^{131}Sn β^- decay (56.0 s+58.4 s) 1981Hu09,1988StZQ,1995St28

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, I. Mitropolsky, A. Rodionov	NDS 107, 2715 (2006)	17-Jul-2006

Parent: ^{131}Sn: E=0.0; J^π=(3/2$^+$); $T_{1/2}$=56.0 s *5*; Q(β^-)=4674 *11*; %β^- decay=100.0

Parent: ^{131}Sn: E=0.0+x; J^π=(11/2$^-$); $T_{1/2}$=58.4 s *5*; Q(β^-)=4674 *11*; %β^- decay=100.0

^{131}Sn(0.0+x)-x=69 14 or x=65.1 3. See ^{131}Sn dataset.

1979Bo26 measured Eγ's; curved crystal spectrometer.

1981Hu09 measured γ's, γ(t), and $\gamma\gamma$ coin; isotope separation, Ge(Li), HPGe.

1988StZQ measured: γ's, ce′s from ^{131}Sn (11/2$^-$) isomer decay; few experimental details are given; methods of separate observation of ^{131}Sn isomer decay aren′t clear.

1993BlZZ,1981ScZL,1981ScZT,1977Sc14,1977He24: measured γ's, γ(t), $\gamma\gamma$ and fragment-γ(t). Ge(Li); LOHENGRIN, gas-jet.

1995Me16,1999Fo01: measured $\beta\gamma$ coin, deduced Q(β^-), mass excess, OSIRIS, HPGe.

1995St28: measured γ's, $\gamma\gamma$ coin from ^{131}Sn (3/2$^+$) g.s. decay; TRISTAN; few experimental details are given; methods of separate observation of ^{131}Sn g.s. decay aren′t clear. Attribution of the decay spectrum to the (3/2$^+$) ^{131}Sn isomer decay is based on the depopulation to low-spin ^{131}Sb levels.

All data and the decay scheme are from 1981Hu09, except as noted. 1988StZQ did not present information for states above 2 MeV or detailed γ-deexcitation information for some of the low-spin positive parity states. See 1976Au03 for additional references.

From the discrepancies in the Iγ's from 1981Hu09 and 1981ScZT and the I(γ+ce)′s from 1988StZQ and I(γ)′s from 1995St28 it is possible that the 56.0 s and 58.4 s ^{131}Sn isomers were produced in different mixtures by these groups. However, there are many other cases where the data are in good agreement.

^{131}Sb Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	(7/2$^+$)	23.03 min *4*	J^π,$T_{1/2}$: from the Adopted Levels. J^π: 1995St28 suppose 5/2$^+$. Directly populated in 58.4 s 11/2$^-$ ^{131}Sn β^- decay.
798.494[e] *19*	(5/2$^+$)		J^π: from syst of odd-mass Sb isotopes and odd-even nuclei with N=82 (1977Sc14). Directly populated in 56.0 s 3/2$^+$ ^{131}Sn β^- decay.
1141.67[i] *14*	(3/2$^+$)†		
1202.61[i] *14*	(5/2$^+$)†		
1226.04[gi] *3*	(11/2$^+$)		J^π: M2 γ from (15/2$^-$); γ to (7/2$^+$). Level is presented in fig.3 1995St28, but not connected with any other levels in the scheme.
1229.28[i] *5*	(9/2$^+$)‡		J^π: E3 γ from (15/2$^-$); γ's to (5/2$^+$) and (7/2$^+$). 1981Hu09 suggest direct population in 56.0 s β^- decay which seems improbable based on ΔJ^π.
1481.15[i] *3*	(7/2$^+$)†‡		
1676.06[j] *6*	(15/2$^-$)	91 μs *4*	J^π: from analogy to ^{127}Sb and syst of 5$^-$ and 7$^-$ states in even Sn isotopes (1977Sc14). $T_{1/2}$: weighted average of 88 μs *5* (1987Bo19), 95 μs *6* (1982Pr01). Others: 80 μs *3* (1969Wa29) and 50 μs *8* (1977Sc14).
1725.9[#j] *10*	(17/2$^-$)@		
1730.6[j] *3*	(13/2$^-$)@		
1758.2 *11*			1981Hu09 suggest that this state is directly populated in 58.4 s β^- decay.
1786.9[#]	†		
1812.93[j] *13*	(11/2$^-$)@		
1861.9[&] *10*	(11/2,13/2,15/2)[a]		
1867.0 *11*	(11/2,13/2,15/2)[a]		
1871.90 *12*	(5/2,7/2,9/2)[b]		J^π: 1/2$^+$ (1995St28).

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^{131}Sn β^- decay (56.0 s+58.4 s) 1981Hu09,1988StZQ,1995St28 (continued)

^{131}Sb Levels (continued)

E(level)	J^π	Comments
1889.5# *7*	(11/2)[c]	
1916.49 *9*	(15/2$^-$)[c]	J^π: 1981ScZT considered 15/2 less probable than 11/2,13/2.
1918.7 *7*		
1931.08 *8*	(9/2$^+$)[†]	
1980.39 *7*	(13/2$^-$)	J^π: 13/2$^-$,15/2$^-$ proposed by 1988StZQ. Probably not 15/2$^-$ from $\beta\gamma$ coin (evaluators).
1997.5# *10*	(9/2$^-$)[c]	
2004.06 *25*		
2018.7# *10*	(9/2$^-$)[c]	
2021.4# *8*		
2036.64# *13*		
2043.45 *8*	(11/2,13/2,15/2)[a]	Probably directly populated in 58.4 s 11/2$^-$ ^{131}Sn β^- decay.
2086.2 *4*	(11/2,13/2)[b]	
2274.62 *20*		
2392.12 *18*	(1/2$^+$)	J^π: from syst of odd-mass Sb isotopes (1981ScZT).
2453.70? *20*	(13/2,15/2)[a]	
2561.11 *24*		
2663.57 *14*		
2861.2 *5*		
2865.47 *10*	(13/2,15/2)[a]	
2916.3 *4*		
2938.1& *6*		J^π: 1/2$^+$ (1995St28).
2953.56 *17*		
2978.01[de] *12*	(3/2,5/2,7/2)[b]	J^π: 3/2$^+$ (1995St28).
2984.34 *18*		
3060.9 *5*		
3074.51 *23*		
3121.33 *19*		
3258.58&[f] *18*		
3268.61[df] *14*	(5/2,7/2,9/2)[b]	
3308.45[f] *14*		
3367.5[h] *3*		
3411.91[h] *20*	(9/2)[b]	
3539.1& *10*		
3568.7& *10*		

