

Cryogenic Probe for High Pressure Measurements

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Our research group is currently developing a new high-frequency technique for measuring the resistivity of metallic quantum materials via measurements of the skin depth. We need a new platform on which to test this technique at cryogenic temperatures, with flexibility to accommodate complementary measurements such as heat capacity and susceptibility. This project will involve construction of such a cryogenic probe, specifically: building the probe using a combination of commercially available parts and parts designed and built in-house; wiring the probe and setting up low temperature circuits for measurements; testing the probe, including leak testing and testing the electronics; and using the probe to conduct high frequency measurements. This position could also involve some crystal growth projects. The student will learn cryogenic construction techniques, a variety of measurement techniques, and some physics of quantum materials.