



## **Measurement of Electron Transport Properties in Liquid Argon**

*Monday 8 August 2016 18:30 (2 hours)*

The fundamental properties of LAr are of particular interests for experimentalists as LArTPCs are now the preferred technology for many accelerator neutrinos and dark matter experiments. The electron longitudinal diffusion coefficients in Liquid Argon (LAr) are measured for electric fields range from 0.1-2.0 kV/cm at different drift distances up to 25 cm using the two experimental setup with 2-Liter and 20-Liter volume of LAr at BNL. The measurement principle, apparatus, and data analysis are described. Our result represents the world's best measurement of electron longitudinal coefficients in this range. The measured longitudinal diffusion results are directly applicable to the existing experiments such as MicroBooNE and are essential for the future LAr based experiment detector design such as SBN and DUNE. We also report the performance of the gas purification system, which is important for the design of the purification system of future large LArTPCs.

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