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Measuring cross sections of neutrino-nucleus interactions with associated charged pions in the NOvA near detector

Understanding neutrino-nucleus interactions is a key part of measuring oscillation parameters in a long-baseline experiment. The NOvA near detector is a liquid-scintillator-based tracking calorimeter located 1 Km from the target of the NuMI beam. This poster presents work from several ongoing analyses to measure cross sections of semi-inclusive processes either containing pions in the final state, or explicitly not containing pions in the final state, both of which require the ability to identify pions. The resulting measurements will allow a better understanding of systematic uncertainties in oscillation measurements at NOvA, as well as provide a method of testing models currently used in Monte Carlo neutrino event generators.

Mini-abstract

Status of cross-section analyses containing or explicitly excluding charged pions in the final state

Experiment/Collaboration

NOvA

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