^{119}In β^- decay (2.4 min) 1973Ra17

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. M. Symochko, E. Browne, J. K. Tuli	NDS 110,2945 (2009)	1-Dec-2008

Parent: ^{119}In: E=0; $J^\pi=9/2^+$; $T_{1/2}$=2.4 min *1*; Q(β^-)=2363 *8*; %β^- decay=100.0

Additional information 1.

1973Ra17: ^{120}Sn(γ,p) E<35 MeV and E<150 MeV; ^{122}Sn(n,α) E=14 MeV; semi G.

1976Fo02: ^{235}U(n,F) E=th, on-line mass separation; semi γ, ce, $\gamma\gamma$, $\gamma\gamma$(t).

1972Ja31: ^{120}Sn(γ,p) E<25 MeV; semi γ, $\gamma\gamma$.

Others: 1976Sc30 semi.

^{119}Sn Levels

E(level)	J^π[†]	$T_{1/2}$[†]
0	$1/2^+$	stable
23.871 *10*	$3/2^+$	
89.531 *14*	$11/2^-$	293.1 d *7*
787.01 *3*	$7/2^+$	0.19 ns *7*
1304.40 *10*	≥7/2	

[†] From Adopted Levels.

β^- radiations

E(decay)	E(level)	Iβ^-[†]	Log *ft*	Comments
(1059 *8*)	1304.40	0.42 *7*	6.08 *8*	av Eβ=372 *4*
(1576 *8*)	787.01	93 *7*	4.4 *1*	av Eβ=594 *4*
(2273[‡] *8*)	89.531	≈6.5	≈6.2	av Eβ=909 *4*
				Iβ^-: from log *ft* assumed to be greater than 5.9 for β^- feeding from the $9/2^+$ parent.

[†] Absolute intensity per 100 decays.

[‡] Existence of this branch is questionable.

$\gamma(^{119}Sn)$

Iγ normalization: From Ti(1214γ)+Ti(763γ)+Ti(697γ)= 100%-(6.5%±6.5%))=100%-(<13%)=93.5% 65.
γ rays with Eγ=943.5 *10* (Iγ=0.093) and 1275.5 *10* (Iγ=0.19 *9*) reported by 1972Ja31 were not confirmed by 1973Ra17.

E$_\gamma$[‡]	I$_\gamma$[‡a]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[#]	δ[#]	α[†]	Comments
23.871 *10*	16.5[&] *12*	23.871	3/2$^+$	0	1/2$^+$	M1+E2	<0.003	5.06 *8*	α(L)=4.09 *6*; α(M)=0.803 *12*; α(N+..)=0.1636 *23* α(N)=0.1506 *22*; α(O)=0.01291 *19* E$_\gamma$: from Adopted Gammas. I$_\gamma$: If Ti(24γ)=Ti(763γ)=100.2 *70*.
(65.66[@] *1*)		89.531	11/2$^-$	23.871	3/2$^+$	M4		5.00×10^3	α(K)=1618 *23*; α(L)=2.64×10^3 *4*; α(M)=630 *9*; α(N+..)=116.9 *17* α(N)=113.4 *16*; α(O)=3.47 *5*
697.47 *5*	0.49 *4*	787.01	7/2$^+$	89.531	11/2$^-$				
763.14 *3*	100 *7*	787.01	7/2$^+$	23.871	3/2$^+$	E2		0.00241 *4*	α(K)exp=0.00231 *23* (1976Fo02) α=0.00241 *4*; α(K)=0.00209 *3*; α(L)=0.000264 *4*; α(M)=5.17×10^{-5} *8*; α(N+..)=1.048×10^{-5} *15* α(N)=9.68×10^{-6} *14*; α(O)=8.06×10^{-7} *12* I$_\gamma$: ΔIγ=7 assumed by evaluators.
1214.86 *10*	0.46 *6*	1304.40	≥7/2	89.531	11/2$^-$				E$_\gamma$: weighted av of 1214.90 *10* (1973Ra17) and 1214.8 *3* (1972Ja21). I$_\gamma$: weighted av of 0.44 *11* (1973Ra17) and 0.47 *7* (1972Ja21).

† Additional information 2.
‡ From 1973Ra17, unless otherwise noted.
# From Adopted Gammas.
@ Not observed but expected since isomer is fed.
& Intensity excludes contribution from decay of 89-keV level.
a For absolute intensity per 100 decays, multiply by 0.92 *9*.

$^{119}_{50}Sn_{69}$-2

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Decay Scheme

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