^{102}Sn ε decay 2006Ka16,2005Ka47

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110, 1745 (2009)	31-Dec-2008

Parent: ^{102}Sn: E=0; $J^\pi=0^+$; $T_{1/2}$=3.8 s *2*; Q(ε)=5.78×10^3 *7*; %ε+%$β^+$ decay=100.0

^{102}Sn-$T_{1/2}$,Q(ε): taken from 2002FA13.

All data are from 2006Ka16, unless noted otherwise.

^{102}Sn isotope produced in ^{50}Cr(^{58}Ni),α2n).

reaction at E=284-302 MeV, ion-beam facility at GSI, recoil mass separator. Measured Eγ, Iγ, γγ, βγ, βγγ using an array of one cluster, two clovers and two smaller Ge detectors surrounding the Silicon detectors for β detection. Total absorption β spectrum (TAS).

^{102}In Levels

E(level)	J^π‡	Comments
0.0	(6$^+$)	
94	(4$^+$)	J^π: 5$^+$ is less probable.
163	(3$^+$)	J^π: 2$^+$ is less probable.
483	(2$^+$)	
700	(3$^+$)	
938	(2$^+$)	
1270	(1$^+$)	
1521	1$^+$	
1546	1$^+$	
1808?†	(1$^+$)	
1908	1$^+$	
2200?†	(1$^+$)	

† Pseudo-level introduced to reproduce the tas spectrum.

‡ From Adopted Levels.

ε,$β^+$ radiations

Total beta intensity adds up to 83% which means that 17% is missing This might be due to the missing intensity between the highest observed level at 2200 keV and the Q value at 5.78E3 keV. So these results might be incomplete and unreliable.

E(decay)	E(level)	Iβ$^+$ ‡	Iε‡	Log *ft*	I(ε+β$^+$)†‡	Comments
(3.58×10^3 *7*)	2200?	9.7	3.3	3.6	13	av Eβ=1143 *47*; εK=0.217 *21*; εL=0.028 *3*; εM+=0.0070 *7*
(3.87×10^3 *7*)	1908	7	2	3.9	9	av Eβ=1279 *47*; εK=0.168 *16*; εL=0.0214 *20*; εM+=0.0054 *5*
(3.97×10^3 *7*)	1808?	12	2.7	3.8	15	av Eβ=1326 *47*; εK=0.154 *14*; εL=0.0197 *18*; εM+=0.0050 *5*
(4.23×10^3 *7*)	1546	39	6.5	3.4	45	av Eβ=1448 *47*; εK=0.124 *11*; εL=0.0158 *14*; εM+=0.0040 *4*
(4.26×10^3 *7*)	1521	11	1.8	4.0	13	av Eβ=1460 *47*; εK=0.122 *11*; εL=0.0155 *13*; εM+=0.0039 *4*
(4.51×10^3 *7*)	1270	4	0.5	4.6	4	av Eβ=1578 *48*; εK=0.100 *8*; εL=0.0128 *11*; εM+=0.0032 *3*

† From total absorption spectra (TAS) (2005Ka47,2006Ka16).

‡ Absolute intensity per 100 decays.

^{102}Sn ε decay 2006Ka16,2005Ka47 (continued)

γ(^{102}In)

E_γ	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
69	100 *20*	163	(3$^+$)	94	(4$^+$)	(M1)	Mult.: From best fit for the tas spectrum in ^{102}Sn ε decay obtained with 94 keV γ being E2 and 69 keV γ being M1.
x77‡							
x85‡							
x87‡							
94	90 *20*	94	(4$^+$)	0.0	(6$^+$)	(E2)	Mult.: From best fit for the tas spectrum in ^{102}Sn ε decay obtained with 94 keV γ being E2 and 69 keV γ being M1.
x102‡							
x144‡							
x178‡							
x210‡							
238	25 *10*	938	(2$^+$)	700	(3$^+$)		
x258‡							
320	100	483	(2$^+$)	163	(3$^+$)		
x500‡							
538	30 *10*	700	(3$^+$)	163	(3$^+$)		
x581‡							
583	40 *10*	1521	1$^+$	938	(2$^+$)		
x641‡							
844	30 *10*	938	(2$^+$)	94	(4$^+$)		
1063	50 *20*	1546	1$^+$	483	(2$^+$)		
1107	30 *10*	1270	(1$^+$)	163	(3$^+$)		
1325†@		1808?	(1$^+$)	483	(2$^+$)		
1425	40 *20*	1908	1$^+$	483	(2$^+$)		
1500†@		2200?	(1$^+$)	700	(3$^+$)		
1717†@		2200?	(1$^+$)	483	(2$^+$)		

† Transition introduced to reproduce the TAS spectrum.
‡ γ seen in coin, but not assigned in the level scheme.
# For absolute intensity per 100 decays, multiply by ≈0.225.
@ Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

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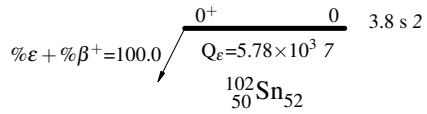
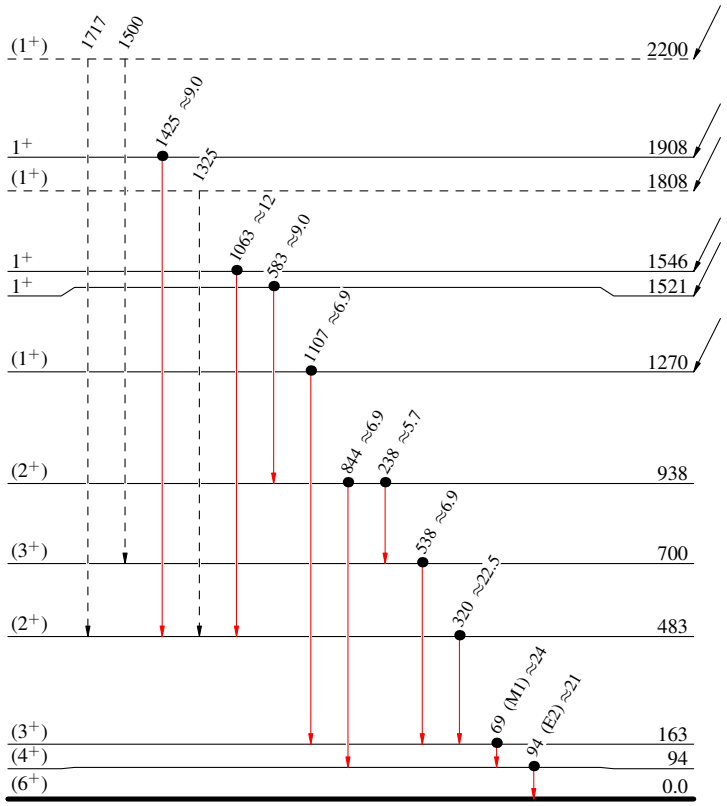
Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)
- Coincidence

Decay Scheme

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





	Iβ+	Iε	Log ft
2200	9.7	3.3	3.6
1908	7	2	3.9
1808	12	2.7	3.8
1546	39	6.5	3.4
1521	11	1.8	4.0
1270	4	0.5	4.6

$^{102}_{49}In_{53}$