^{117}Cd β^- decay (2.49 h) 1975Ta06

History

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

Parent: ^{117}Cd: E=0; $J^\pi=1/2^+$; $T_{1/2}$=2.49 h *4*; Q(β^-)=2522 *6*; %β^- decay=100.0

The decay scheme is primarily from 1975Ta06. Relative intensities are from 1979Gl09. γ energies are from 1975Ta06, 1979Gl09, 1974HeYW.

Others: 1972Gr24, 1972Bu41, 1975Se10, 1970El04, 1967Sc37, 1969Mo21, 1969Mo06, 1968Pa01, 1954Le09.

$\gamma\gamma$: extensive coincidence data are reported by 1975Ta06 and 1979Gl09.

ce: 1967Ba18.

$\gamma\gamma(\theta,t)$: 1973Ha61, 1972Ra27.

$\gamma\gamma(t),\beta\gamma(t)$: 1968Be58, 1968Ch08, 1967Ba18, 1966Pa07.

$\gamma\gamma(\theta,H,t)$: 1967Pa16, 1976Pi18, 1985Al05.

$\gamma\gamma(\theta)$: 1979Gl09, 1968Be58, 1966Pa07, 1965Ma22.

α: Additional information 1.

^{117}In Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0	$9/2^+$	43.2 min *3*	
315.302 *11*	$1/2^-$	116.2 min *3*	
588.652 *15*	$3/2^-$	0.192 ns *16*	g=+0.068 *39* (1985Al05)
659.763 *13*	$3/2^+$	53.6 ns *7*	μ=+0.94 *8* μ: from average of 0.938 *10* (1967Pa16) and +0.96 *8* (1976Pi18).
748.05 *4*	$7/2^+$		
749.486 *14*	$1/2^+$		
880.717 *13*	$5/2^+$		
1028.04 *3*	$(5/2^-)$		
1051.707 *20*	$5/2^+$		
1376.27 *6*	$(3/2)^+$		
1439.38 *8*	$(5/2^+,7/2,9/2^+)$		
1468.67 *13*	$5/2^+,7/2,9/2^+$		
1554.48 *19*	$(1/2^-,3/2^-)$		
1609.39 *3*	$(3/2^+,5/2,7/2^+)$		
1612.10 *4*	(1/2,3/2,5/2)		
1712.544 *25*	$3/2^+$		
1784.97 *5*	$3/2^+$		
1891.928 *19*	$1/2^+$		
1997.366 *19*	$3/2^+$		
2022.23 *3*	$3/2^+$		
2064.15 *4*	$3/2^+$		E(level): doublet in 1975Ta06.
2109.84 *4*	$(3/2^+)$		
2112.98 *15*	$3/2^+,7/2,9/2^+$		
2171.74 *3*	$3/2^+$		
2311.720 *20*	$1/2^+,3/2^+$		
2327.78 *5*	$1/2^+$		
2345.50 *5*	$1/2^+,3/2^+$		
2455.97 *10*	$(1/2)^+$		

[†] From log *ft* and Adopted Levels.

^{117}Cd β^- decay (2.49 h) 1975Ta06 (continued)

