

Abstract Submitted  
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**Searching for Milli-charged Particles in the MINERvA Experiment** JACOB SMITH, University of Rochester, MINERVA COLLABORATION — The current Standard Model of physics suggests that the fundamental unit of electric charge is that of an electron. In this study, we are searching for milli-charged particles, which have a theorized charge that is a small fraction of the electron's charge. The MINERvA experiment at Fermilab observes neutrino interactions from the most intense neutrino beam (NuMI) in the world. Because the NuMI beam is produced by protons hitting a carbon target, it is possible to see ultra-relativistic milli-charged particles downstream in the MINERvA experiment. By algorithmically eliminating backgrounds from neutrino reactions, we are hoping to see tracks of low ionization energy indicative of milli-charged particles. Finding evidence for such particles would lead to required extensions of the Standard Model.

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