

^{117}Cd β^- decay (3.36 h) 1975Ta06

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Jean Blachot	ENSDF	1-Mar-2009

Parent: ^{117}Cd : $E=136.4$ 2; $J^\pi=11/2^-$; $T_{1/2}=3.36$ h 5; $Q(\beta^-)=2525$ 13; $\% \beta^-$ decay=100.0

The decay scheme is primarily from 1975Ta06. Relative I_γ are from 1979GI09. E_γ s are from 1975Ta06, 1979GI09, 1974HeYW.

Others: 1972Gr24, 1972Bu41, 1975Se10, 1970EI04, 1967Sc37, 1969Mo21, 1969Mo06, 1968Pa01.

$\gamma\gamma(\theta)$: 1979GI09, 1968Pa01.

$\gamma\gamma$: extensive coincidence data are reported by 1975Ta06 and 1979GI09.

 ^{117}In Levels

E(level) [†]	J^π [‡]	$T_{1/2}$	Comments
0	9/2 ⁺	43.2 min 3	
315.308 12	1/2 ⁻	116.2 min 3	
588.660 18	3/2 ⁻		
659.770 14	3/2 ⁺		
748.07 3	7/2 ⁺		
749.497 21	1/2 ⁺		
880.711 13	5/2 ⁺		
1028.03 4	(5/2 ⁻)		
1051.71 3	5/2 ⁺		
1065.981 19	(11/2 ⁺ , 13/2 ⁺)		
1209.03 4	(9/2 ⁻ , 11/2 ⁺)		
1234.603 21	(13/2 ⁺)		
1365.519 22	(7/2 ⁺ , 9/2 ⁺)		
1432.918 17	9/2 ⁺		
1855.62 10	(5/2 ⁻ , 7/2, 9/2 ⁻)		
1957.36 9	(9/2 ⁻)		
1997.322 16	(11/2 ⁻)		
2095.032 25	(11/2, 13/2) ⁻		
2096.45 3	(9/2, 11/2) ⁻		
2229.6? 5			
2322.76 6	(9/2, 11/2) ⁻		
2400.38 9	(9/2 ⁻)		
2405.28 6	(13/2 ⁻)		E(level): doublet in 1975Ta06.
2414.23 20			
2417.44 9	(9/2 ⁻)		
2440.05 15	(9/2 ⁺ , 11/2, 13/2)		
2462.5 3	11/2, 13/2 ⁺		
2476.21 17	(9/2, 11/2)		
2540.86 12	(9/2, 11/2) ⁻		

[†] From least-squares fit to E_γ 's.

[‡] From $\log ft$ and Adopted Levels.

 β^- radiations

E(decay)	E(level)	$I\beta^-$ [‡]	$\log ft$	Comments
(121 13)	2540.86	0.23 5	5.13 19	av $E\beta=33$ 4
(185 13)	2476.21	0.24 4	5.98 13	av $E\beta=51$ 5
(199 13)	2462.5	0.21 2	5.94 11	av $E\beta=56$ 5
(221 [#] 13)	2440.05	≤ 0.1	≥ 6.31	av $E\beta=62$ 5
(244 13)	2417.44	1.7 2	5.21 10	av $E\beta=69$ 5

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^{117}Cd β^- decay (3.36 h) **1975Ta06** (continued) β^- radiations (continued)

