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Global phase diagram of heavy fermion metals: Insights from an Ising-anisotropic Kondo lattice model tuned by a transverse magnetic field EMILIAN MARIUS NICA, Department of Physics and Astronomy, Rice University, Houston, Texas 77005, USA, LILI DENG, KEVIN INGERSENT, Department of Physics, University of Florida, P.O. Box 118440, Gainesville, Florida 32611, USA, JIAN-XIN ZHU, Theoretical Division, Los Alamos National Laboratory, Los Alamos, New Mexico 87545, USA, QIMIAO SI, Department of Physics and Astronomy, Rice University, Houston, Texas 77005, USA — Quantum criticality in heavy fermion metals involves the interplay between quantum fluctuations within the local moments and those associated with the Kondo interaction. The resulting global phase diagram [1,2] has provided a means to categorize heavy-fermion quantum critical points [3] and motivated the study of materials with tunable quantum fluctuations [4]. It can be theoretically characterized within an Extended Dynamical Mean-Field Theory (EDMFT). Towards this goal, we studied an Ising-anisotropic Bose-Fermi Kondo model with a local transverse field [2]. We found a line of critical points separating a Kondo screened phase and a local moment phase. We present preliminary results for the EDMFT study of an Ising-anisotropic Kondo lattice model tuned by a transverse magnetic field. In addition, we discuss the implications of the line of critical points for the global phase diagram.

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Emilian Marius Nica
Department of Physics and Astronomy, Rice University,
Houston, Texas 77005, USA

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