Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

The dynamic critical exponent in optimally doped $Pr_{1.85}Ce_{0.15}CuO_4$ as a function of film inhomoegneity[1] R.A. ISAACS, J. B. OLSON, J. SOUSA, M. SALVAGGIO, M.C. SULLIVAN, Department of Physics, Ithaca College, Ithaca NY, R.L. GREENE, Center for Nanophysics and Advanced Materials, Department of Physics, University of Maryland College Park — Scaling analysis of voltage vs. current isotherms is a good tool to study the normal-superconducting phase transition in cuprate conductors. This measurement has never been performed on the optimally doped cuprate conductor $Pr_{1.85}Ce_{0.15}CuO_4$. If we take the finite thickness of the films into account,[2] we can find the critical isotherm and determine the dynamic critical exponent z in our $Pr_{1.85}Ce_{0.15}CuO_4$ films. We find that the critical exponent varies as a function of transition width, from which we can infer the effect of sample inhomogeneity on the dynamic critical exponent. We present our results of the critical exponent as a function of sample inhomogeneity and compare it to the hole-doped cuprate $YBa_2Cu_3O_{7-\delta}$.

[1]Supported by NSF grant DMR-0706557
[2]Sullivan *et al.*, Phys. Rev B **69**, 214524 (2004)

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Date submitted: 21 Nov 2008 Electronic form version 1.4