E(decay)	E(level)	$I\beta^-$ [‡]	Log ft	Comments
(256 13)	2405.28	3.7 4	4.94 9	av $E\beta=73$ 5
(261 13)	2400.38	1.4 2	5.39 10	av $E\beta=75$ 5
(339 13)	2322.76	8.6 5	4.96 7	av $E\beta=100$ 5
(565 13)	2096.45	8.2 5	5.73 5	av $E\beta=179$ 6
(566 13)	2095.032	20.5 11	5.33 5	av $E\beta=179$ 6
(664 13)	1997.322	48 3	5.20 5	av $E\beta=216$ 6
(704 13)	1957.36	1.0 2	6.97 10	av $E\beta=231$ 6
(806 [#] 13)	1855.62	≤ 0.2	≥ 7.88	av $E\beta=271$ 6
(1228 [#] 13)	1432.918	≤ 2.4	≥ 7.48	av $E\beta=445$ 6
(1296 13)	1365.519	≤ 0.6	≥ 8.17	av $E\beta=474$ 6
(1427 13)	1234.603	0.9 5	8.15 25	av $E\beta=531$ 7
(1452 13)	1209.03	0.5 3	8.4 3	av $E\beta=542$ 7
(1595 [#] 13)	1065.981	≤ 2.4	≥ 7.92	av $E\beta=605$ 7
(1913 [#] 13)	748.07	≤ 2.4	$\geq 9.26^{1u}$	av $E\beta=750$ 7
(2661 [#] 13)	0	$< 1^{\dagger}$	> 9.20	av $E\beta=1091$ 7

[†] $< 2\%$ (1975Ta06), $< 1\%$ (1979G109).

[‡] Absolute intensity per 100 decays.

[#] Existence of this branch is questionable.

 $\gamma(^{117}\text{In})$

$I\gamma$ normalization: from $\Sigma(I\gamma+ce)$ to g.s.=100. $I\beta$ to g.s.<1.

E_{γ}	I_{γ} [#]	E_i (level)	J_i^{π}	E_f	J_f^{π}	Comments
71.12 [‡]		659.770	3/2 ⁺	588.660	3/2 ⁻	
89.72 [‡]		749.497	1/2 ⁺	659.770	3/2 ⁺	
97.70 4	4.0 5	2095.032	(11/2,13/2) ⁻	1997.322	(11/2 ⁻)	
99.4 [†] 1	0.4 2	2096.45	(9/2,11/2) ⁻	1997.322	(11/2 ⁻)	
101.0 2	0.3 2	2540.86	(9/2,11/2) ⁻	2440.05	(9/2 ⁺ ,11/2,13/2)	
131.4 [†] 2		880.711	5/2 ⁺	749.497	1/2 ⁺	
132.7 [†] 1		880.711	5/2 ⁺	748.07	7/2 ⁺	
160.8 [‡]		749.497	1/2 ⁺	588.660	3/2 ⁻	
168.63 5	1.1 2	1234.603	(13/2 ⁺)	1065.981	(11/2 ⁺ ,13/2 ⁺)	
171.05 [‡] 7		1051.71	5/2 ⁺	880.711	5/2 ⁺	
220.92 3	0.9 6	880.711	5/2 ⁺	659.770	3/2 ⁺	
273.349 [‡] 18		588.660	3/2 ⁻	315.308	1/2 ⁻	
292.05 3	0.4 4	880.711	5/2 ⁺	588.660	3/2 ⁻	
299.45 10	1.7 3	1365.519	(7/2 ⁺ ,9/2 ⁺)	1065.981	(11/2 ⁺ ,13/2 ⁺)	
310.26 15	1.9 4	2405.28	(13/2 ⁻)	2095.032	(11/2,13/2) ⁻	
313.8 [†] 4	0.09 9	1365.519	(7/2 ⁺ ,9/2 ⁺)	1051.71	5/2 ⁺	
315.302 [‡] 13		315.308	1/2 ⁻	0	9/2 ⁺	
325.3 2	0.5 2	2322.76	(9/2,11/2) ⁻	1997.322	(11/2 ⁻)	
344.459 [‡] 10		659.770	3/2 ⁺	315.308	1/2 ⁻	
366.91 3	12.7 9	1432.918	9/2 ⁺	1065.981	(11/2 ⁺ ,13/2 ⁺)	$\delta: +0.15$ 20 or ≈ 15 (1979G109).
381.2 [†] @ 4	0.09 9	1432.918	9/2 ⁺	1051.71	5/2 ⁺	

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^{117}Cd β^- decay (3.36 h) **1975Ta06** (continued) $\gamma(^{117}\text{In})$ (continued)

