Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Janos Timar and Zoltan Elekes, Balraj Singh	NDS 121, 143 (2014)	31-May-2014

Q(β^-)=2376 *21*; S(n)=8070 *29*; S(p)=8556 *28*; Q(α)=−6580 *30* 2012Wa38
S(2n)=14072 *22*, S(2p)=22309 *30* (2012Wa38).

1939Ab02: ^{129}Sb produced and identified in irradiation of uranium with high-energy neutrons produced in a cyclotron, followed by chemical separation; measured half-life and absorption curves.

Later decay studies: 1962Uh01, 1966Ta05, 1967Ha27, 1974Fo06, 1982Hu09, 1987St03, 1987StZO.

1981Sa15: particle-core coupling and shell-model calculations of level energies and J^π values.

Inclusion of detailed decay data from 1987StZO in the 2014 update of ^{129}Sb has resulted in extensive revision of data for levels and γ rays. In the opinion of the evaluators, the decay scheme of 6.9-min ^{129}Sn decay is incomplete and is worthy of further study.

^{129}Sb Levels

Cross Reference (XREF) Flags

A	^{129}Sn β^- decay (2.23 min)	E	^{129}Sb IT decay (1.1 μs)
B	^{129}Sn β^- decay (6.9 min)	F	^{130}Te(d,^{3}He)
C	^{129}Sb IT decay (17.7 min)	G	^{130}Te(t,α)
D	^{129}Sb IT decay (2.2 μs)	H	^{241}Pu(n,Fγ) E=thermal

E(level)†	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0	7/2$^+$	4.366 h *26*	ABCDEFGH	%β^-=100 μ=2.79 *2* (1997St06,2014StZZ) J$^\pi$: L(t,α)=L(d,^{3}He)=4; log *ft*=7.78 to 5/2$^+$. T$_{1/2}$: weighted average (LRSW method) of 4.41 h *1* (1974Fo06), 4.31 h *3* (1967Ha27), 4.35 h *5* (1966Ta05), 4.34 h *7* (1962Uh01). Others: 4.6 h *1* (1953Pa25), 4.2 h (1939Ab02). Uncertainty in LRSW method was increased to 0.024 h in 1974Fo06. Reduced χ^2=2.35. μ: NMR on oriented nuclei (1997St06,1996Li01).
645.14 *5*	(5/2)$^+$		A FG	J$^\pi$: L(t,α)=L(d,^{3}He)=2; log *ft*=5.86 from (3/2$^+$); shell model predictions; systematics of odd Sb nuclides (1981Sa15).
913.58 *5*	(3/2)$^+$		A FG	J$^\pi$: L(t,α)=2. Shell-model calculation (1981Sa15).
1128.63 *4*	(11/2$^+$)		BCDE H	J$^\pi$: odd Sb systematics. Shell model calculations (1981Sa15).
1161.39 *4*	(9/2$^+$)		AB D	J$^\pi$: γ to 7/2$^+$; odd Sb systematics. Shell model calculations (1981Sa15).
1252.25 *5*	(3/2$^+$,5/2,7/2$^-$)		A	J$^\pi$: γ to 7/2$^+$; log *ft*=8.0 from (3/2$^+$).
1493.33 *7*	(1/2$^+$)		A FG	XREF: F(1450)G(1450). J$^\pi$: L(d,^{3}He)=(0); log *ft*=6.8 from (3/2$^+$). Shell-model calculation (1981Sa15) predicts 1/2$^+$ near 1.1 MeV.
1503.61 *7*	(5/2$^+$)		A	J$^\pi$: log *ft*=7.1 from (3/2$^+$); γ to 9/2$^+$.
1762.17 *9*	(1/2,3/2,5/2)		A	J$^\pi$: log *ft*=6.8 from (3/2$^+$).
1842.13 *7*	(1/2,3/2,5/2)		A	J$^\pi$: log *ft*=6.5 from (3/2$^+$).
1848.97 *9*	(5/2$^+$)		A	J$^\pi$: log *ft*=7.1 from (3/2$^+$); γ to (9/2$^+$).
1851.31 *6*	(19/2$^-$)	17.7 min *1*	BCDE H	%β^-=85; %IT=15 E(level): assigned as isomer by 1987St23. 1982Hu09 also report a 17-min isomer with excitation energy unknown. T$_{1/2}$: from 1982Hu09. Other: 17.1 min (1987St23). J$^\pi$: (M4) γ to (11/2$^+$); shell model systematics; possible configuration=$\pi g_{7/2}\otimes\nu h_{11/2}\otimes\nu d_{3/2}$.
1861.06 *5*	(15/2$^-$)	2.2 μs *2*	B D H	%IT=100 J$^\pi$: gammas to (9/2$^+$) and (19/2$^-$); no β feeding from (11/2$^-$); comparison to ^{131}Sb and shell-model calculations. T$_{1/2}$: γ(t) in (n,Fγ) (2003Ge04,1998GeZX). Other: >2 μs (1987St23).

