

Abstract Submitted
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A Novel Spin-Flip Co-Tunneling Process in the Effective Three-Electron Regime of a Si/SiGe Double Dot¹ TECK SENG KOH, C.B. SIMMONS, MARK FRIESEN, S.N. COPPERSMITH, M.A. ERIKSSON, Department of Physics, University of Wisconsin-Madison — We study the transport current of a Si/SiGe double quantum dot in the effective three-electron regime, commonly referred to as “hole” transport in the literature. Experimental data is modeled with a Hartree-Fock Hamiltonian. We show that the conventional hole transport picture cannot account for all of the features of the data. We also show that understanding the experimental data requires a novel co-tunneling process involving spin flips. This process is possible partly due to the effect of lifetime-enhanced transport [1].

[1] Shaji, N. *et al.* Nature Physics, 4, 540 (2008).

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