β^- radiations

E(decay)	E(level)	Iβ^-[†]	Log *ft*	Comments
(66 *6*)	2455.97	0.11 *4*	4.48 *21*	av Eβ=17.0 *16*
(177 *6*)	2345.50	0.35 *9*	5.30 *13*	av Eβ=48.0 *18*
(194 *6*)	2327.78	0.60 *11*	5.20 *9*	av Eβ=53.3 *19*
(210 *6*)	2311.720	6.2 *7*	4.29 *7*	av Eβ=58.1 *19*
(350 *6*)	2171.74	1.9 *3*	5.52 *8*	av Eβ=102.6 *20*
(409 *6*)	2112.98	0.13 *9*	6.9 *3*	av Eβ=122.4 *21*
(412 *6*)	2109.84	1.6 *3*	5.83 *9*	av Eβ=123.5 *21*
(458 *6*)	2064.15	1.5 *2*	6.02 *7*	av Eβ=139.3 *22*
(500 *6*)	2022.23	2.2 *3*	5.98 *7*	av Eβ=154.2 *22*
(525 *6*)	1997.366	8.2 *9*	5.48 *6*	av Eβ=163.1 *22*
(630 *6*)	1891.928	32 *4*	5.16 *6*	av Eβ=202.0 *23*
(737 *6*)	1784.97	0.55 *11*	7.17 *9*	av Eβ=242.8 *24*
(809 *6*)	1712.544	3.4 *5*	6.52 *7*	av Eβ=271.2 *24*
(910[‡] *6*)	1612.10	≤0.3	≥7.8	av Eβ=311.4 *25*
(913 *6*)	1609.39	0.4 *3*	7.6 *4*	av Eβ=312.5 *25*
(968 *6*)	1554.48	0.11 *7*	8.3 *3*	av Eβ=334.8 *25*
(1053[‡] *6*)	1468.67	≤0.07	≥8.6	av Eβ=370.2 *25*
(1083 *6*)	1439.38	0.12 *4*	8.44 *15*	av Eβ=382.4 *25*
(1146 *6*)	1376.27	0.31 *6*	8.12 *9*	av Eβ=408.9 *26*
(1470[‡] *6*)	1051.707	≤0.8	≥8.1	av Eβ=548.5 *27*
(1773 *6*)	749.486	13.2 *17*	7.22 *6*	av Eβ=682.5 *27*
(1862[‡] *6*)	659.763	≤2.6	≥8.0	av Eβ=722.9 *28*
(1933 *6*)	588.652	3.7 *6*	7.93 *7*	av Eβ=755.0 *28*
2220 *20*	315.302	21 *2*	7.41 *5*	av Eβ=879.5 *28*

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

$\gamma(^{117}In)$

Iγ normalization: from ΣI(γ+ce)(g.s.+315)=100−Iβ(315) (1975Ta06).

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α	Comments
71.12 *2*	1.4 *2*	659.763	3/2$^+$	588.652	3/2$^-$	E1		0.456	α(K)=0.394 *6*; α(L)=0.0507 *8*; α(M)=0.00976 *14*; α(N)=0.001740 *25*; α(O)=0.0001070 *15* α(N+..)=0.00185 *3* B(E1)(W.u.)=3.1×10^{-7} *5* Other: α(K)exp=0.32 *10* (1969Mo21) relative to α(K)(89γ)=1.6.
89.73 *1*	11.7 *7*	749.486	1/2$^+$	659.763	3/2$^+$	E2+M1	−7 *1*	2.24	α(K)exp=1.3 *3* α(K)=1.603 *24*; α(L)=0.515 *8*; α(M)=0.1038 *16*; α(N)=0.0178 *3*; α(O)=0.000610 *9* α(N+..)=0.0184 *3* B(E2)(W.u.)=93 *8*; B(M1)(W.u.)=2.0×10^{-5} *6* δ: from internal conversion data and γγ(θ). α(K)exp: from K x ray/Iγ (1968Pa01), other: 1.6 *6* (1967Ba18). α: K:L:M+N=100 *15*:33 *1*:14 *4* (1967Ba18).
105.40 *15*	0.08 *4*	1997.366	3/2$^+$	1891.928	1/2$^+$				
131.4[†] *2*	0.04 *2*	880.717	5/2$^+$	749.486	1/2$^+$				
132.7[†] *1*	0.08 *4*	880.717	5/2$^+$	748.05	7/2$^+$				
160.8 *3*	0.9 *4*	749.486	1/2$^+$	588.652	3/2$^-$	(E1)		0.0452	α(K)exp<0.11 (1967Ba18) α(K)=0.0393 *6*; α(L)=0.00481 *8*; α(M)=0.000927 *14*; α(N)=0.000168 *3*; α(O)=1.137×10^{-5} *17* α(N+..)=0.000179 *3* B(E1)(W.u.)=1.7×10^{-7} *8* Other: α(K)exp(160γ)=2.2 *15* (1969Mo21) relative to α(K)(89γ)=1.6.
171.05 *7*	0.09 *4*	1051.707	5/2$^+$	880.717	5/2$^+$				
172.2[†] *1*	0.03 *2*	2064.15	3/2$^+$	1891.928	1/2$^+$				
179.35 *8*	0.35 *10*	1891.928	1/2$^+$	1712.544	3/2$^+$				
220.92 *3*	4.2 *3*	880.717	5/2$^+$	659.763	3/2$^+$				
221.0[†] *4*	0.2 *2*	2112.98	3/2$^+$,7/2,9/2$^+$	1891.928	1/2$^+$				
273.349 *18*	100	588.652	3/2$^-$	315.302	1/2$^-$	M1+E2		0.040 *7*	α(K)exp=0.035 *6* α(K)=0.034 *5*; α(L)=0.0048 *13*; α(M)=0.00093 *25*; α(N)=0.00017 *5*; α(O)=1.09×10^{-5} *15* α(N+..)=0.00018 *5* E_γ: 273.36 *2* (1979Gl09), 273.28 *6* (1975Ta06), 273.33 *5* (1974HeYW). δ: −0.10 *2* or −1.40 *4* (1979Gl09) from γγ(θ).
279.8 *1*	0.4 *2*	2171.74	3/2$^+$	1891.928	1/2$^+$				
284.79 *7*	0.30 *8*	1997.366	3/2$^+$	1712.544	3/2$^+$				
292.05 *3*	2.3 *3*	880.717	5/2$^+$	588.652	3/2$^-$				

