

Condensed Matter

Ferroelectrics

Lab logo: *Ferro1*

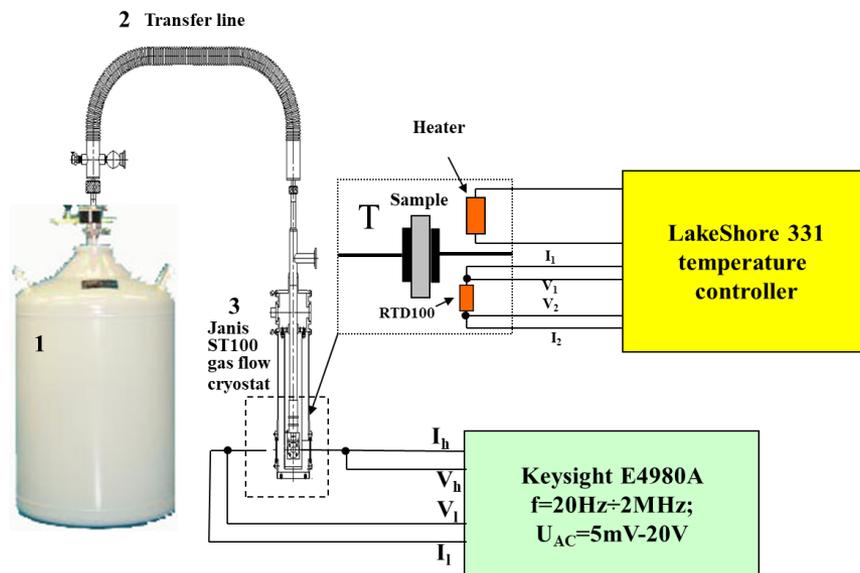
Ferro1 experiment: measuring the complex dielectric susceptibility and polarization current in different ferroelectric materials and disordered relaxors.

P403 Lab has three Ferro1 setups,

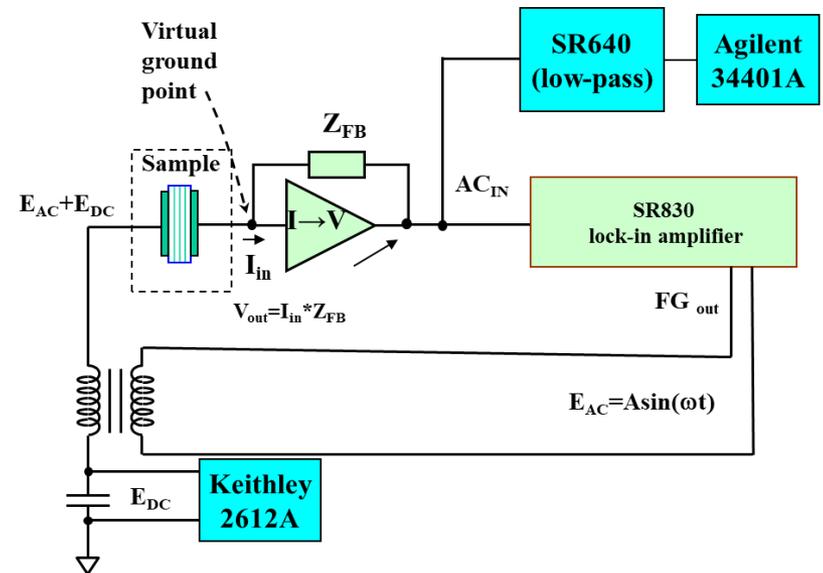
Temperature range: 77 ÷ 650 K;

Frequency range: 1mHz ÷ 1MHz;

Based on the goal of the experiment we can use different hardware configurations.



