Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	J. Katakura	NDS 112,495 (2011)	1-Jan-2010

Q(β^-)=−7.10×10^3 *syst*; S(n)=1.157×10^4 *7*; S(p)=1.96×10^3 *3*; Q(α)=9.2×10^2 *3* 2012Wa38
Note: Current evaluation has used the following Q record −7102 SY11572 62 *1959* 29 916 *29* 2009AuZZ.
ΔQ(β^-)=197 (syst,2009AuZZ).
Q(εp)=683 *27* (2009AuZZ).

^{125}La Levels

Cross Reference (XREF) Flags

A ^{112}Sn(^{16}O,2npγ)
B ^{125}Ce ε decay
C ^{94}Mo(^{40}Ca,2αpγ)

E(level)†	Jπ‡	$T_{1/2}$#	XREF	Comments
0.0@	(3/2$^+$)	64.8 s *12*	ABC	%ε+%β$^+$=100 $T_{1/2}$: From 1992Ic02. Others: 76 s *6* (1978Bo32), 70 s *3* (1988GiZV). Jπ: Systematics. 1999Ha29 assume 3/2$^+$ for the ground state.
0.0+x[e]	(9/2$^+$)		C	Additional information 1.
0.0+y			B	Additional information 2.
8.7[c] *3*	(11/2$^-$)		ABC	Jπ: Systematics (1996St01). In ^{125}Ce ε decay, ^{112}Sn(^{16}O,2npγ) and ^{94}Mo(^{40}Ca,2αpγ), nearly the same level spacing is observed, that is, 9.0 keV, 8.4 keV and 8.5 keV, respectively. Evaluators assumed that they are due to the same levels.
57.5+y *10*			B	
107.00 *10*		0.39 s *4*	B	$T_{1/2}$: From ε decay.
128.8 *3*	(5/2$^+$)		A C	Jπ: Systematics (1996St01).
182.7+y *15*			B	
194.3 *8*			B	
200.8+y *15*			B	
207.8+y *15*			B	
230.91+x[f] *19*	(11/2$^+$)		C	
249.3[c] *3*	(15/2$^-$)	101 ps *+14−24*	A C	
296.42@ *19*	(7/2$^+$)		A C	
324.9 *7*			B	
362.1+y *15*			B	
378.9 *7*			B	
493.4+x[e] *4*	(13/2$^+$)		C	
546.0 *10*			B	
625.6 *9*			B	
643.92@ *24*	(11/2$^+$)		A C	
685.6[c] *3*	(19/2$^-$)	5.3 ps *+4−17*	A C	
783.3 *12*			B	
784.4+x[f] *4*	(15/2$^+$)		C	
1005.1 *11*			B	
1072.9[d] *3*	(15/2$^-$)		A C	
1099.8+x[e] *5*	(17/2$^+$)		C	
1111.3 *3*	(17/2)		A C	
1120.3@ *3*	(15/2)		A C	
1289.2[c] *3*	(23/2$^-$)	≤2 ps	A C	
1435.2+x[f] *5*	(19/2$^+$)		C	

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Adopted Levels, Gammas (continued)

^{125}La Levels (continued)

E(level)[†]	Jπ[‡]	XREF	E(level)[†]	Jπ[‡]	XREF
1481.5[d] 3	(19/2⁻)	A C	4077.9[&] 4	(35/2⁺)	A C
1491.6 3		A	4110.3+x[f] 14	(35/2⁺)	C
1615.7[&] 3	(19/2⁺)	A C	4216.9[d] 4	(35/2⁻)	A C
1727.2 3	(21/2⁻)	A C	4353.7[a] 7	(35/2⁺)	C
1782.6+x[e] 6	(21/2⁺)	C	4502.4+x[e] 15	(37/2⁺)	C
1801.7[@] 3	(19/2⁺)	A C	4589.5[b] 4	(37/2⁺)	A C
1818.3 3		A	4772.9[c] 4	(39/2⁻)	A C
1978.6[b] 3	(21/2⁺)	A C	4954.8[&] 4	(39/2⁺)	A C
2013.6[d] 3	(23/2⁻)	A C	5117.4[d] 7	(39/2⁻)	C
2033.2[c] 3	(27/2⁻)	A C	5259.4[a] 9	(39/2⁺)	C
2037.3 4		A	5530.0[b] 7	(41/2⁺)	C
2074.9[&] 3	(23/2⁺)	A C	5806.7[c] 7	(43/2⁻)	C
2134.4+x[f] 6	(23/2⁺)	C	5909.0[&] 7	(43/2⁺)	C
2331.0[a] 4	(23/2⁺)	A C	6097.2[d] 9	(43/2⁻)	C
2412.0[@] 4	(23/2⁺)	A C	6232.9[a] 10	(43/2⁺)	C
2448.3+x[e] 7	(25/2⁺)	C	6525.3[b] 9	(45/2⁺)	C
2459.1[b] 3	(25/2⁺)	A C	6910.9[&] 8	(47/2⁺)	C
2496.9 4		A	6924.2[c] 8	(47/2⁻)	C
2625.2 4	(21/2,23/2)	A	7145.3[d] 10	(47/2⁻)	C
2631.4[&] 3	(27/2⁺)	A C	7256.9?[a] 14	(47/2⁺)	C
2660.3[d] 4	(27/2⁻)	A C	7573.0[b] 10	(49/2⁺)	C
2746.6+x[f] 8	(27/2⁺)	C	7958.1[&] 10	(51/2⁺)	C
2850.6 4		A	8126.3[c] 10	(51/2⁻)	C
2864.0[a] 4	(27/2⁺)	A C	8266.3[d] 14	(51/2⁻)	C
2885.0[c] 4	(31/2⁻)	A C	8710.5[b] 11	(53/2⁺)	C
3030.4+x[e] 9	(29/2⁺)	C	9072.1[&] 11	(55/2⁺)	C
3038.4[b] 3	(29/2⁺)	A C	9391.6[c] 11	(55/2⁻)	C
3046.2[@] 4		A	9436.3?[d] 17	(55/2⁻)	C
3300.7[&] 4	(31/2⁺)	A C	9945.5[b] 15	(57/2⁺)	C
3329.3 4	(25/2,27/2,29/2)	A	10268.1[&] 12	(59/2⁺)	C
3371.3+x[f] 10	(31/2⁺)	C	10680.6?[c] 15	(59/2⁻)	C
3401.2[d] 4	(31/2⁻)	A C	11266.5?[b] 18	(61/2⁺)	C
3541.4[a] 5	(31/2⁺)	C	11551.1[&] 16	(63/2⁺)	C
3716.4+x[e] 10	(33/2⁺)	C	12018.6?[c] 18	(63/2⁻)	C
3749.3[b] 4	(33/2⁺)	A C	12924.1[&] 19	(67/2⁺)	C
3804.7[c] 4	(35/2⁻)	A C	14391.1?[&] 21	(71/2⁺)	C

