

Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

"Lévy flights and hydrodynamic superdiffusion on the Dirac cone of graphene"

Egor Kiselev, Karlsruhe Institute of Technology

Abstract: It is shown that hydrodynamic collision processes in graphene at the neutrality point can be described in terms of a Fokker-Planck equation with a fractional derivative, corresponding to a Lévy flight in momentum space. Electron-electron collisions give rise to frequent small-angle scattering processes that are interrupted by rare large-angle events. The latter give rise to superdiffusive dynamics of collective excitations. Implications for charge and heat transport and relaxation processes will be discussed.

3:00PM
Wednesday, September 25, 2019
Duboc Room (4-331)