

^{117}Ag β^- decay (72.8 s) 1976Fo10

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

Parent: ^{117}Ag : E=0; $J^\pi=(1/2^-)$; $T_{1/2}=72.8$ s +20-7; $Q(\beta^-)=4238$ 15; $\% \beta^-$ decay=100.0

Activity: on-line isotopic separations of fission products (1976Fo10), chemistry (1982Br10).

Measured: $\gamma\gamma$ -coin, $\beta\gamma(t)$, $\gamma\gamma(t)$, Ice(K)/I γ (1976Fo10), γ , $\gamma\gamma$ (1982Br10), $T_{1/2}$ (1974Gr29). Others: 1969We11, 1958Al90, Q (1982Al29).

See 1975Al11 for β -strength function.

α : Additional information 1.

 ^{117}Cd Levels

E(level)	J^π	$T_{1/2}$	E(level)	J^π
0.0	$1/2^+$	2.49 h 4	1355.93 23	$(5/2^+)$
135.41 8	$3/2^+$	$\leq 1^\dagger$ ns	1609.01 20	
136.44 23	$(11/2)^-$	3.36 h 5	1784.2 4	
278.54 22	$(9/2)^-$		1995.42 15	$(1/2^-, 3/2^-)$
293.52 21	$(7/2)^-$	3.6^\dagger ns 2	2013.19 17	$(1/2^-, 3/2^-)$
337.72 8	$(3/2)^+$		2192.06 12	$(1/2^-, 3/2^-)$
426.20 10	$(3/2)^+$		2301.63 22	$(1/2^-, 3/2^-)$
442.64 10	$3/2^+, 5/2^+$		2354.6 4	
522.19 10	$(5/2)^+$		2382.6 3	$(3/2^-)$
605.74 20	$(5/2, 7/2)^-$		2514.1 3	$(1/2^-, 3/2^-)$
665.20 15	$5/2^+$		2554.5 4	
690.8 3	$5/2^+$		2641.2 3	$(1/2^-, 3/2^-)$
820.28 14	$(5/2^+)$		2888.3 3	$(1/2^-, 3/2^-)$
1073.22 21	$(3/2^-, 5/2^-)$		3000.8 5	$(1/2^-, 3/2^-)$
1352.3 3			3032.4 4	$(1/2^-, 3/2^-)$

† From 1976Fo10.

 β^- radiations

E(decay)	E(level)	$I\beta^-^\dagger$	Log ft	Comments
(1206 15)	3032.4	1.1 4	5.43 18	av $E\beta=402$ 22
(1237 15)	3000.8	1.0 4	5.52 19	av $E\beta=415$ 22
(1350 15)	2888.3	2.6 6	5.26 12	av $E\beta=463$ 22
(1597 15)	2641.2	1.9 5	5.69 13	av $E\beta=571$ 22
(1684 15)	2554.5	0.9 3	6.11 16	av $E\beta=609$ 23
(1724 15)	2514.1	2.0 5	5.81 13	av $E\beta=627$ 23
(1855 15)	2382.6	4.5 12	5.59 13	av $E\beta=686$ 23
(1883 15)	2354.6	1.1 3	6.23 13	av $E\beta=698$ 23
(1936 15)	2301.63	3.4 9	5.79 13	av $E\beta=722$ 23
(2046 15)	2192.06	9.6 22	5.44 11	av $E\beta=772$ 23
(2225 15)	2013.19	5.4 13	5.84 12	av $E\beta=854$ 23
(2243 15)	1995.42	6.2 15	5.79 12	av $E\beta=862$ 23
(2454 15)	1784.2	0.9 4	6.80 20	av $E\beta=959$ 24
(2629 15)	1609.01	4.3 10	6.25 11	av $E\beta=1040$ 24
(2882 15)	1355.93	1.1 3	7.01 13	av $E\beta=1158$ 24
(2886 ‡ 15)	1352.3	≤ 0.2	≥ 7.8	av $E\beta=1159$ 24
(3165 15)	1073.22	2.3 8	6.87 16	av $E\beta=1290$ 24
(3418 15)	820.28	0.7 3	7.53 19	av $E\beta=1409$ 24
(3547 ‡ 15)	690.8	≤ 0.7	≥ 7.6	av $E\beta=1470$ 24

