

Abstract Submitted
for the DNP15 Meeting of
The American Physical Society

An Accelerator-Produced, Sub-GeV Dark Matter Search with the MiniBooNE Neutrino Detector ROBERT COOPER, Indiana University, MINIBOONE COLLABORATION — There is overwhelming astrophysical evidence for the existence of dark matter. Despite a significant experimental program to search for the non-gravitation interactions of dark matter with deep underground detectors, it remains unseen. These experiments search for low-energy nuclear recoils but lose sensitivity below a WIMP mass of about 1 GeV. In contrast, by introducing a minimal new dark-sector coupled to the Standard Model via a vector portal mediator, sub-GeV dark matter is a viable candidate and can be produced at accelerators. The MiniBooNE experiment is searching for accelerator-boosted elastic scatters of these low-mass dark matter from the Booster Neutrino Beamline at Fermilab. To suppress neutrino backgrounds, the 8.9 GeV proton beam is diverted off-target to the steel beamstop with no meson focusing horn. MiniBooNE has completed its experimental run with 1.86×10^{20} protons-on-target and analysis is underway. In this talk, I will show preliminary results from an analysis of the nucleon-dark matter scattering channel and summarize our expected sensitivity.

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Date submitted: 08 Jul 2015

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