

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Variational Cluster Approach to Superconductivity and Magnetism in the Kondo Lattice Model BENJAMIN LENZ, RICCARDO GEZZI, SALVATORE R. MANMANA, Institute for Theoretical Physics, University of Göttingen — We present results for the interplay of d-wave superconductivity and antiferromagnetism in the Kondo lattice model using the variational cluster approximation (VCA). Both the paramagnetic and the antiferromagnetic phase of the model are investigated and regions with different Fermi surface topology are found in the latter. VCA is used to probe the system for s-wave and d-wave superconductivity for all coupling regions. It is shown that only by treating antiferromagnetism and superconductivity on equal footing artificial superconducting solutions at half-filling can be avoided. No true s-wave superconducting solutions due to correlation effects are found, but d-wave pairing proved to be robust for various coupling strengths off half-filling. Its interplay with antiferromagnetism is analyzed at weak coupling.

Benjamin Lenz
Institute for Theoretical Physics, University of Göttingen

Date submitted: 11 Nov 2016

Electronic form version 1.4