

Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

"A New Kind of Topological Quantum Order, Generalized Lattice Gauge Theory
and Duality"

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Abstract: We introduce a generalization of conventional lattice gauge theory to describe fracton topological phases, which are characterized by immobile, point-like topological excitations, and sub-extensive topological degeneracy. We demonstrate a duality between fracton topological order and interacting spin systems with symmetries along extensive, lower-dimensional subsystems, which may be used to systematically search for and characterize fracton topological phases. Commutative algebra and elementary algebraic geometry provide an effective mathematical toolset for our results. Our work paves the way for identifying possible material realizations of fracton topological phases.

12:00pm
Tuesday, April 26, 2016
Duboc Room (4-331)