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Search for a Single Photon Anomalous Excess in MicroBooNE

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MicroBooNE is a liquid argon time projection chamber detector situated downstream the Fermilab Booster Neutrino Beam (BNB). One of the major goals of MicroBooNE is to investigate the electromagnetic-like low energy excess (LEE) in ν_e charged-current quasielastic events observed in MiniBooNE. Possible explanations include the hypothesis that the excess is events with single electrons and the hypothesis that the excess is events with single photons. While MiniBooNE cannot discriminate between these two hypotheses, the high spatial resolution and good calorimetric energy reconstruction of the MicroBooNE detector offers excellent particle identification and differentiation of electrons from photons. This poster/talk will present the result of MicroBooNE's analysis targeting a single photon hypothesis, under the assumption that the signal is due to an underestimation of neutral current (NC) Delta radiative decay ($\Delta \rightarrow \gamma + nucleon$). We also present our plan for a follow-up NC coherent single photon search using the single-photon analysis framework.

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