^{118}Sb ε decay (3.6 min) 1982Ka09,1970Ha08

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	K. Kitao	NDS 75,99 (1995)	1-Feb-1993

Parent: ^{118}Sb: E=0.0; $J^\pi=1^+$; $T_{1/2}$=3.6 min *1*; Q(ε)=3656.6 *30*; %ε+%$β^+$ decay=100.0
1982Ka09: p on natural Sb target (^{121}Sb(p,4n)^{118}Te); chem, iron-free $β^-$spectrometer; γ, γγ(θ), ce.
1970Ha08: ^{118}Sn(p,n) E=25 MeV; mass, chem; γ, γγ coin, γγ(θ).
Other: 1964Ka10.

^{118}Sn Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0	0^+	2042.8 *9*	2^+	2402.2 *5*	2^+	2929.05 *11*	(2^+)
1229.34 *3*	2^+	2056.66 *4*	0^+#	2496.57 *6*	0^+#	3136.55 *21*	0^+
1758.07 *3*	0^+#	2327.6 *5*	2^+	2677.3 *6*	2^+		

† From a least-squares fit to E(γ's).
‡ From Adopted Levels unless otherwise noted.
# From γγ(θ) (1970Ha08,1982Ka09).

ε,$β^+$ radiations

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
(520 *3*)	3136.55		0.045 *12*	5.52 *12*	0.045 *12*	εK=0.8499; εL=0.1192; εM+=0.03094
(728 *3*)	2929.05		0.078 *16*	5.59 *9*	0.078 *16*	εK=0.8536; εL=0.1163; εM+=0.03008
(979 *3*)	2677.3		0.035 *10*	6.20 *13*	0.035 *10*	εK=0.8560; εL=0.1145; εM+=0.02954
(1160 *3*)	2496.57		0.52 *7*	5.18 *6*	0.52 *7*	εK=0.8569; εL=0.1137; εM+=0.02930
(1254 *3*)	2402.2		0.047 *8*	6.30 *8*	0.047 *8*	εK=0.8570; εL=0.1133; εM+=0.02919
(1329 *3*)	2327.6	0.0001	0.09 *3*	6.07 *15*	0.09 *3*	av Eβ=145.5 *14*; εK=0.8563; εL=0.1130; εM+=0.02910
(1600 *3*)	2056.66	0.0075 *11*	0.39 *6*	5.59 *7*	0.40 *6*	av Eβ=263.4 *13*; εK=0.8424; εL=0.1104; εM+=0.02841
(1614 *3*)	2042.8	0.00047 *20*	0.023 *10*	6.84 *19*	0.023 *10*	av Eβ=269.5 *14*; εK=0.8410; εL=0.1102; εM+=0.02836
(1899 *3*)	1758.07	0.038 *6*	0.44 *6*	5.69 *7*	0.48 *7*	av Eβ=393.5 *14*; εK=0.7912; εL=0.1032; εM+=0.02653
(2427 *3*)	1229.34	0.24 *3*	0.58 *8*	5.79 *6*	0.82 *11*	av Eβ=627.6 *14*; εK=0.6053 *13*; εL=0.07852 *17*; εM+=0.02017 *5*
(3657 *3*)	0.0	73.2 *3*	24.3 *2*	4.525 *13*	97.5 *3*	av Eβ=1188.6 *14*; εK=0.2143 *6*; εL=0.02761 *8*; εM+=0.007084 *19*

† Absolute intensity per 100 decays.

γ(^{118}Sn)

Iγ normalization: From ε+$β^+$(to g.s.)+Σ Ti(to g.s.)=$^{100.}$I($β^+$)/(I(1229γ)+I(1267γ))=24 *3* (1964Ka10), and the adopted decay scheme.
α(K)exp values are recalculated by assuming α(K)(1229.34γ E2)=0.00072.

Continued on next page (footnotes at end of table)

^{118}Sb ε decay (3.6 min) 1982Ka09,1970Ha08 (continued)

γ(^{118}Sn) (continued)

E_γ[†]	I_γ[†@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[&]	Comments
298.58 *4*		2056.66	0^+	1758.07	0^+	E0		ce(L)(298.58γ)/ce(K)(1229.33γ)=0.42 *9* (1982Ka09). K/L=7.26 *19* (1992ImZZ).
528.73 *3*	19.1 *9*	1758.07	0^+	1229.34	2^+	E2	0.00638	α=0.00638; α(K)=0.00542; α(L)=0.00072 α(K)exp=5.7×10^{-3} *5*.
813.2[‡] *10*	0.6[‡] *3*	2042.8	2^+	1229.34	2^+			
827.34 *7*	16.0 *10*	2056.66	0^+	1229.34	2^+	E2	0.00201	α=0.00201; α(K)=0.00172; α(L)=0.00021 α(K)exp=1.7×10^{-3} *3*.
1098.5 *5*	3.2 *9*	2327.6	2^+	1229.34	2^+			
1172.9[‡] *5*	1.9[‡] *2*	2402.2	2^+	1229.34	2^+			
1229.33 *3*	100	1229.34	2^+	0.0	0^+	[E2]	0.00083	α=0.00083; α(K)=0.00072
1267.23 *5*	20.7 *8*	2496.57	0^+	1229.34	2^+	E2	0.00078	α=0.00078; α(K)=0.00067 α(K)exp=5.9×10^{-4} *23*.
1447.4[‡] *10*	0.9[‡] *3*	2677.3	2^+	1229.34	2^+			
1699.7 *1*	3.1 *5*	2929.05	(2^+)	1229.34	2^+			
1758.05 *5*		1758.07	0^+	0.0	0^+	E0		ce(K)(1758.05γ)/ce(K)(1229.33γ)=0.34 *2* (1982Ka09). K/L=8.17 *59* (1992ImZZ).
1907.2 *2*	1.8 *4*	3136.55	0^+	1229.34	2^+			
2044[‡] *2*	0.3[‡] *2*	2042.8	2^+	0.0	0^+			
2056.64 *5*		2056.66	0^+	0.0	0^+	E0		ce(K)(2056.5γ)/ce(K)(1229.33γ)=0.41 *4* (1982Ka09). K/L=8.31 *69* (1992ImZZ).
2327.0 *8*	0.43 *9*	2327.6	2^+	0.0	0^+			
2496.56[a]		2496.57	0^+	0.0	0^+	(E0)		ce(K)(2496.56γ)/ce(K)(1229.33γ)<0.023.
2677.5[‡] *6*	0.5[‡] *2*	2677.3	2^+	0.0	0^+			

[†] From 1982Ka09, values are deduced from conversion electron energies unless otherwise noted.
[‡] From 1970Ha08.
[#] E2 assignments from α(K)exp and γγ(θ), E0 assignments from nonobservation of G.
[@] For absolute intensity per 100 decays, multiply by 0.025 *3*.
[&] 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.
[a] Placement of transition in the level scheme is uncertain.

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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

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays