Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Band filtering and quantum phase transition in an asymmetric double quantum dot[1] W. BRIAN LANE, K. INGERSENT, U. of Florida, L. G. G. V. DIAS DA SILVA, N. P. SANDLER, S. E. ULLOA, Ohio U. — Double quantum dots (DQDs) are currently of great theoretical and experimental interest. A DQD device in which one of the dots is in the Kondo regime and the other is effectively a noninteracting resonant level has been shown [1] to reduce to an effective one-impurity Anderson problem with a structured (nonconstant) density of states. Depending on DQD parameters that can be controlled experimentally via gate voltages, such a device can exhibit zero-field splitting of the Kondo resonance on the interacting dot, or it can be tuned to access a quantum critical point separating Kondo-screened and local-moment phases. Using numerical renormalization-group techniques, we explore the robustness of these phenomena by increasing the Coulomb interaction on the resonant dot away from zero. We report the effects of the interaction on the device's magnetic susceptibility, spectral function, and linear conductance. [1] L. G. G. V. Dias da Silva, N. P. Sandler, K. Ingersent, and S. E. Ulloa, Phys. Rev. Lett. **97**, 096603 (2006).

[1]Supported by NSF Grants DMR-0312939 and DMR-0304314.

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Date submitted: 20 Nov 2006 Electronic form version 1.4