



Contribution ID: 86

Type: **Oral Presentations**

Construction of the JUNO Detector

Monday, 4 September 2023 17:30 (20 minutes)

The Jiangmen Underground Neutrino Observatory (JUNO) is a multi-purpose experiment with a 20 kton liquid scintillator (LS) detector of unprecedented 3% energy resolution (at 1 MeV) at 700 meter underground (1800 m.w.e.). The liquid scintillator target is contained in an acrylic sphere with a diameter of 35.4 meter, which is supported by a stainless steel latticed shell structure outside. There are about 18,000 20-inch photomultiplier tubes (PMTs) and 25,000 3-inch PMTs facing inwards and installed at the inner surface of stainless steel structure with extremely high photon coverage. The detector is located in a water pool which mitigates the natural radioactivity from the surrounding rocks. The onsite installation of the JUNO detector, which is expected to face enormous challenges and difficulties due to the huge size and high requirement, started in early 2022 after completing the civil construction. The stainless steel structure had been almost finished except the bottom area, which is also served as the transportation path during the acrylic vessel construction, and 120,000 sets of special bolts were used during assembly. Right after the construction of stainless steel structure, the on-site installation of the acrylic vessel started from top to bottom, which requires 263 huge acrylic panels to be bulk-polymerized layer by layer. The PMTs installation follows the acrylic sphere construction. The detector will be filled 20 kton LS in the acrylic vessel and 3.5 kton ultra-pure water in the water pool next year. This talk will focus on the construction status of the JUNO detector, and some key points during stainless steel and acrylic structure installation.

Primary author: Ms MA, Xiaoyan

Presenter: Ms MA, Xiaoyan

Session Classification: A2