

Progress of JUNO commissioning and online reconstruction of PMT waveforms

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The Jiangmen Underground Neutrino Observatory (JUNO) has been primarily designed to determine the neutrino mass ordering by measuring the energy spectrum of neutrinos from two nuclear power plants, utilizing its exceptional energy resolution. JUNO employs a 20 kton liquid scintillator as the target substance in the central detector, with tens of thousands of 20-inch PMTs applied to achieve high photocathode coverage. Currently, the JUNO detector is under assembly, with about 30% 20-inch PMTs already installed and connected to the electronic readout. As part of the commissioning process, tests in the dark experimental hall have been conducted multiple times to assess the performance of the PMTs and the data-taking workflow. The poster will present an overview of the JUNO commissioning process and results from the aforementioned light-off tests, such as the dark count rates of installed PMTs and electronic noise levels. Moreover, the consistent PMT waveform reconstruction results from the FPGA in the front-end electronics and those from the offline algorithms will also be shown.

Poster prize

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