

^{118}In β^- decay (4.45 min) 1988Ra09

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	K. Kitao	NDS 75,99 (1995)	1-Feb-1993

Parent: ^{118}In : E=0.0+x; $J^\pi=5^+$; $T_{1/2}=4.45$ min 5; $Q(\beta^-)=4423$ 8; $\% \beta^-$ decay=100.0

The decay scheme is that proposed by 1988Ra09.

Source produced by (n,p) on enriched isotope, Ge(Li), $\gamma\gamma$ coin.

1988Ra09 looked for the 528.2 γ from 1758.37 0+ level to the 1229.65 2+ level, $I_\gamma<0.21$.

Others: 1970Ha08, 1968Sc24, 1967Go35, 1964Ka10, 1960Yu01.

 ^{118}Sn Levels

E(level) [†]	J^π [‡]	E(level) [†]	J^π [‡]	E(level) [†]	J^π [‡]	E(level) [†]	J^π [‡]
0.0	0 ⁺	2403.13 3	2 ⁺	2999.27 10	6 ⁺	3753.78 6	4,5,6
1229.620 25	2 ⁺	2488.80 3	4 ⁺	3159.28 15	4 ⁺	3816.55 13	1 ⁺ ,2 ⁺ ,3 ⁺
2042.81 3	2 ⁺	2677.25 16	2 ⁺	3374.53 5	4 ⁺	3838.83 15	4
2280.28 3	4 ⁺	2733.70 3	4 ⁺	3460.42 5	4 ⁺		
2324.74 4	3 ⁻	2878.62 20	(5 ⁻)	3592.48 5	4 ⁺		
2327.94 4	2 ⁺	2963.35 3	4 ⁺	3704.78 8	4 ⁺		

[†] From a least-squares fit to E(γ 's).

[‡] From Adopted Levels.

 β^- radiations

E(decay)	E(level)	$I\beta^-$ [†]	Log ft	Comments
(584 8)	3838.83	0.083 7	6.13 5	av $E\beta=185$ 3
(606 8)	3816.55	0.092 7	6.14 4	av $E\beta=193$ 3
(669 8)	3753.78	0.302 15	5.77 3	av $E\beta=216$ 3
(718 8)	3704.78	0.294 16	5.89 3	av $E\beta=235$ 3
(831 8)	3592.48	0.63 4	5.79 4	av $E\beta=279$ 4
(963 8)	3460.42	0.90 8	5.87 5	av $E\beta=332$ 4
(1048 8)	3374.53	1.51 8	5.78 3	av $E\beta=368$ 4
(1264 8)	3159.28	0.104 18	7.25 8	av $E\beta=458$ 4
(1424 8)	2999.27	0.198 24	7.17 6	av $E\beta=527$ 4
(1460 8)	2963.35	62 3	4.712 24	av $E\beta=543$ 4
				E(decay): E(β)=1300 100 from $\beta\gamma(683\gamma)$ coin (1964Ka10).
(1544 8)	2878.62	0.066 11	7.78 8	av $E\beta=580$ 4
(1689 8)	2733.70	0.67 7	6.90 4	av $E\beta=644$ 4
(1934 8)	2488.80	8.5 4	6.058 23	av $E\beta=754$ 4
(2143 8)	2280.28	22 3	5.83 6	av $E\beta=849$ 4
				E(decay): E(β)=2000 100 (1964Ka10).

[†] Absolute intensity per 100 decays.

 $\gamma(^{118}\text{Sn})$

I_γ normalization: From $\Sigma (I_\gamma + \text{ce to g.s.})=100$.

