

Abstract Submitted
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Transport and Kondo correlations in magnetic break junction devices GAVIN D. SCOTT, Bell Laboratories, Alcatel-Lucent, 600 Mountain Ave, Murray Hill, NJ 07974, DOUGLAS NATELSON, Department of Physics and Astronomy, 6100 Main St, Rice University, Houston, TX 77005; Department of Computer and Electrical Engineering, Rice University — A single molecule transistor device fabricated with a break junction technique is utilized as a tunable model system for probing transport properties of the highly correlated Kondo state. The emergence of this collective phenomenon occurs due to an antiferromagnetic interaction between conduction electrons and a local magnet moment represented by an unpaired spin on the molecule. Low energy non-equilibrium conductance measured in the Kondo regime has been shown to obey a particular scaling relationship with respect to different perturbations. Devices are now fabricated with ferromagnetic and strongly paramagnetic electrodes, and the applicability of such scaling behavior is investigated in the presence of magnetic interactions and anomalous transport characteristics.

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