[†] From a least-squares fit to Eγ′s by evaluators. Uncertainties of 1 keV are assumed for the energies of γ′s with no uncertainty.
[‡] From γγ(θ) (DCO), RUL in ^{112}Sn(^{16}O,2npγ), and band structure in ^{112}Sn(^{16}O,2npγ) and ^{94}Mo(^{40}Ca,2α,pγ), unless otherwise noted.
[#] From recoil distance (1997St12), unless otherwise noted.
[@] Band(A): 3/2[422], α=−1/2.
[&] Band(B): 3/2[422](E$_p$F$_p$), α=−1/2.
[a] Band(C): 1/2[420](E$_p$F$_p$), α=−1/2.
[b] Band(c): 1/2[420](E$_p$F$_p$), α=+1/2.

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Adopted Levels, Gammas (continued)

^{125}La Levels (continued)

[c] Band(D): 1/2[550], α=−1/2.
[d] Band(E): 1/2[550](γ vibration), α=−1/2.
[e] Band(F): 9/2[404] band, α=+1/2.
[f] Band(f): 9/2[404] band, α=−1/2.

$\gamma(^{125}La)$

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
57.5+y		57.5		0.0+y			
107.00		107.0 *1*		0.0	(3/2$^+$)	E3	
182.7+y		125.2		57.5+y			
194.3		194.4		0.0	(3/2$^+$)		
200.8+y		143.3		57.5+y			
207.8+y		150.3		57.5+y			
230.91+x	(11/2$^+$)	230.9 *2*	100	0.0+x	(9/2$^+$)		
249.3	(15/2$^-$)	240.50 *14*	100	8.7	(11/2$^-$)	E2	
296.42	(7/2$^+$)	167.61 *19*	≈96	128.8	(5/2$^+$)	D+Q	I_γ: Iγ(167)/Iγ(296)=0.66 *3* in ^{112}Sn(^{16}O,2npγ).
		296.41 *19*	100 *4*	0.0	(3/2$^+$)	Q	
324.9		130.6		194.3			
		324.9		0.0	(3/2$^+$)		
362.1+y		304.6		57.5+y			
378.9		370.0		8.7	(11/2$^-$)		
		379.0		0.0	(3/2$^+$)		
493.4+x	(13/2$^+$)	262.4 *5*	100 *5*	230.91+x	(11/2$^+$)		
		493.4 *5*	20.5 *11*	0.0+x	(9/2$^+$)		
546.0		221.1		324.9			
		351.7		194.3			
625.6		246.7		378.9			
		300.8		324.9			
643.92	(11/2$^+$)	347.50 *14*	100 *5*	296.42	(7/2$^+$)	Q	
		635.26 *19*	21.1 *8*	8.7	(11/2$^-$)	D	I_γ: Iγ(635)/Iγ(347)=0.20 *4* in ^{112}Sn(^{16}O,2npγ).
685.6	(19/2$^-$)	436.40 *14*		249.3	(15/2$^-$)	E2	
783.3		404.4	100	378.9			
784.4+x	(15/2$^+$)	290.9 *5*	100 *4*	493.4+x	(13/2$^+$)		
		553.5 *5*	49 *3*	230.91+x	(11/2$^+$)		
1005.1		459.2		546.0			
		810.7		194.3			
1072.9	(15/2$^-$)	823.42 *20*	<100	249.3	(15/2$^-$)		I_γ: Iγ(823)/Iγ(1064)=0.6 *2* in ^{112}Sn(^{16}O,2npγ).
		1064.44 *20*	<100	8.7	(11/2$^-$)		
1099.8+x	(17/2$^+$)	315.4 *5*	100 *4*	784.4+x	(15/2$^+$)		
		606.6 *5*	76 *4*	493.4+x	(13/2$^+$)		
1111.3	(17/2)	425.43 *19*	74 *6*	685.6	(19/2$^-$)		I_γ: Iγ(425)/Iγ(862)=0.7 *2* in ^{112}Sn(^{16}O,2npγ).
		862.24 *19*	100 *6*	249.3	(15/2$^-$)		
1120.3	(15/2)	476.40 *14*	100 *4*	643.92	(11/2$^+$)	Q	
		870.99 *19*	13.8 *5*	249.3	(15/2$^-$)	D	I_γ: Iγ(871)/Iγ(476)=0.10 *1* in ^{112}Sn(^{16}O,2npγ).
1289.2	(23/2$^-$)	603.55 *14*	100	685.6	(19/2$^-$)	E2	
1435.2+x	(19/2$^+$)	335.2 *5*	89 *5*	1099.8+x	(17/2$^+$)		
		650.7 *5*	100 *5*	784.4+x	(15/2$^+$)		
1481.5	(19/2$^-$)	408.70 *19*	55 *5*	1072.9	(15/2$^-$)	Q	
		795.87 *20*	<45	685.6	(19/2$^-$)	D+Q	I_γ: Iγ(795)/Iγ(409)=0.40 *7* in ^{112}Sn(^{16}O,2npγ).

