

¹⁰⁶Cd(¹²C,pn γ) 1981Gi13,1984Qu02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 111, 717 (2010)	1-Dec-2009

E=52 MeV, enriched target: 64% (1981Gi13).

E=58 MeV, 63 MeV, enriched target (1984Qu02).

Measured: γ , $\gamma\gamma(t)$, $\gamma(\theta)$, Ge(Li)detectors (1981Gi13,1984Qu02).

Results from 1981Gi13, 104 γ and 227 γ observed in ¹¹⁶Xe β^+ decay: I(104 γ)/I(227 γ)=3.4 have been observed also in (¹²C,pn) reaction: I(104 γ)/I(227 γ)=0.5.

γ rays in coincidence with the strong ¹¹⁶I transition of 227 keV have been studied but not placed in a level scheme, the lower part of the ¹¹⁶I level scheme being unknown.

Results from 1984Qu02, 1983QuZZ: a cascade of γ rays has been established. From systematics and preliminary results, these transitions are believe to be band members of the Configuration=((π g_{9/2})⁻¹(ν h_{11/2})) based on an 7⁻ state now estimated to be ≥ 385 (1990Wu01) if the path includes 65.4, 105(doublet), and 227.2 transitions.

¹¹⁶I Levels

E(level)	J π [†]	T _{1/2}	Comments
0.0+x	(7 ⁻)	3.27 μ s 16	T _{1/2} : from 1990Wu01. E(level): x is ≥ 385 in ¹¹⁶ I IT decay (1990Wu01).
141+x [‡]	(8 ⁻)		
362+x [‡]	(9 ⁻)		
645+x [‡]	(10 ⁻)		
970+x [‡]	(11 ⁻)		
1328+x [‡]	(12 ⁻)		
1715+x [‡]	(13 ⁻)		
2131+x [‡]	(14 ⁻)		

[†] From Adopted Levels.

[‡] Band(A): member of the 8⁻ bandhead.

γ (¹¹⁶I)

E γ [#]	I γ [†]	E _i (level)	J π _i	E _f	J π _f	Mult. [‡]	δ	Comments
^x 93.7	≈ 8							
^x 114.4 @	58							
140.3	24	141+x	(8 ⁻)	0.0+x	(7 ⁻)	(D)		
^x 189.6	27							Mult.: A ₂ =-0.31 13\$ A ₄ =-0.07 4.
221.8	27	362+x	(9 ⁻)	141+x	(8 ⁻)	(D+Q)	>0	
^x 227.3 @	100					E2		Mult.: A ₂ =0.16 3\$ A ₄ =-0.08 5.
^x 248.3	13							
283		645+x	(10 ⁻)	362+x	(9 ⁻)	(D+Q)	>0	
^x 302.3	6.6							
^x 309.3	11							
325		970+x	(11 ⁻)	645+x	(10 ⁻)	(D+Q)	>0	
^x 355.1	26							Mult.: A ₂ =-0.16 7\$ A ₄ =0.10 8.
358		1328+x	(12 ⁻)	970+x	(11 ⁻)	(D+Q)	>0	
387		1715+x	(13 ⁻)	1328+x	(12 ⁻)	(D+Q)	>0	
416		2131+x	(14 ⁻)	1715+x	(13 ⁻)	(D+Q)	>0	
^x 468.7	13					E2		Mult.: A ₂ =0.27 6 \$ A ₄ =0.05 2.
608		970+x	(11 ⁻)	362+x	(9 ⁻)	(E2)		

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$^{106}\text{Cd}(^{12}\text{C,pn}\gamma)$ **1981Gi13,1984Qu02** (continued)

$\gamma(^{116}\text{I})$ (continued)

E_γ [#]	I_γ [†]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [‡]
^x 621.0 683	11	1328+x	(12 ⁻)	645+x	(10 ⁻)	(E2)

[†] From [1981Gi13](#).

