^{120}Sb β^+ decay (15.89 min) 1970Pa17,1971Li09,1975Ca21

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	K. Kitao, Y. Tendow and A. Hashizume	NDS 96,241 (2002)	1-Dec-2001

Parent: ^{120}Sb: E=0.0; $J^\pi=1^+$; $T_{1/2}$=15.89 min *4*; Q(β^+)=2681 *7*; %β^+ decay=100
1969Ki15: ^{120}Sn(p,n); semi γ, scin B.
1970Ok02: ^{120}Sn(γ,p) E=23 MeV; semi, scin; γ, $\gamma\gamma(\theta)$, $\gamma\gamma$.
1970Pa17: ^{121}Sb(γ,n) E=25 MeV; semi, scin; γ, $\gamma\gamma$.
1971Li09: ^{120}Sn(n,p) E=14-15 MeV; semi, scin; γ, $\gamma\gamma$, Xγ coin.
1975Ca21: ^{121}Sn(γ,n) E=50 MeV; semi scin; (Kβ x ray)β coin.
Others: 1950Bl92, 1963Ok01.
Decay scheme was first suggested by 1969Ki15.

^{120}Sn Levels

E(level)‡	J^π†	$T_{1/2}$
0.0	0^+	stable
1171.2 *3*	2^+	
1875.0 *5*	0^+	
2159.8 *8*	0^+	

† From Adopted Levels.
‡ From from a least-squares fit to E(γ's) by the evaluators.

ε,β^+ radiations

E(β^+)=1700 *20* (1950Bl92); others 1750 *30* (1969Ki15). Values lead to decay energies which are 40 and 90 keV larger than the adopted values from 1977Wa08.
(K-ε/β^+)=1.057 0.035 (1975Ca21).

E(decay)†	E(level)	Iβ^+‡	Iε‡	Log *ft*	Comments
(521 *7*)	2159.8		0.063 *6*	6.03 *5*	εK=0.8499 *2*; εL=0.11914 *14*; εM+=0.03093 *5*
(806 *7*)	1875.0		0.149 *13*	6.05 *4*	εK=0.8545; εL=0.11561 *6*; εM+=0.02987 *2*
(1510 *7*)	1171.2	0.0147 *12*	1.47 *8*	5.610 *24*	av Eβ=224.3 *31*; εK=0.8497 *5*; εL=0.11162 *8*; εM+=0.02872 *2*
(2681 *7*)	0.0	41.0 *7*	57.3 *9*	4.525 *8*	av Eβ=741.6 *32*; εK=0.501 *3*; εL=0.0649 *4*; εM+=0.01665 *10*

† From Iγ imbalance at each level.
‡ Absolute intensity per 100 decays.

$\gamma(^{120}Sn)$

Iγ normalization: based on I(511γ)/I(1171γ)=48.5 *25* from 1969Ki15, ε/β^+ from from theory, and adopted decay scheme.
I(511γ)/I(1171γ)=48.5 *25* (1969Ki15).
$\gamma\gamma$ from 1970Ok02, 1970Pa17.
$\gamma\gamma(\theta)$ from 1970Ok02. Results for (704γ)(1171γ) and (989γ)(1171γ) are consistent only with J(1875 level)=J(2160 level)=0.

E_γ†	I$_\gamma$‡#	E_i(level)	J^π_i	E_f	J^π_f
703.8 *3*	8.8 *6*	1875.0	0^+	1171.2	2^+
988.6 *7*	3.7 *3*	2159.8	0^+	1171.2	2^+
1171.2 *3*	100	1171.2	2^+	0.0	0^+

Continued on next page (footnotes at end of table)

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$\gamma(^{120}Sn)$ (continued)

† From 1970Ok02. See also 1970Pa17 and 1971Li09.
‡ From 1969Ki15.
# For absolute intensity per 100 decays, multiply by 0.0169 *9*.

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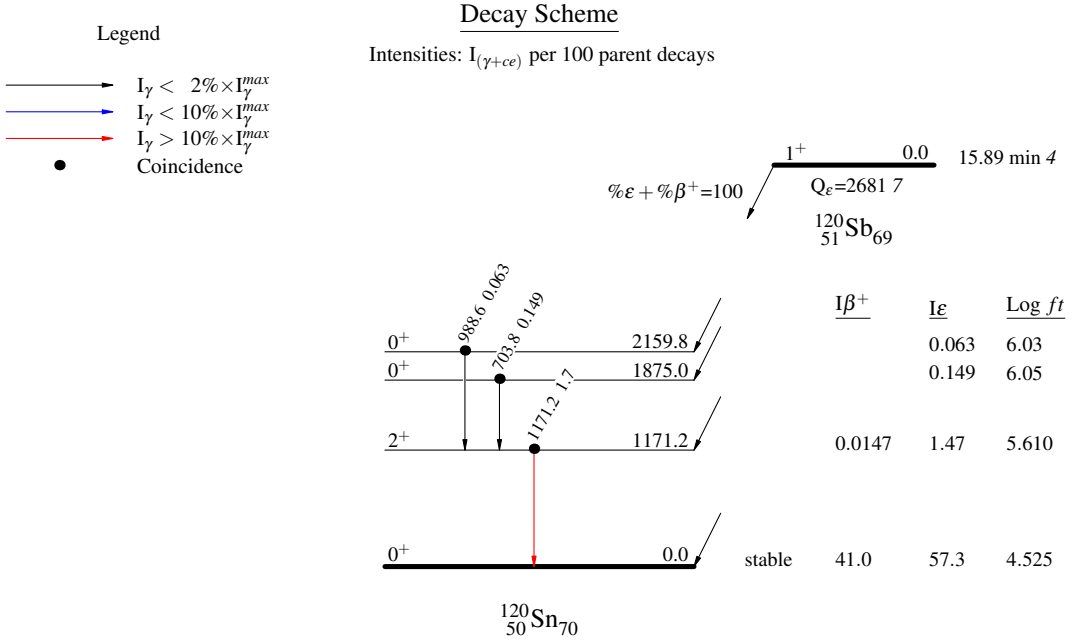
Decay Scheme

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



	Iβ+	Iε	Log ft
2159.8		0.063	6.03
1875.0		0.149	6.05
1171.2	0.0147	1.47	5.610
0.0	41.0	57.3	4.525