

The Large Area Picosecond Photodetector (LAPPD) 8" MCP-PMT: Recent Results

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The LAPPD is a 400 cm² microchannel plate photomultiplier (MCP-PMT) with a timing resolution better than 60 pS. The large area and high speed makes the LAPPD suitable for viewing large area scintillators or large experimental volumes, and for applications such as neutron detectors or Cerenkov light detectors. It has sensitivity to single photoelectrons with a gain of $\sim 7 \times 10^6$ or higher. It incorporates a bi-alkali Na₂K₂Sb photocathode, with a peak sensitivity below 365 nm. Photocathodes have quantum efficiencies of 25-30% at 365 nm. The standard LAPPD has an interior stripline anode. An alternative version of the LAPPD has been developed that capacitively couples pulses to an external signal board. The signal board may have any pattern, including striplines or pixels. This flexibility facilitates observations of high rate or spatially localized phenomena. This work presents new results for time resolution, position and gain response as a function of event rate.

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