

A Second Oscillation Feature using Atmospheric Neutrinos

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Neutrino oscillation experiments using neutrino beams achieve high sensitivity to oscillation parameters by restricting the range of L/E values probed to be near a theoretical maximum disappearance probability. However, these experiments are insensitive to the oscillation phenomena predicted across a broad range of L/E values. Atmospheric neutrinos have energies spanning hundreds of MeV to several TeV and are detected over baselines between 15-13,000 km, covering four orders of magnitude in L/E . We present an analysis of the highest-resolution events from 6511 live-days of Super-Kamiokande atmospheric neutrino data to explore the oscillation region beyond the first muon neutrino disappearance maximum. We report prospects for measurements of neutrino oscillation parameters and a model-independent significance of multiple oscillation features in the ratio between oscillated data and the un-oscillated prediction.

Poster prize

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