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Oscillation Physics in JUNO

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The Jiangmen Underground Neutrino Observatory (JUNO) is an upcoming multipurpose experiment focused on resolving the neutrino mass ordering, an open question of modern neutrino physics. With its 20-kton liquid scintillator target instrumented with 18000 20" PMTs and 25600 3" PMTs the JUNO detector will measure neutrino spectrum from nuclear reactors at about 53 km distance with 3% energy resolution at 1 MeV. It will allow to resolve the oscillation pattern driven by both the larger mass splittings (Δm_{231} and Δm_{232}) and the smaller one (Δm_{21}). This will allow JUNO alone to determine the correct mass ordering at a 3-sigma confidence level within 6 years and provide valuable input for joint analyses with other experiments. Besides that JUNO will measure three oscillation parameters: θ_{12} , Δm_{21} and Δm_{231} with better than 0.6% accuracy, largely improving the current precision.

Collaboration name

Juno Collaboration

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