^{121}Cd β^- decay (8.3 s) 1982Fo04

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. Ohya	NDS 111, 1619 (2010)	20-Jan-2009

Parent: ^{121}Cd: E=214.89; J$^\pi$=(11/2$^-$); $T_{1/2}$=8.3 s *8*; Q(β^-)=4780 *80*; %β^- decay=100.0
1982Fo04: U(n,F) on-line ms, semi γ ce, $\gamma\gamma$.
1982Al29: U(n,F) on-line ms, $\beta\gamma$, Eβ; deduced Q(β^-).
The decay scheme is that proposed by 1982Fo04 on the basis of $\gamma\gamma$ coin. measurements and Eγ sums.

^{121}In Levels

E(level)†	J$^\pi$‡	E(level)†	J$^\pi$‡	E(level)†	J$^\pi$‡
0.0	9/2$^+$	2114.84 *10*	(9/2$^-$,11/2$^-$)	2396.4 *3*	
987.75 *7*	(9/2)$^+$	2134.21 *11*		2455.08 *7*	(9/2$^-$,11/2$^-$)
1020.84 *6*	(9/2,11/2,13/2)$^+$	2160.10 *8*	(11/2$^-$)	2477.63 *8*	(11/2$^-$,13/2$^-$)
1181.56 *7*	(13/2)$^+$	2292.00 *7*	(11/2$^-$)	2503.80 *16*	
1408.02 *8*	(9/2$^+$)	2331.90 *10*	(9/2$^-$,11/2$^-$)	2510.78 *10*	(9/2$^-$,11/2$^-$)
1487.12 *8*	(9/2$^+$)	2357.60 *16*	(9/2$^-$,11/2$^-$,13/2$^-$)	2562.36 *10*	(11/2$^-$)
1504.03 *9*		2364.88 *8*	(11/2$^-$)	2581.40 *11*	(11/2$^-$,13/2$^-$)
2059.39 *7*	(11/2$^-$)	2369.75 *10*	(9/2$^-$,11/2$^-$)		

† E(levels) are based on a least-squares fit to E(γ's).
‡ From Adopted Levels.

β^- radiations

E(decay)	E(level)	Iβ^-†	Log *ft*	Comments
(2.41×10^3 *8*)	2581.40	5.0 *4*	5.15 *9*	av Eβ=975 *37*
(2.43×10^3 *8*)	2562.36	4.5 *5*	5.21 *9*	av Eβ=983 *37* E(β)=2510 *300* (coin with 2562γ) (1982Al29).
(2.48×10^3 *8*)	2510.78	3.02 *4*	5.43 *8*	av Eβ=1007 *37* E(β)=2640 *550* (coin with 2511γ) (1982Al29).
(2.49×10^3 *8*)	2503.80	1.22 *13*	5.82 *9*	av Eβ=1010 *37*
(2.52×10^3 *8*)	2477.63	6.7 *3*	5.10 *8*	av Eβ=1023 *37* E(β)=2320 *400* (coin with 1457γ) (1982Al29).
(2.54×10^3 *8*)	2455.08	8.8 *5*	5.00 *8*	av Eβ=1033 *37* E(β)=2640 *300* (coin with 2455γ) (1982Al29).
(2.60×10^3 *8*)	2396.4	0.24 *5*	6.61 *12*	av Eβ=1060 *38*
(2.63×10^3 *8*)	2369.75	4.6 *3*	5.34 *8*	av Eβ=1073 *38* E(β)=2460 *360* (coin with 1381γ) (1982Al29).
(2.63×10^3 *8*)	2364.88	8.0 *8*	5.11 *9*	av Eβ=1075 *38* E(β)=2670 *230* (coin with 2365γ) (1982Al29).
(2.64×10^3 *8*)	2357.60	2.00 *22*	5.71 *9*	av Eβ=1078 *38*
(2.66×10^3 *8*)	2331.90	5.0 *5*	5.33 *9*	av Eβ=1090 *38* E(β)=2760 *420* (coin with 2331γ) (1982Al29).
(2.70×10^3 *8*)	2292.00	5.4 *4*	5.33 *8*	av Eβ=1109 *38* E(β)=2890 *600* (coin with 1271γ), E(β)=2660 (coin with 2292γ) (1982Al29).
(2.83×10^3 *8*)	2160.10	12.7 *8*	5.04 *8*	av Eβ=1170 *38* E(β)=2830 *360* (coin with 1139γ) (1982Al29).
(2.86×10^3 *8*)	2134.21	1.4 *5*	6.01 *17*	av Eβ=1182 *38*
(2.88×10^3 *8*)	2114.84	2.08 *19*	5.86 *8*	av Eβ=1191 *38* E(β)=2730 *410* (coin with 2115γ) (1982Al29).
(2.94×10^3 *8*)	2059.39	18.7 *12*	4.94 *8*	av Eβ=1217 *38* E(β)=2830 *140* (coin with 2059γ) (1982Al29).

