

Abstract Submitted
for the APR15 Meeting of
The American Physical Society

Study of the Focusing Horns Performance Through Pion Flux Distribution AMIT BASHYAL, University of Texas at Arlington — Beamline design is an essential part of accelerator-based neutrino experiments. The Long-Baseline Neutrino Facility (LBNF) hosted by Fermilab, in which a high intensity proton beam will be used to generate an intense beam of neutrinos, requires a detailed and optimized beamline design. One of the most important parts of the optimization is that of the focusing system, where parameters such as the horn currents, horn shape, target size and location of the target and horns have a strong impact on the neutrino flux. This study uses the momentum and position distributions of pions at the end of the focusing horns to understand the effect of the horns as a function of pion energy. This talk presents a comparison of pion fluxes between a NuMI-style configuration and several new configurations optimized to LBNF physics goals. The pion flux distributions are compared against one another as a function of position, energy and momentum, in order to understand the performance of these different designs.

Amit Bashyal
University of Texas at Arlington

Date submitted: 08 Jan 2015

Electronic form version 1.4