^{104}Cd ε decay 1970Mu17

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 108,2035 (2007)	30-Mar-2007

Parent: ^{104}Cd: E=0.0; $J^\pi=0^+$; $T_{1/2}$=57.7 min *10*; Q(ε)=1137 *11*; %ε+%$β^+$ decay=100.0
Activity: Sn(p,3pxn), on-line isotope separation (ISOLDE) (1970Mu17).
Measured: semi ce, γ, γγ-coincidence. Others: 1955Jo25, 1971Do07.
The level energy of the first-excited state was not known to 1970Mu17, so their energies have been changed using the energy from 1979De44 for the first-excited state.

^{104}Ag Levels

E(level)	J^π†	$T_{1/2}$†
0	5^+	69.2 min
6.90 *22*	2^+	
90.6 *4*	1^+	
130.7 *4*	$(3)^+$	
157.4 *4*	$(2)^+$	
716.5 *5*	1^+	

† From Adopted Levels.

ε,$β^+$ radiations

ε/$β^+$=95 *30* from γγ-coincidences (1970Mu17). This indicates Q+=1580 *60* for ^{104}Cd.

E(decay)	E(level)	Iε†	Log *ft*	I(ε+$β^+$)†	Comments
(421 *11*)	716.5	≈28.5	≈3.6	≈28.5	εK=0.8528; εL=0.1177 *3*; εM+=0.02947 *9*
(980‡ *11*)	157.4	≤1.0	≥5.8	≤1.0	εK=0.8606; εL=0.1117; εM+=0.02772
(1046 *11*)	90.6	71.75	≈4.0	71.75	εK=0.8610; εL=0.1114; εM+=0.02764

† Absolute intensity per 100 decays.
‡ Existence of this branch is questionable.

γ(^{104}Ag)

Iγ normalization: assuming no ε feeding to g.s., I(γ+ce) to g.s.=100.
1.0% 3 of 83.5γ are in coincidence with $γ^\pm$ (1970Mu17).
The 26γ is proposed on the basis of 123γ-559γ coincidences.
See 1955Jo25 for additional conversion-electron energies.

E_γ	I_γ†	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α‡	Comments
6.9		6.90	2^+	0	5^+			
26.6#		157.4	$(2)^+$	130.7	$(3)^+$			
66.6 *2*	5.1 *4*	157.4	$(2)^+$	90.6	1^+	M1	1.40	α(K)exp=1.20 *5*; α(L)exp=0.145 *10*; M+=0.051 *16*
83.5 *2*	100	90.6	1^+	6.90	2^+	M1	0.68	α(K)exp=0.58 *4*; α(L)exp=0.076 *10*; M+=0.023 *11*
123.7# *2*	0.75 *8*	130.7	$(3)^+$	6.90	2^+	M1	0.24	α(K)exp=0.21 *3*; L+=0.033 *7*
150.2 *2*	0.24 *3*	157.4	$(2)^+$	6.90	2^+	M1	0.12	α(K)exp=0.10 *3*; L+=0.02
559.0 *2*	13.5 *10*	716.5	1^+	157.4	$(2)^+$			

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^{104}Cd ε decay 1970Mu17 (continued)

γ(^{104}Ag) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[‡]	Comments
625.7 *2*	4.6 *4*	716.5	1^+	90.6	1^+			
709.3 *2*	41.5 *25*	716.5	1^+	6.90	2^+	M1,E2	0.0024 *3*	α(K)exp=0.0020 *3*; L+=0.0004

[†] For absolute intensity per 100 decays, multiply by 0.47 *5*.
[‡] 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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Decay Scheme

Intensities: I_γ per 100 parent decays