

Abstract Submitted
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Universal critical conductivity in the metal to Anderson insulator transition in the two dimensional Anderson-Hubbard model¹ PRABUDDHA CHAKRABORTY, Theoretical Physics III, Center for Electronic Correlations and Magnetism, Institute for Physics, University of Augsburg, D-86135, Augsburg, Germany, KRZYSZTOF BYCZUK, Institute of Theoretical Physics, University of Warsaw, ul. Hoza 69, PL-00-681, Warszawa, Poland , DIETER VOLLHARDT, Theoretical Physics III, Center for Electronic Correlations and Magnetism, Institute for Physics, University of Augsburg, D-86135, Augsburg, Germany — We demonstrate, through extensive quantum Monte Carlo simulations, the existence of a universal critical conductivity in an Anderson insulator to metal transition in two dimensions. The universality of the critical conductivity across various models of disorder is presented, thus pointing to the existence of a quantum critical point with universal properties. We also present the behavior of the compressibility and magnetic susceptibilities across the phase transition and compare them to experimental data and analytical renormalization group investigations.

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