MLZ internal Sample Environment Meeting

News from TUM Sample Environment

Andreas Buchner, Peter Biber, Manuel Suarez
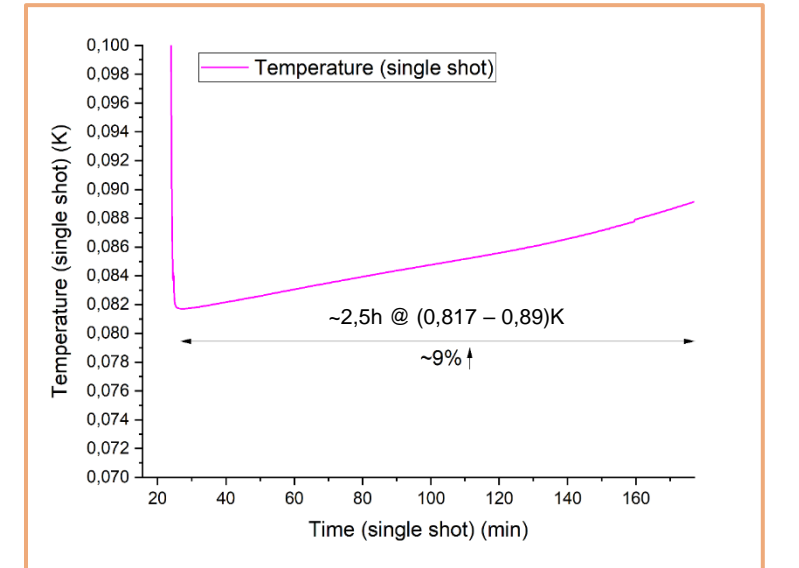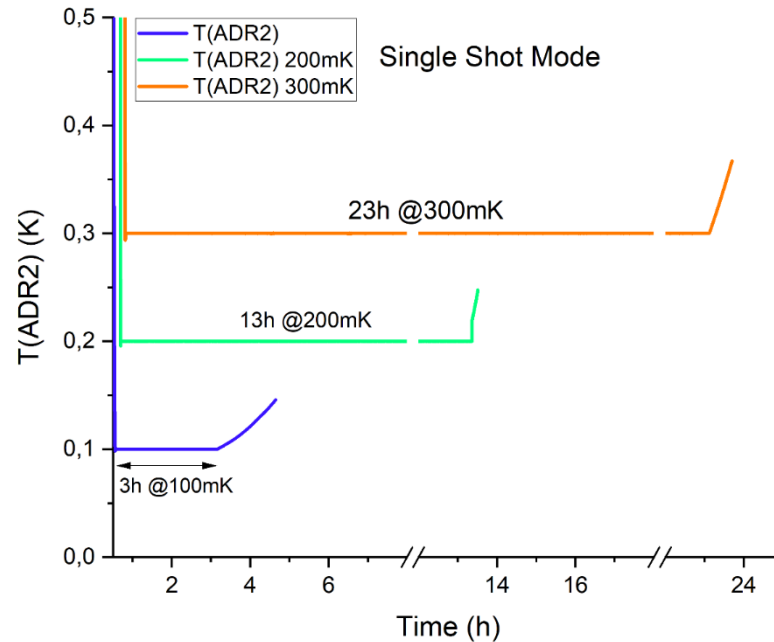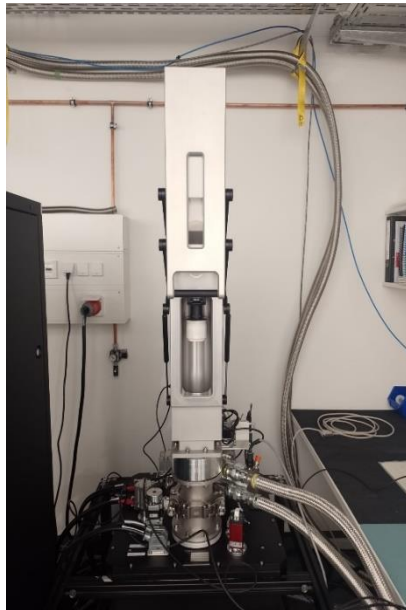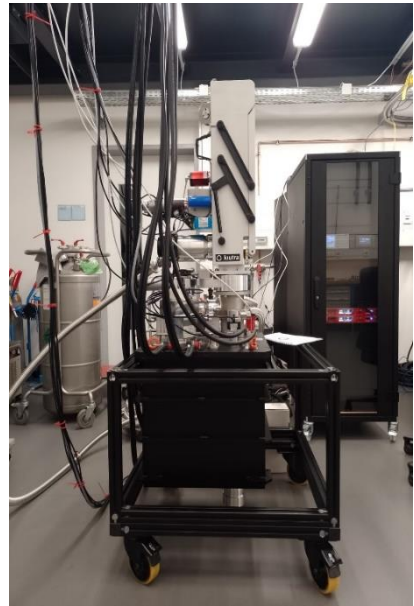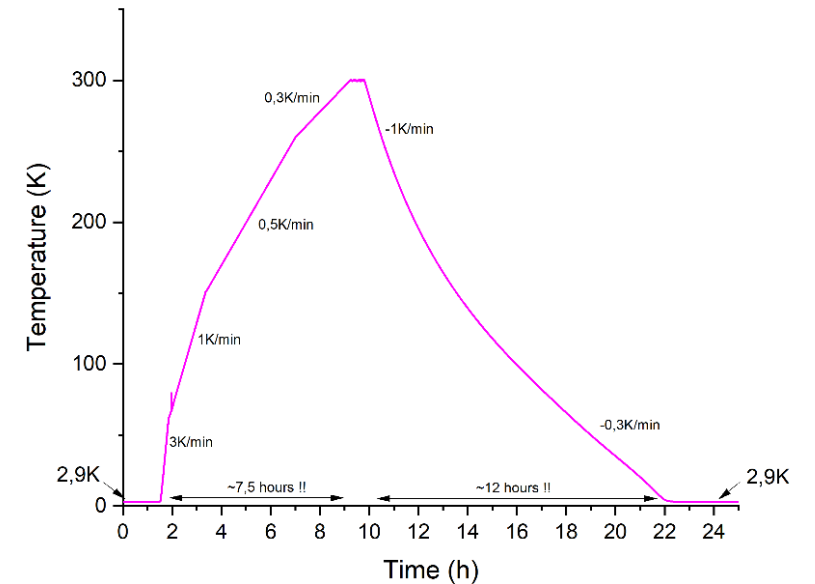
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News from TUM Sample Environment

