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Current limits and projected sensitivities of the BeEST sterile neutrino search[1] GEON-BO KIM, Lawrence Livermore National Laboratory, BEEST COLLABORATION — The BeEST experiment is a direct search for keV-scale sterile neutrinos using Be-7 atoms that are implanted into superconducting tunnel junction (STJ) detectors. The two-body electron capture decay of Be-7 produces a neutrino and a Li-7 nucleus whose momenta and energies are uniquely determined by the mass of the emitted neutrino. We accurately measure energies of Li-7 recoils using STJ detectors to look for evidence of keV-scale sterile neutrino emissions that result in decreased recoil energy of Li-7 nuclei. We will present current exclusion limits for keV-scale sterile neutrino mixing from the first physics run with a single-pixel STJ detector, and projected sensitivities of next phase-experiments with improved 128-pixel STJ detector arrays.

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