

Future Neutrino Oscillation Sensitivities for LBNE

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The primary goal of the Long-Baseline Neutrino Experiment (LBNE) is to measure the neutrino mixing matrix parameters. The design, optimized to searching for CP violation and determining the neutrino mass hierarchy, includes a large ($\mathcal{O} 10 kt$) Liquid Argon Time Projection Chamber (LAr TPC) at 1300 km downstream of a wide band neutrino beam. A brief introduction to the neutrino mixing parameters will be followed by a discussion of sensitivity study analysis methods and a summary of LBNE sensitivities. The studies include comparisons with the Tokai to Kamioka (T2K) and NuMI Off-Axis Electron-neutrino Appearance (NOvA) experiments as well as combined sensitivities. Finally, the impact of including a realistic set of systematic uncertainties will be presented.

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