^{122}In β^- decay (1.5 s) 1979Fo10

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	T. Tamura	NDS 108, 455 (2007)	30-Sep-2006

Parent: ^{122}In: E=0.0; $J^\pi=1^+$; $T_{1/2}$=1.5 s *3*; Q(β^-)=6370 *50*; %β^- decay=100.0
^{235}U(n,F) E=th, on-line mass separation, chem; semi γ, ce; $\gamma\gamma$-coin.
Other: $\beta\gamma$-coin (1978Al18).
Decay scheme is that proposed by 1979Fo10.

^{122}Sn Levels

E(level)†	J^π‡	Comments
0.0	0^+	
1140.31 *5*	2^+	
2088.04 *21*	0^+	
2153.48 *11*	2^+	
2415.45 *14*	2^+	
2492.47 *16*	3^-	
2530.02 *12*	$(0)^+$	
2734.6 *3*	2^+	
2775.34 *15*	2^+	
2970.9? *4*		E(level): Existence of this level is questioned in (n,n′γ) by 1991De38.
3205.95 *16*	$(0)^+$	
3548.57 *16*	2^+	
3582.9 *4*	2^+	
3819.8 *3*	2^+	
3899.48 *16*	$0^+,1^+,2^+$	
4004.1 *7*	(2^+)	
4106.5 *4*	$1,2^+$	
4116.1 *4*	$0^+,1^+,2^+$	
4179.4 *4*	0,1,2	

† E(levels) are based on a least-squares fit to Eγ′s of 1979Fo10 (evaluator).
‡ From Adopted Levels.

β^- radiations

E(decay)	E(level)	Iβ^-†	Log *ft*	Comments
(2.19×10^3 *5*)	4179.4	0.12 *7*	5.9 *3*	av Eβ=871 *23*
(2.25×10^3 *5*)	4116.1	0.84 *17*	5.08 *13*	av Eβ=900 *23*
(2.26×10^3 *5*)	4106.5	0.28 *6*	5.57 *14*	av Eβ=904 *23*
(2.37×10^3 *5*)	4004.1	0.12 *4*	6.01 *18*	av Eβ=951 *23*
2.55×10^3 *40*	3899.48	3.1 *6*	4.68 *13*	av Eβ=999 *23* E(decay): from (β)(2759γ) (1978Al18).
(2.55×10^3 *5*)	3819.8	0.26 *6*	5.81 *14*	av Eβ=1036 *24*
(2.79×10^3 *5*)	3582.9	0.12 *7*	6.3 *3*	av Eβ=1146 *24*
(2.82×10^3 *5*)	3548.57	0.43 *10*	5.78 *14*	av Eβ=1162 *24*
3.57×10^3 *60*	3205.95	2.0 *4*	5.32 *13*	av Eβ=1322 *24* E(decay): from (β)(2065γ) (1978Al18).
(3.59×10^3 *5*)	2775.34	0.75 *15*	5.98 *13*	av Eβ=1524 *24*
(3.64×10^3 *5*)	2734.6	0.26 *6*	6.46 *14*	av Eβ=1544 *24*
(3.84×10^3 *5*)	2530.02	1.83 *4*	5.72 *9*	av Eβ=1640 *24*
(3.88×10^3‡ *5*)	2492.47	0.44 *10*	7.94^{1u} *14*	av Eβ=1642 *24* E(decay): log $f^{1u}t$=7.94 *14* for 3^- level is too low for the 1u β-transition, the 3^-

Continued on next page (footnotes at end of table)

^{122}In β^- decay (1.5 s) 1979Fo10 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^-[†]	Log *ft*	Comments
				level is possibly Be fed by either undetected or unassigned γ's from unobserved high-lying levels because Qβ^-=6370 keV.
(3.95×10^3 *5*)	2415.45	0.81 *16*	6.13 *13*	av Eβ=1694 *24*
(4.22×10^3 *5*)	2153.48	2.8 *8*	5.71 *16*	av Eβ=1818 *24*
(4.28×10^3 *5*)	2088.04	0.49 *13*	6.49 *15*	av Eβ=1849 *24*
5.34×10^3 *36*	1140.31	16 *4*	5.36 *14*	av Eβ=2298 *24*
				E(decay): from (β)(1140γ) (1978Al18).
(6.37×10^3 *5*)	0.0	69 *6*	5.11 *10*	av Eβ=2839 *24*

[†] Absolute intensity per 100 decays.
[‡] Existence of this branch is questionable.

γ(^{122}Sn)

Iγ normalization: From measured absolute intensity of 1141γ (1973Sc19).

