^{118}Sb ε decay (5.00 h) 1970Ha08,1974HeYW

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

Parent: ^{118}Sb: E=250 *6*; $J^{\pi}=8^-$; $T_{1/2}$=5.00 h *2*; Q(ε)=3656.6 *30*; %ε+%$β^+$ decay=100.0

1970Ha08 source mass and chem; semi, γγ coin.

1974HeYW source from Sb(γ,xn), G.

1968Ra14 source from Sn(d,xn), Sb(d,xn), Sn(p,xn), Sb(p,xn); γ, γγ coin.

1974Bu25 source from ^{120}Sn(p,3n); semi, γ, β, ce.

Others: 1972GeZF, 1961Bo13, 1960Je03.

The decay scheme is that proposed by 1970Ha08 except the 3559 level.

^{118}Sn Levels

E(level)†	J^{π}‡	$T_{1/2}$	Comments
0.0	0^+		
1229.66 *5*	2^+		J^{π}: from γγ(θ) (1961Bo13, 1960Je03).
2280.35 *6*	4^+	≤0.7 ns	J^{π}: from γγ(θ) (1961Bo13, 1960Je03). $T_{1/2}$: from 1962Bo16.
2321.16 *8*	5^-	21.7 ns *2*	$T_{1/2}$: from (254γ)(1044γ+1229γ)(t) (1962Bo16), (1961Bo13). g=−0.063 *4*. g: weighted av of −0.060 *5* (1964DeZZ), −0.068 *7* (1962Bo16).
2574.84 *9*	7^-	230 ns *10*	$T_{1/2}$: from (x ray)(254γ)(t) (1961Bo13).
3558.8# *10*	7^-,8^-,9^-		

† Energy values are from a least-squares fit to E(γ's).

‡ From Adopted Levels, unless otherwise noted.

From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+$β^+$)†	Comments
(348 *7*)	3558.8		1.5 *5*	5.55 *15*	1.5 *5*	εK=0.8431; εL=0.12441 *15*; εM+=0.03253 *5*
(1332 *7*)	2574.84	0.160 *7*	98.3 *5*	4.950 *4*	98.5 *5*	av Eβ=146.8 *14*; εK=0.8563; εL=0.1130; εM+=0.02909 Iβ+: I(ce+$β^+$) deduced level scheme. %Iβ+=0.16 *1* of total decay (1961Bo13), Eβ+=310 *5* from %Iβ+=0.16 and %I(ce+$β^+$)=98.5 *5*.

† Absolute intensity per 100 decays.

γ(^{118}Sn)

Iγ normalization: From Σ I(γ to g.s.)=100.

Additional gammas: 1303 *2* (Iγ=0.5 *2*), 1481 *2* (Iγ=0.5), and 2361 *5* (Iγ=0.01 *1*) seen only by 1968Ra14 and placed in level scheme proposed by author.

α(K)exp and α(L)exp given in 1974Bu25 are renormalized to α(K)(1229.64γ E2)=0.00072 by evaluator.

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γ(^{118}Sn) (continued)

E_γ [†]	I_γ [†&]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	α [a]	$I_{(\gamma+ce)}$ [&]	Comments
40.8 *1*	30 *2*	2321.16	5⁻	2280.35	4⁺	E1	2.21	97 *6*	ce(K)/(γ+ce)=0.584; ce(L)/(γ+ce)=0.0830; ce(M)/(γ+ce)=0.0160 α(L)exp=0.36 *6*. Mult.: from α(L)exp. I_γ: from I(γ+ce) and α. Others: 18 *2* (1970Ha08), 16 *5* (1968Ra14). $I_{(\gamma+ce)}$: required for intensity balance if no direct feeding to 2280 level.
253.678 *10*	99 *6*	2574.84	7⁻	2321.16	5⁻	E2	0.0620		α(K)=0.0516; α(L)=0.0084; α(M)=0.00166; α(N+..)=0.00036 α(K)exp=0.0422 *42*. L1/(L2+L3)=1.79 *4*, K/L1=9.41 *23* (1989Ki23).
984.0[#] *10*	1.5[#] *5*	3558.8	7⁻,8⁻,9⁻	2574.84	7⁻	(M1,E2)	0.00149 *16*		α=0.00149 *16*; α(K)=0.00129 *14*; α(L)=0.00016 *1* α(K)exp=0.00158 *35*.
1050.69 *3*	97 *5*	2280.35	4⁺	1229.66	2⁺	E2	0.00116		α=0.00116; α(K)=0.00100; α(L)=0.00012 α(K)exp=0.00103 *10*.
1091.51 *8*	3.6 *3*	2321.16	5⁻	1229.66	2⁺	E3	0.00219		α=0.00219; α(K)=0.00186; α(L)=0.00024 α(K)exp=0.00172 *15*. I_γ: other: 2.4 *4* (1970Ha08).
1229.65 *5*	100 *5*	1229.66	2⁺	0.0	0⁺	E2	0.00083		α=0.00083; α(K)=0.00072
[x]1303[‡] *2*	0.5[‡] *2*								
[x]1481[‡] *3*	0.5[‡] *2*								
[x]2361[‡] *5*	0.01[‡] *1*								

[†] From 1974HeYW unless otherwise noted.
[‡] Reported by 1968Ra14 only.
[#] From 1970Ha08.
[@] From α(K)exp.
[&] For absolute intensity per 100 decays, multiply by 0.999 *3*.
[a] 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.
[x] γ ray not placed in level scheme.

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Decay Scheme

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