^{113}Ag β^- decay (5.37 h) 1978Ma17,1970Ma47

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 111, 1471 (2010)	1-May-2009

Parent: ^{113}Ag: E=0; $J^\pi=1/2^-$; $T_{1/2}$=5.37 h *5*; Q(β^-)=2016 *16*; %β^- decay=100.0

Measured Eγ, Iγ, Ice, $\gamma\gamma$ coin, β endpoint, $\beta\gamma$ coin, 1978Ma17, 1970Ma47.

Others: 1958Al90, 1960Kj01, 1969Cl11, 1969Hn01, 1969Li20, 1973BuZW.

α: Additional information 1.

^{113}Cd Levels

E(level)	J^π	$T_{1/2}$[†]	Comments
0.0	$1/2^+$	8.04×10^{15} y *5*	
263.58 *13*	$11/2^-$	14.1 y *5*	
298.53 *6*	$3/2^+$		
316.18 *6*	$5/2^+$	10.7 ns *4*	$T_{1/2}$: from $\beta\gamma$(t) with scin, 1980Oh01.
522.34 *9*	$(7/2)^-$	0.322 ns *12*	$T_{1/2}$: from $\gamma\gamma$(t) with scin, 1980Oh01.
584.06 *9*	$5/2^+$		
638.06 *12*	$9/2^-$		
680.58 *7*	$3/2^+$		
708.58 *12*	$5/2^+$		
855.31 *8*	$5/2^-$		
883.60 *10*	$1/2^+$		
988.44 *8*	$1/2^+$		
1049.90 *10*	$3/2^+$		
1126.09 *8*	$3/2^+$		
1194.66 *6*	$(3/2^-)$		
1479.29 *7*	$3/2^+$,$5/2^+$		

[†] From Adopted Levels, except as noted.

β^- radiations

E(decay)	E(level)	Iβ^-[†‡]	Log *ft*	Comments
(537 *16*)	1479.29	≈0.12	≈7.7	av Eβ=167.7 *62*
(821 *16*)	1194.66	≈2.1	≈7.1	av Eβ=276.4 *68*
(890 *16*)	1126.09	≈0.086	≈8.6	av Eβ=303.9 *69*
(966 *16*)	1049.90	≈0.065	≈8.8	av Eβ=334.8 *70*
(1028 *16*)	988.44	≈0.45	≈8.1	av Eβ=360.2 *71*
(1132 *16*)	883.60	≈0.29	≈8.4	av Eβ=404.0 *72*
(1307 *16*)	708.58	≈0.020	≈10.6[1u]	av Eβ=490.2 *71* Log *ft*: calculated as first-forbidden unique.
(1335 *16*)	680.58	≈1.0	≈8.2	av Eβ=490.7 *74*
(1432 *16*)	584.06	≈0.13	≈10.0[1u]	av Eβ=542.5 *72* Log *ft*: calculated as first-forbidden unique.
(1700 *16*)	316.18	≈1.7	≈9.3[1u]	av Eβ=657.3 *74* Log *ft*: calculated as first-forbidden unique.
(1717 *16*)	298.53	≈9.4	≈7.6	av Eβ=659.1 *77*
(2016 *16*)	0.0	≈85	≈7.0	av Eβ=793.8 *78* E(decay): Eβ=2020 from 1957Je07. Other: 2030 (1970Ma47). Iβ^-: from Iβ(total)/Iγ(299) compared with ^{198}Au Iβ(total)/Iγ(412), 1970Ma47. Other: 88% (1969Hn01).

[†] β branches were obtained from (γ+ce) imbalance at each level, except for the g.s..

[‡] Absolute intensity per 100 decays.

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$\gamma(^{113}Cd)$

Iγ normalization: from Σ I(γ+ce) to g.s.+Iβ(g.s.)=100. The normalization factor is uncertain, since Iβ(g.s.) is approximate.
α(K)exp normalized by 316γ keV to E2 theory. If 316γ is M1, δ and α will be different for 259γ and 299γ.

