

Abstract Submitted  
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**A Waveform Library Technique for Multi-Site Identification with the MAJORANA DEMONSTRATOR** MICAH BUUCK, Univ of Washington, MAJORANA COLLABORATION COLLABORATION — The MAJORANA DEMONSTRATOR is a low-background array of 44.8 kg of germanium detectors searching for neutrinoless double-beta ( $0\nu\beta\beta$ ) decay in germanium-76, deployed 4,850 feet underground at the Sanford Underground Research Facility in Lead, South Dakota, USA. We aim to demonstrate background levels low enough to justify construction of a ton-scale experiment which will be able to fully probe the inverted-hierarchy region of the  $0\nu\beta\beta$  decay phase-space. In addition to reducing background through materials selection and experimental design, we are developing a range of analysis-based background-suppression techniques. One example is a waveform-library-based technique to reject background multi-site interactions. Here we present an overview of the technique and its current status. This material is based upon work supported by the U.S. Department of Energy, Office of Science, Office of Nuclear Physics, the Particle Astrophysics and Nuclear Physics Programs of the National Science Foundation, and the Sanford Underground Research Facility.

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