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The DUNE Experiment

The Long Baseline Neutrino Facility (LBNF) will consist of a 1.2-megawatt proton beam neutrino source at Fermilab in Illinois, sending high-energy neutrinos to large liquid argon detectors located 1300 kilometers away and a mile underground at the Sanford Underground Research Facility in South Dakota. The detectors will be constructed and operated by the international Deep Underground Neutrino Experiment (DUNE) collaboration. The principle goals of this experiment are a comprehensive investigation of neutrino oscillations to test CP violation in the lepton sector, determining the ordering of the neutrino masses, and testing the three-neutrino paradigm. The experiment will perform a broad set of neutrino scattering measurements with the near detector and exploit the large, high-resolution, underground far detector for non-accelerator physics topics including atmospheric neutrino measurements, searches for nucleon decay, and measurement of astrophysical neutrinos especially those from a core-collapse supernova.

Summary

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