



PHYSICS AND ASTRONOMY COLLOQUIUM

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Who Has Seen The WIMP? Neither You Nor I.

Abstract

The LUX (Large Underground Xenon) experiment is designed for the direct detection of dark matter particles via their collisions with xenon nuclei. This two-phase xenon time-projection chamber has now completed operations deep underground on the 4850 foot level of the Sanford Underground Research Facility in Lead, South Dakota. Results will be presented from the 2013-2016 dark matter search data sets, as well from several novel detector calibrations using tritium, radioactive krypton, and monoenergetic neutrons from a deuterium-deuterium neutron generator. The LUX results are inconsistent with the low-mass WIMP signal interpretations of data from several recent direct detection experiments, and at WIMP-nucleon spin-

This talk will provide an overview of the LUX experiment, focusing on the most recent science results, and describe the upcoming LUX-ZEPLIN experiment, which is currently under construction.

Wednesday, February 1, 2017

3:00 p.m.

Elliott Building

Room 167