288.9+x?a 14	(55/2−)	D
2662.6+x& 6	(31/2−)	CD	5498.3+xb 7	(41/2−)	D	9550.6+x@ 9	(57/2+)	D
2725.3+yc 4	(27/2+)	CD	5607.6+x# 7	(43/2+)	CD	9765.9+yd 6	(57/2+)	D
2906.2+x@ 6	(29/2+)	D	5830.3+xa 7	(43/2−)	D	10019.4+x# 12	(59/2+)	D
2968.4+xb 6	(29/2−)	D	5841.2+yc 5	(43/2+)	D	10142.0+x& 11	(59/2−)	D
3074.9+yd 4	(29/2+)	D	6131.6+x@ 7	(45/2+)	D	10425.6+yc 9	(59/2+)	D
3152.9+x# 6	(31/2+)	CD	6327.0+yd 5	(45/2+)	D	10892.8+x@ 10	(61/2+)	D
3173.4+xa 6	(31/2−)	D	6503.6+xb 9	(45/2−)	D	11107.3+yd 8	(61/2+)	D
3417.5+yc 4	(31/2+)	D	6511.2+x& 7	(47/2−)	CD	11337.5+x# 13	(63/2+)	D
3512.3+x& 6	(35/2−)	CD	6589.2+x# 11	(47/2+)	CD	11490.0+x& 12	(63/2−)	D
3574.3+x@ 6	(33/2+)	D	6842.5+yc 5	(47/2+)	D	11811.3+yc 10	(63/2+)	D
3727.4+xb 6	(33/2−)	D	6905.6+xa 8	(47/2−)	D	12327.4+x@ 12	(65/2+)	D
3763.3+yd 4	(33/2+)	D	7168.5+x@ 7	(49/2+)	D	12542.2+yd 9	(65/2+)	D
3883.0+x# 6	(35/2+)	CD	7376.0+yd 5	(49/2+)	D	12752.3+x# 14	(67/2+)	D
3968.4+xa 6	(35/2−)	D	7579.7+xb 10	(49/2−)	D	12909.4+x& 13	(67/2−)	D
4132.6+yc 4	(35/2+)	D	7649.5+x# 11	(51/2+)	CD	13852.2+x?@ 15	(69/2+)	D
4336.9+x@ 6	(37/2+)	D	7652.4+x& 10	(51/2−)	CD	14271.5+x# 15	(71/2+)	D
4437.7+x& 7	(39/2−)	CD	7938.4+yc 6	(51/2+)	D	14408.1+x& 14	(71/2−)	D
4519.7+yd 4	(37/2+)	D	8068.3+xa 10	(51/2−)	D	15895.7+x# 16	(75/2+)	D
4571.3+xb 7	(37/2−)	D	8306.8+x@ 7	(53/2+)	D	15992.8+x& 15	(75/2−)	D
4703.7+x# 7	(39/2+)	CD	8522.2+yd 6	(53/2+)	D	17651.5+x?# 17	(79/2+)	D
4852.1+xa 6	(39/2−)	D	8700.7+xb 14	(53/2−)	D	17663.2+x?& 16	(79/2−)	D

† From a least-squares fit to γ-ray energies. The bandhead energies are not determined.

‡ From (^{40}Ca,2αpγ), based on measured γγ(DCO) and proposed band structures. Assignments are consistent with structure calculations based on Nilsson orbitals.

Band(A): Band 1: π3/2[422] ($g_{7/2}$ orbital), α=−1/2.

@ Band(B): Band 2: π($d_{5/2}$/$g_{7/2}$)E_pF_p, α=+1/2. E_p=most favored proton π$h_{11/2}$, α=−1/2; F_p=most favored proton π$h_{11/2}$, α=+1/2.

& Band(C): Band 3: π1/2[550], α=−1/2.

a Band(D): Band 4: Quasi γ-vibration band based on $h_{11/2}$, α=−1/2.

b Band(E): Band 5: Quasi γ-vibration band based on $h_{11/2}$, α=+1/2 (?).

c Band(F): Band 6: π9/2[404], α=−1/2.

d Band(f): Band 7: π9/2[404], α=+1/2.

γ(^{123}La)

γ rays of 66, 113 and 178 keV were observed and tentatively assigned to ^{123}La in ^{123}Ce ε decay; γ rays of 70, 113 and 166 keV were observed and assigned to ^{123}La in ^{124}Pr εp decay. Those γ rays are not placed since the level scheme is not known.

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Adopted Levels, Gammas (continued)