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$^{117}\text{Ag} \beta^-$ decay (72.8 s) **1976Fo10** (continued) β^- radiations (continued)

E(decay)	E(level)	$I\beta^{-\dagger}$	Log ft	Comments
(3573 15)	665.20	2.4 6	7.08 12	av $E\beta=1482$ 24
(3716 15)	522.19	1.1 6	7.49 24	av $E\beta=1550$ 24
(3795 \ddagger 15)	442.64	≤ 0.8	≥ 7.7	av $E\beta=1587$ 24
(3812 15)	426.20	6.9 16	6.74 11	av $E\beta=1595$ 24
(3900 15)	337.72	2.8 11	7.18 18	av $E\beta=1637$ 24
(3944 \ddagger 15)	293.52	≤ 1.9	≥ 7.4	av $E\beta=1658$ 24
(3959 \ddagger 15)	278.54	≤ 1.1	≥ 7.6	av $E\beta=1665$ 24
(4103 15)	135.41	15 4	6.55 12	av $E\beta=1733$ 24
(4238 \ddagger 15)	0.0	≤ 20	≥ 6.5	av $E\beta=1797$ 24

\dagger Absolute intensity per 100 decays.

\ddagger Existence of this branch is questionable.

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

I γ normalization: from **1976Fo10**, presumably from Ice/I β . An uncertainty of 20% has been assigned by the evaluator. The normalization assumes authors' value of 20% for g.s. feeding. From systematics for 1/2 to 1/2 transitions in neighboring nuclei log ft values are in range of 6.6 to 7.5.

E_γ	$I_\gamma^\#$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	α	Comments
104.7 4	0.7 1	442.64	3/2 ⁺ , 5/2 ⁺	337.72	(3/2) ⁺			
135.4 \dagger 1	100	135.41	3/2 ⁺	0.0	1/2 ⁺	M1	0.199	$\alpha(\text{K})_{\text{exp}}=0.172$ 20 $\alpha(\text{K})=0.1723$ 25; $\alpha(\text{L})=0.0215$ 3; $\alpha(\text{M})=0.00413$ 6; $\alpha(\text{N})=0.000735$ 11; $\alpha(\text{O})=4.21 \times 10^{-5}$ 6 $\alpha(\text{N}+..)=0.000777$ 11 $\text{B}(\text{M1})(\text{W.u.}) > 0.0074$
142.1 \dagger 2	8.2 13	278.54	(9/2) ⁻	136.44	(11/2) ⁻	M1	0.174	$\alpha(\text{K})_{\text{exp}}=0.164$ 20 $\alpha(\text{K})=0.1508$ 22; $\alpha(\text{L})=0.0188$ 3; $\alpha(\text{M})=0.00361$ 6; $\alpha(\text{N})=0.000643$ 10; $\alpha(\text{O})=3.68 \times 10^{-5}$ 6 $\alpha(\text{N}+..)=0.000679$ 10
157.1 \dagger 1	34.3 38	293.52	(7/2) ⁻	136.44	(11/2) ⁻	E2	0.300	$\alpha(\text{K})_{\text{exp}}=0.24$ 5 $\alpha(\text{K})=0.243$ 4; $\alpha(\text{L})=0.0465$ 7; $\alpha(\text{M})=0.00912$ 13; $\alpha(\text{N})=0.001547$ 22; $\alpha(\text{O})=4.85 \times 10^{-5}$ 7 $\alpha(\text{N}+..)=0.001595$ 23 $\text{B}(\text{E2})(\text{W.u.})=37.1$ 21
184.5 4	2.2 15	522.19	(5/2) ⁺	337.72	(3/2) ⁺	M1	0.0855	$\alpha(\text{K})_{\text{exp}}=0.057$ 20 $\alpha(\text{K})=0.0742$ 12; $\alpha(\text{L})=0.00916$ 14; $\alpha(\text{M})=0.00176$ 3; $\alpha(\text{N})=0.000314$ 5; $\alpha(\text{O})=1.81 \times 10^{-5}$ 3 $\alpha(\text{N}+..)=0.000332$ 5
202.2 \dagger 3	3.0 7	337.72	(3/2) ⁺	135.41	3/2 ⁺			
³ 229.7 6	0.4 2							
298.1 1	2.0 5	820.28	(5/2) ⁺	522.19	(5/2) ⁺	M1,E2	0.029 5	$\alpha(\text{K})=0.025$ 4; $\alpha(\text{L})=0.0033$ 8; $\alpha(\text{M})=0.00065$ 16; $\alpha(\text{N})=0.00011$ 3; $\alpha(\text{O})=5.6 \times 10^{-6}$ 5 $\alpha(\text{N}+..)=0.00012$ 3

