^{111}Cd(n,γ) E=th:secondary 1997Dr03

History

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

1997Dr03: Facility: the high-flux reactor of ILL Grenoble; Targets: 47 mg enriched to 90% in ^{111}Cd and two 0.46 mg/cm^2 and 1.2 mg/cm^2 thick Cd oxide evaporated on Al foil; Detectors: a composite detector comprising one Ge(Li) detector working in coinc. or anti-coinc. with an annulus NaI(Tl) scintillator, BILL β- spectrometer (Δp/p=5x10^{-4}), multi-wire proportional counter and curved crustal spectrometer; Measured: Eγ with Ge(Li) and curved crustal spectrometer (100-1600 keV), Iγ, ce; Also from the same collaboration: 1993De01.
Others: 1991NeZX, 1987AlZE, 1987AlZH.

^{112}Cd Levels

E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]
0.0	0$^+$	2416.16[a] 8	3$^-$	2931.54 13	1$^+$	3500.55 19	0$^+$ to 3$^+$
617.519 3	2$^+$	2493.27[&] 18	4$^+$	2944.99 14	2$^+$	3540.36 18	1,2$^+$
1224.341 7	0$^+$	2506.36[b] 12	(2)$^+$[b]	3133.79 12	1$^-$	3557.29 23	(1,2$^+$)
1312.391[#] 8	2$^+$	2506.74[ab] 12	1$^-$[b]	3135.72 11	(2,3$^+$)	3567.82 22	2$^+$
1415.596[#] 14	4$^+$	2532.39[&] 14	2$^+$	3163.48 14	2$^+$	3572.43 23	(1,2$^+$)
1433.32[#] 3	0$^+$	2561.23[&] 17	(1,2$^+$)	3169.46 12	2$^+$	3577.55 11	2$^+$
1468.808 15	2$^+$	2590.98[a] 19	4$^-$	3190.17 16	0$^+$,1,2,3$^+$	3696.23 17	0$^+$,1,2,3$^+$
1871.03[@] 9	0$^+$	2635.09 17	3$^+$	3231.24 16	1$^+$	3707.53 11	1$^-$,2,3$^+$
2005.19 3	3$^-$	2668.89[a] 12	(2)$^-$	3243.4 3	2$^+$	3838.91 24	(1,2$^+$)
2064.52[@] 3	3$^+$	2674.09 16	2$^+$	3253.55 24	(0$^+$,1,2)	3846.3 4	(1,2$^+$)
2081.78[@] 6	4$^+$	2723.95 13	2$^+$	3303.30 14	(2,3$^+$)	3892.19 23	0$^+$,1,2,3$^+$
2121.50[@] 10	2$^+$	2765.89 13	2$^+$	3393.37 14	0$^+$ to 4$^+$	3951.50 15	1,2$^+$
2156.28[@] 8	2$^+$	2829.17 10	1$^-$	3429.25 5		3970.04 24	(1,2$^+$)
2231.27 11	2$^+$	2834.7[&] 3	0$^+$	3452.2 4	(0$^+$)	3998.12 15	1,2$^+$
2301.07 16	0$^+$	2853.05[&] 14	2$^+$	3455.70 22	0$^+$,1,2	4004.1 4	(3$^-$)
2403.09 9	3$^+$	2866.86[&] 11	(3)$^+$	3479.3 3	0$^+$,1,2$^+$		

[†] From a least squares fit to Eγ.
[‡] From Adopted Levels.
[#] Probable member of the two-phonon multiplet.
[@] Probable member of the three-phonon multiplet.
[&] Probable member of the four-phonon multiplet.
[a] Probable member of the 2$^+\otimes$3$^-$ quadrupole-octupole multiplet.
[b] Unresolved doublet in 1997Dr03.

