^{111}Cd(n,γ) E=th:primary 1997Dr03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. Lalkovski, F. G. Kondev	NDS 124, 157 (2015)	1-Aug-2014

Facility: ILL Grenoble; Targets: 47 mg enriched to 90% in ^{111}Cd; 0.46 mg/cm^2 and 1.2 mg/cm^2 Cd oxide evaporated on Al foil; Detectors: one composite detector, comprising one Ge(Li) detector working in coinc. or anti-coinc. with an annulus NaI(Tl), BILL β- spectrometer and multi-wire proportional counter: Measured: Eγ, Iγ; Deduced: ^{112}Cd level scheme, J^π, Q_n; Also, from the same collaboration: 1993De01.

^{112}Cd Levels

E(level)[†]	J$^\pi$[‡]	Comments
0.0	0^+	
617.57 *23*	2^+	
1224.3 *3*	0^+	
1312.40 *23*	2^+	
1432.72 *21*	0^+	
1469.0 *5*	2^+	
1871.0 *3*	0^+	
2065.2 *8*	3^+	
2121.52 *25*	2^+	
2156.2 *3*	2^+	
2231.7 *6*	2^+	
2300.52 *25*	0^+	
2402.6 *3*	3^+	
2506.57 *23*	1^-	E(level): ambiguous final level. A doublet in the Adopted Levels.
2531.7 *3*	2^+	
2561.5 *6*	$(1,2^+)$	
2668.62 *24*	$(2)^-$	
2673.0 *7*	2^+	
2765.87 *24*	2^+	
2829.18 *23*	1^-	
2834.0 *7*	0^+	
2930.2[@] *7*	1^+	
2945.5 *4*	2^+	
3065.4[#] *4*	$(2,3)^-$	
3111.3[#@] *4*	$(2)^+$	
3133.2 *3*	1^-	
3135.5 *3*	$(2,3^+)$	
3163.51 *23*	2^+	
3169.19 *24*	2^+	
3189.93 *24*	$0^+,1,2,3^+$	
3231.42 *24*	1^+	
3243.5 *5*	2^+	
3253.61 *24*	$(0^+,1,2)$	
3303.11 *24*	$(2,3)^+$	
3363.30[#] *24*	2^+	
3378.25[#] *24*	$(2)^+$	
3393.39 *23*	$(1,2^+)$	
3428.9[#] *4*	2^+	
3451.9 *4*	2^+	
3455.47 *23*	$0^+,1,2$	
3479.0 *4*	$0^+,1,2^+$	
3500.38 *23*	$0^+,1,2,3^+$	
3514.5[#@] *4*	$(1,2,3)^+$	

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^{111}Cd(n,γ) E=th:primary 1997Dr03 (continued)

^{112}Cd Levels (continued)

E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]
3540.0 *3*	1,2$^+$	3646.9[#] *3*	0$^+$,1,2,3$^+$	3743.1[#] *6*	(1,2,3)$^+$	3996.1 *4*	1,2$^+$
3556.8 *3*	(1,2$^+$)	3652.1[#] *3*	1,2$^+$	3838.3 *7*	(1,2$^+$)	4003.4 *6*	(3)$^+$
3567.9 *3*	2$^+$	3695.97 *23*	0$^+$,1,2,3$^+$	3846.4 *5*	(1,2$^+$)	(9394.0 *3*)	(1$^+$)
3571.7 *5*	(1,2$^+$)	3707.24 *23*	1$^-$,2,3$^+$	3892.29 *25*	0$^+$,1,2,3$^+$		
3577.56 *23*	2$^+$	3719.0[#] *3*	(2$^+$,3$^+$)	3951.43 *23*	1,2$^+$		
3609.6[#] *5*	0$^+$,1,2,3$^+$	3723.7[#] *3*	0$^+$,1,2,3$^+$	3970.0 *4*	(1,2$^+$)		

[†] From a least-squares fit to Eγ.
[‡] From the Adopted Levels.
[#] No secondary γ-rays from this level were observed in 1997Dr03. The level is deduced by the evaluators from the E(resonance level)-Eγ(Primary) energy difference and the Adopted Levels.
[@] Level energy deviate by more than 1 keV from the adopted level.

