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DUNE experiment physics

The Deep Underground Neutrino Experiment (DUNE) will feature a 40-kton liquid argon TPC detector situated a mile below the surface at the Sanford Underground Research Facility. A new broadband high-intensity neutrino source and Near Detector complex will be located at Fermilab, 1300 kilometers away. This arrangement will provide unprecedented sensitivity in the search for neutrino CP violation, determination of the neutrino mass ordering, and precision measurements of neutrino mixing parameters. The underground Far Detector also allows for low background, low threshold observations of supernova neutrinos, with a unique sensitivity to the electron neutrino flux. Further, DUNE will conduct a wide range of searches for physics beyond the Standard Model, including baryon number violation, rare scattering processes, and non-standard flavor transitions. In this talk, we review DUNE's extensive physics program and show updated sensitivities.

Working group

WG1

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