γ(^{112}Cd)

E$_\gamma$[†]	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[#]	Comments
121.06 10		1433.32	0$^+$	1312.391	2$^+$		
402.14 19	3.6 6	1871.03	0$^+$	1468.808	2$^+$		
410.86 21	2.9 6	2416.16	3$^-$	2005.19	3$^-$		
536.22 23	1.3 3	2005.19	3$^-$	1468.808	2$^+$		
558.42 17	6.3 5	1871.03	0$^+$	1312.391	2$^+$		
[x]560.96 22	2.2 4						
606.821[‡] 6	47.2 18	1224.341	0$^+$	617.519	2$^+$	E2,M1	Mult.: α(K)exp=0.0034 3 (1997Dr03).
612.9 3	1.9 10	2081.78	4$^+$	1468.808	2$^+$		

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

γ(^{112}Cd) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	δ	Comments
617.517‡ *3*	910 *30*	617.519	2^+	0.0	0^+	E2		Mult.: α(K)exp=0.00317 *16* (1997Dr03); α(L)exp=0.00039 *4* (1997Dr03); α(M)exp=0.000138 *15* (1997Dr03).
648.76‡ *11*	4.8 *3*	2064.52	3^+	1415.596	4^+			
x651.223‡ *10*	1.4 *4*							
656.74‡ *9*	4.5 *3*	3163.48	2^+	2506.74	1^-			
663.5 *3*	0.8 *3*	2668.89	$(2)^-$	2005.19	3^-			
666.17‡ *6*	4.6 *3*	2081.78	4^+	1415.596	4^+			
688.03 *17*	5.6 *4*	2121.50	2^+	1433.32	0^+			
692.82‡ *3*	12.8 *5*	2005.19	3^-	1312.391	2^+			
694.872‡ *7*	161 *5*	1312.391	2^+	617.519	2^+	M1+E2		Mult.: α(K)exp=0.00242 *18* (1997Dr03).
x699.46 *24*	1.81 *37*							
718.98 *22*	1.6 *3*	2723.95	2^+	2005.19	3^-			
752.14‡ *3*	16.2 *5*	2064.52	3^+	1312.391	2^+			
762.6 *6*	0.4 *3*	2231.27	2^+	1468.808	2^+			
769.54 *17*	3.4 *3*	2081.78	4^+	1312.391	2^+			
798.072‡ *14*	55.2 *16*	1415.596	4^+	617.519	2^+	E2		Mult.: α(K)exp=0.00155 *15* (1997Dr03).
x811.7‡ *3*	6.8 *14*							
815.79‡ *3*	11.2 *5*	1433.32	0^+	617.519	2^+			
x831.50‡ *4*	6.0 *3*							
x834.93 *20*	2.0 *3*							
840.71 *18*	2.7 *3*	3707.53	$1^-,2,3^+$	2866.86	$(3)^+$			
844.14 *18*	2.8 *3*	2156.28	2^+	1312.391	2^+			
851.285‡ *15*	68.1 *19*	1468.808	2^+	617.519	2^+	M1+E2+E0	0.053 *30*	Mult.: α(K)exp=0.00235 *18* (1997Dr03). δ: From γ(ω) in 1997Dr03. Other solution: δ=1.96 *70*. Ice(K)(E0,2^+ to 2^+)/Ice(K)(M1,2^+ to 2^+)=0.43 *11*, B(E0)/B(E2)=2.6 *15*, and B(E0)/B(M1)=2700 *700* (1991Gi05).
861.74 *17*	3.6 *3*	2866.86	$(3)^+$	2005.19	3^-			
886.99 *23*	1.48 *25*	3303.30	$(2,3^+)$	2416.16	3^-			
897.15 *17*	3.6 *3*	2121.50	2^+	1224.341	0^+			
x912.93 *19*	2.2 *3*							
918.0 *3*	0.84 *25*	2231.27	2^+	1312.391	2^+			
934.43 *16*	2.1 *3*	2403.09	3^+	1468.808	2^+			
x945.37 *17*	4.4 *3*							
947.54 *19*	2.4 *3*	2416.16	3^-	1468.808	2^+			
x953.37 *20*	2.1 *3*							
957.80 *19*	2.4 *3*	2829.17	1^-	1871.03	0^+			
x962.39 *25*	1.25 *25*							
983.00 *15*	1.3 *3*	2416.16	3^-	1433.32	0^+			
987.70 *17*	4.9 *3*	2403.09	3^+	1415.596	4^+			
1007.26 *17*	2.98 *23*	2231.27	2^+	1224.341	0^+			
x1034.46 *22*	1.43 *22*							
1037.8 *3*	1.9 *6*	2506.74	1^-	1468.808	2^+			
1063.56 *22*	1.52 *24*	2532.39	2^+	1468.808	2^+			

