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Characterizing single-electron backgrounds in Skipper-CCDs

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The Skipper Charge Coupled Device (CCD), used by the SENSEI and DAMIC-M experiments, is currently the leading technology for detecting sub-GeV dark matter due to its single-electron sensitivity and low background rate. Since the start of the SENSEI experiment, one of its main efforts has been on reducing the single-electron backgrounds. Two sources of single-electron backgrounds are dark current, generated through thermal excitations, and spurious charge, induced by clocking during readout. In this talk, we will present the recent measurements of the dark current in the SENSEI detector at SNOLAB, which we found to be as low as 10ˆ-5 e/pixel/day, as well as our current work on characterizing the spurious charge in Skipper-CCDs.

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