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Measurement of K^+ Production in a Few-GeV Neutrino Beam

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The primary motivation for this analysis is to verify the simulation of K^+ production from the Booster Neutrino Beam (BNB) line with actual data from the SciBooNE experiment. The BNB line provides neutrinos for current and future experiments. While neutrino flux is predominately due to pion decay, K^+ decay is the dominant source above 2 GeV. An accurate understanding of K^+ production will reduce systematics associated with the measured electron neutrino background in MiniBooNE, a major contributor to the uncertainty in the previously published electron neutrino oscillation appearance result.

The goal of the analysis is to measure K^+ production through its decay product: muon neutrinos. The muon neutrinos undergo charged current neutrino interactions in the fiducial volume of the SciBooNE detector, generating high energy muons, which can be selected for. The results to be presented measure the K^+ production through its overall normalization at two distinct K^+ energies.

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