

Overview of DUNE

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The Deep Underground Neutrino Experiment (DUNE) is a next-generation long-baseline experiment. DUNE will utilize a high-intensity neutrino beam produced at Fermilab and will measure electron-neutrino appearance and muon-neutrino disappearance with its 40 kiloton Liquid Argon far detector at the Sanford Underground Research Facility (SURF) in Lead, South Dakota, 1300 km from Fermilab. The goals of DUNE are studies of neutrino oscillations, including CP violation and neutrino mass hierarchy determination, and searches for nucleon decays and supernova neutrinos, as well as precision neutrino physics at the near site.

The DUNE far detectors are based on liquid argon time projection chamber (LArTPC) technology, which offers an excellent spatial resolution, high neutrino detection efficiency, and superb background rejection. Two large DUNE far detector prototypes, in both single phase LArTPC (ProtoDUNE-SP) and dual phase LArTPC (ProtoDUNE-DP) technologies, are under construction and will be operated at the CERN Neutrino Platform (NP) starting in late 2018.

In this talk, we will give an overview of the physics program and current status of the DUNE experiment.

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