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**Scintillation yield from electronic and nuclear recoils in superfluid**

**<sup>4</sup>He** ANDREAS BIEKERT, University of California, Berkeley, SPICE/HERALD COLLABORATION — Superfluid <sup>4</sup>He is a promising target material for direct detection of light (< 1 GeV) dark matter. Possible signal channels available for readout in such a detector include prompt photons, triplet excimers, and roton and phonon quasiparticles, but the relative strength of these signals has until now not been studied for low energy nuclear recoils. We have measured the superfluid <sup>4</sup>He scintillation yield from electronic and nuclear recoils in the range of 50-1100 keV using a 16 cm<sup>3</sup> volume of superfluid <sup>4</sup>He read out by six PMTs immersed in the superfluid. 2.8 MeV neutrons generated by a deuterium-deuterium neutron generator were used to determine the scintillation signal yield for a variety of nuclear recoil energies by tagging elastic scatters in the helium target with a liquid organic scintillator module. For comparison, 662 keV <sup>137</sup>Cs gamma ray Compton scatters tagged by NaI scintillators were used to determine the scintillation signal yield of electronic recoils. Yields of both prompt and delayed scintillation components were measured.

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