

SENSEI Experiment for Direct Search of Light Dark Matter

Thursday, 31 May 2018 15:00 (20 minutes)

We present the status and prospects of the Sub-Electron Noise Skipper Experimental Instrument (SENSEI) that uses a non-destructive readout technique to achieve stable readout for thick fully depleted silicon CCD in the far sub-electron regime ($\sim 0.05 e^-$ rms/pix). This is the first instrument to achieve discrete sub-electron counting that is stable over millions of pixels on a large-area detector. This low threshold allows for unprecedented sensitivity to the largely unexplored, but theoretically well-motivated, area of sub-GeV dark matter models. We'll discuss the reach and prospects of the SENSEI experiment currently under construction, which will use 100 grams of Skipper CCDs. We will also present the lessons learned from a small scale prototype currently operating in the MINOS cavern at Fermilab.

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Collaboration name

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