



Contribution ID: 360

Type: **Parallel**

## Signal and Power transmission over Fiber in the DUNE Far Detector

*Friday 11 July 2025 09:24 (18 minutes)*

The Vertical Drift Far Detector of the Deep Underground Neutrino Experiment (DUNE) will be instrumented with a Vertical Drift Time Projection Chamber (LAr TPC) and a Photon Detection System (PDS). The PDS installed alongside a TPC provides the time-stamp for off-beam physics, and can further contribute with precise timing information and calorimetry for energy reconstruction. The expected performance of the PDS in the VD LArTPC is improved thanks to an increase in coverage, through the installation of photo-detectors on the high voltage surface of the cathode. The Signal and Power over fiber technologies have been developed within the DUNE Collaboration in order to enable the operation of these photon detectors, by using only non-conductive materials (optical fibers) for transmission of signals and power in a cryogenic environment. This talk presents a detailed account of this technological development and the latest results from the prototype testing at the CERN Neutrino Platform.

### Secondary track

**Author:** SACERDOTI, Sabrina (APC-Paris,France)**Co-author:** COLLABORATION, DUNE**Presenter:** SACERDOTI, Sabrina (APC-Paris,France)**Session Classification:** T11 (Detectors)**Track Classification:** T11 - Detectors