

Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

"Bimetric theory of Fractional Quantum Hall States"

Andrey Gromov, University of Chicago

Abstract: I will describe the recently developed bimetric theory of fractional quantum Hall states. It is an effective theory that includes the Chern-Simons term that describes the topological properties of the fractional quantum Hall state, and a non-linear, a la bimetric massive gravity action that describes gapped Girvin-MacDonald-Platzman mode at long wavelengths. The theory reproduces the universal features of the chiral lowest Landau level (LLL) FQH states that lie beyond the reach of pure Chern-Simons theory, such as the projected static structure factor and the Girvin-MacDonald-Platzman algebra. The action of particle-hole transformation on the theory is particularly transparent. Familiar quantum Hall observables acquire a geometric interpretation in the bimetric language.

12:15pm
Tuesday, November 28, 2017
Duboc Room (4-331)

Host: Max Metlitski