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## Physics Prospects of JUNO

The Jiangmen Underground Neutrino Observatory (JUNO) is a 20 kiloton multi-purpose liquid scintillator (LS) detector located in South China. With detector construction complete in late 2024, JUNO is currently taking data during the liquid scintillator filling phase, and the operation with full liquid scintillator is expected in the second half of 2025.

JUNO's primary goal is to determine the neutrino mass ordering, with an expected significance of  $3 - 4 \sigma$  in about six years, by observing the modulations in the energy spectrum of reactor electron antineutrinos from two nuclear power plants at 53 km. Additionally, JUNO's unprecedented energy resolution and target volume, will enable sub-percent precision measurements of oscillation parameters with just a few months of data and the observation of neutrinos from natural sources, including atmospheric, solar, astrophysical, and geo-neutrinos.

As JUNO prepares for full operation, this talk will explore its physics potential and the scientific opportunities ahead.

### Secondary track

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