

Abstract Submitted  
for the MAR16 Meeting of  
The American Physical Society

**Experimental study of electrical conduction across high-Tc superconductor-graphene interfaces**<sup>1</sup> DAVID PERCONTE, FABIAN CUELLAR, MARIE-BLANDINE MARTIN, BRUNO DLUBAK, MAELIS PIQUEMALBANCI, ROZENN BERNARD, JUAN TRASTOY, CONSTANCE MOREAULUCHAIRE, PIERRE SENEOR, JAVIER VILLEGAS, Unite Mixte de Physique CNRS/Thales, PIRAN KIDAMBI, JOHN ROBERTSON, STEPHAN HOFMANN, Cambridge University, Eng. Dept. — Proximity-induced superconductivity presents unusual features in graphene (i.e. specular Andreev reflection [1]) due to its particular electronic structure. It has been theoretically discussed that, if a d-wave superconductor is put contact with graphene, the latter will sustain d-wave superconductivity, and further unusual features (such as oscillatory behavior) should be observed in the superconductor-graphene junction conductance [2]. Motivated by these prospects, we experimentally investigate YBCO-graphene junctions. We will show differential conductance measurements as a function of temperature, magnetic field, and graphene doping. The observed behavior will be discussed in the frame of the theory developed in [1,2,3]. [1] C.W.J. Beenakker, Phys. Rev. Lett. 97, 067007 (2006); [2] J. Linder et al., Phys. Rev. Lett. 99, 147001 (2007); [3] S. Kashiwaya et al., Phys. Rev. B 53, 2667 (1996).

<sup>1</sup>work supported by Labex Nanosaclyay

David Perconte  
None

Date submitted: 06 Nov 2015

Electronic form version 1.4