

The R&D of the Ultra Fast 8X8 Readout MCP-PMTs

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The Micro-Channel Plate (MCP) is a specially crafted microporous plate with millions of independent channels, which have secondary electron emission capability. The MCP could be used as the electronic multiplier amplifier in the PMTs. There are two types of MCP Photomultiplier tube (MCP-PMT), large-area electrostatic focusing PMTs (LPMT) and small size proximity focusing PMTs (FPMT) respectively. The LPMT always used in the large scalar neutrino detector for its large area efficiency photocathode. The small size FPMT has many advantages such as fast time response, strong anti-interference ability, small volume and light weight, which could be widely used in high energy physics, optical instruments, Medical imaging and other fields. The MCP-PMT Collaboration Group in China has successfully research and developed the 20 inch large area MCP-PMT (LPMT) for JUNO in 2017, and plan to research a new type of small plant MCP-PMT (FPMT) with multi-anode readout (4X4, 8X8). In this talk, we will introduce some design of the FPMTs for the time measurement, and the performance of the several different prototypes with different readout channels.

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