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**Using Transverse Kinematic Imbalance to Probe Intranuclear Dynamics in Pion Scattering on Argon in ProtoDUNE** KANG YANG, University of Oxford, DUNE COLLABORATION<sup>1</sup> — Nuclear effects in neutrino-nucleus scattering contribute a large systematic uncertainty in the search of CP violation in the lepton sector. Reducing the uncertainty and placing stringent constraints on our nuclear model in neutrino generators are critical for DUNE. The analysis on transverse kinematics imbalance can probe the intranuclear dynamics in argon and also provide a better understanding of our detector response to hadrons in ProtoDUNE. In this talk, I will report the physics analysis of argon nuclear effects using ProtoDUNE beam data in this novel approach.

<sup>1</sup>on behalf of the DUNE collaboration

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