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Measurement of the intrinsic energy resolution of amorphous selenium for the next generation neutrinoless $\beta\beta$ decay detector[1] XINRAN LI, Department of Physics, Princeton University, ALVARO CHAVARRIA, Center for Experimental Nuclear Physics and Astrophysics, University of Washington, SNEZANA BOGDANOVICH, Detector Technologies, Hologic Corporation, CRISTIANO GALBIATI, Department of Physics, Princeton University, ALEXANDER PIERS, Center for Experimental Nuclear Physics and Astrophysics, University of Washington, BRAD POLISCHUK, Detector Technologies, Hologic Corporation —
Imaging sensors made from an ionization target layer of amorphous selenium (aSe) coupled to a silicon complementary metal-oxide-semiconductor (CMOS) active pixel array for charge readout are a promising technology to search for the neutrinoless $\beta\beta$ decay of ^{82}Se. We present results on the ionization response of aSe measured from the photoabsorption of 122keV γ rays in a single-pixel device, and discuss its implications for a next-generation neutrinoless $\beta\beta$ decay detector based on this technology. We also report on the progress in the fabrication and testing of the first prototype imaging sensors based on the Topmetal-II pixelated CMOS charge readout chip.

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