^{119}In β^- decay (18.0 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=311.37 *3*; $J^\pi=1/2^-$; $T_{1/2}$=18.0 min *3*; Q(β^-)=2363 *8*; %β^- decay=95.6

Additional information 1.

From 1973Ra17. See ^{119}In β^- decay (2.4 min) for experimental details.

Others: 1976Sc30, 1972Ja31 (semi γ, x).

^{119}Sn Levels

E(level)	J^π†	$T_{1/2}$
0	$1/2^+$	stable
23.868 *10*	$3/2^+$	
920.49 *15*	$3/2^+$	
921.39 *15*	$5/2^+$	
1089.44 *6*	$5/2^+$	
1187.73 *6*	$3/2^+$,$5/2^+$	
1249.71 *5*	$1/2^+$	
1354.0 *9*	$5/2^+$	

† From Adopted Levels.

β^- radiations

E(decay)	E(level)	Iβ^-†	Log *ft*	Comments
(1320 *8*)	1354.0	0.009	9.8[1u]	av Eβ=493 *4*
(1425 *8*)	1249.71	0.16	7.9	av Eβ=528 *4*
(1487 *8*)	1187.73	0.11	8.1	av Eβ=555 *4*
(1585 *8*)	1089.44	0.27	8.7[1u]	av Eβ=604 *4*
(1753 *8*)	921.39	0.030	9.9[1u]	av Eβ=677 *4*
(1754 *8*)	920.49	0.030	9.0	av Eβ=673 *4*
(2651 *8*)	23.868	35	6.6	av Eβ=1083 *4* Iβ^-: from Iβ ranging from 6% to 62% for log *ft*=6.9 *5* deduced from those for β^- feeding from $1/2^-$ parent to $3/2^+$ in decay of neighboring In isotopes (^{115}In: 7.35 *6*, ^{117}In: 6.85 *5*, ^{121}In: 6.7 *3*).
(2674 *8*)	0	64	6.4	av Eβ=1094 *4* Iβ^-: from≥21% for log *ft*=6.4 *4* deduced from those for β^- feeding from $1/2^-$ parent to $1/2^+$ in decay of neighboring In isotopes (^{115}In: 6.68 *6*, ^{117}In: 6.71 *5*, ^{121}In: 6.22 *12*).

† For absolute intensity per 100 decays, multiply by 0.956.

$\gamma(^{119}Sn)$

Iγ normalization: From Σ Iβ(to g.s.+24-keV level)+Ti(311, with IT decay) + Σ Iγ(to g.s.+24-keV level, except Iγ(24))=100 %. Using Σ Iβ(to g.s.+24-keV level)=95% (syst).