† From systematics of low-spin positive parity states in odd-mass Sb isotopes (1988StZQ).
‡ 1981ScZT propose 7/2$^+$, (9/2$^+$) and (7/2)$^+$, 9/2$^+$, respectively (1988StZQ).
# From 1988StZQ.
@ From γ deexcitation and probable membership in (^{130}Sn 7$^-$)$\otimes$(π g$_{7/2}$) multiplet (1988StZQ) (1988StZQ). Alternate placement of 1/2$^+$ at 2392 by 1981ScZT.
& From 1981ScZT.
[a] Proposed by 1981ScZT; no details given.
[b] From γ deexcitation pattern assuming mult.=D,Q (evaluators).
[c] Proposed by 1988StZQ; no details given.
[d] 1981Hu09 suggest that this state is directly populated in 56.0 s β^- decay.
[e] Populated in 56.0 s 3/2$^+$ ^{131}Sn β-decay (2004Fo06, β-γ-coin).
[f] Populated in 58.4 s 11/2$^-$ ^{131}Sn β-decay (2004Fo06, β-γ-coin).

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^{131}Sn β^- decay (56.0 s+58.4 s) 1981Hu09,1988StZQ,1995St28 (continued)

^{131}Sb Levels (continued)

[g] Directly populated in 58.4 s $11/2^-$ ^{131}Sn β^- decay from Iβ^- and ΔJ^π.
[h] Built only on the basis of energy sums and intensity relations (1981Hu09).
[i] Band(A): Configuration =(^{130}Sn 2^+)⊗(π,$g_{7/2}$) (1988StZQ).
[j] Band(B): Configuration =(^{130}Sn 7^-)⊗(π,$g_{7/2}$) (1988StZQ).

β^- radiations

1973Jo02 deduced β-strength function from total-absorption γ spectra.

E(decay)	E(level)	Iβ^-[†][#]	Log *ft*	Comments
(1105 *11*)	3568.7	0.9		
(1135 *11*)	3539.1	0.7		
(1262 *11*)	3411.91	8		
(1307 *11*)	3367.5	3.7		
(1366 *11*)	3308.45	10		
1491[‡] *9*	3268.61	15		
1519[‡] *8*	3258.58	9.6		
(1553 *11*)	3121.33	5.7		
(1599 *11*)	3074.51	4		
1519[‡] *8*	3060.9	1.8		Iβ^-=0.8%, log *ft*=6.1 (1995St28).
(1690 *11*)	2984.34	3.5		
1734[‡] *7*	2978.01	20		Iβ^-=10.1%, log *ft*=5.0 (1995St28).
(1720 *11*)	2953.56	6.7		
(1736 *11*)	2938.1	5.7		Iβ^-=7.5%, log *ft*=5.2 (1995St28).
(1758 *11*)	2916.3	4.3		
(1809 *11*)	2865.47	12.4		
(2010 *11*)	2663.57	0.9		Iβ^-=9.5%, log *ft*=5.4 (1995St28).
(2113 *11*)	2561.11	3.6		Iβ^-=2.8%, log *ft*=6.0 (1995St28).
(2282 *11*)	2392.12	7.5		Iβ^-=6.2%, log *ft*=5.8 (1995St28).
(2399 *11*)	2274.62	9.5		Iβ^-=6.1%, log *ft*=5.9 (1995St28).
(2631[@] *11*)	2043.45	9.1		
(2637 *11*)	2036.64	0.8		
(2653 *11*)	2021.4	3.4		
(2655 *11*)	2018.7	1.4		
(2670 *11*)	2004.06	1.0		Iβ^-=8.0%, log *ft*=6.0 (1995St28).
(2677 *11*)	1997.5	3.2		
2.62×10^3 *15*	1980.39	19		E(decay): from 1979Ke02.
(2743 *11*)	1931.08	7.6		
(2755 *11*)	1918.7	1.3		Iβ^-=0.4%, log *ft*=7.4 (1995St28).
(2785 *11*)	1889.5	2.7		
(2802 *11*)	1871.90	4.2		Iβ^-=3.3%, log *ft*=6.5 (1995St28).
(2812 *11*)	1861.9	2.8		
(2887 *11*)	1786.9			Iβ^-=2.0%, log *ft*=6.7 (1995St28).
(2916[@] *11*)	1758.2			
(2943 *11*)	1730.6	37		
(2948 *11*)	1725.9	15		
(3193 *11*)	1481.15	2.7		
(3445 *11*)	1229.28	4		
3.42×10^3 *18*	1226.04	11.7 *14*		E(decay): from 1979Ke02.
(3471 *11*)	1202.61	3		Iβ^-=2.0%, log *ft*=7.1 (1995St28).
(3532 *11*)	1141.67	3.5		Iβ^-=5.4%, log *ft*=6.7 (1995St28).
3892[‡] *5*	798.494	51	5.9	Iβ^-=36.0%, log *ft*=6.0 (1995St28).

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^{131}Sn β^- decay (56.0 s+58.4 s) 1981Hu09,1988StZQ,1995St28 (continued)

β^- radiations (continued)

E(decay)	E(level)	I$\beta^{-\dagger\#}$	Log *ft*	Comments
(4674 *11*)	0.0	6 *4*	9.0[1u] *3*	Iβ^-: for the 58.4 s β^- decay (1981Hu09); calculated taking into account the total γ intensity of the Sn decay and the one of the Sb decay and comparing them with the predicted fission yields with proper correction.

† Intensities are calculated by evaluators from net γ feeding of each level and have only the approximate values because of the level scheme is incomplete.
‡ From β-γ-coin; 2004Fo06.
# Absolute intensity per 100 decays.
@ Existence of this branch is questionable.

