^{121}Cd β^- decay (13.5 s) 1982Fo04

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

Parent: ^{121}Cd: E=0.0; J$^\pi$=(3/2$^+$); $T_{1/2}$=13.5 s *3*; 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 $\gamma\gamma$ and Eγ sums.

^{121}In Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
0.0[‡]	9/2$^+$	23.1 s *6*	
313.69[‡] *10*	1/2$^-$	3.88 min *10*	
637.86 *9*	3/2$^-$		
987.05 *10*	(3/2$^+$)	5.5 ns *3*	$T_{1/2}$: from β γ(t) in ^{121}Cd β^- decay (1982Fo04).
987.81 *10*	(9/2)$^+$		
1040.30 *9*	(5/2)$^+$		
1078.99 *12*	5/2$^-$		
1197.27 *12*	(1/2$^+$)	<2 ns	$T_{1/2}$: from β γ(t) in ^{121}Cd β^- decay (1982Fo04).
1315.15 *8*	(5/2$^+$)		
1460.6 *4*			
1483.24 *9*	(5/2$^+$)		
1759.8 *4*			
1792.01 *19*			
1961.23 *16*	(1/2$^+$,3/2$^+$)		
1965.78 *14*	(1/2$^+$,3/2$^+$,5/2$^+$)		
1988.81 *19*			
2136.46 *12*	(3/2$^+$)		
2222.00 *13*	(1/2$^+$,3/2$^+$,5/2$^+$)		
2264.89 *10*	(5/2)$^+$		
2299.45 *15*	(1/2$^+$,3/2$^+$,5/2$^+$)		
2336.92 *10*	(1/2$^+$,3/2$^+$)		
2382.11 *22*	(3/2$^+$,5/2$^+$)		
2472.66 *13*	(1/2$^+$,3/2$^+$,5/2$^+$)		
2491.77 *12*	(1/2$^+$,3/2$^+$,5/2$^+$)		
2523.18 *16*	(3/2$^+$,5/2$^+$)		
2538.77 *22*			
2611.69 *21*	(1/2$^+$,3/2$^+$,5/2$^+$)		

† 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
(2.17×10^3 *8*)	2611.69	1.9 *4*	5.60 *12*	av Eβ=862 *37*
(2.24×10^3 *8*)	2538.77	0.52 *10*	6.22 *11*	av Eβ=895 *37*
(2.26×10^3 *8*)	2523.18	3.8 *4*	5.37 *8*	av Eβ=902 *37* E(β)=2710 *400* (coin with 1885γ) (1982Al29).
(2.29×10^3 *8*)	2491.77	4.2 *3*	5.35 *8*	av Eβ=917 *37*
(2.31×10^3 *8*)	2472.66	2.81 *22*	5.54 *8*	av Eβ=926 *37*
(2.40×10^3 *8*)	2382.11	2.81 *25*	5.60 *8*	av Eβ=967 *37*
(2.44×10^3 *8*)	2336.92	9.5 *5*	5.11 *7*	av Eβ=988 *37*

Continued on next page (footnotes at end of table)

^{121}Cd β^- decay (13.5 s) 1982Fo04 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^{-}†	Log *ft*	Comments
				E(β)=2650 *360* (coin with 1699γ) (1982Al29).
(2.48×10^3 *8*)	2299.45	3.1 *4*	5.62 *9*	av Eβ=1006 *37*
(2.52×10^3 *8*)	2264.89	7.0 *6*	5.29 *7*	av Eβ=1022 *37* E(β)=2590 *610* (coin with 1277γ) (1982Al29).
(2.56×10^3 *8*)	2222.00	4.4 *3*	5.53 *7*	av Eβ=1041 *38* E(β)=2690 *320* (coin with 1584γ) (1982Al29).
(2.64×10^3 *8*)	2136.46	11.7 *6*	5.16 *6*	av Eβ=1081 *38* E(β)=2630 *360* (coin with 1096γ) (1982Al29).
(2.79×10^3 *8*)	1988.81	1.96 *21*	6.04 *8*	av Eβ=1150 *38*
(2.81×10^3 *8*)	1965.78	6.4 *10*	5.54 *9*	av Eβ=1161 *38*
(2.82×10^3 *8*)	1961.23	5.5 *4*	5.61 *7*	av Eβ=1163 *38* E(β)=2700 *440* (coin with 1647γ) (1982Al29).
(2.99×10^3 *8*)	1792.01	2.24 *21*	6.10 *7*	av Eβ=1242 *38*
(3.02×10^3 *8*)	1759.8	1.19 *16*	6.40 *8*	av Eβ=1257 *38*
(3.30×10^3 *8*)	1483.24	4.0 *7*	6.03 *9*	av Eβ=1386 *38*
(3.32×10^3 *8*)	1460.6	0.53 *10*	6.92 *10*	av Eβ=1397 *38*
(3.46×10^3 *8*)	1315.15	10.1 *11*	5.72 *7*	av Eβ=1466 *38*
(3.58×10^3 *8*)	1197.27	0.9 *5*	6.83 *25*	av Eβ=1521 *38*
(3.70×10^3 *8*)	1078.99	1.9 *6*	6.57 *15*	av Eβ=1577 *38*
(3.74×10^3 *8*)	1040.30	6.3 *12*	6.07 *10*	av Eβ=1595 *38*
(3.79×10^3 *8*)	987.05	3.9 *16*	6.30 *19*	av Eβ=1620 *38*
(4.47×10^3 *8*)	313.69	3.3 *10*	6.68 *14*	av Eβ=1939 *38*

