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Quantum Capacitance Detectors for Ultralight Dark Matter searches.

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QCDs, which are based on a charge qubit design, are the most sensitive far-infrared detectors in 1.5 THz regime. Apart from their current application in space telescopes for infrared spectroscopy, they have single-photon sensitivity that can be utilized to look for ultralight Dark Matter at the meV scale. This talk will give an overview of our work to characterize a QCD detector using a weak photon source. Furthermore, we will discuss readout and optimization of these detectors to reduce the current dark count rate of 100 Hz, with the goal of reaching sensitivities needed for ultralight Dark Matter detection.

Early Career

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