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Stopped Muon Monitoring at DUNE ANDREW LOELIGER, University of Colorado — DUNE is a next generation neutrino oscillation experiment with wide reaching physics goals. To monitor DUNE beam characteristics and predict both near and far detector fluxes, the Stopped Muon Monitor (SMM) is being developed to detect stopped tertiary muons. Recent work has established characteristics of the detector in the proposed beamline. Stand-alone monte carlo simulation of the SMM has been used to determine detector stopping efficiency. Further monte carlo simulation in the established DUNE beam monte carlo (G4LBNE), allowed study of distribution and timing of stopping muons within the proposed beamline. From these simulations details about specific detector response at given layers of shielding and distance from beam center has been characterized. Furthermore, information about detector response timing was derived from these results, and provides estimates about when we will see optimal detector response. This information will make it possible, in conjunction with further simulation of muon parent particles to come up with a comprehensive mathematical model to relate SMM response to neutrino flux in both the DUNE near and far detector.

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