

^{125}Cd β^- decay (0.48 s) 1989Hu03,1986Ho24

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	J. Katakura	NDS 112, 495 (2011)	1-Jan-2010

Parent: ^{125}Cd : E=x; $J^\pi=(11/2^-)$; $T_{1/2}=0.48$ s 3; $Q(\beta^-)=7.12\times 10^3$ 6; $\% \beta^-$ decay=100.0

Sources: U(n,F), E=fast, on-line mass (1989Hu03) ^{235}U (n,F), E=th; on-line mass (1986Ho24).

Measured: γ -singles, $\gamma\gamma$ -coin (1989Hu03,1986Ho24); $T_{1/2}$ (1989Hu03).

The decay scheme is that proposed by 1989Hu03. 1986Ho24 report decay of $(3/2^+)$ state alone, with half-life 0.75 s.

 ^{125}In Levels

E(level) [†]	J^π [‡]	$T_{1/2}$ [‡]	Comments
0.0	9/2 ⁺	2.36 s 4	$\% \beta^- = 100$
1027.40 4	(11/2 ⁺)		
1173.064 24	(13/2 ⁺)		
1563.88 6	(9/2,11/2,13/2 ⁺)		
1577.60 5			
1909.70 4	(13/2 ⁺)		
1958.08 6			
1970.90 7			
2064.60 5	(9/2,11/2,13/2)		
2101.40 8	(9/2,11/2,13/2)		
2217.83 5	(9/2,11/2,13/2)		
2248.50 18	(9/2,11/2,13/2)		
2252.65 11	(9/2,11/2,13/2 ⁺)		
2378.16 4	(9/2,11/2,13/2)		
2392.594 25	(9/2 ⁻ ,11/2 ⁻)		
2411.48 9	(9/2,11/2,13/2)		
2572.76 6	(9/2,11/2,13/2)		
2616.37 3	(9/2 ⁻ ,11/2 ⁻)		
2631.58 9	(9/2,11/2,13/2)		
2640.29 3	(9/2 ⁻ ,11/2 ⁻ ,13/2 ⁻)		
2641.67 5	(9/2 ⁻ ,11/2 ⁻)		
2802.12 15	(9/2 ⁻ ,11/2 ⁻)		
2818.80 9	(9/2,11/2,13/2)		
2863.31 20	(9/2,11/2,13/2 ⁺)		

[†] From a least-squares fit to $E\gamma$'s by evaluators.

[‡] From Adopted Levels.

 β^- radiations

Log ft values are calculated assuming X of parent energy value to be 350 keV.

E(decay)	E(level)	$I\beta^-$ [†]	Log ft	Comments
(4.26×10^3) 6	2863.31	1.58 22	5.61 9	av $E\beta=2005$ 56
(4.30×10^3) 6	2818.80	1.44 18	5.67 8	av $E\beta=2027$ 56
(4.32×10^3) 6	2802.12	6.9 6	5.00 7	av $E\beta=2035$ 56
(4.48×10^3) 6	2641.67	22.7 12	4.55 6	av $E\beta=2111$ 56
(4.48×10^3) 6	2640.29	9.6 6	4.92 6	av $E\beta=2111$ 56
				E(decay): 4580 130 from $\beta\gamma$ -coin (1987Sp09).
(4.49×10^3) 6	2631.58	1.31 15	5.79 8	av $E\beta=2115$ 56
(4.50×10^3) 6	2616.37	8.5 6	4.98 7	av $E\beta=2123$ 56

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¹²⁵Cd β⁻ decay (0.48 s) **1989Hu03,1986Ho24** (continued)

β⁻ radiations (continued)

E(decay)	E(level)	Iβ ^{-†}	Log ft	Comments
(4.55×10 ³ e)	2572.76	2.11 22	5.60 7	av Eβ=2143 56
(4.71×10 ³ e)	2411.48	1.52 19	5.81 8	av Eβ=2220 56
(4.73×10 ³ e)	2392.594	9.9 11	5.00 8	av Eβ=2229 56
(4.74×10 ³ e)	2378.16	1.8 4	5.75 11	av Eβ=2236 56
(4.87×10 ³ e)	2252.65	1.57 23	5.85 9	av Eβ=2295 56
(4.87×10 ³ e)	2248.50	2.1 6	5.73 14	av Eβ=2297 56
(4.90×10 ³ e)	2217.83	3.6 4	5.51 7	av Eβ=2312 56
(5.02×10 ³ e)	2101.40	3.6 4	5.55 7	av Eβ=2367 56
				E(decay): 5010 110 from β-γ coin (1987Sp09).
(5.05×10 ³ e)	2064.60	2.3 4	5.76 9	av Eβ=2385 56
(5.16×10 ³ e)	1958.08	0.25 24	6.8 5	av Eβ=2435 56
(5.21×10 ³ e)	1909.70	7.6 10	5.29 8	av Eβ=2458 56
(5.54×10 ³ e)	1577.60	0.4 3	6.7 4	av Eβ=2616 56
(5.56×10 ³ e)	1563.88	1.91 17	6.01 6	av Eβ=2623 56
(6.09×10 ³ e)	1027.40	4.9 18	5.77 17	av Eβ=2877 56
(7.12×10 ³ e)	0.0	<7.0	>5.9	av Eβ=3365 56
				Iβ ⁻ : Assuming log ft>5.9 from (11/2 ⁻) parent.

