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Temperature Dependence of a Double Quantum Dot Kondo Effect ANDREW J. KELLER, SAMI AMASHA, ILEANA G. RAU, Stanford University, JORDAN A. KATINE, Hitachi Global Storage Technologies, HADAS SHTRIKMAN, Weizmann Institute, DAVID GOLDHABER-GORDON, Stanford University — Lateral quantum dots are highly tunable experimental systems ideal for exploring the interplay of orbital, spin, and charge correlations. We present studies of a double quantum dot system in a GaAs/AlGaAs heterostructure where transport through each dot may be measured independently. In the limit of negligible inter-dot tunneling, the conductance through both dots is enhanced along inter-dot charge degeneracy lines, where the energy cost for an electron to be on either dot is the same [A. Hübel, et al. PRL 101, 186804 (2008)]. With spin degeneracy, there are expected to be four or five-fold degenerate states, depending on the parity of the electron occupation number of each dot. We attribute the enhanced conductance to a double-dot Kondo effect that screens these localized, degenerate states. The temperature dependence of this Kondo effect is studied as a function of the coupling strength of each dot to its leads and the parity of the electron occupation numbers.

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