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The Delivery Status of JUNO 20" PMTs and their Performance

The Jiangmen Underground Neutrino Observatory (JUNO) is a multi-purposed neutrino experiment currently under construction in South China. Due to its unprecedented requirement on the photocathode coverage rate in order to reach energy resolution, 20k 20-inch photomultipliers (PMTs) will be deployed in the detector system, including 5k conventional Hamamatsu dynode PMTs and 15k newly developed PMTs using micro-channel plates (MCP-PMT) by North Night Vision Technology (NNVT). The JUNO collaboration has developed a PMT mass testing system to characterize these PMTs and selected the qualified ones for the final installation. Up to now, we have received and completed the characterization of 5k Hamamatsu PMTs and ~12k MCP-PMTs. In this poster, we will present the latest delivery details and the performance results including the typical single photon-electron (SPE) waveform, SPE spectra of two types of PMTs, SPE resolution, photon detection efficiency and dark count rate etc.

Mini-abstract

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Experiment/Collaboration

JUNO

Primary author: Dr ZHAO, Rong (Sun Yat-Sen University)

Presenter: Dr ZHAO, Rong (Sun Yat-Sen University)

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