^{102}Ag ε decay (7.7 min) 1971Hn05,1979Co17,1981CoZR

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110, 1745 (2009)	31-Dec-2008

Parent: ^{102}Ag: E=9.2 *4*; $J^\pi=2^+$; $T_{1/2}$=7.7 min *5*; Q(ε)=5669 *28*; %ε+%$β^+$ decay=100.0

1971Hn05: measured Eγ, Iγ, γγ-coin. Sources prepared from mass-separated ^{102}Cd contained both 12.9-min and 7.7-min activities. γ-assignments are based on decay-curve analyses and intensity balances.

1979Co17: measured γce(t)-coin. Isotopically separated samples.

1981CoZR: measured γγ(θ), γγ-coin.

The decay scheme, as given by 1971Hn05, has been extended with data reported by 1979Co17 and 1981CoZR from investigations of 0^+ states in ^{102}Pd. However, these transitions were not taken for deducing β-branches.

A tentative level at 2018, reported by 1971Hn05, is replaced by a level at 2735, on the basis of pγ coincidence data of 1977La16.

Others: 1967Ba26, 1967Ch05, 1970BeYT, 1975FeZS, 1977FeZS.

^{102}Pd Levels

E(level)‡	J^π†	$T_{1/2}$	Comments
0	0^+		
556.7 *2*	2^+		
1276.1 *3*	4^+		
1534.6 *3*	2^+		
1593.6 *3*	0^+	17 ns *2*	$T_{1/2}$: from γce(t) results of 1979Co17.
1659.2 *5*	0^+		J^π: from γγ(θ) results of 1981CoZR.
1945.0 *4*	2^+		
2249.0 *5*	(2,3)		
2391.4 *4*	$(1,2)^+$		
2574.5 *5*	(1,2)		
2611.2 *3*	$(1,2)^+$		
2716.3 *3*	$(1,2)^+$		
2737.2 *5*			E(level): the 1461.1-keV γ-ray attributed to a tentative level at 2018 keV (1971Hn05), was assigned to the 2737-keV level from pγ-coincidence results (1977La16).
3123.5 *4*	$1^+,2^+,3^+$		E(level): given as uncertain by 1971Hn05, level was confirmed by (p,p′γ).
3238.4 *3*	$1^+,2^+$		

† From Adopted Levels.

‡ From a least-squares procedure using observed gammas.

ε,$β^+$ radiations

E(decay)	E(level)	Iβ+ ‡	Iε‡	Log *ft*	I(ε+β+)†‡	Comments
(2.44×10^3 *3*)	3238.4	2.6 *7*	4.0 *11*	5.13 *13*	6.6 *18*	av Eβ=630 *13*; εK=0.528 *14*; εL=0.0661 *17*; εM+=0.0160 *4*
(2.55×10^3 *3*)	3123.5	0.9 *4*	1.1 *4*	5.74 *18*	2.0 *8*	av Eβ=682 *13*; εK=0.475 *13*; εL=0.0594 *16*; εM+=0.0144 *4*
(2.94×10^3 *3*)	2737.2	2.8 *6*	1.7 *4*	5.67 *11*	4.5 *10*	av Eβ=857 *13*; εK=0.324 *10*; εL=0.0404 *12*; εM+=0.0098 *3*
(2.96×10^3 *3*)	2716.3	4.4 *11*	2.5 *6*	5.50 *12*	6.9 *17*	av Eβ=867 *13*; εK=0.317 *10*; εL=0.0396 *12*; εM+=0.0096 *3*
(3.07×10^3 *3*)	2611.2	4.4 *11*	2.2 *5*	5.60 *11*	6.6 *16*	av Eβ=915 *13*; εK=0.285 *9*; εL=0.0355 *11*; εM+=0.0086 *3*
(3.10×10^3 *3*)	2574.5	1.9 *8*	0.9 *4*	6.00 *19*	2.8 *12*	av Eβ=932 *13*; εK=0.274 *8*; εL=0.0342 *10*; εM+=0.00829 *24*
(3.29×10^3 *3*)	2391.4	7.2 *17*	2.6 *6*	5.58 *11*	9.8 *23*	av Eβ=1016 *13*; εK=0.228 *7*; εL=0.0284 *9*; εM+=0.00689 *20*
(3.43×10^3 *3*)	2249.0	1.8 *9*	0.5 *3*	6.31 *23*	2.3 *12*	av Eβ=1082 *13*; εK=0.198 *6*; εL=0.0247 *7*; εM+=0.00598

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ε,β+ radiations (continued)

