Abstract Template

Topological Phase Transitions in Kitaev Quantum Spin Liquids

(Session 1, Oral)

Eun-Gook Moon

Department of Physics, Korea Advanced Institute of Science and Technology (KAIST), Korea

We argue that topological phase transitions may be utilized to identify Kitaev quantum spin liquids by tuning physical parameters such as magnetic fields and strains. We investigate the interplay between topological and symmetric properties of a Kitaev quantum spin liquid, finding characteristics of physical observables such as thermal Hall conductivity and specific heat. For example, we show that applying strains or electrifields may quantum critical points between different topological, constrained by lattice symmetry of a Kitaev quantum spin liquid. We predict distinctive experimental signatures to detect a Kitaev quantum spin liquid, especially in connection with candidate materials such as α-$RuCl_3$.