

Double differential charged current $\bar{\nu}_\mu$ DIS cross section analysis at MINERvA

The (anti)neutrino interaction with nucleons and nuclei is important in order to understand the hadronic interaction in the weak sector and modeling neutrino interaction cross sections for extracting the Pontecorvo-Maki-Nakagawa-Sakata (PMNS) mixing matrix parameters. MINERvA (Main Injector Neutrino Experiment to study $\nu - A$ interactions) is an experiment designed to study the (anti)neutrino-nucleus scattering cross sections in the few GeV energy region using NuMI beamline facility at Fermi National Accelerator Laboratory. We will present the status of a double differential charged current antineutrino Deep Inelastic Scattering (DIS) cross section analysis versus Bjorken variable (x_{Bj}) and Inelasticity (y) using medium energy $\bar{\nu}_\mu$ ($\langle E_{\bar{\nu}_\mu} \rangle > 6\text{GeV}$) interactions on different nuclear targets viz. C, Fe, Pb and CH. The Bjorken variable (x_{Bj}) is the fractional momentum of the struck quark and Inelastic (y) is the ratio of hadron recoil energy to (anti)neutrino energy. This analysis will allow us to understand the hadron dynamics involved in these interactions as well as nuclear medium effects in neutrino interactions.

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