

Abstract Submitted  
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**SU(4) Kondo effect in a double quantum dot** ANDREW KELLER, Stanford University, SAMI AMASHA, MIT Lincoln Laboratory, ILEANA RAU, IBM Research - Almaden, LUCAS PEETERS, Stanford University, JORDAN KATINE, HGST, HADAS SHTRIKMAN, Weizmann Institute of Science, DAVID GOLDHABER-GORDON, Stanford University — Lateral quantum dots are highly tunable experimental systems ideal for exploring the interplay of spin and charge correlations. We present studies of a parallel-coupled double quantum dot system in a GaAs/AlGaAs heterostructure. In the limit of negligible inter-dot tunneling, the conductance through both dots is enhanced at inter-dot orbital degeneracies, where the energy for an electron to be on either dot is the same. We show how at four-fold orbital and spin degeneracies, signatures in the zero-bias conductance, the temperature dependence, and the bias spectroscopy suggest an SU(4) Kondo effect may be realized, combining spin and pseudospin.

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