

Abstract Submitted
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Measurement of the scintillation reponse of liquid xenon to electronic recoils down to low energies¹ KYUNGEUN E. LIM, E. APRILE, R. BUDNIK, B. CHOI, H.A. CONTRERAS, K.-L. GIBONI, L.W. GOETZKE, J. KOGLIN, R.F. LANG², A.J. MELGAREJO FERNANDEZ, Columbia University, R. PERSIANI, University of Bologna and INFN-Bologna, Italy, G. PLANTE, A. RIZZO, Columbia University — Understanding the electronic recoil response in liquid xenon (LXe) is important for the interpretation of results from dark matter experiments using LXe such as XENON100 and to estimate the electronic background contributions. As the first step, the energy dependence of the scintillation response at zero field was measured with a dedicated LXe detector. The scintillation response of LXe has been measured in the past at different energies using mono-energetic γ sources. However, the Compton coincidence technique has the added benefit that the response can be measured at a continuum of energies. In this work, Compton scattered γ rays were used to measure the scintillation light yield from electronic recoils below 100 keV. The high scintillation light collection of the detector enabled the lowest recoil energies to be probed to date. A comparison with the decays of Kr-83m is also presented.

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²Present Affiliation: Purdue University

Kyungeun E. Lim
Columbia University

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