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

γ(^{112}Cd) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	Comments
1071.13 *17*	4.5 *3*	3135.72	$(2,3^+)$	2064.52	3^+		
1077.67 *18*	2.61 *24*	2493.27	4^+	1415.596	4^+		
x1086.5 *3*	1.6 *3*						
1090.64 *17*	3.94 *25*	2403.09	3^+	1312.391	2^+		
x1093.12 *22*	1.53 *24*						
1099.0 *3*	0.91 *24*	2532.39	2^+	1433.32	0^+		
1103.46 *16*	6.6 *3*	2416.16	3^-	1312.391	2^+		
x1110.47 *24*	2.0 *3*						
x1112.1 *4*	1.0 *4*						
1116.83 *20*	2.0 *3*	2532.39	2^+	1415.596	4^+		
1175.38 *19*	2.3 *3*	2590.98	4^-	1415.596	4^+		
x1186.9 *4*	1.0 *3*						
x1189.66 *20*	2.7 *3*						
1193.94 *18*	3.9 *3*	2506.36	$(2)^+$	1312.391	2^+		
1224.41		1224.341	0^+	0.0	0^+	(E0)	
1248.92 *24*	1.7 *3*	2561.23	$(1,2^+)$	1312.391	2^+		
1253.53 *16*	8.8 *5*	1871.03	0^+	617.519	2^+		
x1268.08 *22*	1.9 *3*						
1282.4 *3*	1.8 *5*	2506.74	1^-	1224.341	0^+		
x1293.74 *19*	2.20 *20*						
1297.5 *3*	1.3 *3*	2765.89	2^+	1468.808	2^+		
x1307.62 *25*	1.22 *21*						
1312.36‡ *4*	54.5 *12*	1312.391	2^+	0.0	0^+	E2	Mult.: α(K)exp=0.00052 *6* (1997Dr03).
1322.69 *17*	4.06 *24*	2635.09	3^+	1312.391	2^+		
1356.55 *16*	15.2 *4*	2668.89	$(2)^-$	1312.391	2^+		
x1368.9 *3*	1.4 *3*						
1387.63 *5*	44.9 *10*	2005.19	3^-	617.519	2^+		
1433.35		1433.32	0^+	0.0	0^+	E0	
x1444.2 *5*	0.52 *25*						
1447.02 *16*	15.0 *4*	2064.52	3^+	617.519	2^+		
1451.21 *18*	3.1 *3*	2866.86	$(3)^+$	1415.596	4^+		
x1460.90 *17*	4.79 *24*						
1468.91 *9*	40.2 *9*	1468.808	2^+	0.0	0^+	E2	Mult.: α(K)exp=0.00050 *7* (1997Dr03).
x1484.82 *16*	6.4 *3*						
1504.11 *16*	29.3 *7*	2121.50	2^+	617.519	2^+	E2+M1	Mult.: α(K)exp=0.00030 *10* (1997Dr03).
1538.68‡ *10*	32.4 *8*	2156.28	2^+	617.519	2^+		
1540.44 *20*	4.5 *5*	2853.05	2^+	1312.391	2^+		
x1555.52 *20*	3.6 *4*						
x1586.6 *3*	1.19 *25*						
1604.6 *4*	0.95 *25*	2829.17	1^-	1224.341	0^+		
1613.67 *16*	28.1 *7*	2231.27	2^+	617.519	2^+		
x1619.77 *22*	2.4 *3*						
x1642.15 *19*	3.0 *3*						
x1653.94 *19*	2.25 *23*						
x1663.8 *3*	1.04 *22*						
1667.01 *25*	1.26 *22*	3135.72	$(2,3^+)$	1468.808	2^+		
1683.54 *16*	7.3 *3*	2301.07	0^+	617.519	2^+		
x1690.56 *19*	2.26 *22*						
x1712.0 *3*	1.3 *3*						
1785.28 *16*	4.3 *4*	2403.09	3^+	617.519	2^+		
1798.60 *16*	13.8 *5*	2416.16	3^-	617.519	2^+		
x1807.16 *17*	4.0 *3*						
1823.32 *17*	4.71 *25*	3135.72	$(2,3^+)$	1312.391	2^+		
1888.84 *16*	17.9 *4*	2506.36	$(2)^+$	617.519	2^+		
x1894.74 *20*	2.28 *22*						
1909.53 *17*	5.80 *24*	3133.79	1^-	1224.341	0^+		

