

CSU PHYSICS COLLOQUIUM

“Pixelation: Bringing liquid noble element detectors into focus”

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Virtual via Zoom (see announcement for link)

Abstract

Future long baseline neutrino experiments such as the Deep Underground Neutrino Experiment (DUNE) call for the deployment of multiple multi-kiloton scale liquid argon time projection chambers (LArTPCs). To date, two detector readout technologies are being studied in large-scale prototype detectors: the single phase (SP) and dual phase (DP) detectors using projective charge readout wire based anode planes. These projective readout technologies come with a set of challenges in the construction of the anode planes, the continuous readout of the system required to accomplish the physics goals of proton decay searches and supernova neutrino sensitivity, and the 2D projective reconstruction of complex neutrino topologies.

This talk will go over the unorthodox solutions in both charge and light readout currently being pursued to overcome the challenges of projective readout and bring forward a true 3d pixel based readout for LArPTC's.

Biography

I am currently an assistant professor in the physics department at the University of Texas Arlington. Before this I was a postdoctoral researcher with Syracuse University from 2012 - 2015 working with Prof. Mitch Soderberg. I received my PhD in 2012 from Texas A&M University under Prof. David Toback. I graduated from the University of Iowa in 2004 with a B.S in physics. My current research interests focus on understanding the most abundant massive particle in the universe, the neutrino.