Contribution ID: **869** Type: **Parallel**

DUNE Status and Science

Tuesday 8 July 2025 16:30 (20 minutes)

The Deep Underground Neutrino Experiment (DUNE) is a next–generation, long–baseline and dual–site neutrino experiment. It will be composed of the most powerful muon–neutrino beam and two detectors: a near detector (ND) located at Fermilab and a far detector (FD) 1300 km apart at the Sanford Underground Research Facility (SURF). The chosen baseline and a 40–kt fiducial liquid argon mass will ensure high sensitivity measurements of the oscillation parameters. Moreover, proton decay and supernova neutrino burst searches could be performed. DUNE will resolve the neutrino mass ordering with 5σ precision, for all δCP values, after 2 years of running with the nominal detector design and beam configuration. It also holds the potential to detect charge-parity violation in the neutrino sector with 3σ (5σ) precision after 5 (10) years, for 50% of all δCP values. The current status and timeline of the project will also be discussed.

Secondary track

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Session Classification: T03

Track Classification: T03 - Neutrino Physics