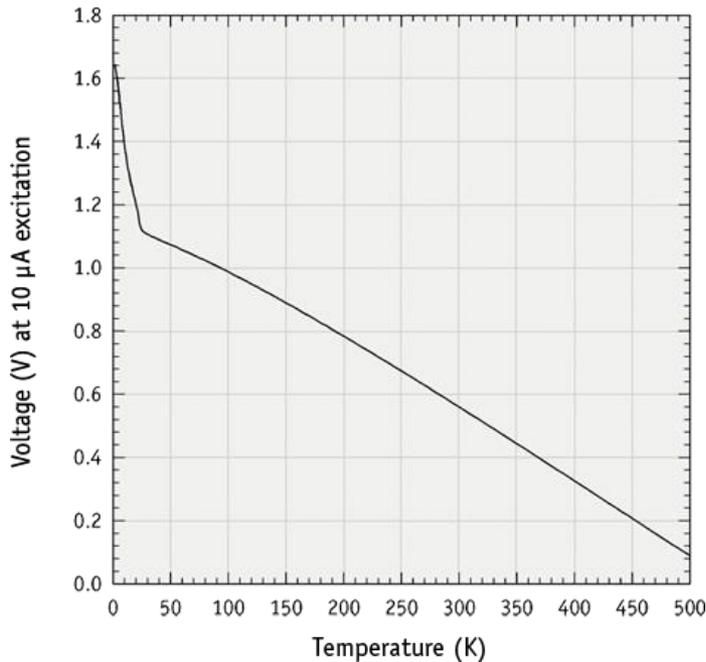


This experiment is related to calibration of the temperature sensors. Commercial calibrated cryogenic samples are rather expensive and not always fit our need based on sizes and sensor design.

To perform the calibration, we need one well calibrated sensor. In our cryogenic experiments we are using sensors from LakeShore Cryotronics.



Typical DT-670 diode voltage vs temperature

Here is an example of cryogenic sensor – DT-670 which is a p-n junction. Driving the small current (10μA) and measuring the voltage drop on the sensor and using the calibration chart we can obtain the information on temperature.

This sensor covers the temperature range 1.4÷ 500K. Typical calibrate accuracy at T<77 K ± 12 mK; not calibrated - ± 0.25 K.