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Adopted Levels, Gammas (continued)

^{129}Sb Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$	XREF	Comments
1911.21 *5*	(13/2⁻)		B	Jπ: log *ft*=6.6 from (11/2⁻); γ to (15/2⁻) is possibly M1.
1913.81 *22*	(1/2,3/2,5/2)		A	Jπ: log *ft*=6.7 from (3/2⁺).
1922.32 *6*	(11/2⁻)		B	Jπ: log *ft*=6.6 from (11/2⁻); γ to (9/2⁺); γ from (13/2⁻) possibly M1.
1928.63 *5*	(17/2⁻)		B	Jπ: gammas to (15/2⁻) and (19/2⁻) possibly M1; no β feeding from (11/2⁻).
1940.37 *8*	(15/2⁻,17/2⁻)		B	Jπ: γ to (15/2⁻) possibly M1; no β feeding from (11/2⁻).
1972.75 *5*	(13/2⁻)		B	Jπ: log *ft*=6.4 from (11/2⁻); γ to (15/2⁻) possibly M1.
1991.95 *5*	(13/2⁻)		B	Jπ: log *ft*=7.3 from (11/2⁻); γ to (15/2⁻) possibly M1.
2031.06 *5*	(11/2⁻,13/2⁻)		B	Jπ: log *ft*=6.7 from (11/2⁻); γ to (13/2⁻) possibly M1.
2040.81 *21*	(19/2⁺)		E H	Jπ: comparison to shell model calculations.
2115.09 *11*	(1/2,3/2,5/2)		A	Jπ: log *ft*=6.1 from (3/2⁺).
2139.4 *3*	(23/2⁺)	1.1 μs *1*	E H	%IT=100 Jπ: E2 γ to (19/2⁺). $T_{1/2}$: γ(t) in (n,Fγ) (2003Ge04).
2148.12 *5*	(15/2⁻)		B	Jπ: gammas to (13/2⁻) and (17/2⁻); no β feeding from (11/2⁻).
2148.46 *7*	(9/2,11/2,13/2)		B	Jπ: log *ft*=7.0 from (11/2⁻).
2155.05 *11*	(1/2,3/2,5/2)		A	Jπ: log *ft*=6.9 from (3/2⁺).
2181.09 *9*	(1/2,3/2,5/2)		A	Jπ: log *ft*=6.0 from (3/2⁺).
2221.32 *12*	(9/2,11/2,13/2)		B	Jπ: log *ft*=6.7 from (11/2⁻).
2232.16 *11*	(9/2⁻,11/2,13/2)		B	Jπ: log *ft*=6.8 from (11/2⁻); γ to (13/2⁻).
2247.35 *7*	(13/2⁻,15/2⁺)		B	Jπ: log *ft*=7.7 from (11/2⁻); gammas to (13/2⁻) and (15/2⁻,17/2⁻).
2259.75 *11*	(1/2,3/2,5/2)		A	Jπ: log *ft*=6.4 in (3/2⁺).
2271.56 *7*	(15/2⁻)		B	Jπ: γ to (15/2⁻) possibly M1; 296γ between 2568 and 2272 levels disfavors 17/2; no β feeding from (11/2⁻).
2294.69 *8*	(9/2⁻ to 15/2⁺)		B	Jπ: log *ft*=7.5 from (11/2⁻); γ to (13/2⁻).
2297.23 *10*	(13/2⁻,15/2⁺)		B	Jπ: log *ft*=7.8 from (11/2⁻); γ to (17/2⁻).
2303.35 *7*	(9/2⁻,11/2,13/2⁺)		B	Jπ: log *ft*=7.0 from (11/2⁻); gammas to (9/2⁺) and (13/2⁻).
2317.08 *7*	(9/2,11/2,13/2⁺)		B	Jπ: log *ft*=7.2 from (11/2⁻); γ to (9/2⁺).
2329.85 *21*	(13/2⁻)		B	Jπ: log *ft*=7.4 from (11/2⁻); γ to (15/2⁻) possibly M1.
2369.21 *10*	(9/2,11/2,13/2⁺)		B	Jπ: log *ft*=6.4 from (11/2⁻); γ to (9/2⁺).
2377.5 *6*	(9/2,11/2,13/2)		B	Jπ: log *ft*=7.1 from (11/2⁻).
2383.63 *22*	(1/2,3/2,5/2)		A	Jπ: log *ft*=6.4 from (3/2⁺).
2392.89 *10*	(1/2,3/2,5/2)		A	Jπ: log *ft*=6.4 from (3/2⁺).
2430.24 *6*	(11/2⁻,13/2⁺)		B	Jπ: log *ft*=7.5 from (11/2⁻); gammas to (9/2⁺) and (15/2⁻).
2434.44 *8*	(13/2⁻,15/2⁺)		B	Jπ: log *ft*=8.3 from (11/2⁻); γ to (17/2⁻).
2564.80 *10*	(11/2⁻,13/2)		B	Jπ: log *ft*=6.3 from (11/2⁻); γ to (15/2⁻).
2568.28 *8*	(11/2⁻,13/2⁺)		B	Jπ: log *ft*=6.7 from (11/2⁻); gammas to (9/2⁺) and (15/2⁻).
2611.26 *8*	(11/2⁻,13/2⁺)		B	Jπ: log *ft*=6.2 from (11/2⁻); gammas to (9/2⁺) and (15/2⁻).
2665.03 *8*	(9/2,11/2,13/2⁺)		B	Jπ: log *ft*=6.4 from (11/2⁻); γ to (9/2⁺).
2678.29 *9*	(9/2,11/2,13/2)		B	Jπ: log *ft*=6.8 from (11/2⁻).
2698.46 *21*	(11/2⁻,13/2)		B	Jπ: log *ft*=6.8 from (11/2⁻); γ to (15/2⁻).
2710 *10*	7/2⁺,9/2⁺		FG	Jπ: L(t,α)=4.
2722.8 *3*	(11/2⁻,13/2)		B	Jπ: log *ft*=6.5 from (11/2⁻); γ to (15/2⁻).
2726.45 *7*	(9/2,11/2,13/2)		B	Jπ: log *ft*=5.5 from (11/2⁻).
2747.9 *3*	(1/2,3/2,5/2)		A	Jπ: log *ft*=5.8 from (3/2⁺).
2766.90 *10*	(9/2,11/2,13/2)		B	Jπ: log *ft*=6.8 from (11/2⁻).
2785.4 *4*	(1/2,3/2,5/2)		A	Jπ: log *ft*=5.9 from (3/2⁺).
2796.80 *21*	(9/2,11/2,13/2⁺)		B	Jπ: log *ft*=6.6 from (11/2⁻); γ to (9/2⁺).
2822.71 *19*	(9/2⁻,11/2,13/2)		B	Jπ: log *ft*=5.7 from (11/2⁻); γ to (13/2⁻).
2831.30 *11*	(1/2,3/2,5/2)		A	Jπ: log *ft*=6.1 from (3/2⁺).
2864.40 *19*	(11/2⁻,13/2)		B	Jπ: log *ft*=5.9 from (11/2⁻); γ to (15/2⁻).
2882.08 *15*	(9/2,11/2,13/2⁺)		B	Jπ: log *ft*=6.0 from (11/2⁻); γ to (9/2⁺).
2884.43 *15*	(9/2,11/2,13/2)		B	Jπ: log *ft*=6.2 from (11/2⁻).
2948.25 *21*	(9/2,11/2,13/2)		B	Jπ: log *ft*=6.8 from (11/2⁻).
2960.5 *4*	(9/2,11/2,13/2)		B	Jπ: log *ft*=6.3 from (11/2⁻).
3013.8 *4*	(9/2,11/2,13/2)		B	Jπ: log *ft*=6.8 from (11/2⁻).

