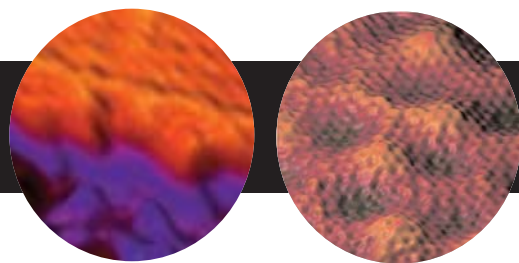


AVS Graphene Tutorial



AVS 56th International Symposium and Exhibition
Sunday, November 8, 2009, 1:00 p.m.–5:00 p.m.

Tutorial Objectives

- ▶ Introduction to graphene describing both its similarities and differences between other “conventional” two-dimensional electron systems.
- ▶ A range of graphene systems will be covered including mechanically exfoliated graphene and epitaxially grown graphene.
- ▶ Current state-of-the-art in graphene technology and application will be covered.

Tutorial Description

There will be three primary tutorials that will cover a range of topics that include experimental, applied, and theoretical aspects of graphene technology. The tutorials will be broad in nature, while covering the current state-of-the-art. These tutorials are designed to provide attendees with an extensive understanding of the unique physical properties of graphene, the methods used to prepare various graphene systems and the techniques used to characterize these systems. Whether you are a technical non-specialist or a graphene veteran, you will benefit from these tutorials.

Schedule

1:00 p.m.–2:00 p.m.:	Graphene, Professor Michael S. Fuhrer, University of Maryland
2:00 p.m.–2:20 p.m.:	Break
2:20 p.m.–3:20 p.m.:	Epitaxial Graphenes, Professor Phillip N. First, Georgia Institute of Technology
3:20 p.m.–3:40 p.m.:	Break
3:40 p.m.–4:40 p.m.:	New Physics in Graphene Two-Dimensional Electron Systems, Professor Allan H. MacDonald, University of Texas-Austin

Who Should Attend?

These tutorials are designed to benefit both the technical non-specialist and those currently doing graphene research and should appeal to a broad range of engineers, scientists, technicians, students, as well as industry professionals.

Cost

Regular: \$100.00

Student: \$75.00



Questions? E-mail heather@avs.org; Call 530-896-0477

Register Online at <https://www.xpressreg.net/Register/avss119/lookup.asp>

Tutorial Outline

Graphene: 1:00 p.m.–2:00 p.m.

Professor Michael S. Fuhrer, University of Maryland

Graphene, a single atom-thick sheet of graphene, was realized experimentally in 2004. Since then there has been intense interest in this new material, stemming both from graphene's unusual physical properties, such as its massless electron dispersion and chiral electronic states, and from the possible applications of graphene in high-speed analog or digital electronics, electro-mechanical systems, sensors, energy storage, etc. This tutorial will introduce graphene and describe the similarities and differences between graphene and other "conventional" two-dimensional electron systems, and then describe the state-of-the-art in theoretical and experimental understanding of the structure and electronic properties of graphene prepared by mechanical exfoliation and by epitaxial growth on SiC. This tutorial should be of broad interest to principal investigators in academia and industry, program managers, students, postdoctoral researchers, and other scientists who are interested in learning about the science and technology of graphene. Some knowledge of solid state physics will be assumed. E-mail: mfuhrer@umd.edu.

Epitaxial Graphenes: 2:20 p.m.–3:20 p.m.

Professor Phillip N. First, Georgia Institute of Technology

A brief motivation will be given summarizing the potential of graphene for applications in electronics followed by a discussion of different options for the creation of graphene via scalable (industry-suitable) methods. The case of epitaxial graphenes on both carbon-terminated and silicon-terminated faces of hexagonal silicon carbide will be presented in more depth. E-mail: first@physics.gatech.edu.

New Physics in Graphene Two-Dimensional Electron Systems: 3:40 p.m.–4:40 p.m

Professor Allan H. MacDonald, University of Texas-Austin

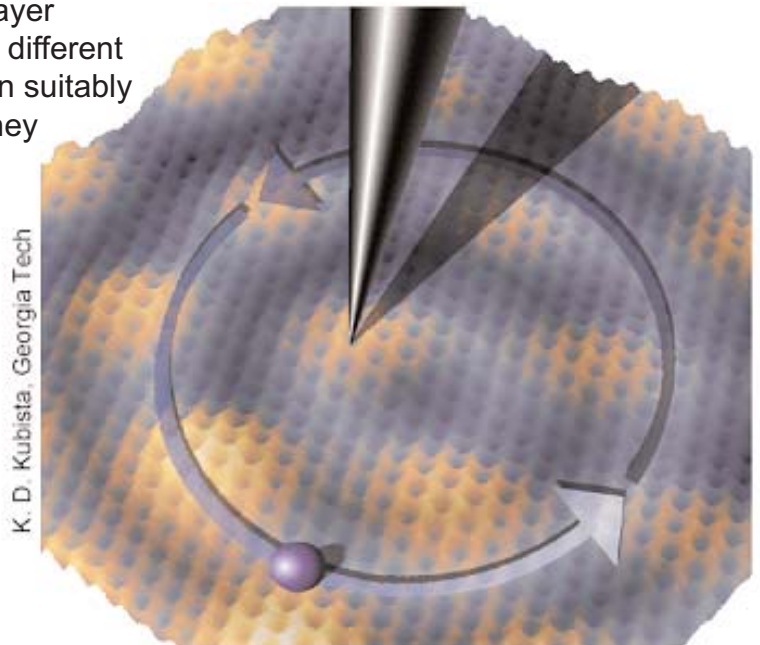
Scientists have recently made much progress in preparing and probing graphene two-dimensional electron systems (2DESs). There are a number of important and interesting differences both between graphene systems and ordinary semiconductor heterojunction 2DESs and among different members of the graphene family. I will survey some of these differences, discussing in particular transport and optical properties and contrasting single and bilayer graphene. Finally I will explain the nature of two different unusual broken symmetries which might occur in suitably prepared graphene systems and discuss how they might enable new types of electronic devices.

E-mail: macdpc@physics.utexas.edu.

Questions?

E-mail heather@avs.org

Call 530-896-0477



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