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JUNO's prospects for determining the neutrino mass ordering

Thursday 9 September 2021 16:00 (15 minutes)

The flagship measurement of the JUNO experiment is the determination of the neutrino mass ordering. Here we revisit the prospects of the JUNO experiment to make this determination by 2030, using the current global knowledge of the relevant neutrino parameters as well as current information on the reactor configuration and the critical parameters of the JUNO detector.
We pay particular attention to the non-linear detector energy response.
Using the measurement of θ_{13} from Daya Bay, but without information from other experiments, we estimate the probably of JUNO determining the neutrino mass ordering at 3 or more sigma to be \%.
After a couple of years operation, JUNO will improve our knowledge of $\sin^2\theta_{12}$, Δm^2_{21} and $|\Delta m^2_{ee}|$, this will allow an updated estimate of JUNO's probability of determining the neutrino mass ordering.

Working group

WG1

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