^{126}In β^- decay (1.64 s) 1979Fo10

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	H. Iimura, J. Katakura, S. Ohya	NDS 180, 1 (2022)	1-Oct-2021

Parent: ^{126}In: E=90 *7*; J^π=(8^-); $T_{1/2}$=1.64 s *5*; Q(β^-)=8206 *11*; %β^- decay=100.0

1979Fo10: U(n,F) on-line mass separation, chem, semi; γ, ce, $\gamma\gamma$; $\beta\gamma$(t), $\gamma\gamma$(t) scin-scin, scin-semi.

1987Sp09: U(n,F) ms, $\beta\gamma$-coin, Eβ, Q(β^-) value.

1978Al18: U(n,F) on-line mass separation, $\beta\gamma$; Eβ, Q(β^-).

The decay scheme is that proposed by 1979Fo10 on the basis of $\gamma\gamma$-coin and Eγ sums.

There is a negative intensity imbalance at lower high-spin states and Σ(unplaced Iγ)>16% of β^- decay of ^{126}In.

^{126}Sn Levels

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
0.0	0^+	2.18×10^5 y *10*	$T_{1/2}$: from Adopted Levels.
1141.12 *5*	2^+		
2049.71 *7*	4^+		
2161.51 *8*	5^-	10.8 ns *7*	$T_{1/2}$: from $\beta\gamma$(t).
2218.96 *9*	7^-	6.6 μs *14*	$T_{1/2}$: from $\gamma\gamma$(t).
2477.48 *9*	6^-		
2488.21 *10*	(8^+)		
2662.95 *9*			
2840.21 *10*			
3067.26 *9*			
3283.80 *9*	(9^-)		
3454.85 *11*			
3625.77 *11*			
3783.38 *13*			
3809.18 *18*			
3830.72 *13*			
3855.52 *9*	(7^-,8^-)		
3950.3 *5*			
3977.37 *15*			
4779.14 *21*	(7^-,8^-,9^-)		
4990.1 *3*	(7^-)		

[†] E(levels) are based on a least-squares fit (by evaluators) to Eγ's.

[‡] Spin and parity values are those given under the Adopted Levels.

β^- radiations

E(decay)	E(level)	Iβ^-[‡#]	Log *ft*	Comments
(3306 *13*)	4990.1	4.1 *3*	5.13 *4*	av Eβ=1388.5 *62*
(3517 *13*)	4779.14	4.7 *6*	5.18 *6*	av Eβ=1487.6 *62*
(4319 *13*)	3977.37	5.5 *5*	5.50 *5*	av Eβ=1866.0 *62*
(4346 *13*)	3950.3	1.40 *18*	6.10 *6*	av Eβ=1878.8 *62*
4453[†] *51*	3855.52	59 *3*	4.52 *3*	av Eβ=1923.7 *62*
(4465 *13*)	3830.72	4.6 *4*	5.64 *4*	av Eβ=1935.4 *62*
(4487 *13*)	3809.18	1.33 *17*	6.19 *6*	av Eβ=1945.6 *62*
(4513 *13*)	3783.38	1.91 *18*	6.04 *5*	av Eβ=1957.9 *62*
(4670 *13*)	3625.77	4.6 *5*	5.72 *5*	av Eβ=2032.5 *62*
(4841 *13*)	3454.85	5.5 *5*	5.72 *5*	av Eβ=2113.5 *62*
(5229 *13*)	3067.26	2.3 *10*	6.24 *19*	av Eβ=2297.3 *62*
(5456 *13*)	2840.21	2.12 *19*	6.36 *5*	av Eβ=2405.0 *62*

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^{126}In β^- decay (1.64 s) 1979Fo10 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^-[‡#]	Log *ft*	Comments
(5633[@] *13*)	2662.95	≤0.2	≥7.4	av Eβ=2489.1 *62*
(5808 *13*)	2488.21	3.2 *5*	6.30 *7*	av Eβ=2572.0 *62*

† From 1987Sp09.
‡ From intensity balances at each level.
# Absolute intensity per 100 decays.
@ Existence of this branch is questionable.

$\gamma(^{126}Sn)$

Iγ normalization: no β^- decay to 5^- (2161.51). Σ(I(γ+ce) to 2161.51 level =100.

