Abstract Submitted
for the SES17 Meeting of
The American Physical Society

Transverse Voltage in Superconducting Films: Hysteresis PHILLIP BROUSSARD, ROMY VEKONY, Covenant College — Transverse voltages have been observed in many superconducting films near their transition temperatures. Explanations have ranged from vortex motion, to inhomogeneity, and even anyons. We have looked at a variety of Nb based superconductors (Nb, NbZr, and NbCN) in thin film form (thicknesses from 25-100 nm) to look for the claimed hysteresis from the vortex model put forward by Glazman in 1986. Hysteresis has been observed, and the degree can be varied by the sweep rate of the current (from 20-200 mA/s). We can tell this is not a thermal hysteresis as the sweep up peak does not change, but only the sweep down peak. For slow sweep rates ($\approx$ 7mA/s), we observe oscillations in the Transverse voltage vs current as the current is decreased. The open question is exactly how to compare this hysteresis to that predicted by Glazman.

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Date submitted: 19 Sep 2017 Electronic form version 1.4