Abstract Submitted
for the TSF17 Meeting of
The American Physical Society

Effects of Magnetic Horn Geometry Uncertainty on Neutrino Flux ERIC AMADOR, University of Texas at Arlington, DEEP UNDERGROUND NEUTRINO EXPERIMENT COLLABORATION — The goal of the Deep Underground Neutrino Experiment (DUNE) at Fermi National Accelerator Laboratory is to precisely measure neutrino and antineutrino oscillation properties, to derive the neutrino mass ordering and to determine if charge-parity (CP) symmetry is violated in the lepton sector. This could provide a possible explanation for the matter-antimatter asymmetry in the universe. In order to maximize the neutrino flux in the desired energy range, the secondary charged mesons produced in the interactions of an intense proton beam with a target are focused using the magnetic field created by a set of horns. Recent optimization efforts of the Long Baseline Neutrino Facility (LBNF) result in a three-horn design. To ensure an accurate understanding of the beam line and the neutrino flux, it is essential to study uncertainties resulting from the geometry of these horns. The effect of eccentricity of the inner conductor of the first focusing horn on the resulting neutrino flux is shown.

Eric Amador
Univ of Texas, Arlington

Date submitted: 13 Sep 2017 Electronic form version 1.4