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The Ising-Anisotropic Kondo Lattice in a transverse field: EDMFT study and implications for the global phase diagram EMILIAN MARIUS NICA, Department of Physics and Astronomy, Rice University, Houston, Texas 77005, KEVIN INGERSENT, Department of Physics, University of Florida, P.O. Box 118440, Gainesville, Florida 32611, QIMIAO SI, Department of Physics and Astronomy, Rice University, Houston, Texas 77005 — Heavy-fermion materials exhibit a rich variety of phase transitions. Of particular interest are quantum phase transitions and the associated breakdown of the Fermi liquid picture. A theoretical example of this is the Kondo destruction effect in the context of local quantum criticality [1]. To capture this effect and others, a zero-temperature global phase diagram for heavy-fermion materials has been proposed [1]. It incorporates the competition between the Kondo effect (promoted by exchange coupling J_K) and the variable quantum fluctuations of the local-moment magnetism (parameterized by G). We investigate this competition in the Ising-anisotropic Kondo lattice with a transverse magnetic field, where the field serves to tune G . We determine a zero-temperature phase diagram of this model within the extended dynamical mean-field theory (EDMFT), and discuss the implications of our results for the global phase diagram of heavy-fermion systems.

[1] Q. Si et al., J. Phys. Soc. Jpn. **83**, 061005 (2014).

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