$\gamma(^{131}Sb)$

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α [k]	$I_{(\gamma+ce)}$ [‡]	Comments
49.83 [#]	1.1 [@] *CA*	1725.9	(17/2$^-$)	1676.06	(15/2$^-$)	[M1,E2]	12 *8*	14.86	
54.35 [#]	3.7 [@] *CA*	1730.6	(13/2$^-$)	1676.06	(15/2$^-$)	[M1,E2]	9 *6*	37.07	
62.9 *2*	1.5 *5*	2043.45	(11/2,13/2,15/2)	1980.39	(13/2$^-$)				
63.82 [#]	0.32 [@] *CA*	1980.39	(13/2$^-$)	1916.49	(15/2$^-$)	[M1,E2]	5 *3*	1.90	
82.29 [l&an] *6*	21 [lb] *3*	1758.2		1676.06	(15/2$^-$)			[b]	
82.29 [l&an] *6*	21 [lb] *3*	1812.93	(11/2$^-$)	1730.6	(13/2$^-$)	[M1,E2]	2.2 *11*	[b]	
102.20 [#]	0.029 [@] *CA*	2018.7	(9/2$^-$)	1916.49	(15/2$^-$)	[M3]	50.0	1.42	
104.68 [#]		2021.4		1916.49	(15/2$^-$)			1.43	
108.8 *3*	1.0 *7*	1867.0	(11/2,13/2,15/2)	1758.2					
118.06 [c] *15*	2.8 *7*	1931.08	(9/2$^+$)	1812.93	(11/2$^-$)	[E1]	0.1182		
155.9 *6*	1.4 *5*	2086.2	(11/2,13/2)	1931.08	(9/2$^+$)				E_γ: may correspond to unassigned 155.531 *6* in 1979Bo26.
184.6 [#]	2.80 [@] *CA*	1997.5	(9/2$^-$)	1812.93	(11/2$^-$)	[M1,E2]	0.15 *4*	3.22	
185.83 [d]	2.8 [d]	1861.9	(11/2,13/2,15/2)	1676.06	(15/2$^-$)				
186.2 [#]	0.95	1916.49	(15/2$^-$)	1730.6	(13/2$^-$)	[M1,E2]	0.15 *4*	1.09	
190.73 [l&acn] *13*	8.0 [lb] *10*	1867.0	(11/2,13/2,15/2)	1676.06	(15/2$^-$)			[b]	
190.73 [l&acn] *13*	8.0 [lb] *10*	1916.49	(15/2$^-$)	1725.9	(17/2$^-$)	[M1,E2]	0.14 *4*	[b]	
[x]197.8 *2*	2.4 *5*								
[x]203.2 *5*	1.0 *5*								
208.462 [l&en] *9*	1.4 [l] *5*	2021.4		1812.93	(11/2$^-$)			0.7	
208.462 [l&en] *9*	1.4 [l] *5*	3268.61	(5/2,7/2,9/2)	3060.9				0.7	
[x]213.9 *2*	2.6 *5*								
[x]217.185 [e] *13*	2.5 *5*								
223.711 [e f] *10*	1.4 *4*	2036.64		1812.93	(11/2$^-$)			0.79	
240.43 [a] *7*	6.5 *10*	1916.49	(15/2$^-$)	1676.06	(15/2$^-$)	[M1,E2]	0.066 *11*	5.82	
251.70 [c] *10*	4.6 *8*	1481.15	(7/2$^+$)	1229.28	(9/2$^+$)	[M1,E2]	0.058 *9*		I_γ: 3.0 (1995St28).
260.15 *40*	1.0 *5*	3121.33		2861.2					
[x]266.89 *21*	2.0 *5*								
278.4 [i]	3.0	1481.15	(7/2$^+$)	1202.61	(5/2$^+$)				
285.0 [n] *2*	3.0 *9*	2043.45	(11/2,13/2,15/2)	1758.2					
291.00 [#]		2021.4		1730.6	(13/2$^-$)			1.93	
304.33 [a] *3*	32 [b] *4*	1980.39	(13/2$^-$)	1676.06	(15/2$^-$)	[M1,E2]	0.033 *3*	[b]	
314.45 *13*	2.8 *6*	2978.01	(3/2,5/2,7/2)	2663.57					I_γ: 2.4 (1995St28).
320.75 *12*	3.4 *6*	2984.34		2663.57					
331.7 *6*	0.8 *4*	1812.93	(11/2$^-$)	1481.15	(7/2$^+$)	[M2]	0.0993		
[x]359.60 *35*	0.8 *4*								
367.40 [a] *5*	7.6 *11*	2043.45	(11/2,13/2,15/2)	1676.06	(15/2$^-$)				E_γ: 367.02 *3* (1979Bo26) discrepant.
383.2 *3*	1.3 *3*	3367.5		2984.34					

