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LAr Purification and Purity Monitoring System at Wellesley College

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We report results from a 12-liter liquid argon test stand at Wellesley College. The system includes a single-pass liquid argon purifier, a double-gridded purity monitor to assess the electron lifetime, and a slow control and data acquisition system. This purifier will support ongoing detector R&D on charge and light readout technologies for future large-scale liquid argon time projection chambers (LArTPCs) such as Q-Pix and other cold electronics systems. We will present the design, construction, and operation of the test stand, along with initial performance results, including measured O2-equivalent impurity level of 0.4 ppb, corresponding to an electron lifetime of 800 us at a 500 V/cm drift field.

Author: WEI, Wenzhao (Wellesley College)

Co-authors: JAIDEE, I-see Warisa (Wellesley College); Prof. BATTAT, James (Wellesley College); Prof. ASAADI, Jonathan (The University of Texas at Arlington); DOCKAL, Spencer (Wellesley College)

Presenter: WEI, Wenzhao (Wellesley College)

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