$\gamma(^{123}La)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	Comments
209.57+y	(11/2$^+$)	209.6 *2*	100	0+y	(9/2$^+$)	D	E_γ: weighted average of 209.6 *2* from (^{34}S,p2nγ) and 209.5 *2* from (^{40}Ca,2αpγ).
224.7+x	(7/2$^+$)	189.1 *2*	100 *16*	35.6+x	(3/2$^+$)	Q	E_γ: weighted average of 189.2 *2* from (^{34}S,p2nγ) and 189.0 *2* from (^{40}Ca,2αpγ). I_γ: other: 100 *30* from (^{34}S,p2nγ).
		224.7 *3*	≈37	0+x	(5/2$^+$)	D	E_γ: weighted average of 224.9 *2* from (^{34}S,p2nγ) and 224.4 *2* from (^{40}Ca,2αpγ). I_γ: other: 70 *30* from (^{34}S,p2nγ).
270.6+x	(15/2$^-$)	230.8 *2*	100	39.8+x	(11/2$^-$)	Q	E_γ: weighted average of 230.8 *2* from (^{34}S,p2nγ) and 230.7 *2* from (^{40}Ca,2αpγ).
449.00+y	(13/2$^+$)	239.5 *2*	100 *3*	209.57+y	(11/2$^+$)	D	E_γ: weighted average of 239.4 *2* from (^{34}S,p2nγ) and 239.5 *2* from (^{40}Ca,2αpγ). I_γ: other: 100 *30* from (^{34}S,p2nγ).
		448.9 *4*	19 *1*	0+y	(9/2$^+$)		E_γ: unweighted average of 448.5 *3* from (^{34}S,p2nγ) and 449.2 *2* from (^{40}Ca,2αpγ). I_γ: other: 18 *9* from (^{34}S,p2nγ).
549.6+x	(11/2$^+$)	324.9 *2*	100 *7*	224.7+x	(7/2$^+$)	Q	E_γ: weighted average of 324.8 *2* from (^{34}S,p2nγ) and 324.9 *2* from (^{40}Ca,2αpγ). I_γ: other: 100 from (^{34}S,p2nγ).
		509.9 *2*	18 *2*	39.8+x	(11/2$^-$)		
674.0+x	(19/2$^-$)	403.3 *2*	100	270.6+x	(15/2$^-$)	Q	E_γ: weighted average of 403.3 *3* from (^{34}S,p2nγ) and 403.3 *2* from (^{40}Ca,2αpγ).
716.12+y	(15/2$^+$)	267.1 *2*	100 *4*	449.00+y	(13/2$^+$)	D	E_γ: weighted average of 267.0 *2* from (^{34}S,p2nγ) and 267.1 *2* from (^{40}Ca,2αpγ). I_γ: other: 100 *30* from (^{34}S,p2nγ).
		506.5 *2*	44 *2*	209.57+y	(11/2$^+$)		E_γ: weighted average of 506.1 *3* from (^{34}S,p2nγ) and 506.6 *2* from (^{40}Ca,2αpγ). I_γ: other: 55 *18* from (^{34}S,p2nγ).
957.4+x	(15/2$^-$)	687.0 *5*	100 *20*	270.6+x	(15/2$^-$)		
		917.5 *5*	<100	39.8+x	(11/2$^-$)		
987.7+x	(15/2$^+$)	438.2 *2*	100 *3*	549.6+x	(11/2$^+$)	Q	E_γ: weighted average of 438.3 *3* from (^{34}S,p2nγ) and 438.2 *2* from (^{40}Ca,2αpγ).
		717.0 *2*	11 *1*	270.6+x	(15/2$^-$)		
1008.33+y	(17/2$^+$)	292.3 *2*	100 *4*	716.12+y	(15/2$^+$)	D	E_γ: weighted average of 292.4 *2* from (^{34}S,p2nγ) and 292.1 *2* from (^{40}Ca,2αpγ). I_γ: other: 100 *30* from (^{34}S,p2nγ).
		559.4 *2*	74 *3*	449.00+y	(13/2$^+$)		E_γ: weighted average of 559.6 *4* from (^{34}S,p2nγ) and 559.3 *2* from (^{40}Ca,2αpγ). I_γ: other: 80 *30* from (^{34}S,p2nγ).
1223.9+x	(23/2$^-$)	550.0 *2*	100	674.0+x	(19/2$^-$)	Q	E_γ: weighted average of 550.1 *3* from (^{34}S,p2nγ) and 550.0 *2* from (^{40}Ca,2αpγ).
1322.6+y	(19/2$^+$)	314.4 *2*	100 *4*	1008.33+y	(17/2$^+$)	D	E_γ: weighted average of 314.3 *2* from (^{34}S,p2nγ) and 314.4 *2* from (^{40}Ca,2αpγ). I_γ: other: 100 *50* from (^{34}S,p2nγ).
		606.3 *2*	84 *4*	716.12+y	(15/2$^+$)		E_γ: weighted average of 606.2 *4* from (^{34}S,p2nγ) and 606.3 *2* from (^{40}Ca,2αpγ). I_γ: other: 100 *50* from (^{34}S,p2nγ).
1352.0+x	(19/2$^-$)	394.7 *5*	56 *6*	957.4+x	(15/2$^-$)		
		678.0 *2*	68 *6*	674.0+x	(19/2$^-$)		
		1081.4 *2*	100 *16*	270.6+x	(15/2$^-$)		
1487.7+x	(19/2$^+$)	500.0 *2*	100 *5*	987.7+x	(15/2$^+$)	Q	E_γ: weighted average of 500.0 *3* from (^{34}S,p2nγ) and 500.0 *2* from (^{40}Ca,2αpγ).
		814 *1*	<5	674.0+x	(19/2$^-$)		
1656.1+y	(21/2$^+$)	333.6 *2*	86 *4*	1322.6+y	(19/2$^+$)	D	E_γ: weighted average of 333.5 *2* from (^{34}S,p2nγ)

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Adopted Levels, Gammas (continued)