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Adopted Levels, Gammas (continued)

^{129}Sb Levels (continued)

E(level)[†]	Jπ	XREF	Comments
3031.95 *21*	(9/2⁻,11/2,13/2)	B	Jπ: log *ft*=6.4 from (11/2⁻); γ to (13/2⁻).
3070.02 *8*	(9/2,11/2,13/2)	B	Jπ: log *ft*=6.2 from (11/2⁻).
3071 *10*	1/2⁻,3/2⁻	FG	Jπ: L(t,α)=1.
3094.1 *5*	(1/2,3/2,5/2)	A	Jπ: log *ft*=5.9 from (3/2⁺).
3097.03 *20*	(9/2⁻,11/2,13/2)	B	Jπ: log *ft*=6.0 from (11/2⁻); γ to (13/2⁻).
3110 *10*		G	
3130.8 *8*	(9/2,11/2,13/2)	B	Jπ: log *ft*=6.3 from (11/2⁻).
3148.13 *8*	(9/2,11/2,13/2)	B	Jπ: log *ft*=5.6 from (11/2⁻).
3164.05 *11*	(9/2,11/2,13/2)	B	Jπ: log *ft*=6.3 from (11/2⁻).
3208.68 *12*	(9/2,11/2,13/2)	B	Jπ: log *ft*=6.1 from (11/2⁻).
3274.16 *12*	(9/2⁻,11/2,13/2)	B	Jπ: log *ft*=5.3 from (11/2⁻); γ to (13/2⁻).
3280.71 *8*	(13/2⁻)	B	Jπ: log *ft*=5.5 from (11/2⁻); γ to (17/2⁻).
3291 *10*		G	
3410 *10*	1/2⁻,3/2⁻	G	Jπ: L(t,α)=1.
3484 *10*	5/2⁻,7/2⁻	G	Jπ: L(t,α)=3.

[†] From least-squares fit to Eγ data by leaving out 408γ from 2726 level and doubling the uncertainties of the following γ rays: 579γ from 1493 level, 862γ and 1470γ from 2115 level, 1174γ from 2303 level, 159γ from 2430 level, 445γ from 2678 level, 295γ, 408γ and 422γ from 2726 level. Reduced χ^2=2.1 instead of 4.6 without making these adjustments as compared to critical χ^2=1.5.

Adopted Levels, Gammas (continued)

