9.7 cm

Coherent electronic transport through magnetic double tunnel junction

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A quantum dot (QD) with a single energy level coupled to ferromagnetic electrodes is considered within the slave boson approach. Magnetic polarisation of the leads induces the spin accumulation at the dot. Its maximum occurs in the mixed valence range and decreases to zero in the Kondo regime. We have calculated the conductance for parallel and antiparallel orientations of polarisations of electrodes. Magnetoresistance takes the largest values in the empty state regime, considerably decreases in mixed valence range and reaches the smallest values in the Kondo regime, where in some cases even negative magnetoresistance can occur. With the increase of the temperature a rapid drop of the conductance at some value of the dot energy in the Kondo range is observed.

13.4 cm

Subject category :

1. Correlated Electrons and High Temperature Superconductors

Presentation mode :
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