

## UV light calibration system for the DUNE FD-HD Photon Detection System

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The Deep Underground Neutrino Experiment (DUNE) is a 1,300 km long-baseline neutrino experiment that will send a neutrino beam through two particle detectors. The near detector will be located 60 m underground at Fermilab (Chicago), and the far detector will be located 1.5 km underground at the Sanford Underground Research Facility (SURF) in South Dakota. The far detector module (FD-HD) will be equipped with liquid-argon time projection chamber (LArTPC) and horizontal drift (HD) technologies. When a neutrino interacts with the liquid argon atoms, the produced ionization charges will drift horizontally under the influence of an electric field toward an instrumented anode. The FD-HD will employ a UV LED based fiber light calibration system (UV-LCS) to monitor the performance and ensure an equalized response of the photon detection system (PDS). The UV-LCS will utilize ~1000 optical fibers and ~210 light diffusers that will be deployed in the FD-HD cryostat. This poster will describe the design, testing, installation, commissioning and operation of the UV LCS in ProtoDUNE HD and the future prospects for deployment in the DUNE FD-HD.

### Working Group

WG 6: Detectors

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