Abstract Submitted
for the OSF19 Meeting of
The American Physical Society

Studying shunted SQUID measurements in a controlled magnetic field setting JACOB ADAMCZYK, Cleveland State University, CLEMENS WINKELMANN, Nel Institute, Grenoble, France — In recent years, the study of nanodevices such as superconducting quantum interference devices (SQUIDs) have increased in popularity due to their usage in magnetometry, for example in the magnetism of nanoparticles. Particularly, SQUIDs have the capability of measuring small changes in magnetic field and changes in magnetization at the level of a few Bohr magnetons. Electrical measurements of a SQUID, which is shunted with an on-chip Au resistor, are shown in the normal and superconducting states, at temperatures down to 4 K. Stable critical currents and hysteretic voltage-current characteristics are observed. The SQUID holder is fitted within a custom-made solenoid to control the magnetic flux passing through the SQUID. Data and corresponding theory showing the dependence on the device's critical current on magnetic field is presented as well as a discussion of these results.

Jacob Adamczyk
Cleveland State University

Date submitted: 20 Sep 2019 Electronic form version 1.4