

Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

"Hydrodynamic transport in the Dirac fluid in graphene"

Andrew Lucas, Harvard University

Abstract: Understanding the thermal and electrical conductivity of strongly correlated metals is a notoriously hard problem in condensed matter physics, relevant for a broad set of materials. We have used ideas from relativistic hydrodynamics to address this problem non-perturbatively in metals at finite temperature, charge density and disorder strength. I will focus on the specific case of charge-neutral graphene, and present the first experimental observation of the strongly coupled Dirac fluid of electrons, revealed by novel thermal transport properties. Our hydrodynamic description of transport in graphene provides quantitative contact between AdS/CMT-inspired models of transport and an experimentally realized condensed matter system for the first time.

12:00noon
Wednesday, November 4, 2015
Low Room 6C-333

Host: Liang Fu