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Joint Analysis of Muon Neutrino Disappearance and Electron Neutrino Appearance using Markov Chain Monte Carlo

The Tokai-to-Kamioka (T2K) experiment is an accelerator-based long baseline neutrino experiment with sensitivity to both muon neutrino disappearance and muon neutrino to electron neutrino appearance oscillation modes. While the two modes are primarily sensitive to different oscillation parameters, correlations between the parameters can have significant effects in the analysis. Analyzing the two modes jointly can correctly take into account these correlations; this poster discusses such an analysis of the two neutrino oscillation modes using a Markov Chain Monte Carlo, including results in combination with reactor neutrino experiments. Novel computing techniques for this method are also discussed.

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Track Classification: Long Baseline Oscillations