^{115}Sb $\varepsilon+\beta^+$ decay (32.1 min) 1975WiZX,1976Wi10

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 113,2391 (2012)	1-Sep-2012

Parent: ^{115}Sb: E=0.0; $J^\pi=5/2^+$; $T_{1/2}$=32.1 min *3*; Q(ε)=3030 *16*; %ε+%β^+ decay=100
Others: 1961Se08, 1962Se03, 1968Ra27, 1969Ki16, 1974Ki07, 1993BaZJ.

^{115}Sn Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	$1/2^+$	stable	
497.3	$3/2^+$		
612.9	$7/2^+$	3.26 μs *8*	
986.5	$5/2^+$		
1280.2	$3/2^+$		Branching: Iγ(1280γ):Iγ(783γ):Iγ(668γ):Iγ(294γ)=86.2 *12*:7.8 *7*:3.0 7:3.0 *4* (1977Da12) Coul. ex.
1416.9	$5/2^+$		Branching: Iγ(1417γ):Iγ(920γ):Iγ(804γ):Iγ(430γ):Iγ(137γ) =72.1 28:21.0 *19*:5.1 *7*:0.6 *4*:1.2 *5* (1977Da12) Coul. ex.
1633.8	$3/2^{(+)}$		
1734.0	$5/2^+$		
1825.0			
1857.4			
2060.2			
2193.2	$(3/2^+,5/2^+)$		
2230.0	$3/2^+,5/2^+$		J^π: based on γ-decays to $1/2^+,3/2^+,5/2^+$ states and log *ft*=6.2.
2364.6	$3/2^+,5/2^+$		E(level): may correspond with L=2, 2355-keV (d,t) and 2360-keV (p,d) excitations. J^π: based on γ-decays to $1/2^+,3/2^+,5/2^+$ states and log *ft*=6.4. Branching: Iγ(1378γ)/Iγ(1867γ)/Iγ(2365γ)=14 *2*/100/23 *9* (1974Ki07), 7 *3*/100/21 *5* (1975WiZX); Iγ-ratios via in-beam (1975Ma38) are different.

ε,β^+ radiations

Q(ε)=3030 *20* from E(β^+)=1510 *20* to 497 state.

E(decay)	E(level)	Iβ^+ †	Iε†	Log *ft*	Comments
(665 *16*)	2364.6		0.09	6.4	εK=0.8528; εL=0.11695 *25*; εM+=0.03028 *8*
(800 *16*)	2230.0		0.22	6.2	εK=0.8545; εL=0.11566 *17*; εM+=0.02989 *5*
(837 *16*)	2193.2		0.16	6.4	εK=0.8548; εL=0.11538 *15*; εM+=0.02980 *5*
(1173 *16*)	1857.4		0.07	7.0	εK=0.8570; εL=0.1137; εM+=0.02929
(1205 *16*)	1825.0		0.08	7.0	εK=0.8570; εL=0.1135; εM+=0.02925
(1296 *16*)	1734.0		1.0 *1*	5.95 *5*	εK=0.8567; εL=0.1132; εM+=0.02914
(1396 *16*)	1633.8	0.002	0.5	6.3	av Eβ=175 *9*; εK=0.8549; εL=0.11260 *15*; εM+=0.02899 *4*
(1613 *16*)	1416.9	0.001	0.06	7.4	av Eβ=269 *9*; εK=0.8410 *22*; εL=0.1102 *4*; εM+=0.02836 *9*
(1750 *16*)	1280.2	0.01	0.3	6.8	av Eβ=329 *9*; εK=0.822 *4*; εL=0.1075 *5*; εM+=0.02765 *13*
(2044 *16*)	986.5	0.18 *4*	1.2 *3*	6.27 *10*	av Eβ=457 *9*; εK=0.750 *7*; εL=0.0977 *9*; εM+=0.02510 *23*
(2417 *16*)	612.9	0.052	0.13	7.4	av Eβ=623 *9*; εK=0.609 *9*; εL=0.0790 *11*; εM+=0.0203 *3*
2530 *20*	497.3	33.3 *19*	63 *4*	4.741 *25*	av Eβ=675 *9*; εK=0.561 *9*; εL=0.0727 *11*; εM+=0.0187 *3* E(decay): E(β^+)=1510 *20* (1961Se08) s, 1500 *50* (1969Ki16) scin. Allowed log *ft* to low-lying $3/2^+$ states characterize ($\varepsilon+\beta^+$)-decays of odd-mass ^{111}Sb-^{119}Sb. εK/β^+=1.62 theory, 1.22 *6* exp (1969Ki16).