E_γ	I_γ #	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
408.0 2	0.33 18	2405.28	(13/2 ⁻)	1997.322	(11/2 ⁻)	
434.190 [‡] 17		749.497	1/2 ⁺	315.308	1/2 ⁻	
439.39 7	0.7 3	1028.03	(5/2 ⁻)	588.660	3/2 ⁻	
442.9 [@] 3	0.1	2440.05	(9/2 ⁺ , 11/2, 13/2)	1997.322	(11/2 ⁻)	
460.94 4	6.2 5	1209.03	(9/2 ⁻ , 11/2 ⁺)	748.07	7/2 ⁺	
463.04 [‡] 3		1051.71	5/2 ⁺	588.660	3/2 ⁻	
484.79 3	3.9 5	1365.519	(7/2 ⁺ , 9/2 ⁺)	880.711	5/2 ⁺	
518.8 [†] 3	0.22 11	2476.21	(9/2, 11/2)	1957.36	(9/2 ⁻)	
545.0 [†] 4	0.6 3	2400.38	(9/2 ⁻)	1855.62	(5/2 ⁻ , 7/2, 9/2 ⁻)	
564.397 16	56 3	1997.322	(11/2 ⁻)	1432.918	9/2 ⁺	
^x 597.34 [@] 20	0.5					
617.50 7	1.3 3	1365.519	(7/2 ⁺ , 9/2 ⁺)	748.07	7/2 ⁺	
^x 627.26 [@] 15	0.9					
631.80 4	10.7 7	1997.322	(11/2 ⁻)	1365.519	(7/2 ⁺ , 9/2 ⁺)	
663.50 6	2.6 3	2096.45	(9/2, 11/2) ⁻	1432.918	9/2 ⁺	
684.6 [†] 4	0.25 14	1432.918	9/2 ⁺	748.07	7/2 ⁺	
712.71 5	3.8 5	1028.03	(5/2 ⁻)	315.308	1/2 ⁻	
730.8 [@] 4	0.4	2096.45	(9/2, 11/2) ⁻	1365.519	(7/2 ⁺ , 9/2 ⁺)	
^x 743.9 [@] 10	<0.1					
748.06 3	17 4	748.07	7/2 ⁺	0	9/2 ⁺	I_γ : 13.6 14 (1979GI09), 17.5 (1975Ta06), 20.7 12 (1974HeYW).
762.72 4	6.6 5	1997.322	(11/2 ⁻)	1234.603	(13/2 ⁺)	
788.16 13	1.9 4	1997.322	(11/2 ⁻)	1209.03	(9/2 ⁻ , 11/2 ⁺)	E_γ : assigned to 1376.8 level in 1975Ta06.
827.6 [†] 1	1.0 3	1855.62	(5/2 ⁻ , 7/2, 9/2 ⁻)	1028.03	(5/2 ⁻)	
860.41 4	30.1 11	2095.032	(11/2, 13/2) ⁻	1234.603	(13/2 ⁺)	
880.710 17	2.7 11	880.711	5/2 ⁺	0	9/2 ⁺	
886.0 [†] 1	1.5 3	2095.032	(11/2, 13/2) ⁻	1209.03	(9/2 ⁻ , 11/2 ⁺)	
929.3 1	3.0 5	1957.36	(9/2 ⁻)	1028.03	(5/2 ⁻)	
931.37 4	13.9 9	1997.322	(11/2 ⁻)	1065.981	(11/2 ⁺ , 13/2 ⁺)	
957.2 1	1.5 4	2322.76	(9/2, 11/2) ⁻	1365.519	(7/2 ⁺ , 9/2 ⁺)	
995.0 [@] 5	0.2	2229.6?		1234.603	(13/2 ⁺)	
1029.06 3	44.5 14	2095.032	(11/2, 13/2) ⁻	1065.981	(11/2 ⁺ , 13/2 ⁺)	
1051.7 [‡] 1		1051.71	5/2 ⁺	0	9/2 ⁺	
1065.98 3	88 2	1065.981	(11/2 ⁺ , 13/2 ⁺)	0	9/2 ⁺	δ : +0.3 +2-1 or +6 +11-3 (1979GI09).
^x 1120.0 [@] 3	<1					
1170.71 10	2.5 5	2405.28	(13/2 ⁻)	1234.603	(13/2 ⁺)	
1196.2 1	1.5 4	2405.28	(13/2 ⁻)	1209.03	(9/2 ⁻ , 11/2 ⁺)	E_γ : from 1979GI09. E_γ =1191.51 20, I_γ =0.4 reported by 1975Ta06.
1205.5 3	0.50 14	2440.05	(9/2 ⁺ , 11/2, 13/2)	1234.603	(13/2 ⁺)	
1208.3 [†] 4	0.2 2	2417.44	(9/2 ⁻)	1209.03	(9/2 ⁻ , 11/2 ⁺)	
1209.0 4	0.7 3	1209.03	(9/2 ⁻ , 11/2 ⁺)	0	9/2 ⁺	
1209.0 [†] 4	0.5 3	1957.36	(9/2 ⁻)	748.07	7/2 ⁺	
1234.59 3	42.0 12	1234.603	(13/2 ⁺)	0	9/2 ⁺	
1256.9 2	0.7 3	2322.76	(9/2, 11/2) ⁻	1065.981	(11/2 ⁺ , 13/2 ⁺)	
1339.3 5	7.9 9	2405.28	(13/2 ⁻)	1065.981	(11/2 ⁺ , 13/2 ⁺)	
1365.54 5	6.3 4	1365.519	(7/2 ⁺ , 9/2 ⁺)	0	9/2 ⁺	
^x 1371.2 [@] 5	0.12					
1432.91 3	51.3 12	1432.918	9/2 ⁺	0	9/2 ⁺	δ : -3 +2-20 (1979GI09).
1442.1 [@] 3	0.07	2322.76	(9/2, 11/2) ⁻	880.711	5/2 ⁺	
1652.24 11	1.8 4	2400.38	(9/2 ⁻)	748.07	7/2 ⁺	E_γ : 1652.50 15 (1975Ta06), 1652.1 1 (1979GI09), 1652.26 10 (1974HeYW).

