

$^{116}\text{Cd}(\alpha,3n\gamma)$ 1979Ha12

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Jean Blachot	ENSDF	1-Mar-2009

E=30– 67 MeV, enriched target.

Measured γ , ce, Ge(Li), Si(Li), $\gamma(t)$.

1310, 1278, 813, 807, 788, 781, 775.

755 γ 's are in coincidence with 591 γ .

The decay of levels 1596 and 1628 is based on the intensity balance of 1278 γ and 1310 γ .

Other: 1969Ya05.

 ^{117}Sn Levels

E(level)	J^π [†]	$T_{1/2}$	Comments
0.0	1/2 ⁺		
159.1 3	3/2 ⁺		
318.2 [‡] 3	11/2 ⁻	13.60 d 4	Additional information 1.
			E(level): 314.58 10 from Adopted Levels. 1979Ha12 report $T_{1/2}$ = 140 d, probably a misprint.
			$T_{1/2}$: from Adopted Levels.
712.6 5	7/2 ⁺		
1596.41 [‡] 24	(15/2 ⁻)		
1628.81 24	(13/2 ⁻)		
1875.6 6	(11/2 ⁺)		
2384.4 3	(17/2 ⁻)		
2404.1 3	(17/2 ⁻)		
2409.8 3	(19/2 ⁺)	1.75 μ s 7	$T_{1/2}$: from 1979Ha12.
2810.9 [‡] 4	(19/2 ⁻)		
2979.4 4			
2994.0 5			
3001.5 5			
3156.1 5			
3360.4 5			
3509.5 6			
3605.7 [‡] 5	(23/2 ⁻)		
3827.3 [‡] 6	(27/2 ⁻)		
3828.8 7			
3896.5 7			

[†] From ce data.

[‡] Band(A): 11/2⁻ band.

 $\gamma(^{117}\text{Sn})$

E_γ	I_γ	$E_i(\text{level})$	J^π_i	E_f	J^π_f	Mult. [†]
149.1 3	26 5	3509.5		3360.4		[‡]
159.1 3		159.1	3/2 ⁺	0.0	1/2 ⁺	
221.6 3	2 2	3827.3	(27/2 ⁻)	3605.7	(23/2 ⁻)	(E2)
319.3 3	16 3	3828.8		3509.5		
353.1		3509.5		3156.1		
358.9 3	9 2	3360.4		3001.5		
387.0 3	8 2	3896.5		3509.5		
553.5 3		712.6	7/2 ⁺	159.1	3/2 ⁺	E2
584.2 3	12 4	2994.0		2409.8	(19/2 ⁺)	

Continued on next page (footnotes at end of table)

$^{116}\text{Cd}(\alpha, 3n\gamma)$ 1979Ha12 (continued) $\gamma(^{117}\text{Sn})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	Comments
591.7 3	20 3	3001.5		2409.8	(19/2 ⁺)	$\ddagger$	
746.3 3	21 3	3156.1		2409.8	(19/2 ⁺)	$\ddagger$	
755.6 3	10 2	2384.4	(17/2 ⁻)	1628.81	(13/2 ⁻)	(E2)	$\alpha(\text{K})_{\text{exp}}=1.9\times 10^{-3}$ 6
775.3 3	39 5	2404.1	(17/2 ⁻)	1628.81	(13/2 ⁻)	(E2)	
781.0 3	2 1	2409.8	(19/2 ⁺)	1628.81	(13/2 ⁻)	(E3)	$B(\text{E}3)(\text{W.u.})=0.5$ 3
788.0 3	5 2	2384.4	(17/2 ⁻)	1596.41	(15/2 ⁻)		
794.8 3	3 1	3605.7	(23/2 ⁻)	2810.9	(19/2 ⁻)	(E2)	
807.7 3	19 3	2404.1	(17/2 ⁻)	1596.41	(15/2 ⁻)	(M1)	$\alpha(\text{K})_{\text{exp}}=2.8\times 10^{-3}$ 8
813.4 3	18 3	2409.8	(19/2 ⁺)	1596.41	(15/2 ⁻)	(M2)	$\alpha(\text{K})_{\text{exp}}=4.3\times 10^{-3}$ 12 $B(\text{M}2)(\text{W.u.})=0.0019$ 5
1163.0 3	3 2	1875.6	(11/2 ⁺)	712.6	7/2 ⁺	E2	
1214.5 3	17 3	2810.9	(19/2 ⁻)	1596.41	(15/2 ⁻)	E2	
1278.2 3	100	1596.41	(15/2 ⁻)	318.2	11/2 ⁻	E2	
1310.6 3	82 9	1628.81	(13/2 ⁻)	318.2	11/2 ⁻	M1,E2	
1383.0 3	9 2	2979.4		1596.41	(15/2 ⁻)		

[†] From ce data.[‡] Could be M1,E2.

