

Condensed Matter Theory Center Seminar



Tuesday, September 27
11:00 am – 12:00 pm
2205 John S. Toll Physics Building

Steve Simon
Oxford University

“Surprises from Small Quantum Hall Droplets”

Abstract: (a) We show how spectroscopic experiments on a small Laughlin droplet of rotating bosons can directly demonstrate Haldane fractional exclusion statistics of quasihole excitations. The characteristic signatures appear in the single-particle excitation spectrum. (b) In the limit where the confining potential is very steep but also weak compared to the ultra-short ranged inter-particle interactions, we find that the eigenstates have a Jack polynomial structure, reminiscent of the one-dimensional Calogero-Sutherland model, and have an energy spectrum which is extremely different from the well known Luttinger liquid edge.

Refs:

(a) Nigel R. Cooper, Steven H. Simon, Signatures of Fractional Exclusion Statistics in the Spectroscopy of Quantum Hall Droplets, *Phys. Rev. Lett.* 114, 106802 (2015)

(b) Richard Fern, Steven H. Simon, Quantum Hall Edges with Hard Confinement: Exact Solution beyond Luttinger Liquid, arXiv:1606.07441

Host: Dong-Ling Deng

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

