^{123}In β^- decay (47.4 s) 1973Ja05

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 174, 1 (2021)	15-Apr-2021

Parent: ^{123}In: E=327.21 *4*; $J^\pi=1/2^-$; $T_{1/2}$=47.4 s *8*; Q(β^-)=4386 *20*; %β^- decay=100.0

^{123}In-E,J^π,Q(β^-): From Adopted Levels of ^{123}In. Adopted $T_{1/2}$ is weighted average of 47.8 s *5* (1974Gr29), 45.9 s *10* (1986Go10) from this study. Other: 36 s *3* (1960Yu01) seems discrepant.

1973Ja05: ^{123m}In source was produced via ^{124}Sn(γ,p) reaction with a 25-meV end-point bremsstrahlung photon beam provided by the linac of the University of Ghent, on samples of 100 mg SnO_2 powder (94.74% enriched in ^{124}Sn). γ rays were detected with Ge(Li) detectors. Measured Eγ, Iγ. Deduced levels, J, π, log *ft*.

The decay scheme is that proposed by 1973Ja05. It is considered incomplete due to a large gap between the highest excited level and the Q-value, and also due to the uncertain levels and placements of gammas as indicated by 1973Ja05.

1986Go10: ^{123m}In source was produced as mass separated fission products at the OSIRIS ISOL facility at Studsvik. γ rays were detected with HPGe detectors and β particles were detected with a planar β detector. Measured Eγ, Iγ, Eβ, Iβ, $\beta\gamma$-coin, $\beta\gamma$(t). Deduced parent $T_{1/2}$, absolute γ emission probability for 125γ.

Others: 1987Sp09, 1986Go10, 1976Fo02, 1974Gr29, 1960Yu01.

No β-decay branching ratios and log *ft* values are deduced by the evaluator due to incomplete and uncertain decay scheme.

^{123}Sn Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[‡]	Comments
0.0	$11/2^-$	129.2 d *5*	
24.6	$3/2^+$	40.06 min *2*	E(level): from Adopted Levels. Additional information 1.
150.4 *4*	$1/2^+$		
921.1 *7*	$(3/2)^+$		
1194.6 *11*	$(5/2)^+$		
2621? *3*	$(1/2^+)$		
3151.6? *21*	$(7/2)^-$		
3259 *3*			
3306? *3*			

[†] From a least-squares fit to γ-ray energies, unless otherwise noted.
[‡] From Adopted Levels.

γ(^{123}Sn)

Iγ normalization: From %I(125.8γ)=45 *5* from $\beta\gamma$-coin measurement in 1986Go10.

E$_\gamma$[†]	I$_\gamma$[†‡]	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.	α[#]	Comments
125.76 *4*	≈40000	150.4	$1/2^+$	24.6	$3/2^+$	M1	0.298	α(K)=0.258; α(L)=0.0326; α(M)=0.00638; α(N+..)=0.00144 E$_\gamma$: from 1976Fo02. Other: 126.9 *5* (1973Ja05). I$_\gamma$: other: 45 *5* per 100 parent decays (1986Go10). Mult.: from α(K)exp=0.250 *30* (1976Fo02).
896.5 *5*	78 *25*	921.1	$(3/2)^+$	24.6	$3/2^+$			
1170 *1*	100	1194.6	$(5/2)^+$	24.6	$3/2^+$			
2469[@] *3*	18 *11*	2621?	$(1/2^+)$	150.4	$1/2^+$			
2598[@] *3*	41 *16*	2621?	$(1/2^+)$	24.6	$3/2^+$			
[x]2695 *3*	52 *19*							
[x]3064 *2*	58 *18*							

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^{123}In β^- decay (47.4 s) 1973Ja05 (continued)

$\gamma(^{123}Sn)$ (continued)

E_γ [†]	I_γ [†‡]	E_i(level)	J_i^π	E_f	J_f^π
3103[@] *3*	38 *13*	3259		150.4	$1/2^+$
3127 *2*	93 *26*	3151.6?	$(7/2)^-$	24.6	$3/2^+$
3155[@] *3*	34 *12*	3306?		150.4	$1/2^+$
3234 *3*	122 *31*	3259		24.6	$3/2^+$

[†] From 1973Ja05, unless otherwise noted.
[‡] For absolute intensity per 100 decays, multiply by ≈0.001125.
[#] 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.
[@] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

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Decay Scheme

Intensities: Relative I_γ