SIGMA XI McGill Montréal

The McGill-Montreal Chapter

Sigma Xi :: The Scientific Research Society ::

Sigma Xi - Public Lecture

Electrons going massless:

The optical and electronic properties of graphene.

Dr. Thomas Szkopek

Canada Research Chair in Nanoscale Electronics

McGill University

thomas.szkopek@mcgill.ca

PUBLIC LECTURE

When:

Monday

November 23rd, 2009

6 P.M.

Where:

McGill University

Otto Maass Chemistry Building

Room 10

Peel apart the layers of graphite and carefully observe the resulting flakes; you will find graphene, a single atomic sheet of carbon atoms arranged in a honeycomb lattice. The newest member of the graphitic family to join the fullerenes and carbon nanotubes, many of graphene's unique physical properties can be attributed to electrons behaving like massless particles. I will show how the optical properties of graphene are described by a fundamental constant of nature, the fine-structure constant, and how this allows us to count atomic layers using only a simple optical microscope. I will also describe the electronic properties of graphene, including its ability to function as a transistor and the sensitivity of its electrical conductance to the environment. Future research directions and potential applications of graphene will be briefly discussed.

Thomas Szkopek is an Assistant Professor in the Department of Electrical and Computer Engineering at McGill University. He holds a Canada Research Chair in Nanoscale Electronics, and directs a research group investigating the optical and electronic properties of low-dimensional materials including graphene and III-V quantum wells for applications in sensing and telecommunications.

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Preceded by a members-only reception
5:30 P.M.

Ruttan Room