

Abstract Submitted
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Shubnikov-de Haas Oscillations in the Electron-doped Cuprate Superconductors¹ J. S. HIGGINS, Center for Nanophysics and Advanced Materials, University of Maryland, M. K. CHAN, National High Magnetic Field Laboratory, Los Alamos, NM, T. SARKAR, Center for Nanophysics and Advanced Materials, University of Maryland, R. D. MCDONALD, National High Magnetic Field Laboratory, Los Alamos, NM, R. L. GREENE, Center for Nanophysics and Advanced Materials, University of Maryland, N. P. BUTCH, National Institute of Standards and Technology/CNAM, MD — We have studied the electronic structure of electron-doped cuprate superconductors via measurements of Shubnikov-de Haas oscillations in thin films with magnetic fields up to 80 T and in temperatures from 0.7 K to 20 K. In optimally and overdoped $\text{Pr}_{2-x}\text{Ce}_x\text{CuO}_4$ and optimally doped $\text{La}_{2-x}\text{Ce}_x\text{CuO}_4$, quantum oscillations indicate the presence of a small Fermi surface, indicative of electronic reconstruction. These measurements show that superconductivity emerges from a similar electronic state in all of the electron-doped cuprates. We will discuss low-temperature signatures of residual magnetic fluctuations that may connect the electronic structure to the nearby quantum critical point.

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