$\gamma(^{131}Sb)$ (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α [k]	$I_{(\gamma+ce)}$ [‡]	Comments
388.1 [j]	1.6	2392.12	(1/2$^+$)	2004.06					
404.5 [i]	0.46	1202.61	(5/2$^+$)	798.494	(5/2$^+$)				
410.25 [l&an] *20*	5.1 [l] *10*	2086.2	(11/2,13/2)	1676.06	(15/2$^-$)				
410.25 [l&an] *20*	5.1 [l] *10*	2453.70?	(13/2,15/2)	2043.45	(11/2,13/2,15/2)				
430.6 *6*	1.0 *5*	1229.28	(9/2$^+$)	798.494	(5/2$^+$)	[E2]	0.01198		
437.9 [i]	2.8	1918.7		1481.15	(7/2$^+$)				
447.4 [#a]	2.9 [@b]	1676.06	(15/2$^-$)	1229.28	(9/2$^+$)	E3	0.0321	3.0 [b]	B(E3)(W.u.)=0.136 *7* Mult.: from ce and RUL (1988StZQ).
450.03 [a] *5*	90 *10*	1676.06	(15/2$^-$)	1226.04	(11/2$^+$)	M2	0.0387	72.6	B(M2)(W.u.)=0.00064 *3* Mult.: from ce and RUL (1988StZQ).
504.6 [g] *3*	2.9 *9*	1730.6	(13/2$^-$)	1226.04	(11/2$^+$)			2.6	
520.3 [i]	1.6	2392.12	(1/2$^+$)	1871.90	(5/2,7/2,9/2)				
546.3 [i]	2.0	2938.1		2392.12	(1/2$^+$)				
583.5 *2*	5.2 *10*	1812.93	(11/2$^-$)	1229.28	(9/2$^+$)			4.9	
583.9 [n]	2.8	1786.9		1202.61	(5/2$^+$)				RI from 1995St28.
643.0 [d]	0.5 [d]	1871.90	(5/2,7/2,9/2)	1229.28	(9/2$^+$)				
660.2 [#]		1889.5	(11/2)	1229.28	(9/2$^+$)			0.11	
663.4 [#]		1889.5	(11/2)	1226.04	(11/2$^+$)			2.6	
669.0 [d]	0.5 [d]	1871.90	(5/2,7/2,9/2)	1202.61	(5/2$^+$)				
682.660 [ce] *22*	3.1 *9*	1481.15	(7/2$^+$)	798.494	(5/2$^+$)				I_γ: 4.2 (1995St28).
[x]692.3 *2*	4.1 *10*								
701.1 [d]	1.8 [d]	1931.08	(9/2$^+$)	1229.28	(9/2$^+$)				
703.5 [jn]	1.4	2978.01	(3/2,5/2,7/2)	2274.62					
774.70 [an] *16*	3.5 *6*	2861.2		2086.2	(11/2,13/2)				
793.5 *2*	3.7 *12*	2274.62		1481.15	(7/2$^+$)				I_γ: 5.5 (1995St28).
798.50 [c] *2*	86 *10*	798.494	(5/2$^+$)	0.0	(7/2$^+$)				E_γ: value 645.2 from 1995St28 fig.3 is surely a misprint.
801.63 *26*	1.4 *3*	2004.06		1202.61	(5/2$^+$)				Eγ=800.3; Iγ=5.0 (1995St28).
[x]815.3 *3*	4.4 *12*								
885.08 [a] *7*	8.9 *12*	2865.47	(13/2,15/2)	1980.39	(13/2$^-$)				
898.5 *4*	1.4 *5*	2984.34		2086.2	(11/2,13/2)				
904.6 [n] *7*	1.0 *3*	2663.57		1758.2					
911.0 [i]	2.1	2392.12	(1/2$^+$)	1481.15	(7/2$^+$)				
999.8 [a] *3*	4.3 *11*	2916.3		1916.49	(15/2$^-$)				
1022.1 *2*	4.0 *10*	2953.56		1931.08	(9/2$^+$)				
[x]1036.9 *9*	0.7 *4*								
1059.7 [i]	1.5	2978.01	(3/2,5/2,7/2)	1918.7					
1065.9 [i]	1.1	2938.1		1871.90	(5/2,7/2,9/2)				
1071.9 [jn]	2.0	2274.62		1202.61	(5/2$^+$)				
1073.36 [c] *12*	8.6 *14*	1871.90	(5/2,7/2,9/2)	798.494	(5/2$^+$)				Eγ=1074.2; Iγ=7.7 (1995St28).

$\gamma(^{131}Sb)$ (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α [k]	$I_{(\gamma+ce)}$ [‡]	Comments
1141.2 [ma] 2	2.5 [m] 5	3121.33		1980.39	(13/2$^-$)				
1141.6 [mc] 2	10.0 [m] 20	1141.67	(3/2$^+$)	0.0	(7/2$^+$)				
1182.4 2	4.2 [b] 10	2663.57		1481.15	(7/2$^+$)				Eγ=1183.1; Iγ=6.4 (1995St28).
1188.70 [d]	1.9 [d]	2865.47	(13/2,15/2)	1676.06	(15/2$^-$)				I_γ: 2.1; depopulates 2392 level (1995St28).
1202.6 [mc] 2	15.0 [m]	1202.61	(5/2$^+$)	0.0	(7/2$^+$)				I_γ: 20.3 (1995St28).
1202.6 [m] 2	4.0 [m] 20	3074.51		1871.90	(5/2,7/2,9/2)				
1204.9 [in]	7.0	2004.06		798.494	(5/2$^+$)				
1226.03 [ac] 3	100 10	1226.04	(11/2$^+$)	0.0	(7/2$^+$)			100 [b]	
1229.23 [a] 6	30 [b] 4	1229.28	(9/2$^+$)	0.0	(7/2$^+$)				I_γ: 3.0 (1995St28).
[x]1236.3 4	4.1 10								
1250.7 7	1.2 5	2392.12	(1/2$^+$)	1141.67	(3/2$^+$)				I_γ: 0.45 (1995St28).
1328.03 [a] 18	3.3 6	3308.45		1980.39	(13/2$^-$)				
[x]1375.7 5	1.3 5								
1391.61 [ld]	2.2 [ld]	3258.58		1867.0	(11/2,13/2,15/2)				
1391.61 [ld]	2.2 [ld]	3308.45		1916.49	(15/2$^-$)				
1419.6 [i]	0.32	2561.11		1141.67	(3/2$^+$)				
1475.80 [d]	1.6 [d]	2274.62		798.494	(5/2$^+$)				I_γ: 1.1 (1995St28).
1481.12 [c] 8	12.0 5	1481.15	(7/2$^+$)	0.0	(7/2$^+$)				I_γ: 10.5 (1995St28).
1496.4 3	2.2 3	2978.01	(3/2,5/2,7/2)	1481.15	(7/2$^+$)				
1593.6 2	2.9 7	2392.12	(1/2$^+$)	798.494	(5/2$^+$)				
1639.7 5	1.6 4	2865.47	(13/2,15/2)	1226.04	(11/2$^+$)				
1676.0 [dn]	2.5 [d]	1676.06	(15/2$^-$)	0.0	(7/2$^+$)	[M4]	0.00343		B(M4)(W.u.)=41.6 19
1724.90 26	2.7 7	2953.56		1229.28	(9/2$^+$)				E_γ: poor fit: level-energy difference=1724.28 17.
1736.5 7	1.0 5	3411.91	(9/2)	1676.06	(15/2$^-$)				
1736.6 [jn]	0.3	2938.1		1202.61	(5/2$^+$)				
1762.60 25	3.0 8	2561.11		798.494	(5/2$^+$)				Eγ=1763.2; Iγ=3.5 (1995St28).
1775.60 18	3.9 8	2978.01	(3/2,5/2,7/2)	1202.61	(5/2$^+$)				I_γ: 2.7 (1995St28).
1787.47 18	4.4 8	3268.61	(5/2,7/2,9/2)	1481.15	(7/2$^+$)				
1836.31 16	3.6 9	2978.01	(3/2,5/2,7/2)	1141.67	(3/2$^+$)				I_γ: 2.5 (1995St28).
1872.6 [c] 5	1.3 4	1871.90	(5/2,7/2,9/2)	0.0	(7/2$^+$)				
[x]1890.4 9	1.4 3								
1894.25 40	2.2 5	3121.33		1226.04	(11/2$^+$)				E_γ: poor fit: level-energy difference=1895.30 19.
1918.85 50	1.4 3	3060.9		1141.67	(3/2$^+$)				I_γ: 0.8 (1995St28).
1931.05 8	9.2 20	1931.08	(9/2$^+$)	0.0	(7/2$^+$)			8.1	
[x]1942.6 4	1.6 4								
[x]1951.2 5	1.5 4								
2003.4 5	1.2 3	2004.06		0.0	(7/2$^+$)				Eγ=2003.7; Iγ=0.50 (1995St28).
2029.30 [h] 17	5.4 10	3258.58		1229.28	(9/2$^+$)				
2032.0 [d]	2.0 [d]	3258.58		1226.04	(11/2$^+$)				
2039.25 25	4.2 10	3268.61	(5/2,7/2,9/2)	1229.28	(9/2$^+$)				

