^{96}Ag ε decay (4.40 s) 2003Ba39,1997Sc30

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. Abriola(a), A. A. Sonzogni	NDS 109, 2501 (2008)	1-Apr-2008

Parent: ^{96}Ag: E=0.0+x; $J^\pi=(8)^+$; $T_{1/2}$=4.40 s *6*; Q(ε)=1.17×10^4 *SY*; %ε+%$β^+$ decay=100.0

2003Ba39: ^{96}Ag produced by ^{60}Ni(^{40}Ca,p3n) E=4.35 MeV/nucleon; separated by GSI online separator. Measured Eγ, Iγ, γγ, β, βγ, βγγ, delayed protons, x rays, pγ coin using three different systems: 1) plastic scintillator combined with Ge array (15 detectors: two clovers and one Euroball cluster) for βγ and βγγ measurement. 2) Large NaI detector for total absorption spectrum (TAS) combined with a Ge detector and two Si detectors for βγ, βp, pγ and xγ events. 3) Two Si detector ΔE-E telescopes for delayed protons (FWHM=80 keV).

1997Sc30: ^{96}Ag produced by ^{60}Ni(^{40}Ca,p3n) E=4.1 MeV/nucleon. Measured Eγ, Iγ, γγ, xγ, Ep, Ip, pγ coin using Ge and Si(Li) detectors.

All data from 2003Ba39.

α: Additional information 1.

^{96}Pd Levels

E(level)[†]	J^π[#]	$T_{1/2}$	Comments
0.0	0^+		
1415.31 *10*	2^+		
2099.01 *15*	(4^+)		
2391.4?[‡] *4*	≤4		
2424.19 *17*	(6^+)		
2530.5 *3*	(8^+)	2.2 μs *3*	$T_{1/2}$: From 1983Gr01.
2648.70 *21*	(5^-)		
3183.9 *3*	(7^+)		
3724.7?[‡] *4*	$(4^+$ to $8^+)$		
3783.5 *4*	(10^+)		
4710.5 *4*	$(6^+$ to $9^+)$		
5282.2? *5*			

[†] From least-squares fit to Eγ's.
[‡] Level is likely fed by (2^+) isomer, I(γ+ce) and log *ft* values were not calculated.
[#] From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	I$β^+$ [‡]	Iε[‡]	Log *ft*	I(ε+$β^+$)[†‡]	Comments
(6417[#] *SY*)	5282.2?	<0.5	<0.01	>6.4	<0.5	av Eβ=2.50×10^3 *20*; εK=0.022 *6*; εL=0.0028 *7*; εM+=0.00067 *17*
(6989[#] *SY*)	4710.5	<1.0	<0.02	>6.3	<1	av Eβ=2.78×10^3 *20*; εK=0.017 *4*; εL=0.0021 *5*; εM+=0.00050 *12*
(7916 *SY*)	3783.5	<0.5	<0.006	>6.9	<0.5	av Eβ=3.23×10^3 *20*; εK=0.0111 *21*; εL=0.0014 *3*; εM+=0.00033 *7*
(7975 *SY*)	3724.7?	<0.5	<0.006	>7.0	<0.5	av Eβ=3.26×10^3 *20*; εK=0.0108 *21*; εL=0.0013 *3*; εM+=0.00032 *6*
(8516 *SY*)	3183.9	5.2 *10*	0.053 *14*	6.08 *14*	5.3 *10*	av Eβ=3.52×10^3 *20*; εK=0.0087 *15*; εL=0.00107 *19*; εM+=0.00026 *5*
(9051[#] *SY*)	2648.70	<0.5	<0.004	>7.2	<0.5	av Eβ=3.78×10^3 *20*; εK=0.0071 *12*; εL=0.00088 *14*; εM+=0.00021 *4*
(9169 *SY*)	2530.5	51 *5*	0.40 *7*	5.27 *12*	51 *5*	av Eβ=3.84×10^3 *20*; εK=0.0068 *11*; εL=0.00084 *14*; εM+=0.00020 *4*

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^{96}Ag ε decay (4.40 s) 2003Ba39,1997Sc30 (continued)

ε,β+ radiations (continued)