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

γ(^{112}Cd) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π
1945.12 *17*	4.61 *21*	3169.46	2^+	1224.341	0^+
x1996.24 *21*	3.3 *4*				
x1999.84 *20*	2.12 *25*				
x2011.96 *20*	2.4 *3*				
2051.34 *23*	2.9 *4*	2668.89	$(2)^-$	617.519	2^+
2056.55 *16*	12.3 *4*	2674.09	2^+	617.519	2^+
2106.29 *16*	13.1 *5*	2723.95	2^+	617.519	2^+
2148.18 *16*	8.1 *3*	2765.89	2^+	617.519	2^+
2156.25 *17*	1.9 *5*	2156.28	2^+	0.0	0^+
x2166.09 *21*	3.0 *3*				
x2189.71 *25*	1.7 *3*				
x2208.26 *25*	2.3 *3*				
2211.72 *16*	18.5 *5*	2829.17	1^-	617.519	2^+
2217.2 *3*	2.6 *5*	2834.7	0^+	617.519	2^+
2235.7 *21*	2.4 *3*	2853.05	2^+	617.519	2^+
2314.13 *19*	4.7 *3*	2931.54	1^+	617.519	2^+
2327.24 *18*	4.7 *3*	2944.99	2^+	617.519	2^+
x2329.89 *18*	6.2 *3*				
x2340.12 *21*	2.59 *25*				
2352.94 *19*	3.4 *3*	3577.55	2^+	1224.341	0^+
x2363.14 *17*	6.6 *3*				
2383.81 *17*	5.35 *25*	3696.23	0^+,1,2,3^+	1312.391	2^+
2395.00 *18*	3.8 *3*	3707.53	1^-,2,3^+	1312.391	2^+
x2443.22 *20*	3.2 *3*				
x2449.09 *22*	2.4 *3*				
x2492.26 *24*	3.2 *4*				
2506.76 *16*	55.3 *12*	2506.74	1^-	0.0	0^+
2551.89 *17*	9.1 *4*	3169.46	2^+	617.519	2^+
2561.13 *22*	2.8 *3*	2561.23	$(1,2^+)$	0.0	0^+
2572.62 *16*	10.1 *4*	3190.17	0^+,1,2,3^+	617.519	2^+
2579.77 *23*	4.0 *4*	3892.19	0^+,1,2,3^+	1312.391	2^+
2613.56 *25*	2.6 *3*	3231.24	1^+	617.519	2^+
2625.83 *26*	3.3 *4*	3243.4	2^+	617.519	2^+
2636.00 *24*	3.7 *4*	3253.55	$(0^+,1,2)$	617.519	2^+
2685.83@ *17*	8.5@ *4*	3303.30	$(2,3^+)$	617.519	2^+
2685.83@ *17*	8.5@ *4*	3998.12	$1,2^+$	1312.391	2^+
x2692.1 *3*	2.1 *4*				
x2694.51 *19*	5.9 *5*				
2766.0 *3*	1.8 *3*	2765.89	2^+	0.0	0^+
2775.78 *18*	6.1 *4*	3393.37	0^+ to 4^+	617.519	2^+
2829.30 *16*	19.0 *6*	2829.17	1^-	0.0	0^+
x2835.47 *51*	1.4 *4*				
2838.14 *22*	4.5 *5*	3455.70	0^+,1,2	617.519	2^+
2853.17 *18*	5.4 *4*	2853.05	2^+	0.0	0^+
2882.99 *19*	4.7 *4*	3500.55	0^+ to 3^+	617.519	2^+
2922.92 *20*	4.1 *3*	3540.36	$1,2^+$	617.519	2^+
2931.39 *17*	7.8 *4*	2931.54	1^+	0.0	0^+
x2940.17 *20*	4.8 *4*				
2945.20 *20*	4.6 *4*	2944.99	2^+	0.0	0^+
2950.26 *22*	3.8 *4*	3567.82	2^+	617.519	2^+
2960.13 *16*	15.5 *6*	3577.55	2^+	617.519	2^+
3090.04 *18*	6.7 *4*	3707.53	1^-,2,3^+	617.519	2^+
3133.65 *16*	15.0 *7*	3133.79	1^-	0.0	0^+
3163.4 *3*	2.6 *4*	3163.48	2^+	0.0	0^+
3231.27 *19*	6.3 *5*	3231.24	1^+	0.0	0^+