γ(^{129}Sb)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	α[#]	$I_{(\gamma+ce)}$	Comments
645.14	(5/2)$^+$	645.19 *5*	100	0.0	7/2$^+$				
913.58	(3/2)$^+$	913.54 *5*	100	0.0	7/2$^+$				
1128.63	(11/2$^+$)	1128.60 *5*	100	0.0	7/2$^+$				
1161.39	(9/2$^+$)	1161.42 *5*	100	0.0	7/2$^+$				
1252.25	(3/2$^+$,5/2,7/2$^-$)	1252.21 *5*	100	0.0	7/2$^+$				
1493.33	(1/2$^+$)	579.30 *8*	98 *4*	913.58	(3/2)$^+$				
		848.27 *6*	100.0 *21*	645.14	(5/2)$^+$				
1503.61	(5/2$^+$)	251.7 *4*	31.1 *11*	1252.25	(3/2$^+$,5/2,7/2$^-$)				
		342.2 *2*	48.4 *11*	1161.39	(9/2$^+$)				
		858.2 *2*	89.5 *16*	645.14	(5/2)$^+$				
		1503.63 *8*	100.0 *26*	0.0	7/2$^+$				
1762.17	(1/2,3/2,5/2)	1117.06 *8*	100	645.14	(5/2)$^+$				
1842.13	(1/2,3/2,5/2)	349.0 *2*	23.2 *7*	1493.33	(1/2$^+$)				
		1196.98 *5*	100.0 *17*	645.14	(5/2)$^+$				
1848.97	(5/2$^+$)	688.0 *3*	36.0 *17*	1161.39	(9/2$^+$)				
		1203.8 *1*	100.0 *17*	645.14	(5/2)$^+$				
1851.31	(19/2$^-$)	722.69 *5*	100	1128.63	(11/2$^+$)	(M4)	0.0547		α(K)=0.0457 *7*; α(L)=0.00721 *11*; α(M)=0.001462 *21* α(N)=0.000281 *4*; α(O)=2.68×10^{-5} *4* B(M4)(W.u.)=0.0317 *2* Mult.: from α(K)exp=0.049 *9* (1987St23).
1861.06	(15/2$^-$)	(9.76 *8*)	0.033 *2*	1851.31	(19/2$^-$)	[E2]	3.39×10^4	11.3×10^2 *6*	α(L)=2.72×10^4 *4*; α(M)=5.59×10^3 *8* α(N)=989 *14*; α(O)=63.6 *9* B(E2)(W.u.)=1.96 *25*
		699.64 *6*	100.0 *22*	1161.39	(9/2$^+$)	[E3]			B(E3)(W.u.)=0.53 *6*
		732.48 *5*	47.4 *4*	1128.63	(11/2$^+$)	[M2]			B(M2)(W.u.)=9.7×10^{-5} *10*
1911.21	(13/2$^-$)	50.13 *5*	10.19 *9*	1861.06	(15/2$^-$)	[M1]	4.53		
		782.59 *5*	100 *3*	1128.63	(11/2$^+$)				
1913.81	(1/2,3/2,5/2)	410.2 *2*	100	1503.61	(5/2$^+$)				
1922.32	(11/2$^-$)	761.0 *1*	100	1161.39	(9/2$^+$)				
1928.63	(17/2$^-$)	67.47 *5*	31 *3*	1861.06	(15/2$^-$)	[M1]	1.91		
		77.34 *5*	100 *3*	1851.31	(19/2$^-$)	[M1]	1.29		
1940.37	(15/2$^-$,17/2$^-$)	79.4 *1*	100	1861.06	(15/2$^-$)	[M1]	1.20		
1972.75	(13/2$^-$)	44.04 *5*	35.8 *17*	1928.63	(17/2$^-$)	[E2]	31.9		
		61.55 *5*	68.2 *22*	1911.21	(13/2$^-$)	[M1]	2.49		
		111.78 *5*	100.0 *11*	1861.06	(15/2$^-$)	[M1]	0.452		
1991.95	(13/2$^-$)	69.67 *5*	100 *3*	1922.32	(11/2$^-$)	[M1]	1.742		
		80.68 *5*	65 *9*	1911.21	(13/2$^-$)	[M1]	1.142		
		130.91 *5*	11.7 *9*	1861.06	(15/2$^-$)	[M1]	0.290		
2031.06	(11/2$^-$,13/2$^-$)	39.04 *5*	0.87 *5*	1991.95	(13/2$^-$)	[M1]	9.40		
		108.81 *5*	15.7 *5*	1922.32	(11/2$^-$)	[M1]	0.49		
		119.92 *5*	53.0 *9*	1911.21	(13/2$^-$)	[M1]	0.37		
		902.39 *5*	100 *9*	1128.63	(11/2$^+$)				

$^{129}_{51}Sb_{78}$-4

Adopted Levels, Gammas (continued)

