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The MCP based PMTs for Neutrino Detector

Thursday 28 May 2020 16:00 (18 minutes)

The large scaler neutrino detectors (JUNO, HyperK), need the large area PMTs for the large photocathode coverage and less electronic channels. Researchers at IHEP have conceived a new concept of large area PMTs, of which the small MCP units replace the bulky Dynode chain. After several years R&D, the 20 inch MCP-PMT was successfully produced. This type of PMT has large sensitive area, high QE, and large P/V for good single photoelectron detection. The JUNO ordered 15000 pic 20-inch MCP-PMT in Dec.2015. From 2017 to 2019, all the 20-inch PMTs will be produced and tested one by one for JUNO. This presentation will talk about the R&D, the mass production and batch test result of the 12K pieces of MCP-PMT prototypes for JUNO. Further more, another Flower-liked MCP-PMT was designed with the TTS less than 5ns, and this new type of 20 inch MCP-PMT has already evaluated by the PMT group in HyperK, and also be used in the LHAASO project in China.

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