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

γ(^{112}Cd) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
x3238.51 *24*	3.5 *4*					
x3300.70 *23*	3.4 *4*					
3333.94 *17*	11.2 *6*	3951.50	1,2$^+$	617.519	2$^+$	
3352.4 *4*	0.73 *18*	3970.04	(1,2$^+$)	617.519	2$^+$	
3386.50 *31*	1.11 *22*	4004.1	(3$^-$)	617.519	2$^+$	
3393.35 *20*	1.89 *23*	3393.37	0$^+$ to 4$^+$	0.0	0$^+$	
3452.1 *4*	1.7 *3*	3452.2	(0$^+$)	0.0	0$^+$	
3479.2 *3*	0.94 *20*	3479.3	0$^+$,1,2$^+$	0.0	0$^+$	
3539.8 *4*	0.97 *23*	3540.36	1,2$^+$	0.0	0$^+$	
3557.23 *23*	0.97 *20*	3557.29	(1,2$^+$)	0.0	0$^+$	
3572.37 *23*	1.81 *24*	3572.43	(1,2$^+$)	0.0	0$^+$	
3577.53 *18*	2.8 *3*	3577.55	2$^+$	0.0	0$^+$	
3838.84 *24*	1.66 *22*	3838.91	(1,2$^+$)	0.0	0$^+$	
3846.2 *4*	1.15 *23*	3846.3	(1,2$^+$)	0.0	0$^+$	
3951.4 *3*	1.40 *20*	3951.50	1,2$^+$	0.0	0$^+$	E_γ,ΔE: not consistent with level energy difference.
3970.0 *3*	1.66 *15*	3970.04	(1,2$^+$)	0.0	0$^+$	
3997.6 *3*	2.33 *23*	3998.12	1,2$^+$	0.0	0$^+$	

