

# COMPASS Silicon Status and Planning 2021/2022

**Christian Dreisbach**

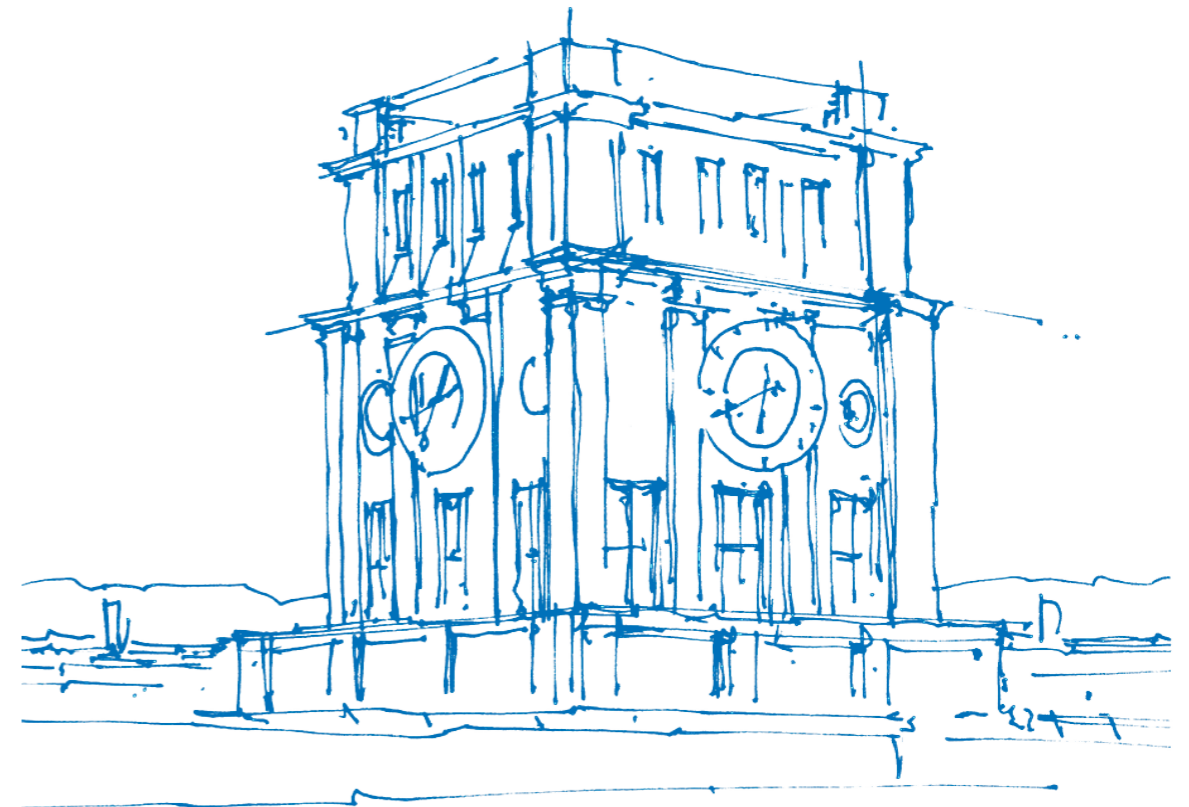
Technical University of Munich

Physics Department