Continued on next page (footnotes at end of table)

^{121}Cd β^- decay (8.3 s) 1982Fo04 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^-†	Log *ft*	Comments
(3.49×10^3 *8*)	1504.03	1.0 *4*	6.53 *19*	av Eβ=1478 *38*
(3.51×10^3 *8*)	1487.12	0.8 *4*	6.63 *23*	av Eβ=1486 *38*
(3.81×10^3 *8*)	1181.56	2.6 *9*	6.28 *17*	av Eβ=1630 *38*
(4.01×10^3 *8*)	987.75	1.6 *9*	6.6 *3*	av Eβ=1722 *38*
(4.99×10^3 *8*)	0.0	4.8 *25*	6.52 *24*	av Eβ=2190 *38*

† Absolute intensity per 100 decays.

$\gamma(^{121}In)$

Iγ normalization: from ΣI(γ+ce to g.s.)=95.2% assuming I(β^- to g.s.)=4.8% in accordance with similar 1st forbidden β^- (11/2$^-$ to 9/2$^+$) with logft=6.5 in this mass range.

E$_\gamma$	I$_\gamma$‡	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.	δ	α#	Comments
100.75 *10*	16.4 *15*	2160.10	(11/2$^-$)	2059.39	(11/2$^-$)	M1		0.500	α(K)=0.433 *7*; α(L)=0.0547 *8*; α(M)=0.01063 *16*; α(N+..)=0.00209 *3* α(N)=0.00194 *3*; α(O)=0.0001435 *21* Mult.: from α(K)exp=0.36 *10*.
112.74 *10*	5.0 *4*	2477.63	(11/2$^-$,13/2$^-$)	2364.88	(11/2$^-$)	M1+E2	+0.76 *+55−43*	0.60 *18*	α(K)=0.48 *13*; α(L)=0.10 *5*; α(M)=0.019 *9*; α(N+..)=0.0035 *15* α(N)=0.0034 *15*; α(O)=0.00016 *5* Mult.,δ: from α(K)exp=0.48 *12*. α: for δ=1.0, uncertainty chosen to overlap M1, E2 theory values.
160.73 *15*	2.6 *3*	1181.56	(13/2)$^+$	1020.84	(9/2,11/2,13/2)$^+$	E2		0.288	α(K)=0.231 *4*; α(L)=0.0455 *7*; α(M)=0.00903 *13*; α(N+..)=0.001654 *24* α(N)=0.001579 *23*; α(O)=7.59×10^{-5} *11* Mult.: from α(K)exp=0.25 *6*.
