

Abstract Submitted
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Beam Location System for the Ionization-based Calibration in DUNE¹ RANJAN DHARMAPALAN, University of Hawai'i, DUNE COLLABORATION — An ultraviolet (UV) ionization laser system can provide precise measurements of the drift velocity and electric field as well as be a diagnostic tool for detector defects in large liquid argon neutrino detectors such as those envisioned for the Deep Underground Neutrino Experiment (DUNE). In this talk we describe two subsystems that along with the UV laser system, make it possible to perform these functions. First is a laser beam location system based on UV sensitive photodiodes. Few arrays of photodiodes are placed below the field-cage within the detector which will help determine the exact orientation of the laser beam independent of the detector signals. The second subsystem consists of pads with UV mirrors at slightly different angles, which are strategically placed within the detector. The hit mirror, and therefore the laser beam location, is identified by the reflection angle of the track observed by the Time Projection Chamber wire signals.

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