E$_\gamma$[†]	I$_\gamma$[†#]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[‡]	δ[‡]	Comments
[x]400.27 *25*	0.90 *10*							
947.72 *20*	1.7 *3*	2088.04	0$^+$	1140.31	2$^+$			
1013.12 *10*	9.2 *20*	2153.48	2$^+$	1140.31	2$^+$	M1+E2	+3.8 *4*	
1140.28 *5*	100 *10*	1140.31	2$^+$	0.0	0$^+$	E2		
1274.9 *3*	0.90 *10*	2415.45	2$^+$	1140.31	2$^+$	M1+E2	−0.34 *4*	
1352.15 *15*	1.5 *2*	2492.47	3$^-$	1140.31	2$^+$	E1(+M2)	−0.03 *2*	
1389.70 *10*	6.2 *5*	2530.02	(0)$^+$	1140.31	2$^+$			
1634.96 *15*	1.8 *2*	2775.34	2$^+$	1140.31	2$^+$	M1+E2	+0.14 *2*	
1830.6[@] *4*	0.70 *10*	2970.9?		1140.31	2$^+$			E$_\gamma$: Not observed in (n,n$'\gamma$) by 1991De38.
2065.62 *15*	6.8 *6*	3205.95	(0)$^+$	1140.31	2$^+$			
2153.74 *25*	0.35 *10*	2153.48	2$^+$	0.0	0$^+$	E2		
[x]2165.5 *3*	0.85 *10*							
2408.23 *15*	1.5 *2*	3548.57	2$^+$	1140.31	2$^+$			
2415.48 *15*	1.9 *2*	2415.45	2$^+$	0.0	0$^+$	E2		
2734.6 *3*	0.90 *10*	2734.6	2$^+$	0.0	0$^+$			
2759.13 *15*	10.6 *10*	3899.48	0$^+$,1$^+$,2$^+$	1140.31	2$^+$			
2775.7 *4*	0.80 *10*	2775.34	2$^+$	0.0	0$^+$	E2		
2966.0 *4*	0.45 *6*	4106.5	1,2$^+$	1140.31	2$^+$			
2975.7 *4*	2.9 *3*	4116.1	0$^+$,1$^+$,2$^+$	1140.31	2$^+$			
3039.0 *4*	0.40 *20*	4179.4	0,1,2	1140.31	2$^+$			
3582.8 *4*	0.40 *20*	3582.9	2$^+$	0.0	0$^+$	E2		
3819.7 *3*	0.90 *10*	3819.8	2$^+$	0.0	0$^+$	E2		
4004.0 *7*	0.40 *10*	4004.1	(2$^+$)	0.0	0$^+$	Q		
4106.7 *5*	0.50 *10*	4106.5	1,2$^+$	0.0	0$^+$			

[†] From 1979Fo10.
[‡] From adopted gammas.
[#] For absolute intensity per 100 decays, multiply by 0.29 *4*.
[@] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

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Decay Scheme

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

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

1^+ 0.0 1.5 s *3*

Q_{β^-}=6370 *50* $\%\beta^-$=100.0

$^{122}_{49}In_{73}$

Iβ⁻	Log *ft*		
0.12	5.9	0,1,2	4179.4
0.84	5.08	$0^+,1^+,2^+$	4116.1
0.28	5.57	$1,2^+$	4106.5
0.12	6.01	(2^+)	4004.1
3.1	4.68	$0^+,1^+,2^+$	3899.48
0.26	5.81	2^+	3819.8
0.12	6.3	2^+	3582.9
0.43	5.78	2^+	3548.57
2.0	5.32	$(0)^+$	3205.95
			2970.9
0.75	5.98	2^+	2775.34
0.26	6.46	2^+	2734.6
1.83	5.72	$(0)^+$	2530.02
0.44	7.94 1u	3^-	2492.47
0.81	6.13	2^+	2415.45
2.8	5.71	2^+	2153.48
0.49	6.49	0^+	2088.04
16	5.36	2^+	1140.31
69	5.11	0^+	0.0

3039.0 0.12; 2975.7 0.84; 4106.7 0.14; 2966.0 0.13; 4004.0 Q 0.12; 2759.13 3.1; 3819.7 E2 0.26; 3582.8 E2 0.12; 2408.23 0.46; 2065.62 2.0; 1830.6 0.20; 2775.7 E2 0.23; 1634.96 M1+E2 0.55; 2734.6 0.26; 1389.70 1.8; 1352.15 E1(+M2) 0.46; 2415.48 E2 0.58; 1274.9 M1+E2 0.26; 2153.74 E2 0.10; 1013.12 M1+E2 2.7; 947.72 0.49; 1140.28 E2 29

$^{122}_{50}Sn_{72}$