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Astroparticle and Beyond the Standard Model Capabilities and Results from MicroBooNE

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MicroBooNE is an 85-ton active mass liquid argon time projection chamber (LArTPC) at Fermilab. Its excellent calorimetry and resolution (both spatial and energy), along with its exposure to two neutrino beamlines make it a powerful detector not just for neutrino physics, but also for Beyond the Standard Model (BSM) physics and astroparticle physics. The experiment has competitive sensitivity to heavy neutral leptons possibly present in the leptonic decay modes of kaons, and also to scalar bosons that could be produced in kaon decays in association with pions. In addition, MicroBooNE serves as a platform for prototyping searches for rare events in the future Deep Underground Neutrino Experiment (DUNE). This talk will explore the capabilities of LArTPCs for BSM physics and astroparticle physics and highlight some recent results from MicroBooNE.

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