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^{118}In β^- decay (4.45 min) 1988Ra09 (continued) $\gamma(^{118}\text{Sn})$ (continued)

E_γ [†]	I_γ ^{†‡}	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	δ	$\alpha^\#$	Comments
^x 186.24 23 208.52 1	0.045 11 2.71 8	2488.80	4 ⁺	2280.28	4 ⁺	M1+E2	-0.17 4	0.0762 7	$\alpha(K)=0.0659$ 5; $\alpha(L)=0.0084$ 1; $\alpha(M)=0.00163$ 3; $\alpha(N+..)=0.00037$ 1 Mult., δ : from Adopted Levels, gammas.
229.65 1	0.783 24	2963.35	4 ⁺	2733.70	4 ⁺	[M1,E2]		0.072 15	$\alpha(K)=0.061$ 11; $\alpha(L)=0.009$ 3; $\alpha(M)=0.0018$ 6; $\alpha(N+..)=0.00040$ 13
237.6 5	0.04 2	2280.28	4 ⁺	2042.81	2 ⁺	[E2]		0.0774	$\alpha(K)=0.0641$; $\alpha(L)=0.0107$; $\alpha(M)=0.00212$; $\alpha(N+..)=0.00046$
285.22 11	0.081 10	2327.94	2 ⁺	2042.81	2 ⁺	[M1,E2]		0.037 5	$\alpha(K)=0.032$ 4; $\alpha(L)=0.0045$ 10; $\alpha(M)=0.00089$ 20; $\alpha(N+..)=0.00020$ 4
411.44 18	0.037 7	3374.53	4 ⁺	2963.35	4 ⁺	[M1,E2]		0.0130 1	$\alpha(K)=0.0112$; $\alpha(L)=0.00147$ 10; $\alpha(M)=0.00029$ 2
445.98 2	5.76 17	2488.80	4 ⁺	2042.81	2 ⁺	E2		0.0103	$\alpha(K)=0.0088$; $\alpha(L)=0.00121$; $\alpha(M)=0.00024$ Mult.: from Adopted Levels, gammas.
^x 472.21 12 474.57 2 510.5 1 560.21 2	0.207 23 3.00 10 0.13 2 0.99 4	2963.35 2999.27 2963.35	4 ⁺ 6 ⁺ 4 ⁺	2488.80 2488.80 2403.13	4 ⁺ 4 ⁺ 2 ⁺				E_γ, I_γ : from adopted gammas.
^x 568.94 13 ^x 576.18 5	0.072 10 0.205 11								
598.34 19 635.40 2 638.61 2	0.069 11 1.77 6 1.37 4	2878.62 2963.35 2963.35	(5 ⁻) 4 ⁺ 4 ⁺	2280.28 2327.94 2324.74	4 ⁺ 2 ⁺ 3 ⁻				
^x 642.56 20 ^x 675.0 3	0.060 12 0.12 4								
683.06 2 718.90 19 756.4 4	56.6 17 0.076 13 0.037 15	2963.35 2999.27 3159.28	4 ⁺ 6 ⁺ 4 ⁺	2280.28 2280.28 2403.13	4 ⁺ 4 ⁺ 2 ⁺				
813.20 2 858.84 19 885.66 8	3.88 12 0.117 20 0.264 20	2042.81 3592.48 3374.53	2 ⁺ 4 ⁺ 4 ⁺	1229.620 2733.70 2488.80	2 ⁺ 4 ⁺ 4 ⁺				
^x 908.65 18 920.57 4 971.44 @ 4 971.44 @ 4	0.088 14 0.506 21 0.35 @ 6 0.32 @ 7	2963.35 3374.53 3460.42	4 ⁺ 4 ⁺ 4 ⁺ 4 ⁺	2042.81 2403.13 2488.80	2 ⁺ 2 ⁺ 4 ⁺				
1050.65 3 1094.3 5 1095.0 10 1098.2 5	84.4 26 0.805 20 1.5 5 1.6 3	2280.28 3374.53 2324.74 2327.94	4 ⁺ 4 ⁺ 3 ⁻ 2 ⁺	1229.620 2280.28 1229.620 1229.620	2 ⁺ 4 ⁺ 2 ⁺ 2 ⁺				
^x 1102.54 22 1116.42 16 1132.49 11 1173.52 3 1180.18 7	0.068 12 0.071 9 0.099 9 1.43 5 0.163 10	3159.28 3460.42 2403.13 3460.42	4 ⁺ 4 ⁺ 2 ⁺ 2 ⁺ 4 ⁺	2042.81 2327.94 1229.620 2280.28	2 ⁺ 2 ⁺ 2 ⁺ 4 ⁺				
1229.64 3 1259.18 3 1264.96 8	100 3 3.99 12 0.138 9	1229.620 2488.80 3753.78	2 ⁺ 4 ⁺ 4,5,6	0.0 1229.620 2488.80	0 ⁺ 2 ⁺ 4 ⁺				
^x 1271.26 14 1301.62 16	0.073 8 0.056 6	3704.78	4 ⁺	2403.13	2 ⁺				