$^{131}_{51}Sb_{80}$-7

$\gamma(^{131}Sb)$ (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Comments
2082.45 *20*	4.7 *12*	3308.45		1226.04	(11/2$^+$)	
[x]2092.8 *3*	2.3 *6*					
[x]2121.5 *6*	1.2 *3*					
2139.54[d]	2.6[d]	2938.1		798.494	(5/2$^+$)	Eγ=2139.0; Iγ=4.3 (1995St28).
[x]2150.4 *7*	2.6 *7*					
2179.59[d]	4.8[d]	2978.01	(3/2,5/2,7/2)	798.494	(5/2$^+$)	I_γ: 3.0 (1995St28).
2186.4[l&n] *2*	4.0[l] *10*	2984.34		798.494	(5/2$^+$)	
2186.4[l&n] *2*	4.0[l] *10*	3411.91	(9/2)	1226.04	(11/2$^+$)	
2208.95 *20*	3.4 *10*	3411.91	(9/2)	1202.61	(5/2$^+$)	
2264[i]	0.4	3060.9		798.494	(5/2$^+$)	
2274.22[d]	4.2[d]	2274.62		0.0	(7/2$^+$)	I_γ: 1.5 (1995St28).
2392.2[i]	0.095	2392.12	(1/2$^+$)	0.0	(7/2$^+$)	
2470.5 *4*	3.3 *8*	3268.61	(5/2,7/2,9/2)	798.494	(5/2$^+$)	
2561[i]	0.29	2561.11		0.0	(7/2$^+$)	
2568.93[d]	0.7[d]	3367.5		798.494	(5/2$^+$)	
2614.4 *4*	2.6 *8*	3411.91	(9/2)	798.494	(5/2$^+$)	E_γ: poor fit: level-energy difference=2613.42 *20*.
2663.21[d]	2.9[d]	2663.57		0.0	(7/2$^+$)	I_γ: 9.7 (1995St28).
[x]2722.0 *4*	1.6 *4*					
[x]2833.9 *6*	1.0 *4*					
2977.7 *4*	1.2[b] *3*	2978.01	(3/2,5/2,7/2)	0.0	(7/2$^+$)	I_γ: 0.1 (1995St28).
3267.5 *7*	3.3 *8*	3268.61	(5/2,7/2,9/2)	0.0	(7/2$^+$)	
3367.0 *8*	1.7 *4*	3367.5		0.0	(7/2$^+$)	
3412.3 *9*	1.0 *3*	3411.91	(9/2)	0.0	(7/2$^+$)	
3539.0[d]	0.7[d]	3539.1		0.0	(7/2$^+$)	
3568.6[d]	0.9[d]	3568.7		0.0	(7/2$^+$)	

[†] From 1981Hu09, except as noted; Iγ's from 1995St28 are renormalized to Iγ(798.5)=86.

[‡] From 1988StZQ. From comparison of the intensities for transitions feeding and deexciting the 1676 state in fig. 4 of 1988StZQ, the authors have apparently given I(γ+ce) in fig. 4 (evaluators).

[#] From 1988StZQ; not reported by 1981Hu09, 1981ScZT, 1995St28.

[@] From I(γ+ce) and adopted α (evaluators).

[&] 82γ placed as deexciting 1758 by 1981Hu09 and 1813 by 1988StZQ. 191γ placed as deexciting 1867 by 1981Hu09 and 1917 by 1981ScZT and 1988StZQ. 208γ placed as deexciting 3269 by 1981Hu09 and 2022 by 1988StZQ. 410γ placed as deexciting 2086 by 1981Hu09 and 2454 by 1981ScZT. 2186γ placed as deexciting 2985 by 1981Hu09 and 3412 by 1981ScZT.

[a] Placed above the 1676 level based on $T_{1/2}$(1676) (1981Hu09).

[b] I(γ+ce)(82)=14.13 (1988StZQ) is discrepant. I(γ+ce)(191)=4.21 (1988StZQ) and Iγ(191)=4.2 (1981ScZT) are discrepant. I(γ+ce)(304)=17.40 (1988StZQ) is discrepant, but Iγ(304)=27.1 (1981ScZT) agrees. Iγ(447)=1.5 (1981ScZT) is discrepant. Iγ(1182)=1.9 (1981ScZT) is discrepant. I(γ+ce)(1229)=20.2

$^{131}_{51}Sb_{80}$-8

^{131}Sn β^- decay (56.0 s+58.4 s) 1981Hu09,1988StZQ,1995St28 (continued)

$\gamma(^{131}Sb)$ (continued)

(1988StZQ) is discrepant, but Iγ(1229)=28.3 (1981ScZT) agrees. Iγ(2978)=12.5 (1981ScZT) is discrepant.

[c] Also reported by 1977Sc14 or 1981ScZT but not by 1988StZQ.

[d] From 1981ScZT; not reported by 1981Hu09 or 1988StZQ. 1676γ may be sum peak (1226γ+450γ).

[e] From 1979Bo26. Assigned by the evaluators based on agreement with 208.25 *30*, 217.15 *13*, 223.70 *25*, and 682.4 *3* (1981Hu09).

[f] Unplaced by 1981Hu09. Placement from 1988StZQ.

[g] Also reported by 1988StZQ but not by 1977Sc14 or 1981ScZT.

[h] Unplaced by 1981Hu09. Placement from 1981ScZT.

[i] 1995St28 only.

[j] Placement from 1995St28.

