



Contribution ID: 56

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Solar and supernova neutrinos in DUNE

Thursday, October 2, 2025 9:50 AM (20 minutes)

The Deep Underground Neutrino Experiment (DUNE) will provide a unique opportunity to simultaneously measure the oscillation parameters in the high (GeV) and low (few MeV) energy regimes. DUNE's liquid argon time projection chamber (LArTPC) technology provides a charged-current (CC) and an elastic-scattering (ES) interaction channel that, when simultaneously exploited, enable precision measurements of the ^8B solar neutrino flux and offer the opportunity to make the first measurement ever of the much smaller hep solar neutrino flux. Additionally, DUNE will be uniquely sensitive to electron-flavour neutrinos from galactic core-collapse supernovae; it will play a key role in complementing water Cherenkov and scintillator detectors, providing a wealth of information about the early stages of core collapse.

This talk will present recent simulations for DUNE's expected sensitivity to supernova and solar neutrinos, and discuss strategies for mitigating the backgrounds of such challenging measurements.

Neutrino Properties

experimental measurements of oscillation parameters

Neutrino Telescopes & Multi-messenger

supernova and solar neutrinos

Neutrino Theory & Cosmology

N/A

Data Science and Detector R&D

N/A

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