Abstract Submitted
for the 4CS20 Meeting of
The American Physical Society

Simulated Electron Drift Properties in High Pressure Gaseous Argon Time Projection Chamber for the Deep Underground Neutrino Experiment[1] AARON MUTCHLER, University of Colorado, Boulder — The Deep Underground Neutrino Experiment (DUNE) is a new cutting-edge experiment that will be fundamental in the study of neutrino oscillations and physics beyond the standard model. A crucial step in studying these oscillations is understanding the flux of neutrinos and their interaction cross sections in the near detector. This is done in a series of argon-based detectors. Neutrinos will interact with the argon and produce charged particles, which in turn liberate electrons which drift across the High Pressure Gaseous Argon Time Projection Chamber (HPgTPC). To extract the necessary information about neutrino interactions, details of the drift electrons must be known. Some of these details are drift velocity, diffusion, and attachment. This talk will give an overview of DUNEs HPgTPC, introduce the simulation used to determine electron drift properties, and explore some of the requirements of the HPgTPC operating conditions.

[1]U.S. Department of Energy

Aaron Mutchler
University of Colorado, Boulder

Date submitted: 25 Sep 2020 Electronic form version 1.4