

Short-baseline oscillation measurements at T2K

Thursday 28 August 2014 12:00 (20 minutes)

The T2K experiment has searched for electron-neutrino disappearance in a electron-neutrino flux at short base-line due to oscillation to sterile neutrinos. The reactor and gallium anomalies, not explainable by the three neutrino framework and compatible with the hypothesis of a new mass eigenstate of $\sim 1eV^2$, are tested with the near detector (ND280) of T2K. At 280m from the hadron production point and with an average electron-neutrino energy of $\sim 500MeV$, ND280 is sensitive to non-standard neutrino oscillations for a neutrino mass difference of $\sim 2eV^2$. The analysis of the electron-neutrino interaction rates as well as a good understanding of the backgrounds allow to constrain the oscillation parameter space and to reject some regions of the gallium and reactor anomalies. On the other hand, the performances of the future nuPRISM detector on searches of electron-neutrino appearance at short base-line will be also discussed.

WG3: Accelerator Physics (Yes/No)

No

WG2: Neutrino Scattering Physics (Yes/No)

No

WG4: Muon Physics (Yes/No)

No

WG1: Neutrino Oscillation Physics (Yes/No)

Yes

Type of presentation

Oral presentation

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Session Classification: WG1: Neutrino Physics