^{122}Sb β^- decay 1970LaZT,1975SeZC

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	T. Tamura	NDS 108, 455 (2007)	30-Sep-2006

Parent: ^{122}Sb: E=0.0; $J^\pi=2^-$; $T_{1/2}$=2.7238 d *2*; Q(β^-)=1983.9 *19*; %β^- decay=97.59 *12*
1975SeZC: ^{121}Sb(n,γ); semi γ.
1970LaZT, 1967La18: ^{121}Sb(n,γ); semi γ.
Others: β^- (1968Hs02,1968Ao01,1955Fa33,1955Gl41), γ (1968Ao01,1967Ar04,1965Ar12), $\gamma\gamma(\theta)$(1955Gl41,1957Li35,1960As04, (1966Au05,1966Jo06,1967Ko13,1967Mu10), $\gamma\gamma(\theta$,H) (1971BeWS,1967Mu10,1967Bh06,1966Jo06,1966Au05), (β)(circular polarized γ)(θ) (1960De23,1965Gr19), $\beta\gamma(\theta)$ (1965Ra03,1968Ao01,1950Ri06,1951Sh05,1959St43).

^{122}Te Levels

The decay scheme is that proposed by 1970LaZT.

E(level)†	J^π‡	Comments
0.0	0^+	
564.26 *4*	2^+	g-factor=0.38 *8* deduced from (693γ)(564γ)(θ,H) (weighted average from 1967Mu10,1967Bh06,1966Jo06 and 1966Au05).
1179.3 *4*	4^+	
1256.92 *4*	2^+	
1357.6 *4*	0^+	
1752.3 *9*	2^+	

† E(levels) are based on a least-squares fit to the E(γ's) of 1975SeZC (evaluator).
‡ From Adopted Levels.

β^- radiations

Eβ^- and Iβ^- are taken from 1968Hs02.

E(decay)	E(level)	Iβ^-†‡	Log *ft*	Comments
(231.6 *21*)	1752.3	0.014 *10*	8.6 *4*	av Eβ=64.46 *65*
(626.3 *20*)	1357.6	0.0108 *10*	10.32[1u] *4*	av Eβ=217.04 *72*
723 *5*	1256.92	4.6 *5*	7.70 *5*	av Eβ=237.71 *74* Eβ^-, Iβ^-/ΣIβ^-: 723, 0.40 *5* (1968Hs02); 720 *20* (1968Ao01); 730 *20* (1955Gl41); 740 *20* (1955Fa33).
(804.6 *20*)	1179.3	0.012 *3*	10.83[1u] *11*	av Eβ=283.93 *75*
1414 *3*	564.26	66.8 *2*	7.614 *3*	av Eβ=523.58 *83* Eβ^-, Iβ^-/ΣIβ^-: 1414 *3*, 0.690 *2*, F-K plot linear (1968Hs02); 1410 *10*, 0.70 *6* (1968Ao01); 1423 *10*, 0.69 *3*, F-K plot linear (1955Gl41); 1400 *10*, 0.649 *20*, F-K plot linear (1955Fa33).
1980 *3*	0.0	26.1 *2*	9.654[1u] *5*	av Eβ=773.34 *84* Eβ^-, Iβ^-/ΣIβ^-: 1980 *3*, 0.270 *2*, 2-yes shape (1968Hs02); 1980 *50*, 0.26 *3* (1968Ao01); 1987 *20*, 0.265 *15*, 2-yes shape (1955Gl41); 1970 *5*, 0.310 *10*, 2-yes shape (1955Fa33).

† %β^- of ^{122}Sb=97.6 *9* is deduced using Iβ^+/Iβ^-= 6.46×10^{-5} *40* (1958Pe17), Iε/Iβ^+(to ^{122}Sn g.s.)=264 *7* (theory), Iβ^- (to ^{122}Te g.s.)/Iβ^- (to ^{122}Te 564-keV level)= 27.0 *2*/69.0 *2* (1968Hs02) and Iγ from ^{122}Sb $\varepsilon+\beta^+$ and β^- decay (1975SeZC).
‡ For absolute intensity per 100 decays, multiply by 0.9989 *12*.

^{122}Sb β^- decay 1970LaZT,1975SeZC (continued)

$\gamma(^{122}Te)$

(693γ)(564γ)(θ): A_2=+0.144 *3*, A_4=+0.299 *3*
(weighted average is from 1966Au05,1966Jo06,1967Ko13)

E_γ[†]	I_γ[†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[@]	Comments
564.24 *4*	100	564.26	2^+	0.0	0^+	E2		0.00591	
615.0 *4*	0.016 *6*	1179.3	4^+	564.26	2^+	E2			
692.65 *4*	5.45 *18*	1256.92	2^+	564.26	2^+	M1+E2	−3.7 *+11−7*		
793.3 *4*	0.023 *6*	1357.6	0^+	564.26	2^+				
1188 *1*	0.006 *1*	1752.3	2^+	564.26	2^+	(M1+E2)	+0.04 *3*		E_γ,I_γ: from 1970LaZT.
1256.93 *4*	1.15 *6*	1256.92	2^+	0.0	0^+	E2			
1752.4 *15*	0.013 *2*	1752.3	2^+	0.0	0^+	E2			E_γ,I_γ: from 1970LaZT.

[†] From 1975SeZC, unless noted otherwise.
[‡] From adopted gammas.
[#] For absolute intensity per 100 decays, multiply by 0.7068 *18*.
[@] 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.

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Decay Scheme

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