

## Timing Characterization of LAPPDs in ANNIE Using Laser Calibration

The Accelerator Neutrino Neutron Interaction Experiment (ANNIE) is a 26-ton gadolinium-loaded water Cherenkov detector located on the Booster Neutrino Beam at Fermilab. The experiment has a two-fold motivation: to perform a physics measurement and to advance new detector technologies. The measurement of final state neutron multiplicity from neutrino interactions in water as a function of momentum transfer will lower systematic uncertainties for future long-baseline neutrino experiments. In March 2022, the experiment deployed the first Large Area Picosecond Photodetector (LAPPD) with four more to be deployed soon. LAPPDs are capable of spatial resolution of less than 1-cm and time resolution of less than 100-ps. The utilization of LAPPDs places unprecedented requirements on the time calibration of the LAPPDs relative to each other and to the photomultiplier tubes. The experiment is set to use laser-based calibrations to achieve picosecond-level precision for the LAPPDs. This poster will show recent studies with laser calibration data.

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