Abstract Submitted
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Real-time characterization of nanostructures written at the $LaAlO_3/SrTiO_3$ interface[1] ALEXANDRE GAUTHIER, PATRICK IRVIN, JEREMY LEVY, University of Pittsburgh — Nanostructures can be written on the $LaAlO_3/SrTiO_3$ interface using conductive AFM lithography[2]. These structures can be configured into devices including photodetectors[3] and transistors[4]. Characterization of complex devices requires simultaneous measurements between several pairs of electrodes. We have developed a method to take measurements between all electrodes simultaneously by both measuring and applying a bias at a unique frequency to each electrode. Fourier analysis is then used to separate measured signals by source terminal. This allows us to efficiently characterize multi-terminal devices in real-time, as they are being created. This method will allow for the use of new experimental techniques.

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[2]C. Cen, *et al.*, *Science* **323**, 1026 (2009)
[3]P. Irvin, *et al.*, *Nat. Photonics* **4**, 849 (2010)
[4]G. Cheng, *et al.*, *Nat. Nanotechnol.* **6**, 343 (2011)

Alexandre Gauthier
University of Pittsburgh

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