γ(^{123}La) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	Comments
							and 333.6 *2* from (^{40}Ca,2αpγ).
							I_γ: other: 50 *30* from (^{34}S,p2nγ).
1656.1+y	(21/2$^+$)	647.8 *2*	100 *4*	1008.33+y	(17/2$^+$)		E_γ: weighted average of 647.6 *4* from (^{34}S,p2nγ) and 647.8 *2* from (^{40}Ca,2αpγ).
							I_γ: other: 100 *30* from (^{34}S,p2nγ).
1735.4+x	(21/2$^-$)	1062[#] *1*	<100	674.0+x	(19/2$^-$)		
1797.9+x	(21/2$^+$)	1123.5 *5*	<100	674.0+x	(19/2$^-$)		
1856.3+x	(23/2$^-$)	504.3 *2*	100 *3*	1352.0+x	(19/2$^-$)		
		1182.3 *2*	37 *4*	674.0+x	(19/2$^-$)		E_γ: a 1210.5γ-1184.3γ cascade placed to feed the 7652.8+x level in (^{34}S,p2nγ).
1894.6+x	(27/2$^-$)	670.5 *2*	100	1223.9+x	(23/2$^-$)	Q	E_γ: weighted average of 670.3 *4* from (^{34}S,p2nγ) and 670.6 *2* from (^{40}Ca,2αpγ).
1979.7+x	(23/2$^+$)	492.0 *2*	100	1487.7+x	(19/2$^+$)	Q	E_γ: weighted average of 491.9 *3* from (^{34}S,p2nγ) and 492.0 *2* from (^{40}Ca,2αpγ).
2005.5+y	(23/2$^+$)	349.6 *2*	57 *2*	1656.1+y	(21/2$^+$)	D	E_γ: weighted average of 349.5 *3* from (^{34}S,p2nγ) and 349.7 *2* from (^{40}Ca,2αpγ).
							I_γ: other: 80 *30* from (^{34}S,p2nγ).
		682.8 *3*	100 *5*	1322.6+y	(19/2$^+$)		E_γ: weighted average of 683.4 *4* from (^{34}S,p2nγ) and 682.6 *2* from (^{40}Ca,2αpγ).
							I_γ: other: 100 *30* from (^{34}S,p2nγ).
2304.2+x	(25/2$^-$)	568.8 *5*	<54	1735.4+x	(21/2$^-$)		
		1080.3 *2*	100 *16*	1223.9+x	(23/2$^-$)		
2325.7+x	(25/2$^+$)	527.4 *5*	<50	1797.9+x	(21/2$^+$)		
		1101.9 *2*	100 *13*	1223.9+x	(23/2$^-$)	D	
2365.5+y	(25/2$^+$)	360.0 *2*	54 *3*	2005.5+y	(23/2$^+$)	D	E_γ: weighted average of 359.8 *3* from (^{34}S,p2nγ) and 360.1 *2* from (^{40}Ca,2αpγ).
							I_γ: other: 100 *40* from (^{34}S,p2nγ).
		709.2 *2*	100 *5*	1656.1+y	(21/2$^+$)		E_γ: weighted average of 709.4 *4* from (^{34}S,p2nγ) and 709.2 *2* from (^{40}Ca,2αpγ).
							I_γ: other: 100 *40* from (^{34}S,p2nγ).
2466.6+x	(27/2$^-$)	610.3 *2*	100 *4*	1856.3+x	(23/2$^-$)		
		1242 *1*	<21	1223.9+x	(23/2$^-$)		
2519.3+x	(27/2$^+$)	539.6 *2*	100	1979.7+x	(23/2$^+$)	Q	E_γ: weighted average of 539.6 *3* from (^{34}S,p2nγ) and 539.6 *2* from (^{40}Ca,2αpγ).
2662.6+x	(31/2$^-$)	767.9 *3*	100	1894.6+x	(27/2$^-$)	Q	E_γ: weighted average of 767.4 *4* from (^{34}S,p2nγ) and 768.0 *2* from (^{40}Ca,2αpγ).
2725.3+y	(27/2$^+$)	359.6 *2*	59 *3*	2365.5+y	(25/2$^+$)	D	E_γ: weighted average of 359.8 *3* from (^{34}S,p2nγ) and 359.5 *2* from (^{40}Ca,2αpγ).
							I_γ: other: 100 *40* from (^{34}S,p2nγ).
		719.8 *2*	100 *5*	2005.5+y	(23/2$^+$)		E_γ: weighted average of 720.0 *4* from (^{34}S,p2nγ) and 719.7 *2* from (^{40}Ca,2αpγ).
							I_γ: other: 100 *40* from (^{34}S,p2nγ).
2906.2+x	(29/2$^+$)	580.6 *2*	87 *5*	2325.7+x	(25/2$^+$)		
		1011.5	100 *8*	1894.6+x	(27/2$^-$)	D	
2968.4+x	(29/2$^-$)	664.3 *2*	100 *12*	2304.2+x	(25/2$^-$)		
		1072 *1*	<61	1894.6+x	(27/2$^-$)		
3074.9+y	(29/2$^+$)	349.4 *2*	44 *3*	2725.3+y	(27/2$^+$)	D	
		709.6 *2*	100 *5*	2365.5+y	(25/2$^+$)		
3152.9+x	(31/2$^+$)	633.6 *2*	100	2519.3+x	(27/2$^+$)	Q	E_γ: weighted average of 633.6 *4* from (^{34}S,p2nγ) and 633.6 *2* from (^{40}Ca,2αpγ).
3173.4+x	(31/2$^-$)	706.8 *2*	100	2466.6+x	(27/2$^-$)		
3417.5+y	(31/2$^+$)	342.9 *2*	40 *2*	3074.9+y	(29/2$^+$)	D	
		692.3 *2*	100 *5*	2725.3+y	(27/2$^+$)		

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Adopted Levels, Gammas (continued)