[k] 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.

[l] Multiply placed with undivided intensity.

[m] Multiply placed with intensity suitably divided.

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

[x] γ ray not placed in level scheme.

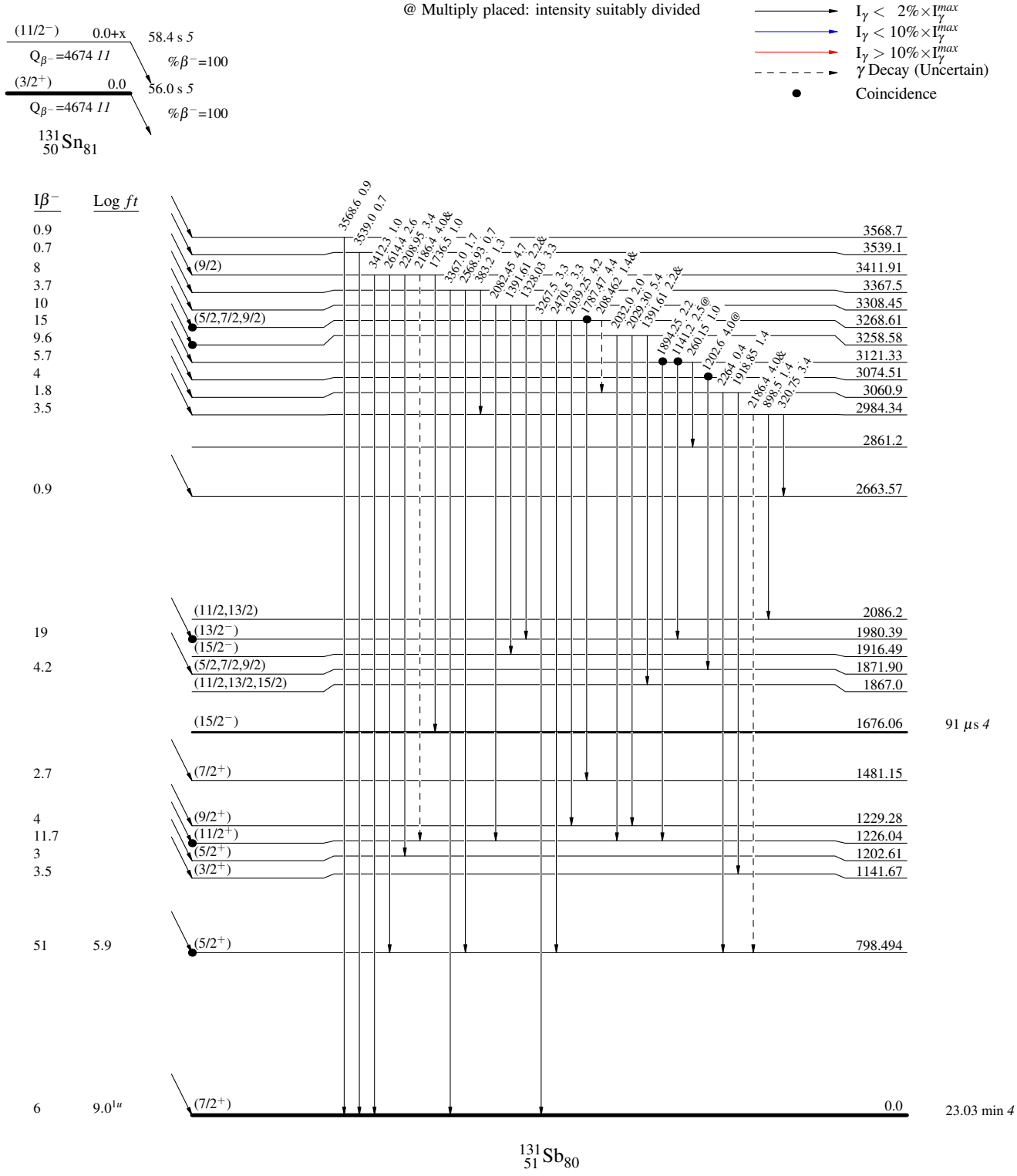
$^{131}_{51}Sb_{80}$-9

^{131}Sn β^- decay (56.0 s+58.4 s) 1981Hu09,1988StZQ,1995St28

Decay Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)