E$_\gamma$[†]	I$_\gamma$[@]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[‡]	α[&]	Comments
57.47 *5*	5.5 *9*	2218.96	7^-	2161.51	5^-	E2	11.53 *17*	α(K)=6.23 *9*; α(L)=4.27 *7*; α(M)=0.880 *13* α(N)=0.1533 *23*; α(O)=0.00472 *7* B(E2)(W.u.)=0.29 *7* α(L)exp=5.0 *20*.
111.79 *5*	88 *8*	2161.51	5^-	2049.71	4^+	E1	0.1323 *19*	α(K)=0.1145 *17*; α(L)=0.01440 *21*; α(M)=0.00280 *4* α(N)=0.000518 *8* B(E1)(W.u.)=1.57×10^{-5} *23* α(K)exp=0.10 *2*.
170.80 *20*	0.20 *4*	3454.85		3283.80	(9^-)			
[x]175.30[#] *25*	0.16 *4*							
[x]212.32[#] *10*	0.61 *7*							
[x]251.75[#] *20*	0.22 *5*							
258.53 *5*	9.2 *7*	2477.48	6^-	2218.96	7^-	M1(+E2)	0.050 *8*	α(K)=0.042 *6*; α(L)=0.0062 *17*; α(M)=0.00122 *34* α(K)exp=0.032 *10*.
[x]266.08[#] *15*	0.31 *6*							
269.26 *5*	6.3 *5*	2488.21	(8^+)	2218.96	7^-			
315.93 *5*	11.6 *10*	2477.48	6^-	2161.51	5^-	M1(+E2)	0.027 *3*	α(K)=0.0235 *18*; α(L)=0.0033 *6*; α(M)=0.00064 *12* α(N)=0.000119 *21* α(K)exp=0.018 *6*.
[x]323.9[#] *4*	0.25 *10*							
362.73 *5*	2.5 *2*	2840.21		2477.48	6^-			
387.52 *15*	1.2 *1*	3454.85		3067.26				
[x]402.80[#] *20*	0.50 *10*							
[x]417.90[#] *10*	0.66 *10*							
[x]433.31[#] *20*	0.51 *10*							
443.94 *5*	2.0 *2*	2662.95		2218.96	7^-			
[x]477.98[#] *25*	0.37 *10*							
501.43 *5*	6.3 *5*	2662.95		2161.51	5^-			
[x]515.79[#] *20*	1.0 *2*							
[x]525.46[#] *15*	0.64 *10*							

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^{126}In β^- decay (1.64 s) 1979Fo10 (continued)

$\gamma(^{126}Sn)$ (continued)

E_γ [†]	I_γ [@]	E_i(level)	J_i^π	E_f	J_f^π	Comments
571.74 *5*	3.0 *2*	3855.52	$(7^-,8^-)$	3283.80	(9^-)	
[x]595.84[#] *15*	0.61 *10*					
[x]708.03[#] *25*	0.70 *20*					
[x]717.7[#] *4*	0.64 *20*					
[x]776.85[#] *15*	1.1 *2*					
788.30 *5*	8.2 *6*	3855.52	$(7^-,8^-)$	3067.26		
848.42 *25*	0.83 *10*	3067.26		2218.96	7^-	
905.78 *5*	11.4 *10*	3067.26		2161.51	5^-	
908.58 *5*	99 *7*	2049.71	4^+	1141.12	2^+	
[x]945.18[#] *20*	1.0 *2*					
[x]957.9[#] *4*	0.55 *20*					
962.66 *10*	2.0 *3*	3625.77		2662.95		
977.42 *15*	2.7 *3*	3454.85		2477.48	6^-	
1020.41 *10*	0.58 *15*	2161.51	5^-	1141.12	2^+	
1064.85 *5*	4.7 *3*	3283.80	(9^-)	2218.96	7^-	
1141.11 *5*	100 *7*	1141.12	2^+	0.0	0^+	
1192.53 *5*	4.4 *3*	3855.52	$(7^-,8^-)$	2662.95		
[x]1224.20[#] *20*	0.89 *20*					
1235.95 *10*	2.5 *2*	3454.85		2218.96	7^-	
[x]1280.06[#] *15*	1.2 *2*					
1314.46 *15*	1.7 *2*	3977.37		2662.95		
1367.35 *10*	2.8 *2*	3855.52	$(7^-,8^-)$	2488.21	(8^+)	
1377.99 *5*	23.2 *20*	3855.52	$(7^-,8^-)$	2477.48	6^-	
1406.95 *10*	3.5 *3*	3625.77		2218.96	7^-	
1495.4 *3*	1.9 *6*	4779.14	$(7^-,8^-,9^-)$	3283.80	(9^-)	I_γ: This γ line is doublet. Iγ from $\gamma\gamma$-coin. (1979Fo10).
[x]1507.2[#] *3*	0.74 *20*					
1564.41 *10*	2.3 *2*	3783.38		2218.96	7^-	
1590.21 *15*	1.6 *2*	3809.18		2218.96	7^-	
1611.75 *10*	5.6 *4*	3830.72		2218.96	7^-	
1636.50 *10*	29.6 *20*	3855.52	$(7^-,8^-)$	2218.96	7^-	
1731.3 *5*	1.7 *2*	3950.3		2218.96	7^-	
1758.30 *20*	4.9 *4*	3977.37		2218.96	7^-	
[x]2035.17[#] *25*	2.2 *2*					
[x]2123.33[#] *25*	2.6 *2*					
2560.10 *25*	3.8 *3*	4779.14	$(7^-,8^-,9^-)$	2218.96	7^-	
2828.6 *3*	4.9 *3*	4990.1	(7^-)	2161.51	5^-	

[†] From 1979Fo10.
[‡] From α(K)exp in 1979Fo10.
[#] Uncertain isomeric origin.
[@] 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.
[x] γ ray not placed in level scheme.