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Adopted Levels, Gammas (continued)

$\gamma(^{125}La)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
1481.5	(19/2$^-$)	1232.21 *19*	100 *9*	249.3	(15/2$^-$)	(Q)	Mult.: From DCO in ^{112}Sn(^{16}O,2nγ) and relevant levels. I_γ: Iγ(1232)/Iγ(409)=1.33 *13* in ^{112}Sn(^{16}O,2npγ).
1491.6		806.2 *2*		685.6	(19/2$^-$)		
		1242.0 *2*		249.3	(15/2$^-$)		
1615.7	(19/2$^+$)	495.30 *14*	100 *4*	1120.3	(15/2)	Q	
		504.20 *19*	11.8 *5*	1111.3	(17/2)		I_γ: Iγ(504)/Iγ(495)=0.08 *1* in ^{112}Sn(^{16}O,2npγ).
		930.10 *19*	23.7 *11*	685.6	(19/2$^-$)	D	I_γ: Iγ(930)/Iγ(495)=0.22 *1* in ^{112}Sn(^{16}O,2npγ).
1727.2	(21/2$^-$)	1041.50 *19*	100	685.6	(19/2$^-$)	D+Q	
1782.6+x	(21/2$^+$)	347.2 *5*	66 *3*	1435.2+x	(19/2$^+$)		
		682.9 *5*	100 *5*	1099.8+x	(17/2$^+$)		
1801.7	(19/2$^+$)	681.43 *19*	100	1120.3	(15/2)		
1818.3		1132.6 *2*		685.6	(19/2$^-$)		
		1568.8 *2*		249.3	(15/2$^-$)		
1978.6	(21/2$^+$)	1292.93 *19*	100	685.6	(19/2$^-$)	D	
2013.6	(23/2$^-$)	532.29 *19*	100 *5*	1481.5	(19/2$^-$)	Q	
		1327.93 *19*	45 *5*	685.6	(19/2$^-$)	(Q)	I_γ: Iγ(1328)/Iγ(532)=0.40 *6* in ^{112}Sn(^{16}O,2npγ). Mult.: From DCO in ^{112}Sn(^{16}O,2nγ) and relevant levels.
2033.2	(27/2$^-$)	744.15 *14*	100	1289.2	(23/2$^-$)		
2037.3		747.7 *2*		1289.2	(23/2$^-$)		
		1352.0 *2*		685.6	(19/2$^-$)		
2074.9	(23/2$^+$)	347.59 *19*	9.4 *5*	1727.2	(21/2$^-$)	D	
		459.20 *14*	100 *4*	1615.7	(19/2$^+$)	Q	
		785.84 *19*	14.0 *5*	1289.2	(23/2$^-$)	D	I_γ: Iγ(789)/Iγ(459)=0.11 *1* in ^{112}Sn(^{16}O,2npγ).
2134.4+x	(23/2$^+$)	351.7 *5*	53 *3*	1782.6+x	(21/2$^+$)		
		699.3 *5*	100 *6*	1435.2+x	(19/2$^+$)		
2331.0	(23/2$^+$)	352 *1*	<100	1978.6	(21/2$^+$)		
		529.28 *21*	100 *10*	1801.7	(19/2$^+$)		
2412.0	(23/2$^+$)	610.29 *19*	100 *6*	1801.7	(19/2$^+$)		
		796.5 *5*	59 *6*	1615.7	(19/2$^+$)		
2448.3+x	(25/2$^+$)	314 *1*	<36	2134.4+x	(23/2$^+$)		
		665.7 *5*	100 *7*	1782.6+x	(21/2$^+$)		
2459.1	(25/2$^+$)	384.20 *14*	<10	2074.9	(23/2$^+$)	D+Q	I_γ: Iγ(384)/Iγ(480)=0.24 *6* in ^{112}Sn(^{16}O,2npγ).
		480.40 *19*	14 *10*	1978.6	(21/2$^+$)	Q	I_γ: Iγ(480)/Iγ(1170)=0.33 *5* in ^{112}Sn(^{16}O,2npγ).
		1169.90 *14*	100 *5*	1289.2	(23/2$^-$)	D	
2496.9		678.4 *2*		1818.3			
		1208.0 *2*		1289.2	(23/2$^-$)		
2625.2	(21/2,23/2)	1336.0 *2*		1289.2	(23/2$^-$)		
2631.4	(27/2$^+$)	556.40 *14*		2074.9	(23/2$^+$)	Q	
2660.3	(27/2$^-$)	646.79 *19*	100 *5*	2013.6	(23/2$^-$)	Q	
		1371.04 *19*	27.0 *14*	1289.2	(23/2$^-$)		I_γ: Iγ(1371)/Iγ(647)=0.14 *4* in ^{112}Sn(^{16}O,2npγ).
2746.6+x	(27/2$^+$)	612.2 *5*	100	2134.4+x	(23/2$^+$)		
2850.6		817.4 *2*		2033.2	(27/2$^-$)		
2864.0	(27/2$^+$)	404.90 *19*	84 *5*	2459.1	(25/2$^+$)		
		533.06 *19*	100 *5*	2331.0	(23/2$^+$)		