$\gamma(^{123}La)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	Comments
3512.3+x	(35/2$^-$)	849.7 *2*	100	2662.6+x	(31/2$^-$)	Q	E_γ: weighted average of 849.9 *5* from (^{34}S,p2nγ) and 849.7 *2* from (^{40}Ca,2αpγ).
3574.3+x	(33/2$^+$)	668.1 *2*	100 *4*	2906.2+x	(29/2$^+$)		
		911.6 *2*	30 *2*	2662.6+x	(31/2$^-$)	D	
3727.4+x	(33/2$^-$)	759.0 *2*	100	2968.4+x	(29/2$^-$)		
3763.3+y	(33/2$^+$)	346.1 *2*	38 *2*	3417.5+y	(31/2$^+$)		
		688.1 *2*	100 *5*	3074.9+y	(29/2$^+$)		
3883.0+x	(35/2$^+$)	730.1 *2*	100	3152.9+x	(31/2$^+$)	Q	E_γ: weighted average of 729.9 *4* from (^{34}S,p2nγ) and 730.1 *2* from (^{40}Ca,2αpγ).
3968.4+x	(35/2$^-$)	795.0 *2*	100	3173.4+x	(31/2$^-$)		
4132.6+y	(35/2$^+$)	369.2 *2*	42 *3*	3763.3+y	(33/2$^+$)	D	
		715.1 *2*	100 *5*	3417.5+y	(31/2$^+$)		
4336.9+x	(37/2$^+$)	762.6 *2*	100	3574.3+x	(33/2$^+$)		
4437.7+x	(39/2$^-$)	925.4 *2*	100	3512.3+x	(35/2$^-$)	Q	E_γ: weighted average of 925.7 *5* from (^{34}S,p2nγ) and 925.4 *2* from (^{40}Ca,2αpγ).
4519.7+y	(37/2$^+$)	387.1 *5*	31 *2*	4132.6+y	(35/2$^+$)	D+Q	
		756.3 *2*	100 *4*	3763.3+y	(33/2$^+$)		
4571.3+x	(37/2$^-$)	843.9 *2*	100	3727.4+x	(33/2$^-$)		
4703.7+x	(39/2$^+$)	820.7 *2*	100	3883.0+x	(35/2$^+$)	Q	E_γ: weighted average of 820.4 *5* from (^{34}S,p2nγ) and 820.8 *2* from (^{40}Ca,2αpγ).
4852.1+x	(39/2$^-$)	883.7 *2*	100	3968.4+x	(35/2$^-$)		
4937.8+y	(39/2$^+$)	417.9 *5*	28 *3*	4519.7+y	(37/2$^+$)	D	
		805.3 *2*	100 *5*	4132.6+y	(35/2$^+$)		
5189.8+x	(41/2$^+$)	852.9 *2*	100	4336.9+x	(37/2$^+$)		
5374.0+y	(41/2$^+$)	436.4 *5*	25 *3*	4937.8+y	(39/2$^+$)	D	
		854.3 *2*	100 *6*	4519.7+y	(37/2$^+$)		
5438.2+x	(43/2$^-$)	1000.5 *2*	100	4437.7+x	(39/2$^-$)	Q	E_γ: weighted average of 1000.9 *5* from (^{34}S,p2nγ) and 1000.4 *2* from (^{40}Ca,2αpγ).
5498.3+x	(41/2$^-$)	927.0 *2*	100	4571.3+x	(37/2$^-$)		
5607.6+x	(43/2$^+$)	903.9 *2*	100	4703.7+x	(39/2$^+$)	Q	E_γ: weighted average of 903.5 *5* from (^{34}S,p2nγ) and 904.0 *2* from (^{40}Ca,2αpγ).
5830.3+x	(43/2$^-$)	978.2 *2*	100	4852.1+x	(39/2$^-$)		
5841.2+y	(43/2$^+$)	467.0 *5*	34 *2*	5374.0+y	(41/2$^+$)		
		903.4 *2*	100 *6*	4937.8+y	(39/2$^+$)		
6131.6+x	(45/2$^+$)	941.8 *2*	100	5189.8+x	(41/2$^+$)		
6327.0+y	(45/2$^+$)	485.8 *5*	33 *2*	5841.2+y	(43/2$^+$)		
		953.0 *2*	100 *6*	5374.0+y	(41/2$^+$)		
6503.6+x	(45/2$^-$)	1005.3 *5*	100	5498.3+x	(41/2$^-$)		
6511.2+x	(47/2$^-$)	1073.0 *2*	100	5438.2+x	(43/2$^-$)	Q	E_γ: weighted average of 1073.4 *6* from (^{34}S,p2nγ) and 1073.0 *2* from (^{40}Ca,2αpγ).
6589.2+x	(47/2$^+$)	981.5 *8*	100	5607.6+x	(43/2$^+$)	Q	E_γ: unweighted average of 980.7 *5* from (^{34}S,p2nγ) and 982.2 *2* from (^{40}Ca,2αpγ).
6842.5+y	(47/2$^+$)	1001.3 *2*	100	5841.2+y	(43/2$^+$)		
6905.6+x	(47/2$^-$)	1075.3 *5*	100	5830.3+x	(43/2$^-$)		
7168.5+x	(49/2$^+$)	1036.9 *2*	100	6131.6+x	(45/2$^+$)		
7376.0+y	(49/2$^+$)	1049.0 *2*	100	6327.0+y	(45/2$^+$)		
7579.7+x	(49/2$^-$)	1076.1 *5*	100	6503.6+x	(45/2$^-$)		
7649.5+x	(51/2$^+$)	1060.3 *3*	100	6589.2+x	(47/2$^+$)	Q	E_γ: weighted average of 1059.5 *6* from (^{34}S,p2nγ) and 1060.4 *2* from (^{40}Ca,2αpγ).
7652.4+x	(51/2$^-$)	1141.2 *7*	100	6511.2+x	(47/2$^-$)	Q	E_γ: unweighted average of 1140.5 *7* from (^{34}S,p2nγ) and 1141.9 *2* from (^{40}Ca,2αpγ).
7938.4+y	(51/2$^+$)	1095.9 *2*	100	6842.5+y	(47/2$^+$)		
8068.3+x	(51/2$^-$)	1162.7 *5*	100	6905.6+x	(47/2$^-$)		
8306.8+x	(53/2$^+$)	1138.3 *2*	100	7168.5+x	(49/2$^+$)		
8522.2+y	(53/2$^+$)	1146.1 *2*	100	7376.0+y	(49/2$^+$)		

