

T2K results on electron neutrino appearance in a muon neutrino beam

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The T2K (Tokai to Kamioka) long-baseline neutrino experiment searches for the appearance of electron neutrinos in a 0.7 GeV muon neutrino beam as it travels 295km between Tokai, Japan and the Super-Kamiokande detector. The rate of this process is sensitive to the neutrino mixing angle θ_{13} and the CP-violating phase δ of the PMNS mixing matrix. A sophisticated suite of beam monitors and near detectors constrain the neutrino beam flux and composition at its production point. I will present updated results from a search for electron neutrino appearance using all T2K data up to May 2012, and place the results in the context of the global picture of θ_{13} measurements. I will also review T2K's results on muon neutrino disappearance and discuss future prospects for long-baseline neutrino experiments.

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