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Systematic Uncertainty Studies in the LBNE Fast Monte Carlo
JEREMY HEWES, The University of Manchester, DANIEL CHERDACK, Colorado State University, LBNE COLLABORATION — In future long-baseline neutrino experiments, comprehensive understanding of systematic uncertainty will be critical in making simultaneous precision measurements of the CP-violating phase δ_{cp} and the ordering of neutrino mass states. The sensitivity of LBNE to these parameters is studied using My GLoBES Tools (MGT), a software package which extends GLoBES using inputs from LBNE MC simulations of beamline, neutrino interactions and parameterisations of detector response & event reconstruction. This simulation chain is referred to as the LBNE Fast Monte Carlo. Using MGT and the Fast MC, detailed studies can be performed on the effect of individual sources of systematic uncertainty on experimental sensitivity, encompassing flux models, neutrino interaction models, particle identification and energy estimation. The impact of a subset of these uncertainties on the sensitivity of an experiment at LBNF will be presented, with a particular focus on those systematics which contribute most strongly to sensitivity degradation.

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