γ(^{129}Sb) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.	α #	Comments
2040.81	(19/2$^+$)	189.5 *2*		1851.31	(19/2$^-$)			
2115.09	(1/2,3/2,5/2)	266.1 *2*	76.6 *12*	1848.97	(5/2$^+$)			
		353.1 *2*	26.3 *12*	1762.17	(1/2,3/2,5/2)			
		862.2 *1*	38.3 *12*	1252.25	(3/2$^+$,5/2,7/2$^-$)			E_γ: level-energy difference=862.8.
		1470.4 *1*	100.0 *24*	645.14	(5/2)$^+$			
2139.4	(23/2$^+$)	98.6 *2*		2040.81	(19/2$^+$)	E2	1.73 *3*	B(E2)(W.u.)=0.52 *5* α(K)=1.226 *19*; α(L)=0.406 *7*; α(M)=0.0838 *14* α(N)=0.0153 *3*; α(O)=0.001138 *19* Mult.: α(K)exp is compatible only with E2 character (2003Ge04).
2148.12	(15/2$^-$)	156.18 *5*	14.4 *4*	1991.95	(13/2$^-$)			
		175.36 *5*	12.5 *3*	1972.75	(13/2$^-$)			
		219.48 *5*	100.0 *10*	1928.63	(17/2$^-$)			
		236.96 *5*	43.6 *4*	1911.21	(13/2$^-$)			
2148.46	(9/2,11/2,13/2)	117.40 *5*	100	2031.06	(11/2$^-$,13/2$^-$)			
2155.05	(1/2,3/2,5/2)	1509.9 *1*	100	645.14	(5/2)$^+$			
2181.09	(1/2,3/2,5/2)	332.2 *2*	13.8 *9*	1848.97	(5/2$^+$)			
		339.1 *2*	30.4 *23*	1842.13	(1/2,3/2,5/2)			
		928.8 *2*	100.0 *18*	1252.25	(3/2$^+$,5/2,7/2$^-$)			
		1535.9 *1*	66.8 *14*	645.14	(5/2)$^+$			
2221.32	(9/2,11/2,13/2)	299.0 *1*	100	1922.32	(11/2$^-$)			
2232.16	(9/2$^-$,11/2,13/2)	320.9 *1*	100	1911.21	(13/2$^-$)			
2247.35	(13/2$^-$,15/2$^+$)	307.00 *5*	52 *26*	1940.37	(15/2$^-$,17/2$^-$)			
		336.12 *5*	100 *5*	1911.21	(13/2$^-$)			
2259.75	(1/2,3/2,5/2)	1614.6 *1*	100	645.14	(5/2)$^+$			
2271.56	(15/2$^-$)	123.44 *5*	100.0 *6*	2148.12	(15/2$^-$)	[M1]	0.34	
		279.6 *1*	8 *4*	1991.95	(13/2$^-$)			
2294.69	(9/2$^-$ to 15/2$^+$)	322.03 *8*	100	1972.75	(13/2$^-$)			
2297.23	(13/2$^-$,15/2$^+$)	368.6 *1*	100 *10*	1928.63	(17/2$^-$)			
		386.0 *2*	59 *5*	1911.21	(13/2$^-$)			
2303.35	(9/2$^-$,11/2,13/2$^+$)	311.47 *5*	100.0 *12*	1991.95	(13/2$^-$)			
		1141.5 *8*	88 *8*	1161.39	(9/2$^+$)			
		1174.42 *5*	28.9 *18*	1128.63	(11/2$^+$)			
2317.08	(9/2,11/2,13/2$^+$)	285.98 *6*	8.6 *12*	2031.06	(11/2$^-$,13/2$^-$)			
		1155.72 *9*	100.0 *4*	1161.39	(9/2$^+$)			
		1188.6 *5*	36 *6*	1128.63	(11/2$^+$)			
2329.85	(13/2$^-$)	82.5 *2*	100	2247.35	(13/2$^-$,15/2$^+$)	[M1]	1.07	
2369.21	(9/2,11/2,13/2$^+$)	1207.7 *2*	100.0 *9*	1161.39	(9/2$^+$)			
		1240.6 *1*	25.0 *13*	1128.63	(11/2$^+$)			
2377.5	(9/2,11/2,13/2)	145.3 *6*	100	2232.16	(9/2$^-$,11/2,13/2)			
2383.63	(1/2,3/2,5/2)	890.3 *2*	100	1493.33	(1/2$^+$)			
2392.89	(1/2,3/2,5/2)	1140.6 *2*	100 *10*	1252.25	(3/2$^+$,5/2,7/2$^-$)			
		1479.3 *1*	27 *9*	913.58	(3/2)$^+$			

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Adopted Levels, Gammas (continued)

γ(^{129}Sb) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
2430.24	(11/2$^-$,13/2$^+$)	135.7 *1*	8.8 *12*	2294.69	(9/2$^-$ to 15/2$^+$)
		159.4 *2*	37.6 *8*	2271.56	(15/2$^-$)
		507.84 *7*	100 *8*	1922.32	(11/2$^-$)
		519.04 *6*	79.2 *24*	1911.21	(13/2$^-$)
		1268.6 *2*	68 *4*	1161.39	(9/2$^+$)
2434.44	(13/2$^-$,15/2$^+$)	505.80 *5*	100	1928.63	(17/2$^-$)
2564.80	(11/2$^-$,13/2)	417.0 *2*	34.6 *9*	2148.12	(15/2$^-$)
		1436.1 *1*	100.0 *13*	1128.63	(11/2$^+$)
2568.28	(11/2$^-$,13/2$^+$)	296.2 *5*	31 *3*	2271.56	(15/2$^-$)
		1406.89 *7*	100.0 *13*	1161.39	(9/2$^+$)
2611.26	(11/2$^-$,13/2$^+$)	339.6 *2*	11.9 *24*	2271.56	(15/2$^-$)
		618.6 *4*	100.0 *17*	1991.95	(13/2$^-$)
		688.5 *2*	60.6 *14*	1922.32	(11/2$^-$)
		1449.97 *8*	28.0 *10*	1161.39	(9/2$^+$)
2665.03	(9/2,11/2,13/2$^+$)	1503.63 *7*	100	1161.39	(9/2$^+$)
2678.29	(9/2,11/2,13/2)	445.2 *2*	100 *4*	2232.16	(9/2$^-$,11/2,13/2)
		1549.69 *8*	36 *3*	1128.63	(11/2$^+$)
2698.46	(11/2$^-$,13/2)	426.9 *2*	100	2271.56	(15/2$^-$)
2722.8	(11/2$^-$,13/2)	425.4 *5*	57 *14*	2297.23	(13/2$^-$,15/2$^+$)
		451.4 *5*	100 *14*	2271.56	(15/2$^-$)
		574.7 *5*	51 *5*	2148.12	(15/2$^-$)
2726.45	(9/2,11/2,13/2)	295.0 *3*	100.0 *7*	2430.24	(11/2$^-$,13/2$^+$)
		408.0‡ *2*	98 *10*	2317.08	(9/2,11/2,13/2$^+$)
		422.3 *2*	48.4 *7*	2303.35	(9/2$^-$,11/2,13/2$^+$)
		695.43 *5*	86.9 *9*	2031.06	(11/2$^-$,13/2$^-$)
		1597.4 *2*	59.1 *9*	1128.63	(11/2$^+$)
2747.9	(1/2,3/2,5/2)	2102.7 *3*	100	645.14	(5/2)$^+$
2766.90	(9/2,11/2,13/2)	844.58 *8*	100	1922.32	(11/2$^-$)
2785.4	(1/2,3/2,5/2)	1281.8 *4*	100	1503.61	(5/2$^+$)
2796.80	(9/2,11/2,13/2$^+$)	1635.4 *2*	100	1161.39	(9/2$^+$)
2822.71	(9/2$^-$,11/2,13/2)	258.2 *4*	0.75 *8*	2564.80	(11/2$^-$,13/2)
		505.5 *2*	100.0 *23*	2317.08	(9/2,11/2,13/2$^+$)
		851.3 *9*	2.63 *15*	1972.75	(13/2$^-$)
2831.30	(1/2,3/2,5/2)	1327.69 *8*	100	1503.61	(5/2$^+$)
2864.40	(11/2$^-$,13/2)	592.8 *2*	33.6 *9*	2271.56	(15/2$^-$)
		716.4 *4*	100.0 *10*	2148.12	(15/2$^-$)
2882.08	(9/2,11/2,13/2$^+$)	578.8 *2*	97 *16*	2303.35	(9/2$^-$,11/2,13/2$^+$)
		1720.6 *2*	100.0 *13*	1161.39	(9/2$^+$)
2884.43	(9/2,11/2,13/2)	961.8 *2*	2.6 *3*	1922.32	(11/2$^-$)
		1756.1 *2*	100 *3*	1128.63	(11/2$^+$)
2948.25	(9/2,11/2,13/2)	1819.6 *2*	100	1128.63	(11/2$^+$)
2960.5	(9/2,11/2,13/2)	1831.9 *4*	100	1128.63	(11/2$^+$)
3013.8	(9/2,11/2,13/2)	1885.2 *4*	100	1128.63	(11/2$^+$)

