

Abstract Submitted
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New results from the LUX Dark Matter experiment CARMEN CARMONA-BENITEZ, University of California - Santa Barbara, LUX COLLABORATION — LUX (Large Underground Xenon) is a dark matter direct detection experiment deployed at the 4850' level of the Sanford Underground Research Facility (SURF) in Lead, SD, operating a 370 kg dual-phase xenon TPC. LUX has already proved itself to be the most sensitive dark matter detector in the world. Now, we report the results of a new analysis of the data collected during LUX's first three-month run in 2013, dramatically improving our sensitivity in the low WIMP-mass range. The new analysis lowers the analysis threshold for dark matter search thanks to two new calibrations: an injected tritium β source, and a neutron generator providing tagged nuclear recoils down to 1.1 keV. It also includes advances on the single-photon calibration, event-reconstruction algorithms and background modeling in an enlarged fiducial volume. This new analysis gives the most stringent limits on the spin-independent WIMP-nucleon cross section in the mass range above $4 \text{ GeV } c^{-2}$, with a minimum of 0.4 zb at $33 \text{ GeV } c^{-2}$ WIMP mass. This talk will provide an overview of the experiment, focusing on the recent science results.

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