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Systematic Uncertainty in LBNE Measurements of Long-Baseline Neutrino Oscillation

Excellent control of systematic uncertainty will be critical to LBNE's success in the study of long-baseline neutrino oscillation. Discovery level sensitivity to CP violation across a significant fraction of the allowed parameter space requires thousands of fully reconstructed and well characterized events, low background, and exposures of hundreds of kt-MW-years. Systematic uncertainties are required to be below statistical uncertainties so as not to limit the discovery potential. In this poster, we present ideas for the analysis strategy LBNE will employ to minimize the impact of systematic uncertainty, an estimate of expected systematic uncertainties based on experience with recent neutrino-oscillation experiments, and the status of studies using LBNE-specific tools to evaluate systematic uncertainty and physics sensitivity in LBNE.

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