γ(^{112}Cd)

E$_\gamma$[†]	I$_\gamma$[‡]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
5390.5 *5*	0.45 *9*	(9394.0)	(1$^+$)	4003.4	(3)$^+$
5397.8 *3*	0.85 *14*	(9394.0)	(1$^+$)	3996.1	1,2$^+$
5423.9 *3*	0.68 *9*	(9394.0)	(1$^+$)	3970.0	(1,2$^+$)
5442.48 *13*	9.66 *24*	(9394.0)	(1$^+$)	3951.43	1,2$^+$
^{x}5448.04[#] *13*	4.92 *16*				
^{x}5454.38[#] *13*	2.72 *12*				
^{x}5498.9[#] *6*	0.66 *19*				
5501.62 *17*	3.8 *3*	(9394.0)	(1$^+$)	3892.29	0$^+$,1,2,3$^+$
5547.5 *4*	0.82 *12*	(9394.0)	(1$^+$)	3846.4	(1,2$^+$)
5555.6 *6*	0.40 *9*	(9394.0)	(1$^+$)	3838.3	(1,2$^+$)
^{x}5572.3[#] *4*	0.51 *8*				
^{x}5598.6[#] *4*	0.53 *9*				
^{x}5628.71[#] *20*	1.14 *11*				
^{x}5645.1[#] *3*	0.77 *9*				
5650.8 *5*	0.53 *12*	(9394.0)	(1$^+$)	3743.1	(1,2,3)$^+$
5670.24 *24*	0.96 *10*	(9394.0)	(1$^+$)	3723.7	0$^+$,1,2,3$^+$
5674.88 *25*	0.92 *11*	(9394.0)	(1$^+$)	3719.0	(2$^+$,3$^+$)
5686.66 *14*	9.7 *3*	(9394.0)	(1$^+$)	3707.24	1$^-$,2,3$^+$
5697.93 *13*	9.1 *3*	(9394.0)	(1$^+$)	3695.97	0$^+$,1,2,3$^+$
^{x}5736.3[#] *6*	0.66 *19*				
5741.76 *18*	2.22 *13*	(9394.0)	(1$^+$)	3652.1	1,2$^+$
5746.95 *24*	1.16 *11*	(9394.0)	(1$^+$)	3646.9	0$^+$,1,2,3$^+$
5784.3 *4*	0.70 *12*	(9394.0)	(1$^+$)	3609.6	0$^+$,1,2,3$^+$
5816.33 *13*	9.1 *3*	(9394.0)	(1$^+$)	3577.56	2$^+$
5822.2 *4*	0.72 *11*	(9394.0)	(1$^+$)	3571.7	(1,2$^+$)
5825.99 *20*	1.75 *14*	(9394.0)	(1$^+$)	3567.9	2$^+$
5837.08 *18*	1.70 *11*	(9394.0)	(1$^+$)	3556.8	(1,2$^+$)
5853.86 *21*	2.10 *20*	(9394.0)	(1$^+$)	3540.0	1,2$^+$
^{x}5879.4[#] *3*	0.68 *9*				
5879.4 *3*	0.68 *9*	(9394.0)	(1$^+$)	3514.5	(1,2,3)$^+$
5893.51 *13*	4.73 *16*	(9394.0)	(1$^+$)	3500.38	0$^+$,1,2,3$^+$
5914.9 *3*	0.89 *10*	(9394.0)	(1$^+$)	3479.0	0$^+$,1,2$^+$
5938.41 *14*	5.52 *20*	(9394.0)	(1$^+$)	3455.47	0$^+$,1,2

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^{111}Cd(n,γ) E=th:primary 1997Dr03 (continued)