† Absolute intensity per 100 decays.

γ(¹²⁵In)

I_γ normalization: Σ(I(γ+ce) to g.s.)=96.5 35, assuming Iβ⁻<7% to g.s. for expected log ft>5.9.

E _γ [†]	I _γ ^{†@}	E _i (level)	J _i ^π	E _f	J _f ^π
^x 132.83 [‡] 10	0.29 8				
146.38 20	2.4 4	1173.064	(13/2 ⁺)	1027.40	(11/2 ⁺)
153.78 20	0.25 11	2217.83	(9/2,11/2,13/2)	2064.60	(9/2,11/2,13/2)
160.03 [‡] 15	0.36 7	2378.16	(9/2,11/2,13/2)	2217.83	(9/2,11/2,13/2)
^x 164.28 [‡] 25	0.18 6				
191.88 15	2.1 4	2101.40	(9/2,11/2,13/2)	1909.70	(13/2 ⁺)
238.97 15	0.64 14	2616.37	(9/2 ⁻ ,11/2 ⁻)	2378.16	(9/2,11/2,13/2)
247.53 3	2.9 3	2640.29	(9/2 ⁻ ,11/2 ⁻ ,13/2 ⁻)	2392.594	(9/2 ⁻ ,11/2 ⁻)
262.15 3	2.04 22	2640.29	(9/2 ⁻ ,11/2 ⁻ ,13/2 ⁻)	2378.16	(9/2,11/2,13/2)
^x 276.9 [‡] 3	0.25 7				
281.55 [‡] 15	0.81 11	2252.65	(9/2,11/2,13/2 ⁺)	1970.90	
^x 286.83 [‡] 20	0.43 12				
313.47 20	0.69 14	2378.16	(9/2,11/2,13/2)	2064.60	(9/2,11/2,13/2)
^x 341.34 8	0.80 9				
^x 345.86 8	0.60 8				
^x 391.30 [‡] 15	0.32 7				
407.46 8	0.70 9	2378.16	(9/2,11/2,13/2)	1970.90	
^x 445.32 [‡] 20	0.38 10				
^x 453.70 [‡] 15	0.35 7				
^x 482.80 8	0.78 9				
^x 524.28 [‡] 15	0.37 7				
^x 529.66 [‡] 20	0.74 10				
536.48 8	0.91 10	1563.88	(9/2,11/2,13/2 ⁺)	1027.40	(11/2 ⁺)

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$^{125}\text{Cd} \beta^-$ decay (0.48 s) **1989Hu03,1986Ho24** (continued) $\gamma(^{125}\text{In})$ (continued)