E(decay)	E(level)	Iβ+ ‡	Iε‡	Log *ft*	I(ε+β+)†‡	Comments
					17	
(4.14×10^3 *3*)	1534.6	3.6 *11*	0.49 *14*	6.51 *14*	4.1 *12*	av Eβ=1415 *14*; εK=0.1030 *25*; εL=0.0128 *3*; εM+=0.00310 *8*
(5.12×10^3 *3*)	556.7	6 *5*	0.3 *3*	6.9 *4*	6 *5*	av Eβ=1878 *14*; εK=0.0489 *10*; εL=0.00607 *12*; εM+=0.00147 *3*

† From I(γ+ce)-imbalance at each level.
‡ Absolute intensity per 100 decays.

γ(^{102}Pd)

Normalization to absolute γ-ray intensities is based on the assumption that there is no direct (ε+β+)-feeding to the ^{102}Pd g.s.

E_γ†	I_γ†&	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[a]	Comments
351.4# *2*		1945.0	2+	1593.6	0+			
556.7 *2*	32 *3*	556.7	2+	0	0+	E2	0.00445	α(K)exp=0.0051 (1967Ch05) α=0.00445; α(K)=0.00382; α(L)=0.00048 α(K)exp consistent with adopted mult.
719.4 *2*	3.4 *4*	1276.1	4+	556.7	2+			I_γ: from γ-intensity balance at 1276 level (J^π=4+), since no (ε+β+)-feeding is expected to this level.
977.7 *3*	2.0 *2*	1534.6	2+	556.7	2+			
1017.6# *2*		2611.2	(1,2)+	1593.6	0+			
1101.7@ *5*		1659.2	0+	556.7	2+			
x1331.2‡ *4*	2.2 *6*							
1387.8b *4*	1.2 *7*	1945.0	2+	556.7	2+			E_γ: γ ray was observed by 1971Hn05. Placement in level scheme is from ^{102}Pd(p,p′γ) (1977La16).
1461.1 *4*	3.4 *4*	2737.2		1276.1	4+			
1534.8 *4*	2.0 *6*	1534.6	2+	0	0+			
1588.8 *4*	0.9 *3*	3123.5	1+,2+,3+	1534.6	2+			
1592.6 *5*		1593.6	0+	0	0+	E0		Observed by 1975FeZS, 1977FeZS and 1979Co17.
1644.1# *4*		3238.4	1+,2+	1593.6	0+			
1692.3 *4*	1.7 *8*	2249.0	(2,3)	556.7	2+			
1834.7 *3*	7.4 *10*	2391.4	(1,2)+	556.7	2+			
x1924.9‡ *4*	0.8 *4*							
2017.8 *4*	2.1 *8*	2574.5	(1,2)	556.7	2+			
2054.5 *4*	5.0 *8*	2611.2	(1,2)+	556.7	2+			
x2110.7‡ *5*	0.4 *2*							
2159.4 *4*	3.8 *7*	2716.3	(1,2)+	556.7	2+			
x2310.2‡ *5*	1.0 *7*							
x2493.9‡ *5*	0.6 *4*							
2566.9 *5*	0.6 *4*	3123.5	1+,2+,3+	556.7	2+			
x2613.0‡ *4*	2.5 *9*							
2682.1 *4*	1.3 *5*	3238.4	1+,2+	556.7	2+			
x2690.9‡ *5*	0.7 *4*							
2716.5 *4*	1.4 *5*	2716.3	(1,2)+	0	0+			

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^{102}Ag ε decay (7.7 min) 1971Hn05,1979Co17,1981CoZR (continued)

γ(^{102}Pd) (continued)

E_γ [†]	I_γ [†&]	E_i(level)	J_i^π	E_f	J_f^π
[x]2726.9[‡] *5*	1.0 *4*				
[x]2805.0[‡] *5*	0.6 *2*				
3238.6 *4*	3.7 *8*	3238.4	$1^+,2^+$	0	0^+
[x]3398.0[‡] *6*	1.0 *6*				
[x]3406.5[‡] *6*	1.2 *7*				

[†] Unless noted otherwise, from 1971Hn05.
[‡] Assignment to 7.7-min or 12.9-min ^{102}Ag ε decay unknown.
[#] From 1979Co17.
[@] From 1981CoZR.
[&] For absolute intensity per 100 decays, multiply by 1.33 *13*.
[a] 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.
[b] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

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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

