Contribution ID: **430** Type: **Parallel talk**

Sterile neutrino searches at the MicroBooNE experiment

Tuesday, August 29, 2023 2:00 PM (15 minutes)

he MicroBooNE experiment employs an 85-ton active volume liquid argon time projection chamber to detect neutrinos from both the on-axis Booster Neutrino Beam (BNB) and off-axis Neutrinos at the Main Injector (NuMI) beam. The objective of this investigation is to identify short baseline neutrino oscillations in a 3+1 sterile neutrino model and compare our results to previous anomalies found in experiments such as LSND, Neutrino-4, and gallium anomalies.
To achieve our goal, we utilize high-performance charged current electron neutrino and muon neutrino selections, as well as a powerful electron/photon discrimination. In this presentation, we will detail our results on this sterile neutrino search from MicroBooNE using the BNB beam. Additionally, we will examine the impact of a degeneracy resulting from the cancellation of electron neutrino appearance and disappearance, and demonstrate that combining data from the BNB and NuMI beams, which have substantially different electron to muon neutrino ratios, can break this degeneracy.

Submitted on behalf of a Collaboration?

Yes

Authors: Dr GRAMELLINI, Elena (University of Manchester); MICALLEF, Jessie (Tufts University (and MIT))

Presenter: MICALLEF, Jessie (Tufts University (and MIT))

Session Classification: Neutrino physics and astrophysics

Track Classification: Neutrino physics and astrophysics