

Condensed Matter Theory Center Seminar
Monday, March 10 at 2:00pm
2205 Physics Building

Speaker: David Abergel (Nordita)

Title: Excitonic Condensation in Double Layer Graphene: the Role of Disorder

Abstract:

The existence of an excitonic condensate in double layer graphene has been predicted theoretically, but has not been observed in experiment. We discuss the conditions under which this condensate has a critical temperature high enough to allow detection. Crucially, disorder arising from charged impurities and corrugation in the lattice structure affects the formation of the condensate via the induced charge inhomogeneity. We employ mean-field BCS theory to describe the condensate formation, and a numerical Thomas-Fermi-Dirac theory to describe the disorder. Combining these calculations gives realistic estimates of the likelihood of observing the condensate in different experimental situations.

Host: Ed Barnes

<http://www.physics.umd.edu/cmtc/seminars.html>