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{123}La) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	Comments
8700.7+x	(53/2$^-$)	1121 *1*	100	7579.7+x	(49/2$^-$)		
8791.1+x	(55/2$^+$)	1141.6 *2*	100	7649.5+x	(51/2$^+$)	Q	E_γ: weighted average of 1140.7 *8* from (^{34}S,p2nγ) and 1141.7 *2* from (^{40}Ca,2αpγ).
8863.1+x	(55/2$^-$)	1210.7 *2*	100	7652.4+x	(51/2$^-$)		E_γ: a 1210.5γ-1184.3γ cascade placed to feed the 7652.8+x level in (^{34}S,p2nγ).
9132.7+y	(55/2$^+$)	1194.3 *5*	100	7938.4+y	(51/2$^+$)		
9288.9+x?	(55/2$^-$)	1221[#] *1*	100	8068.3+x	(51/2$^-$)		
9550.6+x	(57/2$^+$)	1243.8 *5*	100	8306.8+x	(53/2$^+$)		
9765.9+y	(57/2$^+$)	1243.7 *2*	100	8522.2+y	(53/2$^+$)		
10019.4+x	(59/2$^+$)	1228.3 *5*	100	8791.1+x	(55/2$^+$)		
10142.0+x	(59/2$^-$)	1278.8 *2*	100	8863.1+x	(55/2$^-$)		
10425.6+y	(59/2$^+$)	1292.9 *5*	100	9132.7+y	(55/2$^+$)		
10892.8+x	(61/2$^+$)	1342.2 *5*	100	9550.6+x	(57/2$^+$)		
11107.3+y	(61/2$^+$)	1341.4 *5*	100	9765.9+y	(57/2$^+$)		
11337.5+x	(63/2$^+$)	1318.1 *5*	100	10019.4+x	(59/2$^+$)		
11490.0+x	(63/2$^-$)	1348.0 *5*	100	10142.0+x	(59/2$^-$)		
11811.3+y	(63/2$^+$)	1385.7 *5*	100	10425.6+y	(59/2$^+$)		
12327.4+x	(65/2$^+$)	1434.6 *5*	100	10892.8+x	(61/2$^+$)		
12542.2+y	(65/2$^+$)	1434.9 *5*	100	11107.3+y	(61/2$^+$)		
12752.3+x	(67/2$^+$)	1414.8 *5*	100	11337.5+x	(63/2$^+$)		
12909.4+x	(67/2$^-$)	1419.4 *5*	100	11490.0+x	(63/2$^-$)		
13852.2+x?	(69/2$^+$)	1525[#] *1*	100	12327.4+x	(65/2$^+$)		
14271.5+x	(71/2$^+$)	1519.2 *5*	100	12752.3+x	(67/2$^+$)		
14408.1+x	(71/2$^-$)	1498.7 *5*	100	12909.4+x	(67/2$^-$)		
15895.7+x	(75/2$^+$)	1624.2 *5*	100	14271.5+x	(71/2$^+$)		
15992.8+x	(75/2$^-$)	1584.7 *5*	100	14408.1+x	(71/2$^-$)		
17651.5+x?	(79/2$^+$)	1755[#] *1*	100	15895.7+x	(75/2$^+$)		
17663.2+x?	(79/2$^-$)	1670[#] *1*	100	15992.8+x	(75/2$^-$)		

[†] From (^{40}Ca,2αpγ), unless otherwise noted.

[‡] From γγ(DCO) in (^{40}Ca,2αpγ). Assignments from γγ(DCO) in (^{34}S,p2nγ) are also available for some γ rays and are consistent.

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

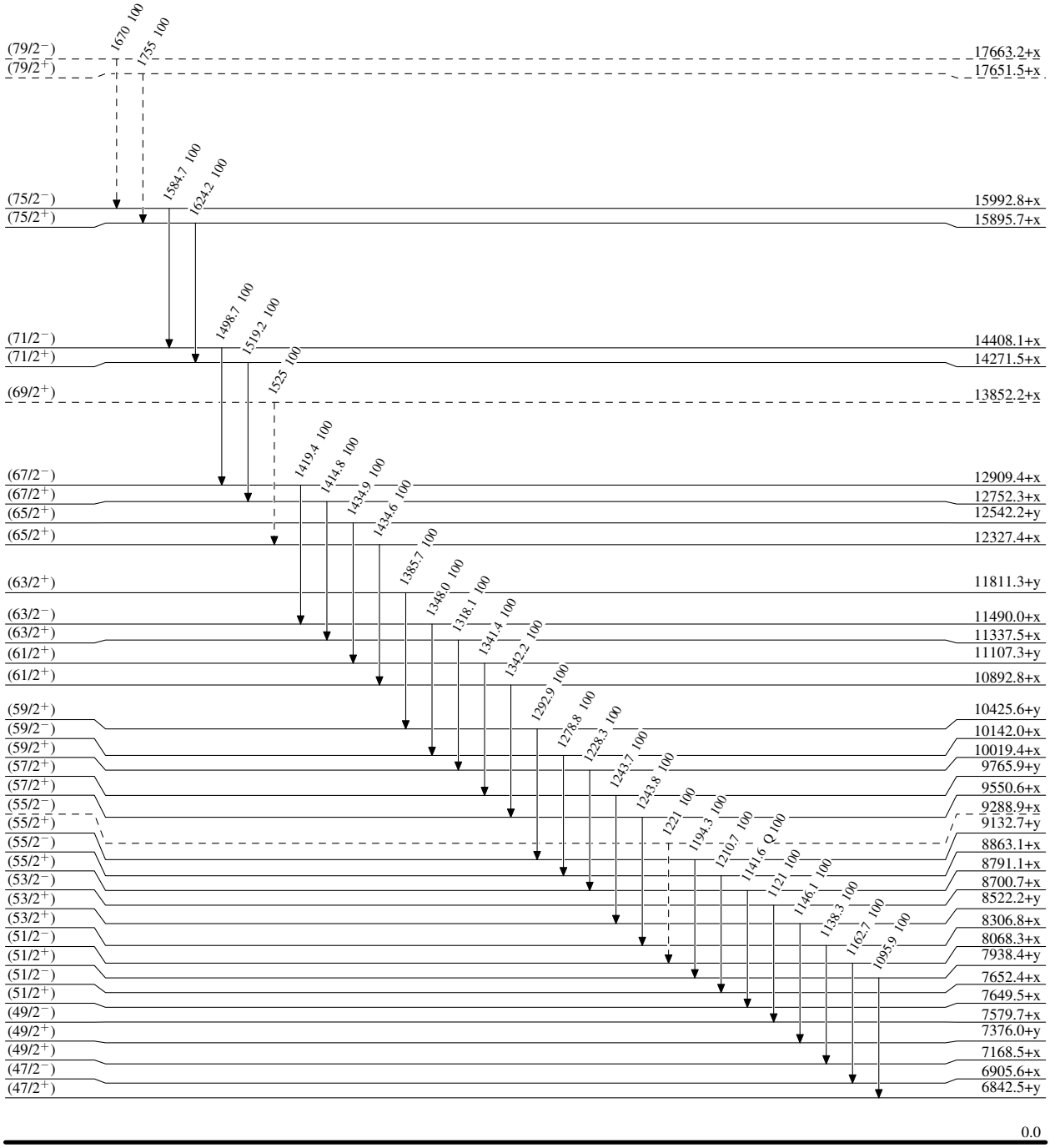
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

