Abstract Submitted
for the APR20 Meeting of
The American Physical Society

SuperCDMS IMPACT: an Ionization Yield Calibration Program ZIQING HONG, Northwestern University, SUPERCDMS COLLABORATION COLLABORATION — The SuperCDMS collaboration has developed cryogenic silicon and germanium detectors optimized for phonon signals from dark matter-nucleus collisions. The detectors are sensitive to dark matter masses between about 1 and 10 GeV/c^2, which corresponds to sub-keV energy deposits from the nuclear recoil. The sensitivity of a SuperCDMS detector is achieved by applying a high voltage across the crystal. Under the electric field, the signal from electron-hole pairs generated by nuclear recoil events is amplified through the Neganov-Trofimov-Luke (NTL) effect. However, the yield of electron-hole pairs, which is critical to reconstruct the energy of the recoiling nucleus, is not well characterized in the sub-keV nuclear recoil energy region. I will describe a neutron scattering experiment called IMPACT (Ionization Measurement with Phonons At Cryogenic Temperatures), which is designed to measure the ionization yield in SuperCDMS style detectors, the first data collection campaign at the Triangle Universities Nuclear Laboratory (TUNL), and the status of the data analysis.

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Date submitted: 10 Jan 2020 Electronic form version 1.4