E_γ †	I_γ †@	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
$^{x543.10}_{\ddagger} 8$	0.78 9					
549.3 3	0.37 16	2802.12	(9/2 ⁻ ,11/2 ⁻)	2252.65	(9/2,11/2,13/2 ⁺)	
$^{x555.10}_{\ddagger} 10$	0.23 12					
$^{x570.52}_{\ddagger} 15$	0.52 9					
577.36 15	0.55 9	2641.67	(9/2 ⁻ ,11/2 ⁻)	2064.60	(9/2,11/2,13/2)	
$^{x606.52}_{\ddagger} 10$	0.74 11					
$^{x626.81}_{\ddagger} 25$	0.33 8					
$^{x646.11}_{\ddagger} 15$	0.89 12					
683.64 4	2.07 17	2641.67	(9/2 ⁻ ,11/2 ⁻)	1958.08		
$^{x707.0} 4$	0.26 8					
$^{x716.00}_{\ddagger} 15$	0.94 18					
721.88 8	1.36 14	2631.58	(9/2,11/2,13/2)	1909.70	(13/2 ⁺)	
730.73 8	1.78 19	2640.29	(9/2 ⁻ ,11/2 ⁻ ,13/2 ⁻)	1909.70	(13/2 ⁺)	
736.65 3	13.9 8	1909.70	(13/2 ⁺)	1173.064	(13/2 ⁺)	
$^{x753.76} 25$	0.27 11					
909.10 8	1.50 17	2818.80	(9/2,11/2,13/2)	1909.70	(13/2 ⁺)	
928.40 10	1.18 18	2101.40	(9/2,11/2,13/2)	1173.064	(13/2 ⁺)	
1027.53 8	28.4 17	1027.40	(11/2 ⁺)	0.0	9/2 ⁺	
1044.72 4	3.9 3	2217.83	(9/2,11/2,13/2)	1173.064	(13/2 ⁺)	
1064.26 8	2.19 24	2641.67	(9/2 ⁻ ,11/2 ⁻)	1577.60		
1075.44 25	0.97 17	2248.50	(9/2,11/2,13/2)	1173.064	(13/2 ⁺)	
$^{x1106.5}_{\ddagger} 5$	0.4 3					
$^{x1113.2}_{\ddagger} 5$	0.7 5					
1173.16 3	27.6 17	1173.064	(13/2 ⁺)	0.0	9/2 ⁺	
$^{1205.19}_{\ddagger} 10$	1.05 16	2378.16	(9/2,11/2,13/2)	1173.064	(13/2 ⁺)	
1219.08 15	1.8 4	2392.594	(9/2 ⁻ ,11/2 ⁻)	1173.064	(13/2 ⁺)	
1221.09 25	1.2 5	2248.50	(9/2,11/2,13/2)	1027.40	(11/2 ⁺)	
1238.41 8	1.58 18	2411.48	(9/2,11/2,13/2)	1173.064	(13/2 ⁺)	
1351.08 10	1.80 20	2378.16	(9/2,11/2,13/2)	1027.40	(11/2 ⁺)	
1364.64 20	1.10 20	2392.594	(9/2 ⁻ ,11/2 ⁻)	1027.40	(11/2 ⁺)	
1399.69 5	2.20 21	2572.76	(9/2,11/2,13/2)	1173.064	(13/2 ⁺)	
1467.35 3	3.32 23	2640.29	(9/2 ⁻ ,11/2 ⁻ ,13/2 ⁻)	1173.064	(13/2 ⁺)	
1563.86 8	1.08 11	1563.88	(9/2,11/2,13/2 ⁺)	0.0	9/2 ⁺	
1577.66 5	2.65 21	1577.60		0.0	9/2 ⁺	
1589.11 5	2.91 24	2616.37	(9/2 ⁻ ,11/2 ⁻)	1027.40	(11/2 ⁺)	
1613.74 8	12.09 13	2641.67	(9/2 ⁻ ,11/2 ⁻)	1027.40	(11/2 ⁺)	
$^{x1719.3}_{\ddagger} 3$	0.25 6					
1774.90 20	0.55 10	2802.12	(9/2 ⁻ ,11/2 ⁻)	1027.40	(11/2 ⁺)	
1835.88 25	0.35 6	2863.31	(9/2,11/2,13/2 ⁺)	1027.40	(11/2 ⁺)	
$^{x1898.3}_{\ddagger} 4$	0.38 20					
1909.94 15	0.74 11	1909.70	(13/2 ⁺)	0.0	9/2 ⁺	
1958.29 8	2.33 18	1958.08		0.0	9/2 ⁺	
1971.09 10	1.70 16	1970.90		0.0	9/2 ⁺	
2064.64 5	3.9 3	2064.60	(9/2,11/2,13/2)	0.0	9/2 ⁺	
$^{2101.06}_{\ddagger} 15$	0.48 12	2101.40	(9/2,11/2,13/2)	0.0	9/2 ⁺	
$^{2252.80}_{\ddagger} 15$	1.20 12	2252.65	(9/2,11/2,13/2 ⁺)	0.0	9/2 ⁺	
$^{x2360.80} 25$	0.38 8					
2392.43 3	10.3 8	2392.594	(9/2 ⁻ ,11/2 ⁻)	0.0	9/2 ⁺	
2616.26 3	5.3 4	2616.37	(9/2 ⁻ ,11/2 ⁻)	0.0	9/2 ⁺	
$^{2641.8}_{\#} 3$	6.7 [#] 7	2641.67	(9/2 ⁻ ,11/2 ⁻)	0.0	9/2 ⁺	

E_γ : 754.3 and placed from 2819-keV level to 2064-keV level. (1986Ho24).

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^{125}Cd β^- decay (0.48 s) 1989Hu03,1986Ho24 (continued) $\gamma(^{125}\text{In})$ (continued)

E_γ^\dagger	$I_\gamma^{\ddagger@}$	$E_i(\text{level})$	J_i^π	E_f	J_f^π
2801.8 [#] 3	6.3 [#] 6	2802.12	(9/2 ⁻ , 11/2 ⁻)	0.0	9/2 ⁺
2863.3 [#] 3	1.3 [#] 2	2863.31	(9/2, 11/2, 13/2 ⁺)	0.0	9/2 ⁺

[†] From 1989Hu03, unless otherwise noted.

