

$^{113}\text{Cd}(^7\text{Li},4n\gamma)$ 1982Du11

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

$E(^7\text{Li})=32\text{-}50$ MeV.

Enriched target (95%).

Measured: γ , $\gamma\gamma(t)$, $\gamma\gamma(\theta)$, linear polarization.

 ^{116}Sb Levels

E(level) [†]	$J^{\pi\ddagger}$	$T_{1/2}$	Comments
383	8^-		E(level): no g.s. transition was observed.
681.6 [#]	6^-		
809.1	7^-		
1135.5	9^-		
1158.8	7^+	10.3 ns 3	
1289.1	$(6,7,8)^-$		
1351.4	7^-		
1451.4 [#]	8^-		
1569.7			
1666.4 [#]	9^-		
1782.1 [@]	11^+	4.0 ns 2	
1885.1 [@]			
1960.9 [#]			
1983.6 [#]	10^-		
2157.1 [@]			
2335.8 [#]	11^-		
2384.3 [@]			
2718.2 [#]	12^-		
2966.1 [@]	13^+		
3005.2			
3129.0 [#]	13^-		
3206.9 [@]	14^+		
3433.2 [@]	$(13^+),15^+$		
3573. [#]	14^-		
3804.3 [@]			
3940.2 [@]	$(14^+),16$		
4245.5 [@]			

[†] No g.s. transitions observed. Energies are relative to $E(8^- \text{ isomer})=383$.

[‡] Based on γ multiplicities.

[#] Band(A): negative parity band.

[@] Band(B): positive parity band.

$^{113}\text{Cd}(^7\text{Li},4n\gamma)$ **1982Du11 (continued)** $\gamma(^{116}\text{Sb})$

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	δ	Comments
99.9 1	25 5	1451.4	8 ⁻	1351.4	7 ⁻			
103.0 5	6 3	1885.1		1782.1	11 ⁺			
192.6 2	13 2	1351.4	7 ⁻	1158.8	7 ⁺	E1+M2	-0.46 15	Mult.: $\Delta J=0$.
215.0 1	55 4	1666.4	9 ⁻	1451.4	8 ⁻	M1(+E2)	-0.07 7	
226.3 2	9 1	3433.2	(13 ⁺),15 ⁺	3206.9	14 ⁺	M1+E2	-0.57 20	
240.8 2	24 2	3206.9	14 ⁺	2966.1	13 ⁺	M1+E2	+0.57 17	
^x 298.6 [‡] 3	34 [‡] 4							
298.6 [‡] 3	34 [‡] 4	681.6	6 ⁻	383	8 ⁻			
317.2 2	47 4	1983.6	10 ⁻	1666.4	9 ⁻	M1(+E2)	+0.05 7	
349.7 3	12 3	1158.8	7 ⁺	809.1	7 ⁻	E1+M2	-0.42 13	B(E1)(W.u.) $>1.3\times 10^{-7}$; B(M2)(W.u.) <0.088
352.2 3	30 5	2335.8	11 ⁻	1983.6	10 ⁻	M1(+E2)	<0.10	
382.4 3	17 2	2718.2	12 ⁻	2335.8	11 ⁻	M1(+E2)	-0.05 10	
391.2 6	5 2	1960.9		1569.7				
410.8 4	≤ 20	3129.0	13 ⁻	2718.2	12 ⁻			I_γ : $I_\gamma=20$ 6 for 410.8 and 411.0.
411.0 6	≤ 20	1569.7		1158.8	7 ⁺			I_γ : $I_\gamma=20$ 6 for 410.8 and 411.0.
426.1 2	54 4	809.1	7 ⁻	383	8 ⁻	M1(+E2)	<0.10	
444 1	5 2	3573.	14 ⁻	3129.0	13 ⁻			
467.1 2	29 4	3433.2	(13 ⁺),15 ⁺	2966.1	13 ⁺			Mult.: $\Delta J=0,2$.
479.9 3	10 2	1289.1	(6,7,8) ⁻	809.1	7 ⁻			Mult.: $\Delta J=1$.
507.0 4	12 3	3940.2	(14 ⁺),16	3433.2	(13 ⁺),15 ⁺			Mult.: $\Delta J=1$.
532.2 5	4 1	1983.6	10 ⁻	1451.4	8 ⁻			
542.3 4	6 2	1351.4	7 ⁻	809.1	7 ⁻			
597.4 2	7 1	3804.3		3206.9	14 ⁺			
641.6 3	2 1	1451.4	8 ⁻	809.1	7 ⁻			
646.6 3	14 2	1782.1	11 ⁺	1135.5	9 ⁻	M2		B(M2)(W.u.)=0.35 6
^x 669.6 [‡] 3	13 [‡] 2							
669.6 [‡] 3	13 [‡] 2	2335.8	11 ⁻	1666.4	9 ⁻			
734.8 3	17 3	2718.2	12 ⁻	1983.6	10 ⁻			
752.7 2	61 6	1135.5	9 ⁻	383	8 ⁻	M1+E2	-0.32 10	
775.8 2	30 4	1158.8	7 ⁺	383	8 ⁻	E1		B(E1)(W.u.)= 4.2×10^{-8} 8
793.0 3	9 2	3129.0	13 ⁻	2335.8	11 ⁻			
812.3 3	7 2	4245.5		3433.2	(13 ⁺),15 ⁺			
854.6 4	3 1	3573.	14 ⁻	2718.2	12 ⁻			
906.1 4	3 1	1289.1	(6,7,8) ⁻	383	8 ⁻			
968.4 3	37 5	1351.4	7 ⁻	383	8 ⁻	M1(+E2)	<0.10	
1021.6 [‡] 3	21 [‡] 3	2157.1		1135.5	9 ⁻			
1021.6 [‡] 3	21 [‡] 3	3005.2		1983.6	10 ⁻			
1068.0 6	2 1	1451.4	8 ⁻	383	8 ⁻			
1184.0 2	65 6	2966.1	13 ⁺	1782.1	11 ⁺	E2		
1248.8 4	6 2	2384.3		1135.5	9 ⁻			
1283.6 3	5 2	1666.4	9 ⁻	383	8 ⁻			Mult.: $\Delta J=1$.
1399.1 2	100	1782.1	11 ⁺	383	8 ⁻	E3		B(E3)(W.u.)=31.8 17

