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The Physics Program of the DUNE Experiment

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The Deep Underground Neutrino Experiment (DUNE) is a next-generation long-baseline neutrino experiment. DUNE consists of an intense neutrino beam fired a distance of 1300 km from the Fermi National Accelerator Laboratory to the 40,000 ton Liquid Argon DUNE detector, located deep underground in the Homestake mine in South Dakota.
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.

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