SPECTRAL FUNCTIONS OF THE QUANTUM DOT COUPLED TO NORMAL AND/OR SUPERCONDUCTING LEADS

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We study the spectrum of the quantum dot (QD) coupled to two external leads, which may be normal (N) and/or superconducting (S). The dot is described by the Anderson – Hubbard impurity model in the infinite U limit. The impurity spectral function shows complex behaviour depending on the temperature and the state of the leads. For normal leads and low temperature we observe the appearance of the Kondo resonance, while for BCS like superconducting leads the bound states emerge due to absence of low energy excitations in the leads. The Andreev reflections in the N-QD-S junctions show up as satelites below and above Kondo resonance.

9.7 cm

13.4 cm

Subject category :

1. Correlated Electrons and High Temperature Superconductors

Presentation mode :
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