

Abstract Submitted
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Screening of disorder by the Hubbard interaction near a metal-insulator transition in two dimensions¹ PRABUDDHA CHAKRABORTY, University of California, Davis, PETER DENTENEER, Lorentz Institute, LION, Leiden University, Leiden, The Netherlands, RICHARD SCALETTAR, University of California, Davis — We present a determinant quantum Monte Carlo study of the metal-insulator transition in the Hubbard model on a square lattice with random site disorder. We show that beyond a critical value of the Hubbard interaction U , the Anderson insulator can undergo a phase transition to a two-dimensional metal. It is also shown that a further increase of the Hubbard interaction can lead to a decrease in conductivity, in direct analogy with the superfluid to Bose-glass transition in the bosonic Hubbard model. We point out that screening of disorder by the Hubbard interaction is not enough to explain the metal-insulator transition in the two-dimensional disordered Hubbard model.

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Prabuddha Chakraborty
University of California, Davis

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