185.6† *3*	1.4 *5*	2477.63	(11/2$^-$,13/2$^-$)	2292.00	(11/2$^-$)				
194.6 *3*	1.2 *2*	1181.56	(13/2)$^+$	987.75	(9/2)$^+$	[E2]		0.1473	α(K)=0.1208 *18*; α(L)=0.0214 *4*; α(M)=0.00423 *7*; α(N+..)=0.000784 *12* α(N)=0.000745 *12*; α(O)=3.90×10^{-5} *6*
289.43 *15*	2.5 *3*	2581.40	(11/2$^-$,13/2$^-$)	2292.00	(11/2$^-$)				
317.4 *4*	2.0 *5*	2477.63	(11/2$^-$,13/2$^-$)	2160.10	(11/2$^-$)				
340.4 *4*	2.0 *5*	2455.08	(9/2$^-$,11/2$^-$)	2114.84	(9/2$^-$,11/2$^-$)				
418.2 *8*	1.0 *3*	2477.63	(11/2$^-$,13/2$^-$)	2059.39	(11/2$^-$)				
420.10 *10*	21.0 *10*	1408.02	(9/2$^+$)	987.75	(9/2)$^+$	M1,E2		0.0114 *4*	α(K)=0.00985 *21*; α(L)=0.00128 *11*; α(M)=0.000249 *21*; α(N+..)=4.8×10^{-5} *4* α(N)=4.5×10^{-5} *4*; α(O)=3.15×10^{-6} *5* Mult.: from α(K)exp=0.017 *10*.
447.08 *10*	16.8 *10*	2581.40	(11/2$^-$,13/2$^-$)	2134.21					
466.15 *10*	6.6 *4*	1487.12	(9/2$^+$)	1020.84	(9/2,11/2,13/2)$^+$				
502.9 *6*	3.0 *10*	2562.36	(11/2$^-$)	2059.39	(11/2$^-$)				
572.24 *10*	9.6 *6*	2059.39	(11/2$^-$)	1487.12	(9/2$^+$)				
651.5 *6*	2.4 *6*	2059.39	(11/2$^-$)	1408.02	(9/2$^+$)				
751.73 *15*	6.1 *6*	2160.10	(11/2$^-$)	1408.02	(9/2$^+$)				
827.8 *4*	3.6 *10*	2331.90	(9/2$^-$,11/2$^-$)	1504.03					
844.6 *3*	4.7 *15*	2331.90	(9/2$^-$,11/2$^-$)	1487.12	(9/2$^+$)				
860.7 *6*	2.6 *8*	2364.88	(11/2$^-$)	1504.03					
865.7 *4*	2.8 *8*	2369.75	(9/2$^-$,11/2$^-$)	1504.03					
878.2 *3*	3.3 *9*	2059.39	(11/2$^-$)	1181.56	(13/2)$^+$				
884.1 *8*	1.5 *4*	2292.00	(11/2$^-$)	1408.02	(9/2$^+$)				

$\gamma(^{121}$In) (continued)

