

Neutrino-Argon Cross Sections for Rare Processes in MicroBooNE

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The MicroBooNE detector is a liquid argon time projection chamber (LArTPC) that operated in both the Booster Neutrino and the Neutrinos at the Main Injector beams at Fermilab. The LArTPC detector technology provides excellent spatial resolution and particle discrimination capabilities. From 2015 through 2021, MicroBooNE accumulated the world's largest neutrino-argon scattering data set, which enables searches targeting rare interaction channels. An example of such a channel is the Cabibbo-suppressed production of hyperons in antineutrino-argon interactions, which provides sensitivity to a range of effects, including second class currents, SU(3) symmetry violations and reinteractions between the hyperon and the nuclear remnant. This talk presents the status of the MicroBooNE effort studying rare scattering processes, including progress towards the first measurement of muon-antineutrino-induced hyperon production on argon.

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