

Abstract Submitted
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Scanning SQUID Microscopy of Electronic Transport in Graphene GEORGE M. FERGUSON, BRIAN T. SCHAEFER, LEI WANG, COLIN CLEMENT, DAVID H. LOW, LONG JU, PAUL L. MCEUEN, JAMES P. SETHNA, KATJA C. NOWACK, Cornell University — Graphene is a playground for exploring electronic transport phenomena in two-dimensional electron systems. Using scanning superconducting quantum interference device (SQUID) microscopy, we can map out the magnetic field generated by electron flow and reconstruct the two-dimensional current density in graphene devices. Imaging current may allow us to explore unconventional transport phenomena including electronic focusing in graphene p-n junctions and viscous electron flow. Furthermore, magnetization from valley accumulation may be directly imaged in bilayer graphene devices. We will report on our progress imaging these phenomena as well as new methods we are implementing to perform the current reconstruction with optimal spatial resolution.

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