

¹¹⁴Cd(γ,pol γ') **2005Ko32,1994Ge07**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 113, 515 (2012)	1-Jan-2012

E=Bremsstrahlung beam with maximum energy of 4 MeV. Measured E_γ, I_γ, γγ(θ), γ(lin pol) of scattered γ rays and integrated scattering cross sections using three HPGe detectors, one detector with an anti-Compton shield. Deduced excitation energies, spins, parities, decay widths, decay branchings and transition probabilities. Enriched targets.

¹¹⁴Cd Levels

E(level)	J ^π ‡	Γ ₀ [#]	I _{S,0} eV b [@]	Comments
0	0 ⁺			
558	2 ⁺			E(level),J ^π : from Adopted Levels for ¹¹⁴ Cd. Value of 538 quoted in 2005Ko32 is a misprint.
2048 [†]	(2) [†]	0.00024 [†] eV 11		
2396	1 ⁻	0.0007 eV 2	1.4 4	B(E1)↑=0.14×10 ⁻⁵ 4
2456	1 ⁻	0.0110 eV 18	21 4	B(E1)↑=2.1×10 ⁻⁵ 4 Interpreted as member of two-phonon quintuplet (2 ⁺ ⊗3 ⁻).
2646	1	0.0006 eV 2	1.0 3	B(M1)↑=0.008 2; B(E1)↑=0.09×10 ⁻⁵ 3
2650	1	0.0008 eV 2	1.2 4	B(M1)↑=0.010 3; B(E1)↑=0.12×10 ⁻⁵ 4
2768	1 ⁻	0.0072 eV 8	10.9 13	B(E1)↑=0.97×10 ⁻⁵ 11 Γ=0.013 eV 5 (1994Ge07), with R(exp)=0.96 28 (1994Ge07).
2800	1 ⁺	0.0113 eV 13	16.6 25	B(M1)↑=0.134 15 Γ=0.015 eV 3 (1994Ge07), with R(exp)=0.56 10 (1994Ge07).
3000	1	0.0111 eV 11	14 3	B(M1)↑=0.107 10; B(E1)↑=1.18×10 ⁻⁵ 11 Γ=0.0107 eV 24 (1994Ge07), with R(exp)=0.38 11 (1994Ge07).
3087 [†]	1,2 [†]	0.00086 [†] eV 26		
3109 [†]	1 [†]	0.0095 [†] eV 19		Γ=0.016 eV 7 (1994Ge07), with R(exp)=1.16 31 (1994Ge07).
3110	1	0.0051 eV 14	20.5 19	E(level): from 1994Ge07 , energy of 3110 in 2005Ko32 is 3109+3110 unresolved doublet. J ^π : 1 ⁽⁺⁾ for composite 3109+3110. Γ ₀ : 0.0172 eV 13 (2005Ko32) for doublet. Γ=0.0067 eV 40 (1994Ge07), with R(exp)=0.54 36 (1994Ge07). I _{S,0} eV b: for 3109+3110 doublet (2005Ko32). B(M1)=0.148 12, B(E1)=1.64×10 ⁻⁵ 13: for 3109+3110 doublet (2005Ko32).
3214	1 ⁽⁺⁾	0.0025 eV 3	2.7 3	B(M1)↑=0.019 2; B(E1)↑=0.21×10 ⁻⁵ 3
3220	1 ⁽⁺⁾	0.0126 eV 8	14.0 9	B(M1)↑=0.098 6; B(E1)↑=1.08×10 ⁻⁵ 7
3682 [†]	1,2 [†]	0.0027 [†] eV 7		
3707 [†]	1,2 [†]	0.0026 [†] eV 9		
3748	1	0.0119 eV 9	9.7 14	B(M1)↑=0.058 4; B(E1)↑=0.65×10 ⁻⁵ 5 Γ=0.022 eV 8 (1994Ge07), with R(exp)=0.82 21 (1994Ge07).
3791	1	0.0014 eV 5	1.1 4	B(M1)↑=0.007 2; B(E1)↑=0.07×10 ⁻⁵ 2
3796	1	0.0031 eV 9	2.5 7	B(M1)↑=0.015 4; B(E1)↑=0.16×10 ⁻⁵ 5
3827	1	0.0045 eV 14	3.6 17	B(M1)↑=0.021 6; B(E1)↑=0.23×10 ⁻⁵ 7
3857	1	0.0032 eV 6	2.5 5	B(M1)↑=0.014 3; B(E1)↑=0.16×10 ⁻⁵ 3 E(level): probably the same as 3854 in 1994Ge07 , Γ ₀ =0.0077 eV 13 (1994Ge07).
3916	1	0.0078 eV 16	5.9 12	B(M1)↑=0.034 7; B(E1)↑=0.37×10 ⁻⁵ 8
3936 [†]	1,2 [†]	0.0039 [†] eV 14		
3949	1	0.0062 eV 15	4.6 11	B(M1)↑=0.026 6; B(E1)↑=0.29×10 ⁻⁵ 7
3994	1	0.0126 eV 26	9.1 19	B(M1)↑=0.051 11; B(E1)↑=0.57×10 ⁻⁵ 12
4056 [†]	1 [†]	0.0141 [†] eV 35		
4075 [†]	1,2 [†]	0.0115 [†] eV 32		

