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Neutrino Oscillation Results from The Latest T2K Analysis and from A Joint Analysis between T2K Beam and Super-Kamiokande Atmospheric

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Tokai-to-Kamioka (T2K) is a long baseline neutrino oscillation experiment in Japan. A (anti-)muon neutrino beam with energy peak ˜0.6GeV is produced at Japan Proton Accelerator Research Complex (J-PARC) in Tokai, propagates through 295km and is observed in the far detector Super-Kamiokande (SK). T2K can perform precise measurements in the muon neutrino disappearance channel, i.e. ⊠!" and |Δ⊠"! ! |, as well as search for CP violation in the electron neutrino appearance channel. This talk will introduce the latest oscillation analysis from T2K with 3.77 × 10!# protons on target. As a water Cherenkov detector, SK has a strong discriminating power between electrons and muons produced from neutrino-nucleon interactions and can observe diSerent sources of neutrinos with energy from a few MeV to a few hundred GeV. The atmospheric neutrino events observed at SK with various baseline lengths and the Earth matter eSect give SK additional sensitivity to the neutrino mass ordering. A joint oscillation analysis between the T2K beam and SK atmospheric neutrinos has the potential to break the degeneracy of ⊠$% and mass ordering. In addition to the latest T2K results, this talk will also present the first oscillation results from the joint analysis.

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