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Adopted Levels, Gammas (continued)

γ(^{125}La) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[‡]	E_f	J_f^π	Mult.[#]	Comments
2885.0	(31/2$^-$)	851.80 *14*	100	2033.2	(27/2$^-$)	Q	
3030.4+x	(29/2$^+$)	582.1 *5*	100	2448.3+x	(25/2$^+$)		
3038.4	(29/2$^+$)	406.71 *20*	<16	2631.4	(27/2$^+$)		I_γ: Iγ(407)/Iγ(579)=0.28 *10* in ^{112}Sn(^{16}O,2npγ).
		579.27 *19*	100 *5*	2459.1	(25/2$^+$)	Q	
		1005.26 *19*	87 *5*	2033.2	(27/2$^-$)	D	I_γ: Iγ(1005)/Iγ(579)=0.72 *9* in ^{112}Sn(^{16}O,2npγ).
3046.2		634.2 *2*		2412.0	(23/2$^+$)		
3300.7	(31/2$^+$)	669.25 *14*	100	2631.4	(27/2$^+$)	Q	
3329.3	(25/2,27/2,29/2)	1296.0 *2*		2033.2	(27/2$^-$)		
3371.3+x	(31/2$^+$)	624.7 *5*	100	2746.6+x	(27/2$^+$)		
3401.2	(31/2$^-$)	740.94 *19*	100 *4*	2660.3	(27/2$^-$)	Q	
		1367.9 *5*	15.4 *14*	2033.2	(27/2$^-$)		
3541.4	(31/2$^+$)	502.8 *5*	48 *4*	3038.4	(29/2$^+$)		
		677.7 *5*	100 *4*	2864.0	(27/2$^+$)		
3716.4+x	(33/2$^+$)	686.0 *5*	100	3030.4+x	(29/2$^+$)		
3749.3	(33/2$^+$)	710.99 *19*	100	3038.4	(29/2$^+$)	Q	
3804.7	(35/2$^-$)	919.60 *14*	100	2885.0	(31/2$^-$)	Q	
4077.9	(35/2$^+$)	777.25 *14*	100	3300.7	(31/2$^+$)	Q	
4110.3+x	(35/2$^+$)	739 *1*	100	3371.3+x	(31/2$^+$)		
4216.9	(35/2$^-$)	815.70 *19*	100	3401.2	(31/2$^-$)		
4353.7	(35/2$^+$)	812.3 *5*	100	3541.4	(31/2$^+$)		
4502.4+x	(37/2$^+$)	786 *1*	100	3716.4+x	(33/2$^+$)		
4589.5	(37/2$^+$)	840.11 *19*	100	3749.3	(33/2$^+$)		
4772.9	(39/2$^-$)	968.25 *14*	100	3804.7	(35/2$^-$)		
4954.8	(39/2$^+$)	876.85 *14*	100	4077.9	(35/2$^+$)		
5117.4	(39/2$^-$)	900.5 *5*	100	4216.9	(35/2$^-$)		
5259.4	(39/2$^+$)	905.7 *5*	100	4353.7	(35/2$^+$)		
5530.0	(41/2$^+$)	940.5 *5*	100	4589.5	(37/2$^+$)		
5806.7	(43/2$^-$)	1033.8 *5*	100	4772.9	(39/2$^-$)		
5909.0	(43/2$^+$)	954.2 *5*	100	4954.8	(39/2$^+$)		
6097.2	(43/2$^-$)	979.8 *5*	100	5117.4	(39/2$^-$)		
6232.9	(43/2$^+$)	973.5 *5*	100	5259.4	(39/2$^+$)		
6525.3	(45/2$^+$)	995.3 *5*	100	5530.0	(41/2$^+$)		
6910.9	(47/2$^+$)	1001.9 *5*	100	5909.0	(43/2$^+$)		
6924.2	(47/2$^-$)	1117.5 *5*	100	5806.7	(43/2$^-$)		
7145.3	(47/2$^-$)	1048.0 *5*	100	6097.2	(43/2$^-$)		
7256.9?	(47/2$^+$)	1024[@] *1*	100	6232.9	(43/2$^+$)		
7573.0	(49/2$^+$)	1047.7 *5*	100	6525.3	(45/2$^+$)		
7958.1	(51/2$^+$)	1047.2 *5*	100	6910.9	(47/2$^+$)		
8126.3	(51/2$^-$)	1202.1 *5*	100	6924.2	(47/2$^-$)		
8266.3	(51/2$^-$)	1121 *1*	100	7145.3	(47/2$^-$)		
8710.5	(53/2$^+$)	1137.5 *5*	100	7573.0	(49/2$^+$)		
9072.1	(55/2$^+$)	1114.0 *5*	100	7958.1	(51/2$^+$)		
9391.6	(55/2$^-$)	1265.3 *5*	100	8126.3	(51/2$^-$)		
9436.3?	(55/2$^-$)	1170[@] *1*	100	8266.3	(51/2$^-$)		
9945.5	(57/2$^+$)	1235 *1*	100	8710.5	(53/2$^+$)		
10268.1	(59/2$^+$)	1196.0 *5*	100	9072.1	(55/2$^+$)		
10680.6?	(59/2$^-$)	1289[@] *1*	100	9391.6	(55/2$^-$)		
11266.5?	(61/2$^+$)	1321[@] *1*	100	9945.5	(57/2$^+$)		
11551.1	(63/2$^+$)	1283 *1*	100	10268.1	(59/2$^+$)		
12018.6?	(63/2$^-$)	1338[@] *1*	100	10680.6?	(59/2$^-$)		
12924.1	(67/2$^+$)	1373 *1*	100	11551.1	(63/2$^+$)		
14391.1?	(71/2$^+$)	1467[@] *1*	100	12924.1	(67/2$^+$)		

