Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	ENSDF	1-Jul-2008

Q(β^-)=−6664 *8*; S(n)=9863 *7*; S(p)=1222 *8*; Q(α)=1312 *8* 2012Wa38
Note: Current evaluation has used the following Q record −6786.0 SY9925.0 SY1220.0 SY1174.0 syst 2003Au03.
ΔQ(β^-)=230, ΔS(n)=362, ΔS(p)=221, ΔQ(α)=222 (2003Au03).
The first observation of ^{108}Sb is that by 1976Ox01, who produced the activity via ^{112}Sn(p,5n) E(p)=65 MeV. The nuclidic assignment for the two observed γ's was based only on comparison with γ's from (HI,xnγ) reactions leading to ^{108}Sn.

^{108}Sb Levels

Cross Reference (XREF) Flags

A ^{112}I α decay (3.42 s)
B ^{54}Fe(^{58}Ni,3pnγ)

E(level)	J$^\pi$ †	T$_{1/2}$	XREF	Comments
0.0 @	(4$^+$)	7.4 s *3*	AB	%ε+%β^+=100 T$_{1/2}$: weighted av: 7.6 s 3 (1997Sh13), 7.0 s 5 (1976Ox01). J$^\pi$: from $\gamma(\theta)$ and model arguments in (HI,xnγ) (1995Ce01). This assignment is inconsistent with ε feeding of a 2$^+$ level; however, as pointed out by 1995Ce01, the large Q value and incomplete decay scheme allow for the possibility of additional feeding of the 2$^+$ state by unplaced or unobserved γ's.
259.5 *4*	(5$^+$)		B	
376.3 *4*	6$^+$		B	
409.6 *4*	5$^+$		B	
1137.0 *5*	7$^+$		B	
1149.5 @ *4*	6$^+$		B	
1292.2 *4*	6$^+$		B	
1385.4 @ *5*	7$^+$		B	
1404.0 *4*	6$^+$		B	
1467.9 & *5*	8$^+$		B	
1468.7 *7*	7$^+$		B	
1512.9 @ *5*	8$^-$		B	
1571.2 *4*	7$^+$		B	
1880.8 *4*	7$^-$		B	
1987.8 & *7*	9$^-$		B	
2100.5 *5*	9$^-$		B	
2154.6 ‡ *4*	7$^-$		B	
2245.9 ‡ *5*	8$^-$		B	
2438.3 ‡ *4*	9$^-$		B	
2478.9 *5*	9$^-$		B	Level also fed by band #2 through, as yet, undefined gammas.
2510.4 @ *5*	10$^-$		B	
2538.8 *5*	9$^-$		B	Level also fed by band #2 through, as yet, undefined gammas.
2720.0 ‡ *4*	10$^-$		B	
2752.5 # *5*	10$^-$		B	
2977.2 & *4*	11$^-$		B	
3032.5 ‡ *4*	11$^-$		B	
3056.5 # *4*	11$^-$		B	
3081.9 @ *6*	11$^-$		B	
3316.4 *5*	11$^-$		B	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{108}Sb Levels (continued)

E(level)	Jπ†	XREF	E(level)	Jπ†	XREF	E(level)	Jπ†	XREF
3362.0@ *4*	12⁻	B	4571.1 *6*	15⁻	B	5867.5& *8*	17⁻	B
3375.5# *4*	12⁻	B	4595.5# *5*	15⁻	B	5868.3@ *7*	16⁻	B
3377.4‡ *4*	12⁻	B	4613.0‡ *5*	15⁻	B	6090.5# *6*	18⁻	B
3720.7# *4*	13⁻	B	4961.3@ *6*	14⁻	B	6149.8‡ *5*	18⁻	B
3764.3‡ *4*	13⁻	B	4999.6& *6*	16⁻	B	6586.4 *8*	18⁻	B
3812.6& *5*	13⁻	B	5062.6# *5*	16⁻	B	6643.4# *7*	19⁻	B
3851.1 *5*	13⁻	B	5101.6‡ *5*	16⁻	B	6719.5‡ *6*	19⁻	B
4040.6 *5*	13⁻	B	5159.8@ *6*	15⁻	B	6726.1& *10*	18⁻	B
4057.1& *5*	14⁻	B	5457.7 *8*	16⁻	B	7214.5# *7*	20⁻	B
4173.2‡ *4*	14⁻	B	5560.0# *6*	17⁻	B			
4176.1# *4*	14⁻	B	5611.2‡ *5*	17⁻	B			

† From gammas, decay patterns and systematics.
‡ Band(A): Band 1.
# Band(B): Band 2.
@ Band(C): γ sequence.
& Band(D): γ sequence.

