Coulomb excitation

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 110, 1239 (2009)	1-Feb-2008

1958Mc02: ^{111}Cd(p,p′γ) E=2.1-3.3 MeV scin.
1968Mc04: ^{111}Cd(α,α′γ) E=8 MeV semi.
1969Ga25: ^{111}Cd(^{12}C,^{12}C′γ) E=39 MeV semi.
1985Si01: ^{111}Cd(p,p′γ) E=2.7-4.2 MeVGe(Li).
1989Be22: ^{111}Cd(p,p′γ). Measured: magnetic moments, $\gamma\gamma$(t,θ);Ge(Li).
Others: 1964Al27, 1975ZvZZ, 1975ErZS, 1975AnYZ.

^{111}Cd Levels

For comparison of B(E2) (exp vs theory), see 1968Mc04.

E(level)[†]	J$^\pi$	T$_{1/2}$	Comments
0.0	1/2$^+$	stable	
245.4	5/2$^+$		B(E2)↑=0.0028 *2* (1985Si01) B(E2)↑: other: B(E2)= 0.0023 *5* (1968Mc04).
342.1	3/2$^+$	24 ps *3*	B(E2)↑=0.110 *9* (1958Mc02) g=+ 0.02 *79* (1989Be22). B(E2)↑: B(E2)=0.087 *10* (1968Mc04), 0.11 *2* (1969Ga25), 0.098 *5*(1985Si01). T$_{1/2}$: from B(E2) and δ(342)= 0.36 *2*. Branching: Iγ(97γ)/Iγ(342γ)=0.017 (1958Mc02), 0.014 (1968Mc04). Other: 0.03 *1* av (^{111}Ag g.s. decay).
620.5	5/2$^+$		B(E2)↑=0.143 *22* (1958Mc02) g=+ 0.11 *5* (1989Be22). B(E2)↑: others: 0.133 *11* (1985Si01), 0.126 *17* (1968Mc04), 0.14 *3* (1969Ga25). Branching: Iγ(620γ)/Iγ(375γ)/Iγ(279γ)=76/19/4.4 (1969Ga25), 71/25/3.8 (1968Mc04), 79/18/3 (1958Mc02).
754.9	3/2$^+$		B(E2)↑=0.042 *8* (1968Mc04) Branching: Iγ(413γ)/Iγ(508γ)/Iγ(755γ)=12/56.6/31.4 (1968Mc04), 17/41/42 (1975AnYZ). B(E2)↑: others: 0.022 *7* (1969Ga25), 0.027 *8* (1985Si01).
855.6	3/2$^+$		B(E2)↑=0.0037 *14* (1985Si01)
866.5	3/2$^+$	2.8 ps *+7−4*	B(E2)↑=0.016 *3* (1975AnYZ)
1115.6	3/2$^+$	0.08 ps *4*	B(E2)↑=0.016 *4* (1975AnYZ) T$_{1/2}$: from B(E2).

[†] 1969Ga25, 1985Si01 give B(E2) values for E(levels)=700,1020,1130. Evaluator has not adopted these data. Could be contaminants, they are not seen in (n,γ).

γ(^{111}Cd)

E$_\gamma$[†]	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	δ	α[#]	Comments
96.7	2.4 *7*	342.1	3/2$^+$	245.4	5/2$^+$			0.53	
245.4	100	245.4	5/2$^+$	0.0	1/2$^+$	E2		0.064	
278.3	4.8 *9*	620.5	5/2$^+$	342.1	3/2$^+$				
342.1	100	342.1	3/2$^+$	0.0	1/2$^+$	M1+E2	+0.36 *2*	0.0186 *2*	δ: adopted value. δ=+ 0.31 *2* (1989Be22), + 0.36 *5* (1985Si01), + 0.39 *2* (1958Mc02).
374.7	24.4 *11*	620.5	5/2$^+$	245.4	5/2$^+$				
413.0	12.0	754.9	3/2$^+$	342.1	3/2$^+$				
508.5	56.6	754.9	3/2$^+$	245.4	5/2$^+$				

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Coulomb excitation (continued)

