^{115}Pd β^- decay (25 s) 1987FoZY,1981Me17

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 113, 2391 (2012)	1-Sep-2012

Parent: ^{115}Pd: E=0.0; $J^\pi=(1/2)^+$; $T_{1/2}$=25 s *2*; Q(β^-)=4557 *22*; %β^- decay=100.0
Source: ^{238}U(n,F) E=14 MeV chem (1973BrXC); ^{252}Cf(SF). Fast chem (1981Me17,1990Ro16).
1987FoZY: ^{235}U(n,F) OSIRIS on-line mass separator.
Measured: γ, $\beta\gamma$(t), ce.
The decay scheme is preliminary; it is not possible to derive all β branching because the Iγ data for many γ rays are not known.

^{115}Ag Levels

E(level)	J^π[†]	$T_{1/2}$[†]	E(level)	J^π[†]	$T_{1/2}$[†]	E(level)
0.0	$1/2^-$		342.72	$1/2^-$,$3/2^-$,$5/2^-$		607.45
41.1	$7/2^+$	18.0 s *7*	396.56[‡]	$(1/2)^+$	0.8 ns *3*	635.4
166.62	$(9/2)^+$		414.15[‡]	$(7/2)^+$	1.6 ns *3*	664.18
255.53 *3*	$1/2^-$,$3/2^-$		565.40			766.1
303.87[‡]	$(3/2)^+$	5.2 ns *3*	597.50[‡]	$(5/2^+)$	<0.8 ns	788.0

[†] From Adopted Levels.
[‡] Band(A): intruder band with K=1/2. Could be fit with α=15.56 keV, a=−2.73 and E0=336.4 keV.

γ(^{115}Ag)

Iγ normalization: from %Iγ(556γ)=5.9 *7* (1990Fo07). Absolute intensity derived by 1990Fo07 as they determine that β^- to the g.s. as well as the 18-s isomer in ^{115}Ag is negligible.
ΔE: ΔEγ not given by 1987FoZY; assumed to be 100 eV for Eγ given to two decimal places and 200 eV for Eγ given to one decimal place.

E$_\gamma$[†]	I$_\gamma$[@]	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.[#]	α[&]	Comments
41.1 *2*		41.1	$7/2^+$	0.0	$1/2^-$	E3	1.40×10^3 *5*	α(K)=102.0 *16*; α(L)=1.04×10^3 *4*; α(M)=219 *8*; α(N+..)=33.9 *12* α(N)=33.9 *12*; α(O)=0.01018 *17* α(K)exp>40; α(L)exp>300
[x]47.2 *5*						(E2)	21.1 *9*	α(K)=11.1 *4*; α(L)=8.2 *5*; α(M)=1.62 *9*; α(N+..)=0.255 *14* α(N)=0.254 *14*; α(O)=0.00144 *5* Mult.: from K/L=2.4 (1966WaZX) semi. E$_\gamma$: not the same as found by 1987FoZY (parity change?). $T_{1/2}$(47γ)=0.6 ns *1* DSA (1966WaZX).
48.3 *2*	1.4	303.87	$(3/2)^+$	255.53	$1/2^-$,$3/2^-$			
87.17 *10*		342.72	$1/2^-$,$3/2^-$,$5/2^-$	255.53	$1/2^-$,$3/2^-$	M1	0.619	α(K)=0.537 *8*; α(L)=0.0669 *10*; α(M)=0.01273 *19*; α(N+..)=0.00230 *4* α(N)=0.00220 *4*; α(O)=0.0001012 *15* α(K)exp= 0.63 *7*
92.7 *2*	3.8	396.56	$(1/2)^+$	303.87	$(3/2)^+$	E2	1.89	α(K)=1.418 *23*; α(L)=0.388 *7*; α(M)=0.0762 *13*; α(N+..)=0.01243 *21* α(N)=0.01223 *21*; α(O)=0.000201 *4* α(K)exp= 2.1 *11*

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^{115}Pd β^- decay (25 s) 1987FoZY,1981Me17 (continued)

$\gamma(^{115}Ag)$ (continued)

