

Abstract Submitted  
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**Gas Cherenkov Muon Detector** MAX WEINER, University of Colorado Boulder, DUNE COLLABORATION — The future Deep Underground Neutrino Experiment will shoot a neutrino beam 1,300 km from Fermilab in Illinois to a detector in South Dakota to better understand neutrino properties. The beam is created by the decay of pions into neutrinos and muons. Therefore, by analyzing muons one can infer information about the neutrinos. This talk will focus on measuring the muon distribution at the beginning of the beam with the goal of constraining the associated neutrino beam. This is done by measuring Cherenkov radiation from muons passing through a detector filled with argon gas. There is a prototype detector at Fermilab in the NuMI beamline that makes these measurements. A muon distribution is approximated by observing and analyzing these signals over various gas pressures and detector orientations. This model, whose input is a signal and output a muon distribution, is built using computer simulations. I will discuss how such a model is created and how to go about comparing the simulations with real data.

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