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{125}La)$ (continued)

† Weighted average of those in $^{112}Sn(^{16}O,2np\gamma)$ and $^{94}Mo(^{40}Ca,2\alpha,p\gamma)$.
‡ From $^{94}Mo(^{40}Ca,2\alpha,p\gamma)$.
# From $\gamma\gamma(\theta)$ (DCO) and RUL in $^{112}Sn(^{16}O,2np\gamma)$.
@ Placement of transition in the level scheme is uncertain.

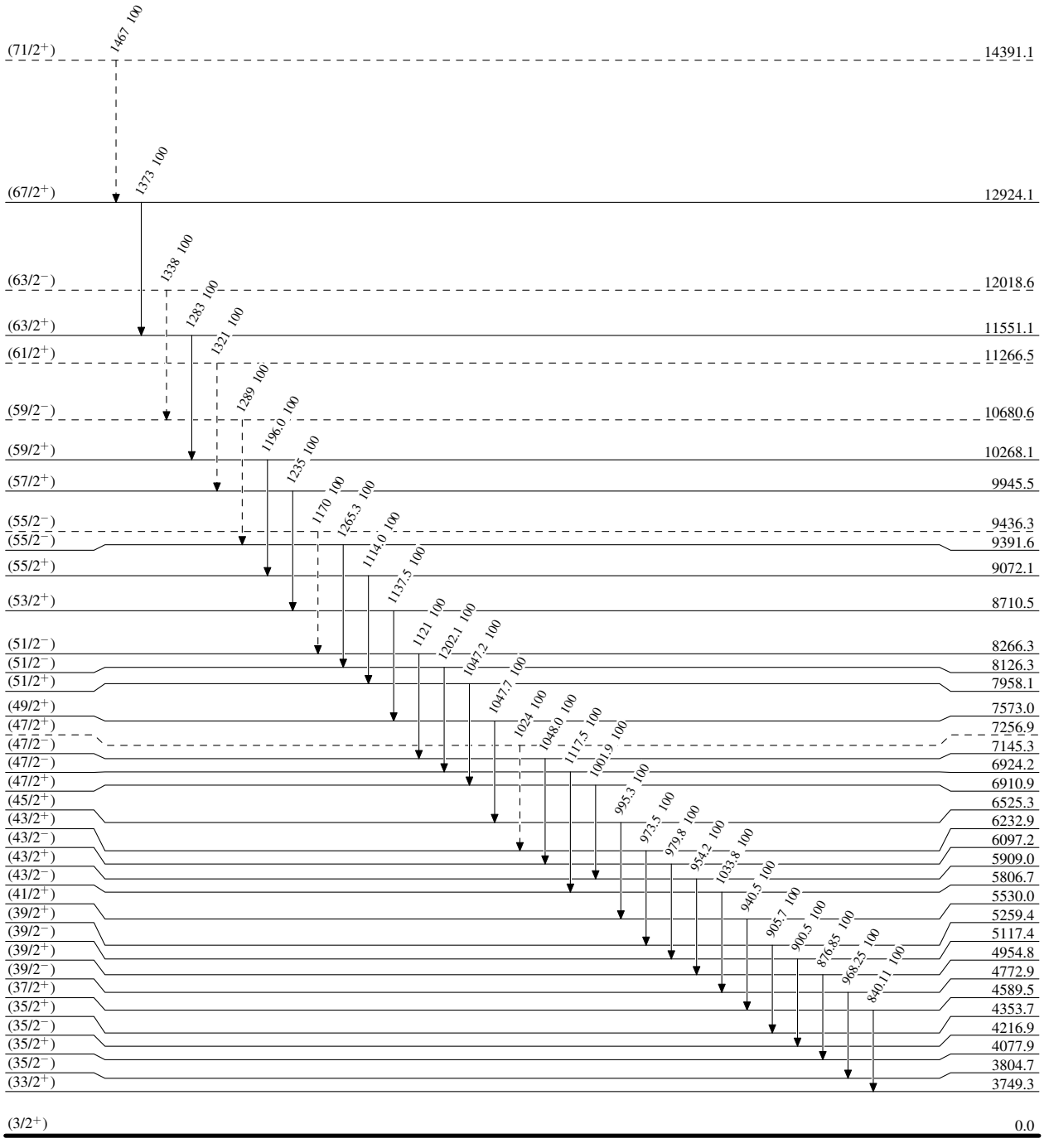
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