γ(^{108}Sb)

E_i(level)	J^π_i	E_γ	I_γ	E_f	J^π_f	Mult.
259.5	(5⁺)	259.5 *5*	100	0.0	(4⁺)	M1
376.3	6⁺	116.8 *5*	100	259.5	(5⁺)	M1
409.6	5⁺	409.4† *5*	100†	0.0	(4⁺)	M1
1137.0	7⁺	760.6 *5*	100	376.3	6⁺	M1
1149.5	6⁺	773.0 *5*	24 *6*	376.3	6⁺	M1
		890.3 *5*	36 *5*	259.5	(5⁺)	M1
		1149.5 *5*	100 *14*	0.0	(4⁺)	E2
1292.2	6⁺	1032.6 *5*	71 *30*	259.5	(5⁺)	M1
		1292.4 *5*	100 *14*	0.0	(4⁺)	E2
1385.4	7⁺	236.0 *5*	100	1149.5	6⁺	M1
1404.0	6⁺	994.3 *5*	100 *35*	409.6	5⁺	M1
		1028.1 *5*	92 *15*	376.3	6⁺	M1
		1144.2 *5*	85 *31*	259.5	(5⁺)	M1
1467.9	8⁺	1091.3 *5*	100	376.3	6⁺	E2
1468.7	7⁺	1059.1 *5*	100	409.6	5⁺	E2
1512.9	8⁻	127.5 *5*	100 *14*	1385.4	7⁺	E1
		375.6 *5*	66 *10*	1137.0	7⁺	E1
1571.2	7⁺	279.0 *5*	100 *14*	1292.2	6⁺	M1
		1311.7 *5*	68 *10*	259.5	(5⁺)	E2
1880.8	7⁻	495.8 *3*	100	1385.4	7⁺	E1
1987.8	9⁻	519.9 *5*	100	1467.9	8⁺	E1
2100.5	9⁻	632.6 *2*	100	1467.9	8⁺	E1
2154.6	7⁻	273.9 *1*	14.2 *21*	1880.8	7⁻	M1
		583.3 *5*	100 *15*	1571.2	7⁺	E1
		686.5 *5*	67 *10*	1468.7	7⁺	E1
		750.6 *5*	56 *8*	1404.0	6⁺	E1
		862.5 *5*	83 *12*	1292.2	6⁺	E1
		1017.6 *5*	15 *3*	1137.0	7⁺	E1
2245.9	8⁻	91.4 *5*	100 *14*	2154.6	7⁻	M1

