

## Searching for anomalous photon and dark-sector $e^+e^-$ pairs in the MicroBooNE detector

*Monday, 16 September 2024 14:25 (20 minutes)*

The MicroBooNE experiment features a liquid argon time projection chamber (LArTPC) within Fermilab's Booster Neutrino Beam. LArTPC technology distinguishes between electron and photon interactions, crucial for identifying the source of the long-standing anomalous excess reported by MiniBooNE. Initial MicroBooNE results have challenged the electron interpretation and achieved the world's most sensitive search for neutrino-induced single-photon production. This presentation provides a comprehensive overview of recent advancements and showcases new and improved analyses at MicroBooNE, offering a more model-independent probe of the photon sector. Additionally we will introduce a new direction of focused searches aimed at exploring "Beyond the Standard Model" scenarios, which involves investigating exotic  $e^+e^-$  pair production that could be attributed to neutrinos acting as a portal to a potential "Dark Sector" of new physics.

### Working Group

WG 1: Neutrino Oscillation Physics

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**Session Classification:** Parallel: WG5

**Track Classification:** WG5: Neutrino Beyond PMNS