E_γ	I_γ‡	E_i(level)	J_i^π	E_f	J_f^π
952.54 10	24 2	2134.21		1181.56	$(13/2)^+$
956.9 8	1.6 4	2364.88	$(11/2^-)$	1408.02	$(9/2^+)$
978.8 8	5.6 15	2160.10	$(11/2^-)$	1181.56	$(13/2)^+$
987.81 10	65 4	987.75	$(9/2)^+$	0.0	$9/2^+$
1000.0 2	4.2 6	2503.80		1504.03	
1020.89 10	90 3	1020.84	$(9/2,11/2,13/2)^+$	0.0	$9/2^+$
1038.5 8	7 2	2059.39	$(11/2^-)$	1020.84	$(9/2,11/2,13/2)^+$
1069.49 10	9.5 5	2477.63	$(11/2^-,13/2^-)$	1408.02	$(9/2^+)$
1102.9 6	1.5 5	2510.78	$(9/2^-,11/2^-)$	1408.02	$(9/2^+)$
1110.6 3	4.0 10	2292.00	$(11/2^-)$	1181.56	$(13/2)^+$
1127.0 8	1.6 4	2114.84	$(9/2^-,11/2^-)$	987.75	$(9/2)^+$
1139.35 10	29 2	2160.10	$(11/2^-)$	1020.84	$(9/2,11/2,13/2)^+$
1174.1 3	3.3 5	2581.40	$(11/2^-,13/2^-)$	1408.02	$(9/2^+)$
1181.45 10	59 2	1181.56	$(13/2)^+$	0.0	$9/2^+$
1183.4 2	6 2	2364.88	$(11/2^-)$	1181.56	$(13/2)^+$
1214.8 3	1.2 2	2396.4		1181.56	$(13/2)^+$
1271.30 10	15.8 8	2292.00	$(11/2^-)$	1020.84	$(9/2,11/2,13/2)^+$
1296.2 8	2.6 6	2477.63	$(11/2^-,13/2^-)$	1181.56	$(13/2)^+$
1311.0 8	3.2 8	2331.90	$(9/2^-,11/2^-)$	1020.84	$(9/2,11/2,13/2)^+$
1336.75 15	10.0 10	2357.60	$(9/2^-,11/2^-,13/2^-)$	1020.84	$(9/2,11/2,13/2)^+$
1380.9 8	1.8 5	2562.36	$(11/2^-)$	1181.56	$(13/2)^+$
1381.97 10	15.3 10	2369.75	$(9/2^-,11/2^-)$	987.75	$(9/2)^+$
1399.9 2	2.3 4	2581.40	$(11/2^-,13/2^-)$	1181.56	$(13/2)^+$
1408.0 2	1.5 3	1408.02	$(9/2^+)$	0.0	$9/2^+$
1433.81 15	3.4 5	2455.08	$(9/2^-,11/2^-)$	1020.84	$(9/2,11/2,13/2)^+$
1456.90 10	8.4 5	2477.63	$(11/2^-,13/2^-)$	1020.84	$(9/2,11/2,13/2)^+$
1467.54 10	15.8 8	2455.08	$(9/2^-,11/2^-)$	987.75	$(9/2)^+$
1487.27 15	11.5 6	1487.12	$(9/2^+)$	0.0	$9/2^+$
1504.07 10	18.2 10	1504.03		0.0	$9/2^+$
1515.8† 2	1.9 3	2503.80		987.75	$(9/2)^+$
2059.41 10	100 4	2059.39	$(11/2^-)$	0.0	$9/2^+$
2114.83 10	10.8 6	2114.84	$(9/2^-,11/2^-)$	0.0	$9/2^+$
2291.83 10	9.5 6	2292.00	$(11/2^-)$	0.0	$9/2^+$
2331.90 10	13.3 8	2331.90	$(9/2^-,11/2^-)$	0.0	$9/2^+$
2364.83 10	38 2	2364.88	$(11/2^-)$	0.0	$9/2^+$
2369.77 15	5.1 4	2369.75	$(9/2^-,11/2^-)$	0.0	$9/2^+$
^{x}2410.8 3	1.2 2				
2455.00 10	23 2	2455.08	$(9/2^-,11/2^-)$	0.0	$9/2^+$
2510.75 10	13.6 9	2510.78	$(9/2^-,11/2^-)$	0.0	$9/2^+$
2562.33 10	17.7 10	2562.36	$(11/2^-)$	0.0	$9/2^+$

From ENSDF

$^{121}_{49}In_{72}$-4

γ(^{121}In) (continued)

† The placement of both the 185.6γ and 1515.8γ from the 2510.78 level by 1982Fo04 gave very poor energy fit (≈7 keV). The evaluators modified their placement from different levels; 2477.62 (185.6γ) and 2503.80 level (1515.8γ), respectively.

‡ For absolute intensity per 100 decays, multiply by 0.200 *4*.

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.

^{x} γ ray not placed in level scheme.

