The dynamic critical exponent in optimally doped $\text{Pr}_{1.85}\text{Ce}_{0.15}\text{CuO}_4$ as a function of film inhomogeneity\(^1\) 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 $\text{Pr}_{1.85}\text{Ce}_{0.15}\text{CuO}_4$. 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 $\text{Pr}_{1.85}\text{Ce}_{0.15}\text{CuO}_4$ 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 $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$.

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