

Abstract Submitted
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The Kondo box in the presence of exchange interaction¹ STEFAN ROTTER, Department of Applied Physics, Yale, HAKAN E. TURECI, Institute of Quantum Electronics, ETH-Zurich, Switzerland, YORAM ALHASSID, Department of Physics, Yale, A. DOUGLAS STONE, Department of Applied Physics, Yale — We study the problem of a quantum dot with finite level spacing which is coupled antiferromagnetically to a Kondo spin (“Kondo box”). In particular, we investigate the influence of a ferromagnetic exchange interaction among the dot electrons and the effect of an applied Zeeman field. This problem is addressed with the help of a numerical algorithm that allows for an exact diagonalization of the Hamiltonian in a good total spin basis [1] of the dot plus the Kondo spin. We discuss how the competition between the ferromagnetic exchange and the antiferromagnetic Kondo interaction affects the ground-state spin of the system.

[1] H. Tureci and Y. Alhassid, Phys. Rev. B 74, 165333 (2006).

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