

Precision measurement of muon neutrino disappearance by T2K

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T2K is a long-baseline neutrino oscillation experiment, where a muon neutrino beam is produced at the J-PARC facility and detected by Super-Kamiokande, a water Cherenkov detector with a 22.5 kton fiducial mass, after traveling 295 km. One aim of the experiment is to precisely determine the mixing angle θ_{23} and the mass squared difference Δm^2_{23} using a measurement of muon neutrino disappearance. The T2K accumulated dataset is 6.57×10^{20} protons on target, which is 8% of the experimental goal. In this talk, we will present an analysis of the T2K muon neutrino disappearance data and the world's best constraint on the value of the mixing angle θ_{23} obtained by this analysis. Future prospects, including running with antineutrino-mode beam and continued analysis improvements, will also be shown.

Primary author: Mr REINHERZ-ARONIS, Erez (Colorado State University)

Presenter: Mr REINHERZ-ARONIS, Erez (Colorado State University)

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