

Abstract Submitted  
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**First Demonstration of MeV-Scale Physics in LArTPCs** IVAN LEPETIC, Illinois Inst of Tech, ARGONEUT COLLABORATION — The ArgoNeuT detector is a 0.24 ton Liquid Argon Time Projection Chamber (LArTPC) that ran in the Neutrinos at the Main Injector (NuMI) beam at Fermilab in 2009-2010. ArgoNeuT has collected data containing thousands of neutrino and antineutrino interactions. Many analyses at the GeV-scale have been performed with data from ArgoNeuT and other LArTPCs. However, little is known about LArTPC response at the MeV-scale, the energy range in which supernova and solar neutrinos exist. We present the first reconstruction of MeV-scale activity in a LArTPC by examining de-excitation photons from neutrino-nucleus interactions and photon-producing interactions from final-state neutrons in the ArgoNeuT detector. We describe the methods used to perform such a reconstruction and compare physics results to those predicted using a variety of neutrino interaction generators.

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