

Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Constraining Fermilab long-baseline neutrino fluxes NILAY

BOSTAN, The University of Iowa — The determination of the neutrino flux presents a challenge for the current and upcoming long-baseline neutrino experiments. The dominant uncertainty comes from the hadronic cascade model in the beamline. Fermilab experiments, such as DUNE and NO ν A, use external hadron production data to constrain the models in their simulations and predict the neutrino flux at their detectors. Cross-section measurements from NA49 (CERN) are currently used for proton interactions and their impact is to reduce the flux uncertainty significantly. However, the simulation of interacting pions is not currently constraint by external data and a large uncertainty (40%) is assumed. Recently, the NA61 experiment (CERN) released differential cross-section measurements of 60 GeV pions interacting in Carbon and Beryllium. In this talk, I will present the status of incorporating NA61 data to constrain these interactions and its impact in the neutrino flux for the DUNE and NO ν A experiments.

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Date submitted: 11 Jan 2021

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