γ(^{112}Cd) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π
5942.0 *3*	1.35 *17*	(9394.0)	(1^+)	3451.9	2^+
5965.0 *3*	0.60 *8*	(9394.0)	(1^+)	3428.9	2^+
6000.49 *13*	4.47 *15*	(9394.0)	(1^+)	3393.39	$(1,2^+)$
6015.63 *15*	3.98 *16*	(9394.0)	(1^+)	3378.25	$(2)^+$
6030.58 *16*	1.87 *10*	(9394.0)	(1^+)	3363.30	2^+
6090.77 *16*	3.45 *20*	(9394.0)	(1^+)	3303.11	$(2,3)^+$
6140.26 *16*	2.24 *12*	(9394.0)	(1^+)	3253.61	$(0^+,1,2)$
6150.4 *4*	0.45 *8*	(9394.0)	(1^+)	3243.5	2^+
6162.45 *16*	2.01 *11*	(9394.0)	(1^+)	3231.42	1^+
6203.94 *15*	2.92 *14*	(9394.0)	(1^+)	3189.93	$0^+,1,2,3^+$
6224.68 *15*	3.12 *14*	(9394.0)	(1^+)	3169.19	2^+
6230.36 *14*	4.30 *17*	(9394.0)	(1^+)	3163.51	2^+
6258.35 *19*	6.3 *7*	(9394.0)	(1^+)	3135.5	$(2,3^+)$
6260.63 *25*	4.5 *8*	(9394.0)	(1^+)	3133.2	1^-
[x]6277.5[#] *4*	0.54 *9*				
6282.6 *3*	1.35 *13*	(9394.0)	(1^+)	3111.3	$(2)^+$
6328.5 *3*	0.99 *12*	(9394.0)	(1^+)	3065.4	$(2,3)^-$
6448.4 *3*	0.41 *6*	(9394.0)	(1^+)	2945.5	2^+
6463.7 *6*	0.21 *5*	(9394.0)	(1^+)	2930.2	1^+
6559.8 *6*	0.42 *9*	(9394.0)	(1^+)	2834.0	0^+
6564.67 *13*	13.1 *4*	(9394.0)	(1^+)	2829.18	1^-
6627.97 *15*	0.46 *10*	(9394.0)	(1^+)	2765.87	2^+
6720.8 *6*	0.46 *10*	(9394.0)	(1^+)	2673.0	2^+
6725.22 *15*	5.9 *3*	(9394.0)	(1^+)	2668.62	$(2)^-$
6832.3 *5*	0.52 *8*	(9394.0)	(1^+)	2561.5	$(1,2^+)$
6862.10 *21*	1.47 *11*	(9394.0)	(1^+)	2531.7	2^+
6887.26 *13*	15.5 *6*	(9394.0)	(1^+)	2506.57	1^-
6991.18 *23*	0.95 *9*	(9394.0)	(1^+)	2402.6	3^+
7093.29 *17*	1.60 *10*	(9394.0)	(1^+)	2300.52	0^+
7162.1 *5*	0.35 *7*	(9394.0)	(1^+)	2231.7	2^+
7237.56 *23*	0.95 *9*	(9394.0)	(1^+)	2156.2	2^+
7272.28 *17*	1.97 *12*	(9394.0)	(1^+)	2121.52	2^+
7328.6 *7*	0.23 *7*	(9394.0)	(1^+)	2065.2	3^+
7522.80 *25*	0.91 *9*	(9394.0)	(1^+)	1871.0	0^+
7924.8 *4*	0.29 *4*	(9394.0)	(1^+)	1469.0	2^+
7961.03 *11*	0.07 *3*	(9394.0)	(1^+)	1432.72	0^+
8081.34 *14*	2.60 *18*	(9394.0)	(1^+)	1312.40	2^+
8169.41 *23*	1.36 *13*	(9394.0)	(1^+)	1224.3	0^+
8776.11 *14*	4.00 *4*	(9394.0)	(1^+)	617.57	2^+
9393.63 *18*	0.63 *8*	(9394.0)	(1^+)	0.0	0^+

[†] From 1997Dr03.
[‡] Absolute intensities per 10^5 neutron captures (1997Dr03).
[#] No final level is associated with this transition.
[x] γ ray not placed in level scheme.

