^{116}Pd β^- decay 1989Ko22,1987AyZW,1986RoZN

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 111, 717 (2010)	1-Dec-2009

Parent: ^{116}Pd: E=0; J$^\pi$=0$^+$; T$_{1/2}$=11.8 s *4*; Q(β^-)=2.61×10^3 *3*; %β^- decay=100.0

Activity: ^{249}Cf(n,F), chem. (1986RoZN), ^{238}U(p,F) IGISOL (1987AyZW,1989Ko22).

Measured: γ(semi), $\gamma\gamma$(semi), $\beta\gamma$(scin) (1975BrYN,1986RoZN,1987AyZW,1989Ko22).

1987AyZW compare the calculated β strength for a pure Gamow Teller (ν g$_{7/2}$) to (π g$_{9/2}$) transition with the measured one. The experimental strength is considerably hindered, only 5.5% of the theoretical value.

The level scheme is almost similar in the three papers. 1987AyZW agree with 1986RoZN and suggest a level at 569, but no Iγ are given. 1989Ko22 find a 292γ in coin with the 101γ and suggest a level at 508.

1990Fo07 have measured the Iγ of 114.7 γ and the Q(β^-).

^{116}Ag Levels

E(level)	J$^\pi$	T$_{1/2}$ †
0.0	(2$^-$)	2.68 min *10*
91.02 *15*	(2$^-$)	
114.70 *10*	1$^+$	
215.9 *4*	(2)	
393.9 *4*	1$^+$	
508?		

† From Adopted Levels.

β^- radiations

E(decay)	E(level)	Iβ^- †‡	Log *ft*	Comments
(2.10×10^3 *3*)	508?	1	5.7	av Eβ=833 *14*
(2.22×10^3 *3*)	393.9	21 *2*	4.46 *7*	av Eβ=885 *14*
(2.50×10^3 *3*)	114.70	79 *4*	4.14 *4*	av Eβ=1014 *14*

† The Iβ given by 1987AyZW are in agreement with those derived from I(γ+ce) (1986RoZN).

‡ Absolute intensity per 100 decays.

γ(^{116}Ag)

Iγ normalization: from sum of(I(γ+ce) to g.s.)=100. Iγ(114.7γ)=86% 9 (1990Fo07) is consistent with adopted value.

E$_\gamma$ †	I$_\gamma$ †#	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult. ‡	α @	Comments
23.7 *2*	≈50	114.70	1$^+$	91.02	(2$^-$)	[E1]	1.380	α(L)=1.106; α(M)=0.2063
91.0 *2*	101 *7*	91.02	(2$^-$)	0.0	(2$^-$)	M1	0.546	α(K)=0.474 *8*; α(L)=0.0590 *9*; α(M)=0.01123 *18*; α(N+..)=0.00203 *4* α(N)=0.00194 *3*; α(O)=8.93×10^{-5} *14* α(K)exp=0.65 *15*
101.2 *2*	102 *7*	215.9	(2)	114.70	1$^+$	D	0.28 *12*	α(K)exp<0.55
114.7 *1*	1000 *24*	114.70	1$^+$	0.0	(2$^-$)	E1	0.1080	α(K)=0.0940 *14*; α(L)=0.01142 *17*; α(M)=0.00215 *3*; α(N+..)=0.000381 *6* α(N)=0.000366 *6*; α(O)=1.501×10^{-5} *22* α(K)exp<0.14

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$\gamma(^{116}Ag)$ (continued)

E_γ [†]	I_γ [†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α [@]	Comments
178.0 *3*	148 *10*	393.9	1$^+$	215.9	(2)	D	0.06 *3*	α(K)exp≈0.05
216.1 *4*	24 *5*	215.9	(2)	0.0	(2$^-$)			
278.3 *34*	79 *9*	393.9	1$^+$	114.70	1$^+$			
292 [&]		508?		215.9	(2)			E_γ: reported by 1989Ko22.
302.6 *5*	41 *15*	393.9	1$^+$	91.02	(2$^-$)			E_γ: only seen by 1989Ko22.

† From 1989Ko22, 1986RoZN give only I(γ+ce).

‡ From the intensity ratio of the γ′s and the K-x rays observed in the spectrum gated by the 101γ, α(K)exp(115γ)<0.14, consistent only with E1. α(K)exp(115γ)=0.093 then was used by the authors to normalize Iγ, I(ce) scales.

For absolute intensity per 100 decays, multiply by 0.0770 *18*.

@ 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.

& Placement of transition in the level scheme is uncertain.

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