Coulomb excitation **2011Ch23,1985Fe05,1969Mi07**

History

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

2011Ch23: Facility: ANU 14ud Pelletron; Beams: E(^{32}S)=92 MeV, E(^{112}Cd)=240 MeV; Targets: stack of 0.05 mg/cm^2 ^{nat}Ag, 0.98 mg/cm^2 ^{nat}CD, 2.64 mg/cm^2 Fe, 5.47 mg/cm^2 Cu. The multilayer target was pressed on 12 μm Cu; Detectors: ANU Hyperfine spectrometer, 4 HPGe, two NaI, three silicon photodiodes; Measured: γ, charged particles (cp), γ-cp, Eγ, W(θ); Deduced: γ, $T_{1/2}$.

1985Fe05, 1976Es01, 1976Es02: Facility: ANU 14ud Pelletron accelerator; Beam: E(^{16}O)=40-44 MeV FWHM 105 keV, E(α)=8-17 MeV FWHM=24 keV; Targets: 3-8 μg/cm^2 evaporated on 10-15 μg/cm^2 thick carbon foils; Detectors: annular Si surface barrier detectors; Measured: B(E2), B(E3); Deduced: Q.

1969Mi07: Facility: ORNL Van de Graaff; Beams: E(p)=2.7-3 MeV, E(α)=10-11 MeV; Targets: enriched to 98.9% in ^{112}Cd and natural Cd; Detectors: Ge(Li); Measured: γ, γ-γ coinc., γ(θ), Iγ, Eγ.

Others: 1985Si01, 1980Br01, 1980Ju05, 1978Jo07, 1977Ma41, 1973Gr16, 1970St17, 1965Mc05, 1963Ha20, 1962Ec03.

^{112}Cd Levels

E(level)†	J$^\pi$‡	$T_{1/2}$‡	Comments
0.0	0$^+$		
617.54 *5*	2$^+$	6.46 ps *4*	B(E2)↑(617.52γ)= 0.486 *5* (1985Si01), 0.524 *50* (1977Gi13), 0.484 *4* (1976Es02), 0.478 *33* (1970St17), 0.524 *21* (1969Mi07), 0.514 *60* (1965Mc05) and 0.546 *39* (1962Ec03). Q: −0.38 *3*, weighted average of −0.37 *4* (1977Gi13), −0.39 *8* (1976Es02), −0.42 *8* (1976Es01), −0.38 *11* (1977Ma41). Others: −0.40 *+13−20* (1971Ha47), −0.15 *7* (1970St17). μ: +0.71 *3*, weighted average of +0.71 *5* (conventional kinematics in 2011Ch23), +0.73 *4* (inverse kinematics in 2011Ch23), 0.60 *12* (1970St17), 0.72 *22* via IMPAC (1974Hu01), 0.74 *22* (1978BrZX) and 0.64 *16* (1980Br01) from γ-γ(θ,H,t) coinc.
1224.35 *11*	0$^+$	4.2 ps *11*	B(E2)(W.u.)=51 *13* and Ice(K)(1223.9)/Ice(K)(606.84)=0.33 *5* in 1980Ju05.
1312.41 *4*	2$^+$	1.9 ps *3*	B(E2)(↓)=0.0021 *3* (1969Mi07).
1415.58 *11*	4$^+$	0.87 ps *10*	B(E2)↑= 0.34 *5* (1978Jo07), 0.356 *42* (1965Mc05), and 0.41 *8* (1962Ec03).
1468.85 *7*	2$^+$	2.7 ps *5*	B(E2)↑(1468.84γ)=0.0055 *10* (1969Mi07).
2005.20 *7*	3$^-$	0.26 ps *5*	B(E3)↑=0.114 *9* (1985Fe05), 0.158 *27* (1978Jo07), 0.106 *22* (1965Mc05), 0.37 *18* (1963Ha20). β_3: 0.146 (1965Mc05).

† From a least-squares fit to Eγ.

‡ From the Adopted Levels.