^{111}Cd(n,γ) E=th:primary 1997Dr03

Level Scheme

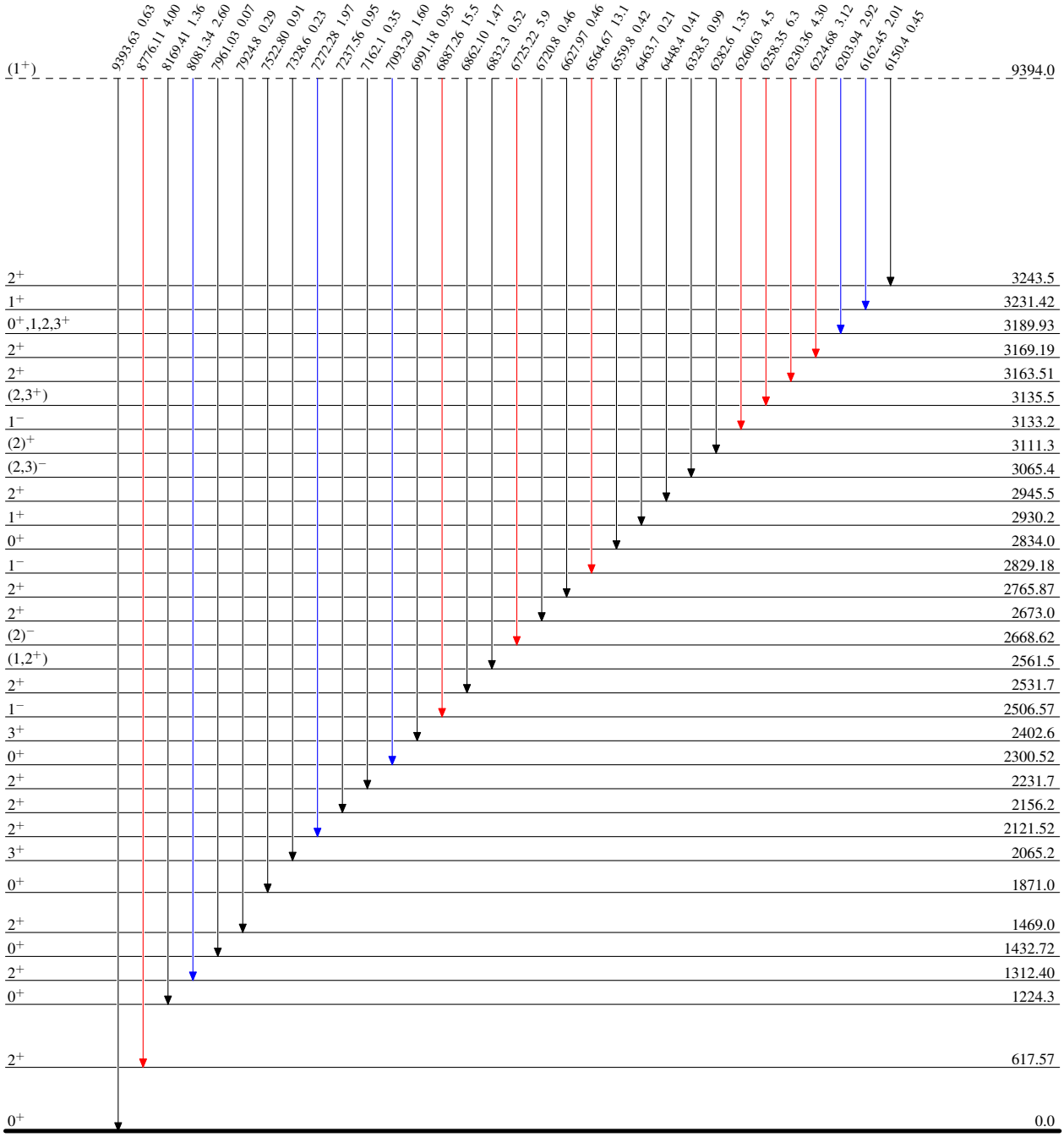
Intensities: Type not specified

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$