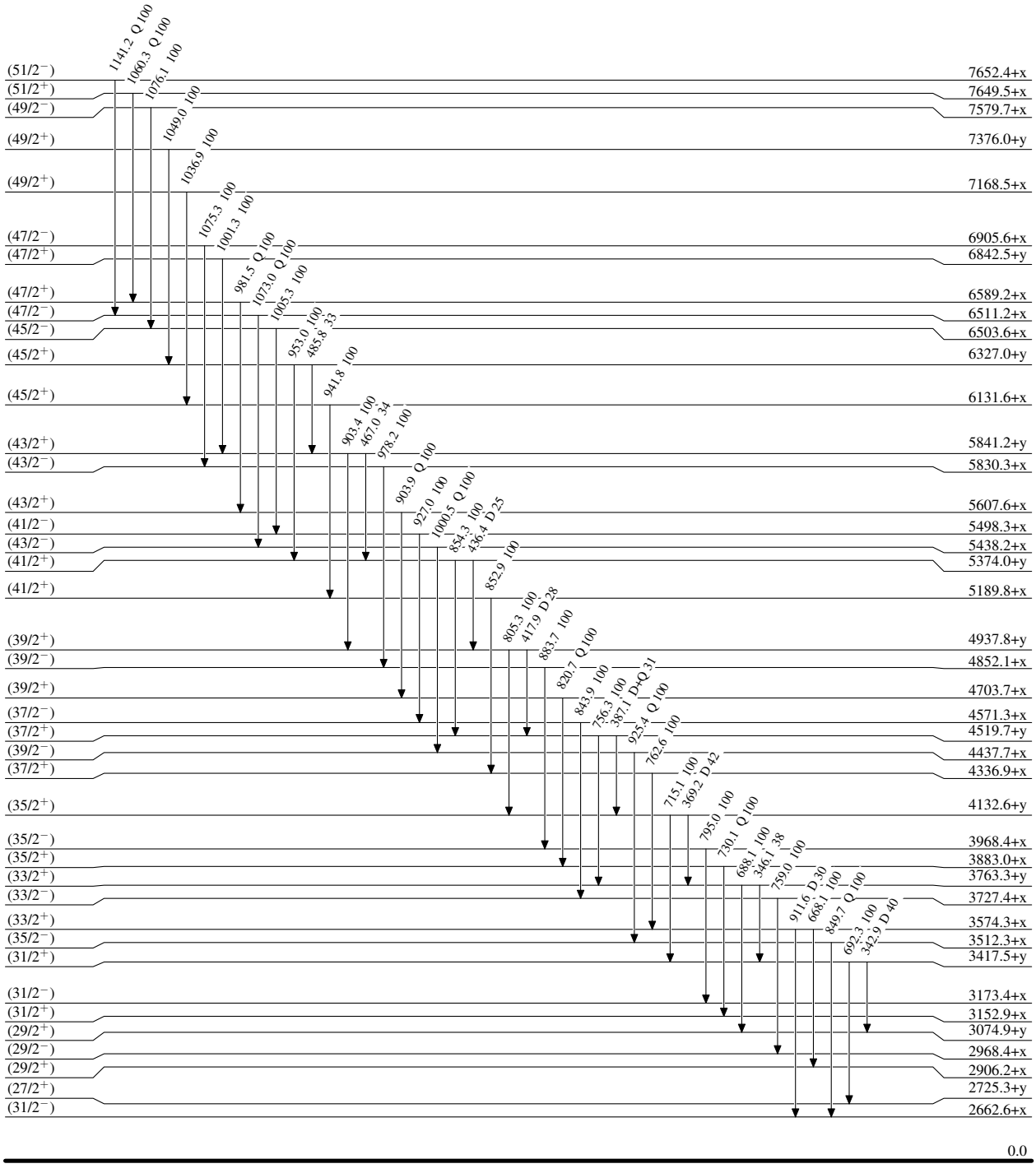


$^{123}_{57}La_{66}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{123}_{57}La_{66}$

