

Abstract Submitted
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An analysis of LUX data in the S2-only mode SERGEY UVAROV,
Univ of California - Davis, LUX COLLABORATION — LUX is the world's largest
two-phase Xe time-projection chamber, with an active fiducial target mass in excess
of 100 kg. In 2013, we reported a null result from our search for WIMP dark matter
and set the most stringent limits on WIMP-nucleon cross section for a wide range of
WIMP masses. As the energy of the recoiling Xe nucleus decreases below a few keV,
the primary scintillation signal is often too small to detect. An S2-only technique,
which relies on detecting the liberated electrons that escape recombination and drift
to the liquid surface, allows us to lower the energy threshold, albeit at the cost of
rejection power. We will present techniques developed for this study, including novel
pulse-finding algorithms and simulation methods. The prospects for LUX sensitivity
in this search mode will be outlined.

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