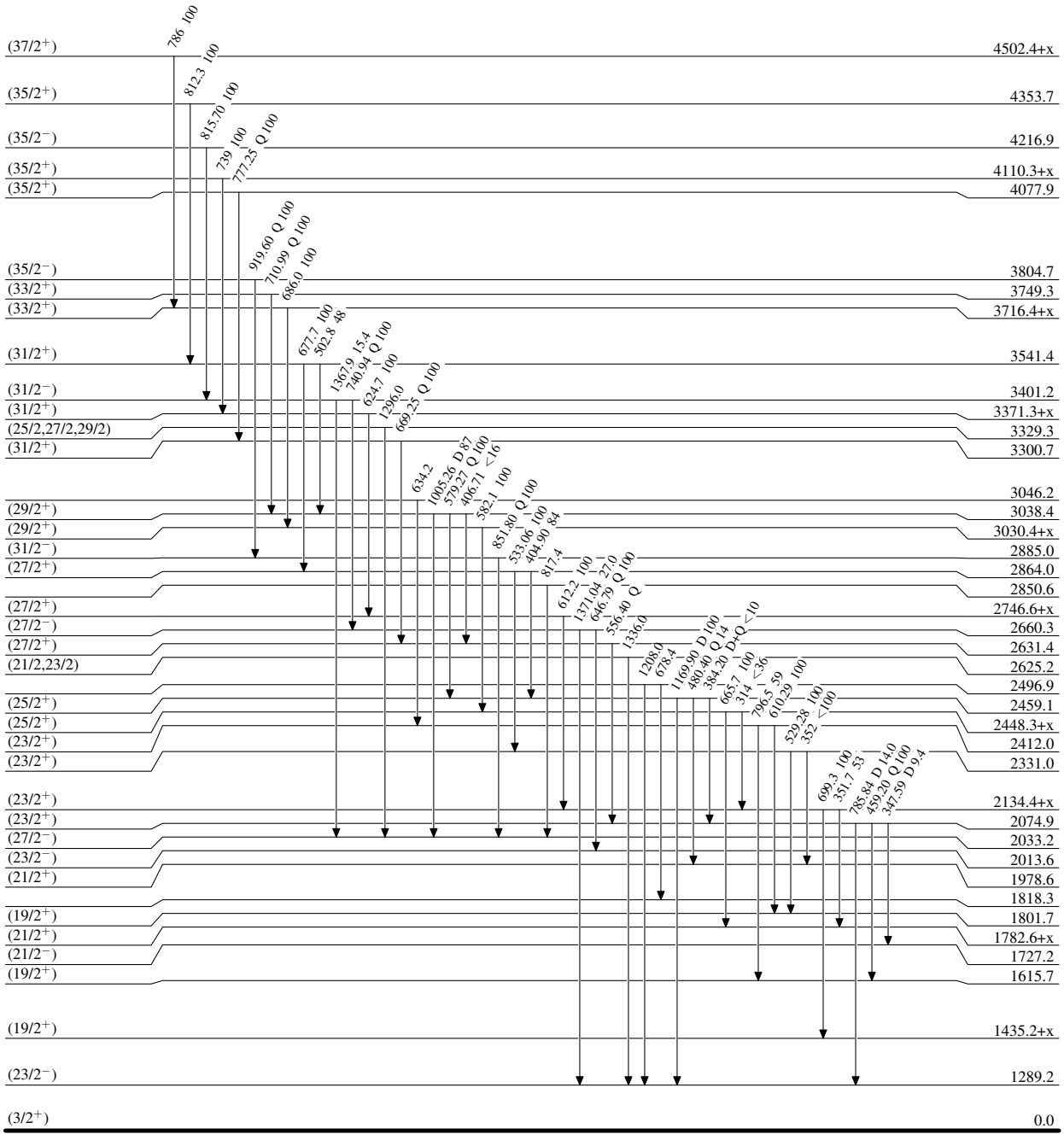


$^{125}_{57}La_{68}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

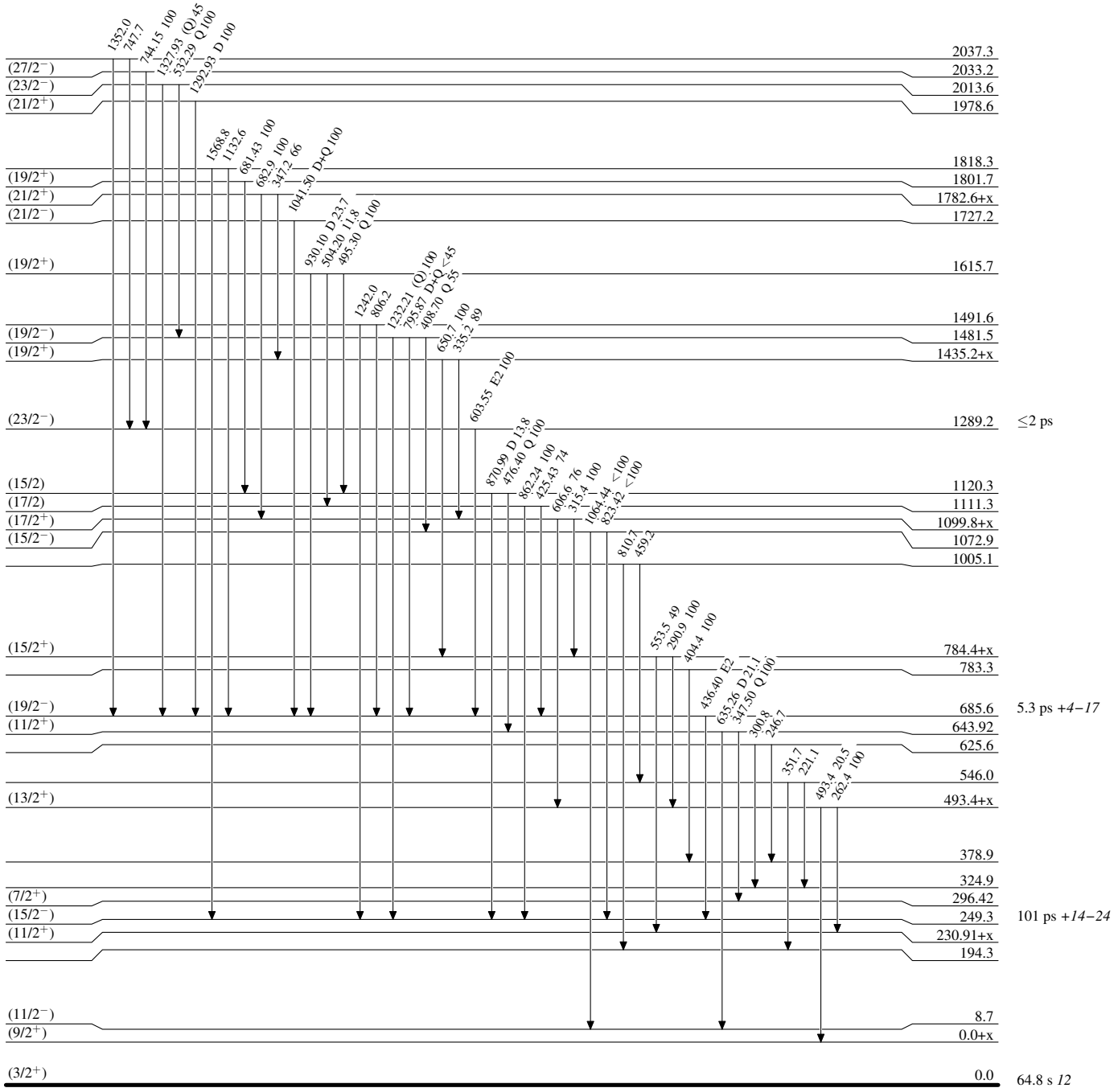


$^{125}_{57}La_{68}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