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{108}Sb) (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	Comments
2245.9	8⁻	674.8 *5*	29 *4*	1571.2	7⁺	E1	
		732.6† *5*	29† *4*	1512.9	8⁻	E2	
		777.8† *5*	37† *5*	1468.7	7⁺	E1	
		777.8† *5*	37† *5*	1467.9	8⁺	E1	
2438.3	9⁻	192.3 *1*	100.0 *13*	2245.9	8⁻	M1	
		283 *1*		2154.6	7⁻		
		450 *1*		1987.8	9⁻		
		557.5 *2*	25.0 *13*	1880.8	7⁻	E2	
		925.8 *5*	33 *5*	1512.9	8⁻	E2	
2478.9	9⁻	1011.1 *2*	100	1467.9	8⁺	E1	
2510.4	10⁻	998.3 *5*	100	1512.9	8⁻	E2	
2538.8	9⁻	1071.0 *2*	100	1467.9	8⁺	E1	
2720.0	10⁻	281.6 *2*	100.0 *3*	2438.3	9⁻	M1	
		473.6 *5*	9.4 *22*	2245.9	8⁻	E2	
		733 *1*		1987.8	9⁻		
2977.2	11⁻	876.6 *2*	21 *3*	2100.5	9⁻	E2	
		989.7 *5*	100 *14*	1987.8	9⁻		
3032.5	11⁻	312.5 *1*	100.0 *5*	2720.0	10⁻	M1	
		594.0 *5*	22 *4*	2438.3	9⁻	E2	
		1045.5 *2*	3.0 *4*	1987.8	9⁻	E2	
3056.5	11⁻	304.0 *1*	100.0 *24*	2752.5	10⁻	M1	
		546.2 *2*	17.6 *24*	2510.4	10⁻	M1	
3081.9	11⁻	571.3 *5*	100	2510.4	10⁻	E2	
3316.4	11⁻	777.5 *2*	100 *11*	2538.8	9⁻	E2	
		837.6 *3*	58 *8*	2478.9	9⁻	E2	
3362.0	12⁻	329.5 *1*	16.7 *24*	3032.5	11⁻		
		851.7 *5*	100 *14*	2510.4	10⁻	E2	
3375.5	12⁻	319.0 *1*	100.0 *15*	3056.5	11⁻	M1	
		623 *1*		2752.5	10⁻		
3377.4	12⁻	344.2 *5*	100 *14*	3032.5	11⁻	M1	
		400.2 *1*	7.3 *3*	2977.2	11⁻	M1	
		657.0 *5*	9.7 *14*	2720.0	10⁻	E2	
3720.7	13⁻	342.9 *3*	100 *4*	3377.4	12⁻	M1	
		346.1 *1*	95 *3*	3375.5	12⁻	M1	E_γ: poor fit. Level-energy difference=345.2.
		358.0 *1*	17.2 *9*	3362.0	12⁻	M1	E_γ: poor fit. Level-energy difference=358.7.
		665 *1*		3056.5	11⁻		
		686‡ *2*		3032.5	11⁻		Tentative placement by 1995Ce01.
		743.2 *3*	4.8 *9*	2977.2	11⁻	E2	
3764.3	13⁻	387.9 *1*	100.0 *5*	3377.4	12⁻	M1	E_γ: poor fit. Level-energy difference=388.8.
		403.0 *1*	14.1 *8*	3362.0	12⁻	M1	E_γ: poor fit. Level-energy difference=402.3.
		732.6† *5*	28† *4*	3032.5	11⁻	E2	
3812.6	13⁻	434.9 *3*	44 *5*	3377.4	12⁻	M1	
		835.5 *2*	100 *10*	2977.2	11⁻	E2	
3851.1	13⁻	534.8 *2*	100 *8*	3316.4	11⁻	E2	
		874.0 *3*	57 *11*	2977.2	11⁻	E2	
4040.6	13⁻	678.7 *3*	52 *9*	3362.0	12⁻	M1	
		958.5 *5*	100 *16*	3081.9	11⁻	E2	
4057.1	14⁻	244.1 *3*	16.1 *16*	3812.6	13⁻	M1	
		292.4 *5*	97 *14*	3764.3	13⁻	M1	
		338.4 *5*	100 *15*	3720.7	13⁻	M1	E_γ: poor fit. Level-energy difference=336.4.
		680.1 *5*	69	3377.4	12⁻	E2	
4173.2	14⁻	361.0 *3*	4.2 *13*	3812.6	13⁻	M1	
		408.9 *1*	100.0 *6*	3764.3	13⁻	M1	
		797 *1*		3377.4	12⁻		I_γ: shown to be a strong γ in fig 1 of 1998Je09.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{108}Sb) (continued)