Coincidence

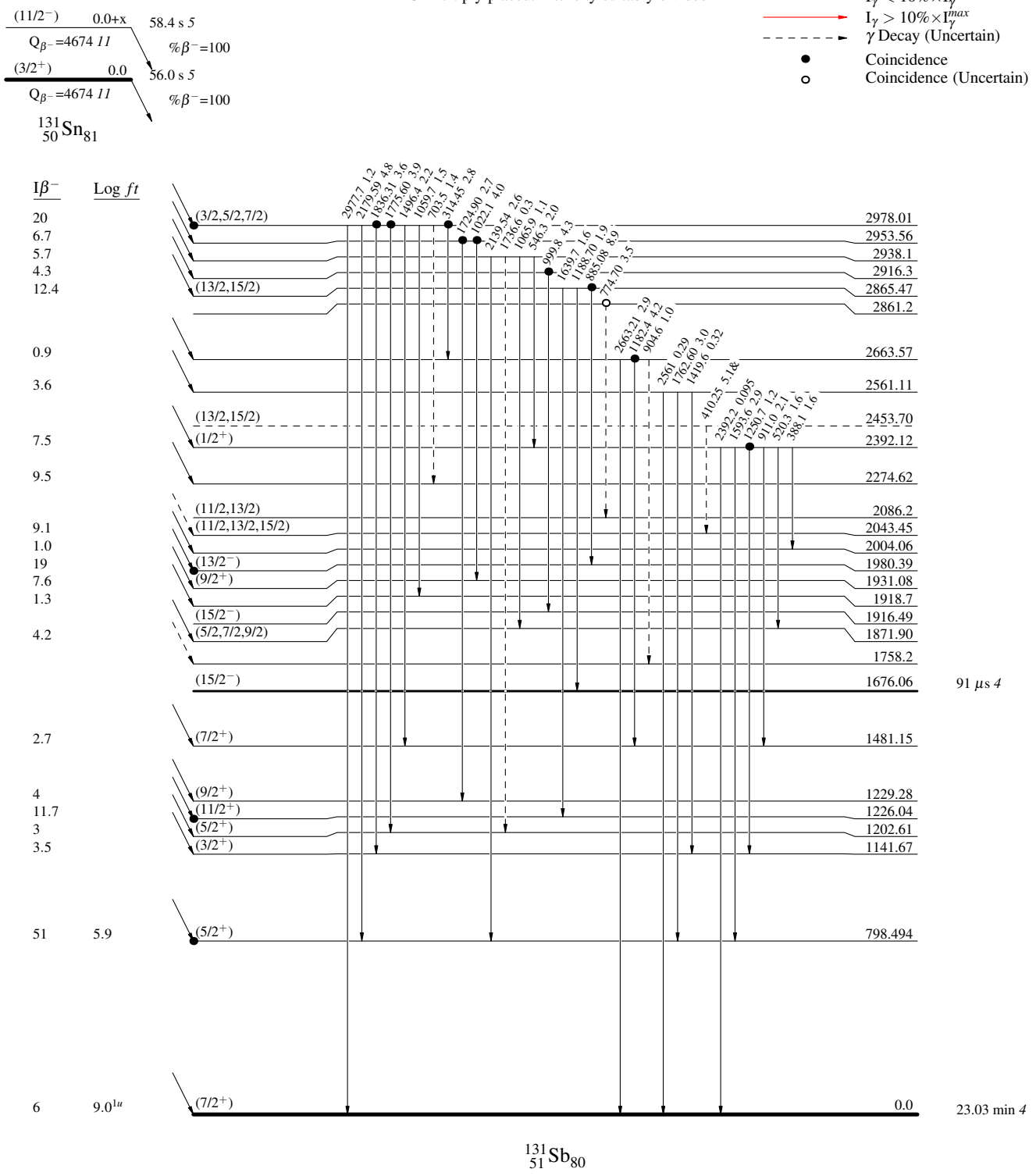


^{131}Sn β^- decay (56.0 s+58.4 s) 1981Hu09,1988StZQ,1995St28

Decay Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)
Coincidence
Coincidence (Uncertain)

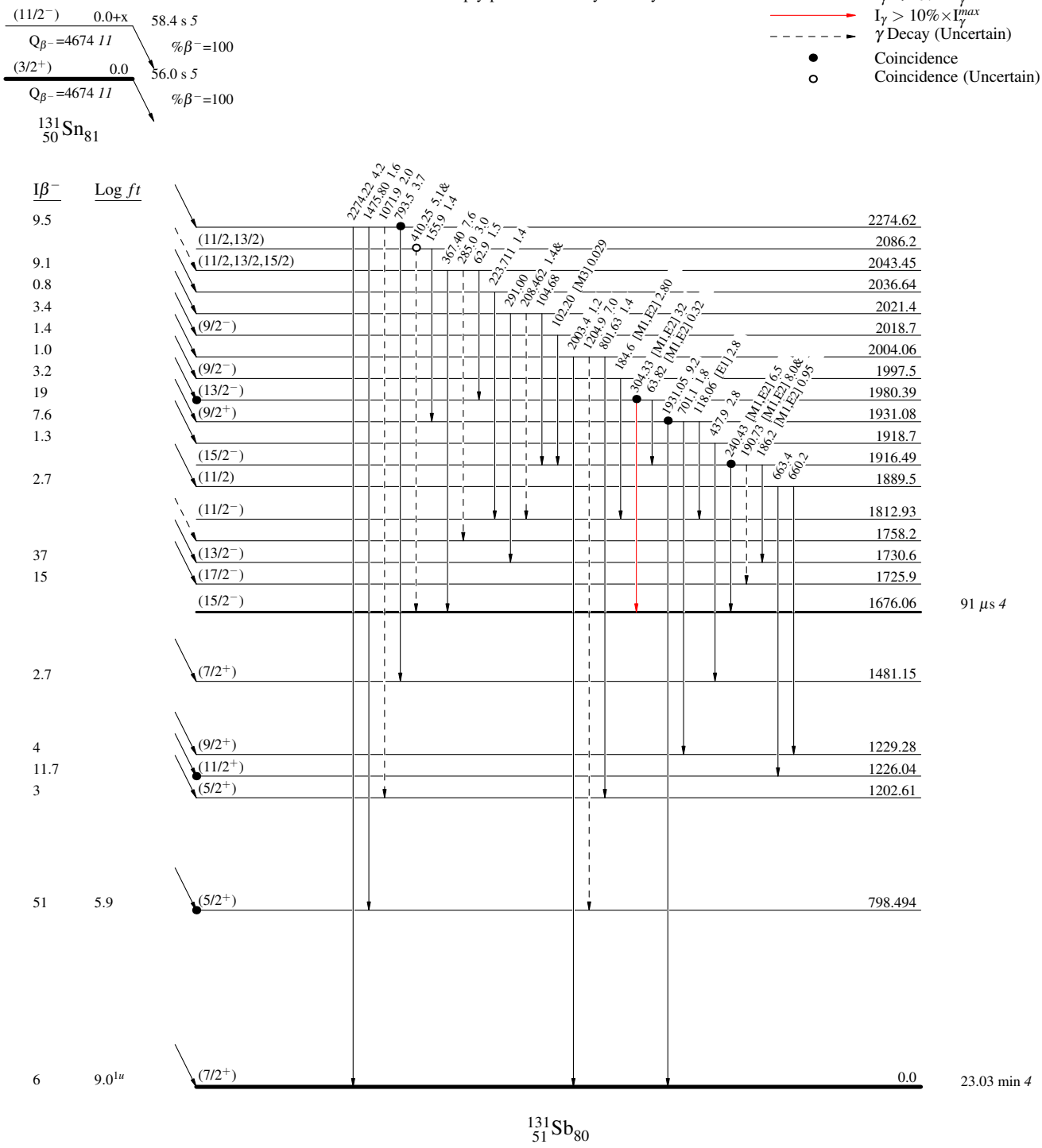


^{131}Sn β^- decay (56.0 s+58.4 s) 1981Hu09,1988StZQ,1995St28

Decay Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)
Coincidence
Coincidence (Uncertain)