E(decay)	E(level)	Iβ+ ‡	Iε‡	Log *ft*	I(ε+β+)†‡	Comments
(9275# *SY*)	2424.19	<2	<0.02	>6.7	<2	av Eβ=3.89×10^3 *20*; εK=0.0066 *11*; εL=0.00081 *13*; εM+=0.00020 *3*
(9308 *SY*)	2391.4?	<1.5	<0.011	>6.8	<1.5	av Eβ=3.91×10^3 *20*; εK=0.0065 *10*; εL=0.00080 *13*; εM+=0.00019 *3*
(9600 *SY*)	2099.01	<1.5	<0.010	>6.9	<1.5	av Eβ=4.05×10^3 *20*; εK=0.0059 *9*; εL=0.00073 *11*; εM+=0.00018 *3*

† From Total Absorption Spectrometer (TAS, 2003Ba39). A large fraction of β^+ and ε feeding proceeds to high-lying states as indicated by total absorption spectrum. Logft values calculated assuming Y=0.
‡ Absolute intensity per 100 decays.
# Existence of this branch is questionable.

γ(^{96}Pd)

Iγ normalization: From Σ Iγ(g.s.)=91.5 % (2003Ba39) as %εp=8.5 *15*, additionally Iγ(1415) was taken equal to Iγ(683.7) to discount contributions from (2$^+$) isomer. Because of this procedure, Δ(γ-normalization) was set to approximate.

E_γ	I_γ†	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α	Comments
106.2 *3*	27.2 *7*	2530.5	(8$^+$)	2424.19	(6$^+$)	E2	1.126 *20*	α(exp)=1.41 *10* α(K)=0.880 *15*; α(L)=0.201 *4*; α(M)=0.0388 *8*; α(N)=0.00608 *12*; α(N+..)=0.00608 *12* Mult.: assuming that there is no direct feeding to the 6$^+$, α(exp)=1.41 *10* obtained from intensity balance and taking 325.2 γ as E2.
224.6 *2*	2 *1*	2648.70	(5$^-$)	2424.19	(6$^+$)	[E1]	0.01528	α(K)=0.01337 *19*; α(L)=0.001572 *23*; α(M)=0.000294 *5*; α(N)=4.90×10^{-5} *7*; α(N+..)=4.90×10^{-5} *7*
325.2 *1*	75.6 *19*	2424.19	(6$^+$)	2099.01	(4$^+$)	[E2]	0.0227	α(K)=0.0194 *3*; α(L)=0.00267 *4*; α(M)=0.000504 *7*; α(N)=8.28×10^{-5} *12*; α(N+..)=8.28×10^{-5} *12*
549.6 *2*	2.6 *4*	2648.70	(5$^-$)	2099.01	(4$^+$)			
653.4 *2*	5.9 *5*	3183.9	(7$^+$)	2530.5	(8$^+$)			
683.7 *1*	79.5 *14*	2099.01	(4$^+$)	1415.31	2$^+$	[E2]	0.00253 *4*	α(K)=0.00220 *3*; α(L)=0.000268 *4*; α(M)=5.04×10^{-5} *7*; α(N)=8.43×10^{-6} *12*; α(N+..)=8.43×10^{-6} *12*
x706.2 *3*	1.3 *4*							
759.8 *3*	4.6 *5*	3183.9	(7$^+$)	2424.19	(6$^+$)			
976.1 *3*	3.2 *8*	2391.4?	≤4	1415.31	2$^+$			
1253.0 *2*	5.0 *5*	3783.5	(10$^+$)	2530.5	(8$^+$)			
1300.5 *3*	4.8 *4*	3724.7?	(4$^+$ to 8$^+$)	2424.19	(6$^+$)			
1415.3 *1*	79.5 *14*	1415.31	2$^+$	0.0	0$^+$	[E2]	0.000535 *8*	α=0.000535 *8*; α(K)=0.000422 *6*; α(L)=4.87×10^{-5} *7*; α(M)=9.11×10^{-6} *13*; α(N)=1.535×10^{-6} *22* α(N+..)=5.57×10^{-5} *8*
1498.7‡ *2*	5.2 *5*	5282.2?		3783.5	(10$^+$)			
1526.5 *3*	1.2 *3*	4710.5	(6$^+$ to 9$^+$)	3183.9	(7$^+$)			
x1695.7 *3*	1.0 *4*							

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^{96}Ag ε decay (4.40 s) 2003Ba39,1997Sc30 (continued)