† Absolute intensity per 100 decays.

$\gamma(^{121}$In)

Iγ normalization: from ΣI(γ+ce to g.s.+314 level)=96.7% assuming I(β^- to g.s.)=3.3% in accordance with similar 1st forbidden β^- (1/2$^-$ to 3/2$^+$) transition with logft=6.7 in this mass range.

E$_\gamma$	I$_\gamma$ †	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.	α ‡	Comments
210.21 *10*	6.3 *4*	1197.27	(1/2$^+$)	987.05	(3/2$^+$)	E2	0.1127	α(K)=0.0931 *14*; α(L)=0.01591 *23*; α(M)=0.00314 *5*; α(N+..)=0.000584 *9* α(N)=0.000554 *8*; α(O)=2.99×10^{-5} *5* Mult.: from α(K)exp=0.13 *4*.
236.2 *4*	1.0 *3*	1315.15	(5/2$^+$)	1078.99	5/2$^-$	[E1]	0.01550	α(K)=0.01350 *20*; α(L)=0.001631 *24*; α(M)=0.000315 *5*; α(N+..)=6.11×10^{-5} *9* α(N)=5.71×10^{-5} *9*; α(O)=3.99×10^{-6} *6*
274.91 *10*	4.1 *3*	1315.15	(5/2$^+$)	1040.30	(5/2)$^+$	[M1,E2]	0.039 *7*	α(K)=0.033 *5*; α(L)=0.0047 *12*; α(M)=0.00092 *24*; α(N+..)=0.00018 *5* α(N)=0.00016 *4*; α(O)=1.07×10^{-5} *15* α: for δ=1.0, uncertainty chosen to overlap M1, E2 theory values.
299.06 *15*	2.1 *3*	2264.89	(5/2)$^+$	1965.78	(1/2$^+$,3/2$^+$,5/2$^+$)	[M1,E2]	0.030 *4*	α(K)=0.026 *3*; α(L)=0.0036 *8*; α(M)=0.00070 *16*; α(N+..)=0.00013 *3* α(N)=0.00013 *3*; α(O)=8.3×10^{-6} *9* α: for δ=1.0, uncertainty chosen to overlap M1, E2 theory values.
313.6 *2*		313.69	1/2$^-$	0.0	9/2$^+$	M4	1.481	α(K)=1.163 *17*; α(L)=0.256 *4*; α(M)=0.0525 *8*; α(N+..)=0.00997 *15* α(N)=0.00942 *14*; α(O)=0.000545 *8* Mult.: from α(K)exp=1.0 *2*.
324.22 *10*	100 *4*	637.86	3/2$^-$	313.69	1/2$^-$	M1,E2	0.024 *3*	α(K)=0.0205 *19*; α(L)=0.0028 *5*; α(M)=0.00054 *10*; α(N+..)=0.000104 *18* α(N)=9.8×10^{-5} *17*; α(O)=6.6×10^{-6} *6* E$_\gamma$: 324.976 *13* measured by crystal spectrometer (1979Bo26). Mult.: from α(K)exp=0.018 *2*. α: for δ=1.0, uncertainty chosen to overlap M1, E2 theory values.
328.0 *2*	3.7 *10*	1315.15	(5/2$^+$)	987.05	(3/2$^+$)	[M1,E2]	0.0231 *24*	α(K)=0.0198 *18*; α(L)=0.0027 *5*; α(M)=0.00052 *10*; α(N+..)=0.000101 *17* α(N)=9.4×10^{-5} *16*; α(O)=6.3×10^{-6} *5* α: for δ=1.0, uncertainty chosen to overlap M1, E2 theory values.
349.20 *10*	26 *2*	987.05	(3/2$^+$)	637.86	3/2$^-$	[E1]	0.00548 *8*	α=0.00548 *8*; α(K)=0.00477 *7*; α(L)=0.000571 *8*; α(M)=0.0001102 *16*; α(N+..)=2.15×10^{-5} *3* α(N)=2.01×10^{-5} *3*; α(O)=1.435×10^{-6} *21* E$_\gamma$: 349.937 *16* measured by crystal spectrometer (1979Bo26).
381.6 *3*	1.1 *2*	1460.6		1078.99	5/2$^-$			α(K)=0.00381; α(L)=0.00045
402.51 *10*	7.3 *4*	1040.30	(5/2)$^+$	637.86	3/2$^-$			
441.1 *2*	3.5 *4*	1078.99	5/2$^-$	637.86	3/2$^-$			
559.34 *15*	2.9 *3*	1197.27	(1/2$^+$)	637.86	3/2$^-$			
594.74 *15*	4.7 *4*	1792.01		1197.27	(1/2$^+$)			