- LT news
- HT news
- Sample Changer for LT systems news
- Participation in developments and experiments
- Manpower. The status up to now.

Low Temperature News

- **Adiabatic Demagnetization Refrigerator (ADR)**

Single Shot Mode

- T(ADR2)
- T(ADR2) 200mK
- T(ADR2) 300mK

23h @300mK

13h @200mK

3h @100mK

~2,5h @ (0,817 − 0,89)K
~9%

Temperature (single shot)

Temperature

0,3K/min
-1K/min
0,5K/min
1K/min
3K/min
-0,3K/min
~7,5 hours !!
~12 hours !!
2,9K
2,9K

+ Reception and commissioning
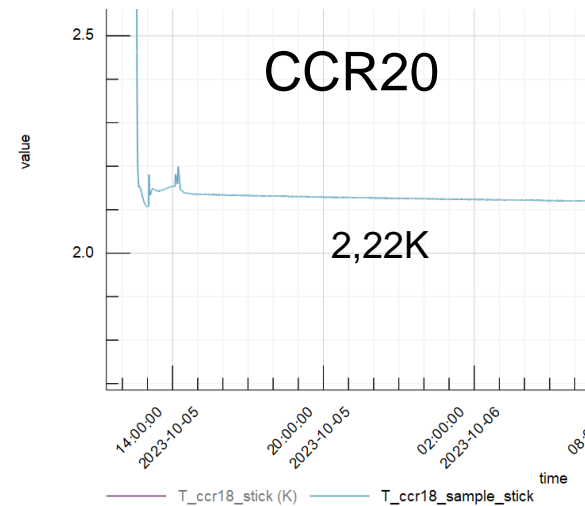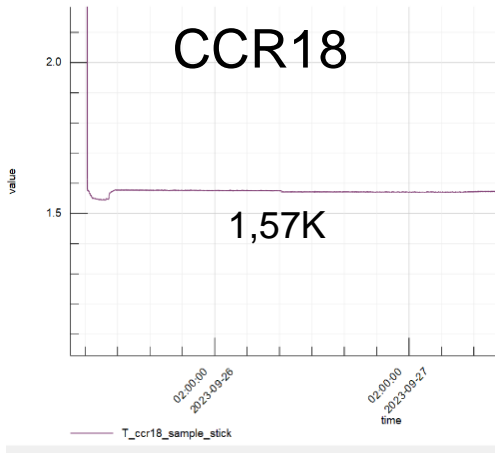+ Cryostat performance characterization (in progress)

