^{110}Cd(α,2nγ) 1980Va13,1979Br07

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. Lalkovski, F. G. Kondev	NDS 124, 157 (2015)	1-Aug-2014

1980Va13, 1979Br07: Facility: Vrije Universiteit cyclotron, Amsterdam; Beam: E(α)=17-33 MeV; Targets: 5 mg/cm^2 thick self-supporting and a thin target with a thickness of 0.5 mg/cm^2, isotopically enriched in ^{110}Cd; Detectors: Compton polarimeter comprising one coaxial Ge and two Ge(Li) detectors, one planar, one intrinsic Ge x-ray detector, mini-orange spectrometer; Measured: γ, γ-ce, γ-γ-Δt, Eγ, Iγ, γ(θ), E_{ce}, I_{ce}, linear polarization (P_γ); Deduced: ^{112}Sn level scheme, J^π, γ-ray multipolarities; Also, from the same collaboration: 1981Va15.

Other: 1968Ya04, 1969Lu05, 1969Ya05, 1975Vi03, 1976HeZJ, 1977BrYY, 1978BrZS, 1978BrZU, 1981Go17.

^{112}Sn Levels

E(level)†	J^π‡	$T_{1/2}$	Comments
0.0	0+		
1256.65 *8*	2+		
2247.24 *11*	4+		
2353.95 *22*	3−		
2520.82 *11*	4+		
2548.92 *13*	6+	13.74 ns *8*	$T_{1/2}$: weighted average of 13.9 ns *2* (1980Va13); 14.0 ns *4* (1969Ya05); 13.2 ns *4* (1981Go17) and 13.7 ns *1* (1981Va15). g: +0.097 *9* (1981Go17); Other: +0.04 *3* from TDPAD in 1981Va15. Q: 0.29 *6* (1975Vi03); configuration: $\nu g_{7/2}\nu d_{5/2}$, $(\nu g_{7/2})^2$.
2783.69 *14*	4+		
2926.41 *15*	6+		
2945.77 *14*	4+		
3354.05 *14*	(7)−		
3413.96 *14*	6+		
3430.35 *25*	(8)−	0.58 ns *6*	$T_{1/2}$: from γγ(t) in 1980Va13.
3693.4 *3*	(9)−		
4077.62 *16*	8+		
4582.3 *3*	(10)−		
4819.4 *3*	10+		
4928.7 *4*	(11)−		
5564.4 *4*	12+		
5684.6 *3*	12+		

† From a least-squares fit to Eγ.
‡ From the Adopted Levels.

γ(^{112}Sn)

E_γ†	I_γ†	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	δ†	α@	Comments
76.3 *2*	12.0 *8*	3430.35	(8)−	3354.05	(7)−	M1+E2	0.04 *3*	1.221 *22*	Mult.: A_2=−0.15 *2* (1980Va13); A_4=−0.01 *2* (1980Va13).
263.03 *7*	17.9 *5*	3693.4	(9)−	3430.35	(8)−	M1+E2	0.13 *1*		Mult.: A_2=−0.021 *6* (1980Va13); A_4=0.00 *1* (1980Va13); Pγ=−0.43 *5* (1980Va13); α(K)exp=0.0045 *7* (1980Va13).
301.68 *7*	60 *2*	2548.92	6+	2247.24	4+	E2		0.0348	B(E2)(W.u.)=0.497 *3* Mult.: A_2=0.220 *4* (1980Va13); A_4=−0.04 *1* (1980Va13); Pγ=0.31 *6* (1980Va13); α(K)exp=0.033 *5* (1980Va13).
377.50 *8*	6.6 *8*	2926.41	6+	2548.92	6+	M1			Mult.: A_2=0.365 *8* (1980Va13); A_4=0.00 *2*

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^{110}Cd(α,2nγ) 1980Va13,1979Br07 (continued)

γ(^{112}Sn) (continued)

