

Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

"Broken SU(4) Symmetry and The Fractional Quantum Hall Effect in Graphene"

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Abstract: Since its discovery more than three decades ago, the fractional quantum Hall effect has been studied almost exclusively in the two-dimensional electron systems formed in GaAs/AlGaAs heterojunctions. However, recent improvements in the quality of graphene have revealed a rich landscape of fractional quantum Hall states in this material, heralding the beginning of a new chapter in fractional quantum Hall physics. The $N=0$ Landau level of graphene is endowed with an approximate spin-valley SU(4) symmetry. In this talk, I will describe a variational approach to understand how this symmetry is broken, which allows to construct trial incompressible ground states, their charged quasi-particles and compute their associated gaps.

12:00noon
Tuesday, October 7, 2014
***Low Seminar Room (6C-333)**