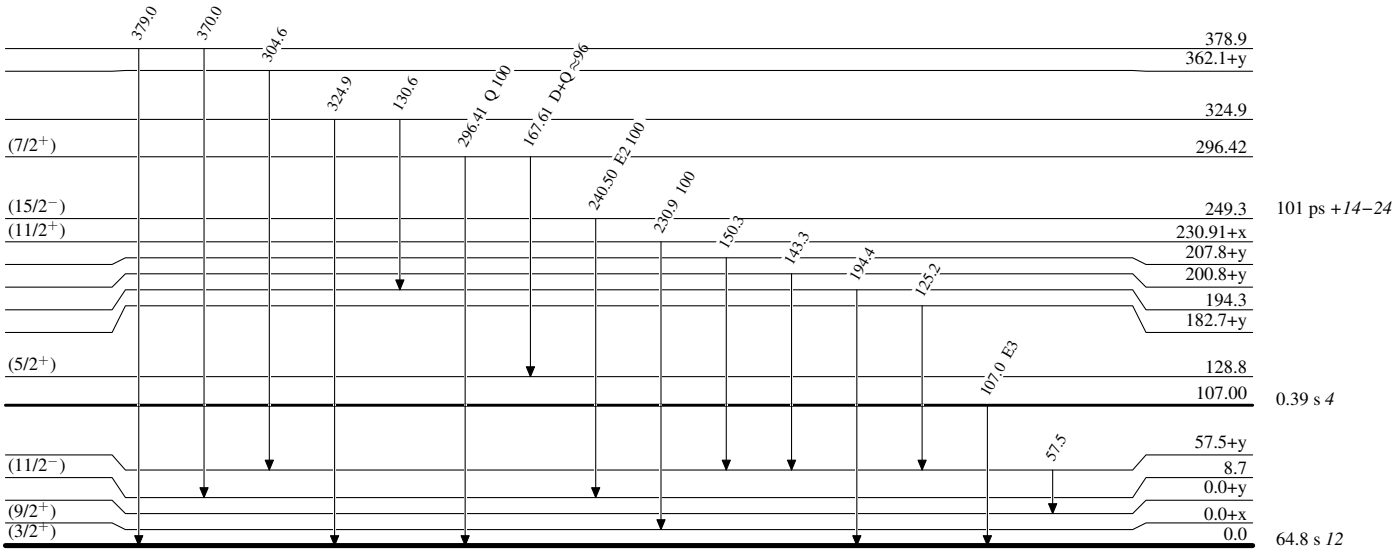


$^{125}_{57}La_{68}$

Adopted Levels, Gammas

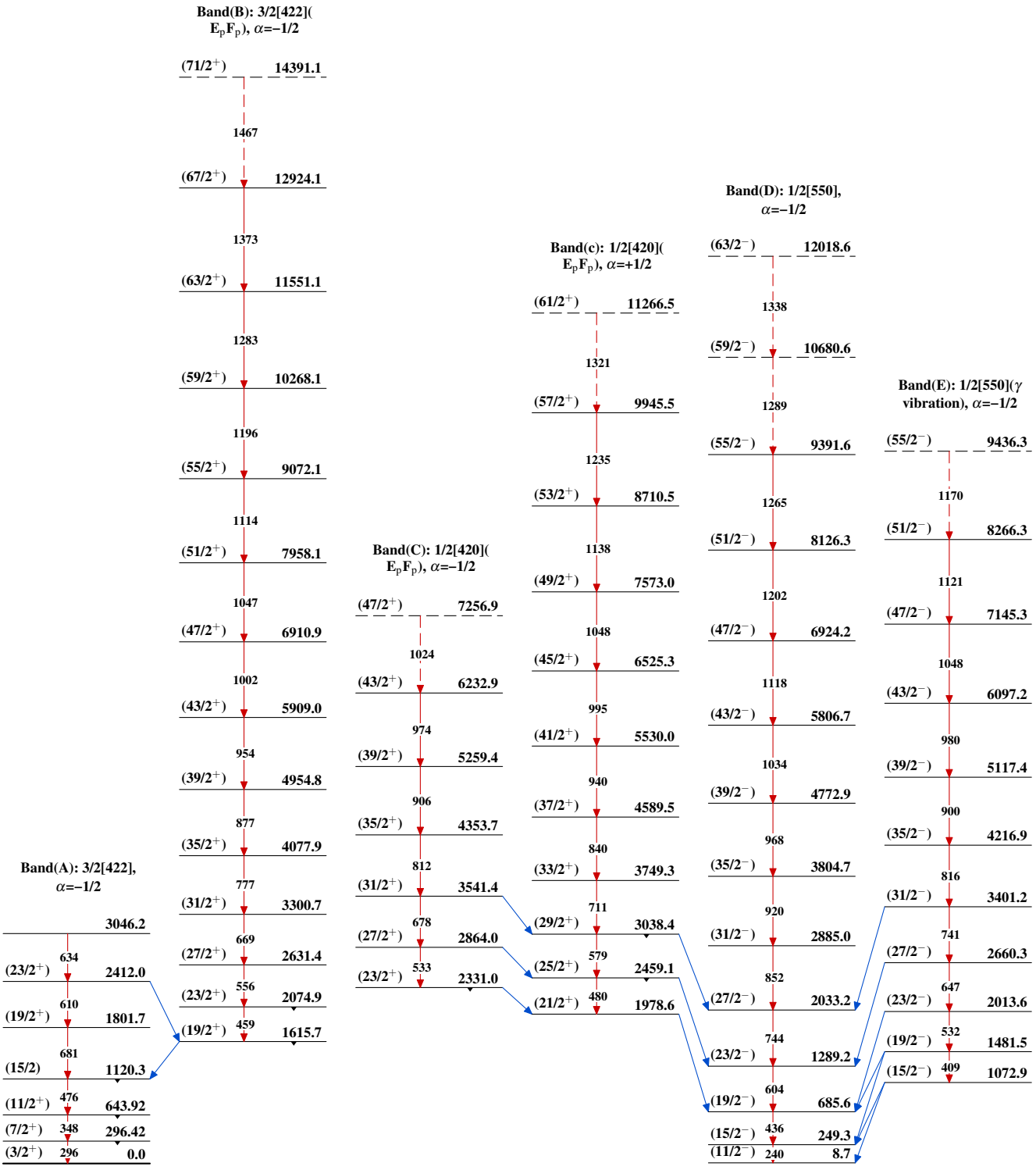
Level Scheme (continued)