Setup based on using commercial LCE meter

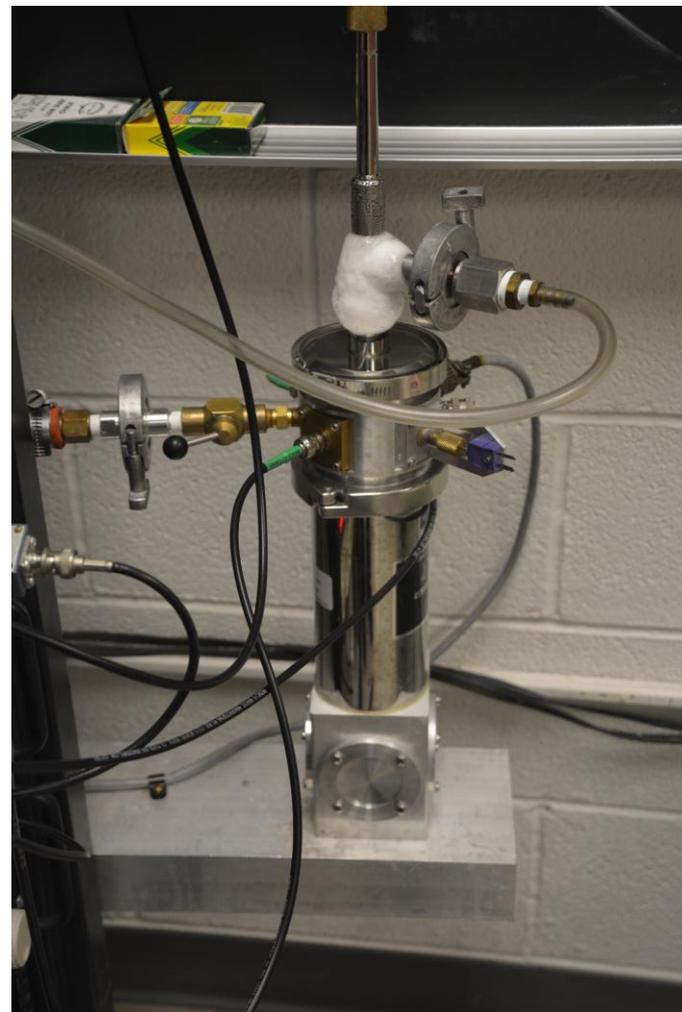
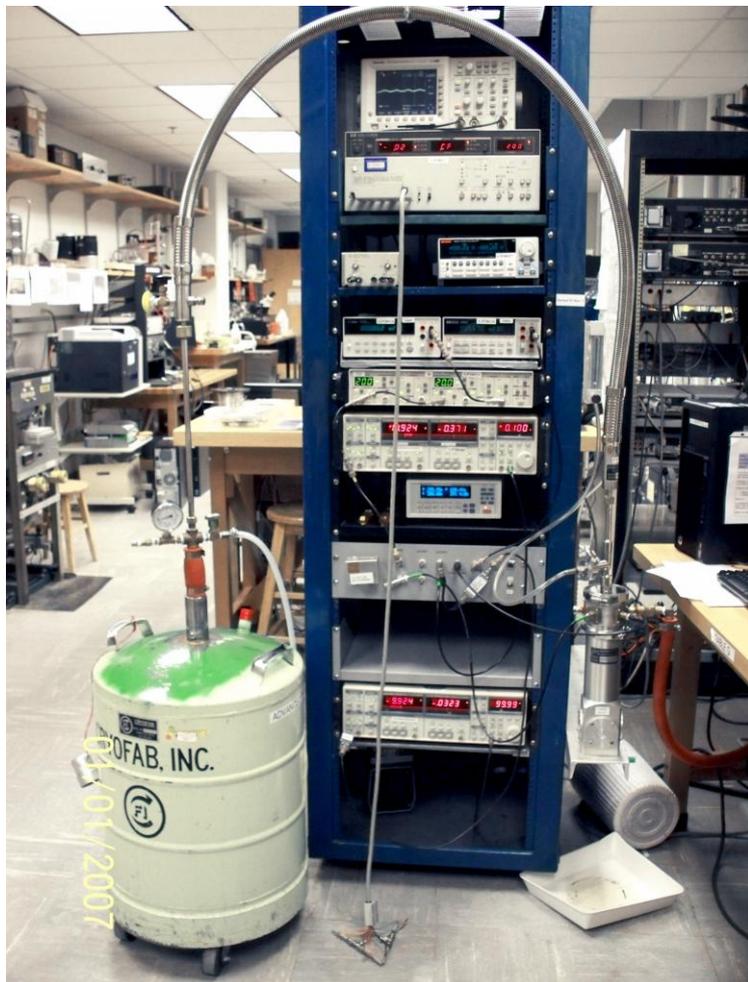


Setup for measurement of susceptibility and polarization current with application of the DC bias

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Lab logo: *Ferro1*



“Ferro1” setup (left) and gas flow cryostat (right)

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Lab logo: *Ferrol*

The experiments are running under the control of DAQ program FerroSoft4 written on Keysight VEE language