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^{117}Cd β^- decay (3.36 h) **1975Ta06** (continued) $\gamma(^{117}\text{In})$ (continued)

E_γ	I_γ #	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
1669.5 3	2.4 3	2417.44	(9/2 ⁻)	748.07	7/2 ⁺	E γ : 1669.69 15 (1975Ta06), 1669.3 1 (1979GI09).
1957.5 2	0.60 15	1957.36	(9/2 ⁻)	0	9/2 ⁺	
1997.33 3	100	1997.322	(11/2 ⁻)	0	9/2 ⁺	E γ : 2400.9 2 (1975Ta06), 2400.2 2 (1979GI09), 2400.40 10 (1974HeYW).
2096.40 4	28.4 6	2096.45	(9/2,11/2) ⁻	0	9/2 ⁺	
2322.75 8	30.0 7	2322.76	(9/2,11/2) ⁻	0	9/2 ⁺	
2400.45 16	2.9 2	2400.38	(9/2 ⁻)	0	9/2 ⁺	
2414.2 [†] 2	0.3 3	2414.23		0	9/2 ⁺	
2417.4 1	3.9 2	2417.44	(9/2 ⁻)	0	9/2 ⁺	
2440.4 [@] 4	<1	2440.05	(9/2 ⁺ ,11/2,13/2)	0	9/2 ⁺	
2462.5 3	0.81 9	2462.5	11/2,13/2 ⁺	0	9/2 ⁺	
2476.2 2	0.71 7	2476.21	(9/2,11/2)	0	9/2 ⁺	
2540.73 14	0.57 7	2540.86	(9/2,11/2) ⁻	0	9/2 ⁺	

