

Abstract Submitted
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Mott transition and Universality at finite temperatures STEFANOS PAPANIKOLAOU, University of Illinois, Urbana-Champaign, RAFAEL M. FERNANDES, Instituto de Fisica “Gleb Wataghin”, Universidade Estadual de Campinas and Laboratorio Nacional de Luz Sincrotron, Campinas, SP, Brazil, EDUARDO FRADKIN, PHILIP W. PHILLIPS, University of Illinois, Urbana-Champaign, JOERG SCHMALIAN, Ames Laboratory and Department of Physics and Astronomy, Iowa State University, RASTKO SKNEPNEK, Ames Laboratory and Department of Physics and Astronomy, Iowa State University — We consider the finite temperature Mott critical point which has been the subject of recent experimental investigation. We demonstrate that this critical point is in the Ising universality class, consistent with all available experimental data. We show that, even though the thermodynamic behavior of the system near such a critical point is described by an Ising order parameter, the global conductivity depends on other singular observables and, in particular, the energy density, leading to the emergence of multiple crossover regimes. Finally, we show that in the presence of weak disorder the dimensionality of the system has crucial effects on the size of the critical region that is probed experimentally. ArXiv:0710.1627 and in press at Physical Review Letters.

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