E_γ	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[†]	Comments
23.867 *10*		23.868	3/2$^+$	0	1/2$^+$	M1+E2	<0.003	5.07 *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* I_γ: no intensity was reported.
896.6[#] *2*	4.2 *25*	920.49	3/2$^+$	23.868	3/2$^+$	[M1+E2]		0.00182 *18*	α=0.00182 *18*; α(K)=0.00158 *16*; α(L)=0.000193 *16*; α(M)=3.8×10^{-5} *3*; α(N+..)=7.7×10^{-6} *7* α(N)=7.1×10^{-6} *6*; α(O)=6.1×10^{-7} *7* I_γ: 14 *3* for complex γ of 897.33 *20* (1973Ra17).
897.5[#] *2*	10 *3*	921.39	5/2$^+$	23.868	3/2$^+$	E2(+M1)		0.00182 *18*	α=0.00182 *18*; α(K)=0.00158 *16*; α(L)=0.000192 *16*; α(M)=3.8×10^{-5} *3*; α(N+..)=7.7×10^{-6} *7* α(N)=7.1×10^{-6} *6*; α(O)=6.1×10^{-7} *7*
920.5[#] *2*	11 *4*	920.49	3/2$^+$	0	1/2$^+$	E2+M1	−10 +*2*−*5*	0.001554 *22*	α=0.001554 *22*; α(K)=0.001347 *19*; α(L)=0.0001668 *24*; α(M)=3.26×10^{-5} *5*; α(N+..)=6.63×10^{-6} α(N)=6.12×10^{-6} *9*; α(O)=5.18×10^{-7} *8* I_γ: 14 *3* for complex γ of 920.65 *15* (1973Ra17).
921.4[#] *2*	3.4 *13*	921.39	5/2$^+$	0	1/2$^+$	E2		0.001547 *22*	α=0.001547 *22*; α(K)=0.001342 *19*; α(L)=0.0001661 *24*; α(M)=3.25×10^{-5} *5*; α(N+..)=6.61×10^{-6} α(N)=6.09×10^{-6} *9*; α(O)=5.16×10^{-7} *8* E_γ: 915.4 *3* (1976Sc30).
1065.55 *6*	100	1089.44	5/2$^+$	23.868	3/2$^+$	M1+E2	+0.26 *3*	0.001340 *19*	α=0.001340 *19*; α(K)=0.001168 *17*; α(L)=0.0001393 *20*; α(M)=2.72×10^{-5} *4*; α(N+..)=5.57×10^{-6} α(N)=5.12×10^{-6} *8*; α(O)=4.52×10^{-7} *7*
1089.9 *3*	20 *5*	1089.44	5/2$^+$	0	1/2$^+$	[E2]		0.001066 *15*	α=0.001066 *15*; α(K)=0.000926 *13*; α(L)=0.0001129 *16*; α(M)=2.20×10^{-5} *3*; α(N+..)=4.50×10^{-6} α(N)=4.14×10^{-6} *6*; α(O)=3.55×10^{-7} *5*
1163.85 *6*	42 *5*	1187.73	3/2$^+$,5/2$^+$	23.868	3/2$^+$	M1		0.001117 *16*	α=0.001117 *16*; α(K)=0.000972 *14*; α(L)=0.0001155 *17*; α(M)=2.25×10^{-5} *4*; α(N+..)=7.46×10^{-6} α(N)=4.25×10^{-6} *6*; α(O)=3.75×10^{-7} *6*; α(IPF)=2.84×10^{-6} *4*
1187.79 *20*	8 *3*	1187.73	3/2$^+$,5/2$^+$	0	1/2$^+$	[M1+E2]		0.00098 *9*	α=0.00098 *9*; α(K)=0.00085 *8*; α(L)=0.000102 *9*; α(M)=1.99×10^{-5} *17*; α(N+..)=9.23×10^{-6} *13* α(N)=3.7×10^{-6} *4*; α(O)=3.3×10^{-7} *4*; α(IPF)=5.2×10^{-6} *4*
1225.7 *3*	16 *4*	1249.71	1/2$^+$	23.868	3/2$^+$	[M1+E2]		0.00092 *9*	α=0.00092 *9*; α(K)=0.00080 *8*; α(L)=9.5×10^{-5} *8*; α(M)=1.86×10^{-5} *16*; α(N+..)=1.36×10^{-5} *4* α(N)=3.5×10^{-6} *3*; α(O)=3.1×10^{-7} *3*; α(IPF)=9.8×10^{-6} *7* I_γ: 60 *20* (1972Ja31).
1249.71 *5*	57 *5*	1249.71	1/2$^+$	0	1/2$^+$	[M1]		0.000966 *14*	α=0.000966 *14*; α(K)=0.000832 *12*; α(L)=9.87×10^{-5} *14*;

From ENSDF

^{119}In β^- decay (18.0 min) 1973Ra17 (continued)

$\gamma(^{119}Sn)$ (continued)

E_γ	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[†]	Comments
1330 *2*	3 *1*	1354.0	$5/2^+$	23.868	$3/2^+$	M1+E2	−0.31 *3*	0.000848 *13*	α(M)=1.92×10^{-5} *3*; α(N+..)=1.640×10^{-5} *2* α(N)=3.63×10^{-6} *5*; α(O)=3.21×10^{-7} *5*; α(IPF)=1.245×10^{-5} *18* α=0.000848 *13*; α(K)=0.000717 *11*; α(L)=8.50×10^{-5} *13*; α(M)=1.656×10^{-5} *25*; α(N+..)=3.02×10^{-5} α(N)=3.12×10^{-6} *5*; α(O)=2.76×10^{-7} *4*; α(IPF)=2.68×10^{-5} *6*
1354	0.9 *3*	1354.0	$5/2^+$	0	$1/2^+$	[E2]		0.000713 *10*	α=0.000713 *10*; α(K)=0.000590 *9*; α(L)=7.08×10^{-5} *10*; α(M)=1.381×10^{-5} *20*; α(N+..)=3.84×10^{-5} *6* α(N)=2.60×10^{-6} *4*; α(O)=2.25×10^{-7} *4*; α(IPF)=3.55×10^{-5} *5*
[x]1506.9[@] *7*	6.6 *15*								E_γ,I_γ: from Coul. ex.

[†] Additional information 2.
[‡] From adopted gammas.
[#] The 897 and 920 doublets were not resolved. The Eγ values are from Coul. ex., with uncertainties assigned by the evaluators. The Iγ are based on Iγ(896.6γ+897.5γ)=14 *3*, Iγ(920.5γ +921.4γ)=14 *3* from 1973Ra17, and I(897.5γ)/I(921.4γ)=3.0 *7*, I(896.6γ)/I(920.5γ)=0.35 *7* from 1972St16 in Coul. ex.
[@] From 1972Ja31.
[&] For absolute intensity per 100 decays, multiply by ≈0.0022.
[x] γ ray not placed in level scheme.

From ENSDF

$^{119}_{50}Sn_{69}$-3

^{119}In β^- decay (18.0 min) 1973Ra17

Decay Scheme

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