Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Theory of Composite Paring in Yb doped $CeCoIn_5$[1] ONUR ERTEN, PIERS COLEMAN, Rutgers University — Recent experiments on the R (R= La, Yb) doped $CeCoIn_5$ have yielded fascinating results. La, which acts as an inert cation kills superconductivity rapidly[1], whereas superconductivity is much more robust in the case of Yb doping[2]. Experiments also show that unlike La, Yb is in a mixed valent state for all concentrations of doping. Motivated with these experiments, we investigate the effects of doping and disorder on composite paring by diluting two channel Kondo lattice model. This talk will discuss the doping dependence of the coherence temperature and T_c and various possibilities for the discrepancies between thin films and bulk samples. [1] S. Nakatsuji *et al.* Phys. Rev. Lett. **89**, 106402 (2002) [2] L. Shu *et al.* Phys. Rev. Lett **106**, 156403 (2011)

[1]Work supported by NSF, DMR 1309929 and NSF, DMR 1308141 and David and Lucile Packard Foundation 200131769

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Date submitted: 15 Nov 2013 Electronic form version 1.4