9.7 cm

PHONON-ASSISTED KONDO RESONANCE IN SPIN-DEPENDENT TRANSPORT THROUGH A QUANTUM DOT

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Electron transport through a quantum dot coupled to ferromagnetic electrodes is studied in the Kondo regime and effects of local vibrational modes on transport characteristics are analyzed. The approach is based on the non-equilibrium Green function formalism using the equation of motion method. For symmetric junctions and antiparallel configuration of magnetic moments the Kondo anomaly in differential conductance appears in the zero bias limit and the two Kondo satellites due to coupling to phonon bath develop at phonon energies $\pm\omega$. In the parallel configuration the main resonance is split and the two components move away from the zero bias limit. The Kondo satellites move accordingly. Positions of the main peaks and their satellites depend on the leads polarization and on the electron-phonon coupling strength. In non-symmetric systems the shifting of the main components and their satellites takes place also in antiparallel configuration. As a compensating magnetic field is applied, the splitting is fully reduced and the main resonance appears at the zero bias, whereas the satellites appear at energies $\pm\omega$.

13.4 cm

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