

Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

"Anomalous symmetry protected topological states in interacting fermion systems"

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Abstract: The classification and construction of symmetry protected topological(SPT) phases have been intensively studied in interacting systems recently. To our surprise, in interacting fermion systems, there exists a new class of the so-called anomalous SPT(ASPT) states which are only well defined on the boundary of a trivial fermionic bulk. We first demonstrate the essential idea by considering an anomalous topological superconductor with time reversal symmetry $T^2=1$ in 2D. The physical reason is that the fermion parity might be changed locally by certain symmetry action, but is conserved if we introduce a bulk. Then we discuss the layer structure and systematical construction of ASPT states in 2D interacting fermion systems with a total symmetry $G_f=G_b \times Z_f$. Finally, potential experimental realizations of ASPT states are also addressed.

3:00pm
Thursday, May 16, 2019
Duboc Room (4-331)

Host: Xiao-Gang Wen