

Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

“Braiding statistics and symmetry-protected topological phases”

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Abstract: Symmetry-protected topological (SPT) phases can be thought of as generalizations of topological insulators. Just as topological insulators have robust boundary modes protected by time reversal and charge conservation symmetry, SPT phases have boundary modes protected by more general symmetries. In this talk, I will describe a method for analyzing 2D and 3D SPT phases using braiding statistics. More specifically, I will show that 2D and 3D SPT phases can be characterized by gauging their symmetries and studying the braiding statistics of their gauge flux excitations. The 3D case is of particular interest as it involves a generalization of quasiparticle braiding statistics to three dimensions so present evidence for the gapless behavior of the non-unitary Gaffnian wave function.

**1:00pm
Thursday, April 24, 2014
Duboc Seminar Room (4-331)**