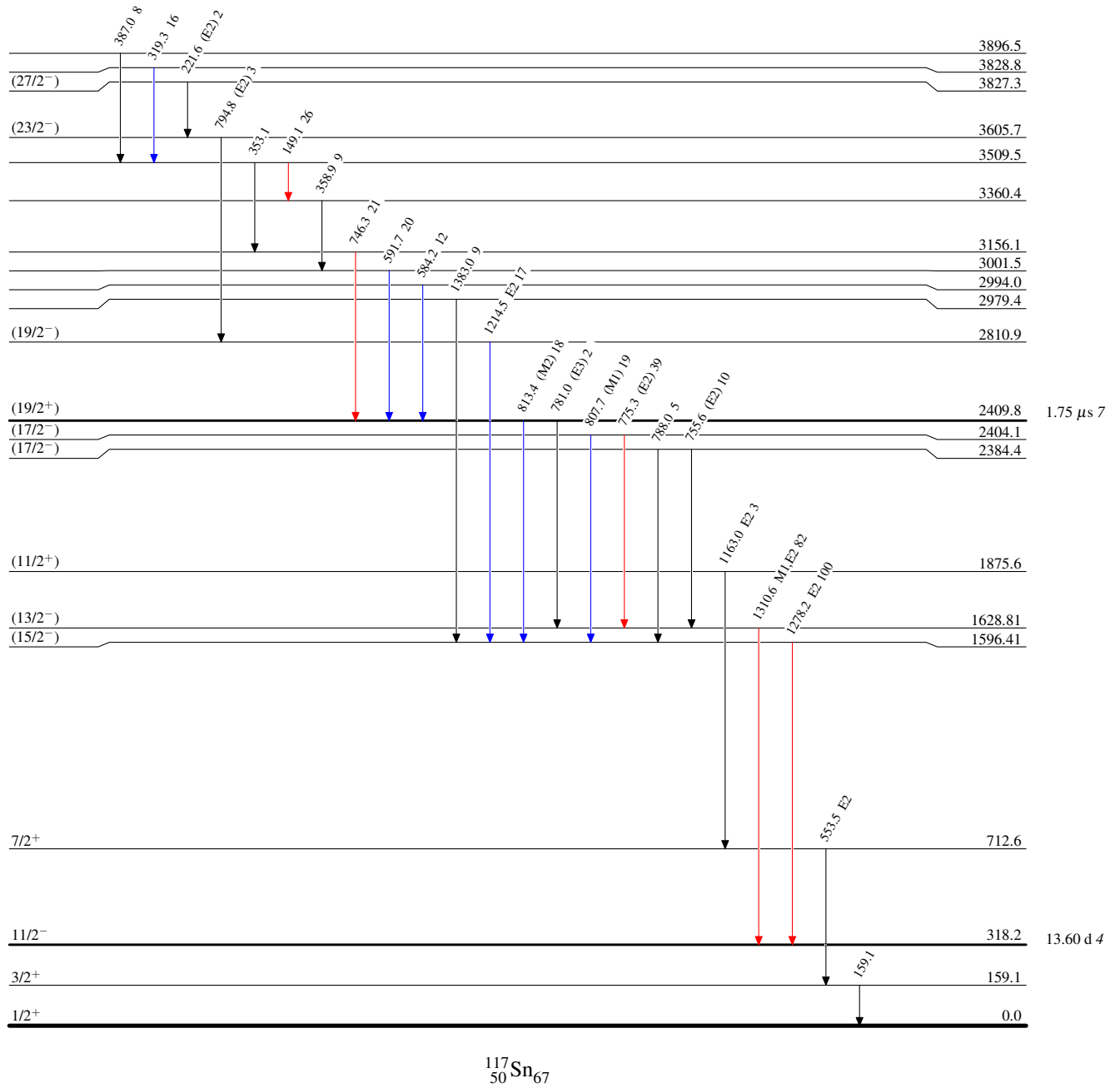
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Level Scheme

Intensities: Relative I_γ

Legend

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



$^{116}\text{Cd}(\alpha,3n\gamma)$ 1979Ha12Band(A): $11/2^-$ band(27/2⁻) 3827.3

222

(23/2⁻) 3605.7

795

(19/2⁻) 2810.9

1214

(15/2⁻) 1596.41

1278

11/2⁻ 318.2 $^{117}_{50}\text{Sn}_{67}$