COMPASS/AMBER Joint Technical Board Meeting

November 16<sup>th</sup> 2021

CERN / Zoom



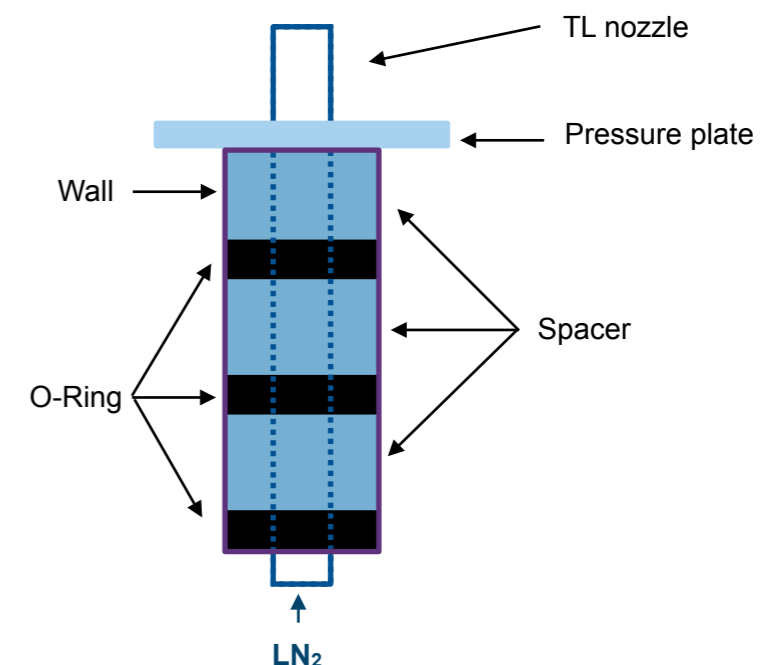
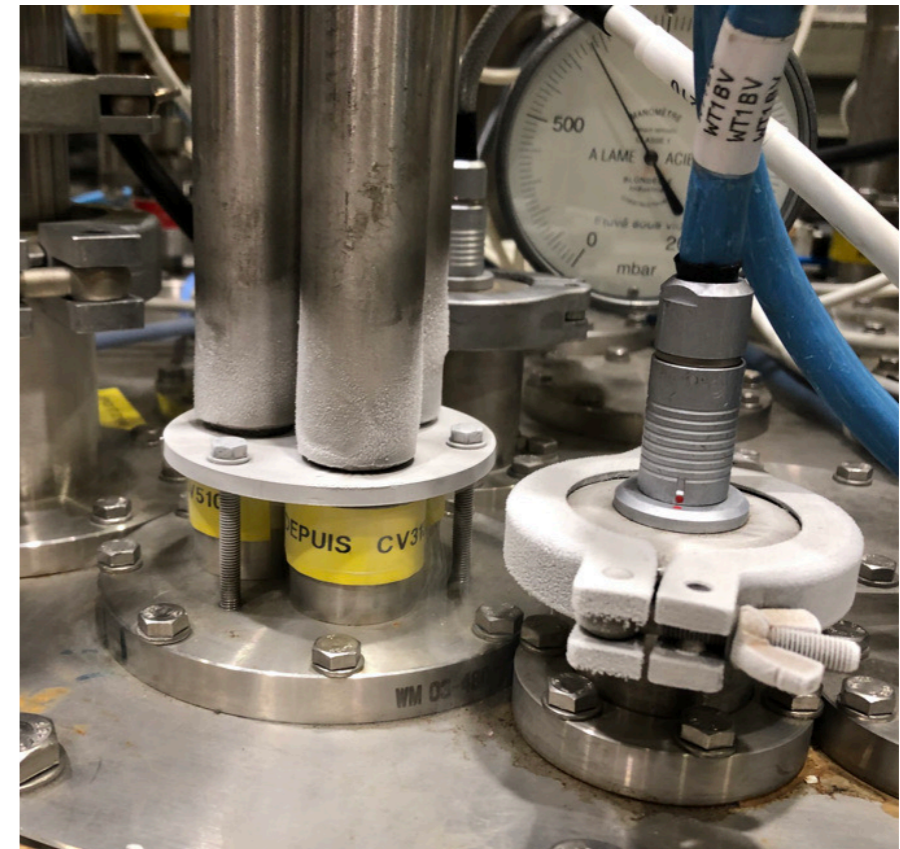
*TUM Uhrenturm*

