Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

"New dynamical transitions: in Majorana fermions and in job applications"

Brian Skinner, Ohio State University

Abstract: In this talk I will unapologetically discuss two entirely different topics. Sorry.

In the first part, I will talk about how classical reaction-diffusion models can be generalized to systems of Majorana fermions. Usually, coupling a many-body quantum system to a thermal environment destroys the quantum coherence of its state, leading to effectively classical dynamics at the longest time scales. Here I discuss a system that avoids this classical fate because some of the information in its quantum state is topologically protected. I will show how a system of Majorana fermions coupled to a thermal bath and relaxing toward its ground state exhibits a new universality class of dynamics that can be described by an exact mapping. (Work with Adam Nahum.)

In the second part, I will discuss the effect of "prestige bias" in job applications using a simple stat mech model. Using the language of Bayesian inference across iterated rounds of evaluation, I will show how there can be a first-order transition in the degree of advantage conferred by a prestigious affiliation.

2:00pm
Thursday, December 5, 2019
Duboc Room (4-331)

Host: Hiroki Isobe