[‡] Not given in 1986Ho24.

[#] From 1989Hu03's drawing. Uncertainties of energy and intensity are assigned by the evaluators.

[@] For absolute intensity per 100 decays, multiply by 0.96 4.

^x γ ray not placed in level scheme.

^{125}Cd β^- decay (0.48 s) 1989Hu03,1986Ho24

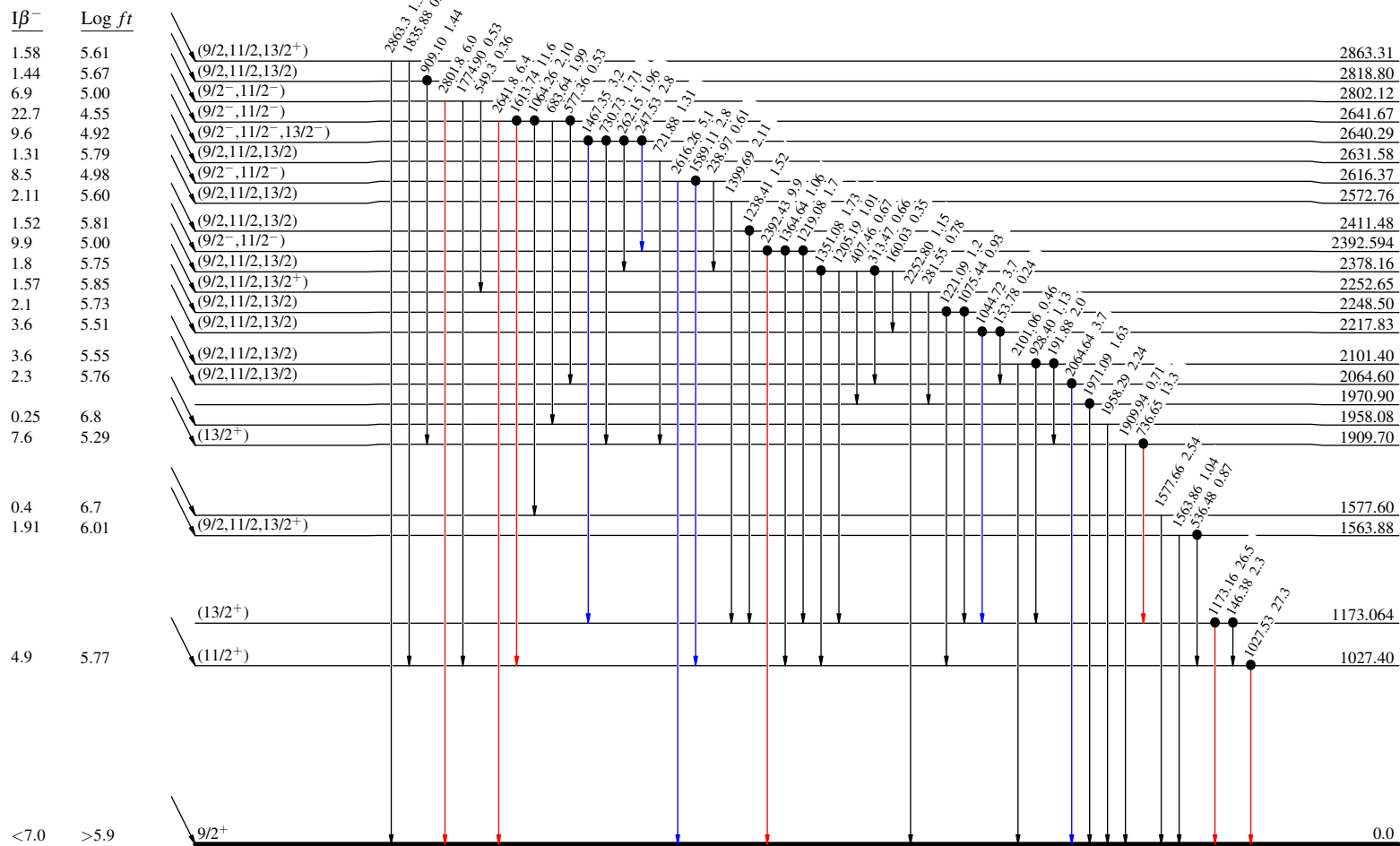
Decay Scheme

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

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- Coincidence

$(11/2^-)$ x
 $Q_{\beta^-} = 7.12 \times 10^3$ eV
 0.48 s
 $\% \beta^- = 100$
 $^{125}_{48}\text{Cd}_{77}$



$^{125}_{49}\text{In}_{76}$

2.36 s 4