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$^{117}\text{Ag} \beta^-$ decay (72.8 s) **1976Fo10** (continued) $\gamma(^{117}\text{Cd})$ (continued)

E_γ	$I_\gamma^\#$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	α	Comments
307.2 [†] 1	8.1 10	442.64	3/2 ⁺ , 5/2 ⁺	135.41	3/2 ⁺	M1,E2	0.026 4	$\alpha(\text{K})_{\text{exp}}=0.027$ 20 $\alpha(\text{K})=0.022$ 3; $\alpha(\text{L})=0.0030$ 7; $\alpha(\text{M})=0.00059$ 14; $\alpha(\text{N})=0.000103$ 22; $\alpha(\text{O})=5.1 \times 10^{-6}$ 5 $\alpha(\text{N}+..)=0.000108$ 23
312.3 [†] 1	25.8 26	605.74	(5/2, 7/2) ⁻	293.52	(7/2) ⁻	M1,E2	0.025 4	$\alpha(\text{K})_{\text{exp}}=0.037$ 15 $\alpha(\text{K})=0.021$ 3; $\alpha(\text{L})=0.0029$ 7; $\alpha(\text{M})=0.00056$ 13; $\alpha(\text{N})=9.8 \times 10^{-5}$ 20; $\alpha(\text{O})=4.9 \times 10^{-6}$ 4 $\alpha(\text{N}+..)=0.000103$ 21
327.2 [†] 1	4.9 7	605.74	(5/2, 7/2) ⁻	278.54	(9/2) ⁻			
^x 333.1 6	0.8 3							
337.7 [†] 1	44.7 27	337.72	(3/2) ⁺	0.0	1/2 ⁺	M1,E2	0.0198 23	$\alpha(\text{K})_{\text{exp}}=0.025$ 8 $\alpha(\text{K})=0.0171$ 18; $\alpha(\text{L})=0.0023$ 4; $\alpha(\text{M})=0.00044$ 8; $\alpha(\text{N})=7.7 \times 10^{-5}$ 14; $\alpha(\text{O})=3.92 \times 10^{-6}$ 23 $\alpha(\text{N}+..)=8.1 \times 10^{-5}$ 14
353.1 3	2.3 3	690.8	5/2 ⁺	337.72	(3/2) ⁺			