Back to Hardware Selection

Users List

Measuring Equipment settings

EXPERIMENTS

Steps

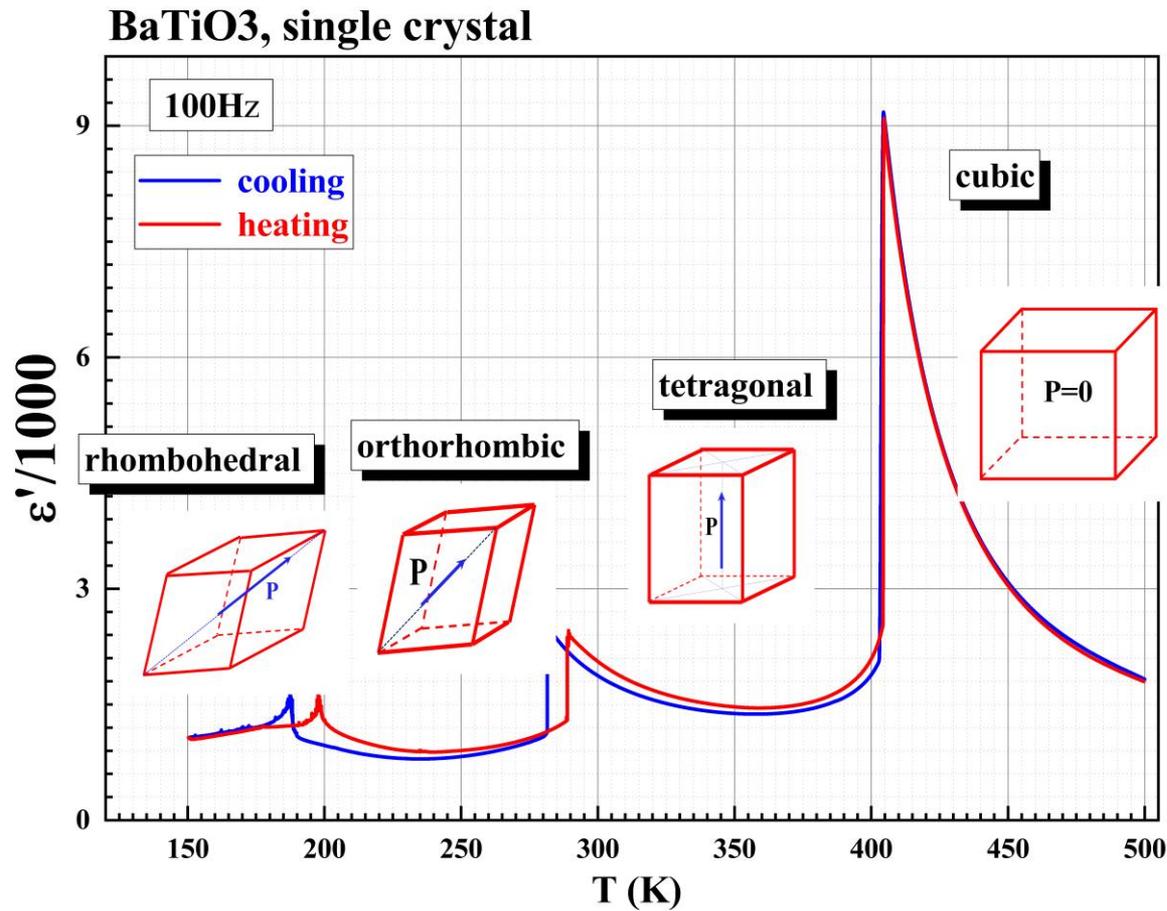
Ramp-Aging

Aging+scan

Temperature monitor

