

Condensed Matter Theory Center Seminar



Tuesday, September 29
11:00 am – 12:30 pm
2205 Toll Physics Building

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“Composite fermions and the field-tuned superconductor-insulator transition”

Abstract: In several two-dimensional films exhibiting a magnetic field-tuned superconductor to insulator transition (SIT), stable metallic phases have been observed. Building on the 'dirty boson' description of the SIT, we suggest that the metallic region is analogous to the composite Fermi liquid observed about half-filled Landau levels of the two-dimensional electron gas. The composite fermions near the SIT are mobile vortices attached to one flux quantum of an emergent gauge field. This composite vortex liquid is a 2D non-Fermi liquid metal, which is stable to weak quenched disorder. This picture of an emergent composite vortex liquid has several experimental consequences which we describe.

Host: Jed Pixley

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

