Abstract Submitted
for the DNP16 Meeting of
The American Physical Society

Development of Solid Xenon Bolometers[1] MICHELLE DOLINSKI, ERIN HANSEN, Drexel University — 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 liquid xenon detector technology is in the combination of ionization and scintillation signals, resulting in particle discrimination and improved energy resolution over the ionization-only signal. The improved energy resolution results from a microscopic anti-correlation phenomenon that has not been described from first principles. Solid xenon bolometers operated at $\sim$ 10 mK 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. We present work toward the development and characterization of solid xenon bolometers at Drexel University.

[1]Funding for this project was provided by the Charles E. Kaufman Foundation of The Pittsburgh Foundation.

Michelle Dolinski
Drexel University

Date submitted: 30 Jun 2016 Electronic form version 1.4