

Efficiency of the Photon Detection System in DUNE Far Detectors

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The Deep Underground Neutrino Experiment (DUNE) will advance the field of neutrino oscillation to the precision era, independently measuring the entire set of oscillation parameters, thanks to Liquid-Argon TPC technology. The Photon Detection System (PDS) will expand the scientific program of the experiment by providing triggers for non-beam events (atmospheric, solar, and supernova neutrinos) and enhancing the capabilities of the TPC for the long-baseline program.

The PDS of the first FD module consists of light collector modules placed in the inactive space between the innermost wire planes of the TPC anode. The light collectors, the so-called X-ARAPUCAs, are functionally light traps that capture wavelength-shifted photons inside boxes with highly reflective internal surfaces and a wavelength shifting bar to direct the photons onto a SiPM array. We show their functionality and how we assess their performance in standalone facilities (CIEMAT) and ProtoDUNE-HD (CERN).

Poster prize

Yes

Given name

Surname

First affiliation

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Institutional email

Gender

Collaboration (if any)

DUNE

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