

MRSEC SEMINAR SERIES

Issues with Characterizing Transport Properties of Exfoliated and CVD Single Layer Graphene Devices

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Date: Thursday, April 19, 2012

Time: 3:00 PM

Location: Marcus Nanotechnology Building, Room 1116

Abstract:

The transport properties of exfoliated and CVD single layer graphene devices are typically characterized using a conventional test structure consisting of graphene on silicon dioxide with deposited metal contacts. Two of the primary parameters affecting the total resistance of this structure are the channel mobility and contact resistance. A simple model is used to describe the impact of these parameters on total device resistance and experimentally extract them. Important issues related to characterizing the transport properties of these graphene devices are presented. The transport properties of CVD graphene and exfoliated graphene are compared.

Bio:

Eric M. Vogel is currently Professor of Materials Science and Engineering at the Georgia Institute of Technology (GIT). Prior to joining GIT in August 2011, he was Associate Professor of Materials Science and Engineering and Electrical Engineering at the University of Texas at Dallas (UTD). Prior to joining UTD in August of 2006, he was leader of the CMOS and Novel Devices Group and founded the Nanofab at the National Institute of Standards and Technology. He received the Ph. D. degree in 1998 in electrical engineering from North Carolina State University and the B. S. degree in 1994 in electrical engineering from Penn State University. Dr. Vogel's research interests relate to devices and materials for future electronics including advanced MOS devices and materials and nanoelectronic devices. He has published over 120 journal publications and proceedings, written 5 book chapters and given over 50 invited talks and tutorials.