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Studying systematics in BeEST with phonon-mediated detectors

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The broadening for nuclear recoils observed in BeEST's STJ experiments is as-yet unexplained. We are working to investigate the origins of this broadening with two proposed control experiments: 1) repeating the 7Be measurements with a phonon-mediated detector, rather than direct pair-breaking, and 2) measuring nuclear recoils from gamma ray emission rather than electron captures. I will describe progress towards the first of these measurements, which we hope to complete this summer. I will also discuss our recent LDRD submission, which offers opportunities to leverage detector designs and ongoing low-Tc junction fab R&D led by the SLAC DM-QIS group to build improved detectors for future experiments.

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