

Abstract Submitted  
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**GHz operation of LaAlO<sub>3</sub>/ SrTiO<sub>3</sub>-based transistor**<sup>1</sup> PATRICK IRVIN, MENGCHEN HUANG, JEREMY LEVY, U. Pittsburgh, CHUNG WUNG BARK, CHAD M. FOLKMAN, CHANG-BEOM EOM, U. Wisconsin-Madison — Local modification of the metal-insulator transition of the LaAlO<sub>3</sub> /SrTiO<sub>3</sub> interface with a conducting-atomic force microscope (c-AFM) has resulted in a variety of electrical<sup>2</sup> and photonic<sup>3</sup> devices. Using a heterodyne measurement technique, we show that a sketch-based, nanoscale transistor (“SketchFET”) can operate at frequencies in excess of 1 GHz. This demonstration of GHz functionality opens the door for new applications for oxide-based, rewritable nanoscale devices.

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<sup>3</sup>P. Irvin, Y. Ma, D. F. Bogorin, C. Cen, C. W. Bark, C. M. Folkman, C.-B. Eom, and J. Levy, *Nature Photonics* advanced online publication, 14 Nov.2010 (DOI 10.1038/nphoton.2010.238)

Patrick Irvin  
U. Pittsburgh

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