Chez Pierre

Presents ...

Monday, April 6, 2026
12:00 pm - 1:00 pm
Duboc room – 4-331

Chez Pierre Seminar

Dima Feldman, Brown University

"Interferometry revisited."

Abstract: Anyonic interferometry is a key probe of fractional statistics. Its Fabry-Perot version has recently been successfully implemented in the simplest fractional quantum Hall states decades after a theoretical proposal. Such delay is explained by two challenges for interferometry. First, universal statistical phases are intertwined with non-universal Coulomb effects. Second, Fabry-Perot interferometry data allow a straightforward interpretation at low visibility only. Besides, standard interferometry schemes are unsuitable to probe neutral anyons such as quasiparticles in putative Kitaev magnets. We propose two approaches, which mitigate these issues. First, we introduce interferometry on co-propagating edge channels of a single edge such as the edge of the -3/5 state in twisted molybdenum telluride bilayers. This setup does not allow anyons to make multiple loops around the device and hence can be interpreted straightforwardly for any interchannel tunneling. The geometry also reduces Coulomb effects. Interestingly, a simple exact solution is available for the current and noise at multiple filling factors. Second, we introduce thermal interferometry suitable for both charged and neutral anyons.