Physics Seminar: Meng Cheng

Wednesday, October 18.2:00 - 3:00pm

Title: Symmetry and many-body topology in mixed states

Abstract: It is by now well-understood that gapped ground states of local Hamiltonians can be classified topologically, and the nontrivial states exhibit many interesting topological phenomena. In this talk I'll discuss recent developments in generalizing the topological classification to mixed states. Global symmetry plays a key role in understanding phases in pure states. For mixed states, certain "weak" symmetries may hold "on average" for the entire ensemble, in contrast to "strong" symmetries respected by each state in the ensemble. I will show that the interplay between these two kinds of symmetries lead to a rich landscape of symmetry-protected mixed states, and can also be used to characterize mixed state topological order.