

Abstract Submitted
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Detecting the Elusive Neutrinos Around Us AHMED BEDAIR, JAEHOON YU, CRISTOBAL GARCES, AAYUSH BHATTARAI, STEVEN BOUCHER, ERIC GARCIA, GAJENDRA GURUNG, HARSHWARDHAN PRASAD, UTA HEP — Neutrinos are subatomic particles which were originally thought to be massless. However, it has been disproven and shown to hold a small nonzero mass. The Deep Underground Neutrino Experiment (DUNE) is an international collaboration further investigating these properties of neutrinos and proton decay. The far detectors will consist of a mixture of single-phase horizontal drift (SPHD) and single-phase vertical drift (SPVD) technology, implying the direction of charged particles moving within the detector chamber. ProtoDUNE-SPHD is a prototype detector exploring and validating the single-phase liquid Argon horizontal drift technology behind DUNE. Its detector consists of the Time Projection Chamber (TPC), Cold Electronics (CE) and a Photon Detection System (PDS). The overall goal for this prototype single-phase detection system is that it will serve to validate the cryostat technology behind the SP technology for DUNE, help with calibration for future readings and increase optimization for DUNE through simulations.

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