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Constraining the Neutral Current π^0 Background for MicroBooNE's Single-Photon Search ANDREW MOGAN, University of Tennessee, MICROBOONE COLLABORATION — Liquid Argon Time Projection Chambers (LArTPCs) are an important technology in the field of experimental neutrino physics due to their exceptional calorimetric and position resolution capabilities. In particular, their ability to distinguish electrons from photons is crucial for current and future neutrino oscillation experiments. The MicroBooNE experiment is utilizing LArTPC technology to investigate the MiniBooNE low-energy excess, which could be either electron-like or photon-like in nature. To test the photon-like hypothesis, MicroBooNE is searching for single-photon events, a likely source of which is the neutral current (NC) Δ radiative decay. However, this search is complicated by the significantly more common neutrino-induced NC resonant π^0 production process. This talk presents the method for adapting the single-photon selection framework to select two-photon events which are characteristic of the NC π^0 topology. The NC π^0 selected sample is then used to constrain the systematic uncertainty on the NC Δ radiative decay measurement.

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