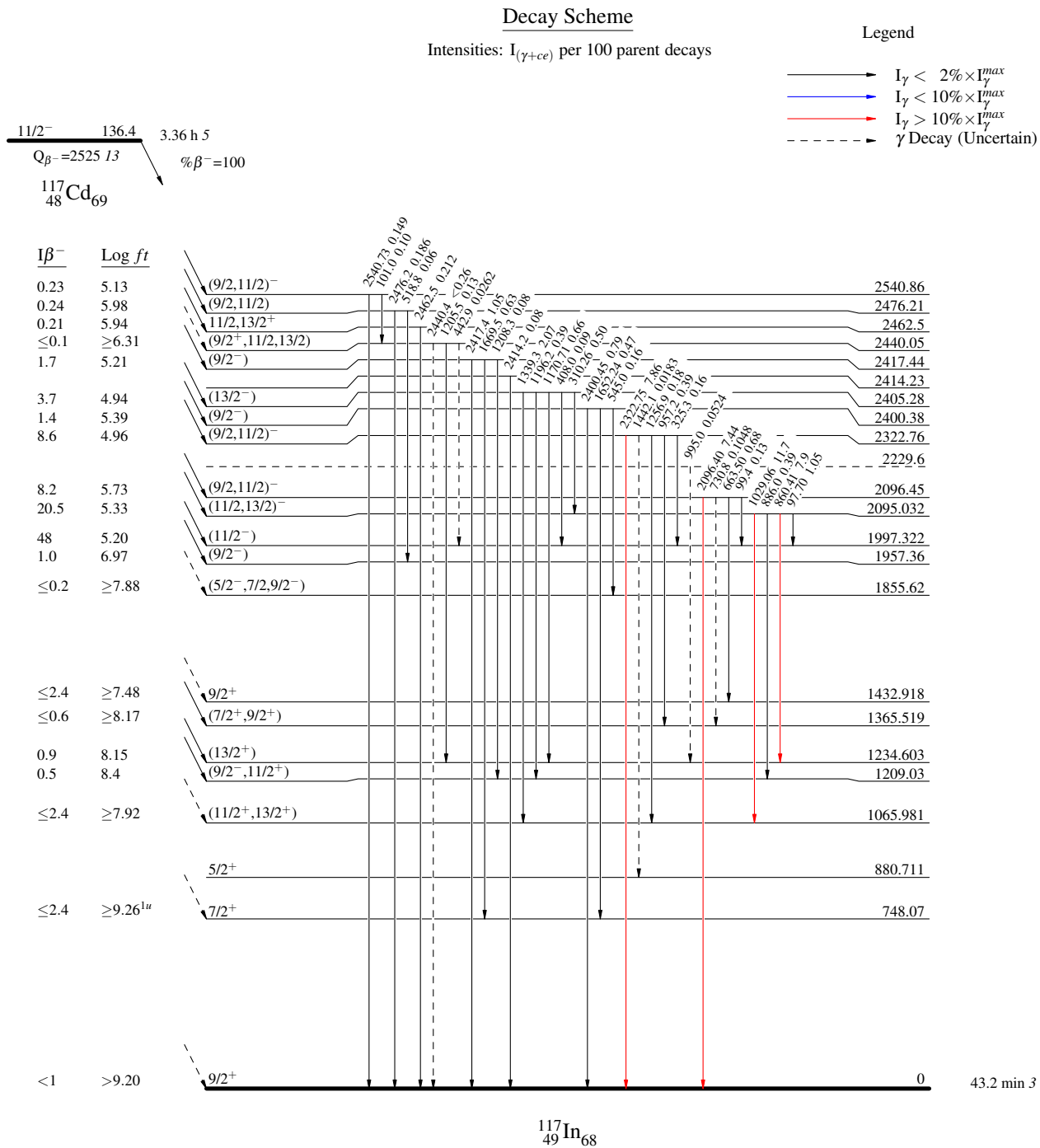
[†] From 1979GI09 only.

[‡] From ^{117}Cd (2.49-h) decay.

For absolute intensity per 100 decays, multiply by 0.262 5.

@ Placement of transition in the level scheme is uncertain.

^x γ ray not placed in level scheme.

