

# Latest results from MicroBooNE's Low Energy Excess Search and Constraints on eV-Scale Sterile Neutrino Oscillations

Thursday 18 July 2024 09:45 (15 minutes)

The MicroBooNE experiment utilizes liquid argon time projection chamber to detect neutrinos emanating from Fermilab's Booster Neutrino Beam (BNB) and the Neutrinos at the Main Injector (NuMI) beam. MicroBooNE is investigating the observed low energy excess (LEE) of electron neutrino and antineutrino charged current quasielastic events reported by the MiniBooNE experiment. This presentation will report on the search for an electron neutrino excess compatible with the MiniBooNE LEE utilizing the full 5-year dataset of 11e20 POT collected with the BNB from MicroBooNE. Additionally we present the status of searches for short baseline neutrino oscillations within the framework of a 3+1 eV-scale sterile neutrino model. This work combines data from both the BNB and NuMI beams leveraging their substantially different  $\nu_e/\nu_\mu$  ratios to mitigate degeneracy resulting from the cancellation of  $\nu_e$  appearance and disappearance allowing to greatly enhance the experiment's sensitivity.

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