

Andreev spectroscopy in three-terminal hybrid nanostructure

Grzegorz Michałek,¹ Bogdan R. Bułka,¹ Marcin Urbaniak,¹ Tadeusz Domański,² and Karol I. Wysokiński²

¹*Institute of Molecular Physics, Polish Academy of Sciences, Poznań, Poland*

²*Institute of Physics, M. Curie-Skłodowska University, Lublin, Poland*

We consider a hybrid three terminal structure consisting of a quantum dot (QD) coupled to two normal (N) and one superconducting (S) lead [1]. The current flowing between one of the normal and the superconducting electrodes induces voltage in the other normal (floating) electrode. The value of the induced voltage depends on the position of the Andreev levels in the quantum dot and is a measure of the interplay between the electron transfer and the subgap anomalous reflection processes (via direct and crossed Andreev scatterings). When the crossed (i.e. non-local) Andreev reflections dominate the induced potential in the N electrode becomes negative. This situation occurs for the relatively strong coupling to the S electrode and only outside the Coulomb blockade region. Taking the S-electrode as the voltage probe one can get additional information on competition of injected carriers.

References:

[1] G. Michałek *et al.*, Phys. Rev. B **88**, 155425 (2013).

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