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

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π
650.6 3	8.6 15	1965.78	(1/2+,3/2+,5/2+)	1315.15	(5/2+)
673.6 2	6.8 15	987.05	(3/2+)	313.69	1/2−
677.21 10	7.1 5	1315.15	(5/2+)	637.86	3/2−
765.28 10	12.1 8	1078.99	5/2−	313.69	1/2−
781.62 10	2.7 3	2264.89	(5/2)+	1483.24	(5/2+)
899.0 3	2.0 3	2382.11	(3/2+,5/2+)	1483.24	(5/2+)
909.82 15	4.1 4	1988.81		1078.99	5/2−
938.9 3	2.0 5	2136.46	(3/2+)	1197.27	(1/2+)
978.6 3	3.8 10	1965.78	(1/2+,3/2+,5/2+)	987.05	(3/2+)
987.81 10	3.8 8	987.81	(9/2)+	0.0	9/2+
1039.9 8	1.5 5	2523.18	(3/2+,5/2+)	1483.24	(5/2+)
1040.26 15	34 2	1040.30	(5/2)+	0.0	9/2+
1057.5 2	1.8 2	2136.46	(3/2+)	1078.99	5/2−
1096.04 15	12.4 6	2136.46	(3/2+)	1040.30	(5/2)+
1121.9 3	2.5 3	1759.8		637.86	3/2−
1128.6 8	2.0 7	2611.69	(1/2+,3/2+,5/2+)	1483.24	(5/2+)
1149.9 2	4.6 4	2136.46	(3/2+)	987.05	(3/2+)
1258.8 2	1.2 2	2299.45	(1/2+,3/2+,5/2+)	1040.30	(5/2)+
1277.1 3	3.8 8	2264.89	(5/2)+	987.81	(9/2)+
1277.7 3	2.5 7	2264.89	(5/2)+	987.05	(3/2+)
1296.86 10	7.9 5	2336.92	(1/2+,3/2+)	1040.30	(5/2)+
1302.6 4	2.7 3	2382.11	(3/2+,5/2+)	1078.99	5/2−
1312.6 8	2.2 5	2299.45	(1/2+,3/2+,5/2+)	987.05	(3/2+)
1315.18 10	13.6 7	1315.15	(5/2+)	0.0	9/2+
1323.6 3	2.7 5	1961.23	(1/2+,3/2+)	637.86	3/2−
1325.9 5	1.3 3	2523.18	(3/2+,5/2+)	1197.27	(1/2+)
1327.9 3	3.2 4	1965.78	(1/2+,3/2+,5/2+)	637.86	3/2−
1444.2 5	0.8 2	2523.18	(3/2+,5/2+)	1078.99	5/2−
1451.20 15	2.4 2	2491.77	(1/2+,3/2+,5/2+)	1040.30	(5/2)+
1483.23 10	16.6 8	1483.24	(5/2+)	0.0	9/2+
1498.4 5	0.5 2	2136.46	(3/2+)	637.86	3/2−
1504.6 8	0.8 2	2491.77	(1/2+,3/2+,5/2+)	987.05	(3/2+)
1584.13 10	9.3 5	2222.00	(1/2+,3/2+,5/2+)	637.86	3/2−
1627.13 15	3.5 2	2264.89	(5/2)+	637.86	3/2−
1647.47 15	8.9 5	1961.23	(1/2+,3/2+)	313.69	1/2−
1661.77 15	3.2 3	2299.45	(1/2+,3/2+,5/2+)	637.86	3/2−
1698.85 10	11.5 5	2336.92	(1/2+,3/2+)	637.86	3/2−
1744.5 4	1.2 2	2382.11	(3/2+,5/2+)	637.86	3/2−
1822.6 2	3.2 3	2136.46	(3/2+)	313.69	1/2−
1834.79 10	5.9 4	2472.66	(1/2+,3/2+,5/2+)	637.86	3/2−
1854.02 10	5.7 5	2491.77	(1/2+,3/2+,5/2+)	637.86	3/2−
1885.30 15	4.3 3	2523.18	(3/2+,5/2+)	637.86	3/2−
1900.9 2	1.1 2	2538.77		637.86	3/2−
1973.8 2	1.9 2	2611.69	(1/2+,3/2+,5/2+)	637.86	3/2−
2023.0 2	0.5 1	2336.92	(1/2+,3/2+)	313.69	1/2−

