

JUNO Physics

Friday 31 July 2020 08:00 (15 minutes)

The Jiangmen Underground Neutrino Observatory is a 20 kton multi-purpose liquid scintillator detector currently being built in a dedicated underground laboratory in China, expected to start data taking in 2022.

JUNO's primary physics goal is the determination of the neutrino mass ordering, with an expected significance of 3-4 sigma in about six years of data taking, by measuring the oscillation pattern of electron antineutrinos coming from two nuclear power plants at a baseline of 53 km. To reach the proposed goal an unprecedented energy resolution of 3% at 1 MeV is needed.

Besides the main physics goal, JUNO will have a very rich physics program including the measurement of neutrino oscillation parameters with a sub-percent precision, and the detection of solar, galactic core-collapse supernova and atmospheric neutrinos. JUNO will also implement a dedicated multi-messenger trigger system to maximize the potential as a neutrino telescope. In addition JUNO will be a perfect observatory for nucleon decays.

In this talk I will give an overview on the JUNO physics potential, the experimental status, and the performances of the JUNO detector for the different physics cases.

Secondary track (number)

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