Magnetic Quantum Phase Transitions of a Kondo Lattice Model with Ising Anisotropy JIAN-XIN ZHU, Theoretical Division, Los Alamos National Laboratory, Los Alamos, New Mexico 87545, USA, STEFAN KIRCHNER, QIMIAO SI, Department of Physics & Astronomy, Rice University, Houston, Texas 77005-1892, USA, DANIEL R. GREMPEL, CEA-Saclay/DRECAM/SPCSI, 91191 Gif-sur-Yvette, France, RALF BULLA, Theoretische Physik III, Elektronische Korrelationen und Magnetismus, Universitaet Augsburg, 86135 Augsburg, Germany — We study the Kondo Lattice model with Ising anisotropy, within an extended dynamical mean field theory (EDMFT) in the presence or absence of antiferromagnetic ordering. The EDMFT equations are studied using both the Quantum Monte Carlo (QMC) and Numerical Renormalization Group (NRG) methods. We discuss the overall magnetic phase diagram by studying the evolution, as a function of the ratio of the RKKY interaction and bare Kondo scale, of the local spin susceptibility, magnetic order parameter, and the effective Curie constant of a nominally paramagnetic solution with a finite moment. We show that, within the numerical accuracy, the quantum magnetic transition is second order. The local quantum critical aspect of the transition is also discussed.

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