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DPF Instrumentation Early Career Award: "Counting electrons with the Skipper-CCD"

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The Skipper Charge-Coupled Device (CCD) is a groundbreaking technology that is opening unprecedented windows to the universe through the detection of single photons and electrons. The first gram-scale instrument using the Skipper-CCD technology was produced in 2016 at the Fermi National Accelerator Laboratory in collaboration with the Lawrence Berkeley MicroSystems Lab. This prototype system was able, for the first time, to unambiguously and reliably detect single electrons over millions of pixels reaching the theoretical limit of silicon ionization sensors. In this talk I'll introduce the Skipper-CCD and discuss immediate applications and prospects for the technology.

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