

POINT-CONTACT CONDUCTANCE OF THE NS HYBRID SYSTEM MO(N)/MO-C(S)

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Abstract

Studies of the physical phenomena underlying the process flow of the stream of charges through interfaces heterosystems, always relevant, since the uncertainty of characteristics of interfaces such as quality and geometry, suggests a large variety of scenarios of the electron scattering at the interfaces. This is especially as for interfaces at the contacts of normal metals (N), including magnetic , with superconductors (S), the study of scattering mechanisms which are currently stimulated, in particular, the advent of new superconductors based on multicomponent systems with complex mechanisms of electron correlation.

This report presents the results of a study of the conductance of normal-metal point contacts with unconventional superconductors - carbidized molybdenum Mo-C. Shown that the maximum in the curve of the normalized conductance vs. the bias that occurs with increasing the latter from zero value, indicates the presence of a mechanism for increasing the cross section of scattering by impurities in Andreev retroreflection, and a decrease of conductance with a further increase of the bias - the contribution of the charge imbalance in the increase of the boundary resistance terms of spatial dispersion of the order parameter on the side of the superconductor near the NS interface (see Figure 1).

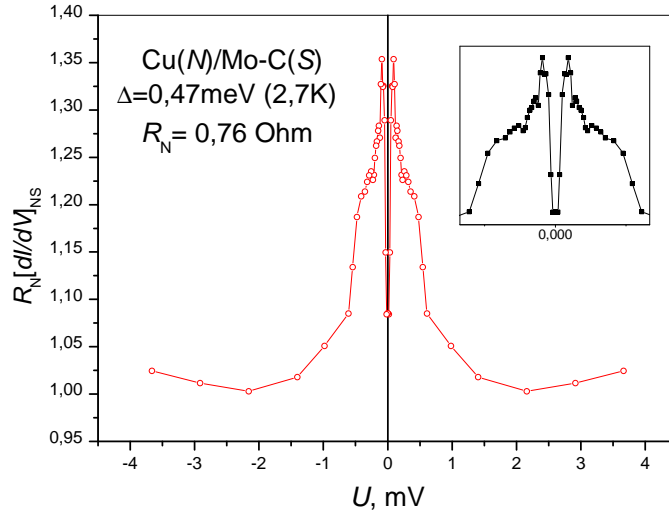


Figure 1: Normalized point-contact conductance of the Mo(N)/Mo-C(S) interface vs. bias