† Absolute intensity per 100 decays.

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$\gamma(^{115}Sn)$

Iγ normalization: ΣI(γ+ce) to g.s.=100 decays; ($\varepsilon+\beta^+$)≈0 to g.s. from unobserved β^+ (1962Se03) (ΔJ=2,no).

E_γ	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ[‡]	α[@]	Comments
115.6 *1*	2.4 *2*	612.9	7/2$^+$	497.3	3/2$^+$	E2		0.954	α(K)=0.719 *11*; α(L)=0.190 *3*; α(M)=0.0385 *6*; α(N+..)=0.00718 *11* α(N)=0.00686 *10*; α(O)=0.000325 *5* HF(E2,115γ)=7.8; analogs: HF(E2,553γ,^{117}Sn)=3.1, HF(E2,763γ,^{119}Sn)=3.0.
(136.70[†] *15*)	0.007 *calc*	1416.9	5/2$^+$	1280.2	3/2$^+$				
(293.60[†] *29*)	0.10 *calc*	1280.2	3/2$^+$	986.5	5/2$^+$				
373.8 *2*	0.42 *10*	986.5	5/2$^+$	612.9	7/2$^+$	M1+E2	−0.26 *6*	0.01639 *24*	α(K)=0.01420 *21*; α(L)=0.00177 *3*; α(M)=0.000346 *6*; α(N+..)=7.07×10^{-5} *11* α(N)=6.50×10^{-5} *10*; α(O)=5.63×10^{-6} *8*
(430.27[†] *30*)	0.0034 *calc*	1416.9	5/2$^+$	986.5	5/2$^+$				
489.3 *7*	13 *3*	986.5	5/2$^+$	497.3	3/2$^+$	M1+E2	+0.040 *23*		α(K)=0.00730; α(L)=0.00089; α(M)=0.00017
497.31 *8*	1000	497.3	3/2$^+$	0.0	1/2$^+$	M1+E2	+0.21 *2*		α(K)=0.00699; α(L)=0.00085; α(M)=0.00017
(668.13[†] *34*)	0.10 *calc*	1280.2	3/2$^+$	612.9	7/2$^+$				
747.7 *2*	2.0 *2*	1734.0	5/2$^+$	986.5	5/2$^+$	E2,M1			α(K)=0.002
(782.99[†] *9*)	0.26 *calc*	1280.2	3/2$^+$	497.3	3/2$^+$				
(804.04[†] *25*)	0.029 *calc*	1416.9	5/2$^+$	612.9	7/2$^+$				
(919.79[†] *17*)	0.12 *calc*	1416.9	5/2$^+$	497.3	3/2$^+$				
986.4 *2*	3.6 *2*	986.5	5/2$^+$	0.0	1/2$^+$	E2			α(K)=0.00115; α(L)=0.00014
1021.1 *2*	0.44 *5*	1633.8	3/2$^{(+)}$	612.9	7/2$^+$				
[x]1097.3 *2*	0.29 *4*								
1121.3 *2*	1.6 *1*	1734.0	5/2$^+$	612.9	7/2$^+$				
1136.3 *2*	1.3 *1*	1633.8	3/2$^{(+)}$	497.3	3/2$^+$				
1207.0 *10*	0.41 *4*	2193.2	(3/2$^+$,5/2$^+$)	986.5	5/2$^+$				
1212.1 *10*	0.09 *3*	1825.0		612.9	7/2$^+$				
1236.6 *2*	5.9 *3*	1734.0	5/2$^+$	497.3	3/2$^+$				
1243.7 *3*	0.45 *4*	2230.0	3/2$^+$,5/2$^+$	986.5	5/2$^+$				E_γ: placed from a 1857 level in (p,nγ).
1279.9 *2*	2.9 *2*	1280.2	3/2$^+$	0.0	1/2$^+$	M1+E2	−2.2 *2*		α(K)=0.00068
1327.4 *3*	0.24 *3*	1825.0		497.3	3/2$^+$				
1360.1 *3*	0.63 *5*	1857.4		497.3	3/2$^+$				
1377.8 *4*	0.13 *3*	2364.6	3/2$^+$,5/2$^+$	986.5	5/2$^+$				
1416.8 *3*	0.41 *4*	1416.9	5/2$^+$	0.0	1/2$^+$	E2			α(K)=0.00054
[x]1471.3 *4*	0.16 *3*								
[x]1476.4 *4*	0.10 *2*								
[x]1543.1 *4*	0.10 *2*								E_γ: placed from a 2440 level in (p,nγ).