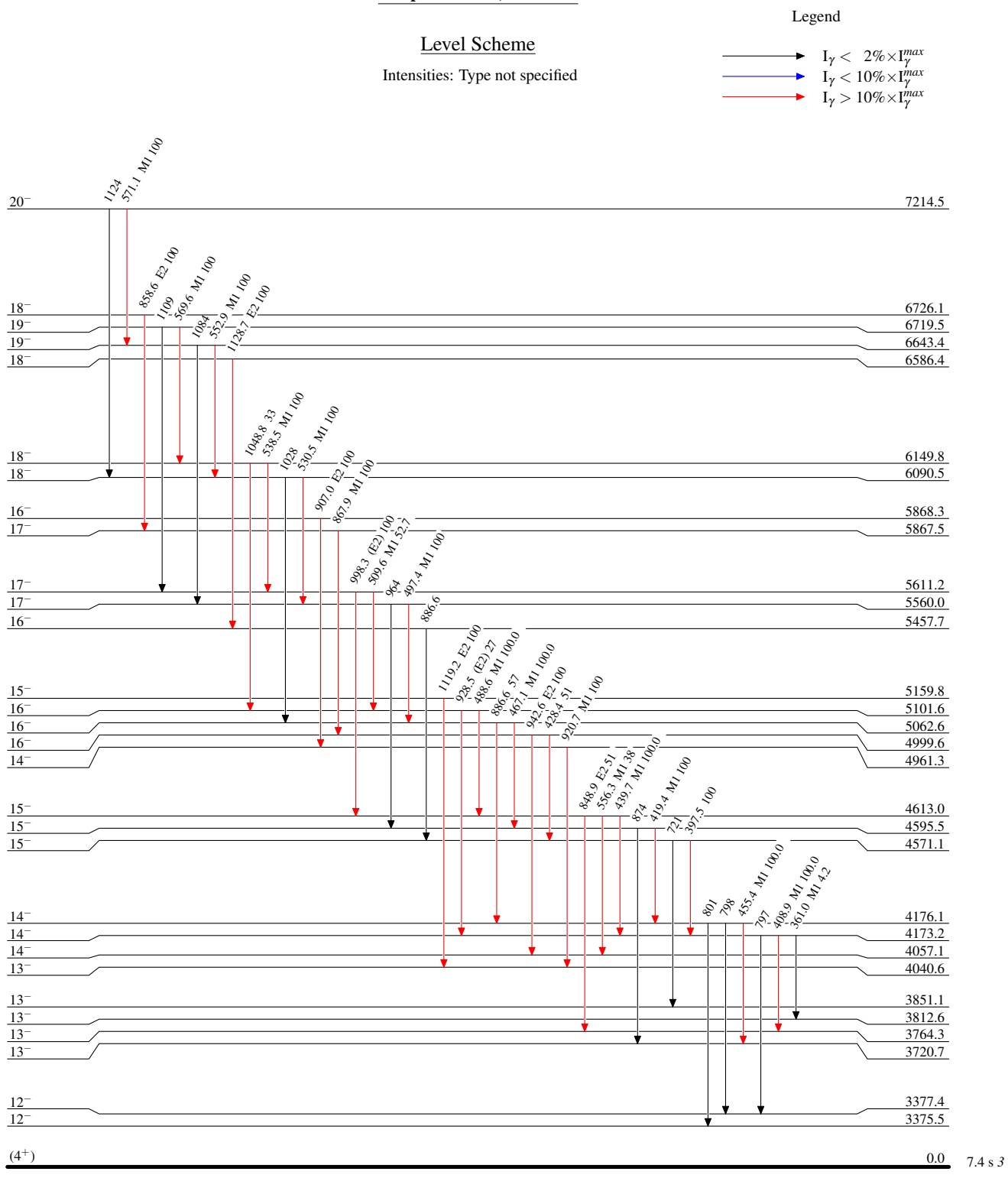
E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.
4176.1	14⁻	455.4 *1*	100.0 *9*	3720.7	13⁻	M1
		798 *1*		3377.4	12⁻	
		801 *1*		3375.5	12⁻	
4571.1	15⁻	397.5 *5*	100 *15*	4173.2	14⁻	
		721 *1*		3851.1	13⁻	
4595.5	15⁻	419.4 *1*	100 *3*	4176.1	14⁻	M1
		874 *1*		3720.7	13⁻	
4613.0	15⁻	439.7 *1*	100.0 *14*	4173.2	14⁻	M1
		556.3 *5*	38 *6*	4057.1	14⁻	M1
		848.9 *5*	51 *23*	3764.3	13⁻	E2
4961.3	14⁻	920.7 *2*	100	4040.6	13⁻	M1
4999.6	16⁻	428.4 *5*	51 *22*	4571.1	15⁻	
		942.6 *5*	100 *15*	4057.1	14⁻	E2
5062.6	16⁻	467.1 *2*	100.0 *22*	4595.5	15⁻	M1
		886.6 *5*	57 *16*	4176.1	14⁻	
5101.6	16⁻	488.6 *1*	100.0 *16*	4613.0	15⁻	M1
		928.5 *5*	27 *4*	4173.2	14⁻	(E2)
5159.8	15⁻	1119.2 *2*	100	4040.6	13⁻	E2
5457.7	16⁻	886.6 *5*		4571.1	15⁻	
5560.0	17⁻	497.4 *4*	100 *7*	5062.6	16⁻	M1
		964 *1*		4595.5	15⁻	
5611.2	17⁻	509.6 *1*	52.7 *18*	5101.6	16⁻	M1
		998.3 *5*	100 *14*	4613.0	15⁻	(E2)
5867.5	17⁻	867.9 *5*	100	4999.6	16⁻	M1
5868.3	16⁻	907.0 *4*	100	4961.3	14⁻	E2
6090.5	18⁻	530.5 *2*	100 *9*	5560.0	17⁻	M1
		1028 *1*		5062.6	16⁻	
6149.8	18⁻	538.5 *2*	100 *5*	5611.2	17⁻	M1
		1048.8 *5*	33 *6*	5101.6	16⁻	
6586.4	18⁻	1128.7 *2*	100	5457.7	16⁻	E2
6643.4	19⁻	552.9 *2*	100 *22*	6090.5	18⁻	M1
		1084 *1*		5560.0	17⁻	
6719.5	19⁻	569.6 *3*	100 *30*	6149.8	18⁻	M1
		1109 *1*		5611.2	17⁻	
6726.1	18⁻	858.6 *5*	100	5867.5	17⁻	E2
7214.5	20⁻	571.1 *2*	100 *25*	6643.4	19⁻	M1
		1124 *1*		6090.5	18⁻	

