

Abstract Submitted
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Modeling Electronegative Impurity Concentrations in Liquid Argon Detectors WEI TANG, YICHEN LI, CRAIG THORN, XIN QIAN, Brookhaven National Laboratory — Achieving long electron lifetime is crucial to reach the high performance of large Liquid Argon Time Projection Chamber (LArTPC) envisioned for next generation neutrino experiments. We have built up a quantitative model to describe the impurity distribution and transportation in a cryostat. Henrys constants of Oxygen and water, which describe the partition of impurities between gas argon and liquid argon, have been deduced through this model with the measurements in BNL 20-L LAr test stand. These results indicate the importance of the gas purification system and prospects on large LArTPC detectors will be discussed.

Wei Tang
Brookhaven National Laboratory

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