Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Characterization of a Superconducting Ion Detector JOSEPH SUTTLE, ROBERT MCDERMOTT, University of Wisconsin– Madison — Atom Probe Tomography is one of the most advanced materials analysis techniques available. With this technique, it is possible to reconstruct a three dimensional map of atom locations and species of a sample. An integral part of this technique is an ion detector with high detection efficiency, excellent timing resolution, and the ability to distinguish multiple hits spaced closely in time and space. We have developed a superconducting detector for this application and have characterized it in a field ion microscope. In order to characterize detector efficiency, we have developed an experimental test-bed which incorporates two detectors fabricated on the same chip. These detectors run parallel to each other with a separation that varies across the $25mm^2$ active area of the device. By examining correlated events across the two interleaved detectors we can infer the detectors lateral sensing area and efficiency.

Joseph Suttle
University of Wisconsin– Madison

Date submitted: 11 Nov 2016 Electronic form version 1.4