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Adopted Levels, Gammas (continued)

γ(^{129}Sb) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
3031.95	(9/2⁻,11/2,13/2)	1059.2 *2*	100	1972.75	(13/2⁻)
3070.02	(9/2,11/2,13/2)	1147.69 *6*	100	1922.32	(11/2⁻)
3094.1	(1/2,3/2,5/2)	2448.9 *5*	100	645.14	(5/2)⁺
3097.03	(9/2⁻,11/2,13/2)	1066.2 *7*	61 *3*	2031.06	(11/2⁻,13/2⁻)
		1185.8 *2*	100 *4*	1911.21	(13/2⁻)
3130.8	(9/2,11/2,13/2)	827.4 *8*	100	2303.35	(9/2⁻,11/2,13/2⁺)
3148.13	(9/2,11/2,13/2)	1225.80 *5*	100	1922.32	(11/2⁻)
3164.05	(9/2,11/2,13/2)	2035.4 *1*	100	1128.63	(11/2⁺)
3208.68	(9/2,11/2,13/2)	891.6 *1*	100	2317.08	(9/2,11/2,13/2⁺)
3274.16	(9/2⁻,11/2,13/2)	1301.4 *1*	3.7 *6*	1972.75	(13/2⁻)
		2146 *1*	100.0 *10*	1128.63	(11/2⁺)
3280.71	(13/2⁻)	1352.07 *5*	100	1928.63	(17/2⁻)

† From either 2.23-min ^{129}Sn decay or 6.9-min ^{129}Sn decay. A few high-spin levels are populated only in ^{241}Pu(n,Fγ).

‡ Poor fit. Level-energy difference=409.4.

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.

