

Probing Beyond the Standard Model Physics with the Deep Underground Neutrino Experiment

venerdì 21 giugno 2024 17:30 (2 ore)

The Deep Underground Neutrino Experiment (DUNE) international project, currently under construction, will enable an exciting program for precision neutrino physics and beyond. Two multidetector facilities will be exposed to the world's most intense neutrino beam: the Near Detector complex will measure the beam flux and composition 575 m downstream of the production target, at Fermilab; and the Far Detector complex, including up to four 17 kton modules utilizing LArTPC technology, will remeasure the beam 1300 km away, when installed about 1.5 km deep in the Sanford Underground Research Facility in South Dakota.

The combination of the high-intensity Long-Baseline Neutrino Facility (LBNF) beam with DUNE's highly-capable Near Detector and large-volume high-resolution Far Detector with low cosmic backgrounds opens up prospects for a rich program of Beyond the Standard Model (BSM) physics searches. These searches include discovery of new particles (sterile neutrinos, dark matter, heavy neutral leptons, etc.), precision tests of the neutrino mixing matrix including non-standard neutrino interactions, and the detailed study of rare processes (e.g. neutrino trident production). In this poster, we will present promising opportunities for BSM Physics probes with DUNE, and discuss their potential impact and outcomes.

Poster prize

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Collaboration (if any)

DUNE (Deep Underground Neutrino Experiment)

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Classifica Sessioni: Poster session and reception 2

Classificazione della track: Beyond Standard Model searches in the neutrino sector