

Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

Studying Short-Range Nucleon-Nucleon Correlations in Ar⁴⁰ with MicroBooNE¹ SAMANTHA SWORD-FEHLBERG, New Mexico State University, THE MICROBOONE COLLABORATION COLLABORATION — Short-range nucleon-nucleon correlations (SRCs) are states in which the wavefunctions of two or more nucleons overlap for a short period of time. This period of strong overlap causes the correlated pair of nucleons to form a quasi-deuteron whose internal relative momentum is larger than the Fermi-momentum. When a correlated pair interacts with a leptonic probe, the two correlated nucleons are ejected from the nucleus with a definite momentum and angle with respect to each other. Although SRCs have been studied in great detail in electron-scattering experiments, their contributions to neutrino cross-section measurements are not well understood. Using the MicroBooNE detector, a liquid-argon time projection chamber located along the Booster Neutrino Beamline ($\langle E_\nu \approx 0.8 \text{ GeV} \rangle$) at Fermi National Accelerator Laboratory, we have developed an exclusive charged-current selection with 1 muon and 2 protons to compare with predictions from new nuclear models that contain the addition of SRC effects. We present here the status of this work.

¹This work is supported by the US Department of Energy, Office of Science, Medium Energy Nuclear Physics Program.

Samantha Sword-Fehlberg
New Mexico State University

Date submitted: 26 Jun 2020

Electronic form version 1.4