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## Physics Potential of the Jiangmen Underground Neutrino Observatory

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### Summary

The Jiangmen Underground Neutrino Observatory (JUNO) is an underground 20 kton liquid scintillator detector being built in the south of China and expected to start data taking in late 2021. JUNO has a physics programme focused on neutrino properties using electron anti-neutrinos emitted from two nuclear power plants at a baseline of about 53 km. Its primary aim is to address one of the main open questions in neutrino physics: the neutrino mass ordering. Targeting an unprecedented relative energy resolution of 3% at 1 MeV, JUNO will be able to determine the mass ordering with a statistical significance of 3-4 sigma within six years of running. It will also measure other oscillation parameters to which reactor neutrinos at a medium baseline offer sensitivity, with an accuracy better than 1%. Thanks to the expected detector performance, JUNO will be able to tackle a wide range of neutrino physics topics. These include solar and atmospheric neutrinos, study of near-by Supernovae explosions; and a search for nucleon decays in a complementary way to the Cherenkov-based experiments.

JUNO's physics potential will be described comprehensively in this talk, where we will showcase the latest expectations for the above-mentioned analyses.

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