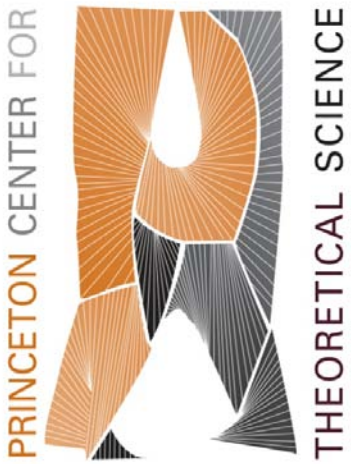

Electronic Properties of Graphene

8-9 October 2010

The program will focus on the properties of graphene, a single-atom-thick layer of carbon. Discovered in 2004, graphene has quickly become one of the most active research fronts in condensed matter physics, owing to its fundamental importance, as well as the potential it offers to future nano-electronics applications. Originally, the interest in graphene was largely driven by its fascinating electronic properties: electrons moving in the background of carbon atoms arranged in a honeycomb lattice become effectively massless, and behave like relativistic Dirac particles, rather than familiar massive non-relativistic electrons, as in semiconductors and metals. It was realized early on that the Dirac-like behavior of excitations in graphene significantly modifies the textbook single-particle quantum effects, from tunneling to localization. More recently, researchers focused on the more complex many-body effects in graphene, as well as on understanding the sources of disorder present in graphene samples. Graphene characteristics -- its atomic thickness, record breaking strength and room temperature mobility -- potentially make it a nearly ideal material for many applications. Many prototype graphene devices have already been demonstrated, however, two major challenges for graphene nano-electronics remain: developing a reliable fabrication process of large clean graphene samples, as well as finding ways to control electronic properties of graphene. The goal of our program is to learn about recent developments and open questions in graphene field, focusing both on the basic science and potential applications of this remarkable material.

For more information, and to register, please visit:
http://www.physics.princeton.edu/pcts/graphene/graphene.html

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Eva Andrei, Rutgers University
Boris Altshuler, Columbia University
Aaron Bostwick, Lawrence Berkeley National Laboratory
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Co-sponsored by Princeton Center for Complex Materials