

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Proximity Effect in Electron-Doped Cuprate Josephson junctions¹ S. CHARPENTIER, Département de Physique, Université de Sherbrooke, Sherbrooke, Canada, G. ROBERGE, S. GODIN-PROULX, P. FOURNIER — We study the proximity effect in Josephson junctions made from electron-doped high- T_c cuprates $\text{Pr}_{2-x}\text{Ce}_x\text{CuO}_4$ (PCCO) as the electrodes and the barrier. For the electrodes, we use superconducting optimally doped PCCO ($x = 0.15$). PCCO $x = 0.05$, an antiferromagnetic metal, is used for the barrier. Our results demonstrate: 1) a conventional proximity effect; 2) but a coupling even if the barrier is antiferromagnetic. We determine the normal coherence length, ξ_n , which quantifies the extent of the pair wavefunction into the metal. Comparing this value with the theoretical expectations, we confirm that the coupling appears to be conventional through PCCO $x = 0.05$. Further results investigating the coupling through an insulating antiferromagnetic barrier and through a metal with no antiferromagnetic order will also be presented.

¹Work supported by NSERC, FQRNT, CIFAR, CFI and the U. de Sherbrooke.

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Date submitted: 22 Dec 2009

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