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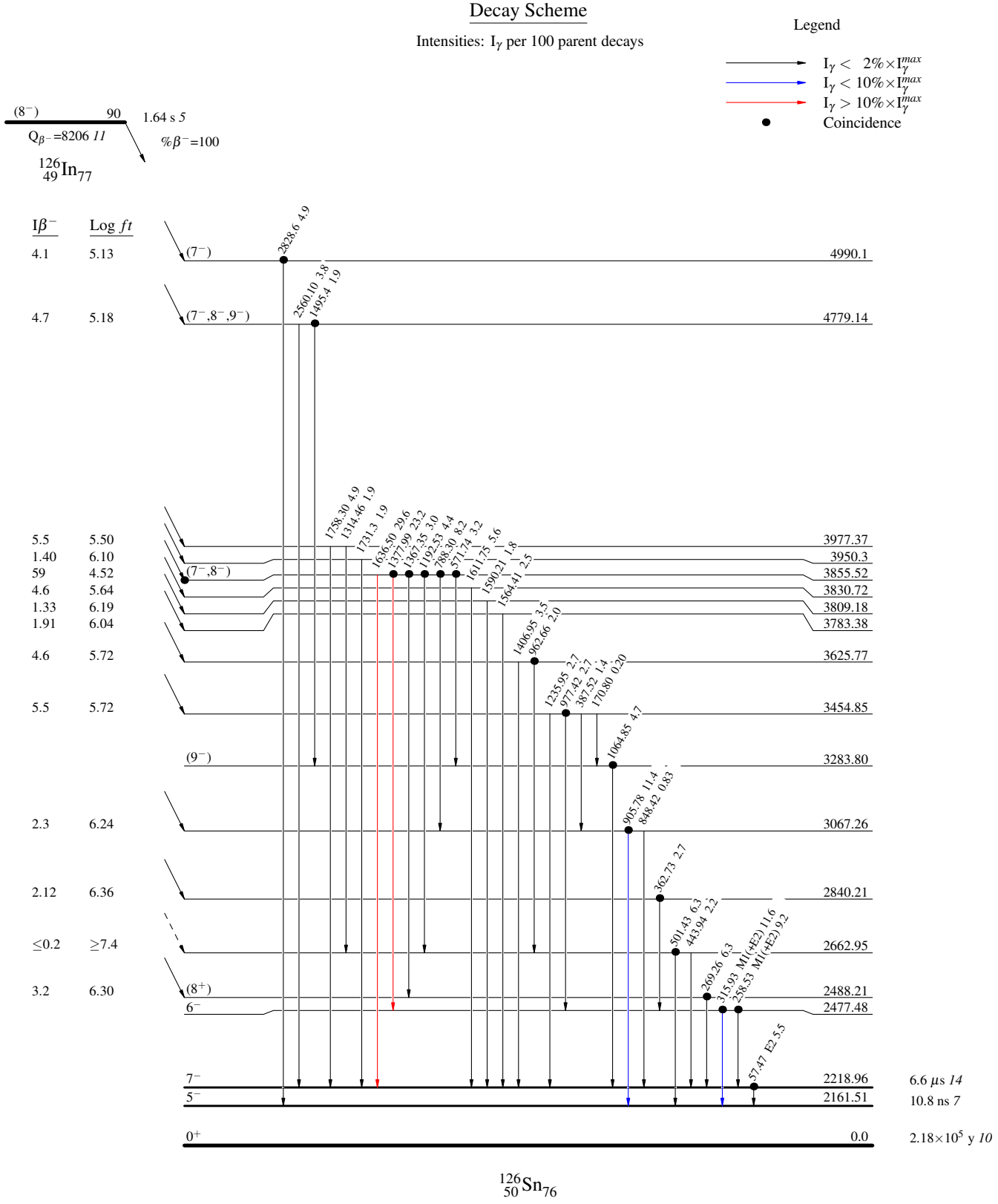
Decay Scheme

Intensities: I_γ per 100 parent decays



$^{126}_{50}Sn_{76}$

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Decay Scheme (continued)

Intensities: I_γ per 100 parent decays