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Testing the Accuracy of Electron Recombination Models in MicroBooNE LONDON COOPER-TROENDLE, XIAO LUO, Yale University, SOWJANYA GOLLAPINNI, WEI TANG, University of Tennesee, Knoxsville, SUPRAJA BALASUBRAMANIAN, Yale University, TARA SKIBA, University of Tennesee, Knoxsville, MICROBOONE TEAM — The MicroBooNE experiment operates a liquid argon time projection chamber, which detects ionization electrons liberated from the argon by charged particles created from neutrino interactions. To reconstruct final state proton and muon tracks to study the source neutrino, the experiment must account for ionization electrons that recombine with the parent argon ion through a process called recombination. Recombination effects are typically simulated through the theoretically motivated Birks and Modified Box models, which predict the recombination fraction as a function of the external electric field present. This talk discusses the effectiveness of these models by comparing the predicted electron deposition rate to that inferred from the residual range, or distance to the end of the track, for stopping protons and muons observed within the detector.

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