$^{117}_{49}In_{68}$-3

^{117}Cd β^- decay (2.49 h) 1975Ta06 (continued)

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

E_γ	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α	Comments
310.0# *5*	0.25	2022.23	$3/2^+$	1712.544	$3/2^+$			
314.4† *4*	0.3 *2*	2311.720	$1/2^+,3/2^+$	1997.366	$3/2^+$			
315.302 *13*		315.302	$1/2^-$	0	$9/2^+$	M4	1.445	α(K)exp=1.17 α(K)=1.135 *16*; α(L)=0.249 *4*; α(M)=0.0510 *8*; α(N)=0.00917 *13*; α(O)=0.000531 *8* α(N+..)=0.00970 *14* B(M4)(W.u.)=29.5 *3* α: K:L:M+N=100:21.2 *17*:6.0 *6* (1967Ba18).
344.459 *10*	64.1 *13*	659.763	$3/2^+$	315.302	$1/2^-$	E1	0.00567 *8*	α(K)exp=0.0059 *12* (1967Ba18) α(K)=0.00494 *7*; α(L)=0.000592 *9*; α(M)=0.0001142 *16*; α(N)=2.08×10^{-5} *3* α(O)=1.486×10^{-6} *21*; α(N+..)=2.23×10^{-5} *4* B(E1)(W.u.)=1.24×10^{-7} *4*
x385.5# *4*	0.13							
387.96 *4*	1.1 *2*	1997.366	$3/2^+$	1609.39	$(3/2^+,5/2,7/2^+)$			
397.2† *1*	0.7 *2*	2109.84	$(3/2^+)$	1712.544	$3/2^+$			
416.9† *2*	0.06 *6*	1468.67	$5/2^+,7/2,9/2^+$	1051.707	$5/2^+$			
419.79 *4*	0.66 *13*	2311.720	$1/2^+,3/2^+$	1891.928	$1/2^+$			
434.190 *17*	35.1 *13*	749.486	$1/2^+$	315.302	$1/2^-$	E1	0.00317 *5*	α(K)exp=0.003 *2* (1967Ba18) α(K)=0.00276 *4*; α(L)=0.000329 *5*; α(M)=6.34×10^{-5} *9*; α(N)=1.158×10^{-5} *17*; α(O)=8.36×10^{-7} *12* α(N+..)=1.241×10^{-5} *18* B(E1)(W.u.)=3.45×10^{-7} *21*
439.39 *7*	0.4 *2*	1028.04	$(5/2^-)$	588.652	$3/2^-$			
453.8† *3*	0.13 *7*	2345.50	$1/2^+,3/2^+$	1891.928	$1/2^+$			
463.04 *3*	2.7 *2*	1051.707	$5/2^+$	588.652	$3/2^-$			
497.77 *10*	0.4 *2*	2109.84	$(3/2^+)$	1612.10	(1/2,3/2,5/2)			
500.6† *2*	0.05 *5*	2109.84	$(3/2^+)$	1609.39	$(3/2^+,5/2,7/2^+)$			
526.6† *5*	0.1 *1*	1554.48	$(1/2^-,3/2^-)$	1028.04	$(5/2^-)$			
527.0† *5*	0.5 *2*	2311.720	$1/2^+,3/2^+$	1784.97	$3/2^+$			
x597.6# *3*	0.05 *5*							
627.01 *11*	0.41 *11*	1376.27	$(3/2)^+$	749.486	$1/2^+$			
644.5† *2*	0.06 *6*	2112.98	$3/2^+,7/2,9/2^+$	1468.67	$5/2^+,7/2,9/2^+$			
660.83† *8*	0.40 *11*	1712.544	$3/2^+$	1051.707	$5/2^+$			
688.0† *3*	0.04 *4*	2064.15	$3/2^+$	1376.27	$(3/2)^+$			
699.58 *8*	0.86 *13*	2311.720	$1/2^+,3/2^+$	1612.10	(1/2,3/2,5/2)			
712.71 *5*	2.0 *6*	1028.04	$(5/2^-)$	315.302	$1/2^-$			
716.43 *7*	0.72 *13*	1376.27	$(3/2)^+$	659.763	$3/2^+$			
728.64 *7*	0.86 *13*	1609.39	$(3/2^+,5/2,7/2^+)$	880.717	$5/2^+$			
736.14 *8*	0.22 *12*	2345.50	$1/2^+,3/2^+$	1609.39	$(3/2^+,5/2,7/2^+)$			

