Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Dynamic Response of the Kondo Resonance in a Single-Electron Transistor in the Presence of Magnetic Field BRYAN HEMINGWAY, TAI-MIN LIU, ANDREI KOGAN, University of Cincinnati, STEVEN HERBERT, Xavier University, MICHAEL MELLOCH, Purdue University — We report a sharp peak in the differential conductance of a Single-Electron Transistor (SET) in the Kondo regime irradiated with microwaves, plotted as function of an external, in-plane magnetic field, B. The peak emerges at frequencies, hf, above $\sim T_K/2$ and shifts approximately linearly with the microwave signal frequency. At frequencies significantly below the Kondo scale, T_K/h (M. Hettler and H. Schoeller Phys. Rev. Lett. 74, 4907-4910 (1995)), no such peak is present and the conductance data agree with the predictions based on static measurements. In the Coulomb Blockade regime, we find good agreement with the photon-assisted resonant tunneling model and experiments (T.H. Oosterkamp et al., Phys. Rev. Lett. 78 (1997)) . Our SETs are fabricated lithographically using GaAs/AlGaAs heterostructure with sheet density 4.8 x 10^{11} cm^{-2} and mobility 5 x 10^5 $cm^2V^{-1}sec^{-1}$ and have the lithographic dot size approximately 130 nm in diameter.

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Date submitted: 07 Dec 2010 Electronic form version 1.4