TBD:
- Sample holders, integration with the control system, auxiliary services and mechanical interface

kiutra

Low Temperature News

- **1 K Cryostat**

CCR18

1,57K

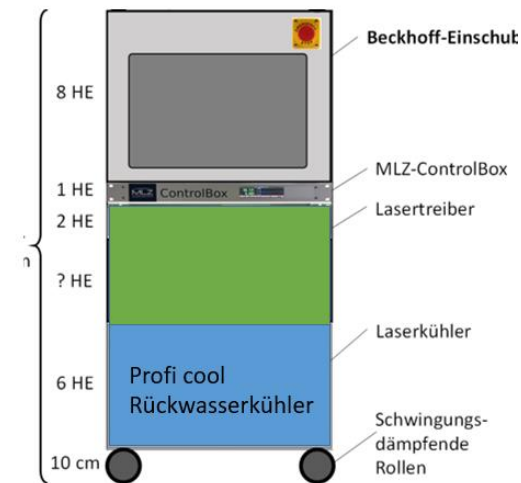He4 Gas Handling

CCR20-80mm

CCR18

CCR20

2,22K

High Temperature News

- **Advanced Materials Laserofen-Steuerung**

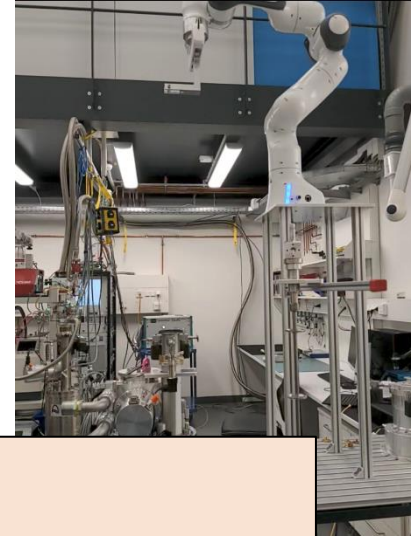AdvMat Steuerung Laserofen

Modular design, suitable for Laser + HTF heating methods.

Material Science Group, Sample Environment and Hereon

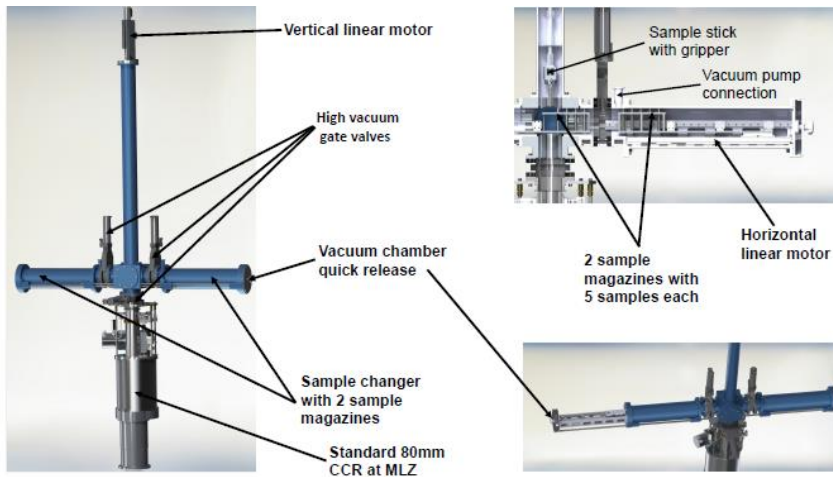Testing machine for compression, tensile and fatigue tests

Sample changers for LT

- ## Automatic Linear sample exchange @LT

  - Linear sample changer for Standard CCR

  - Automated sample changer for low temperatures for the standard 80 mm CCR
  - Allows the measurement of up to 10 samples without operator attendance.
  - Instrument control group is working on the control system

- ## Robotic arm for sample changer @LT

  - Automatic sample changer for Compact Cryostat and Standard CCR

On this day we must give the discussion about SE + Robotics

From SE we have some comments or points to contribute to the discussion:

- At SE we do not plan to develop "robotics arms" for sample exchangers in LT, but,
- We will be active collaborators and we´ll support its implementation
- Inst. Control group / Robotics group (what is robot?) / Sample Environment/Instruments
- …

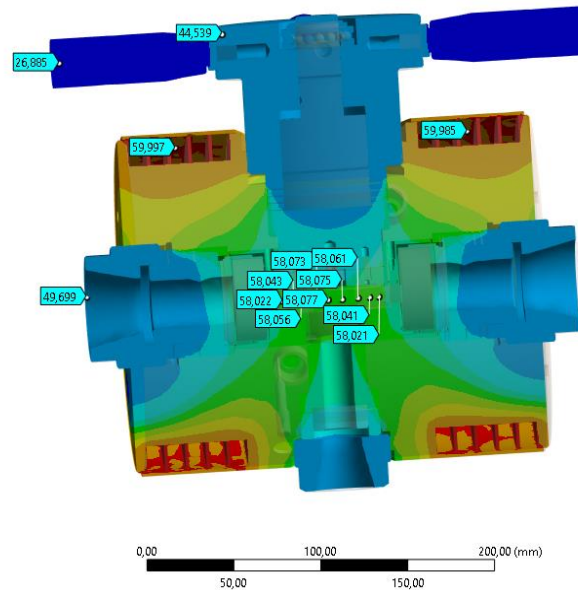# Participation in developments and experiments

