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The LUX Dark Matter Search Experiment

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Abstract content

The Large Underground Xenon (LUX) experiment consists of a two-phase xenon time projection chamber, which is being deployed at a depth of 4850 feet in the Homestake mine in Lead, South Dakota. When LUX begins operation in Fall 2012 it will be the world's most sensitive dark matter detector, with a fiducial target mass of 100 kg. Results from a surface lab commissioning and calibration run of LUX will be presented. Comparisons will be made to a detailed detector simulation, which is novel for such a class of detectors. Expected sensitivity and physics reach for detecting WIMP dark matter will be discussed, and compared to other contemporary direct search experiments. Plans for an order of magnitude larger detector will be outlined.

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