Contribution ID: **1139** Type: **Parallel session talk**

Neutrino oscillation physics in JUNO

Thursday 18 July 2024 12:15 (15 minutes)

The Jiangmen Underground Neutrino Observatory (JUNO) is a multipurpose neutrino detector under construction in China. It is located 700 m underground, 53 km away from 8 nuclear reactors. It will use 20 kt of liquid scintillator surrounded by 17,512 20" photomultipliers and 25,600 3" photomultipliers to detect neutrino interactions with a 3% energy resolution at 1 MeV. JUNO's main physics goals are the determination of the neutrino mass ordering and the high-precision measurement of Δm^2_{21}, $\sin^2\theta_{12}$, and Δm^2_{31}.

I will present how JUNO can measure the reactor antineutrino oscillations to reach a 3σ sensitivity to the neutrino mass ordering with 6 years of data. JUNO can also measure atmospheric neutrino oscillations to enhance this sensitivity. After 6 years, JUNO will improve the current precision on Δm^2_{21}, $\sin^2\theta_{12}$, and Δm^2_{31} by an order of magnitude, achieving precision well below the sub-percent level.

Alternate track

I read the instructions above

Yes

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