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First Results from MicroBooNE's Low Energy Excess Search and Constraints on eV-Scale Sterile Neutrino Oscillations

Monday 27 June 2022 16:00 (20 minutes)

The MicroBooNE collaboration recently released a series of measurements aimed at investigating the nature of the excess of low energy electromagnetic interactions observed by the MiniBooNE collaboration. In this talk, we will present the latest results from both a search of single photons in MicroBooNE, as well as a series of three independent analyses leveraging different reconstruction paradigms which look for an anomalous excess of electron neutrino events. We additionally will highlight new results that use these well-understood selections to perform a search for an eV scale sterile neutrino in the 3+1 oscillation framework. Constraints are presented for regions of sterile neutrino oscillation parameter space relevant to the Gallium/Reactor ν_e disappearance anomaly and LSND/MiniBooNE ν_e appearance anomalies.

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