

The DUNE Experiment and its sensitivity to CP Violation

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DUNE, the DEEP Underground Neutrino Experiment, will be a groundbreaking experiment for long-baseline neutrino oscillation studies. Planning of DUNE continues to proceed rapidly. The DUNE Far Detector will consist of four 10-kiloton fiducial volume modular liquid argon time-projection chambers (LArTPC) placed deep underground at the Sanford Underground Research Facility in Lead, South Dakota, USA. The Far Detector will be coupled to the LBNF multi-megawatt wide-band neutrino beam planned for Fermilab. Its primary physics goals are determining the neutrino mass hierarchy and measuring δ_{CP} with sufficient sensitivity to discover CP violation in neutrino oscillation. CP violation sensitivity in DUNE requires careful understanding of systematic uncertainty, with contributions expected from uncertainties in the neutrino flux, neutrino interactions, and detector effects. In this presentation, we will describe the expected sensitivity of DUNE to long-baseline neutrino oscillation parameters, how various aspects of the experimental design contribute to that sensitivity.

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