

Abstract Submitted
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Evidence for Current-Driven Phase Slip Lines in Submicron High- T_c Superconducting Wires¹ P. MORALES, J.Y.T. WEI, Department of Physics, University of Toronto — We present superconducting current-voltage characteristics of submicron $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ wires. The submicron-wide wires were fabricated using a chemical-free technique based on selective epitaxial growth. Pulsed current-biased and voltage-biased measurements were made between 4.2 K and T_c and as a function of an applied magnetic field. The current-voltage characteristics exhibit distinctive behaviour suggesting that the current-driven or voltage-driven transition of our submicron high- T_c wires into the resistive state is through the formation of phase slip lines.

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