

Abstract Submitted
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Finding Neutrons in the NOvA Near Detector MIRANDA ELKINS,
Iowa State University, NOVA COLLABORATION — NOvA is a long-baseline neutrino oscillation experiment which measures electron (anti)neutrino appearance and muon (anti)neutrino disappearance using neutrinos originating from the NuMI Beam at Fermilab. NOvA uses these observations to constrain several neutrino oscillation parameters such as: the CP violating phase, the atmospheric mass squared difference, and the largest mixing angle. It is critical to understand the sources of systematic uncertainties to make precise measurements of these parameters and to make improvements for future analyses. One key systematic for the antineutrino measurements stems from limited understanding of how neutrons interact in the NOvA detectors. This talk presents newly developed techniques for identifying neutron energy depositions in the NOvA near detector as well as comparisons with neutron interaction simulations. The information from these studies will be used to improve the current NOvA neutron systematic uncertainty in upcoming analyses.

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