386.8 1	6.7 5	522.19	(5/2) ⁺	135.41	3/2 ⁺	M1,E2	0.0134 10	$\alpha(\text{K})_{\text{exp}}=0.011$ 2 $\alpha(\text{K})=0.0116$ 8; $\alpha(\text{L})=0.00150$ 19; $\alpha(\text{M})=0.00029$ 4; $\alpha(\text{N})=5.1 \times 10^{-5}$ 6; $\alpha(\text{O})=2.69 \times 10^{-6}$ 7 $\alpha(\text{N}+..)=5.4 \times 10^{-5}$ 7
426.2 [†] 1	30.2 19	426.20	(3/2) ⁺	0.0	1/2 ⁺	M1,E2	0.0103 5	$\alpha(\text{K})_{\text{exp}}=0.006$ 3 $\alpha(\text{K})=0.0089$ 4; $\alpha(\text{L})=0.00113$ 11; $\alpha(\text{M})=0.000218$ 21; $\alpha(\text{N})=3.9 \times 10^{-5}$ 4; $\alpha(\text{O})=2.06 \times 10^{-6}$ 3 $\alpha(\text{N}+..)=4.1 \times 10^{-5}$ 4
442.6 [†] 2	4.0 4	442.64	3/2 ⁺ , 5/2 ⁺	0.0	1/2 ⁺			
467.7 [†] 2	10.7 9	1073.22	(3/2 ⁻ , 5/2 ⁻)	605.74	(5/2, 7/2) ⁻			
^x 477.0 10	0.3 2							
^x 500.6 5	1.7 4							
522.1 2	1.6 4	522.19	(5/2) ⁺	0.0	1/2 ⁺			
529.9 [†] 2	5.5 6	665.20	5/2 ⁺	135.41	3/2 ⁺			
555.2 [†] 9	3.1 17	690.8	5/2 ⁺	135.41	3/2 ⁺			
665.1 [†] 2	4.9 5	665.20	5/2 ⁺	0.0	1/2 ⁺			
684.6 5	1.1 4	820.28	(5/2) ⁺	135.41	3/2 ⁺			
^x 701.1 5	1.4 5							
^x 737.5 5	1.2 3							
746.6 [†] 3	3.2 4	1352.3		605.74	(5/2, 7/2) ⁻			
^x 767.1 5	1.5 4							
779.5 [†] 2	7.8 8	1073.22	(3/2 ⁻ , 5/2 ⁻)	293.52	(7/2) ⁻			
^x 808.5 5	0.5 1							
^x 836.3 5	1.9 4							
839.5 5	1.5 3	2192.06	(1/2 ⁻ , 3/2 ⁻)	1352.3				
913.4 3	2.2 5	1355.93	(5/2) ⁺	442.64	3/2 ⁺ , 5/2 ⁺			
^x 941.6 5	2.4 7							
949.7 7	0.9 3	2301.63	(1/2 ⁻ , 3/2 ⁻)	1352.3				
^x 1056.4 5	1.6 4							