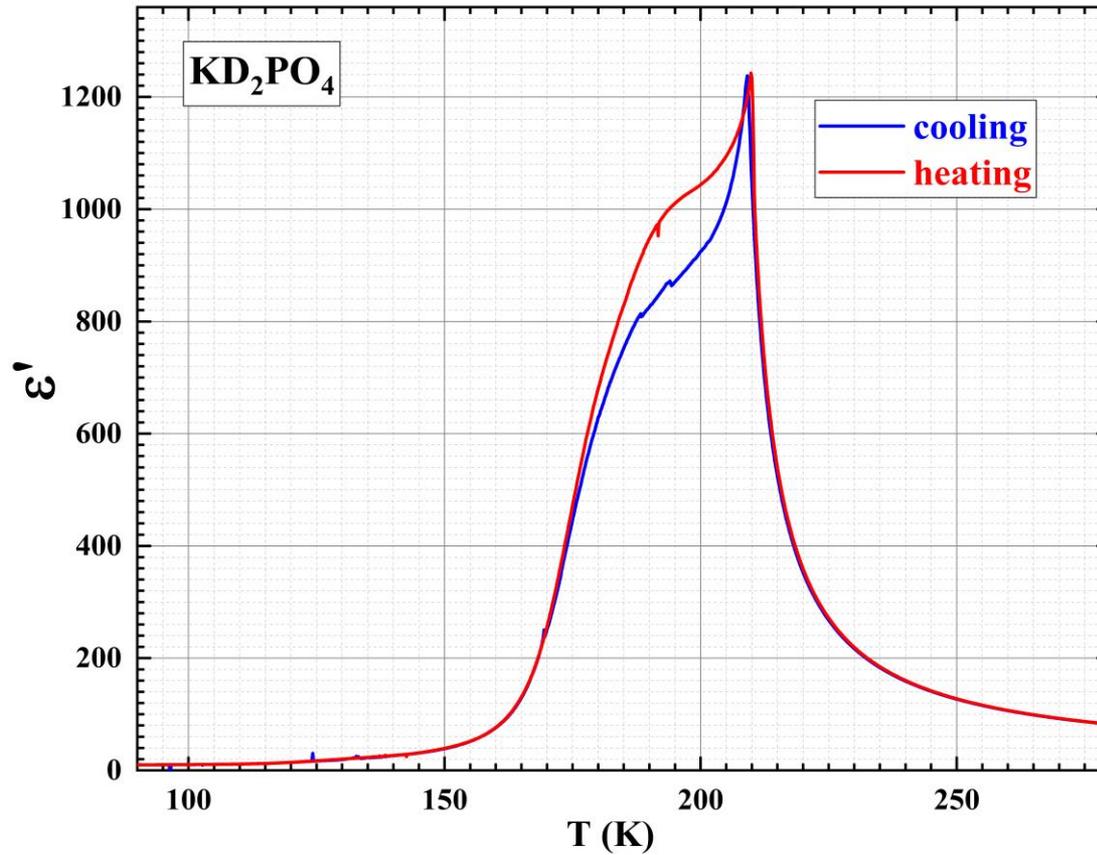
EXIT Program

Some experimental results:



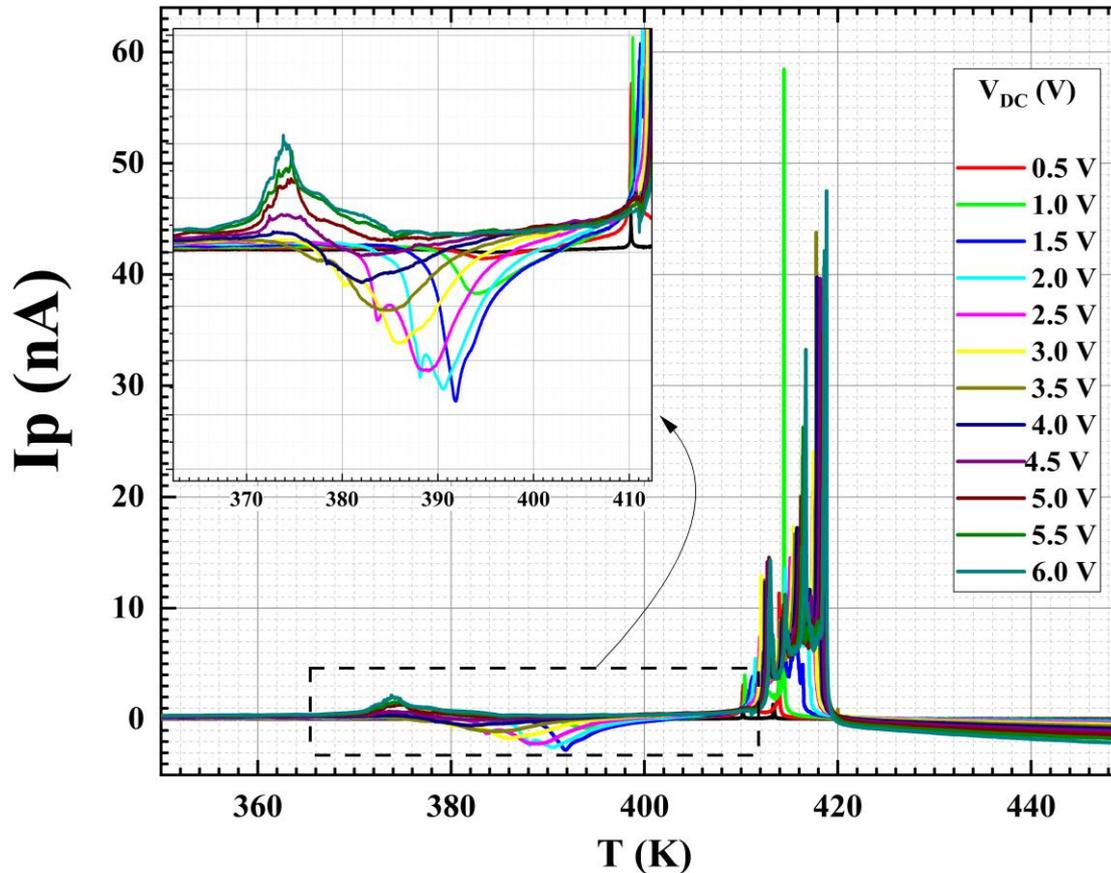
Barium Titanate susceptibility as a function of temperature