† Multiply placed with undivided intensity.
‡ Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified

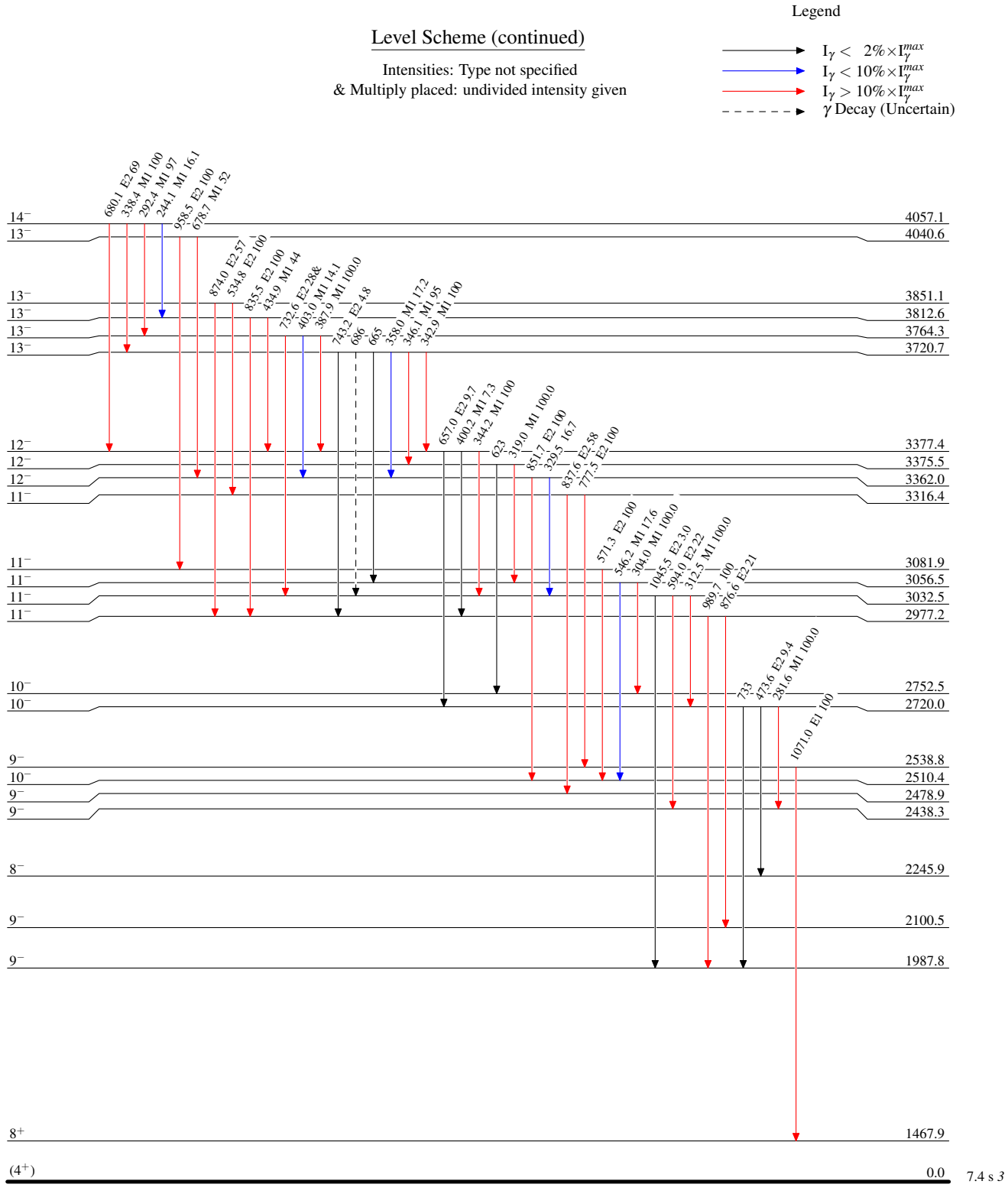