Coulomb excitation 2011Ch23,1985Fe05,1969Mi07 **(continued)**

$\gamma(^{112}Cd)$

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]	α[‡]	$I_{(\gamma+ce)}$[†]	Comments
244.86 *23*	1.0 *3*	1468.85	2^+	1224.35	0^+	(E2)		0.0642 *10*		α(K)=0.0538 *9*; α(L)=0.00840 *14*; α(M)=0.00163 *3*; α(N+..)=0.000293 *5* α(N)=0.000282 *5*; α(O)=1.144×10^{-5} *18*
536.31 *10*	1.11 *12*	2005.20	3^-	1468.85	2^+	E1		0.00181 *3*		α=0.00181 *3*; α(K)=0.001581 *23*; α(L)=0.000186 *3*; α(M)=3.54×10^{-5} *5*; α(N+..)=6.66×10^{-6} *10* α(N)=6.30×10^{-6} *9*; α(O)=3.61×10^{-7} *5*
606.84 *10*	100	1224.35	0^+	617.54	2^+	E2		0.00388 *6*		α=0.00388 *6*; α(K)=0.00336 *5*; α(L)=0.000427 *6*; α(M)=8.21×10^{-5} *12*; α(N+..)=1.527×10^{-5} *22* α(N)=1.450×10^{-5} *21*; α(O)=7.71×10^{-7} *11*
617.52 *10*	100	617.54	2^+	0.0	0^+	E2		0.00371 *6*		α=0.00371 *6*; α(K)=0.00321 *5*; α(L)=0.000407 *6*; α(M)=7.82×10^{-5} *11*; α(N+..)=1.455×10^{-5} *21* α(N)=1.381×10^{-5} *20*; α(O)=7.37×10^{-7} *11*
692.79 *10*	22.2 *6*	2005.20	3^-	1312.41	2^+	E1		0.001021 *15*		α=0.001021 *15*; α(K)=0.000893 *13*; α(L)=0.0001041 *15*; α(M)=1.99×10^{-5} *3*; α(N+..)=3.74×10^{-6} α(N)=3.54×10^{-6} *5*; α(O)=2.05×10^{-7} *3*
694.87 *4*	100 *3*	1312.41	2^+	617.54	2^+	M1+E2	−4.0 *7*	0.00274 *4*		α=0.00274 *4*; α(K)=0.00238 *4*; α(L)=0.000296 *5*; α(M)=5.68×10^{-5} *8*; α(N+..)=1.062×10^{-5} *15* α(N)=1.007×10^{-5} *15*; α(O)=5.50×10^{-7} *8* δ: Others: −0.77 *6* (1973Gr16); δ=−0.87 *10* or −3.5 *9* (1969Mi07).
798.04 *10*	100	1415.58	4^+	617.54	2^+	E2		0.00193 *3*		α=0.00193 *3*; α(K)=0.001676 *24*; α(L)=0.000206 *3*; α(M)=3.95×10^{-5} *6*; α(N+..)=7.40×10^{-6} *11* α(N)=7.01×10^{-6} *10*; α(O)=3.89×10^{-7} *6*
851.27 *10*	100.0 *10*	1468.85	2^+	617.54	2^+	M1+E2+E0	+0.14 *5*	0.00190 *3*		α=0.00190 *3*; α(K)=0.001663 *24*; α(L)=0.000196 *3*; α(M)=3.75×10^{-5} *6*; α(N+..)=7.10×10^{-6} *10* α(N)=6.71×10^{-6} *10*; α(O)=3.97×10^{-7} *6* α: 0.00267 *13*, using weighted average of α(K)exp=0.00235 *18* (1997Dr03) and 0.00234 *12* (1991Gi05), and α/εK=1.143 *24* (2008Ki07). δ: Others: +0.10 *7* (1973Gr16); 0.05 or +2.0 *+7−5* (1969Mi07).
1224.33 *6*		1224.35	0^+	0.0	0^+	E0			0.124 *19*	
1312.41 *4*	37.7 *4*	1312.41	2^+	0.0	0^+	E2		0.000664 *10*		α=0.000664 *10*; α(K)=0.000557 *8*; α(L)=6.58×10^{-5} *10*; α(M)=1.258×10^{-5} *18*; α(N+..)=2.88×10^{-5} *4* α(N)=2.24×10^{-6} *4*; α(O)=1.302×10^{-7} *19*; α(IPF)=2.64×10^{-5} *4*
1387.68 *10*	100 *6*	2005.20	3^-	617.54	2^+	E1		0.000419 *6*		α=0.000419 *6*; α(K)=0.000235 *4*; α(L)=2.70×10^{-5} *4*; α(M)=5.15×10^{-6} *8*; α(N+..)=0.0001514 *22* α(N)=9.19×10^{-7} *13*; α(O)=5.44×10^{-8} *8*; α(IPF)=0.0001504 *21*
1468.84 *10*	58.3 *8*	1468.85	2^+	0.0	0^+	E2		0.000579 *9*		α=0.000579 *9*; α(K)=0.000444 *7*; α(L)=5.21×10^{-5} *8*;

