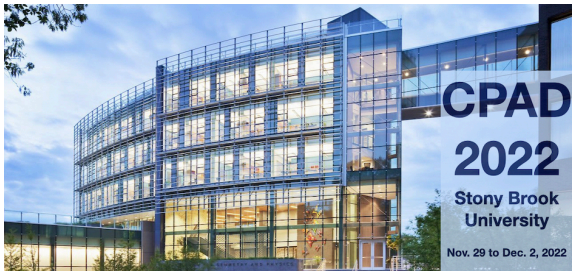

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Leveraging Quantum Sensors for Dark Matter Detection

Wednesday, 30 November 2022 14:15 (20 minutes)

Developments over the last decade have pushed the search for particle dark matter to new frontiers, including the keV-scale lower mass limit for thermally-produced dark matter. Galactic dark matter at this mass is kinematically matched with the energy needed to break a Cooper pair (~meV), making quantum sensors ideally-suited for dark matter detection applications. At Fermilab, we are constructing QUIET, a dedicated, underground quantum sensor test facility, which will be used as part of the Quantum Science Center to deploy quantum detectors in a low-background environment. I will discuss the current state of the field as well as plans to leverage this facility for dark matter detection down to the lower mass limit for thermal production in the early universe.

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