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Effects of Engineering Tolerances of Magnetic Field Horns on Neutrino Flux in DUNE[1] NICHOLAS LIRA, University of Texas, Arlington, DUNE NEUTRINO DIVISION COLLABORATION, UTA DUNE GROUP TEAM — In the Deep Underground Neutrino Experiment (DUNE) at Fermilab, protons collide with a graphite target to produce pions. These pions are focused by magnetic field horns. Depending on the mode chosen, neutrino or antineutrino, the current in these horns creates a magnetic field that can focus pi plus or pi minus particles. These pions later decay into the neutrinos being studied at the Near and Far Detectors. In the production of the magnetic field horns, engineering uncertainties are expected in the geometries. These uncertainties play a major role in the number of pions that are focused. As a result, engineering tolerances can affect the amount of neutrinos sensed at the detectors. To understand these uncertainty affects on the neutrino flux, the geometry of the Inner Conductor of Horn A was studied. The eccentricity is expected to be +- 25 microns from nominal for this Inner Conductor. Although there is some deviation with the engineering uncertainty, the results from Geant4 show that uncertainties of this size will not affect the neutrino flux by greater than 2

[1]UTA Physics Department, Fermilab

Nicholas Lira
University of Texas, Arlington

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