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GNA fitter and Detector response impact on MH sensitivity study

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Abstract content

The Jiangmen Underground Neutrino Observatory (JUNO) is a 20kt liquid scintillator detector that will be located at Kaiping, Jiangmen city in South China. An energy resolution of 3% at 1 MeV is required to determine the neutrino mass hierarchy (MH) by spectral analysis. In this largest liquid scintillator detector, a good understanding of the position-dependence of the energy response is essential. The intrinsic non-linearity response of liquid scintillator, mainly originating from the quenching effect and Cherenkov light contribution, will cause distortion to the observed spectra. Their effects on neutrino MH sensitivity should be carefully evaluated.

In this poster, firstly, a brief introduction on the sensitivity analysis tool Global Neutrino Analysis (GNA) will be given. Then the procedure to include detector response in the fitter, such as non-linearity and non-uniformity, will be illustrated. Finally, preliminary results of their impacts on neutrino MH sensitivity will be shown.

Poster included in proceedings:

yes

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