

Massachusetts Institute of Technology  
Department of Physics

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**Condensed Matter Theory Seminar**

"Fermion condensation and super pivotal categories"

**Ethan Lake**, Massachusetts Institute of Technology

**Abstract:** I will discuss fermionic topological phases from a category-theoretic perspective. I will show how fermionic topological phases can be constructed by performing fermion condensation in a bosonic topological phase containing a fermion, a process which can roughly be understood as condensing pairs of physical and emergent fermions. I will show how to compute the excitation spectrum in theories obtained from fermion condensation, and will discuss how various standard results in the theory of bosonic topological order (regarding modular transformations, dimension formulae, lattice Hamiltonians, etc.) are modified in the fermionic setting.

**12:00pm**  
**Tuesday, September 19, 2017**  
**Duboc Room (4-331)**

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Host: Xiao-Gang Wen