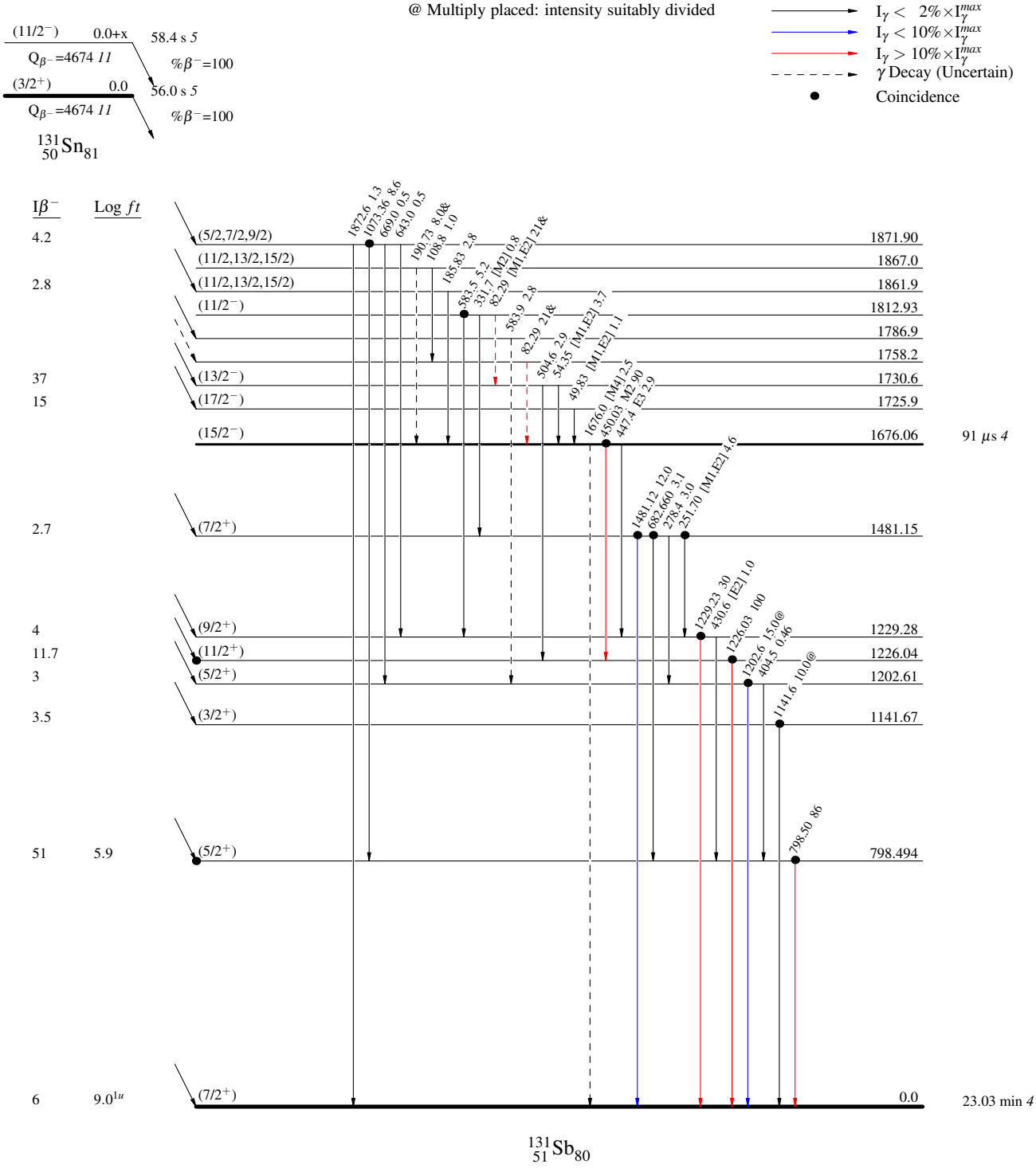


^{131}Sn β^- decay (56.0 s+58.4 s) 1981Hu09,1988StZQ,1995St28

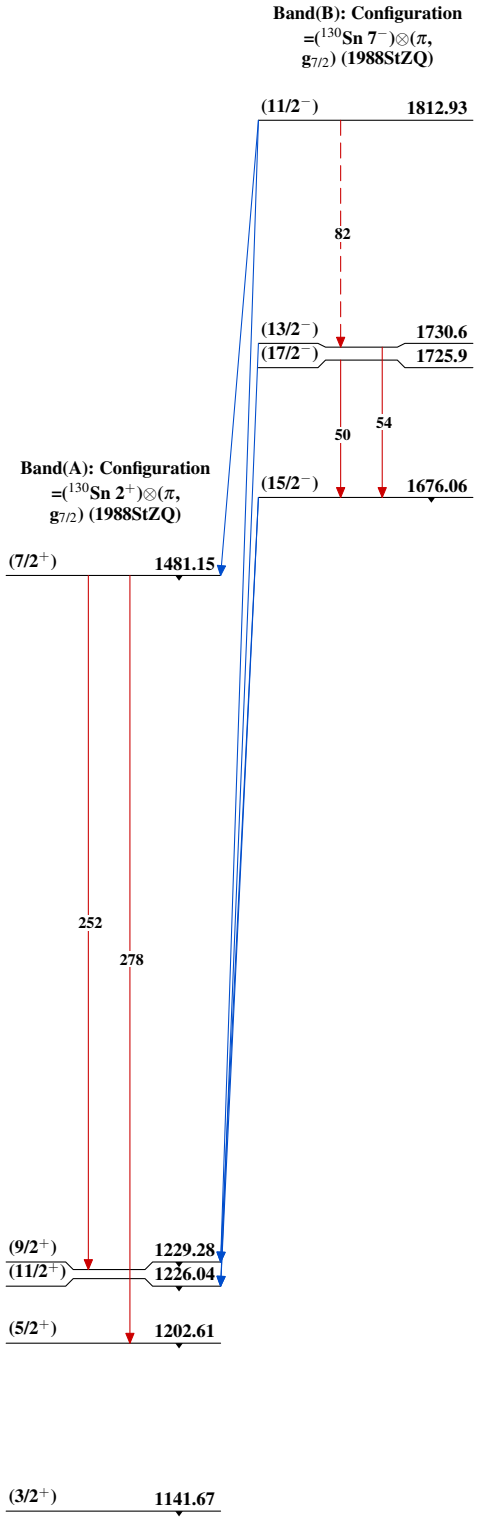
Decay Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)
Coincidence



^{131}Sn β^- decay (56.0 s+58.4 s) 1981Hu09,1988StZQ,1995St28



$^{131}_{51}Sb_{80}$