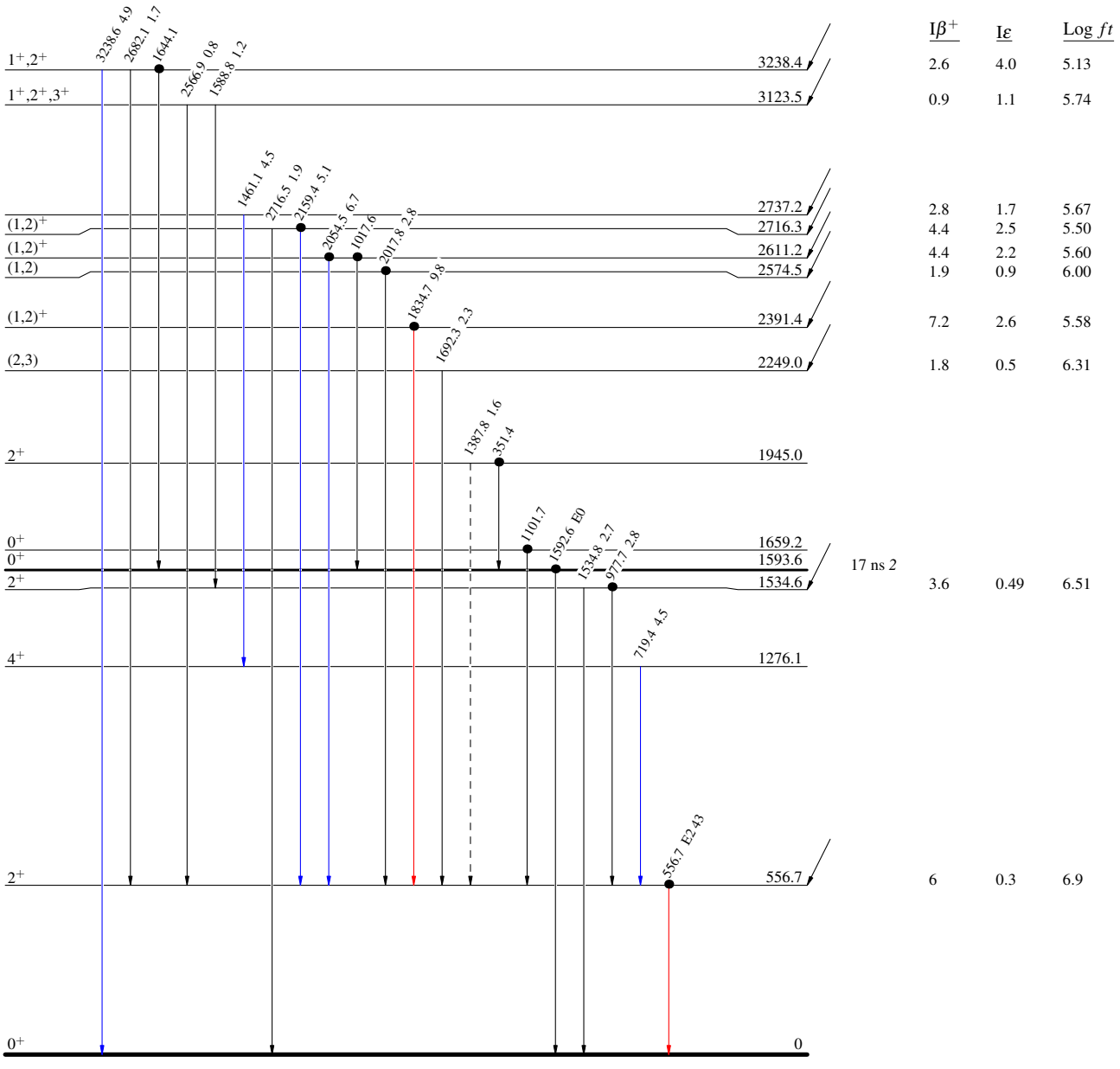
Decay Scheme

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

2^+ 9.2 7.7 min 5

$\%\varepsilon + \%\beta^+ = 100$ $Q_\varepsilon = 5669\ 28$

$^{102}_{47}Ag_{55}$



	Iβ+	Iε	Log ft
3238.4	2.6	4.0	5.13
3123.5	0.9	1.1	5.74
2737.2	2.8	1.7	5.67
2716.3	4.4	2.5	5.50
2611.2	4.4	2.2	5.60
2574.5	1.9	0.9	6.00
2391.4	7.2	2.6	5.58
2249.0	1.8	0.5	6.31
1534.6	3.6	0.49	6.51
556.7	6	0.3	6.9

$^{102}_{46}Pd_{56}$