^{115}Sb $\varepsilon+\beta^+$ decay (32.1 min) 1975WiZX,1976Wi10 (continued)

$\gamma(^{115}Sn)$ (continued)

E_γ	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
1562.6 *3*	0.19 *4*	2060.2		497.3	$3/2^+$		
1579.9 *3*	0.09 *3*	2193.2	$(3/2^+,5/2^+)$	612.9	$7/2^+$		
1633.8 *2*	3.6 *2*	1633.8	$3/2^{(+)}$	0.0	$1/2^+$	(M1)	
[x]1658.3 *4*	0.05 *2*						
1696.1 *3*	0.92 *6*	2193.2	$(3/2^+,5/2^+)$	497.3	$3/2^+$		
[x]1717.5 *5*	0.05 *2*						
1732.6 *4*	0.50 *15*	2230.0	$3/2^+,5/2^+$	497.3	$3/2^+$		
1734.0 *7*	0.56 *17*	1734.0	$5/2^+$	0.0	$1/2^+$		
[x]1817.3 *5*	0.15 *2*						
1825.2 *3*	0.52 *4*	1825.0		0.0	$1/2^+$		
[x]1854.7 *6*	0.05 *2*						
(1857 *1*)	0.10 *calc*	1857.4		0.0	$1/2^+$		E_γ: from 1975Ma38 in-beam reaction. I_γ: from Iγ(1857γ)/Iγ(1360γ)=0.15 (1975Ma38) via (α,nγ).
1867.4 *4*	0.61 *4*	2364.6	$3/2^+,5/2^+$	497.3	$3/2^+$		
[x]1938.0 *5*	0.09 *2*						
[x]1990.0 *9*	0.08 *2*						
2060.7 *5*	0.06 *2*	2060.2		0.0	$1/2^+$		
2194.0 *6*	0.19 *3*	2193.2	$(3/2^+,5/2^+)$	0.0	$1/2^+$		
2229.5 *5*	1.3 *1*	2230.0	$3/2^+,5/2^+$	0.0	$1/2^+$		
2364.8 *5*	0.04 *2*	2364.6	$3/2^+,5/2^+$	0.0	$1/2^+$		
[x]2589.8 *10*	0.02 *1*						

[†] From Coul. ex. (1977Da12).
[‡] Deduced from γ-ray angular distributions via Coul. ex.
[#] For absolute intensity per 100 decays, multiply by 0.0979 *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.
[x] γ ray not placed in level scheme.

$^{115}_{50}Sn_{65}$-3

^{115}Sb ε decay (32.1 min) 1975WiZX,1976Wi10

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: Relative I_γ