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Electronic and nuclear recoil discrimination in xenon TPCs with the PIXeY experiment VETRI VELAN, University of California, Berkeley, PIXEY COLLABORATION — The two-phase liquid/gas xenon time projection chamber is one of the leading technologies used for dark matter direct detection. World-leading limits on dark matter interactions have been set by LUX and XENON1T, and the LZ and XENONnT experiments seek to push further. A crucial part of using this technology is being able to classify energy deposits as nuclear recoils (NR) or electronic recoils (ER). In my talk, I will present an analysis of ER-NR discrimination, using data from the PIXeY (Particle Identification in Xenon at Yale) experiment. PIXeY was an RD-scale xenon TPC that operated at drift fields between 50 and 2000 V/cm; its data allows us to study discrimination across this wide range of electric drift fields, as well as the dependence of discrimination on recoil energy.

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