Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Interference Effects in the Conductance of Multi-Level Quantum Dots C.A. BÜSSER, Department of Physics, University of Tennessee and ORNL, E. DAGOTTO, A. MOREO, K.A. AL-HASSANIEH, Department of Physics, FLorida State Univeristy and ORNL, G.B. MARTINS, Department of Physics, Oakland University — Transport properties of multilevel quantum dots are investigated in the Kondo regime. The conductance can be decomposed into the contributions of each level. It is shown that these channels can carry a different phase. A destructive interference processes are observed when the phase difference between them is $\pm\pi$.[1] This effect is very different from those observed in bulk metals with magnetic impurities, where the phase differences play no significant role. The effect is also different from other recent studies of interference processes in dots as the interference do not depend on external magnetic field or the hopping amplitudes dot-leads for all levels. Another interesting effect reported here is the formation of localized states that do not participate in the transport. When one of these states crosses the Fermi level, the electronic occupation of the quantum dot changes, modifying the many-body physics of the system and indirectly affecting the transport properties. 1- C.A. Büsser et al, cond-mat/0404426, to appears in Phys.Rev. B

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Date submitted: 30 Nov 2004 Electronic form version 1.4