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Large area multichannel plate PMTs with picosecond resolution

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Multichannel plate photon detectors (MCP-PMTs) have excellent intrinsic time resolutions of order 50 picoseconds. Large area picosecond PMTs were initiated in 2009 by the LAPPD collaboration and these devices are now commercially produced at Incom Inc. LAPPDs can be operated at high gain, have single photon sensitivity low dark count rates and good quantum efficiency, and thus are a promising technology for photon detectors for LHCb upgrade II, but have also application in neutrino experiments, medical physics and security. With their large active area these devices have excellent potential to become a cost effective photon sensor with fast timing. Many groups including us are currently characterising LAPPDs in close collaboration with the industrial partner. R&D challenges include the rate capability, the lifetime and pixellated readout. An high rate HRPPD has recently become available from the vendor, which has promising properties and needs to be evaluated.

Requested length

10 minutes

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