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JUNO 20-inch PMT Testing systems and progress

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One of the crucial aspects to reach the aimed energy resolution of 3% @ 1 MeV in the JUNO experiment will be the instrumentation with and performance of the used photo sensors in the detector. Up to 20'000 20-inch photomultiplier tubes (PMTs) will be deployed in JUNO, of which each of them moreover has to fulfil dedicated quality requirements for several key characteristics (dark rate, PDE, peak-to-valley ratio etc.). For that purpose, two independent PMT testing systems have been developed: a PMT mass testing facility based on commercial shipping containers, capable to characterize all 20'000 PMTs individually, as well as a photocathode scanning system for uniformity and high resolution tests of at least a large subsample of PMTs. In this talk we shortly present the setups used for the PMT characterization and report about status, progress and preliminary results of the PMT testing campaign for JUNO.

Collaboration name

JUNO

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