$^{117}_{49}In_{68}$-4

^{117}Cd β^- decay (2.49 h) 1975Ta06 (continued)

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

E_γ	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Comments
748.05† *4*	2.0 *7*	748.05	$7/2^+$	0	$9/2^+$	
x757.6 *2*	0.10 *7*					
787.4# *5*	0.2	1376.27	$(3/2)^+$	588.652	$3/2^-$	
831.80 *3*	8.1 *3*	1712.544	$3/2^+$	880.717	$5/2^+$	δ: +0.14 *9* or +2.4 *+9−6* (1979Gl09).
840.21 *4*	2.9 *2*	1891.928	$1/2^+$	1051.707	$5/2^+$	
850.72† *8*	0.43 *13*	1439.38	$(5/2^+,7/2,9/2^+)$	588.652	$3/2^-$	
861.3† *4*	1.0 *7*	1609.39	$(3/2^+,5/2,7/2^+)$	748.05	$7/2^+$	
862.60 *5*	2.2 *2*	1612.10	(1/2,3/2,5/2)	749.486	$1/2^+$	
880.710 *17*	14.2 *7*	880.717	$5/2^+$	0	$9/2^+$	
945.67 *3*	5.5 *3*	1997.366	$3/2^+$	1051.707	$5/2^+$	
949.63 *8*	0.79 *13*	1609.39	$(3/2^+,5/2,7/2^+)$	659.763	$3/2^+$	
952.33 *8*	0.49 *12*	1612.10	(1/2,3/2,5/2)	659.763	$3/2^+$	
963.11 *6*	2.2 *2*	1712.544	$3/2^+$	749.486	$1/2^+$	
965.8† *2*	0.3 *2*	1554.48	$(1/2^-,3/2^-)$	588.652	$3/2^-$	
969.30 *5*	1.6 *2*	1997.366	$3/2^+$	1028.04	$(5/2^-)$	
970.4† *3*	0.2 *2*	2022.23	$3/2^+$	1051.707	$5/2^+$	
x975.5# *5*	0.26					
994.3† *4*	0.06 *6*	2022.23	$3/2^+$	1028.04	$(5/2^-)$	
1012.3 *3*	0.3 *2*	2064.15	$3/2^+$	1051.707	$5/2^+$	
1035.61 *7*	0.86 *13*	1784.97	$3/2^+$	749.486	$1/2^+$	E_γ: placement from 1979Gl09. Assigned to 2063.6 level by 1975Ta06.
1036.0 *4*	0.06 *6*	2064.15	$3/2^+$	1028.04	$(5/2^-)$	
1051.7 *1*	13.6 *7*	1051.707	$5/2^+$	0	$9/2^+$	
1052.7 *1*	2.6 *6*	1712.544	$3/2^+$	659.763	$3/2^+$	
1061.1† *2*	0.2 *2*	2112.98	$3/2^+,7/2,9/2^+$	1051.707	$5/2^+$	
1116.60 *5*	3.7 *2*	1997.366	$3/2^+$	880.717	$5/2^+$	δ: +0.1 *+3−2* or +2 *+2−1* (1979Gl09).
1120.05 *7*	0.86 *13*	2171.74	$3/2^+$	1051.707	$5/2^+$	
1125.10 *6*	1.6 *2*	1784.97	$3/2^+$	659.763	$3/2^+$	
1142.43 *3*	6.0 *4*	1891.928	$1/2^+$	749.486	$1/2^+$	
1143.5† *3*	0.5 *2*	2171.74	$3/2^+$	1028.04	$(5/2^-)$	
1183.4 *1*	0.47 *12*	2064.15	$3/2^+$	880.717	$5/2^+$	
1229.11 *7*	2.2 *2*	2109.84	$(3/2^+)$	880.717	$5/2^+$	δ: −0.2 *2* or≈10 (1979Gl09).
1232.3† *2*	1.0 *2*	1891.928	$1/2^+$	659.763	$3/2^+$	
1247.89 *4*	4.3 *2*	1997.366	$3/2^+$	749.486	$1/2^+$	
1249.3† *4*	0.1 *1*	1997.366	$3/2^+$	748.05	$7/2^+$	
1260.00 *3*	4.1 *2*	2311.720	$1/2^+,3/2^+$	1051.707	$5/2^+$	
1272.73 *3*	2.6 *2*	2022.23	$3/2^+$	749.486	$1/2^+$	
1276.0† *1*	0.09 *4*	2327.78	$1/2^+$	1051.707	$5/2^+$	
1291.00 *4*	2.4 *2*	2171.74	$3/2^+$	880.717	$5/2^+$	δ: +0.1 *+2−8* or +2.7 *+25−12* (1979Gl09).
1303.27 *3*	65.8 *13*	1891.928	$1/2^+$	588.652	$3/2^-$	
1314.71 *6*	2.1 *2*	2064.15	$3/2^+$	749.486	$1/2^+$	

