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First Measurement of Electron Neutrino Scattering Cross Section on Argon

ArgoNeuT has reported the first fully-automated reconstruction and selection of GeV-scale neutrinos using data from the NuMI beam line, yielding a measurement of the $\nu_e + \bar{\nu}_e$ scattering cross section on argon. Electromagnetic shower classification tools were developed for identifying GeV-scale ν_e -like interactions among complex backgrounds in LArTPCs. These techniques expand upon traditional ν_e classification methods that rely on topological and calorimetric information local to the neutrino interaction vertex. We will discuss how these results inform calorimetry-based ν_e selection in current and future LArTPCs and strategies for further development.

Mini-abstract

ArgoNeuT measures first electron neutrino cross section on argon using GeV-scale neutrino beam

Experiment/Collaboration

ArgoNeuT Collaboration

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