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New Measurement of the Charge and Light Yield of Low Energy Nuclear and Electronic Recoils in Liquid Xenon[1] L.W. GOETZKE, E. APRILE, R. BUDNIK, H.A. CONTRERAS, A.J. MELGAREJO FERNANDEZ, Columbia University, J. NAGANOMA, Rice University, G. PLANTE, A. RIZZO, Columbia University, XENON COLLABORATION — Liquid xenon detectors are one of the leading technologies in direct dark matter searches. In order to improve the precision of their energy scales, it is important to characterize the scintillation and ionization of liquid xenon at low energies, where measurements with applied electric field are few or nonexistent. At Columbia University we have built a dual-phase detector, neriX, capable of simultaneously measuring the light and charge deposits from low-energy interactions in liquid xenon. The detector was designed to optimize event vertex reconstruction while maintaining a high light detection efficiency. Far detector coincidence techniques (Compton or neutron elastic scattering) are employed to extract the light and charge yields of liquid xenon as a function of energy for different particle types. In this talk we will discuss the detector calibration and performance, and will present some preliminary results.

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