# Report from 2021 COMPASS Run

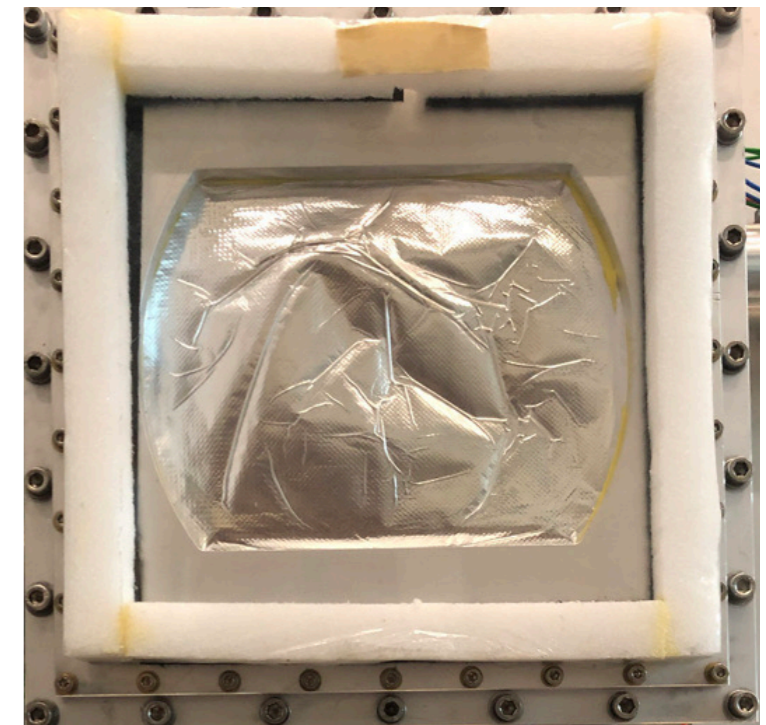
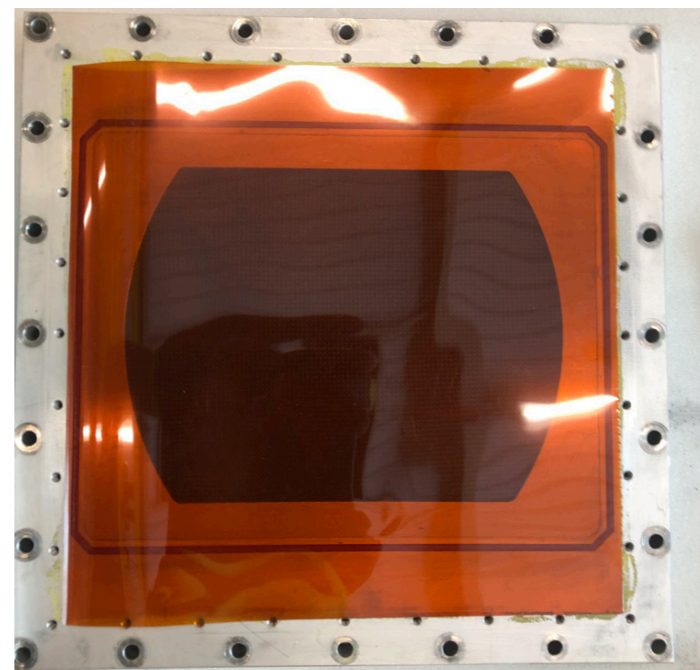