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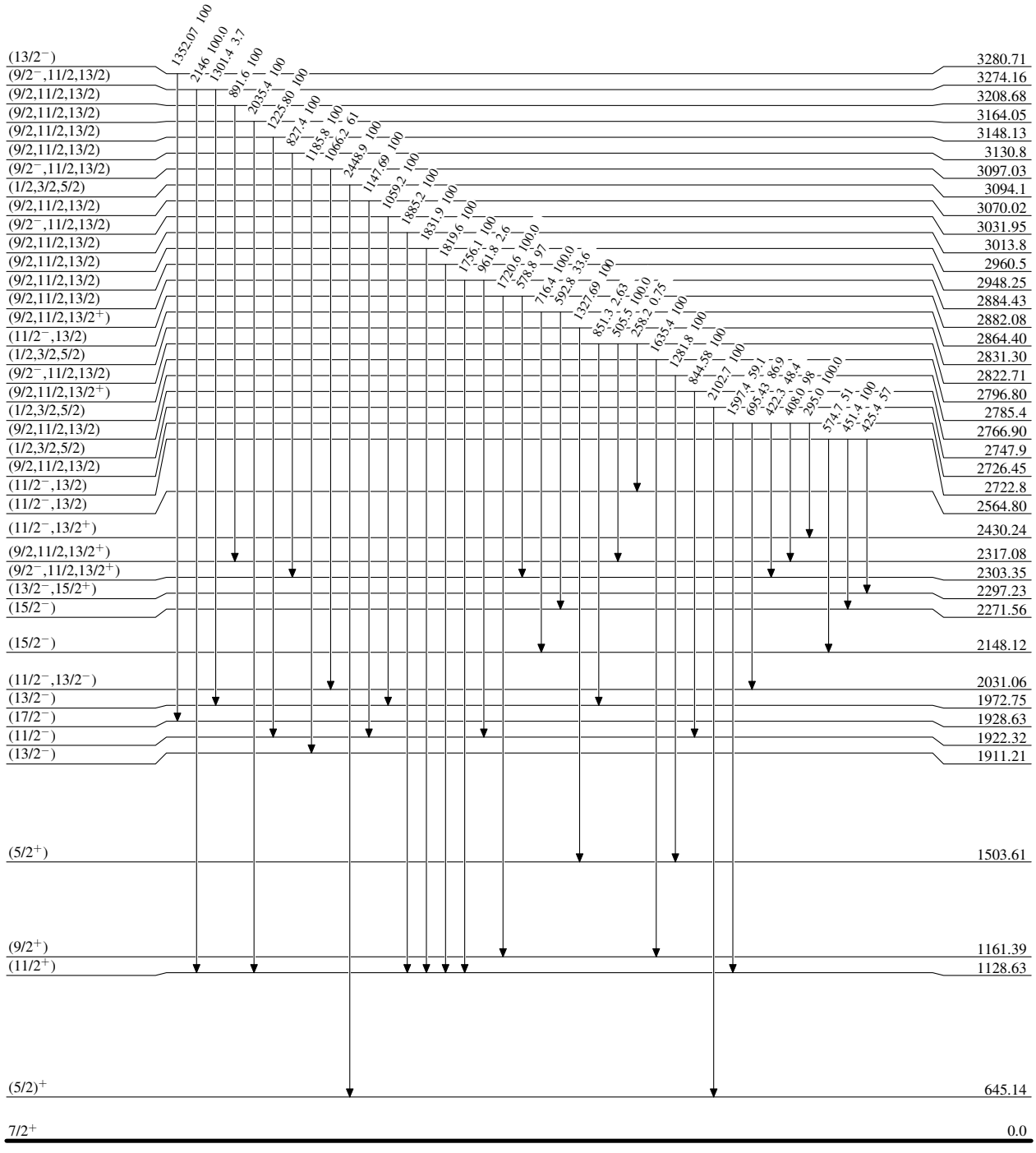
Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

