

ArgoNeuT: a liquid Argon TPC for the study of neutrino interactions in the intermediate energy range

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On the way toward massive Liquid Argon Time Projection Chamber (LAr TPC) detectors for future generation long baseline neutrino experiments, a “physics R&D” phase is in act: the ArgoNeuT detector (175 l of LAr active volume) is now going to be exposed on-axis to the NuMI beam at Fermilab, in front of the MINOS Near Detector. By taking measurements in the 0.1 to 10 GeV energy range, ArgoNeuT will produce the first ever data for intermediate energy neutrino interactions in a LAr TPC. Data acquisition is expected to start in spring 2009.

The experiment’s research/design goals and physics potentialities, including a charged current quasi-elastic ν_μ cross section and M_A parameter measurement, are reviewed. The ArgoNeuT detector performances during the above-ground commissioning run with cosmic rays and the current status of the experiment are also shown.

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