Meetings & Events

- March Meeting
- April Meeting
- Meeting Calendar
- **Abstract Submission**
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  - Submitting Abstracts
  - LaTeX Help
  - RTF Template Help
  - Troubleshooting: Abstract FAQ
  - Abstract Submission Policies
- Archives of the Bulletin of the American Physical Society
- Policies & Guidelines
- Meeting Presentations
- Virtual Pressrooms

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APS April Meeting 2016

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Measurement of the Charge and Light Yield of Low Energy Nuclear Recoils in Liquid Xenon at Different Electric Fields

We acknowledge continued support of the XENON Dark Matter program at Columbia University by the National Science Foundation
A12. - A12. Elementary Particles/Dark Matter
E - Experimental
ORAL

Dual-phase liquid xenon detectors continue to lead in the search for the direct detection of dark matter. Characterization of the response of liquid xenon to low energy ($\lesssim 20$ keV) nuclear recoils is essential to establish the sensitivity of these detectors to dark matter. The neriX detector at Columbia University is a dual-phase time projection chamber that is optimized for simultaneous measurements of light and charge from these low-energy interactions. A coincidence technique is employed to extract the light and charge yield from nuclear recoils in liquid xenon as a function of energy deposited and applied electric field. In this talk, we will present preliminary results from the light and charge yield measurements.

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