E_γ	I_γ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α	Comments
17.7 *2*	0.42 *5*	316.18	5/2$^+$	298.53	3/2$^+$	M1		9.9 *4*	α(L)=8.0 *3*; α(M)=1.55 *6*; α(N)=0.275 *11*; α(O)=0.0154 *6*; α(N+..)=0.290 *11* B(M1)(W.u.)=0.0084 *14* I_γ: obtained by low-energy photon spectrometer. $I_{(\gamma+ce)}$: from Ti(17.7γ)/Ti(316.3γ) in ^{113}Ag β^- decay (68.7 s). Mult.: from Iγ and I(γ+ce).
96.2 *2*	0.37 *2*	680.58	3/2$^+$	584.06	5/2$^+$				
x133.5 *2*	0.66 *2*								
206.4 *2*	0.20 *2*	522.34	(7/2)$^-$	316.18	5/2$^+$				
217.2 *1*	0.28 *2*	855.31	5/2$^-$	638.06	9/2$^-$				
258.8 *1*	16.35 *30*	522.34	(7/2)$^-$	263.58	11/2$^-$	E2		0.0531	α(K)=0.0447 *7*; α(L)=0.00685 *10*; α(M)=0.001331 *19*; α(N)=0.000230 *4*; α(O)=9.56×10^{-6} *14* α(N+..)=0.000240 *4* B(E2)(W.u.)=44.0 *21* Mult.: from α(K)exp=0.049 *6*. E1+M2 is not excluded.
298.6 *1*	100	298.53	3/2$^+$	0.0	1/2$^+$	E2+(M1)	>1.1	0.0310 *21*	α(K)=0.0264 *17*; α(L)=0.0037 *4*; α(M)=0.00073 *7*; α(N)=0.000126 *12*; α(O)=5.85×10^{-6} *24* α(N+..)=0.000132 *12* Mult.: from α(K)exp=0.027 *1*.
316.3 *1*	13.43 *20*	316.18	5/2$^+$	0.0	1/2$^+$	[E2]		0.0273	α(K)=0.0232 *4*; α(L)=0.00335 *5*; α(M)=0.000648 *10*; α(N)=0.0001127 *16*; α(O)=5.07×10^{-6} *8* α(N+..)=0.0001178 *17* B(E2)(W.u.)=0.373 *21* Mult.: based on J^π values in proposed decay scheme.
333.1 *1*	5.98 *9*	855.31	5/2$^-$	522.34	(7/2)$^-$	(M1,E2)		0.0207 *25*	α(K)=0.0178 *19*; α(L)=0.0024 *5*; α(M)=0.00046 *9*; α(N)=8.0×10^{-5} *15*; α(O)=4.08×10^{-6} *25* α(N+..)=8.4×10^{-5} *15* Mult.: from α(K)exp=0.021 *9*.
339.4 *1*	6.38 *10*	1194.66	(3/2$^-$)	855.31	5/2$^-$	M1,E2		0.0196 *22*	α(K)=0.0168 *17*; α(L)=0.0022 *4*; α(M)=0.00043 *8*; α(N)=7.6×10^{-5} *13*; α(O)=3.87×10^{-6} *22* α(N+..)=7.9×10^{-5} *13* Mult.: from α(K)exp=0.019 *5*.
364.4 *1*	1.40 *3*	680.58	3/2$^+$	316.18	5/2$^+$				
369 *1*	0.10 *5*	1049.90	3/2$^+$	680.58	3/2$^+$				
374.3 *2*	0.25 *2*	638.06	9/2$^-$	263.58	11/2$^-$				
382.1 *1*	1.45 *3*	680.58	3/2$^+$	298.53	3/2$^+$				
392.4 *1*	0.20 *2*	708.58	5/2$^+$	316.18	5/2$^+$				
x410.8 *1*	0.12 *2*								

Continued on next page (footnotes at end of table)

^{113}Ag β^- decay (5.37 h) 1978Ma17,1970Ma47 (continued)

$\gamma(^{113}Cd)$ (continued)

E_γ	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π
539 *1*	0.08 *3*	855.31	$5/2^-$	316.18	$5/2^+$
584.0# *1*	2.1#† *3*	584.06	$5/2^+$	0.0	$1/2^+$
585# *1*	0.10#† *5*	883.60	$1/2^+$	298.53	$3/2^+$
611.0 *5*	0.45 *10*	1194.66	$(3/2^-)$	584.06	$5/2^+$
624.0 *1*	0.19 *1*	1479.29	$3/2^+,5/2^+$	855.31	$5/2^-$
672.3# *1*	0.3#† *1*	988.44	$1/2^+$	316.18	$5/2^+$
672.3# *1*	8.7#† *3*	1194.66	$(3/2^-)$	522.34	$(7/2)^-$
680.6 *1*	6.95 *16*	680.58	$3/2^+$	0.0	$1/2^+$
734 *1*	0.10 *5*	1049.90	$3/2^+$	316.18	$5/2^+$
809.9 *1*	0.15 *2*	1126.09	$3/2^+$	316.18	$5/2^+$
x816.1 *1*	0.11 *2*				
827 *1*	0.10 *5*	1126.09	$3/2^+$	298.53	$3/2^+$
878.5 *1*	0.52 *2*	1194.66	$(3/2^-)$	316.18	$5/2^+$
883.6 *1*	2.82 *7*	883.60	$1/2^+$	0.0	$1/2^+$
896.1 *1*	0.58 *10*	1194.66	$(3/2^-)$	298.53	$3/2^+$
988.4 *1*	4.23 *9*	988.44	$1/2^+$	0.0	$1/2^+$
1049.9 *1*	0.45 *3*	1049.90	$3/2^+$	0.0	$1/2^+$
x1084.5 *1*	0.16 *3*				
1126.1 *1*	0.61 *3*	1126.09	$3/2^+$	0.0	$1/2^+$
1180.8 *1*	0.37 *3*	1479.29	$3/2^+,5/2^+$	298.53	$3/2^+$
1194.6 *1*	3.78 *10*	1194.66	$(3/2^-)$	0.0	$1/2^+$
1479.2 *1*	0.68 *4*	1479.29	$3/2^+,5/2^+$	0.0	$1/2^+$

† Unresolved doublet. Iγ from $\gamma\gamma$-coin results. Iγ divided into two parts on the basis of intensity balances.
‡ For absolute intensity per 100 decays, multiply by ≈0.10.
# Multiply placed with intensity suitably divided.
x γ ray not placed in level scheme.

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Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided