^{129}Sn IT decay (217 ns)   **2008Lo07**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Janos Timar and Zoltan Elekes, Balraj Singh	NDS 121, 143 (2014)	31-May-2014

Parent: ^{129}Sn: E=2552.6 *15*; J$^\pi$=(27/2$^-$); T$_{1/2}$=217 ns *19*; %IT decay=100.0

^{129}Sn-J$^\pi$: from shell model and odd tin systematics.

2008Lo07: ^{129m}Sn produced in the reactions: ^{9}Be(^{238}U,X) E=750 MeV/nucleon and ^{9}Be(^{136}Xe,X) E=600 MeV/nucleon. Measured delayed γ, Eγ, Iγ, $\gamma\gamma$, (ion)γ coin using eight Cluster Ge detectors of RISING array with BGO Compton and bremsstrahlung suppression. Particles identified using FRS fragment separator, time-of-flight and energy loss measurements.

2011Pi05: ^{136}Xe beam with E=750 MeV/nucleon impinged on a 4 g/cm^2 thick ^{9}Be target within the RISING campaign at GSI using 15 large-volume Ge cluster detectors. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma$(t). Comparison with shell model-calculations.

^{129}Sn Levels

E(level)[†]	J$^{\pi}$[&]	T$_{1/2}$[‡&]	Comments
35.1 *1*	11/2$^-$	6.9 min *1*	%β^-=100
1171.2 *3*	(15/2$^-$)		
1359.5 *3*	(13/2$^-$)		
1741.6 *3*	(15/2$^+$)		
1761.3[@] *11*	(19/2$^+$)	3.4 μs *4*	%IT=100
1802.3[@] *15*	(23/2$^+$)	2.4 μs *4*	%IT=100
2407.3[#] *15*	(23/2$^-$)		
2552.6[#] *15*	(27/2$^-$)	217 ns *19*	%IT=100
			T$_{1/2}$: from γ(t) (2011Pi05). Other: 0.27 μs *7* (2008Lo07).

[†] From least-squares fit to Eγ data.

[‡] Measured by 2008Lo07 using delayed coin technique (γ(t)).

[#] Member of h$^{-3}_{11/2}$ multiplet.

[@] Member of d$^{-1}_{3/2}$h$^{-2}_{11/2}$ multiplet.

[&] From Adopted Levels, unless otherwise specified.

γ(^{129}Sn)

E$_\gamma$[†]	I$_\gamma$	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.[#]	α[@]	Comments
(19.7[‡])		1761.3	(19/2$^+$)	1741.6	(15/2$^+$)	(E2)	963	α(L)=776 *11*; α(M)=159.7 *23*; α(N)=27.4 *4*; α(O)=0.578 *8* B(E2)=0.0059 *7* (2008Lo07).
(41.0[‡])		1802.3	(23/2$^+$)	1761.3	(19/2$^+$)	(E2)	39.9	α(K)=13.64 *19*; α(L)=21.1 *3*; α(M)=4.37 *7*; α(N)=0.756 *11*; α(O)=0.0195 *3* B(E2)=0.0050 *9* (2008Lo07).
145.3 *3*	68 *7*	2552.6	(27/2$^-$)	2407.3	(23/2$^-$)	(E2)	0.425 *7*	α(K)=0.334 *6*; α(L)=0.0733 *12*; α(M)=0.01478 *25* α(N)=0.00265 *5*; α(O)=0.0001420 *23* I$_\gamma$: deduced by evaluators from intensity balance at 2407 level. B(E2)=0.0031 *12* (2008Lo07).
382.1 *3*		1741.6	(15/2$^+$)	1359.5	(13/2$^-$)			
570.3 *3*		1741.6	(15/2$^+$)	1171.2	(15/2$^-$)			
605.0 *3*	97 *10*	2407.3	(23/2$^-$)	1802.3	(23/2$^+$)			I$_\gamma$: from 2008Lo07.
1136.1 *3*		1171.2	(15/2$^-$)	35.1	11/2$^-$			
1324.4 *3*		1359.5	(13/2$^-$)	35.1	11/2$^-$			

^{129}Sn IT decay (217 ns)   **2008Lo07 (continued)**

$\gamma(^{129}$Sn) (continued)

† Uncertainties assigned as 0.3 keV based on a general statement by 2008Lo07.

‡ From 2002Ge07, not detected by 2008Lo07 due to energy limitations of the recorded γ-ray spectra.

$^{\#}$ From Adopted Gammas.

$^{@}$ 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: Relative I_γ

%IT=100.0

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)

$^{129}_{50}Sn_{79}$