

**SPIN POLARIZED CURRENT AND ANDREEV TRANSMISSION IN PLANAR
SUPERCONDUCTING/FERROMAGNETIC NB/NI JUNCTIONS**

A. Domínguez Folgueras,(2, 3), E. M. González,(1)

J. L. Vicent,(1) F. Guinea,(2) and J. Ferrer,(3)

(1) Departamento de Física de Materiales, Facultad de CC. Físicas,
Universidad Complutense, 28040 Madrid, Spain

(2) Instituto de Ciencia de Materiales de Madrid,
CSIC, Cantoblanco, 28049 Madrid, Spain

(3) Departamento de Física, Universidad de Oviedo, 33007 Oviedo, Spain

Abstract

We have measured the tunneling current in Nb/Nb_xO_y/Ni planar tunnel junctions at different temperatures. The junctions are in the intermediate transparency regime.

We have used three different models to fit the data of the junctions. One of them is a simple generalization of the BTK model to the case of a ferromagnetic electrode. This model provides consistent fitting parameters for the whole range of temperatures analyzed. Using these parameters we have extracted the current polarization of the metal/ferromagnet junction without applying a magnetic field.

We have also been able to gain insight into the microscopic structure of the oxide barriers of our junctions analyzing the transmission coefficients of the junctions.