$^{112}_{48}Cd_{64}$-2

Coulomb excitation **2011Ch23,1985Fe05,1969Mi07 (continued)**

$\gamma(^{112}Cd)$ (continued)

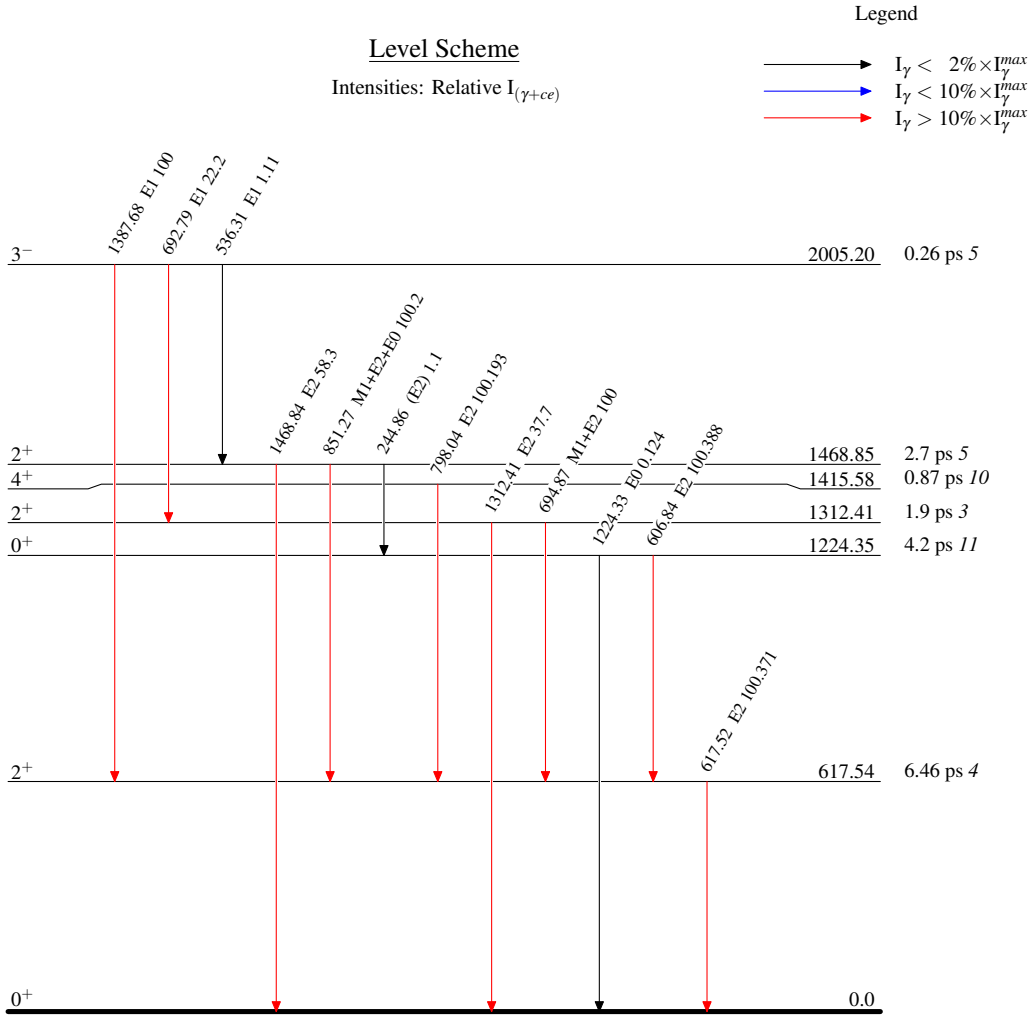
E_γ †	E_i(level)	Comments
		α(M)=9.96×10^{-6} *14*; α(N+..)=7.27×10^{-5} *11* α(N)=1.777×10^{-6} *25*; α(O)=1.039×10^{-7} *15*; α(IPF)=7.09×10^{-5} *10*

† From the adopted gammas.

‡ 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.

$^{112}_{48}Cd_{64}$-3

Coulomb excitation 2011Ch23,1985Fe05,1969Mi07



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