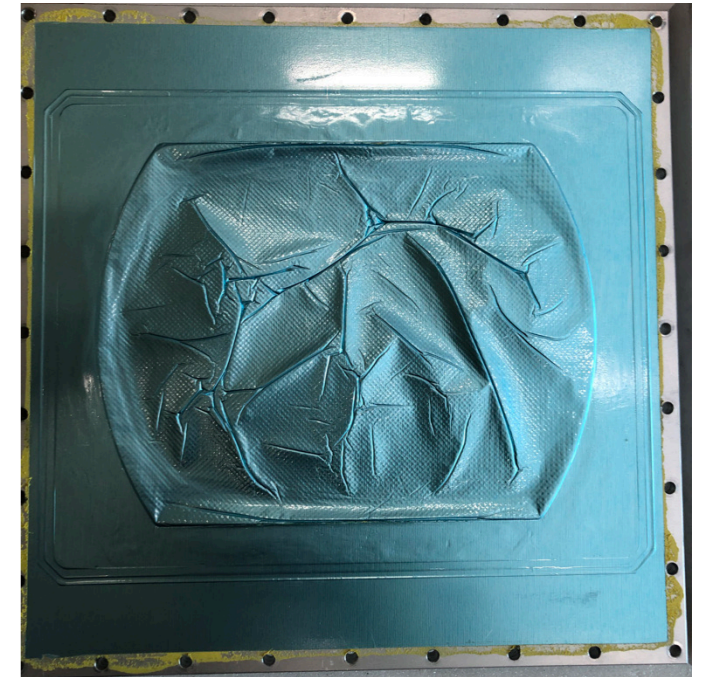
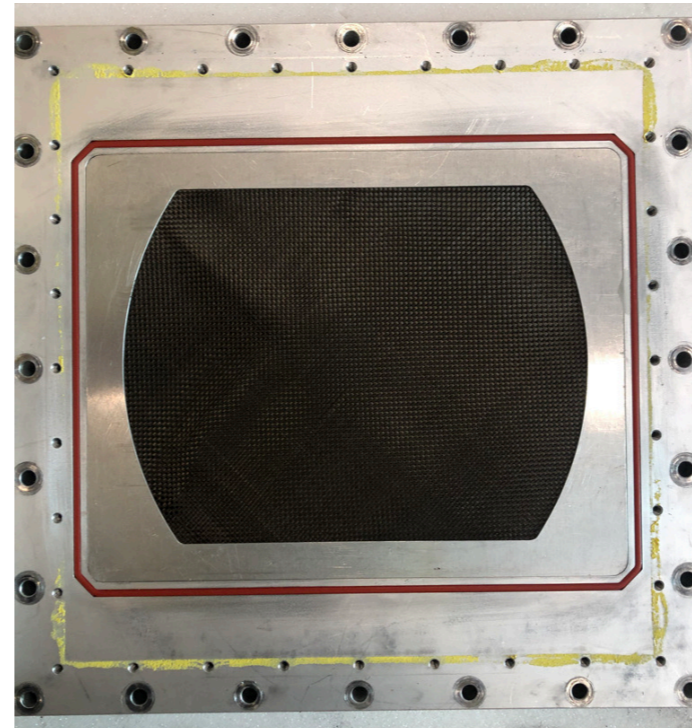
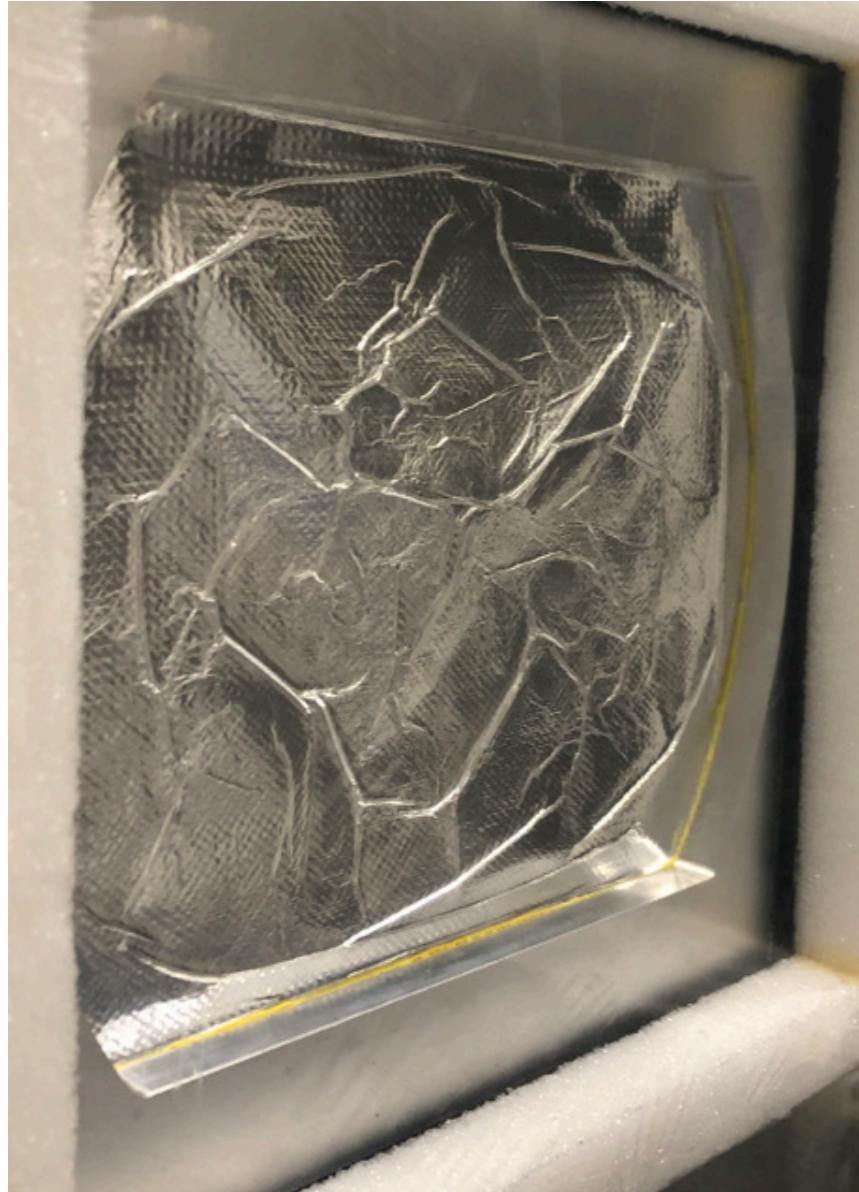
## Issues during commissioning

