

Abstract Submitted  
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**Doping dependence of the dynamic and static critical exponents in  $\text{Pr}_{2-x}\text{Ce}_x\text{CuO}_4$** <sup>1</sup> M.C. SULLIVAN, R. ISAACS, J.B. OLSON, J. SOUSA, M. SALVAGGIO, 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 favorite tool to study the normal-superconducting phase transition in cuprate superconductors. This measurement has never been performed on the electron-doped cuprate superconductor  $\text{Pr}_{2-x}\text{Ce}_x\text{CuO}_4$ , due in part to difficulties which result from finite-thickness effects, even in thick ( $d \approx 3000\text{\AA}$ ) films.<sup>2</sup> If finite-thickness effects are taken into consideration, we can find the critical isotherm and the dynamic critical exponent, and we can use small magnetic fields to find the static critical exponent. Similar measurements have been made on the more familiar hole-doped cuprates such as  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ .<sup>3</sup> We present our results of the dynamic critical scaling exponent  $z$  and static critical exponent  $\nu$  in our  $\text{Pr}_{2-x}\text{Ce}_x\text{CuO}_4$  films as a function of doping.

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<sup>2</sup>Phys. Rev. B **69**, 214524 (2004)

<sup>3</sup>arXiv:0803.0969

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