



Contribution ID: 853

Type: Poster

Overall status of 20-inch PMT Instrumentation for the JUNO Experiment

Friday, 8 July 2022 20:10 (20 minutes)

The Jiangmen Underground Neutrino Observatory (JUNO) is a multi-purpose neutrino experiment with a 20 kton Liquid Scintillator detector. The primary goal of JUNO is determination of the neutrino mass ordering by measuring the reactor anti-neutrinos. There are 20,012 20-inch PMTs equipped for JUNO, including 15,012 MCP PMTs and 5000 dynode PMTs, which is the largest 20-inch PMT sample in the world up to date. To achieve the unprecedented energy resolution of 3% @1MeV, the 20-inch PMTs need to have high PDE (photon detection efficiency, >27%) for the photons from the liquid scintillator, high optical coverage (>75%) on the stainless-steel truss of 40 m in diameter, and high reliability (< 0.5% loss at least for 6 years) in the water pool of 44 m deep. Instrument these PMTs for JUNO, including performance testing, waterproof potting and implosion protecting, were started from several years ago, and now most of the work are done, with a test result showing that the average PDE for MCP PMTs reaches 30%, and the average PDE for all 20012 PMTs reaching 29.6%. In this poster, a summary of the overall status and results for PMT testing, potting and protecting will be presented, including also the preparations for the PMT installation at the JUNO underground hall.

In-person participation

No

Primary author: QIN, Zhonghua (Institute of High Energy Physics, China)**Presenter:** QIN, Zhonghua (Institute of High Energy Physics, China)**Session Classification:** Poster Session**Track Classification:** Detectors for Future Facilities, R&D, novel techniques