Initial commissioning in garage position to prepare stables operation at beam position

- Full test of the system
- First test of cooling system after refurbishment - some issues fixed:
  - Open/Closed valve status of inlet valves (“normally open”)
  - Heater for LN<sub>2</sub> reservoir not connected
  - Sealing for one station transfer line missing - LN<sub>2</sub> leak
- High voltage trips for SI02U - probably shortcut if repeater card is fixed with screws
- Incident: station windows blown up
  - All tested - all tight and stable after repair



# Report from 2021 COMPASS Run

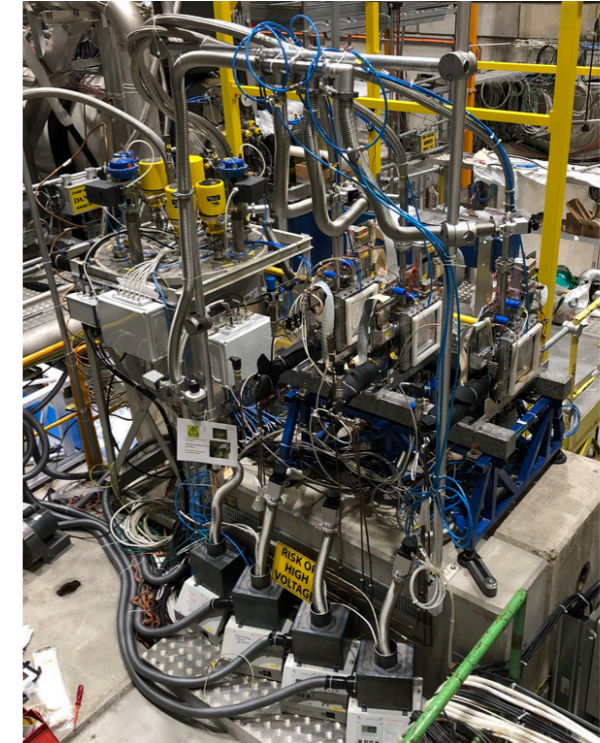


# Report from 2021 COMPASS Run

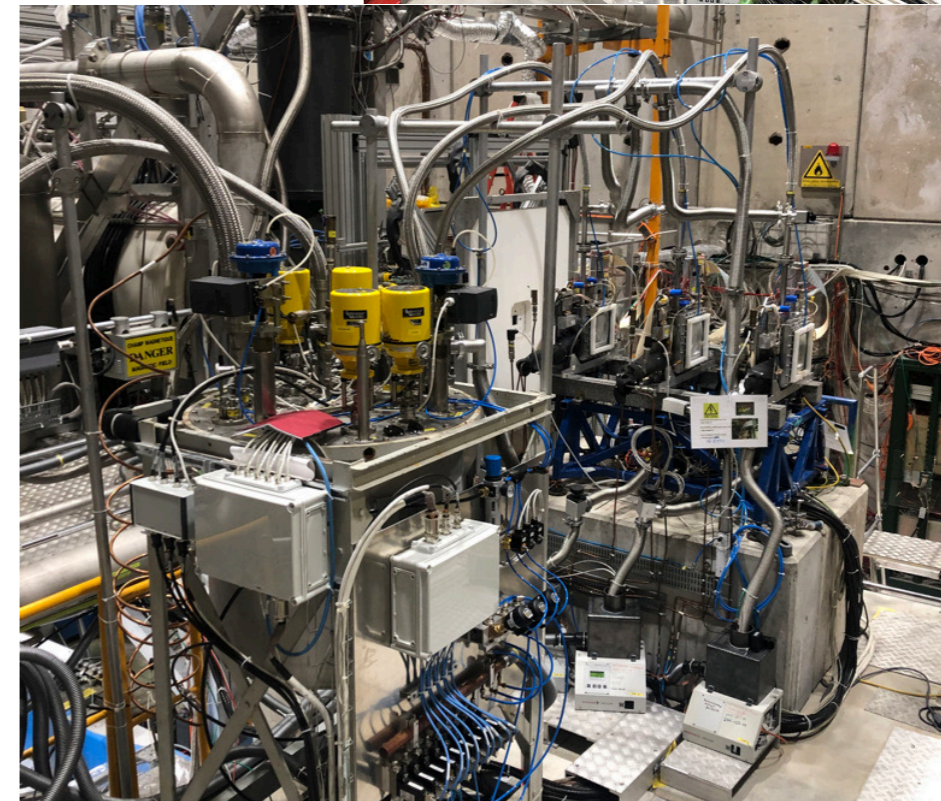
## Movement of system to beam position

Fully working system was moved to beam position  
mit of August

- New: Pumping B-shielding for target magnet
  - Blowers and temperature read out
- Survey on 13.08. - complete installation 17.08.
- Issues during the run:
  - LV supply of ADCs problematic (Deutronix):  
Igor: Improvement during winter break possible
  - Lab power supplies as fall-back for 1x ADC LV
  - LN<sub>2</sub> supply problematic during co-operation of He-Liquifier: Inlet pressure not sufficient:  
Maybe this could be improved?
- All equipment stored in Clean Area and barracks