[†] From $\gamma(\theta)$ and linear polarization.

[‡] Multiply placed with undivided intensity.

^x γ ray not placed in level scheme.

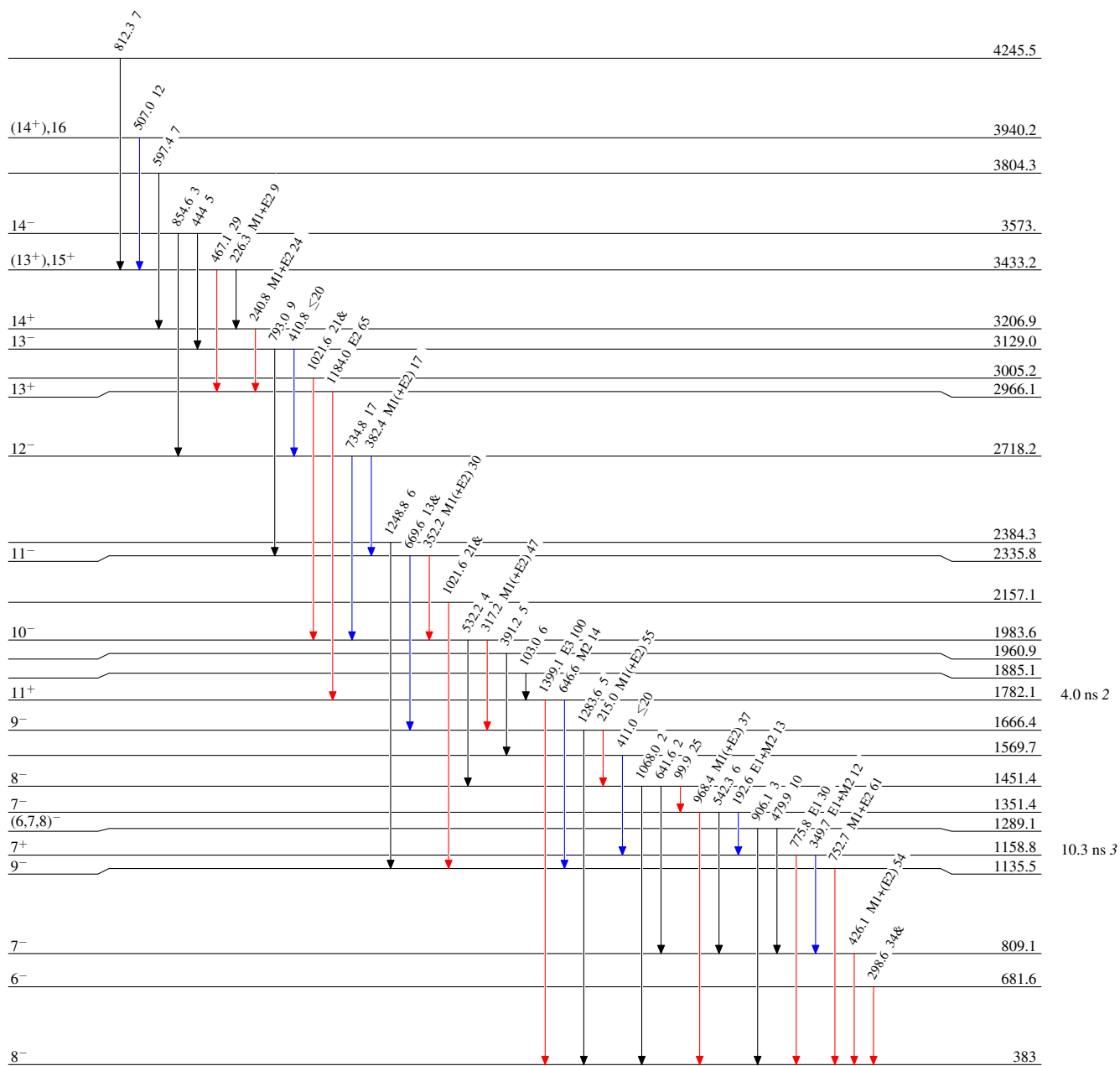
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Level Scheme

Intensities: Relative I γ
& Multiply placed: undivided intensity given

Legend

- I γ < 2% \times I γ^{max}
- I γ < 10% \times I γ^{max}
- I γ > 10% \times I γ^{max}



¹¹⁶Sb₅₁⁶⁵

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