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LAr scintillation light measurements taken during one year by ProtoDUNE Dual Phase at CERN

DUNE is a dual-site experiment for neutrino science and searches for physics BSM. The Far Detector will consist of four 10 kton fiducial mass LAr TPCs. The photon detection system (PDS) embedded within the detector adds precise timing capabilities for non-beam events. The ProtoDUNE Dual Phase (DP) detector is a 300 ton LAr TPC currently operating at the CERN Neutrino Platform. The PDS is formed by 36 8-inch cryogenic photomultiplier tubes (PMTs) and includes an LED-based fiber calibration system. The topic of this poster is the ProtoDUNE-DP PDS performance using cosmic ray data taken during one year at CERN. Studies on the PMT gain stability, the scintillation light profile and electroluminescence light detection (from the gas, more than 6 meters away from the PMTs) are shown. Moreover, the first analyses on the low energy background and the muon-detection efficiency using the PDS are presented.

Mini-abstract

Analysis of the photon detection from cosmic ray muons taken during one year by ProtoDUNE Dual Phase

Experiment/Collaboration

DUNE Collaboration

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