

Abstract Submitted
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An Improved Nuclear Recoil Calibration in the LUX Detector Using a Pulsed D-D Neutron Generator¹ DONGQING HUANG, Brown Univ — The LUX dark matter search experiment is a 370 kg (250 kg active mass) two-phase liquid/gas xenon time projection chamber located at the 4850 ft level of the Sanford Underground Research Facility in Lead, SD. The first absolute charge (Q_y) and light (L_y) measurement performed in situ in the LUX detector with a D-D calibration technique for nuclear recoil spanning 0.7 to 74 keV and 1.1 to 74 keV respectively have been reported in [arXiv:1608.05381](https://arxiv.org/abs/1608.05381). The D-D calibration has subsequently been further improved by incorporating pulsing technique, i.e. the D-D neutron production is concentrated within narrow pulses (20 us / 250 Hz) with the timing information recorded. This technique allows the suppression of accidental backgrounds in D-D neutron data and also provides increased sensitivity for the lower energy NR calibrations. I will report the improved NR absolute Q_y and L_y measurements using the pulsed D-D calibration technique performed in situ in the LUX detector.

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