E_γ[†]	I_γ[@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[&]	Comments
110.4 *2*	14.5	414.15	$(7/2)^+$	303.87	$(3/2)^+$	(E2)	1.015	α(K)=0.789 *12*; α(L)=0.184 *3*; α(M)=0.0360 *6*; α(N+..)=0.00594 *10* α(N)=0.00583 *10*; α(O)=0.0001156 *18* α(K)exp= 0.6 *3*
125.52 *10*		166.62	$(9/2)^+$	41.1	$7/2^+$	M1	0.222	α(K)=0.193 *3*; α(L)=0.0239 *4*; α(M)=0.00454 *7*; α(N+..)=0.000822 *12* α(N)=0.000786 *12*; α(O)=3.63×10^{-5} *6* α(K)exp= 0.21 *2*
140.6 *2*	13.3	396.56	$(1/2)^+$	255.53	$1/2^-,3/2^-$	(E1)	0.0603	α(K)=0.0526 *8*; α(L)=0.00633 *10*; α(M)=0.001195 *18*; α(N+..)=0.000212 *3* α(N)=0.000204 *3*; α(O)=8.57×10^{-6} *13*
158.7 *2*	1.3	414.15	$(7/2)^+$	255.53	$1/2^-,3/2^-$			
200.7 *2*	8.2	597.50	$(5/2^+)$	396.56	$(1/2)^+$			
247.53 *10*	36	414.15	$(7/2)^+$	166.62	$(9/2)^+$			
255.53 *10*		255.53	$1/2^-,3/2^-$	0.0	$1/2^-$	M1	0.0328	α(K)=0.0286 *4*; α(L)=0.00347 *5*; α(M)=0.000659 *10*; α(N+..)=0.0001195 *17* α(N)=0.0001141 *16*; α(O)=5.35×10^{-6} *8* α(K)exp= 0.035 *4*
262.7	<1.3	303.87	$(3/2)^+$	41.1	$7/2^+$	(E2)	0.0484	α(K)=0.0409 *6*; α(L)=0.00608 *9*; α(M)=0.001166 *17*; α(N+..)=0.000203 *3* α(N)=0.000196 *3*; α(O)=6.79×10^{-6} *10* E_γ,Mult.: from 1990Ro16.
293.56 *10*	6.2	597.50	$(5/2^+)$	303.87	$(3/2)^+$			
303.87 *10*	98.6	303.87	$(3/2)^+$	0.0	$1/2^-$	E1	0.00709	α=0.00709; α(K)=0.00619; α(L)=0.00073; α(M)=0.00014 α(K)exp<0.009
342.71 *10*	100	342.72	$1/2^-,3/2^-,5/2^-$	0.0	$1/2^-$	M1,E2	0.0178 *23*	α(K)=0.0154 *19*; α(L)=0.0020 *4*; α(M)=0.00038 *8* α(K)exp= 0.017 *3*
352.0 *2*		607.45		255.53	$1/2^-,3/2^-$			
372.92 *10*	52	414.15	$(7/2)^+$	41.1	$7/2^+$			
396.56 *10*	83	396.56	$(1/2)^+$	0.0	$1/2^-$	(E1)	0.00355	α=0.00355; α(K)=0.00311; α(L)=0.00036
398.6 *2*		565.40		166.62	$(9/2)^+$			
423.52 *10*		766.1		342.72	$1/2^-,3/2^-,5/2^-$			
430.9 *2*	7.6	597.50	$(5/2^+)$	166.62	$(9/2)^+$			
445.39 *10*		788.0		342.72	$1/2^-,3/2^-,5/2^-$			
468.8 *2*		635.4		166.62	$(9/2)^+$			
497.56 *10*		664.18		166.62	$(9/2)^+$			
510.7 *2*		766.1		255.53	$1/2^-,3/2^-$			
523.68 *10*		565.40		41.1	$7/2^+$			
532.51 *10*		788.0		255.53	$1/2^-,3/2^-$			
556.32 *10*	78	597.50	$(5/2^+)$	41.1	$7/2^+$			
599.3 *2*		766.1		166.62	$(9/2)^+$			
607.38 *10*		607.45		0.0	$1/2^-$			
787.84 *10*		788.0		0.0	$1/2^-$			

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^{115}Pd β^- decay (25 s) 1987FoZY,1981Me17 (continued)

$\gamma(^{115}Ag)$ (continued)

† From 1987FoZY. Others: 1973BrXC, 1981Me17, 1990Ro16.
‡ ΔEγ not given by 1987FoZY; assumed to be 100 eV for Eγ given to two decimal places and 200 eV for Eγ given to one decimal place.
# From ce (1987FoZY).
@ For absolute intensity per 100 decays, multiply by 0.076.
& 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.
x γ ray not placed in level scheme.