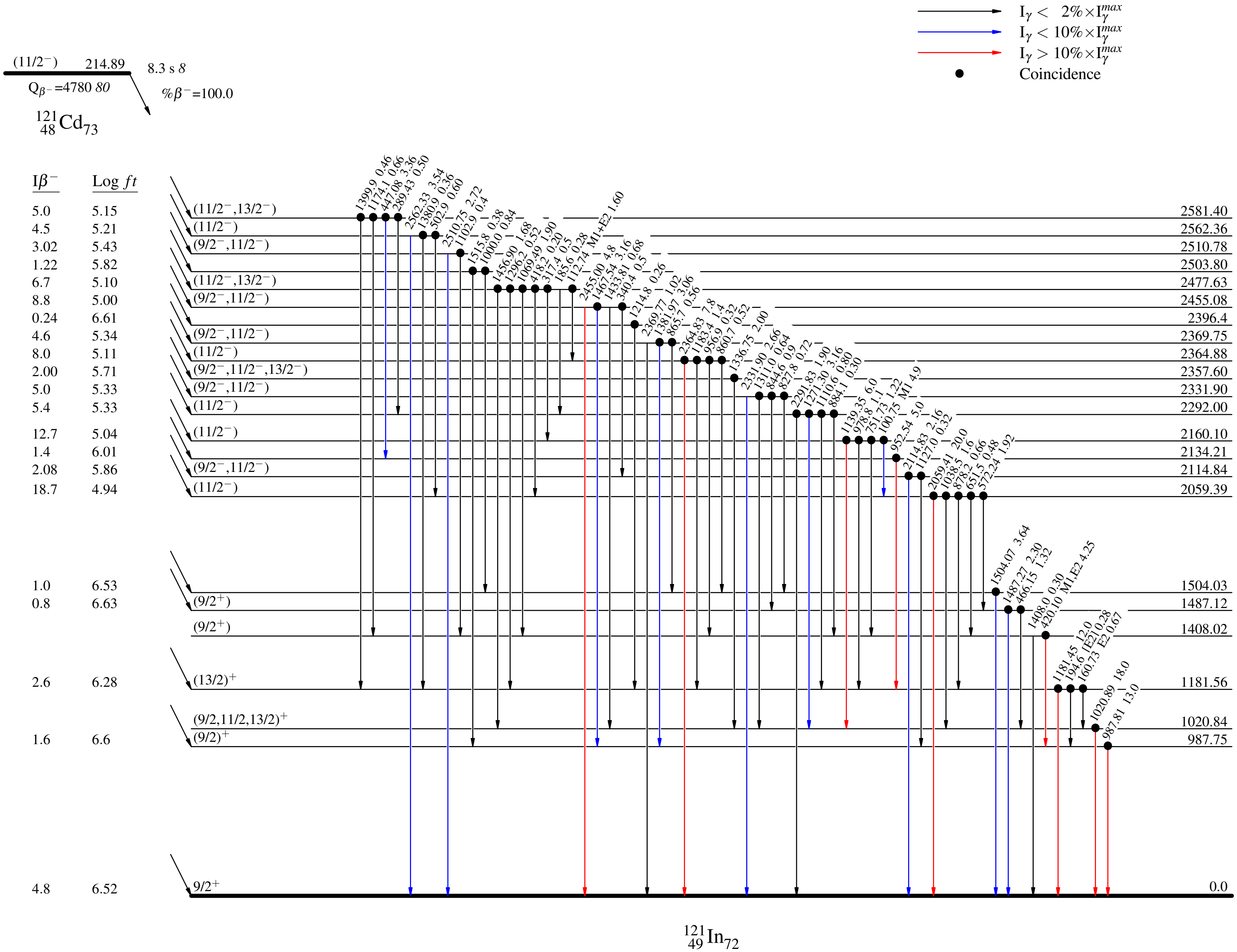
$^{121}_{49}$In$_{72}$-5

^{121}Cd β^- decay (8.3 s) 1982Fo04

Decay Scheme

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

Legend



From ENSDF