$^{117}\text{Cd} \beta^-$ decay (3.36 h) 1975Ta06

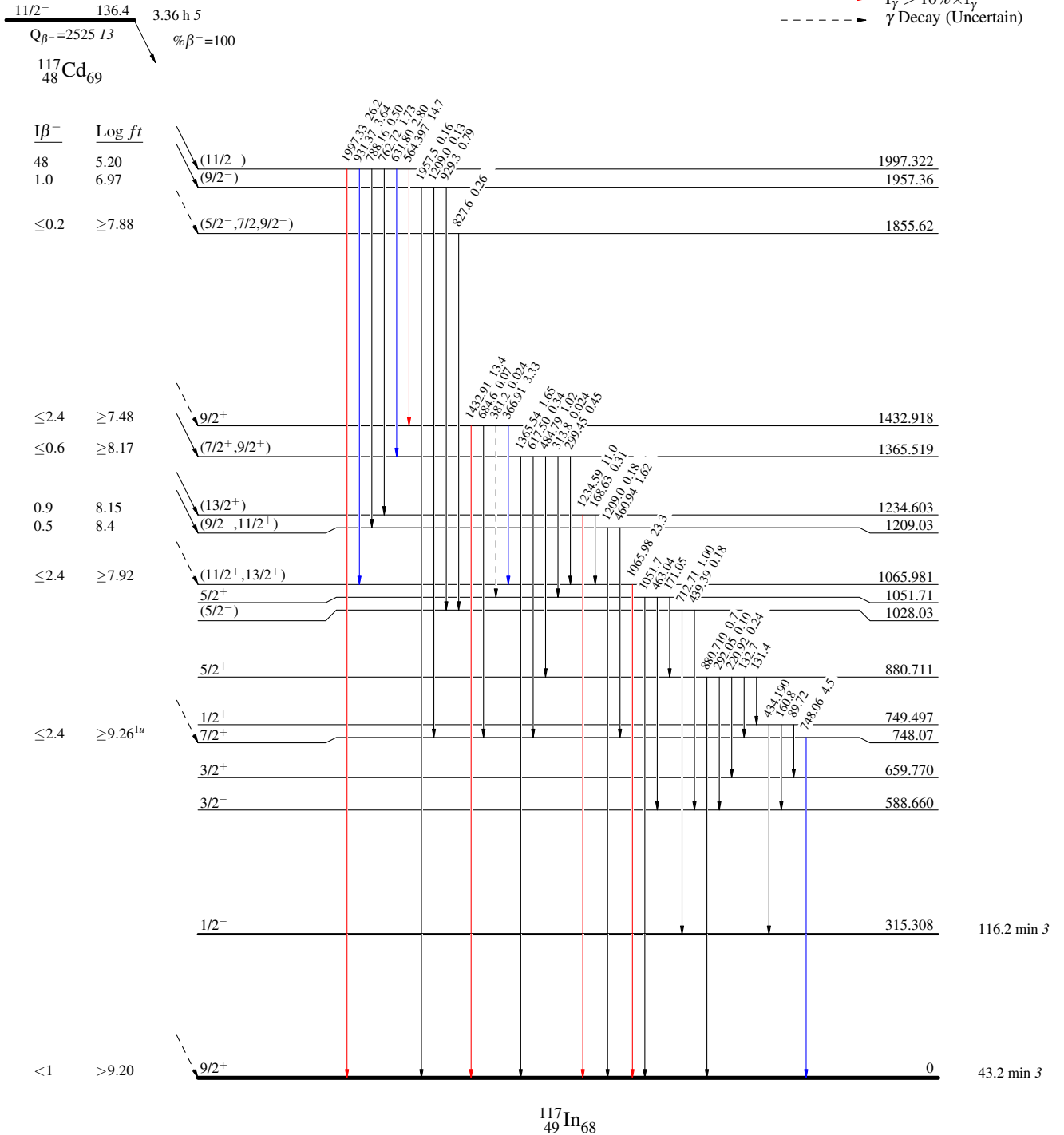
^{117}Cd β^- decay (3.36 h) 1975Ta06

Decay Scheme (continued)

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)



$^{117}\text{Cd} \beta^-$ decay (3.36 h) 1975Ta06

Decay Scheme (continued)

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