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Low-Energy Radiation Detection with Superconducting Tunnel Junctions[1] SPENCER FRETWELL, Colorado School of Mines, THE BEEST COLLABORATION — The detection of low energy (sub-keV) radiation from nuclear decay is typically fraught with technical challenges due to induced backgrounds from the much higher energy radiation in these processes. Nonetheless, there are a number of important measurements of eV-scale decay products related to tests of fundamental symmetries, nuclear structure, nuclear astrophysics, and nuclear medicine on short-lived radionuclides that are outstanding. In order to perform such measurements, new detection methods are required which are sensitive to these energy regimes, while still remaining practical for nuclear physics. In this talk, I will briefly describe recent nuclear physics experiments involving modern quantum sensors, focusing specifically on what superconducting tunnel junction (STJs) are capable of, and where these experiments may go in the future.

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