^{118}Pd β^- decay 1993Ja03,1989Ko22

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	K. Kitao	NDS 75,99 (1995)	1-Feb-1993

Parent: ^{118}Pd: E=0.0; $J^\pi=0^+$; $T_{1/2}$=1.9 s *1*; Q(β^-)=4.10×10^3 *20*; %β^- decay=100.0

1993Ja03: from fission product from ^{238}U(p,F) E(p)=20 MeV, on-line mass; γ, K x ray, ce, β; $\gamma\gamma$-, (γ)(K x ray)-, (ce)(K x ray)-, (ce)(γ)-coin.

1989Ko22: this is a previous report of 1993Ja03.

Other: 1992JaZZ. This is a summary report on 1993Ja03.

The decay scheme is as given by 1993Ja03, but the β^-branch to g.s. is assumed by the evaluator to be a 1st forbidden transition. Sequences in 233γ-51γ and 271γ-91γ cascades are tentative (1993Ja03). The 446 level proposed by 1989Ko22 was not included in the scheme.

^{118}Ag Levels

E(level)†	J^π	$T_{1/2}$‡	Comments
0.0	$1^{(-)}$	3.76 s *15*	$T_{1/2}$: from 1979HiZR.
45.79 *9*	$0^{(-)}$ to $2^{(-)}$	≈0.1 μs	
95.61 *15*	$(0^-,1^-,2^-)$		
125.43 *15*	$(0^-,1^-,2^-)$		
127.63 *10*	$4^{(+)}$	1.9 s *2*	
153.98 *20*			
250.90 *12*	$0^+,1^+,2^+$		
279.37 *20*	$(2^+,3^+)$	≈0.1 μs	
330.30? *25*			
370.8? *3*	$(0^+,1^+,2^+)$		
396.45 *18*	1^+		
475.08 *16*	1^+		
563.24 *23*	$(0^+,1^+,2^+)$		
641.82 *24*	1^+		
720.42 *24*	1^+		

† From a least-squares fit to E(γ's).

‡ From 1989Ko22 unless otherwise noted.

β^- radiations

Eβ^-=3.56 *12* from (125γ)(β^-) coin (1989Ko22).

E(decay)	E(level)	Iβ^-†	Log *ft*	Comments
(3.38×10^3 *20*)	720.42	15.8 *22*	4.60 *13*	av Eβ=1430 *95*
(3.46×10^3 *20*)	641.82	11.7 *8*	4.77 *12*	av Eβ=1467 *95*
(3.54×10^3 *20*)	563.24	<1.9	>5.6	av Eβ=1504 *95*
(3.62×10^3 *20*)	475.08	44 *4*	4.28 *12*	av Eβ=1546 *95*
(3.70×10^3 *20*)	396.45	21.8 *16*	4.63 *12*	av Eβ=1583 *95*
(4.00×10^3 *20*)	95.61	4 *5*	5.5 *6*	av Eβ=1726 *95*
(4.10×10^3 *20*)	0.0	<2.0	>5.9	av Eβ=1771 *95*

† Absolute intensity per 100 decays.

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$\gamma(^{118}Ag)$

Iγ normalization: From Σ Ti(to g.s.)+Iβ(to g.s.)=100 and Iβ(to g.s.)=20. For β^- feeding from 0^+ parent to $1^{(-)}$ g.s., log *ft*>5.9 is assumed.
α(K)exp from I(x ray) and Iγ coin with K x ray (1989Ko22, 1993Ja03).

