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Recent Results from the MicroBooNE experiment

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MicroBooNE is an 85-tonne liquid argon time projection chamber (LArTPC) at Fermilab. It collected data from two different neutrino beam lines between 2015 and 2020 and has since released a large number of results. These include searches for beyond the standard model (BSM) physics, including investigation into an anomalous excess of low energy (LEE) electromagnetic activity observed by the MiniBooNE experiment. MicroBooNE has looked for the LEE across various channels, including dark photons, single-photon, and electron neutrinos. MicroBooNE also has a vast program of neutrino-argon cross-section measurements that will provide input into the modelling of neutrino-argon nucleus interaction modelling in advance of the future LArTPC-based experiment DUNE.

In particular, MicroBooNE has produced first charged pion production measurements which will be one of the main interaction channels at DUNE's beam energies, and electron neutrino measurements which will be the appearance channel for DUNE's neutrino oscillation program, complementing muon disappearance channels to allow for a CP violation measurement.

This talk will discuss the most recent BSM results and cross-section measurements from MicroBooNE.

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