

Abstract Submitted  
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**Static and dynamic effects in Superconducting/Normal metal/Superconducting long junctions** FRANCESCA CHIODI, BERTRAND REULET, HÉLÈNE BOUCHIAT, Laboratoire de Physique des Solides UMR 8502 - Université Paris-Sud, Bât 510 - 91405 Orsay cedex, LES NANOSTRUCTURES À LA NANOSECONDE TEAM, PHYSIQUE MÉSCOPIQUE TEAM, J.C. CUEVAS-DEPARTAMENTO DE FISICA TEORICA DE LA MATERIA CONDENSADA-UNIVERSIDAD AUTONOMA DE MADRID COLLABORATION — We have studied four different Nb/Al long junctions at temperatures between 1.4 K and 4K (where the Al wire is still in the normal state). We have measured their low frequency current-voltage characteristics in the presence of an RF excitation (whose frequency varies from 100 kHz to 40 GHz). All the junctions show an important increase in critical current for frequencies above a threshold, which depends on the length of the normal wire. Is Thouless frequency playing a role? We have also studied the influence of geometry (narrow / square normal wire) on W/Au junctions. We have seen that the critical current/magnetic field curve changes from the well known Fraunhofer pattern (square wire) to a Gaussian dependence (narrow wire). We are now interested in dynamic properties of SN junctions: inductively coupling a multimode LC resonator to an AC SQUID we hope to define the behaviour of Andreev bound states when excitation time becomes lower than the typical diffusion time.

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