[‡] Preliminary result, details not given ([1984Qu02](#)).

[#] Values quoted to 0.1 keV are from [1981Gi13](#). The other values are from [1984Qu02](#).

[@] Reported by [1990Wu01](#) and assigned to the decay of the (7⁻) isomer, (see IT decay).

^x γ ray not placed in level scheme.

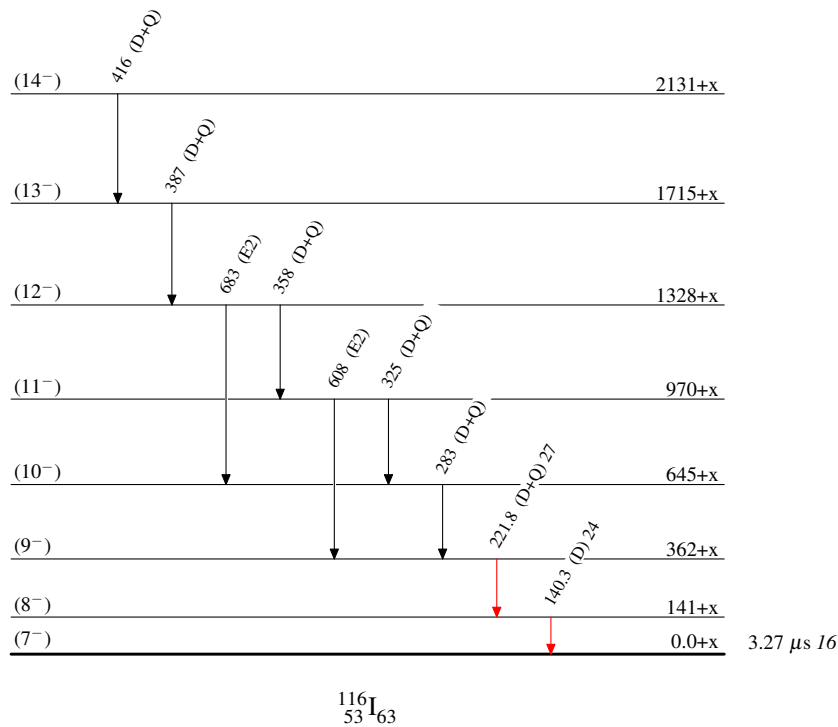
$^{106}\text{Cd}(^{12}\text{C,pn}\gamma)$ **1981Gi13,1984Qu02**

Level Scheme

Intensities: Relative I_γ

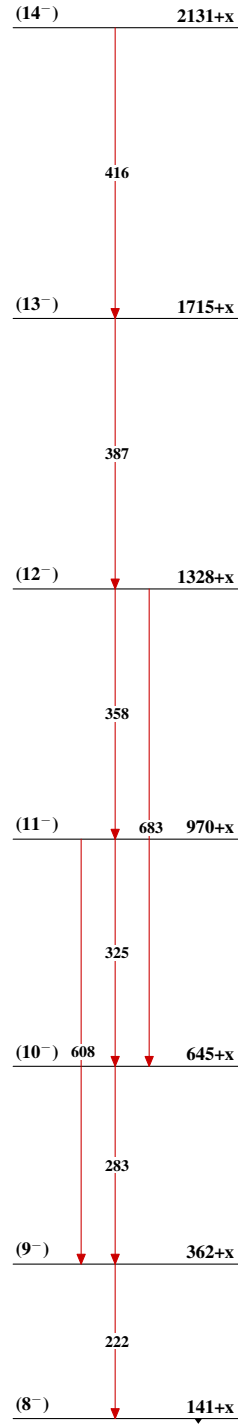
Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$



$^{106}\text{Cd}(^{12}\text{C},\text{pn}\gamma)$ 1981Gi13,1984Qu02

Band(A): Member of the 8^-
bandhead

 $^{116}_{53}\text{I}_{63}$