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Large Area Picosecond Photo-Detectors (LAPPDs) for ANNIE and Future Neutrino Experiments.

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The demand for fast-timing photodetectors is ever-increasing to enhance the capability for better event reconstruction in neutrino and high-energy physics experiments. Large Area Picosecond Photo-Detectors (LAPPDs), which are 20 cm x 20 cm flat panel, micro-channel plate (MCP) based photodetectors bring considerable new capabilities for neutrino event reconstruction in Cherenkov and scintillator detectors. Their single photoelectron (sPE) time resolution is about 50 picosecond and gain characteristics are exceeding 10^7 . The Accelerator Neutrino-Neutron Interaction Experiment, ANNIE, a 26-ton of water Cherenkov detector on the Booster Neutrino Beam (BNB) at Fermilab will be the first neutrino experiment leveraging this technology to make detailed neutrino measurements. ANNIE is about to deploy the first LAPPD in the water volume, and more to be deployed very soon. In this talk, we will discuss efforts towards application readiness of LAPPDs in ANNIE and their relevance to future neutrino experiments.

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