

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

High pressure study on $\text{Pr}_{1.85}\text{Ce}_{0.15}\text{CuO}_{4-\delta}$ single crystals¹ COSTEL R. ROTUNDU, Department of Physics, University of Maryland, College Park, MD 20742, USA, VIKTOR V. STRUZHUKIN, ALEXANDER GONCHAROV, Geophysical Laboratory, Carnegie Institution of Washington, Washington, DC 20015, USA, RICHARD L. GREENE, Department of Physics, University of Maryland, College Park, MD 20742, USA — Transport measurements to 2.5 GPa on electron-doped cuprates revealed modest changes in physical properties, if any [1]. Room temperature synchrotron diffraction on powder samples show that the non-superconducting parent Pr_2CuO_4 exhibits a gradual structural transition from T' to T phase when subject to pressures greater than 15 GPa [2]. $\text{Pr}_{2-x}\text{Ce}_x\text{CuO}_4$ (PCCO) is superconducting for a Ce doping range 0.12 – 0.2 (T' structure). Both pressure and Ce doping have the same shrinkage effect on the lattice constants. Here, we report high pressure ac susceptibility, resistivity and Raman shift data on $x = 0.15$ single crystals to 30 GPa. References: [1] C. Murayama *et al.*, *Nature*, **339**, 293 (1989) [2] H. Wilhelm *et al.*, *Science and Technology of High Pressure*, Proceedings of AIRAPT-17, pp. 740-743, Universities Press, Hyderabad, India (2000)

¹The authors acknowledge the support from the State of Maryland and NSF through DMR-0653535 (CRR and RLG), DOE through DE-FG02-02ER45955 (VVS) and Carnegie Canada (AG).

C. R. Rotundu
Department of Physics, University of Maryland, MD 20742, USA

Date submitted: 27 Nov 2007

Electronic form version 1.4