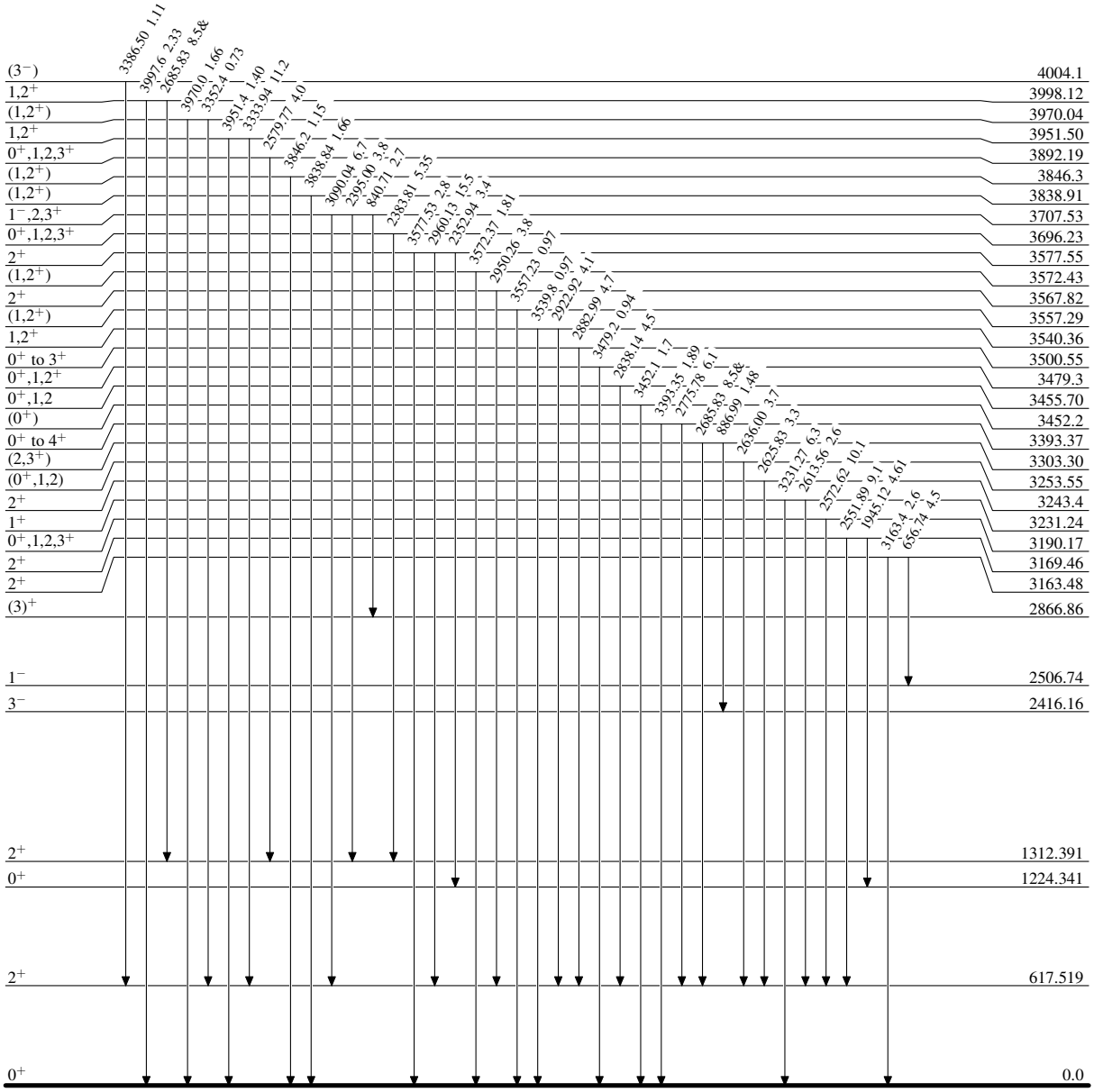
† From 1997Dr03.
‡ Measured with a curved crustal spectrometer (1997Dr03).
# From 1997Dr03, based on ce measurements.
@ Multiply placed with undivided intensity.
x γ ray not placed in level scheme.

