

$^{116}\text{Cd}(\alpha,5n\gamma)$ 1979Ha12

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

E=30-67 MeV.

Measured $\gamma\gamma$ -coin, $\gamma(\theta)$, γ -ray excit; photon- and ce-transition data via $^{116}\text{Cd}(\alpha,5n\gamma)$ E α =64 MeV are given.

Cross bombardment spectra via $^{114}\text{Cd}(\alpha,3n\gamma)$ studied.

 ^{115}Sn Levels

(ν h11/2) band; $\Delta J=2$ level spacing corresponds with ^{114}Sn , ^{116}Sn g.s. bands up to 4^+ .

See 1978HaZP, 1979Ha12 for empirical syst of high-spin states in odd-mass ^{109}Sn - ^{117}Sn isotopes.

E(level)	$J^\pi^\dagger$	$T_{1/2}$	E(level)	$J^\pi^\dagger$	E(level)	$J^\pi^\dagger$
0.0	$1/2^+$		2024.6	$15/2^-$	3838.5	$(25/2^+)$
497.3	$3/2^+$		3002.9	$19/2^-$	4162.0	
612.7	$7/2^+$	$3.26 \mu\text{s } 8$	3508.7	$21/2^+$	4271.1	$(27/2^+)$
713.4	$11/2^-$	$159 \mu\text{s } 1$	3665.5	$(23/2^+)$		

† From Adopted Levels.

 $\gamma(^{115}\text{Sn})$

$\alpha(K)_{\text{exp}} = \text{ce}(K)/I_\gamma$ calibrated to E2 transitions of adjacent even tin isotopes.

γ placements are consistent with intensity balance and comparison of γ singles via $(\alpha,3n\gamma), (\alpha,5n\gamma)$.

$\gamma(\theta)$: measured at 5 angles ($\theta=90^\circ-153^\circ$).

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. ‡	δ	$\alpha^\#$	Comments
(100.7 † 3)		713.4	$11/2^-$	612.7	$7/2^+$	M2		5.7	
(115.4 † 2)		612.7	$7/2^+$	497.3	$3/2^+$	E2		0.96	
156.8 3	39 5	3665.5	$(23/2^+)$	3508.7	$21/2^+$	(M1,E2)			
173.0 3	31 4	3838.5	$(25/2^+)$	3665.5	$(23/2^+)$	(M1,E2)			
323.5 3	2 1	4162.0		3838.5	$(25/2^+)$				
329.8 3	2 1	3838.5	$(25/2^+)$	3508.7	$21/2^+$				
432.6 3	14 3	4271.1	$(27/2^+)$	3838.5	$(25/2^+)$	M1,E2			$\alpha(K)_{\text{exp}}=0.012 \ 4$
497.3 3	133 15	497.3	$3/2^+$	0.0	$1/2^+$	M1+E2	+0.21 2	0.00805 1	$\alpha(K)_{\text{exp}}=0.0076 \ 10$
505.8 3	44 5	3508.7	$21/2^+$	3002.9	$19/2^-$	E1			$\alpha(K)_{\text{exp}}=0.0021 \ 10$
x 513.5 $^@$ 3	14 3								Tentative assignment.
978.3 3	46 6	3002.9	$19/2^-$	2024.6	$15/2^-$	E2			$\alpha(K)_{\text{exp}}=0.0008 \ 6$
1311.2 3	100	2024.6	$15/2^-$	713.4	$11/2^-$	E2			$\alpha(K)_{\text{exp}}=0.00041 \ 40$

† From 1975Ma38 ($\alpha,n\gamma$), as for mult.

‡ Consistent with $\alpha(K)_{\text{exp}}$ and/or A_2 , A_4 coef.

$^\#$ 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.

x γ ray not placed in level scheme.

$^{116}\text{Cd}(\alpha,5n\gamma)$ 1979Ha12

Legend

Level Scheme

Intensities: Relative I_γ

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

