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Charged-current neutrino-induced K+ production in MicroBooNE JAIRO RODRIGUEZ RONDON, DAVID MARTINEZ, ARTURO FIORENTINI, South Dakota Sch Mines Tech, MICROBOONE COLLABORATION — MicroBooNE is an 85-ton active mass liquid-argon time projection chamber (LArTPC) neutrino detector exposed to the Booster Neutrino Beam (BNB) at Fermilab. MicroBooNEs physics goals are the precision measurement of neutrino interactions on argon in the 1 GeV energy regime and investigating the Low Energy Excess (LEE) of neutrino events observed by the MiniBooNE experiment. The study of neutrino interactions producing a K+ in the final-state, which has never been measured on argon, can improve the background estimates for future proton-decay experiments looking for the p $\rightarrow$ K+ν channel on argon such as DUNE. In this work, we present a simulation study for a selection of associated K+ produced by charged-current neutrino interactions which decay into a μ+ and a ν_μ in the MicroBooNE detector. We will compare two different approaches to identify kaon tracks. The first approach uses calorimetry and the Bethe-Bloch prediction for various particle hypotheses, and the second approach uses machine learning techniques.

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