^{111}Cd(n,γ) E=th:secondary 1997Dr03

Level Scheme

Intensities: Type not specified
& Multiply placed: undivided intensity given

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



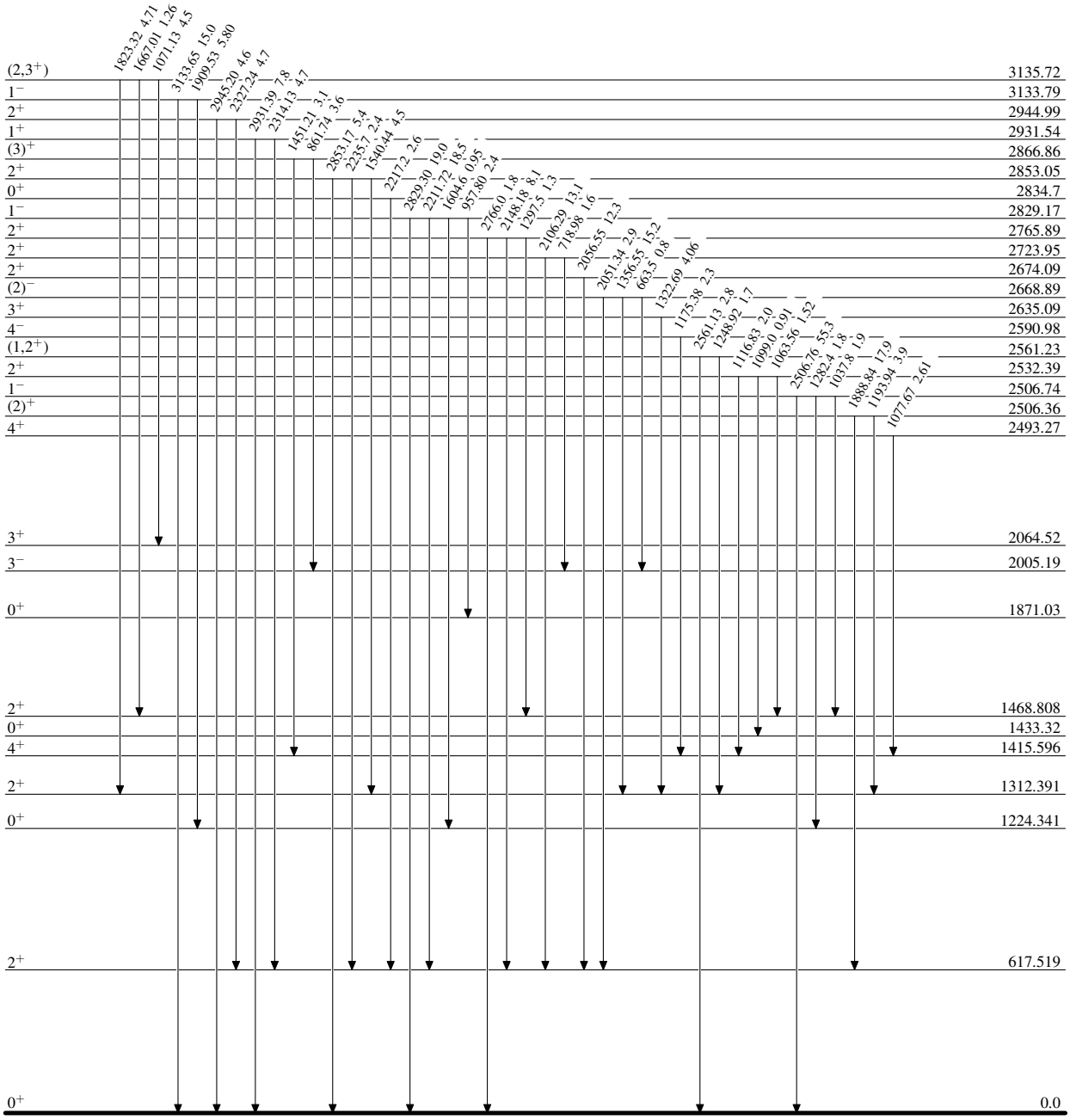
$^{112}_{48}Cd_{64}$

^{111}Cd(n,γ) E=th:secondary 1997Dr03

Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given

