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The R&D of the MCP based PMTs for High Energy Physics Detectors

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Researchers at IHEP have conceived two types of MCP-PMTs for photon detection in particle physics. One is the 20-inch Large MCP-PMT (LPMT) with small MCP units in the large area PMTs for neutrino detection. This LPMT has already been mass-produced in more than 15K pieces in the JUNO experiment and has also been evaluated by the PMT group in LHAASO and HyperK. The other is the 2-inch Fast MCP-PMT (FPMT) with the fast timing resolution for particle identification in the collider detector. The FPMT prototypes have been produced with 50 ps time resolution and also with the 8X8 readout anode for the position resolution. This talk will introduce the two types of MCP-PMT and their performance tested in the lab.

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