

9th SYMPOSIUM ON LARGE TPCs FOR LOW-ENERGY RARE EVENT DETECTION



Contribution ID: 73

Type: **not specified**

Status of protoDUNE Dual Phase

The Deep Underground Neutrino Experiment (DUNE) will use a large liquid argon (LAr) detector consisting of four modules each with a fiducial mass of 10 kt of LAr. One of the technology options for the far detector modules is a liquid-argon TPC working in dual phase mode.

ProtoDUNE Dual Phase is a large demonstrator of the double phase liquid argon Time Projection Chamber (TPC) with a $6 \times 6 \times 6 \text{ m}^3$ (300t) active volume. The TPC is built inside a tank based on industrial LNG technology. Electrons produced in the liquid argon are extracted in the gas phase. Here, a readout plane based on Large Electron Multiplier (LEM) detectors provides amplification before the charge collection onto an anode plane with strip readout. PMTs located on the bottom of the tank containing the liquid argon provide the readout of the scintillation light.

ProtoDUNE will be operated at the CERN neutrino platform test beam facility. As well as being the engineering prototype of a Far Detector module, it will also demonstrate the concept of a very large dual-phase LAr TPC which will be calibrated with a charged particle test beam. The design of the TPC including the fabrication, testing, installation and commissioning of the various detector components will be briefly discussed.

Primary author: DAWSON, Jaime Victoria (Universite de Paris VII (FR))

Presenter: DAWSON, Jaime Victoria (Universite de Paris VII (FR))