

Abstract Submitted  
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**Neutrino Physics and LArTPC R&D with ArgoNeuT** JOSHUA SPITZ, Yale University, ARGONEUT COLLABORATION — Set to begin taking data in early 2008 in the on-axis NuMI neutrino beamline, ArgoNeuT is a Liquid Argon Time Projection Chamber (LArTPC) R&D test stand for future CP Violation and  $\theta_{13}$  neutrino oscillation searches. The first LArTPC to be placed in a “low” energy accelerator-based neutrino beam, ArgoNeuT will collect  $\sim 10^5$  neutrino events per year in the 0.1-10 GeV range (peaking at 3 GeV). The GEANT4 simulation framework and physics capability of the detector will be presented. Including comparison to first events, simulation discussion will focus on using a dE/dx tag for electron and gamma separation, vital for  $\nu_\mu/\nu_e$  tagging efficiency. Also, the possibility of  $\nu_\mu$  charged current quasi-elastic cross section and  $M_A$  parameter measurements will be discussed.

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