

Abstract Submitted
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Wavelet Analysis in Point Contact HPGe Detectors RYAN MARTIN, Lawrence Berkeley National Lab, MAJORANA COLLABORATION — The low-noise and pulse-shape discrimination characteristics of point-contact High-Purity Germanium (HPGe) detectors have made them a promising detector technology for neutrinoless double-beta ($0\nu\beta\beta$) decay experiments and direct dark matter searches. In $0\nu\beta\beta$ searches, substantial background rejection can be achieved if one can identify and reject multiple site interactions. Dark matter searches require low energy thresholds and noise reduction in the events is thus highly desirable. This talk will introduce some of the techniques of wavelet analysis that can be used to de-noise pulse shapes from point contact HPGe detectors, and to separate multi-site interactions from single-site interactions. The work presented here was done in the context of the MAJORANA DEMONSTRATOR project, which will search for neutrinoless double beta decay as well as direct dark matter interactions using an array of point contact HPGe detectors.

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