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Interference effects in the Andreev conductance of the quantum dots coupled between metallic and superconducting leads

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We describe the quantum interference effects in the nanodevice consisting of the double quantum dot coupled to the metallic and superconducting electrodes. In such hetero-structures the superconducting properties are spread to the quantum dot owing to the proximity effect. We investigate the anomalous Andreev current exploring the conditions necessary for appearance of the Fano-type resonance features. We also consider the electron correlations and discuss an interplay between the Coulomb blockade, the Kondo effect and the Fano-type interference.