

¹¹⁶Cd($\alpha,5n\gamma$) 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 ¹¹⁶Cd($\alpha,5n\gamma$) E α =64 MeV are given.

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

¹¹⁵Sn Levels

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

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

| E(level) | J ^{π} † | T _{1/2} | E(level) | J ^{π} † | E(level) | J ^{π} † |
|----------|---------------------------------|------------------|----------|---------------------------------|----------|---------------------------------|
| 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 μ s 8 | 3508.7 | 21/2 ⁺ | 4271.1 | (27/2 ⁺) |
| 713.4 | 11/2 ⁻ | 159 μ s 1 | 3665.5 | (23/2 ⁺) | | |

† From Adopted Levels.

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

$\alpha(K)_{\text{exp}}=ce(K)/I_{\gamma}$ 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 (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 A₂, A₄ 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.

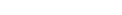
^x γ ray not placed in level scheme.

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

Legend

Level Scheme

Intensities: Relative I_γ

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