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^{118}In β^- decay (4.45 min) [1988Ra09](#) (continued) $\gamma(^{118}\text{Sn})$ (continued)

$E_\gamma^\dagger$	$I_\gamma^{\dagger\ddagger}$	$E_i(\text{level})$	J_i^π	E_f	J_f^π
1312.22 6	0.187 9	3592.48	4 ⁺	2280.28	4 ⁺
^x 1368.3 3	0.024 5				
1377.09 20	0.038 5	3704.78	4 ⁺	2327.94	2 ⁺
1418.0 3	0.027 5	3460.42	4 ⁺	2042.81	2 ⁺
1424.7 4	0.021 5	3704.78	4 ⁺	2280.28	4 ⁺
^x 1430.4 4	0.019 5				
1447.55 18	0.047 5	2677.25	2 ⁺	1229.620	2 ⁺
1473.50 7	0.177 8	3753.78	4,5,6	2280.28	4 ⁺
1504.10 4	1.65 5	2733.70	4 ⁺	1229.620	2 ⁺
^x 1531.96 9	0.133 8				
1549.63 6	0.281 12	3592.48	4 ⁺	2042.81	2 ⁺
1661.93 21	0.041 6	3704.78	4 ⁺	2042.81	2 ⁺
2042.77 5	3.63 8	2042.81	2 ⁺	0.0	0 ⁺
^x 2107.6 5	0.016 5				
2144.64 9	0.121 5	3374.53	4 ⁺	1229.620	2 ⁺
2230.76 7	0.333 11	3460.42	4 ⁺	1229.620	2 ⁺
2327.82 8	0.374 12	2327.94	2 ⁺	0.0	0 ⁺
2362.78 12	0.068 4	3592.48	4 ⁺	1229.620	2 ⁺
2475.06 10	0.150 7	3704.78	4 ⁺	1229.620	2 ⁺
2586.90 12	0.096 6	3816.55	1 ⁺ ,2 ⁺ ,3 ⁺	1229.620	2 ⁺
2609.18 14	0.086 6	3838.83	4	1229.620	2 ⁺
2677.4 3	0.039 5	2677.25	2 ⁺	0.0	0 ⁺
^x 2903.9 3	0.028 9				
^x 3104.5 6	0.016 8				
^x 3669.7 20	0.004 2				

[†] From [1988Ra09](#).[‡] For absolute intensity per 100 decays, multiply by 0.96 3.# 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.

@ Multiply placed with intensity suitably divided.

^x γ ray not placed in level scheme.

¹¹⁸In β⁻ decay (4.45 min) 1988Ra09

Decay Scheme

Intensities: I_{γ+ce} per 100 parent decays
@ Multiplied placed: intensity suitably divided

Legend
 $I_{\gamma} < 2\% \times I_{\gamma}^{\max}$
 $I_{\gamma} < 10\% \times I_{\gamma}^{\max}$
 $I_{\gamma} > 10\% \times I_{\gamma}^{\max}$
 ● Coincidence

5+ 0.0+x 4.45 min 5
 Q_β = 4423.8
¹¹⁸In₆₉ 49 β⁻ = 100

