

## Pion Production Cross Sections and Rare Searches with MicroBooNE

*Thursday, 19 September 2024 17:03 (24 minutes)*

Understanding neutrino-argon interactions with final-state pions or rare processes is vital for current and future argon-based neutrino experiments. In particular, interactions with pions will dominate the event rate observed at the forthcoming Deep Underground Neutrino Experiment and will be major backgrounds to appearance searches. Meanwhile, rare final states, such as those including  $\Lambda$ ,  $K$ , and  $\eta$  hadrons, provide unique sensitivities to the interplay between nucleon-level cross-section physics and nuclear-level physics and correspond to some of the most dominant backgrounds that will be observed at forthcoming high-precision neutrino experiments. MicroBooNE, a liquid argon time projection chamber, can measure these interactions. This talk showcases MicroBooNE's measurements on argon for neutrino events resulting in the production of pions and rare topologies in the final state.

### Working Group

WG 2: Neutrino Scattering Physics

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