[†] For absolute intensity per 100 decays, multiply by 0.477 13.

[‡] 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.

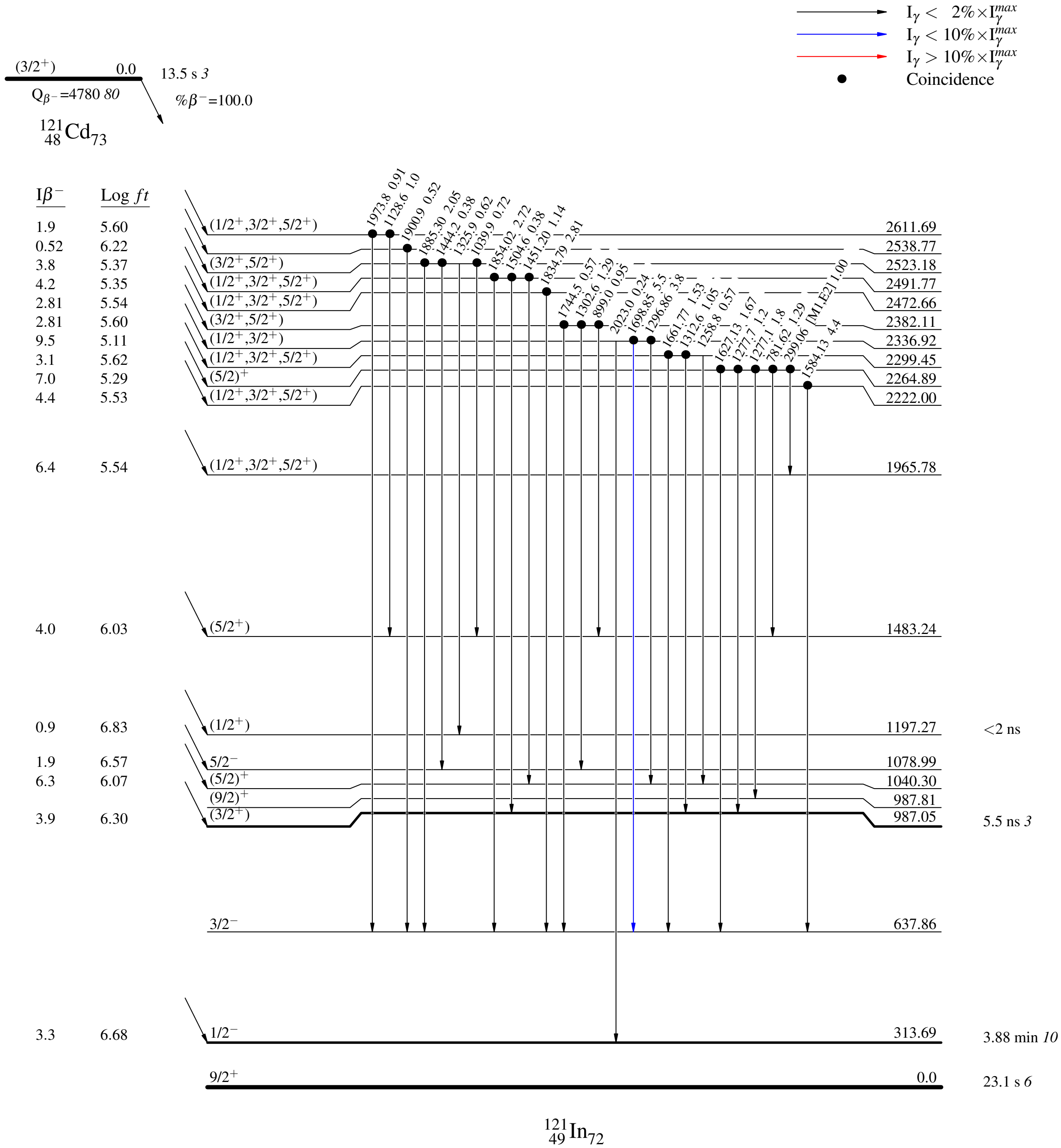
$^{121}_{49}In_{72}$-4

^{121}Cd β^- decay (13.5 s) 1982Fo04

Decay Scheme