Some experimental results:



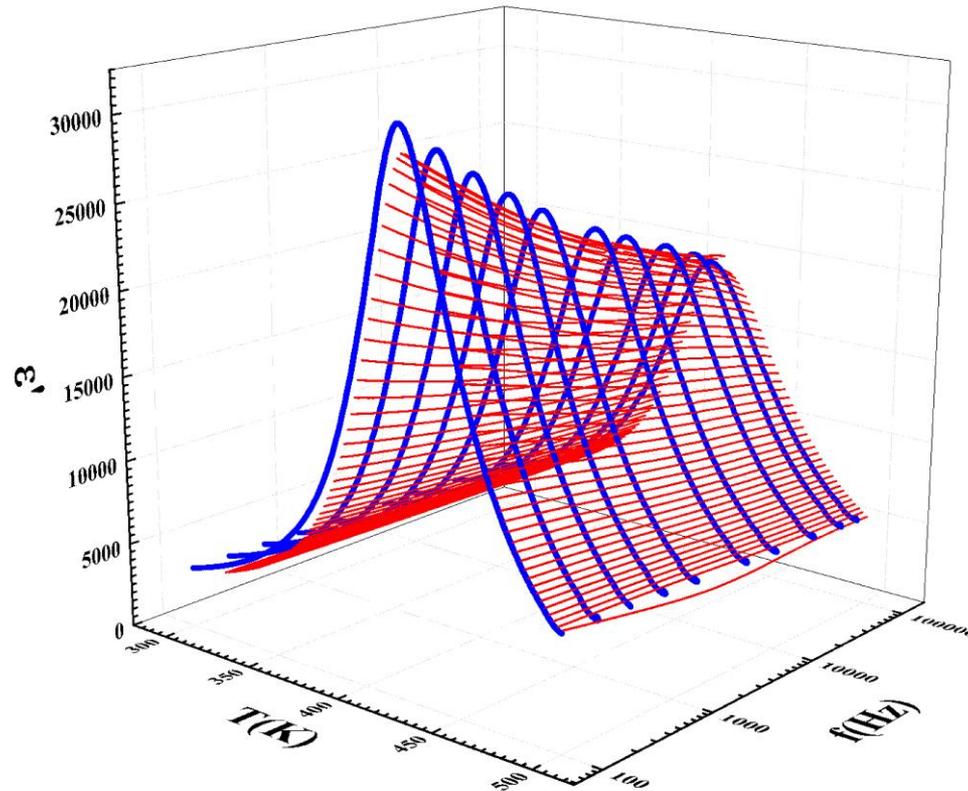
Deuterated version of the Potassium dihydrogen phosphate

Some experimental results:



$(\text{PbMg}_{1/3}\text{Nb}_{2/3}\text{O}_3)_{(1-x)}-(\text{PbTiO}_3)_x$ single crystal ($x \sim 0.3$). Depolarization current records while heating with different DC bias voltages

Some experimental results:



(PbMg_{1/3} Nb_{2/3} O₃)_(1-x)-(PbTiO₃)_x single crystal (x~0.3). $\epsilon''(T,f)$ measured as temperature scanning (blue) and frequency scanning (red)