Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Variational Mean-field approach to three-body bound states in many- body systems[1] YASHAR KOMIJANI, PIERS COLEMAN, Center for Materials Theory, Rutgers University — Motivated by recent dynamical mean-field theory studies on the Hubbard model [Sakai et al., Phys. Rev. B 94, 115130 (2016)], we study the formation of symmetry-breaking three-body bound states in interacting systems. We introduce a new many-body approach, involving resonant Weiss fields that inject a test bound-state into the three body channel. Using a three-body adaptation of Feynman's variational mean-field approach, we are able to put a rigorous bound on the ground state energy of a state with three-body resonances that can be used as the basis for a new kind three-body Hartree Fock approach. This talk will present these new results and will discuss our ongoing efforts to apply it to physical systems, including Abrikosov-Suhl resonance formation in the Anderson impurity model and d-wave superconductivity in the Hubbard model.

[1]This work was partially supported by NSF grant DMR-1309929.

Yashar Komijani
Center for Materials Theory, Rutgers University

Date submitted: 11 Nov 2016 Electronic form version 1.4