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Investigations of the MiniBooNE anomaly and sterile neutrinos with MicroBooNE

Thursday, October 2, 2025 9:10 AM (20 minutes)

MicroBooNE uses a liquid argon time projection chamber (LArTPC) detector to investigate the observed anomalous low energy excess (LEE) of single electromagnetic shower events reported by the MiniBooNE experiment. After five years of data taking from two accelerator beamlines at Fermilab, MicroBooNE has recently published results testing explanations for the MiniBooNE anomaly, including three single-photon searches spanning multiple underlying processes and topologies, and an electron neutrino search utilizing the full 5-year dataset collected with the Booster Neutrino Beam (BNB). Additionally, we present the status of MicroBooNE's 3+1 sterile neutrino oscillation analysis leveraging both the BNB and Neutrinos at the Main Injector (NuMI) beamlines.

Neutrino Properties

Yes

Neutrino Telescopes & Multi-messenger

No

Neutrino Theory & Cosmology

No

Data Science and Detector R&D

No

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