$^{108}_{51}Sb_{57}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given



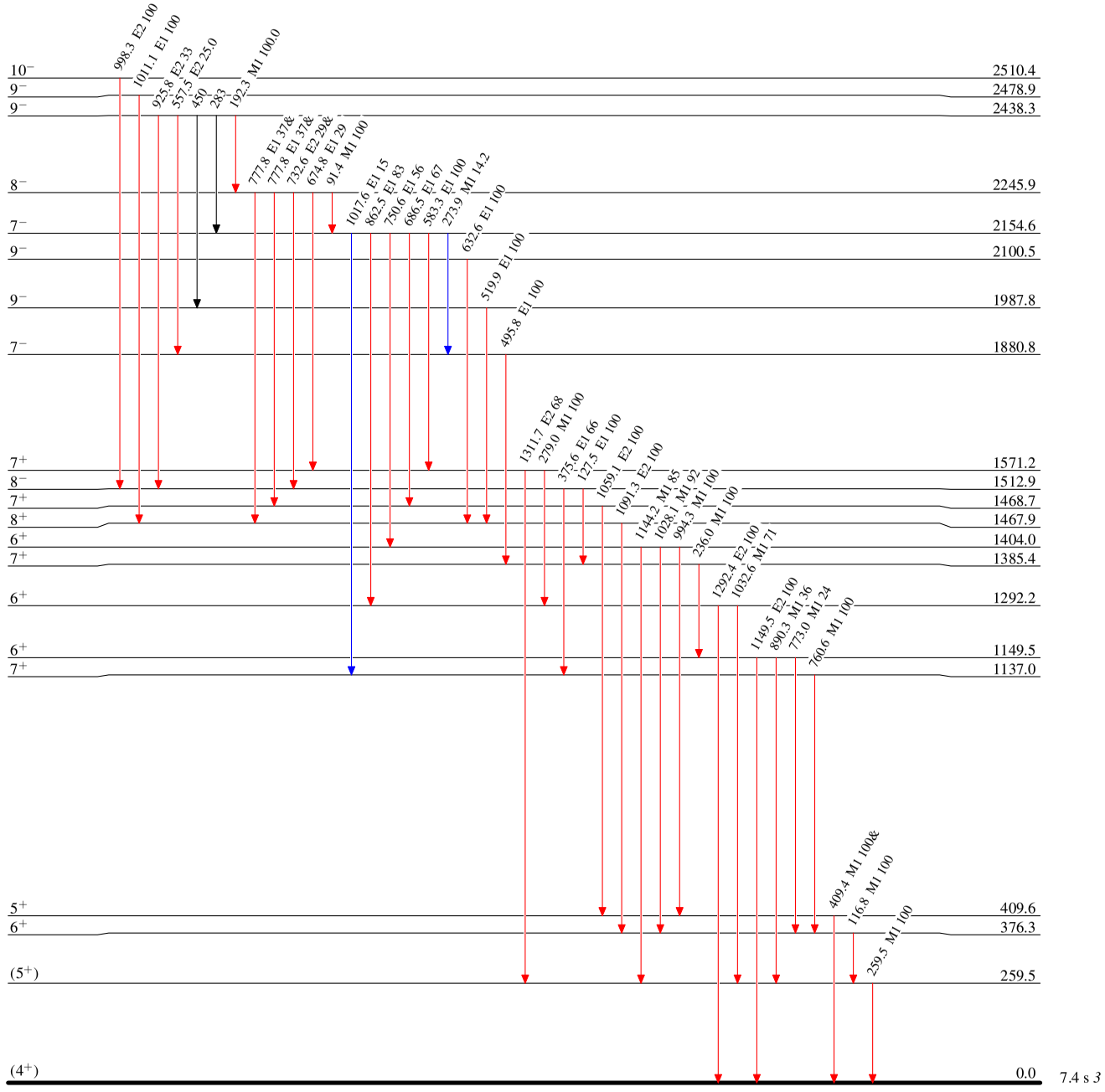
$^{108}_{51}Sb_{57}$

Adopted Levels, Gammas

Level Scheme (continued)

