

Abstract Submitted  
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**Characterization of Rn-220 as a Calibration Source in EXO-200**

NICOLE KHUSID, University of Connecticut, EXO-200 COLLABORATION — The overarching goal of EXO-200 is to observe a phenomenon known as neutrinoless double-beta decay of the  $^{136}\text{Xe}$  isotope, in which a nucleus ejects two electrons with zero neutrino emissions, violating lepton number conservation. A successful detection of such an event would change our understanding of the Standard Model, identifying neutrinos as Majorana particles. The time projection chamber (TPC) uses liquid xenon, enriched in  $^{136}\text{Xe}$ , as a decay source and detection medium. Its architecture allows for the reconstruction of decay events based on their position and energy from light and charge depositions. Decays throughout the  $^{220}\text{Rn}$  decay chain may be used for calibration purposes, such as creating a more accurate position-dependent light response map using high-energy alpha decays, measuring fluid velocities, and using pulse coincidences within the chain to investigate detector response to small charge depositions. I present work toward characterizing  $^{220}\text{Rn}$  as a calibration source for the EXO-200 detector, providing insight into the design of calibration sources for future large, low-background detectors like nEXO.

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