

Abstract Submitted  
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**Beam Systematic Studies for the Long Baseline Neutrino Experiment** TIMOTHY WATSON, University of Texas at Arlington — The Long Baseline Neutrino Experiment (LBNE) at Fermi National Accelerator Laboratory in Batavia, Illinois, will be the largest accelerator-based study of neutrinos ever performed when it comes online in 2025. It is poised to be the flagship of U.S. particle physics in the coming decades. One of the main goals of LBNE is to examine the newly confirmed phenomena of neutrino oscillation. Such an experiment demands a very high level of precision stemming from high intensity proton beams. To this end, the UTA High Energy Physics group has been leading systematic studies of the neutrino beam and design optimization of the beamline, primarily responsible for neutrino generation. Presented here are the studies of two systematic effects on the spectrum of the neutrino energies in the detector, resulting from the variations of the target density and the incident proton beam angle on target.

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