NNN25

International Workshop on Next Generation Nucleon Decay and Neutrino Detectors

October 1-3, 2025

SNOLAB sudbury

Contribution ID: **5** Type: **Plenary Talk**

Exploring BSM Physics and Neutrino Interactions with MicroBooNE

Wednesday, October 1, 2025 3:00 PM (25 minutes)

The MicroBooNE experiment uses an 85-ton liquid argon time projection chamber to detect neutrinos from Fermilab's Booster Neutrino Beam (BNB) and off-axis NuMI beam. Its physics program has three main goals. First, it explores beyond-standard-model (BSM) physics by searching for dark sector particles, investigating the MiniBooNE Low Energy Excess, and probing light eV-scale sterile neutrinos. Second, MicroBooNE has produced one of the world's largest neutrino-argon scattering datasets, with results spanning inclusive, exclusive, and rare interaction channels, including novel neutron detection methods. Third, it drives advances in LArTPC technology, supporting future experiments like DUNE. This talk will review recent MicroBooNE results and innovative analysis techniques shaping modern neutrino physics.

Submitter Email

smartynen@bnl.gov

Submitter Name

Sergey Martynenko

Submitter Institution

Brookhaven National Laboratory

Primary author: MARTYNENKO, Sergey (Brookhaven National Laboratory)

Presenter: MARTYNENKO, Sergey (Brookhaven National Laboratory)

Session Classification: Plenary Talks

Track Classification: Plenary Talk: Contributed Talk