$^{117}_{49}In_{68}$-5

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

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
1316.0[†] *4*	0.1 *1*	2064.15	3/2$^+$	748.05	7/2$^+$	
1317.5[†] *4*	0.06 *6*	2345.50	1/2$^+$,3/2$^+$	1028.04	(5/2$^-$)	
1337.57 *7*	5.8 *4*	1997.366	3/2$^+$	659.763	3/2$^+$	
1362.40 *8*	0.86 *13*	2022.23	3/2$^+$	659.763	3/2$^+$	
1404.4 *1*	0.43 *11*	2064.15	3/2$^+$	659.763	3/2$^+$	
1408.72 *3*	4.6 *2*	1997.366	3/2$^+$	588.652	3/2$^-$	
1422.27 *6*	1.2 *2*	2171.74	3/2$^+$	749.486	1/2$^+$	
1430.97 *5*	≈2	2311.720	1/2$^+$,3/2$^+$	880.717	5/2$^+$	δ: +0.1 *+2−7* or +2.7 *+25−12* (1979Gl09). I_γ: 1.0 in 1975Ta06, 3.5 *2* in 1979Gl09.
1433.5[†] *2*	0.4 *3*	2022.23	3/2$^+$	588.652	3/2$^-$	
1450.15 *7*	2.2 *2*	2109.84	(3/2$^+$)	659.763	3/2$^+$	
1468.9[†] *2*	0.14 *4*	1468.67	5/2$^+$,7/2,9/2$^+$	0	9/2$^+$	
1475.46 *7*	1.5 *2*	2064.15	3/2$^+$	588.652	3/2$^-$	
1511.9 *2*	0.24 *12*	2171.74	3/2$^+$	659.763	3/2$^+$	
1521.00 *12*	0.32 *11*	2109.84	(3/2$^+$)	588.652	3/2$^-$	
1562.24 *4*	5.1 *2*	2311.720	1/2$^+$,3/2$^+$	749.486	1/2$^+$	
1563.6[†] *4*	0.3 *2*	2311.720	1/2$^+$,3/2$^+$	748.05	7/2$^+$	
1576.62 *3*	40.1 *8*	1891.928	1/2$^+$	315.302	1/2$^-$	E_γ: 1576.80 *9* (1975Ta06), 1576.59 *3* (1979Gl09), 1576.65 *4* (1974HeYW).
1578.4[†] *3*	0.5 *2*	2327.78	1/2$^+$	749.486	1/2$^+$	
1583.1[†] *1*	0.19 *9*	2171.74	3/2$^+$	588.652	3/2$^-$	
1596.0[†] *4*	0.1 *1*	2345.50	1/2$^+$,3/2$^+$	749.486	1/2$^+$	
1597.3[†] *4*	0.2 *2*	2345.50	1/2$^+$,3/2$^+$	748.05	7/2$^+$	
1652.1 *2*	1.0 *4*	2311.720	1/2$^+$,3/2$^+$	659.763	3/2$^+$	
1682.07 *5*	2.5 *2*	1997.366	3/2$^+$	315.302	1/2$^-$	
1685.8[†] *3*	0.14 *6*	2345.50	1/2$^+$,3/2$^+$	659.763	3/2$^+$	
1706.93 *4*	3.6 *2*	2022.23	3/2$^+$	315.302	1/2$^-$	
1723.06 *3*	7.2 *3*	2311.720	1/2$^+$,3/2$^+$	588.652	3/2$^-$	
1739.13 *9*	0.45 *12*	2327.78	1/2$^+$	588.652	3/2$^-$	
1748.7 *2*	0.30 *12*	2064.15	3/2$^+$	315.302	1/2$^-$	
1756.8[†] *2*	0.16 *8*	2345.50	1/2$^+$,3/2$^+$	588.652	3/2$^-$	
1856.4 *1*	0.9 *2*	2171.74	3/2$^+$	315.302	1/2$^-$	
1867.3[†] *1*	0.38 *11*	2455.97	(1/2)$^+$	588.652	3/2$^-$	
2012.49 *8*	0.39 *8*	2327.78	1/2$^+$	315.302	1/2$^-$	
2030.14 *8*	0.23 *7*	2345.50	1/2$^+$,3/2$^+$	315.302	1/2$^-$	