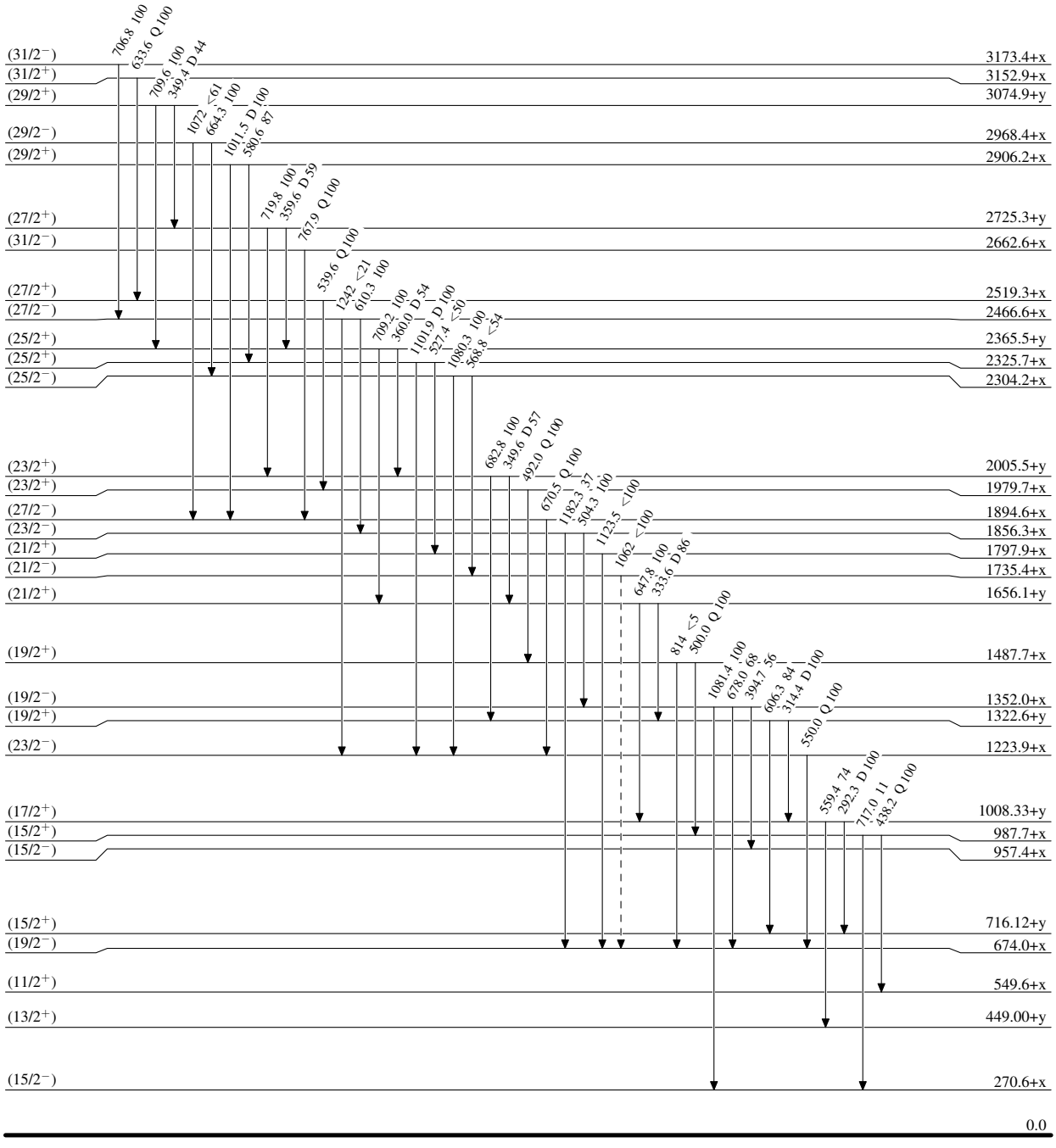
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

