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Circulation and Purification in the LUX-ZEPLIN System Test SHAUN ALSUM, University of Wisconsin - Madison, LZ COLLABORATION[1] — LZ is a dark-matter direct detection experiment whose detector is a two-phase TPC using approximately seven tons of active xenon as its scintillator. The xenon must have few electronegative impurities to ensure sufficient electron transport through the drift region. The LZ purification system is being prototyped in the LZ system test, a test platform located at SLAC using about 100kg of Xenon, which consists of gas circulation through a SAES getter. We utilize a dual-phase and a gas-phase heat exchanger to reduce needed cooling power. To achieve this circulation we employ an all metal seal triple diaphragm pump, also prototyped in the System Test. This talk will present early results from the system test as well as some baseline LZ designs.

[1]The LUX-ZEPLIN dark matter direct detection experiment.

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