γ(^{96}Pd) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π
2099.2[‡] *7*	≈0.5	5282.2?		3183.9	(7^+)
2180.2 *4*	1.4 *4*	4710.5	$(6^+$ to $9^+)$	2530.5	(8^+)
[x]2853.1 *3*	2.1 *3*				

[†] For absolute intensity per 100 decays, multiply by ≈1.151.
[‡] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

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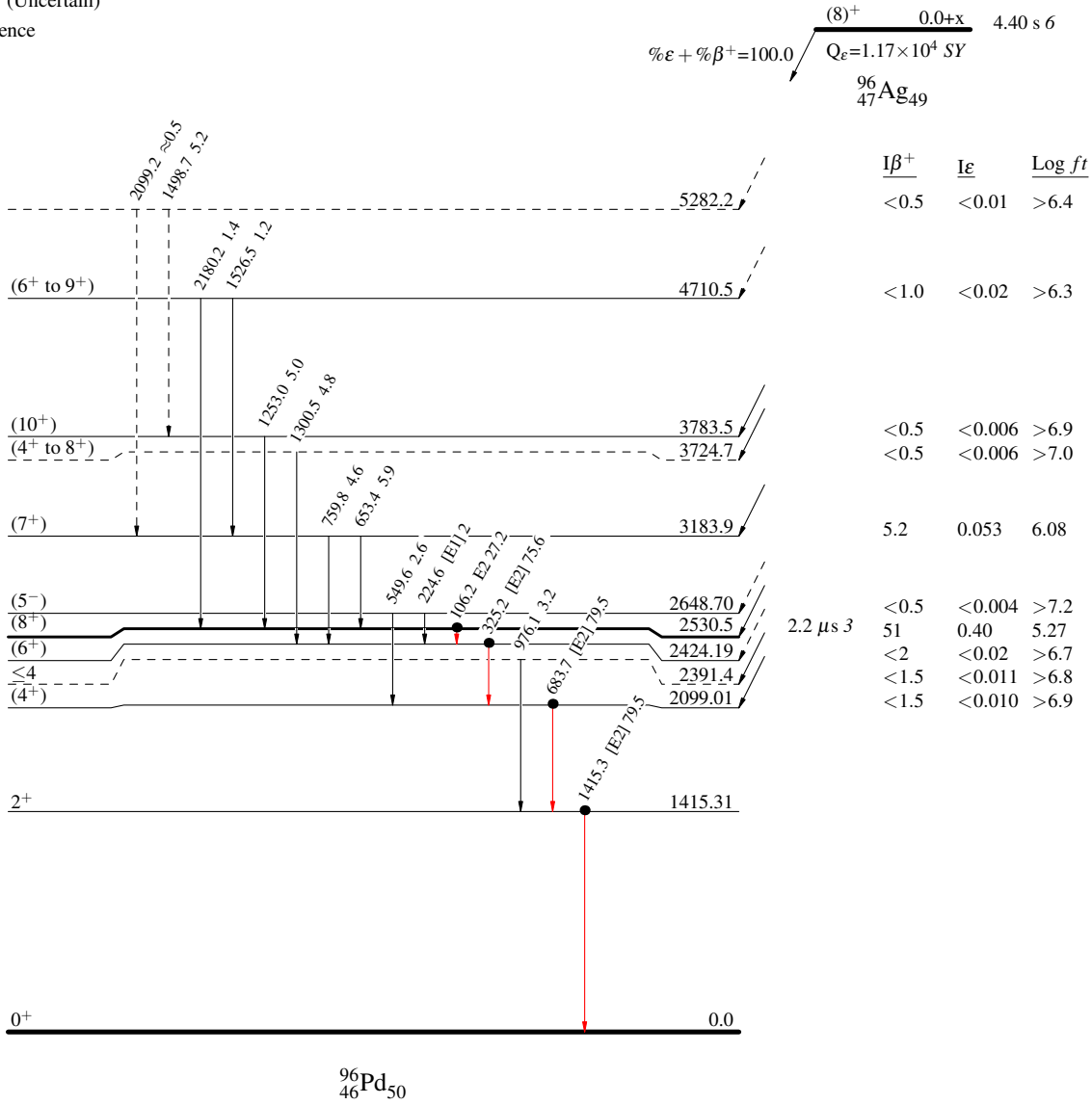
Legend

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

Decay Scheme

Intensities: Relative I_γ



$^{96}_{46}Pd_{50}$