- ## New Pressure Cell (SANS-1)

- Higher operational P-range, up 2kbar

- Change in the cooling circuit, thereby reducing the gradient on the sample from 1°C (old version) to 0,05°C
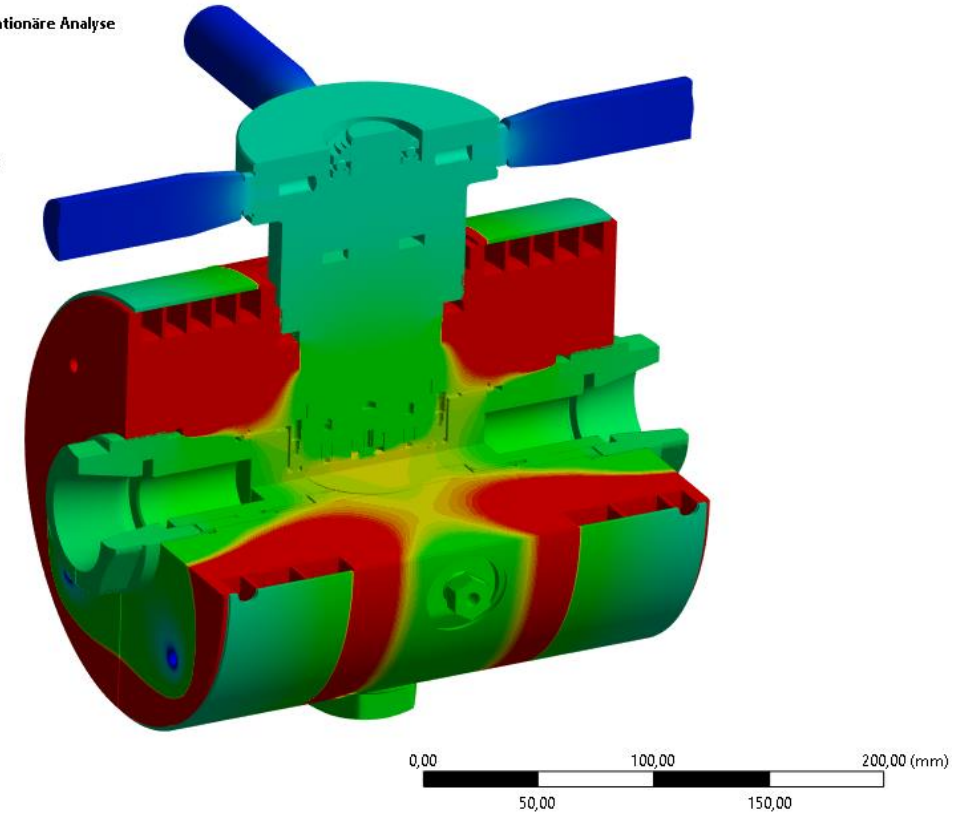
- Larger opening angle

- Additional optical window

Manpower

- Manuel Suarez (Management and LT)

- Andreas Buchner (HP, HT)

- Peter Biber (LT)

- Jank Wenzlaff (Workshop)

- Edith Rutenfranz (Student)
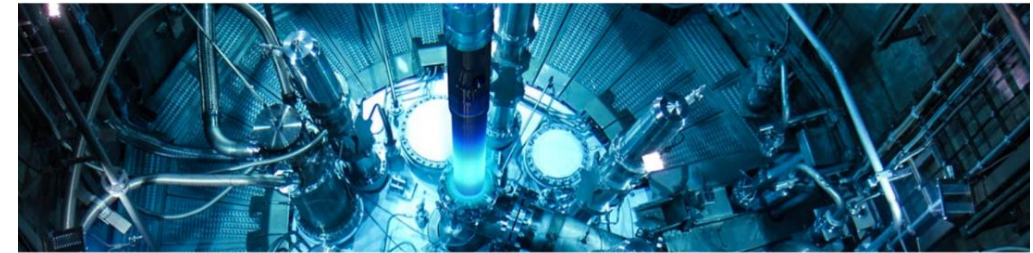
Stellenangebote Forschungs-Neutronenquelle
Heinz Maier-Leibnitz (FRM II)

+ 2 positions for Engineer
+ 1 position for Scientist

Thanks you for your time

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Andreas Buchner, Peter Biber, Jank Wenzlaff and Edith Rutenfranz

Thank you for your time

Sample Environment @ TUM
Summary

High Temperature ~(6 HTF, 4 IRF):
RT-1900K

Low Temperature ~ (19CCR, 6He3, 2DU:
RT- 50mK

Magnetic Field: (~5MG)
Up 12T

High Pressure: ~(5HPC)
Up 7,5kbar