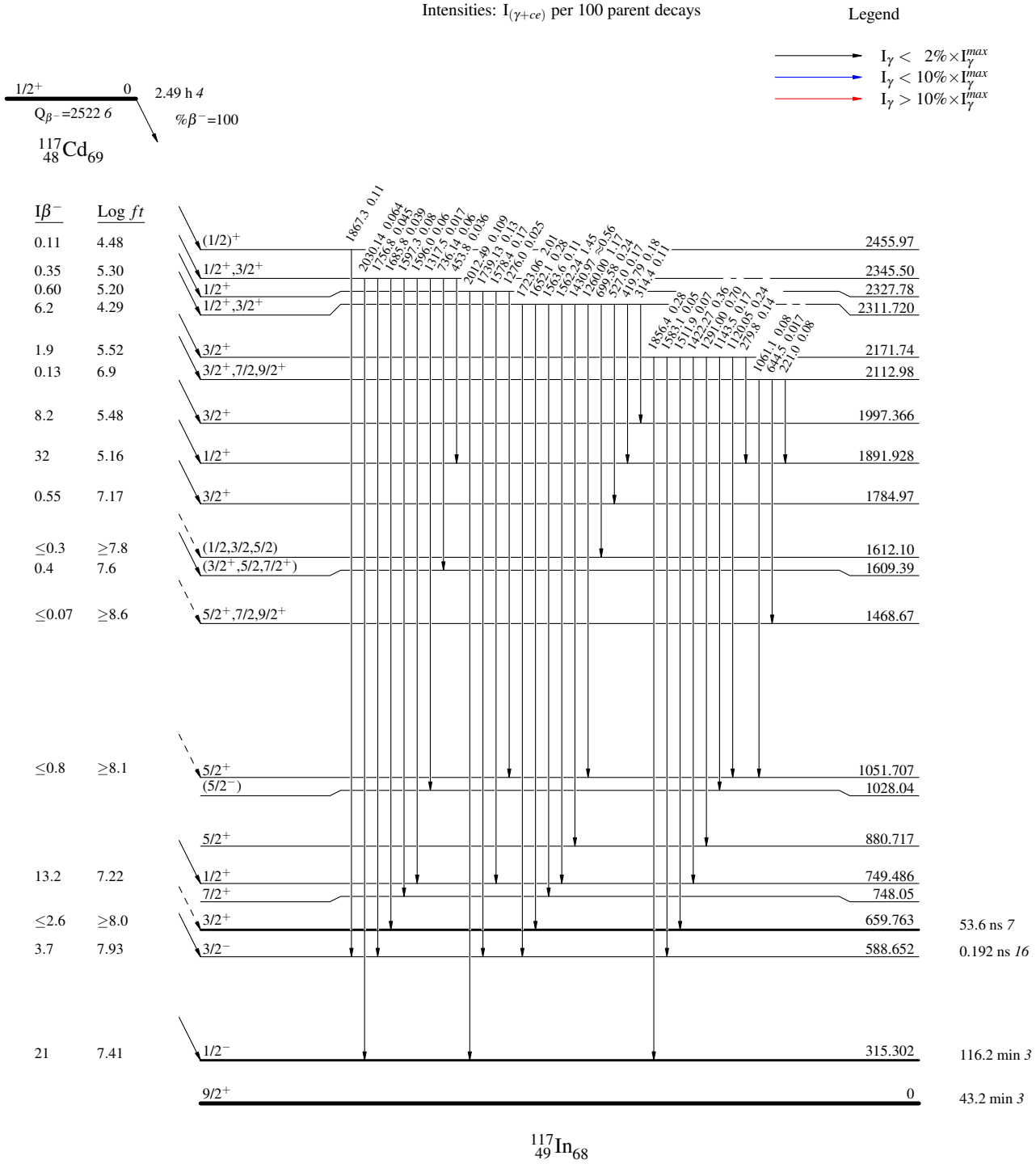
[†] From 1979Gl09 only.
[‡] For absolute intensity per 100 decays, multiply by 0.279 *7*.
[#] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