E_γ †	I_γ †	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	Comments
							(1980Va13); Pγ=0.67 5 (1980Va13); α(K)exp=0.017 3 (1980Va13).
427.67 10	2.1 1	3354.05	(7)$^-$	2926.41	6$^+$		Mult.: A_2=−0.20 2 (1980Va13); A_4=0.07 4 (1980Va13); Pγ=0.38 5 (1980Va13).
468.03# 13	1.6# 1	3413.96	6$^+$	2945.77	4$^+$	E2	Mult.: A_2=0.32 6 (1979Br07); A_4=−0.18 10 (1979Br07); Pγ=0.49 8 (1979Br07); α(K)exp=0.007 2 (1979Br07).
630.36# 12	2.8# 1	3413.96	6$^+$	2783.69	4$^+$	E2	Mult.: A_2=0.34 2 (1979Br07); A_4=0.71 8 (1979Br07); Pγ=0.71 8 (1979Br07); α(K)exp=0.0038 8 (1979Br07).
663.66# 8	8.8# 3	4077.62	8$^+$	3413.96	6$^+$	E2	Mult.: A_2=0.375 9 (1979Br07); A_4=−0.11 2 (1979Br07); Pγ=0.65 6 (1979Br07); α(K)exp=0.0027 4 (1979Br07).
741.8# 2	5.6# 2	4819.4	10$^+$	4077.62	8$^+$	E2	Mult.: A_2=0.366 12 (1979Br07); A_4=−0.11 2 (1979Br07); Pγ=0.53 5 (1979Br07); α(K)exp=0.0025 4 (1979Br07).
745.0# 2	1.6# 1	5564.4	12$^+$	4819.4	10$^+$	E2	Mult.: A_2=0.27 4 (1979Br07); A_4=−0.05 6 (1979Br07); Pγ=0.61 12 (1979Br07); α(K)exp=0.0024 6 (1979Br07).
805.11 7	36 2	3354.05	(7)$^-$	2548.92	6$^+$	E1	Mult.: A_2=−0.233 5 (1980Va13); A_4=−0.01 1(1980Va13); Pγ=0.37 5 (1980Va13); α(K)exp=0.00070 15 (1980Va13).
865.21# 9	1.0# 1	5684.6	12$^+$	4819.4	10$^+$	E2	Mult.: A_2=0.40 6 (1979Br07); A_4=−0.12 10 (1979Br07); Pγ= 0.7 2 (1979Br07); α(K)exp=0.0024 7 (1979Br07).
893.2# 2	1.9# 6	3413.96	6$^+$	2520.82	4$^+$	E2	
990.60# 7	75# 2	2247.24	4$^+$	1256.65	2$^+$	E2	Mult.: A_2=0.236 5 (1979Br07); A_4=−0.050 9 (1979Br07); Pγ=0.37 (1979Br07); α(K)exp=0.0014 (1979Br07).
1097.3 2	2.9 1	2353.95	3$^-$	1256.65	2$^+$	E1	Mult.: A_2=−0.21 3 (1980Va13); A_4=0.03 4 (1980Va13); Pγ=0.34 9 (1980Va13); α(K)exp<0.0005 (1980Va13).
1151.94 11	5.1 2	4582.3	(10)$^-$	3430.35	(8)$^-$	E2	Mult.: A_2=0.344 15 (1980Va13); A_4=−0.14 3 (1980Va13); Pγ=0.72 8 (1980Va13); α(K)exp=0.0007 3 (1980Va13).
1166.9# 3	5.0# 5	3413.96	6$^+$	2247.24	4$^+$	E2	Mult.: A_2=0.38 7 (1979Br07); A_4=−0.12 13 (1979Br07); Pγ=0.8 2 (1979Br07); α(K)exp=0.0009 4 (1979Br07).
1235.3 3	3.8 1	4928.7	(11)$^-$	3693.4	(9)$^-$	E2	Mult.: A_2=0.34 3 (1980Va13); A_4=−0.13 3 (1980Va13); Pγ=0.80 10 Pγ=0.72 8 (1980Va13); α(K)exp=0.0007 2 (1980Va13).
1256.64# 8	100.0# 1	1256.65	2$^+$	0.0	0$^+$	E2	Mult.: A_2=0.243 5 (1979Br07); A_4=−0.048 9 (1979Br07); Pγ=0.39 (1979Br07); α(K)exp=0.00060 8 (1979Br07).
1264.17# 8	7.0# 2	2520.82	4$^+$	1256.65	2$^+$	E2	Mult.: A_2=0.218 11 (1979Br07); A_4=−0.07 2 (1979Br07); Pγ=0.53 8 (1979Br07); α(K)exp=0.0007 2 (1979Br07);
1527.15# 14	5.1# 2	2783.69	4$^+$	1256.65	2$^+$	E2	Mult.: A_2=−0.09 3 (1979Br07); A_4=0.7 2 (1979Br07);
1688.92# 14	2.3# 1	2945.77	4$^+$	1256.65	2$^+$	E2	Mult.: A_2=0.22 3 (1979Br07); A_4=0.5 2 (1979Br07);

† From 1980Va13, unless otherwise noted.
‡ From 1980Va13 and 1979Br07, based on angular correlations, polarization and α(K)exp data.
# From 1979Br07.
@ 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.

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