

## JUNO as 2 MeV Water Cherenkov Detector

*Wednesday 27 August 2025 18:00 (2 hours)*

The Jiangmen Underground Neutrino Observatory (JUNO) is a large spherical liquid scintillator detector primarily designed to determine the neutrino mass ordering. Its central detector is a 35-meter-diameter acrylic sphere filled with 20 kilotons of organic liquid scintillator. The detector features over 17,000 20-inch PMTs and over 25,000 3-inch PMTs, with a total coverage area of 78%. Thanks to the high PMT coverage, the JUNO detector has the potential to achieve a high light yield and an extremely low energy threshold.

JUNO is expected to complete the filling of liquid scintillator and begin formal operation in 2025. Prior to filling the liquid scintillator, JUNO was first filled with pure water, during which a series of calibration experiments and data collection were conducted. This study analyzed the water-phase calibration data from Am-Be and Am-C radioactive sources. Neutron capture events have been observed. These results demonstrated that JUNO as water Cherenkov detector can achieve an energy threshold as low as 2.2 MeV.

### Collaboration you are representing

JUNO

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