$^{117}_{49}In_{68}$-6

^{117}Cd β^- decay (2.49 h) 1975Ta06

Decay Scheme

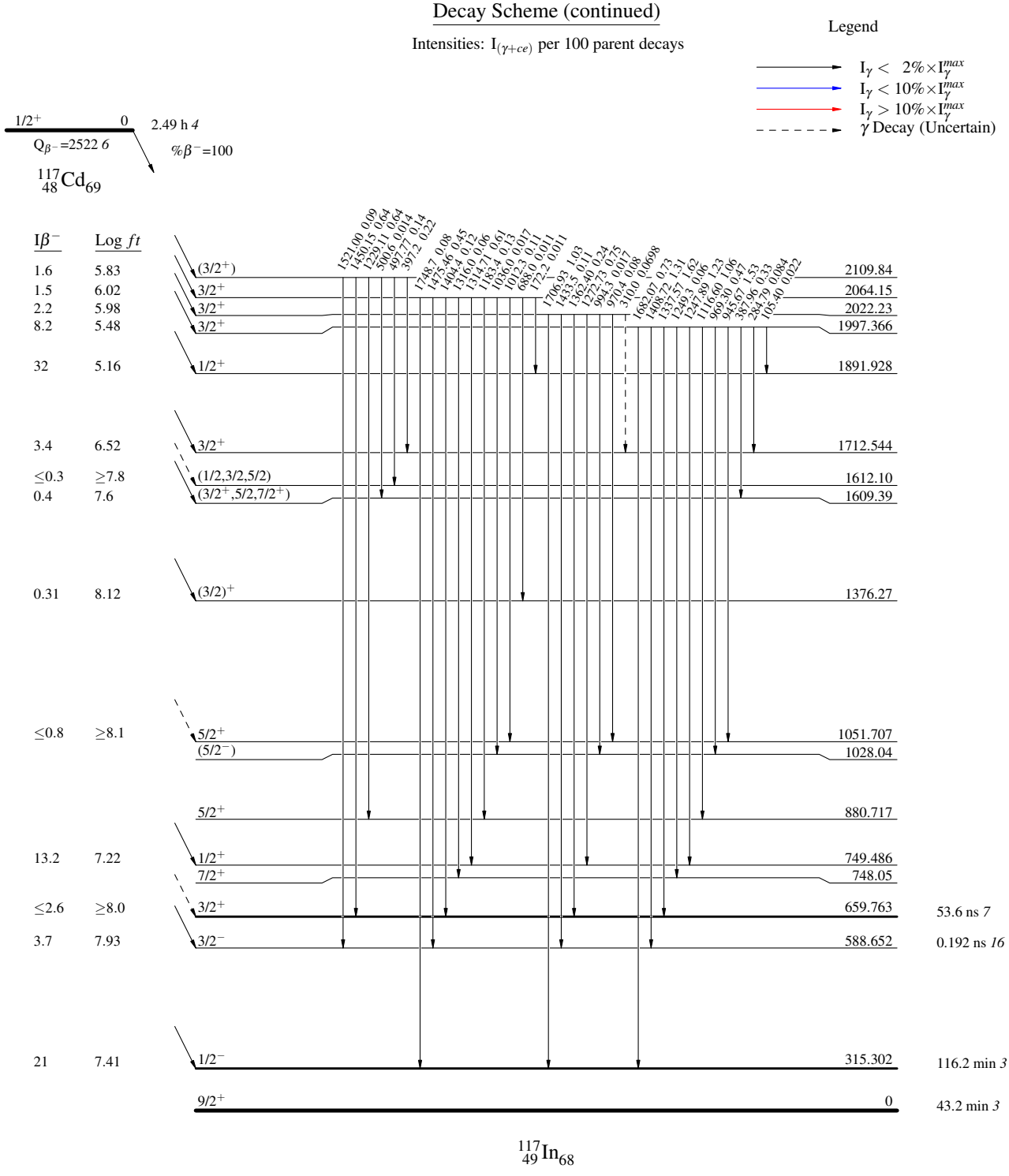
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{117}Cd β^- decay (2.49 h) 1975Ta06