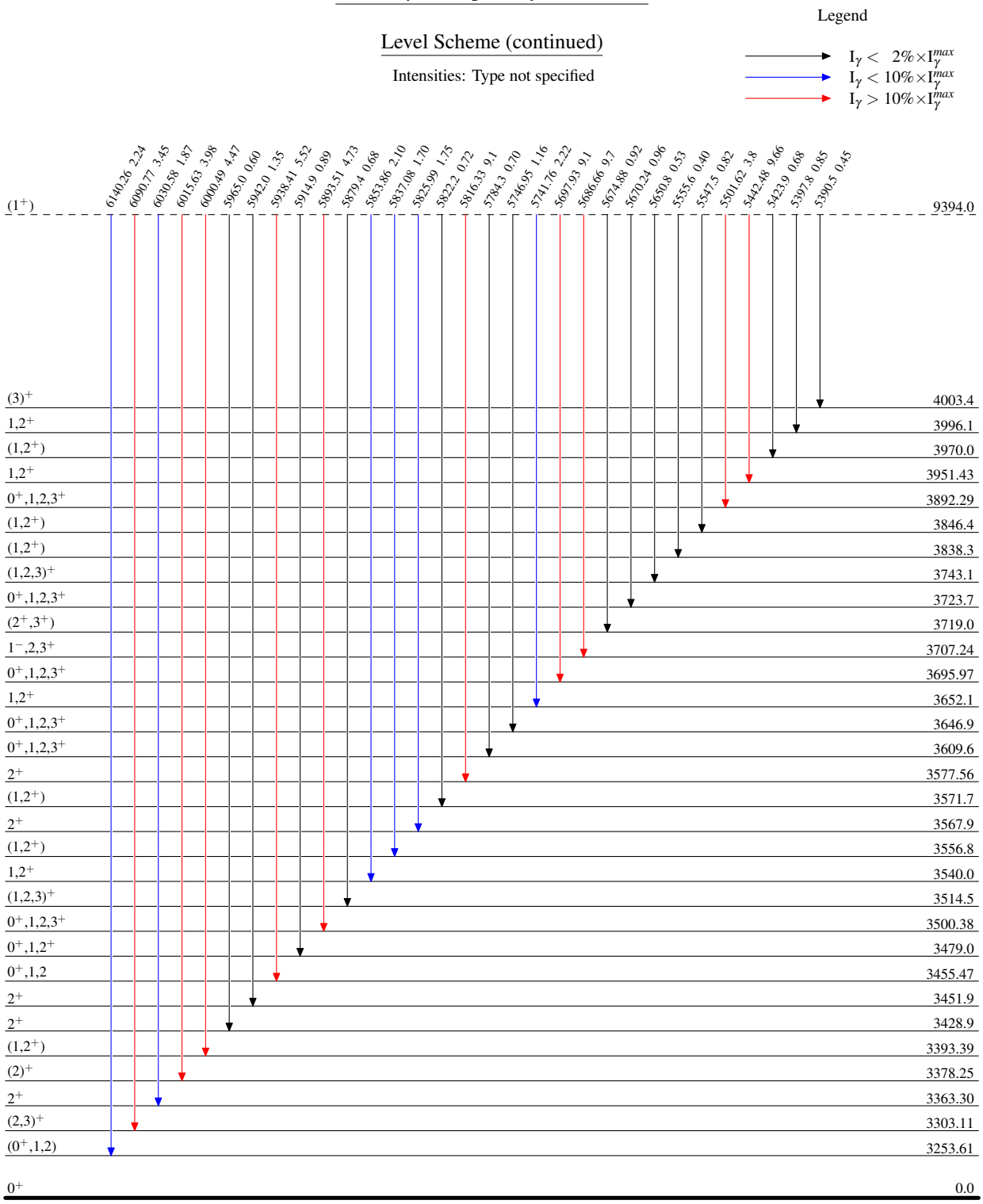


$^{112}_{48}Cd_{64}$

^{111}Cd(n,γ) E=th:primary 1997Dr03

Level Scheme (continued)

Intensities: Type not specified



$^{112}_{48}Cd_{64}$