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$^{117}\text{Ag} \beta^-$ decay (72.8 s) **1976Fo10** (continued) $\gamma(^{117}\text{Cd})$ (continued)

E_γ	I_γ #	$E_i(\text{level})$	J_i^π	E_f	J_f^π
1119.1	3	2192.06	(1/2 ⁻ ,3/2 ⁻)	1073.22	(3/2 ⁻ ,5/2 ⁻)
1220.4	3	1355.93	(5/2 ⁺)	135.41	3/2 ⁺
1228.1 [†]	3	2301.63	(1/2 ⁻ ,3/2 ⁻)	1073.22	(3/2 ⁻ ,5/2 ⁻)
^x 1258.6	4	3.9	8		
1309.6	5	2382.6	(3/2 ⁻)	1073.22	(3/2 ⁻ ,5/2 ⁻)
1341.5	4	1784.2		442.64	3/2 ⁺ ,5/2 ⁺
^x 1349.4	5	2.4	12		
1406.5 [†]	8	2013.19	(1/2 ⁻ ,3/2 ⁻)	605.74	(5/2,7/2) ⁻
1609.0 [†]	2	1609.01		0.0	1/2 ⁺
1648.9	5	1784.2		135.41	3/2 ⁺
1657.6 [†]	2	1995.42	(1/2 ⁻ ,3/2 ⁻)	337.72	(3/2) ⁺
1696.2 [†]	3	2301.63	(1/2 ⁻ ,3/2 ⁻)	605.74	(5/2,7/2) ⁻
1748.8	3	2192.06	(1/2 ⁻ ,3/2 ⁻)	442.64	3/2 ⁺ ,5/2 ⁺
1748.8	3	2354.6		605.74	(5/2,7/2) ⁻
1777.0	4	2382.6	(3/2 ⁻)	605.74	(5/2,7/2) ⁻
^x 1780.3	5	1.6	4		
1854.4 [†]	2	2192.06	(1/2 ⁻ ,3/2 ⁻)	337.72	(3/2) ⁺
1877.6 [†]	3	2013.19	(1/2 ⁻ ,3/2 ⁻)	135.41	3/2 ⁺
^x 1900.0	5	2.8	8		
1908.0	6	2514.1	(1/2 ⁻ ,3/2 ⁻)	605.74	(5/2,7/2) ⁻
1963.8 [†]	3	2301.63	(1/2 ⁻ ,3/2 ⁻)	337.72	(3/2) ⁺
1995.5 [†]	2	1995.42	(1/2 ⁻ ,3/2 ⁻)	0.0	1/2 ⁺
2013.3 [†]	2	2013.19	(1/2 ⁻ ,3/2 ⁻)	0.0	1/2 ⁺
2035.4	3	2641.2	(1/2 ⁻ ,3/2 ⁻)	605.74	(5/2,7/2) ⁻
^x 2042.2	5	2.0	5		
2056.7 [†]	2	2192.06	(1/2 ⁻ ,3/2 ⁻)	135.41	3/2 ⁺
2089.2	5	2382.6	(3/2 ⁻)	293.52	(7/2) ⁻
2118.7	4	2641.2	(1/2 ⁻ ,3/2 ⁻)	522.19	(5/2) ⁺
2192.1 [†]	2	2192.06	(1/2 ⁻ ,3/2 ⁻)	0.0	1/2 ⁺
^x 2201.0	3	0.5	3		
2216.8 [†]	4	2554.5		337.72	(3/2) ⁺
2245.9 [†]	3	2382.6	(3/2 ⁻)	136.44	(11/2) ⁻
2341.4	5	3032.4	(1/2 ⁻ ,3/2 ⁻)	690.8	5/2 ⁺
^x 2413.1	3	4.1	6		
^x 2417.1	3	4.1	6		
2478.3	7	3000.8	(1/2 ⁻ ,3/2 ⁻)	522.19	(5/2) ⁺
2506.6	7	2641.2	(1/2 ⁻ ,3/2 ⁻)	135.41	3/2 ⁺
2514.1 [†]	3	2514.1	(1/2 ⁻ ,3/2 ⁻)	0.0	1/2 ⁺
2663.2	5	3000.8	(1/2 ⁻ ,3/2 ⁻)	337.72	(3/2) ⁺
^x 2681.3	4	3.2	6		
2738.4	8	3032.4	(1/2 ⁻ ,3/2 ⁻)	293.52	(7/2) ⁻
^x 2850.8	3	3.0	5		
^x 2861.3	6	0.9	3		
2888.3 [†]	3	2888.3	(1/2 ⁻ ,3/2 ⁻)	0.0	1/2 ⁺
2897.3	5	3032.4	(1/2 ⁻ ,3/2 ⁻)	135.41	3/2 ⁺
^x 3029.9	5	2.6	6		
^x 3599.7	6	1.6	5		

[†] Seen also by [1982Br10](#).[‡] 5.0 ([1982Br10](#)).

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$^{117}\text{Ag} \beta^-$ decay (72.8 s) **1976Fo10** (continued)

$\gamma(^{117}\text{Cd})$ (continued)

For absolute intensity per 100 decays, multiply by 0.23 5.

x γ ray not placed in level scheme.

