

# The Jiangmen Underground Neutrino Observatory

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The Jiangmen Underground Neutrino Observatory (JUNO) is a multipurpose neutrino-oscillation experiment designed to determine the neutrino mass hierarchy as a primary physics goal, by detecting reactor antineutrinos from two power plants at 53-km distance. The detector is placed at 1800-m.w.e deep underground and consists on a 20 kiloton liquid scintillator volume contained in a 35m-diameter acrylic ball and instrumented by more than 17000 20-inch PMTs ensuring a 77% photocatode coverage. To reach an unprecedented 3% energy resolution (at 1 MeV), the PMTs need a maximum quantum efficiency of ~35% and the attenuation length of the liquid has to be better than 22m (at 430nm). This precision on the energy is a key point to determine at the 3-4 sigma significance level the neutrinos mass hierarchy with six years of running. The measurement of antineutrino spectrum will also lead to the precise determination of three out of the six oscillation parameters to an accuracy of better than 1%. The experiment will also be able to observe neutrinos from terrestrial and extra-terrestrial sources.

The international collaboration of JUNO was established in 2014, the civil construction has started in 2015 and the R&D of the detectors is ongoing. JUNO is planning to start data taking around 2020.

An overall picture of the detector as well as details on the different parts (inner target, water Cherenkov pool and muon tracker) and associated recent developments will be presented in this talk.

**Author:** BRUGIERE, Timothée (IPHC / CNRS-IN2P3)

**Presenter:** BRUGIERE, Timothée (IPHC / CNRS-IN2P3)

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