Contribution ID: **413** Type: **Poster**

Calibration system of the JUNO experiment

Wednesday 27 August 2025 18:00 (2 hours)

The Jiangmen Underground Neutrino Observatory (JUNO) is the world's largest liquid scintillator detector, located in Jiangmen, South China. Its construction has been completed, and it is currently undergoing liquid scintillator filling. The central detector consists of an acrylic spherical vessel with an inner diameter of 35.4 m, filled with 20 kton of liquid scintillator. It is equipped with 17,612 20-inch and 25,600 3-inch photomultiplier tubes (PMTs) to collect photon signals. JUNO is a multi-purpose experiment designed to determine the neutrino mass ordering, precisely measure neutrino oscillation parameters, and detect neutrinos from both celestial and terrestrial sources, etc. To achieve an energy resolution better than 3% at 1MeV and an energy scale accuracy better than 1%, a comprehensive calibration system has been developed. This system can deploy multiple radioactive and laser sources at various positions inside and around the detector. Furthermore, the calibration strategy has been optimized based on Monte Carlo simulations. This poster will present the design and calibration strategy of the JUNO calibration system, along with its installation status.

Collaboration you are representing

JUNO

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Session Classification: Poster session

Track Classification: Neutrino Physics and Astrophysics