

Speaker: Matthew Cha, Michigan State University

Title: Stability of the superselection sectors for Kitaev's quantum double models

Abstract: Kitaev's quantum double models are a family of planar quantum spin systems that exhibit topological order in the ground state and have an anyonic excitation spectrum. In the infinite volume, the distinct anyon charges can be labeled by a family of superselection sectors, and the anyon statistics are encoded in the superselection structure. Moreover, there is a natural correspondence of this family of superselection sectors with the set of infinite volume ground states. We prove that the anyon superselection structure is stable under uniformly small perturbations to the quantum double Hamiltonians. (joint work with Pieter Naaijken and Bruno Nachtergaele)