

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Low temperature anisotropic magnetoresistance studies of the electron-doped superconductor $\text{Pr}_{1.85}\text{Ce}_{0.15}\text{CuO}_4$ WEIQIANG YU, P. LI, J. HIGGINS, Y. DAGAN, B. LIANG, R.L. GREENE, CSR, Department of Physics, University of Maryland, College Park, MD 20742 — We report the low temperature dc transport properties of crystals of electron-doped superconductor $\text{Pr}_{1.85}\text{Ce}_{0.15}\text{CuO}_4$ (T_c 25K). By applying the magnetic field beyond H_{C2} , both in-plane and out-of-plane (c -axis) resistivity have a similar metallic temperature dependence with an upturn as the temperature drops below $T=13\text{K}$. For $T>32\text{K}$, a negative magnetoresistance develops in the c -axis resistivity at low magnetic field, followed by a positive magnetoresistance at high field. In contrast, the in-plane transport only shows a monotonic positive magnetoresistance in the same (H , T) region. The possible origin of these behaviors and a comparison with hole-doped superconductors will be given. (Supported by NSF DMR- 0352735)

Weiqliang Yu
CSR, University of Maryland- college park

Date submitted: 26 Nov 2004

Electronic form version 1.4