^{116}Rh β^- decay (0.68 s) 2001Wa04,1988Ay02

History

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

Parent: ^{116}Rh: E=0.0; $J^\pi=1^+$; $T_{1/2}$=0.68 s *6*; Q(β^-)=9.22×10^3 *15*; %β^- decay=100.0

By taking advantage of higher production yields and more efficiency, detectors, 2001Wa04, same group as 1988Ay02 have remeasured the decay of ^{116}Rh.

Activity: ^{238}U(p,F) E(p)=20 MeV, mass separator IGISOL.

Measured: γ, $\gamma\gamma$, βce, $T_{1/2}$,Ge(Li), Si(Li).

Conversion electron measurements support the E2 character for 340γ. No evidence for strong E0 transition (1988Ay02).

The g.s. β branching was determined by comparing the gross β intensity with the β intensity in coincidence with the 2^+ to 0^+.

^{116}Pd Levels

E(level)	J^π
0.0	0^+
340.19 *13*	2^+
737.84 *10*	2^+
1109.69 *24*	(0^+)
1732.8 *3*	(0^+)
2005.6 *5*	
2074.0 *5*	(2^+)

β^- radiations

E(decay)	E(level)	Iβ^- [†]	Log *ft*	Comments
(7.15×10^3 *15*)	2074.0	0.9 *4*	6.81 *21*	av Eβ=3226 *72*
(7.21×10^3 *15*)	2005.6	2.4 *10*	6.41 *19*	av Eβ=3259 *72*
(7.49×10^3 *15*)	1732.8	3.2 *13*	6.36 *19*	av Eβ=3389 *72*
(8.11×10^3 *15*)	1109.69	3.5 *15*	6.47 *20*	av Eβ=3686 *72*
(8.48×10^3 *15*)	737.84	22 *9*	5.76 *19*	av Eβ=3863 *72*
(8.88×10^3 *15*)	340.19	23 *9*	5.84 *18*	av Eβ=4052 *72*
(9.22×10^3 *15*)	0.0	45 *22*	5.62 *22*	av Eβ=4213 *72*

[†] Absolute intensity per 100 decays.

γ(^{116}Pd)

Iγ normalization: from Σ I(γ+ce)+Iβ(g.s.)=100; with Iβ(g.s.)=45 *22*.

E$_\gamma$	I$_\gamma$ [‡#]	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.	α [†]	Comments
340.5 *3*	100	340.19	2^+	0.0	0^+	E2	0.0195	α(K)=0.01674 *24*; α(L)=0.00228 *4*; α(M)=0.000430 *7*; α(N+..)=7.08×10^{-5} *11* α(N)=7.08×10^{-5} *11*
397.7 *1*	33 *4*	737.84	2^+	340.19	2^+			
737.8 *1*	22 *3*	737.84	2^+	0.0	0^+			
769.5 *2*	7.7 *9*	1109.69	(0^+)	340.19	2^+			
995.4 *5*	3.3 *2*	1732.8	(0^+)	737.84	2^+			
1336.2 *4*	2.1 *2*	2074.0	(2^+)	737.84	2^+			
1392.5 *3*	3.7 *5*	1732.8	(0^+)	340.19	2^+			
1665.4 *4*	5.4 *4*	2005.6		340.19	2^+			

Continued on next page (footnotes at end of table)

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

† Additional information 1.
‡ See the 0.57 s decay for the discrimination in γ intensities.
# For absolute intensity per 100 decays, multiply by 0.82 *9*.

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Decay Scheme

Intensities: I_γ per 100 parent decays