Contribution ID: **212** Type: **Poster**

Study of hierarchy-independent determination of leptonic δ_{CP} at sub-GeV energies with long baseline neutrinos

The value of leptonic CP violation phase δ_{CP} and neutrino mass hierarchy are two of the current major open problems in neutrino oscillation physics. The quest to find the former is spearheaded by various accelerator-based long-baseline neutrino experiments sensitive to δ_{CP}. It is known that hierarchy-δ_{CP} ambiguity can affect the measurement of both parameters, and experiments are usually designed to have baselines and energies to eliminate this ambiguity. It is known from studies of sub-GeV atmospheric neutrinos that δ_{CP} can be determined irrespective of neutrino mass ordering at these energies. Here we explore the possibility of obtaining hierarchy independent measurement of δ_{CP} with sub-GeV ν and $\bar{\nu}$ events in accelerator based long-baseline experiments. Event rates are studied as a function of the energy (E_ℓ) and direction ($\cos\theta_\ell$) of the final state lepton produced during charged current ν and $\bar{\nu}$ interactions.

Working group

WG1

Author: S PRABHU, Yashwanth

Presenter: S PRABHU, Yashwanth

Session Classification: Poster session NB: do not use Safari; use Firefox, Chrome or Edge