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Measurements of Universal Kondo Scaling Behavior in a Quantum Dot MICHAEL GROBIS, ILEANA RAU, RONALD POTOK, DAVID GOLDHABER-GORDON, Stanford University, HADAS SHTRIKMAN, Weizmann Institute — At zero temperature, a many-body Kondo singlet forms between a spin-1/2 quantum dot and electrons in nearby, tunnel-coupled reservoirs. In transport measurements, the characteristic signature of the Kondo singlet is a narrow zero bias conduction enhancement. Finite temperature and bias destroy the Kondo singlet and suppress this enhancement. At low temperature and bias (eV, kT << kT_K), the evolution of the Kondo conduction is predicted to show universal scaling in eV/kT. However, such behavior has not been examined thoroughly in experiments. To address this issue, we have performed detailed transport measurements through a Kondo quantum dot at finite bias and temperature. We have measured the scaling power law and lowest order expansion coefficient of the universal scaling function, as well as the expected deviations from universality at higher energies.

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