E_γ[†]	I_γ[‡a]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[&]	α[b]	Comments
28.4[d]		153.98		125.43	$(0^-,1^-,2^-)$			
29.8 *2*	1.6 *3*	125.43	$(0^-,1^-,2^-)$	95.61	$(0^-,1^-,2^-)$	[M1]	14.2	ce(K)/(γ+ce)=0.807; ce(L)/(γ+ce)=0.102; ce(M)/(γ+ce)=0.0193
45.8 *1*	12.8 *10*	45.79	$0^{(-)}$ to $2^{(-)}$	0.0	$1^{(-)}$	M1	4.02	α(K)=3.47; α(L)=0.436; α(M)=0.0827 α(K)exp=4.1 *10* (1989Ko22).
49.8 *2*	13.8 *10*	95.61	$(0^-,1^-,2^-)$	45.79	$0^{(-)}$ to $2^{(-)}$	M1	3.15	α(K)=2.72; α(L)=0.340; α(M)=0.0647 α(K)exp=1.9 *5* (1989Ko22).
51.0 *2*	≈1.5	330.30?		279.37	$(2^+,3^+)$			
78.5[c] *2*	8.6[c@] *1*	641.82	1^+	563.24	$(0^+,1^+,2^+)$	(M1)	0.84	α(K)=0.729; α(L)=0.091; α(M)=0.0172; α(N+..)=0.00346 α(K)exp=0.8 *2* (1993Ja03).
78.5[c] *2*	1.6[c@] *1*	720.42	1^+	641.82	1^+	(M1)	0.84	α(K)=0.729; α(L)=0.091; α(M)=0.0172; α(N+..)=0.00346 α(K)exp=0.8 *2*.
91.4 *2*	2.2 *4*	370.8?	$(0^+,1^+,2^+)$	279.37	$(2^+,3^+)$	(M1)	0.545	α(K)=0.473; α(L)=0.0587; α(M)=0.0111; α(N+..)=0.00223 α(K)exp=0.44 *9* (1993Ja03).
96.8 *3*	≈1.0	250.90	$0^+,1^+,2^+$	153.98				
108.0 *3*	≈1.5	153.98		45.79	$0^{(-)}$ to $2^{(-)}$			
125.4[c#] *2*	51[c] *3*	125.43	$(0^-,1^-,2^-)$	0.0	$1^{(-)}$	[M1]	0.224	α(K)=0.195; α(L)=0.0240; α(M)=0.00456; α(N+..)=0.00092
125.4[c#] *3*	49[c] *2*	250.90	$0^+,1^+,2^+$	125.43	$(0^-,1^-,2^-)$	[E1]	0.084	α(K)=0.0731; α(L)=0.0088; α(M)=0.00165; α(N+..)=0.00032
127.6 *1*	5.1 *6*	127.63	$4^{(+)}$	0.0	$1^{(-)}$	E3	4.69	α(K)=2.80; α(L)=1.53; α(M)=0.307; α(N+..)=0.0553 B(E3)(W.u.)=0.25 *3* α(K)exp=2.3 *3* (1993Ja03).
145.6 *2*	19.2 *11*	396.45	1^+	250.90	$0^+,1^+,2^+$	M1	0.148	α(K)=0.129; α(L)=0.0158; α(M)=0.00301; α(N+..)=0.00061 α(K)exp=0.1 *2* (1993Ja03).
151.6 *2*	22.0 *20*	279.37	$(2^+,3^+)$	127.63	$4^{(+)}$			
157.1 *3*	6.6 *20*	720.42	1^+	563.24	$(0^+,1^+,2^+)$	[M1]	0.121	α(K)=0.105; α(L)=0.0128; α(M)=0.00244; α(N+..)=0.00049
205.2 *2*	3.8 *10*	250.90	$0^+,1^+,2^+$	45.79	$0^{(-)}$ to $2^{(-)}$			
224.2 *2*	29.6 *19*	475.08	1^+	250.90	$0^+,1^+,2^+$	M1	0.0466	α(K)=0.0406; α(L)=0.00492; α(M)=0.00093; α(N+..)=0.00019 α(K)exp=0.036 *6* (1993Ja03).
233.0 *2*	4.5 *15*	563.24	$(0^+,1^+,2^+)$	330.30?				

Continued on next page (footnotes at end of table)

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$\gamma(^{118}Ag)$ (continued)

E_γ †	I_γ ‡ a	E_i(level)	J_i^π	E_f	J_f^π	Mult. &	α b	Comments
251.0 d 2	≈4.0	250.90	$0^+,1^+,2^+$	0.0	$1^{(-)}$			
271.0 c 3	7.1 c @ 8	396.45	1^+	125.43	$(0^-,1^-,2^-)$	(E1)	0.0096	α=0.0096; α(K)=0.0084; α(L)=0.00099; α(M)=0.00019 α(K)exp<0.01 (1993Ja03).
271.0 c 3	5.6 c @ 6	641.82	1^+	370.8?	$(0^+,1^+,2^+)$	(M1)	0.0284	α(K)=0.0247; α(L)=0.00298; α(M)=0.00056; α(N+..)=0.00011 α(K)exp<0.01 (1993Ja03).
283.7 2	17.9 17	563.24	$(0^+,1^+,2^+)$	279.37	$(2^+,3^+)$	M1	0.0252	α(K)=0.0219; α(L)=0.00264; α(M)=0.00050; α(N+..)=0.00010 α(K)exp=0.016 4 (1993Ja03).
300.8 2	5.5 11	396.45	1^+	95.61	$(0^-,1^-,2^-)$			E_γ: 301.5 5 (1989Ko22).
321.0 3	4.4 @ 9	475.08	1^+	153.98				
349.6 2	12.4 @ 15	475.08	1^+	125.43	$(0^-,1^-,2^-)$			
379.5 2	21.5 36	475.08	1^+	95.61	$(0^-,1^-,2^-)$	(E1)	0.00397	α=0.00397; α(K)=0.00348; α(L)=0.00041 α(K)exp<0.006 (1993Ja03).
429.5 4	≈1.0 @	475.08	1^+	45.79	$0^{(-)}$ to $2^{(-)}$			
469.6 4	9.8 @ 10	720.42	1^+	250.90	$0^+,1^+,2^+$			E_γ: 468.8 5 (1989Ko22).
595.7 5	5.0 @ 20	720.42	1^+	125.43	$(0^-,1^-,2^-)$			