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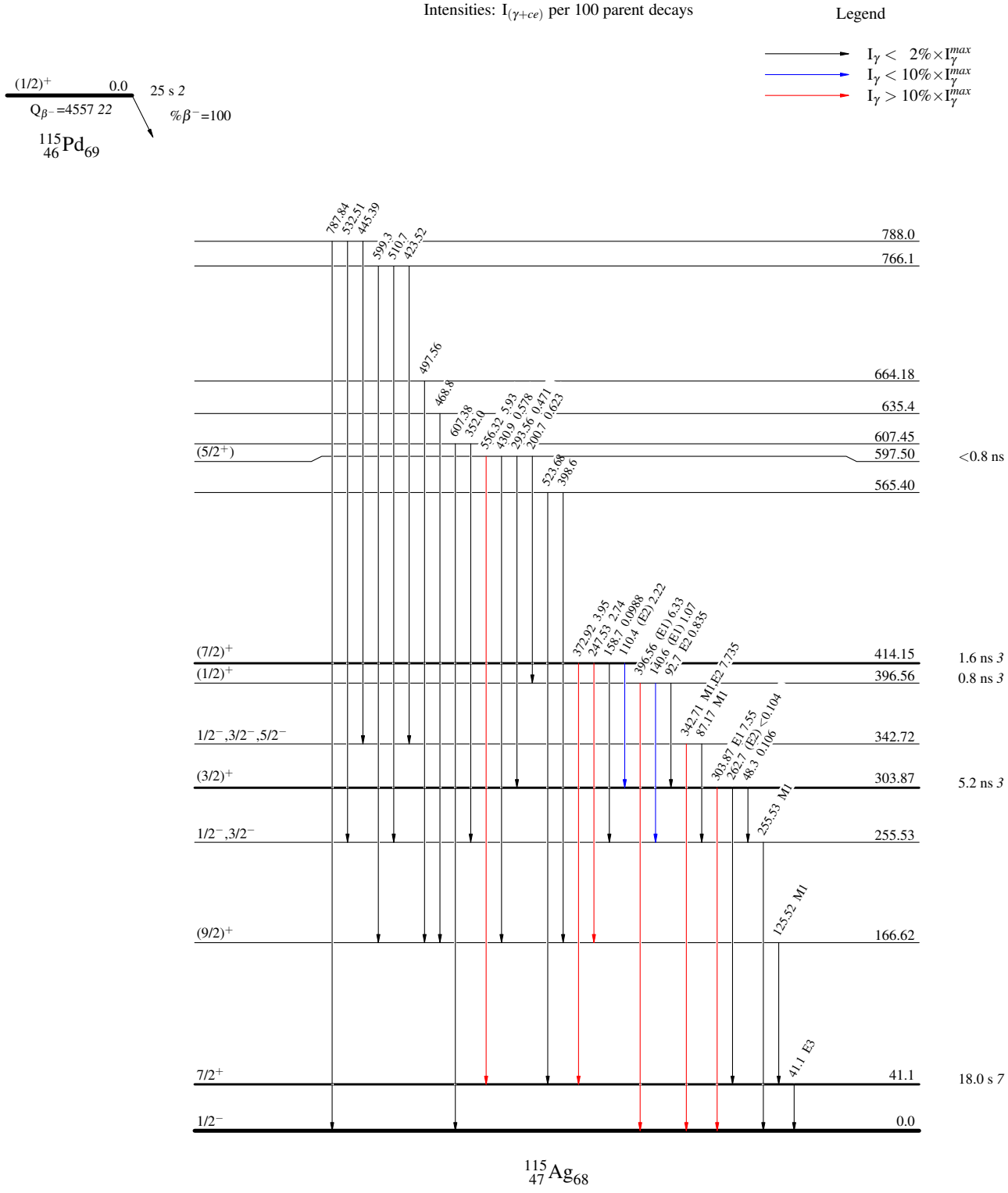
Decay Scheme

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



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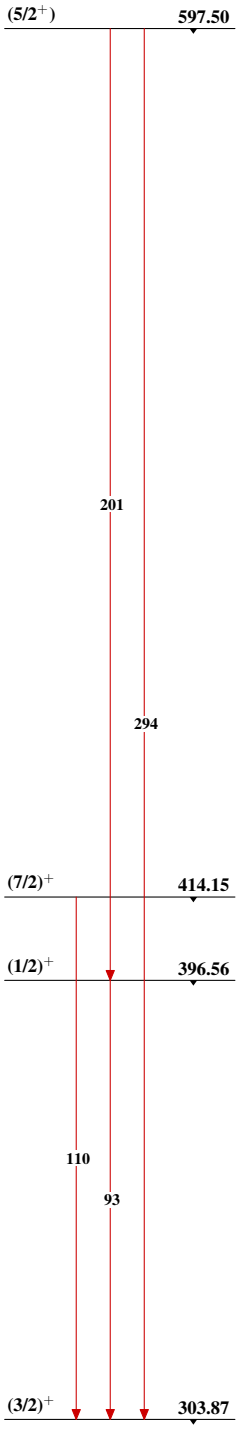
Band(A): Intruder band with K=1/2



$^{115}_{47}Ag_{68}$