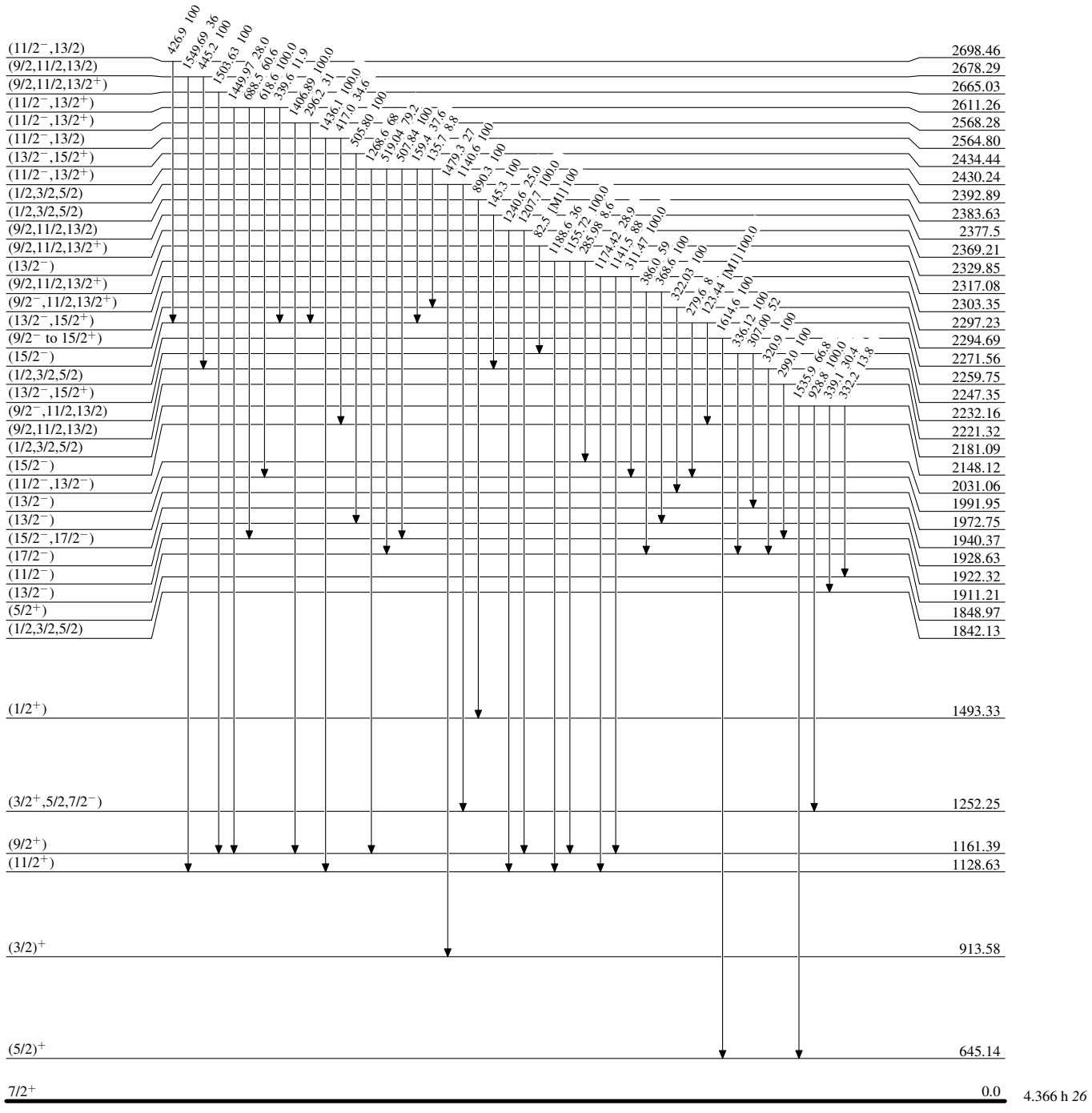


$^{129}_{51}Sb_{78}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{129}_{51}Sb_{78}$

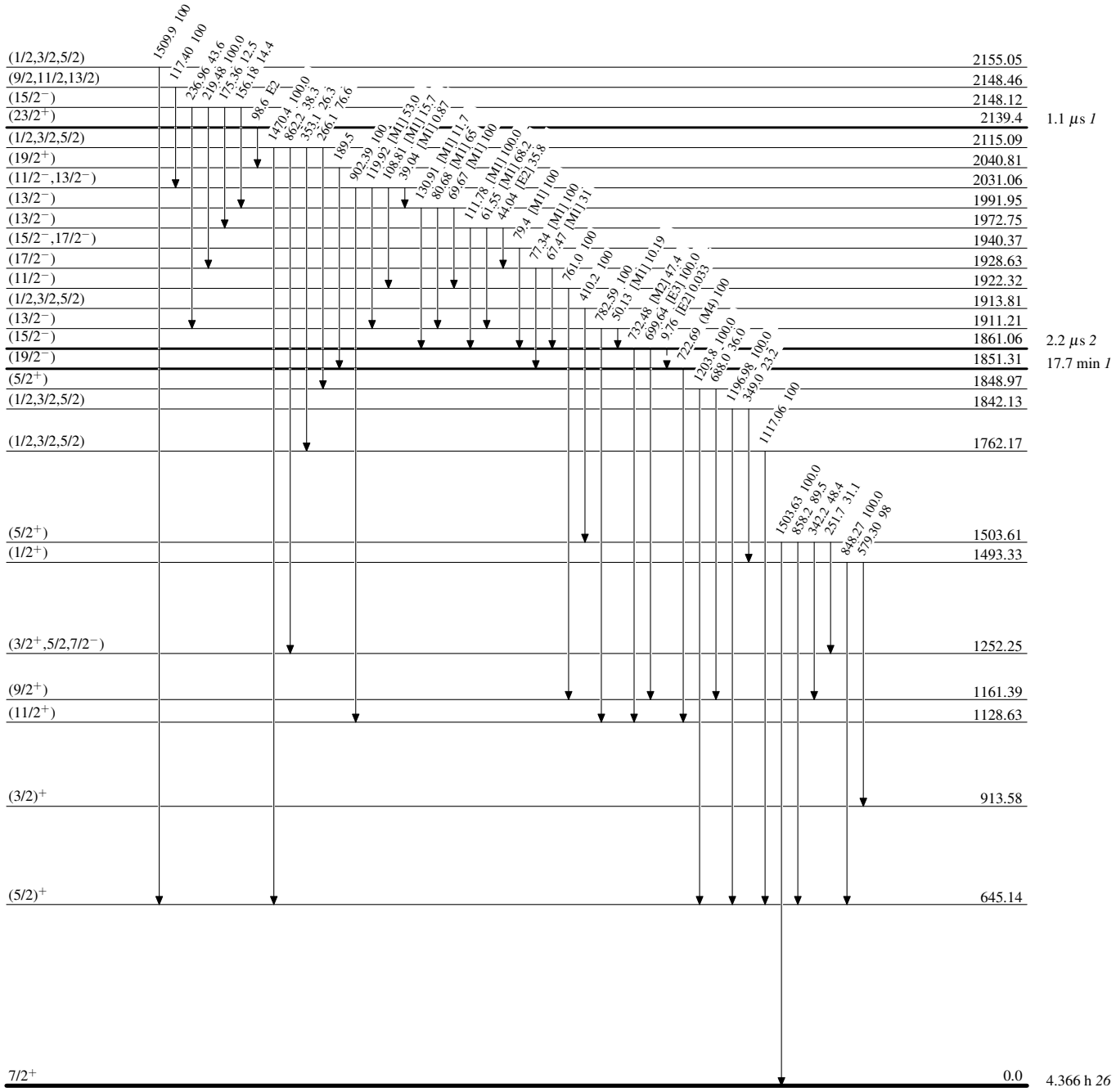
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

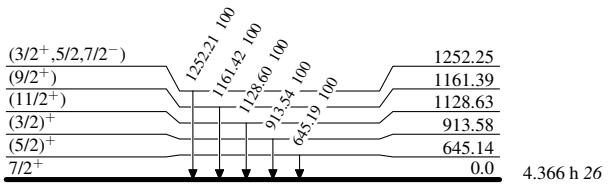


$^{129}_{51}Sb_{78}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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