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**Measurement of the expected 57 keV neutron anti-resonance in $^{40}$Ar using a time of flight neutron beam**[1] TYLER ERJAVEC, University of California, Davis, ARTIE COLLABORATION — A measurement of the transmission coefficient for neutrons through a thick (∼3 atoms/b) natural liquid argon target in the energy range 40-70 keV has been performed by the Argon Resonance Transmission Interaction experiment (ARTIE) using a time of flight neutron beam at Los Alamos National Laboratory (LANL). In this energy range theory predicts an anti-resonance in the $^{40}$Ar cross section near 57 keV, but the existing data, coming from an experiment performed in the 90s (Winters. et al.), do not support this. The goal of ARTIE is to resolve this disagreement by improving knowledge of neutron transport in argon. This measurement is crucial for the Deep Underground Neutrino Experiment (DUNE) because it provides a viable means of calibration via a Pulsed Neutron Source (PNS), and allows a deeper understanding of signals and backgrounds for the low energy science program.

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