^{132}Sn IT decay (2.080 μs) 1982Ka25,1980Bj01,2012Ka36

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	28-Feb-2018

Parent: ^{132}Sn: E=4847.0 *6*; J^π=(8^+); $T_{1/2}$=2.080 μs *17*; %IT decay=100.0

^{132}Sn-%IT decay: %IT=100.

1982Ka25, 1980Bj01: measured Eγ, Iγ, $T_{1/2}$ of isomer.

2012Ka36: isomer produced in ^{9}Be(^{238}U,F), with ^{238}U beam at E=345 MeV/nucleon provided by the RIBF accelerator complex at RIKEN facility. Fission fragments were separated and analyzed by BigRIPS separator, transported to focal plane of ZeroDegree spectrometer and finally implanted in an aluminum stopper. Particle identification was achieved by ΔE-tof-Bρ method. Delayed gamma rays from microsecond isomers were detected by three clover-type HPGe detectors. Measured Eγ, Iγ, $\gamma\gamma$-coin, isomer half-life. Comparison with previous studies.

2017Ch51: ^{235}U(n,F),E=thermal, measured Eγ, Iγ, half-life of isomer by γ(t). First measurement of isomeric ratios as function of kinetic energy of ^{132}Sn fragments using Lohengrin spectrometer at Grenoble.

^{132}Sn Levels

E(level)	J^π[†]	$T_{1/2}$[‡]	Comments
0.0	0^+		
4041.1 *4*	2^+	<0.4 ns	$T_{1/2}$: from 1980Bj01.
4415.5 *4*	(4^+)	4.0 ns *3*	$T_{1/2}$: other: 2.1 ns *3* (1980Bj01).
4714.7 *5*	(6^+)	20.2 ns *8*	
4847.0 *6*	(8^+)	2.080 μs *17*	$T_{1/2}$: from γ(t); weighted average of 2.15 μs *16* (2017Ch51, (132γ+299γ+374γ)(t) in ^{235}U(n,F),E=thermal); 2.088 μs *17* (2012Ka36) and 2.03 μs *4* (1994Fo14). Other: 1.7 μs *2* (1982Ka25).

[†] From Adopted Levels.
[‡] $\gamma\gamma$(t) (1982Ka25), unless otherwise stated.

γ(^{132}Sn)

Iγ normalization, I(γ+ce) normalization: Absolute γ-intensities are given.
I(Kα x ray)=21.0 *25* (1982Ka25).

E$_\gamma$[†]	I$_\gamma$[‡@]	E$_i$(level)	J^π_i	E$_f$	J^π_f	Mult.[#]	α[&]	I$_{(\gamma+ce)}$[@]	Comments
132.3 *3*	62 *5*	4847.0	(8^+)	4714.7	(6^+)	E2	0.592 *10*	100	α(K)exp=0.44 *4*; α(exp)=0.59 *9* (1982Ka25) ce(K)/(γ+ce)=0.288 *4*; ce(L)/(γ+ce)=0.0677 *12*; ce(M)/(γ+ce)=0.01370 *25* ce(N)/(γ+ce)=0.00245 *5*; ce(O)/(γ+ce)=0.0001249 *22* α(K)=0.458 *8*; α(L)=0.1078 *19*; α(M)=0.0218 *4* α(N)=0.00390 *7*; α(O)=0.000199 *4*
299.2 *3*	100 *6*	4714.7	(6^+)	4415.5	(4^+)	(E2)	0.0358	100	α(K)exp=0.028 *5* (1980Bj01) ce(K)/(γ+ce)=0.0290 *4*; ce(L)/(γ+ce)=0.00446 *7*; ce(M)/(γ+ce)=0.000885 *13* ce(N)/(γ+ce)=0.0001625 *24*; ce(O)/(γ+ce)=1.147×10^{-5} *17* α(K)=0.0300 *5*; α(L)=0.00462 *7*;

Continued on next page (footnotes at end of table)

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γ(^{132}Sn) (continued)

E_γ [†]	I_γ [‡@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[&]	$I_{(\gamma+ce)}$ [@]	Comments
									α(M)=0.000917 *14* α(N)=0.0001683 *25*; α(O)=1.188×10^{-5} *17*
374.3 *3*	84.2 *24*	4415.5	(4$^+$)	4041.1	2$^+$	(E2)	0.01751	85.7 *24*	α(K)exp=0.020 *7* (1980Bj01) ce(K)/(γ+ce)=0.01460 *21*; ce(L)/(γ+ce)=0.00211 *3*; ce(M)/(γ+ce)=0.000416 *6* ce(N)/(γ+ce)=7.68×10^{-5} *11*; ce(O)/(γ+ce)=5.73×10^{-6} *9* α(K)=0.01485 *22*; α(L)=0.00214 *3*; α(M)=0.000423 *6* α(N)=7.82×10^{-5} *12*; α(O)=5.84×10^{-6} *9*
4040.8 *5*	85.7 *24*	4041.1	2$^+$	0.0	0$^+$			85.7 *24*	
4415.7 *5*	14.3 *24*	4415.5	(4$^+$)	0.0	0$^+$	[E4]		14.3 *24*	

[†] From 1980Bj01.
[‡] From 1982Ka25.
[#] From ce data.
[@] Absolute intensity per 100 decays.
[&] 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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