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Updated Results from the LZ System Test Platform At SLAC

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LZ is a next generation dark matter experiment designed to significantly extend our sensitivity to WIMP dark matter candidates. As such it presents a significant challenge to the dual-phase Xe TPC technology. A 100kg scale test platform has been constructed at SLAC in order to test multiple systems at scales approaching or comparable to LZ. The platform focuses on the high voltage performance of the TPC and on the Xe circulation and purification system but also provides an opportunity to test the integration of other subsystems. The test platform discovered non-HV processes that lead to high photon rates while studying the extraction region that are being addressed in an ongoing upgrade. In addition, instabilities were discovered in the Xe flow path that have prompted design changes in LZ to ensure proper circulation. The system test will continue to validate the LZ design in an ongoing run and additional test efforts are being launched including full scale LZ grid validation and the early commissioning of the final LZ Xe handling system.

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