Crosscheck of GLoBES Sensitivity Calculations For LBNE
JONATHAN INSLER, Louisiana State University, LONG-BASELINE NEUTRINO
EXPERIMENT COLLABORATION — The proposed Long Baseline Neutrino Experiment (LBNE) aims to precisely measure neutrino oscillation parameter θ_{13}, determine neutrino mass hierarchy, and detect possible CP violation in the neutrino sector. We use GLoBES, a software package created to simulate long baseline neutrino experiments, to predict the sensitivity of the proposed 200 kiloton water Cherenkov detector to the above parameters. In particular, we are interested in quantifying the effects of the detector's energy resolution and energy bias on the sensitivity. We have performed an independent crosscheck of GLoBES's sensitivity calculations with an ensemble of toy Monte Carlo data sets to test GLoBES's treatment of systematic uncertainties such as energy resolution and bias.

Jonathan Insler
Louisiana State University

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