Chez Pierre

Presents ...

Friday, May 1, 2026
11:00 am – 12:00 pm
Duboc Room – 4-331

Special Chez Pierre Seminar

Dmitry Green, Boston University

"Building Topological Quantum Matter in Superconducting Wire Arrays as a Path Towards Quantum Computing"

Exotic states of matter are among many physical systems that are candidates for realizing quantum computing. Topological states are at the top of the list. However, even though the theory is highly developed, having been initiated over 50 years ago, the particular versions necessary for quantum computing have proven very difficult to build. The goal of this talk is twofold: to review one of the simplest topological models -- the toric code -- and to show how it may be realized. On the toric code, our discussion will be pedagogical. On realization, we will focus on the basic elements of "combinatorial gauge symmetry" (CGS), a scheme that we introduce. We will discuss the experimental advantages vs the challenges, as well as generalizations and new models that emerge from this framework.