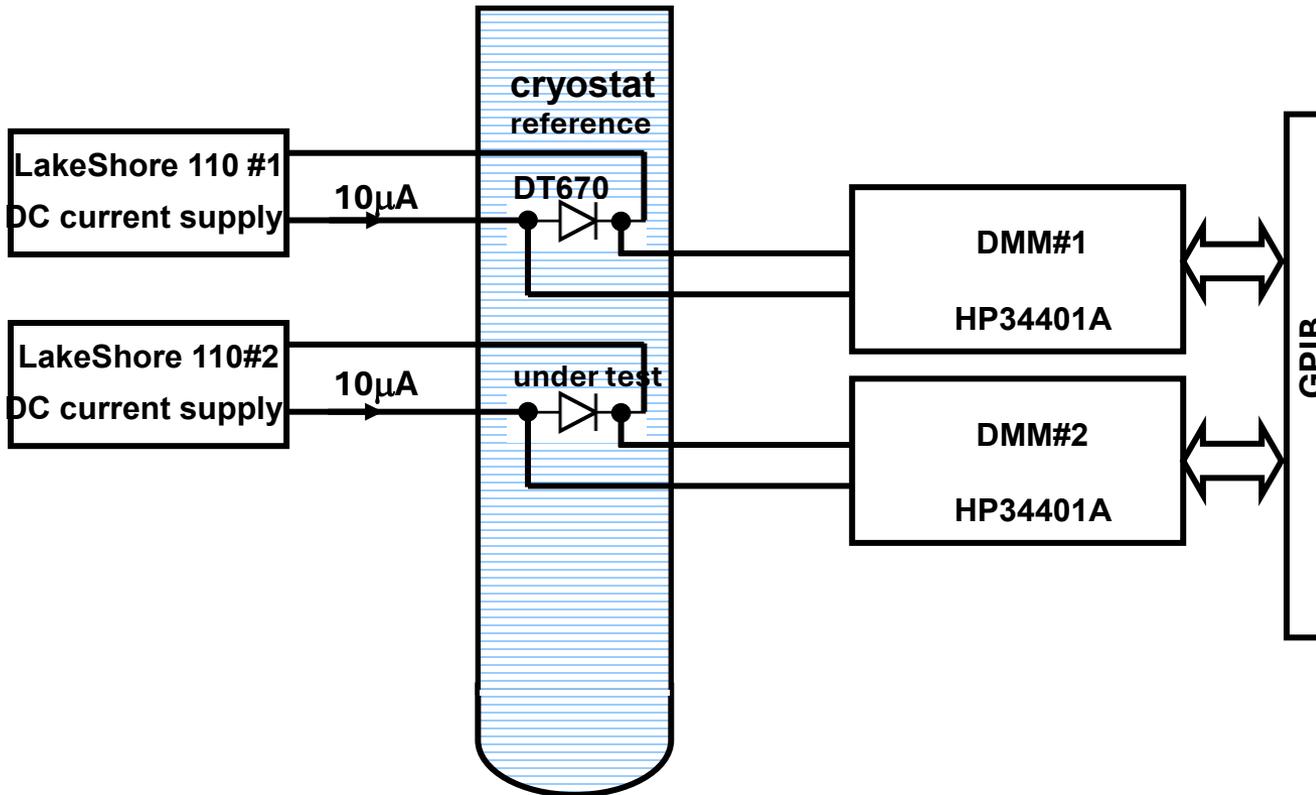


DT-670-SD

Condensed Matter

The Temperature
sensors calibration

Lab logo: *T calibration*

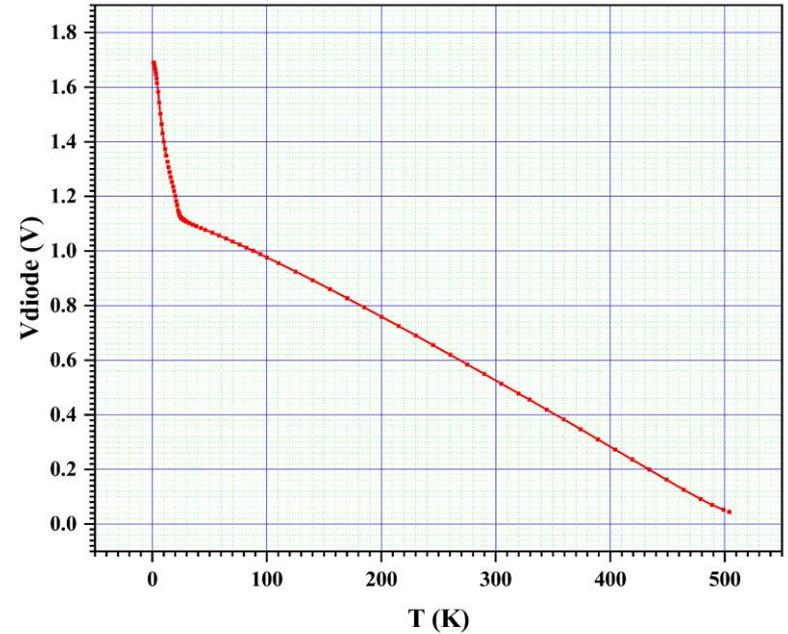
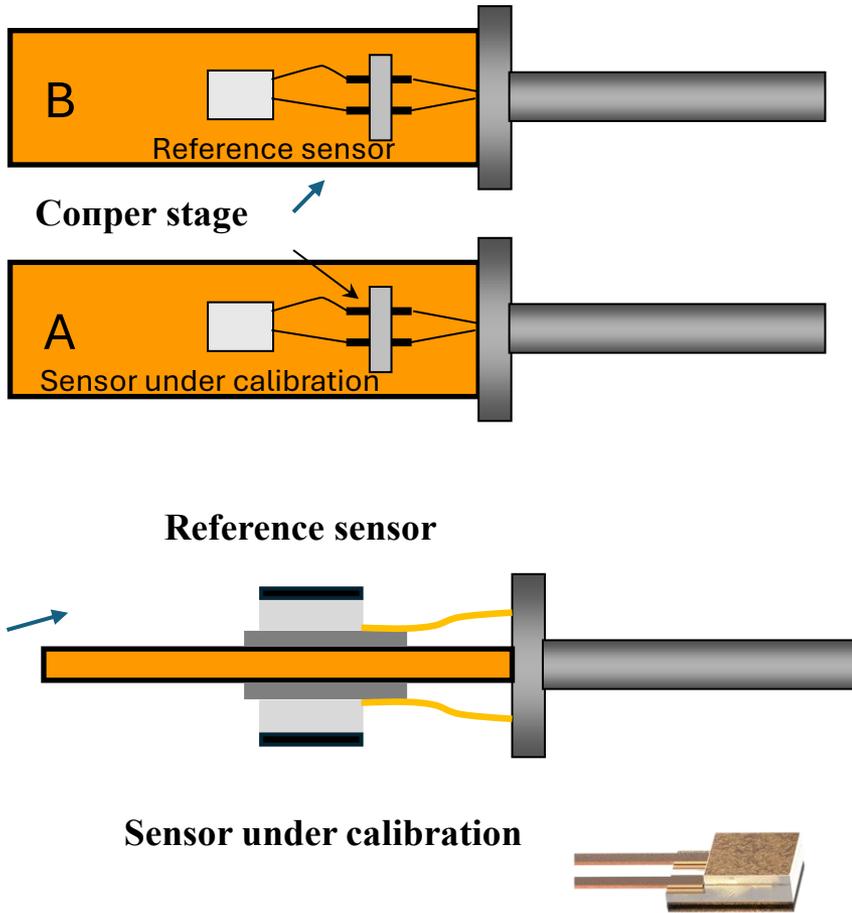


Measuring setup for temperature sensor calibration

Condensed Matter

The Temperature sensors calibration

Lab logo: *T calibration*



Typical calibration curve

Configuration of the temperature stage for calibration procedure in liquid He