

Abstract Submitted
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Phase diagram, correlation gap, and critical properties of the Coulomb glass¹ MATTEO PALASSINI, MARTIN GOETHE, University of Barcelona — We investigate the lattice Coulomb glass model in three dimensions via extensive Monte Carlo simulations. 1. No evidence for an equilibrium glass phase is found down to very low temperatures, contrary to mean-field predictions, although the correlation length increases rapidly near $T = 0$. 2. The single-particle density of states near the Coulomb gap satisfies the scaling law $g(e, T) = T^\lambda f(e/T)$ with $\lambda \approx 2.2$. 3. A charge-ordered phase exists at low disorder. The phase transition from the fluid to the charge ordered phase is consistent with the Random Field Ising universality class, which shows that the interaction is effectively screened at moderate temperature. Results from nonequilibrium simulations will also be briefly discussed. Reference: M.Goethe and M.Palassini, arXiv:0810.1047

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