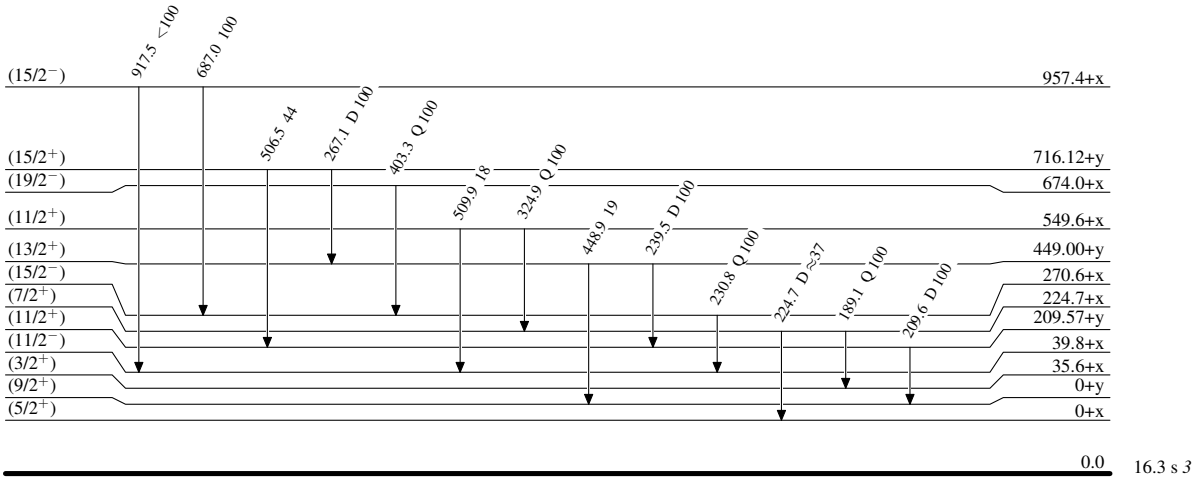


$^{123}_{57}La_{66}$

Adopted Levels, Gammas

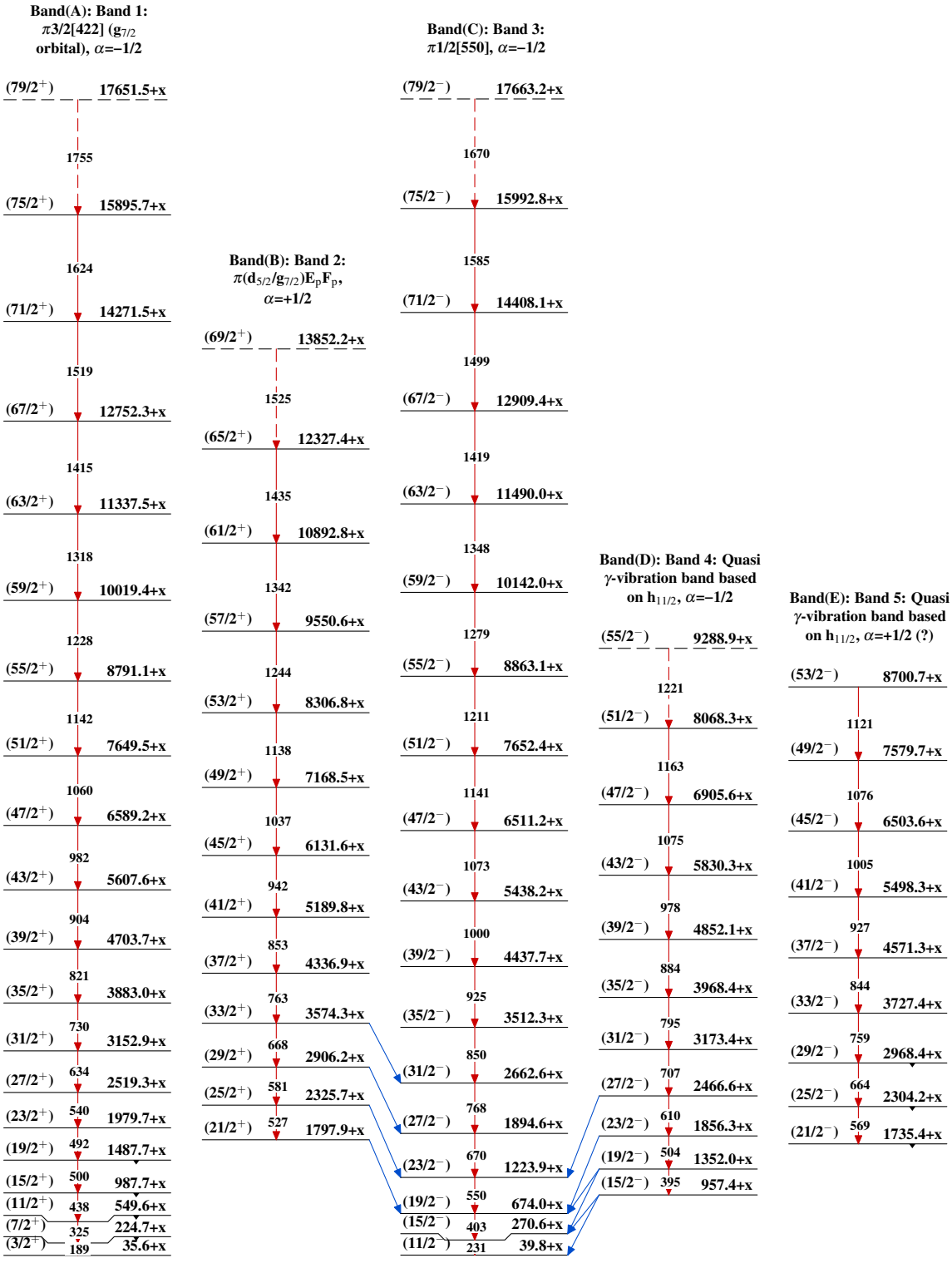
Level Scheme (continued)

Intensities: Relative photon branching from each level



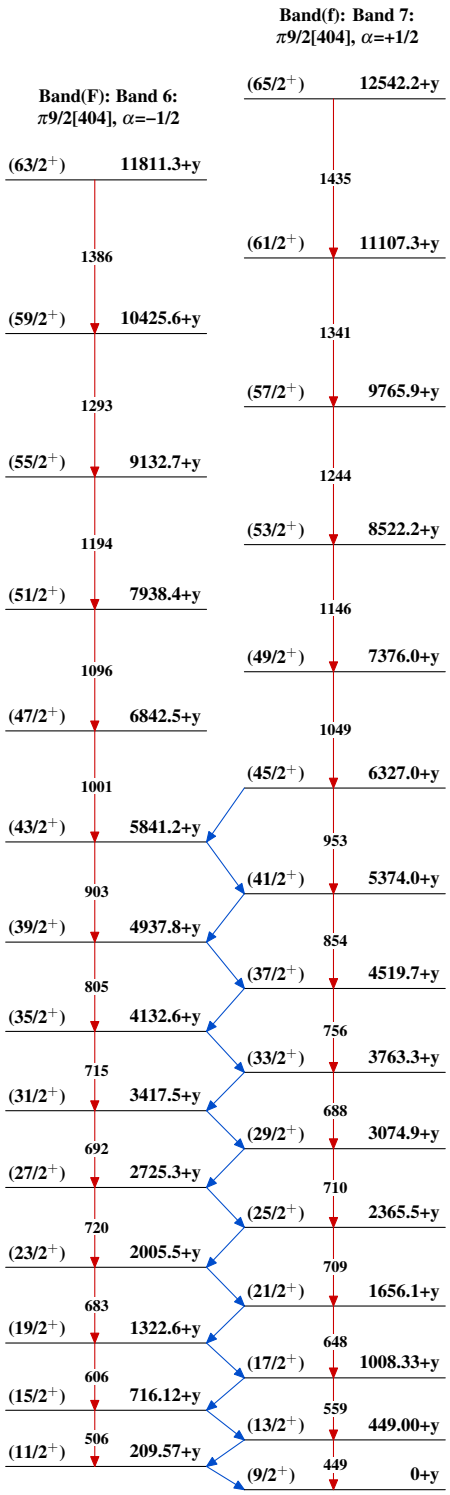
$^{123}_{57}La_{66}$

Adopted Levels, Gammas



$^{123}_{57}La_{66}$

Adopted Levels, Gammas (continued)



$^{123}_{57}La_{66}$