Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

" Classifying and detecting crystal symmetry fractionalization in a 2D Z_2 spin liquid"

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Abstract: In quantum spin liquid states, the fractionalized spinon excitations can carry fractional crystal symmetry quantum numbers, and this symmetry fractionalization distinguishes different topologically ordered spin liquid states. Different ways of fractionalizing crystal symmetries can be classified through enumerating different combinations of fractional quantum numbers of each type of anyons, but some combinations are anomalous and can only be realized on the surface of a 3D topological crystalline insulator instead of a true 2D system. These fractional crystal symmetry quantum numbers can be detected from the crystal symmetry representation of the ground state wave functions.

12:00noon
Wednesday, April 29, 2015
Duboc Room (4-331)

Host: Liang Fu