CSU HEPPA Seminar

"Enabling MeV-Scale Discovery By Improving Liquid Argon TPC Performance"

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Fermilab

Wednesday, Feb. 3rd, 2:00-3:00pm

Virtual via Zoom (see announcement for link)

Abstract

A major challenge in searching for neutrinoless double-beta decay is designing a detector with a large mass, low backgrounds, and percent-level energy resolution. A large-scale, high-precision LArTPC experiment, such as DUNE, could provide an exciting new opportunity for a sensitive neutrinoless double-beta decay search. By adding xenon as a dopant, a modified DUNE far detector module could enable a 100 ton-scale search for neutrinoless double-beta decay, whereas next-generation experiments are targeting ton-scale searches. I will discuss how we can enable percent-level energy resolution in large LArTPCs and the capabilities of a suitably modified DUNE detector to search for neutrinoless double-beta decay.

Biography

My primary research interests are searches for sterile neutrino oscillations using large liquid argon TPCs at Fermilab. I received my PhD from SUNY Buffalo in 2013 working on D0. After graduating I moved to the University of Chicago for my postdoc where I worked extensively on MicroBooNE and the Short-Baseline Neutrino Program proposal. Since 2018 I have been a Wilson Fellow (associate scientist) at Fermilab working on MicroBooNE, the SBN Program, and LArTPC R&D.