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



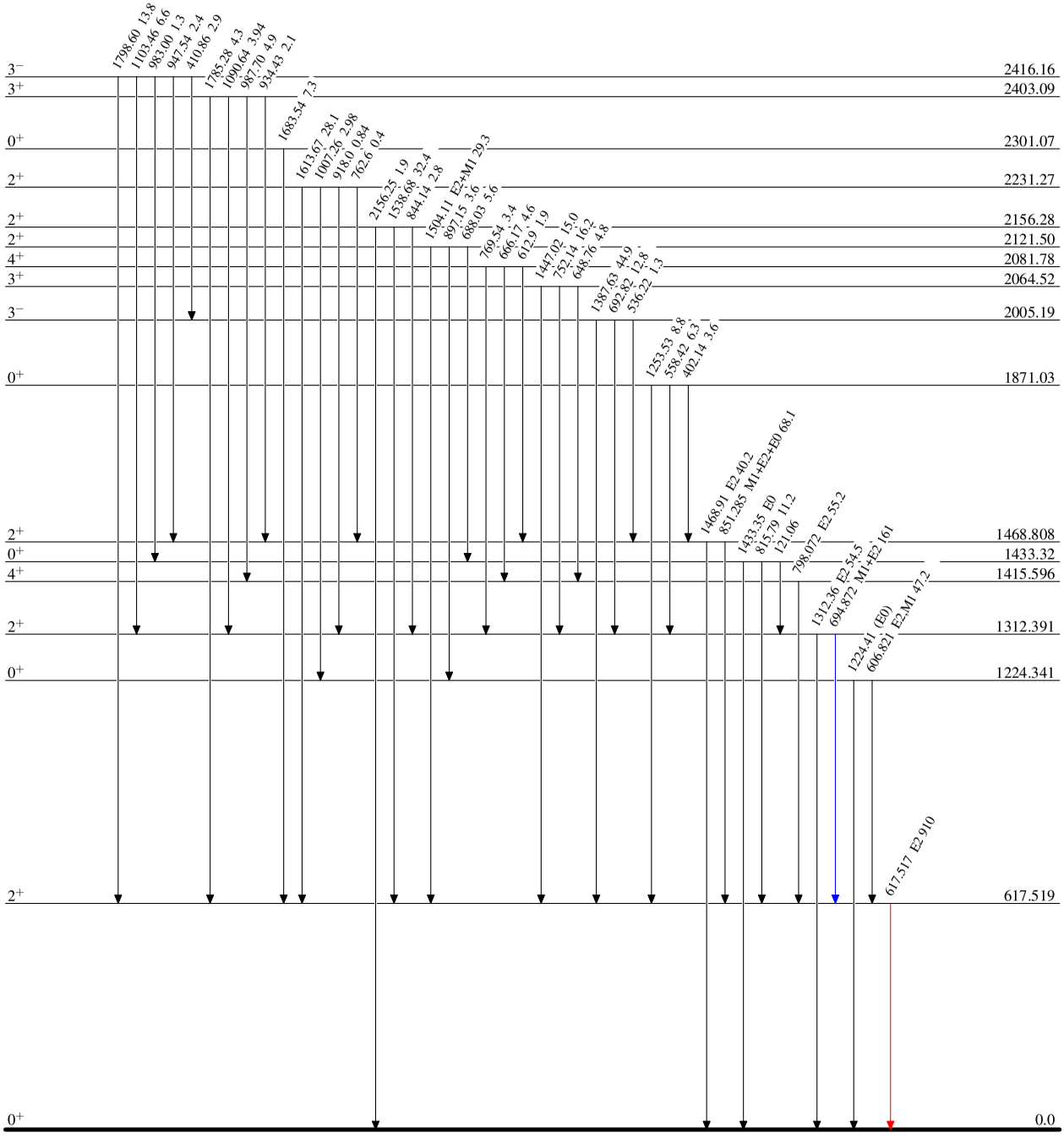
$^{112}_{48}Cd_{64}$

^{111}Cd(n,γ) E=th:secondary 1997Dr03

Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given

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



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