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Hadron-argon Cross Section Measurements in ProtoDUNE

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Modern accelerator-based neutrino experiments use complex nuclei, such as argon, as neutrino targets that rely on nuclear models to unfold the reconstructed neutrino energy to the true neutrino energy. The nuclear effects complicate the neutrino oscillation measurements and are not well-understood, and there are very limited measurements of hadron cross sections on argon. ProtoDUNE-SP, a prototype liquid argon time projection chamber for the DUNE far detector, collected data from a hadronic test beam at CERN in 2018, including protons, pions and kaons in the range 1 to 7 GeV/c. In this talk, we will present the status and results of the many hadron-argon cross-section analyses, and plans for a second data-taking period at the end of this year.

In-person participation

No

Primary author: LIAO, Heng-Ye**Co-author:** WHITEHEAD, Leigh**Presenter:** LIAO, Heng-Ye**Session Classification:** Poster Session**Track Classification:** Neutrino Physics