Friday, March 3⋅11:30am – 12:00pm

Speaker: Seth Koren (U Chicago)

Title: Putting Generalized Symmetries to Work for Particle Physics

Abstract: Over the past decade, field theorists have developed a novel framework for thinking about global symmetries which has enormously generalized our understanding thereof. Quite recently, my collaborators and I have established positively that past being a useful formal tool, such generalized symmetries are indeed present in models that we care about as particle physicists---and furthermore understanding them can lead to new insights into these models. As a first example, the Standard Model itself has a 'higher-group' symmetry intertwining flavor and hypercharge, and I will discuss how this symmetry controls the structure of unification. Going Beyond, I will show that the identification of a 'non-invertible' symmetry of Z' models of $L_\mu - L_\tau$ reveals the existence of simple UV completions thereof where the scale of neutrino masses is exponentially suppressed from that of charged leptons.