Intensities: I_γ per 100 parent decays

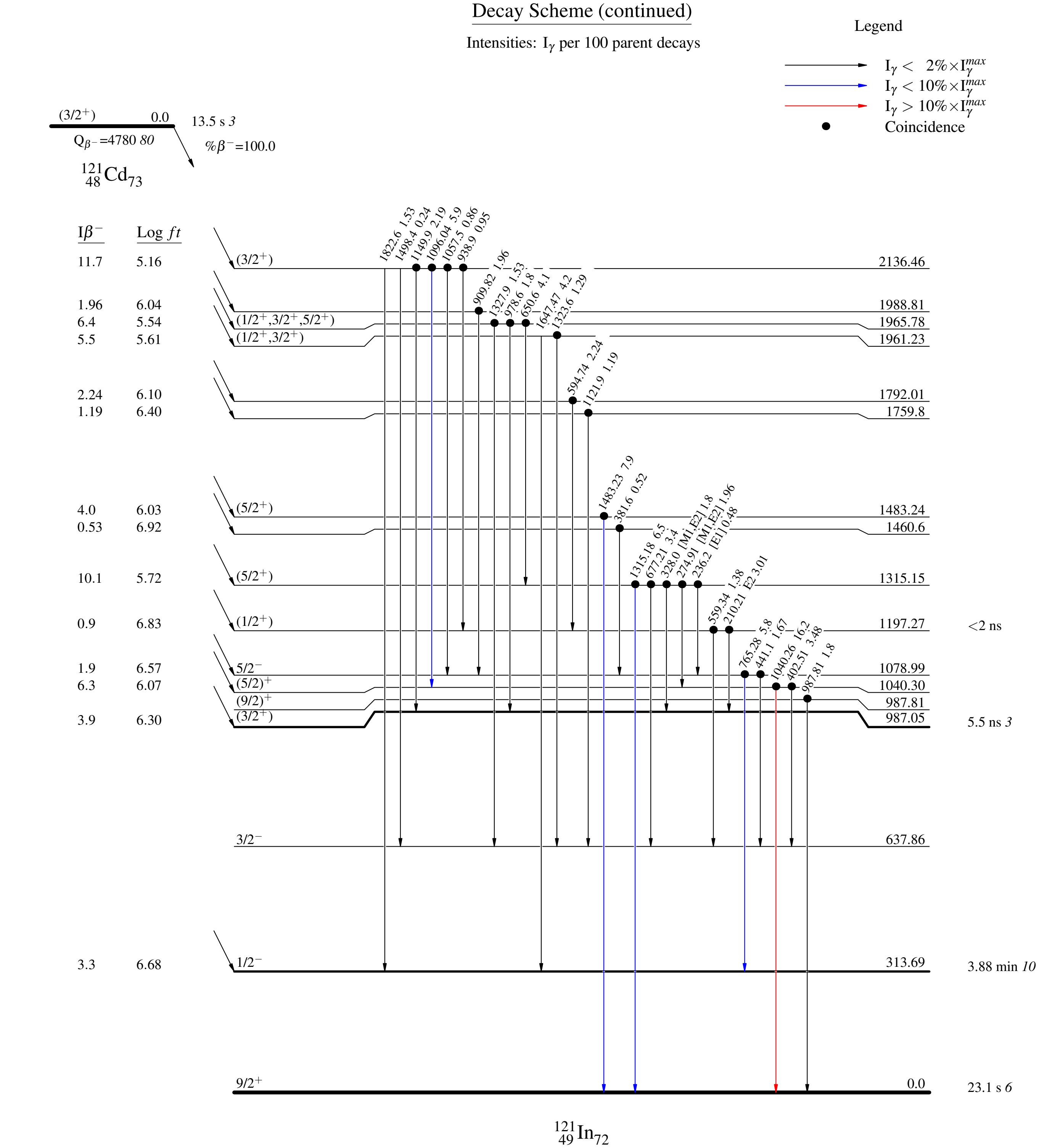
Legend



^{121}Cd β^- decay (13.5 s) 1982Fo04

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays



$^{121}Cd\ \beta^-$ decay (13.5 s) 1982Fo04