† From 1993Ja03.
‡ From 1993Ja03. Intensity of doubly placed γ's are divided based on the authors' drawing.
# α(K)exp=0.10 2, value given for the complex 125γ line (1993Ja03).
@ Deduced from coin spectra.
& From α(K)exp.
a For absolute intensity per 100 decays, multiply by 0.63 3.
b 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.
c Multiply placed with intensity suitably divided.
d Placement of transition in the level scheme is uncertain.

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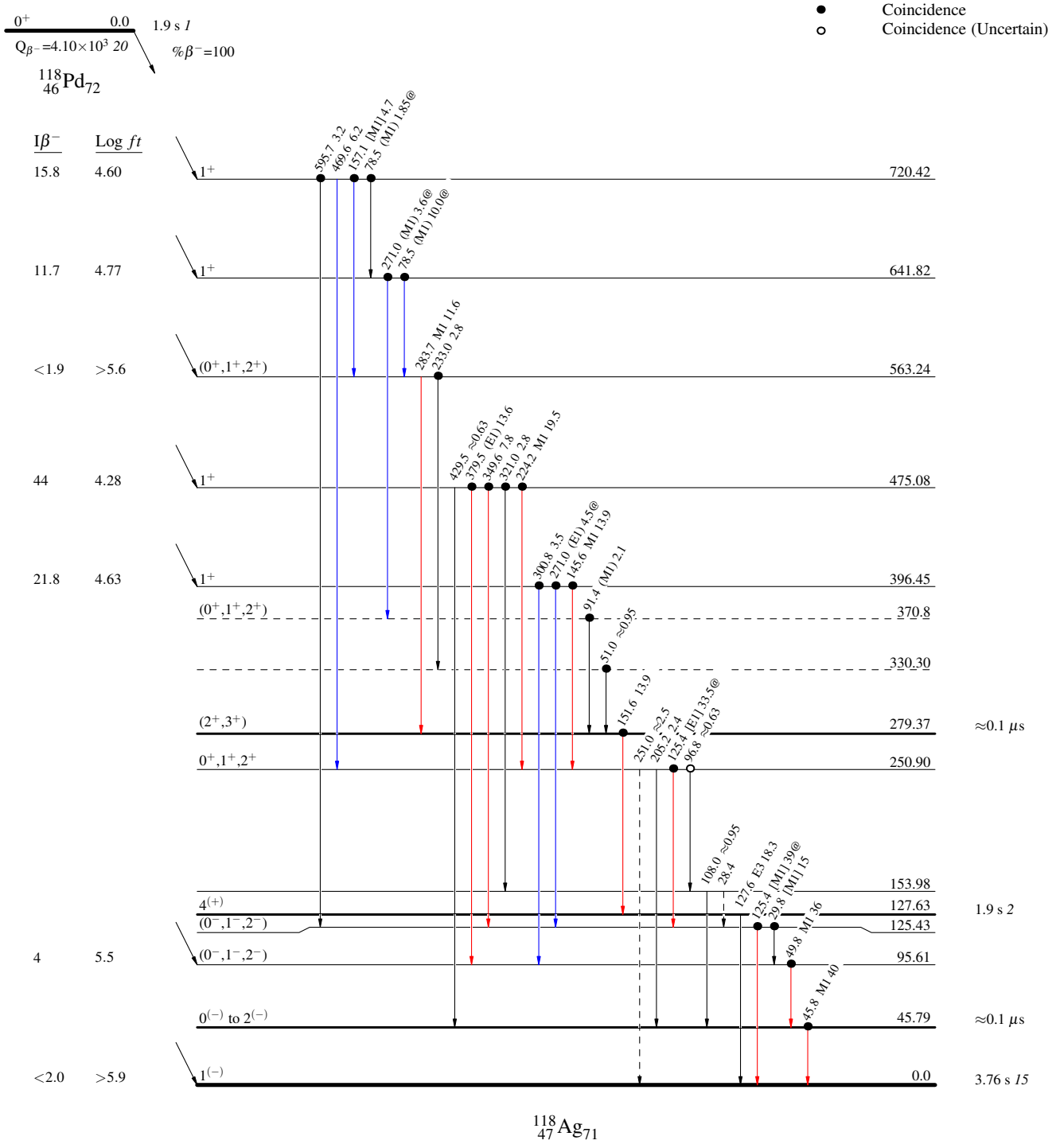
Decay Scheme

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

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)
- Coincidence
- Coincidence (Uncertain)



$^{118}_{47}Ag_{71}$