Spin-dependent transport through triangular quantum dots in the sequential and cotunneling regimes

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Transport properties of triangular coherent quantum dots weakly coupled to external ferromagnetic leads is studied by means of the real-time diagrammatic technique. The calculations are performed for the sequential and cotunneling processes, the former ones dominating the current out of the Coulomb blockade regime and the latter ones determining the current in the blockade regime. We analyze the bias and gate voltage dependence of the current and differential conductance in the parallel and antiparallel magnetic configurations of the device as well as the resulting tunnel magnetoresistance. We show that the spin-resolved transport characteristics depend greatly on various parameters of the model and on the specific configuration of electrodes, to which the transport voltage is applied.