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**A Superconducting Ion Detection Scheme for Atom Probe Tomography** JOSEPH SUTTLE, University of Wisconsin–Madison, THOMAS KELLY, Cameca Instruments Inc., ROBERT MCDERMOTT, University of Wisconsin–Madison — Superconducting detectors are a promising avenue for improving the performance of Atom Probe Microscopes. Many types of superconducting detectors have been developed within the past several decades, each with its own strengths and weaknesses. Many of these detectors are inherently slow, bulky, require complex multiplexing schemes to attain position sensitivity, or require complex read-out electronics. In response to the rigorous demands of atom probe technology, and with the goal of developing an elegant, simple to use solution, we have developed a novel superconducting delay line detector. The principal of detection is to use the kinetic energy of incoming ions to generate excess quasiparticles in a superconducting stripline. These quasiparticles generate a measurable signal which propagates along the delay line. By measuring the timing of the output signals from this delay line, we are able to measure the time of flight for the ion and the position of its impact on the detector. We will be presenting on the performance of this detector as measured in a Field Ion Microscope.

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