## DISCRETE 2012 - Third Symposium on Prospects in the Physics of Discrete Symmetries



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## **The LUX Experiment: Status and Future Plans**

Tuesday 4 December 2012 18:40 (25 minutes)

LUX (Large Underground Xenon) is a dark matter detection experiment using a 350 kg dual-phase Xe TPC. It will surpass all existing dark matter limits for WIMP masses above 10 GeV within weeks of beginning its science run, and its goal is to reach a WIMP-nucleon cross-section sensitivity of 2e-46 cm<sup>2</sup> for a 40 GeV WIMP after 300 days of running (an order of magnitude lower than the current best limit).

LUX was already tested during a surface run in the Sanford Lab at Homestake, with all subsystems in their final configuration. This marked the first successful use of technologies proposed for tonne-scale detectors, such as a water tank for shielding and thermosyphon cooling. During this surface run the detector was calibrated using radioactive sources, showing an excellent light collection and demonstrating the potential for a very low (1 keV) energy threshold. LUX is currently installed in the Sanford underground laboratory, and close to starting its first science run. Plans for the LZ experiment, the next generation detector with a mass of 7 tonnes, will also be discussed in this talk.

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