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Using Fast Photosensors in Water Cherenkov Neutrino Detectors

TIAN XIN, Iowa State University — The next generation of neutrino experiments will require massive and/or high resolution detectors to reach the sensitivity needed to measure CP violation in the lepton sector and the neutrino mass hierarchy. The Large-Area Picosecond Photo Detector (LAPPD) Collaboration is developing new methods to fabricate 8in-square thin planar micro channel plate photosensors, which have shown to have excellent spatial and timing resolution. By using these devices in Water Cherenkov detector, people could significantly improve the background rejection and the vertex reconstruction. We present preliminary results on the reconstruction capabilities for single particles in Water Cherenkov detectors.

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