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Solid xenon bolometers

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Cryogenic liquid xenon detectors have become a popular technology in the search for rare events, such as dark matter interactions and neutrinoless double beta decay. The power of the liquid xenon detector technology is in the combination of the ionization and scintillation signals, resulting in particle discrimination and improved energy resolution over the ionization-only signal. The improved energy resolution results from a unique anti-correlation phenomenon that has not been described from first principles. Solid xenon bolometers, under development at Drexel University, are expected to have excellent counting statistics in the phonon channel, with energy resolution of 0.1% or better. This additional energy channel may offer the final piece of the puzzle in understanding liquid xenon detector energy response.

Oral or Poster Presentation

Oral

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