$\gamma(^{111}Cd)$ (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	Comments
620.3 *2*	100 *21*	620.5	$5/2^+$	0.0	$1/2^+$	E2		Mult.: consistent with p, $\gamma(\theta)$ data (1958Mc02).
754.9	31.4	754.9	$3/2^+$	0.0	$1/2^+$	M1+E2		δ: δ=+ 0.11 *4* or - 2.26 *16* (1985Si01).
773.6	26[‡]	1115.6	$3/2^+$	342.1	$3/2^+$			
855.6	100	855.6	$3/2^+$	0.0	$1/2^+$	M1+E2		E_γ: from 1985Si01. I_γ: D+Q from $\gamma(\theta)$. $\Delta\pi$=+ from direct excitation of 755 level in Coul. ex. δ: δ=+ 0.087 *18* or - 2.14 *10* (1985Si01).
866.5	100	866.5	$3/2^+$	0.0	$1/2^+$	M1+E2	−1.42 *7*	δ: from (n,n′γ).
1115.6	74[‡]	1115.6	$3/2^+$	0.0	$1/2^+$			

[†] Rounded off from adopted gammas, unless otherwise noted.
[‡] From 1975AnYZ.
[#] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

Coulomb excitation

Level Scheme

Intensities: Type not specified

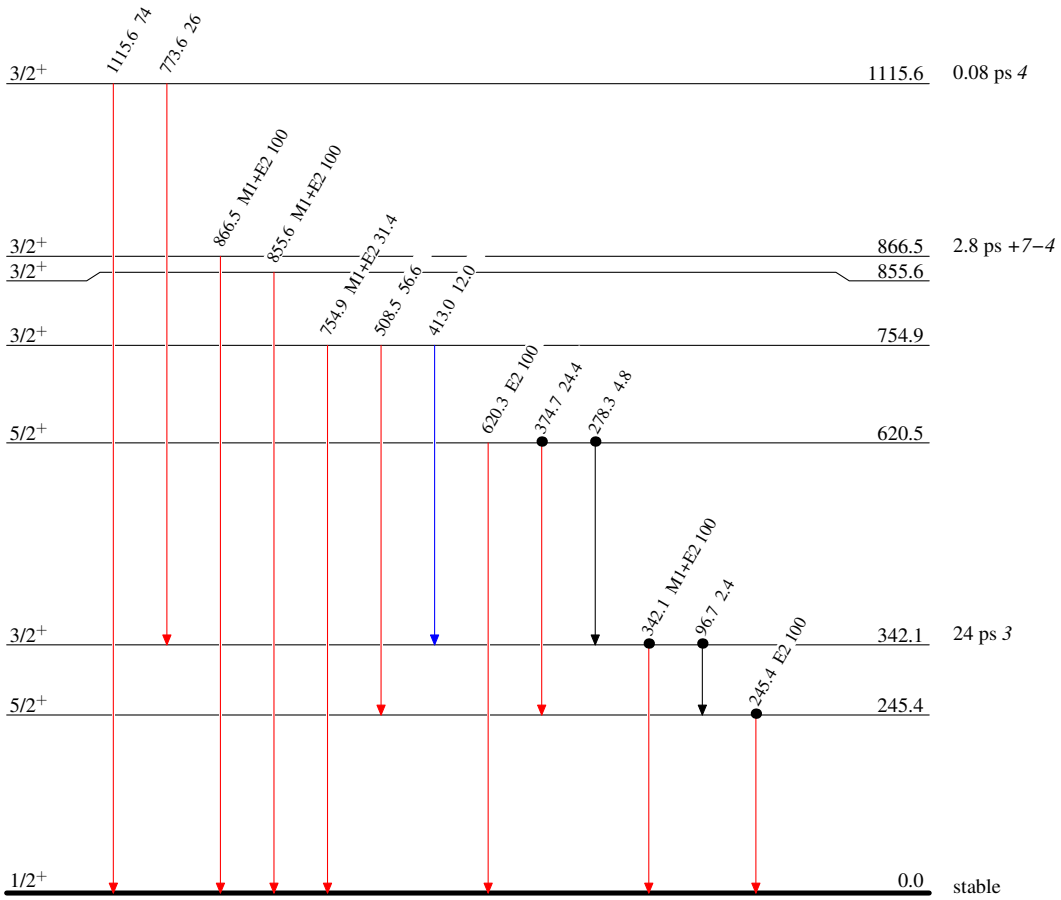
Legend

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

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

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

Coincidence



$^{111}_{48}Cd_{63}$