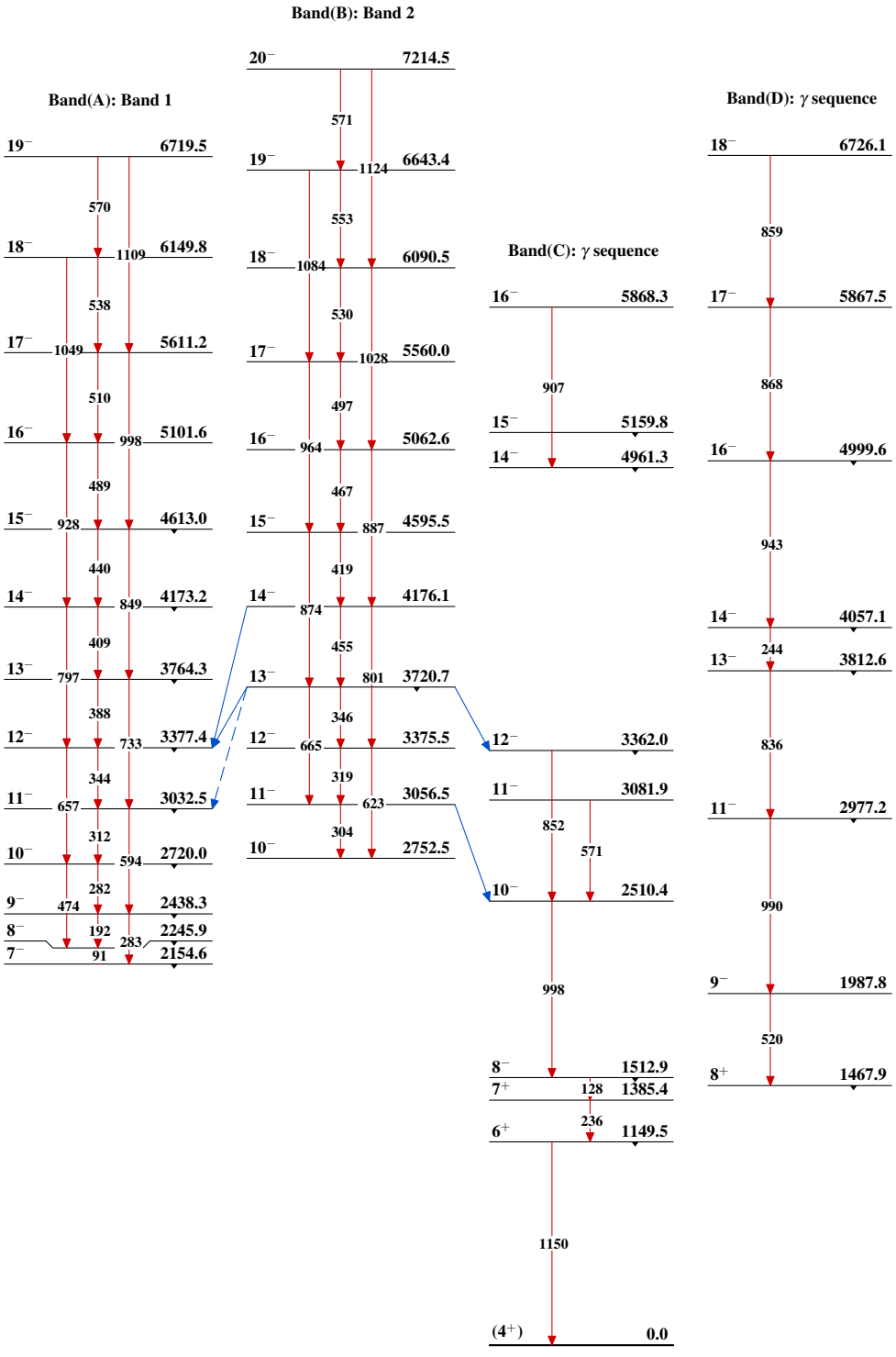
Intensities: Type not specified
& Multiply placed: undivided intensity given

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



$^{108}_{51}Sb_{57}$

Adopted Levels, Gammas



$^{108}_{51}Sb_{57}$