Contribution ID: **83** Type: **Oral report**

Neutrino Oscillation Analysis with Combined Data from Super-Kamiokande and T2K

The CP-violating phase (δ_{CP}) and the ordering of the neutrino mass states (MO) remain among several open questions surrounding PMNS matrix in neutrino oscillation. However, these issues can't be solved by a single experiment so far. Atmospheric neutrino data at Super-Kamiokande (Super-K) and accelerator neutrino data at T2K offer complementary sensitivity to these puzzles. The joint measurement of neutrino oscillation parameters from both experiments can help to break the degeneracy between the δ_{CP} and MO observed in T2K. In addition, as both neutrino sources are observed at the same detector (Super-K) and their neutrino interactions with materials share the same models at low energy, there is a clear benefit to analyzing the data sets together.

This presentation will report the first joint oscillation analysis from both experiments, which uses a common interaction model for events overlapping in neutrino energy and correlated detector systematic uncertainties between the two datasets. Using 3244.4 days of atmospheric data and a beam exposure of 19.7(16.3) × 10^{20} protons on target in (anti)neutrino mode, this study finds a 1.9σ exclusion of CP-conservation and a preference for the normal mass ordering.

Primary author: HU, Jianrun (Kyoto University)

Presenter: HU, Jianrun (Kyoto University)

Track Classification: 中微子物理、粒子天体物理与宇宙学