Continued on next page (footnotes at end of table)

$^{114}\text{Cd}(\gamma, \text{pol } \gamma')$ **2005Ko32,1994Ge07** (continued) ^{114}Cd Levels (continued)

† From 1994Ge07.

‡ From 2005Ko32, unless otherwise stated.

Γ_0 =ground state transition width, from 2005Ko32, unless otherwise stated.

@ Integrated cross section from 2005Ko32.

 $\gamma(^{114}\text{Cd})$

POL=azimuthal asymmetry, negative value indicates electric and positive value magnetic nature of transition, values from 2005Ko32.

$E_i(\text{level})$	J_i^π	E_γ	I_γ^\dagger	E_f	J_f^π	Mult.	Comments
2048	(2)	2048‡		0	0 ⁺		
2396	1 ⁻	2396		0	0 ⁺	E1	POL=-0.11 7.
2456	1 ⁻	2456		0	0 ⁺	E1	POL=-0.12 2.
2646	1	2646		0	0 ⁺		
2650	1	2650		0	0 ⁺		
2768	1 ⁻	2210‡	49‡ 14	558	2 ⁺		
		2768	100	0	0 ⁺	E1	POL=-0.14 6.
2800	1 ⁺	2242	22.1 21	558	2 ⁺		
		2800	100	0	0 ⁺	M1	POL=+0.07 4.
3000	1	2442	23 4	558	2 ⁺		
		3000	100	0	0 ⁺		
3087	1,2	3087‡		0	0 ⁺		
3109	1	2551‡	64 17	558	2 ⁺		
		3109‡	100	0	0 ⁺		
3110	1	2552	30‡ 20	558	2 ⁺		I_γ : 51 3 for 3109+3110 (2005Ko32).
		3110	100	0	0 ⁺		POL=+0.01 4 for 3109+3110 (2005Ko32).
3214	1 ⁽⁺⁾	3214		0	0 ⁺	(M1)	POL=+0.16 4 for 3214+3220.
3220	1 ⁽⁺⁾	3220		0	0 ⁺	(M1)	POL=+0.16 4 for 3214+3220.
3682	1,2	3682‡		0	0 ⁺		
3707	1,2	3707‡		0	0 ⁺		
3748	1	3190	38 5	558	2 ⁺		
		3748	100	0	0 ⁺		
3791	1	3791		0	0 ⁺		
3796	1	3796		0	0 ⁺		
3827	1	3269	168 68	558	2 ⁺		
		3827	100	0	0 ⁺		
3857	1	3857		0	0 ⁺		
3916	1	3916		0	0 ⁺		
3936	1,2	3936‡		0	0 ⁺		
3949	1	3949		0	0 ⁺		
3994	1	3994		0	0 ⁺		
4056	1	4056‡		0	0 ⁺		
4075	1,2	4075‡		0	0 ⁺		

† Deduced (by Xundl from R_{exp} given in table IV of 2005Ko32.

‡ From 1994Ge07.

$^{114}\text{Cd}(\gamma, \text{pol } \gamma')$ 2005Ko32,1994Ge07

Level Scheme

Intensities: Relative photon branching from each level

