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A Multidimensional Study of Hadronization in Nuclei[1] NATHAN MILES, WOUTER DECONINCK, MIKE KORDOSKY, University of Florida — At the present moment there doest not exist a universal event generator in high energy neutrino physics and this is where GENIE (Generates Events for Neutrino Interaction Experiments) is currently being implemented. The aim for GENIE is to become and extensive canonical Monte Carlo (MC) event generator for a wide range of neutrino interactions and in order to achieve this GENIE must be repeatedly verified with experimental data collected from neutrino interaction experiments conducted around the world. This paper focuses on comparing data obtained in a multidimensional study of hadronization in nuclei done by the HERMES collaboration with a reproduction of a similar experiment via GENIE. The experiment was a simulation of colliding a beam of electron neutrinos at 27.6 GeV with carbon-12 and deuterium nuclei and then observing the dependence of hadron multiplicity ratios, R_A^h, of carbon to deuterium for ν, the energy transferred to the struck valence or sea quark by the virtual boson, and z, the fractional energy carried by the hadron produced as a result of exciting the valence or sea quark out of the nucleon. The dependence of the multiplicity ratios were analyzed for 8 different particles, π^+, π^-, π^0, K^+, K^-, K^0, p^+, and p^-.

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