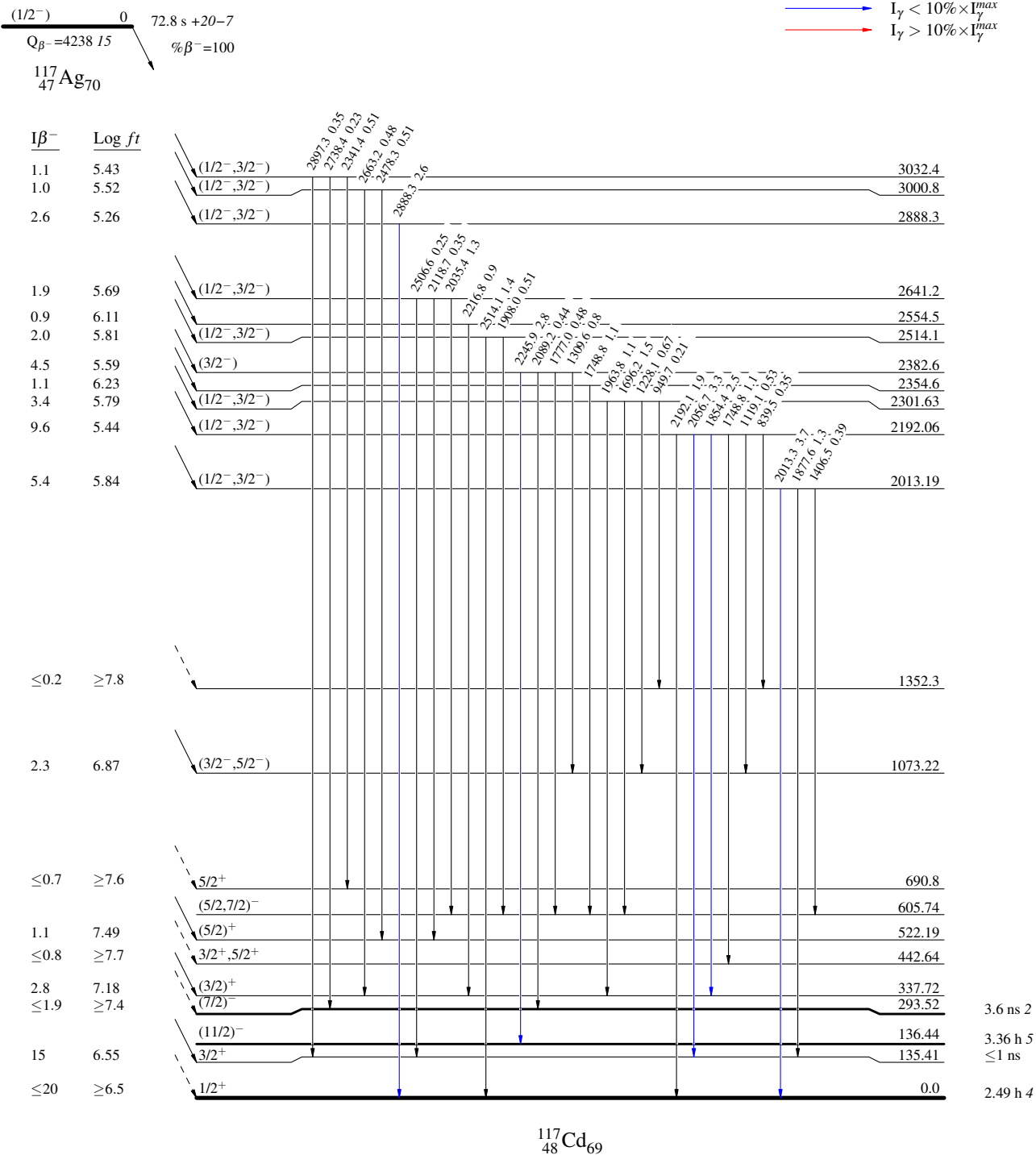
$^{117}\text{Ag} \beta^-$ decay (72.8 s) 1976Fo10

Decay Scheme

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

Legend

- $I_{\gamma} < 2\% \times I_{\gamma}^{max}$
- $I_{\gamma} < 10\% \times I_{\gamma}^{max}$
- $I_{\gamma} > 10\% \times I_{\gamma}^{max}$



$^{117}\text{Ag} \beta^-$ decay (72.8 s) 1976Fo10

Decay Scheme (continued)

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

Legend

- $I_{\gamma} < 2\% \times I_{\gamma}^{max}$
- $I_{\gamma} < 10\% \times I_{\gamma}^{max}$
- $I_{\gamma} > 10\% \times I_{\gamma}^{max}$

