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**Observation and origins of few-electron ionization signals in XENON1T** AMANDA DEPOIAN, Purdue University, XENON COLLABORATION — Dual-phase liquid xenon time projection chambers, like XENON1T, are leading in sensitivity to search for rare events such as those expected from WIMP dark matter. However, the sensitivity of these detectors to sub-GeV mass dark matter is limited by single- and few-electron ionization signals. These backgrounds are observed at timescales of 100s of milliseconds after high energy interactions in the detector. In this talk, I will present a characterization of these background events in XENON1T, present possible origins, and discuss the implications they have for future experiments.

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