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The LUX-ZEPLIN Data Acquisition and Real Time Monitoring System

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The LUX-ZEPLIN (LZ) direct-detection dark matter experiment has been deployed at the Sanford Underground Research Facility (SURF), has successfully completed its first science campaign, and boasts world leading sensitivity. The LZ signal chain comprises of 1395 photomultiplier and auxiliary channels. These signals are digitized on custom FPGA-based digitizers with custom firmware. Digital filters operating on these digitizers provide the ability to carry out real time zero suppression and event selection. Additional sets of filters have been implemented to provide real time monitoring for the health of the signal chain and detector. In this talk, we will provide an overview of the LZ data acquisition system and will highlight features that have been valuable during LZ's commissioning and first science campaigns.

Primary author: KHAITAN, DEV ASHISH

Presenter: KHAITAN, DEV ASHISH

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