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R&D status of the Selena Neutrino Experiment

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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 for neutrino physics. The high spatial resolution in a solid-state target provides unparalleled rejection of backgrounds from natural radioactivity in the search for neutrinoless $\beta\beta$ decay and for solar neutrino spectroscopy with ^{82}Se. We present results from the first aSe/CMOS devices optimized for charge collection in aSe. We explore the scientific reach of a large neutrino detector with the proposed technology based on our experimental understanding of the detector performance.

Submitted on behalf of a Collaboration?

Yes

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