Intensities: Relative photon branching from each level



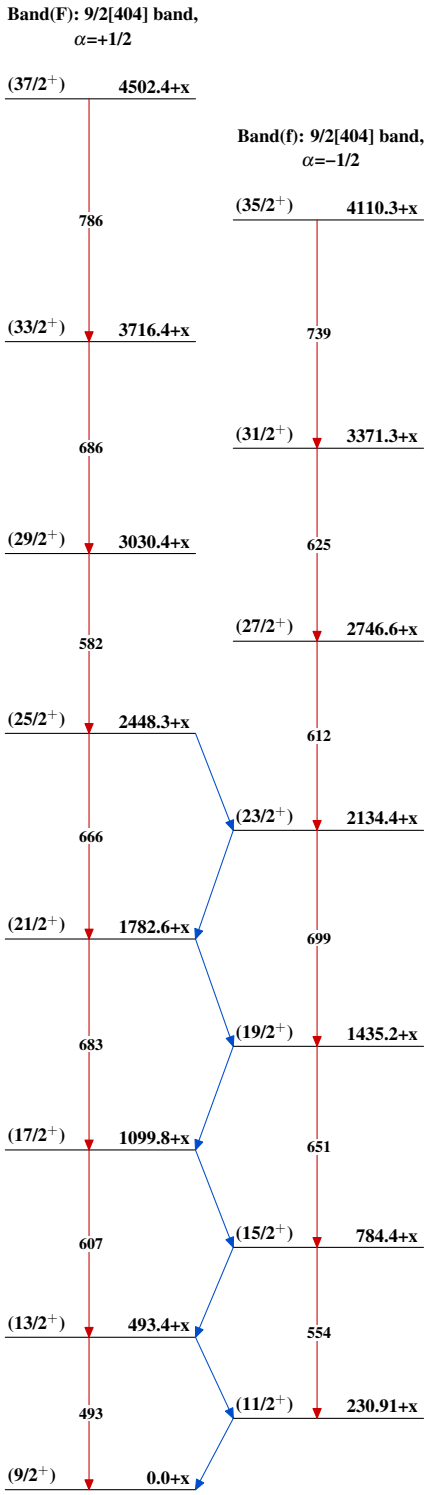
$^{125}_{57}La_{68}$

Adopted Levels, Gammas



$^{125}_{57}La_{68}$

Adopted Levels, Gammas (continued)



$^{125}_{57}La_{68}$