

Muon Antineutrino Charge Current Inclusive Cross Section Measurement in NOvA

Friday, 21 June 2024 17:30 (2 hours)

NOvA is a long-baseline accelerator-based internationally collaborated neutrino experiment based in the USA. NOvA uses an intense neutrino beam produced at Fermilab's accelerator complex to make physics measurements of neutrino oscillations, neutrino cross sections, and other high quality neutrino analyses. For its physics goals, NOvA uses two functionally-identical detectors. The Near Detector (ND) is situated at Fermilab, 1 km from the neutrino target and the Far Detector (FD) is located at Ash River, MN, a distance of 810 km from the neutrino source. The ND sees high intensity of the neutrino beam due to its close proximity to the neutrino target. This gives us a unique opportunity for high-precision neutrino cross-section measurements. In this poster, we present our latest results of the muon antineutrino charge current inclusive cross section measurement in the NOvA ND. The new measurement is a triple differential cross section in antimuon kinematic phase-space and in the total energy of all observable final state hadrons, also known as the available energy. We also compare our data results to various neutrino generator predictions, for example, comparisons to GENIE, NuWro, NEUT, and GiBUU neutrino generators are presented.

Poster prize

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Session Classification: Poster session and reception 2

Track Classification: Neutrino interactions