

Orbital Kondo effect and spin polarized transport through quantum dots

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The coherent spin dependent transport through a set of two capacitively coupled quantum dots placed in a magnetic field and coupled to ferromagnetic electrodes is considered within the equation of motion method. The magnetic field breaks the spin degeneracy. For special choices of gate voltages the dot levels are tuned to resonance and the orbital Kondo effect results either for the single or for both spin channels. Apart from the Kondo peak, also the satellite many-body peaks are found in the densities of states in the positions determined by the magnetic field. The peaks are characterized by different spin polarization. We discuss the spin polarization of conductance showing that for the case of orbital degeneracy in the one spin channel the system can operate as an effective spin filter.

9.7 cm

13.4 cm

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