Condensed Matter Theory Center Seminar
Tuesday, March 11 at 11:00pm
2205 Physics Building

Speaker: Meng Cheng (Microsoft Station Q)

Title: Unconventional Edge Phases of Abelian Quantum Hall States

Abstract:

Integer and fractional Quantum Hall States exhibit gapless edge excitations which allow probing of many bulk topological properties through transport experiments. We find that the same bulk two-dimensional topological phase can have multiple distinct, fully-chiral edge phases, with experimentally testable signatures. We show that this can occur in the integer quantum Hall states at \nu=8 and \nu=12, as well as in fractional quantum Hall states, the simplest examples of which being \nu=8/7, 12/11, 8/15, 16/15. We also demonstrate that fermionic systems can have chiral edge phases with only bosonic low-energy excitations. We explain these results using the theory of integral quadratic forms.

Host: Sriram Ganeshan

http://www.physics.umd.edu/cmtc/seminars.html