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A Fast MC for LBNE DANIEL CHERDACK, BOB WILSON, MATT BASS, Colorado State University, LBNE COLLABORATION — The Long Baseline Neutrino Experiment (LBNE) science collaboration seeks to build a large ($\mathcal{O}$ 10 kt) Liquid Argon Time Projection Chamber (LAr TPC) neutrino detector 1300 km downstream of a wide band neutrino beam originating at Fermi National Accelerator Lab. Optimization of the beam and detector design to maximize sensitivity to the neutrino mass hierarchy (MH), and the CP violating phase, δ_{CP}, requires a full Monte Carlo (MC) simulation. Since much of the full MC simulation is still under development, a Fast MC simulation has been implemented. The Fast MC utailizes the more mature and less CPU intensive components of the full MC chain, namely the beam simulation and physics interaction models, while replacing the detector response and event reconstruction with parameterizations. In addition, a rudimentary event selection algorithm is used to isolate analysis samples. Combined with a modified version of GLoBES, the Fast MC can propagate systematic uncertainties and the effects of design changes to sensitivity calculations. Preliminary estimates of analysis sample event rates and systematic uncertainties generated using the Fast MC, and the resulting predictions for sensitivity to MH and CP violation will be presented.

Daniel Cherdack
Colorado State University

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