Decay Scheme (continued)

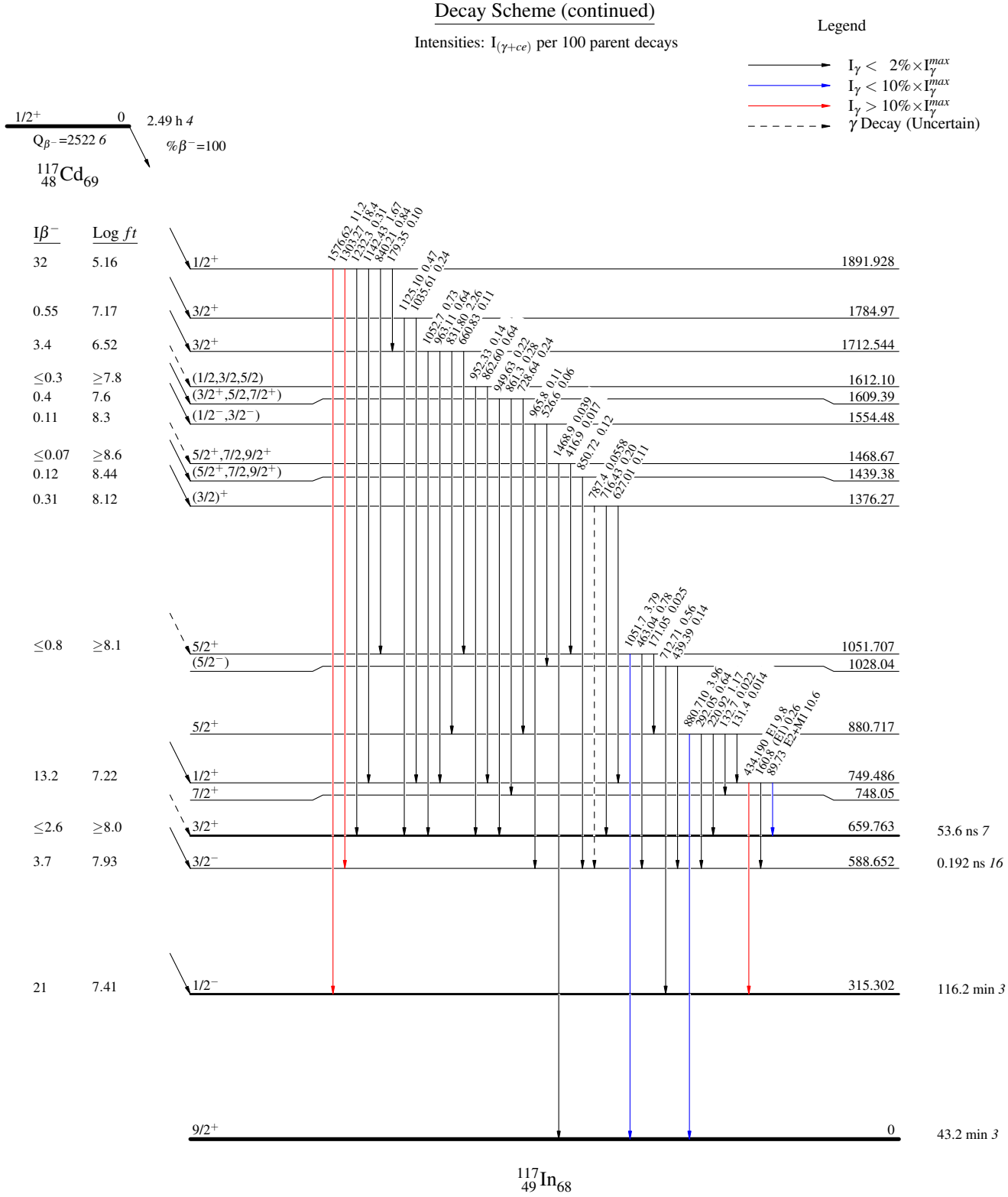
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{117}Cd β^- decay (2.49 h) 1975Ta06

Decay Scheme (continued)

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



^{117}Cd β^- decay (2.49 h) 1975Ta06

Decay Scheme (continued)

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