Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Kondo physics in a dissipative environment[1] K. INGERSENT, M. T. GLOSSOP, U. Florida, N. KHOSHKHOU, Wesleyan U. — In recent years impurity models with quantum critical points have attracted much interest. Well-studied examples include the pseudogap and Bose-Fermi Kondo models. In the former model, the depletion of the host density of states at the Fermi level can destroy the Kondo effect; in the latter case, Kondo screening competes with coupling to a dissipative bosonic bath representing, e.g., collective spin fluctuations of the host. The physics of both models is dominated by an interacting quantum critical point. Here, we focus on the more general case of a magnetic impurity interacting with a pseudogap fermionic density of states $\rho(\epsilon) \propto |\epsilon|^r$ and with a bosonic bath having a spectral function $B(\omega) \propto \omega^s$. Perturbative renormalization-group (RG) studies of the resulting model, discussed in relation to Kondo temperature suppression in underdoped cuprates [1], have established a rich phase diagram with three stable and two critical fixed points. We report nonperturbative results for this model, obtained using a Bose-Fermi numerical RG approach [2]. We discuss the phase diagram for the Ising-anisotropic case, together with quantum critical properties probed via response to a local magnetic field. [1] M. Vojta and M. Kirćan, PRL **90**, 157203 (2003). [2] M. T. Glossop and K. Ingersent, PRL **95**, 067202 (2005); PRB (2006).

[1]Supported by NSF Grant DMR-0312939

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Date submitted: 20 Nov 2006 Electronic form version 1.4