

Abstract Submitted  
for the MAR09 Meeting of  
The American Physical Society

**Fabrication and measurement of epitaxial graphene nanoribbons**

MIKE SPRINKLE, Georgia Institute of Technology, JEFF J. PETERSON, Intel Corporation, MING RUAN, YIKE HU, XIAOSONG WU, EDWARD H. CONRAD, Georgia Institute of Technology, CLAIRE BERGER, CNRS and Georgia Institute of Technology, WALT A. DE HEER, Georgia Institute of Technology — Multi-layer graphene grown epitaxially on the C-terminated (000 $\bar{1}$ ) surface of 4H-SiC in a low vacuum ( $\sim 10^{-5}$  Torr), high temperature ( $\sim 1420$  °C) induction furnace environment has been shown to be of extremely high quality and mobility. Due to its rotational stacking, the material exhibits electronic properties similar to those of isolated graphene sheets. Lithographic techniques, including electron beam lithography, are explored and sub-20 nm ribbon widths are demonstrated. Transport data for gated epitaxial graphene nanoribbons indicates quantum confinement. More than 100 nanoribbons on a single SiC chip are demonstrated, illuminating a technologically viable path towards graphene electronics.

Mike Sprinkle  
Georgia Institute of Technology

Date submitted: 21 Nov 2008

Electronic form version 1.4