07.08. - garage position

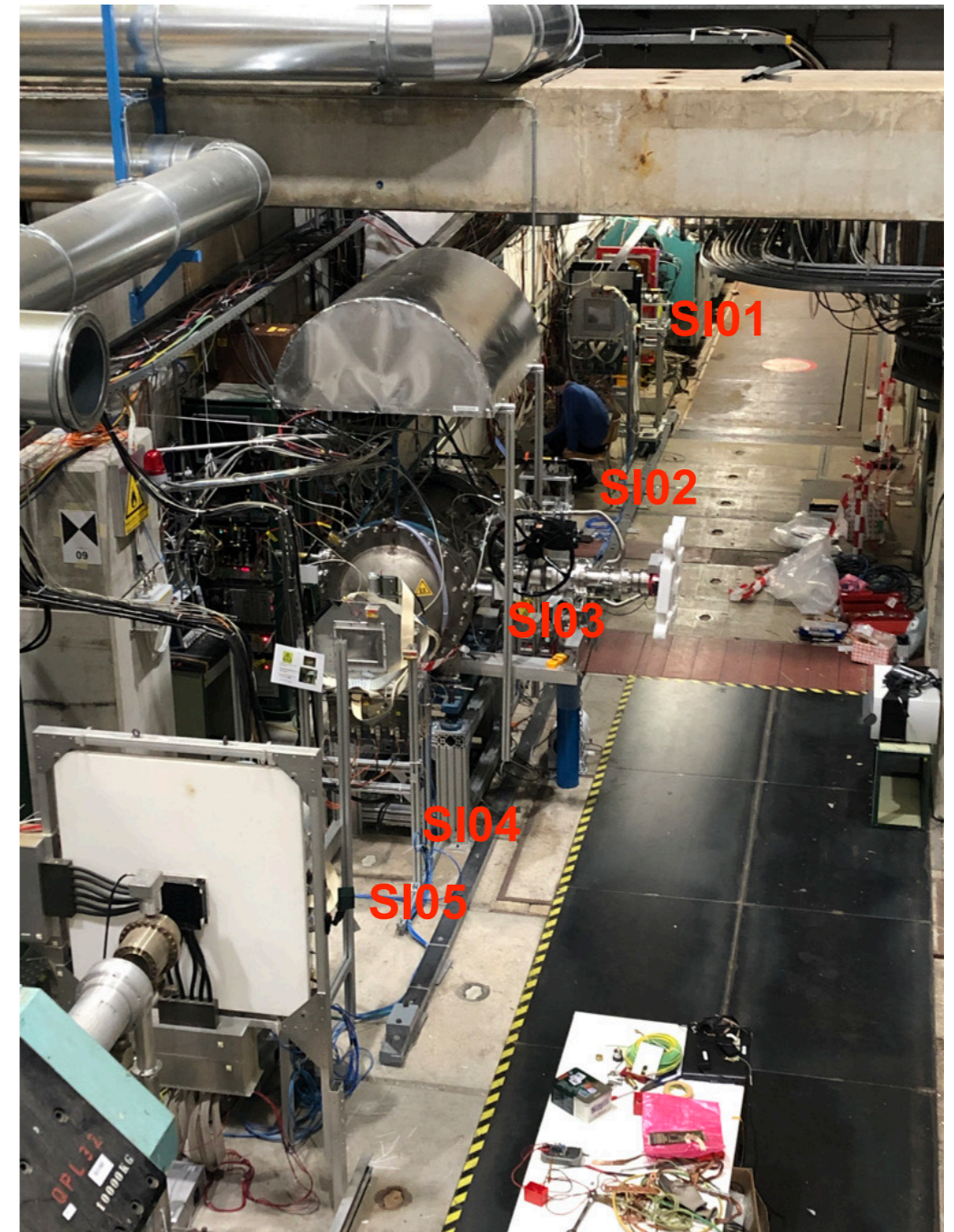


17.08. - beam position

# Report from 2021 AMBER PRM Pilot Run

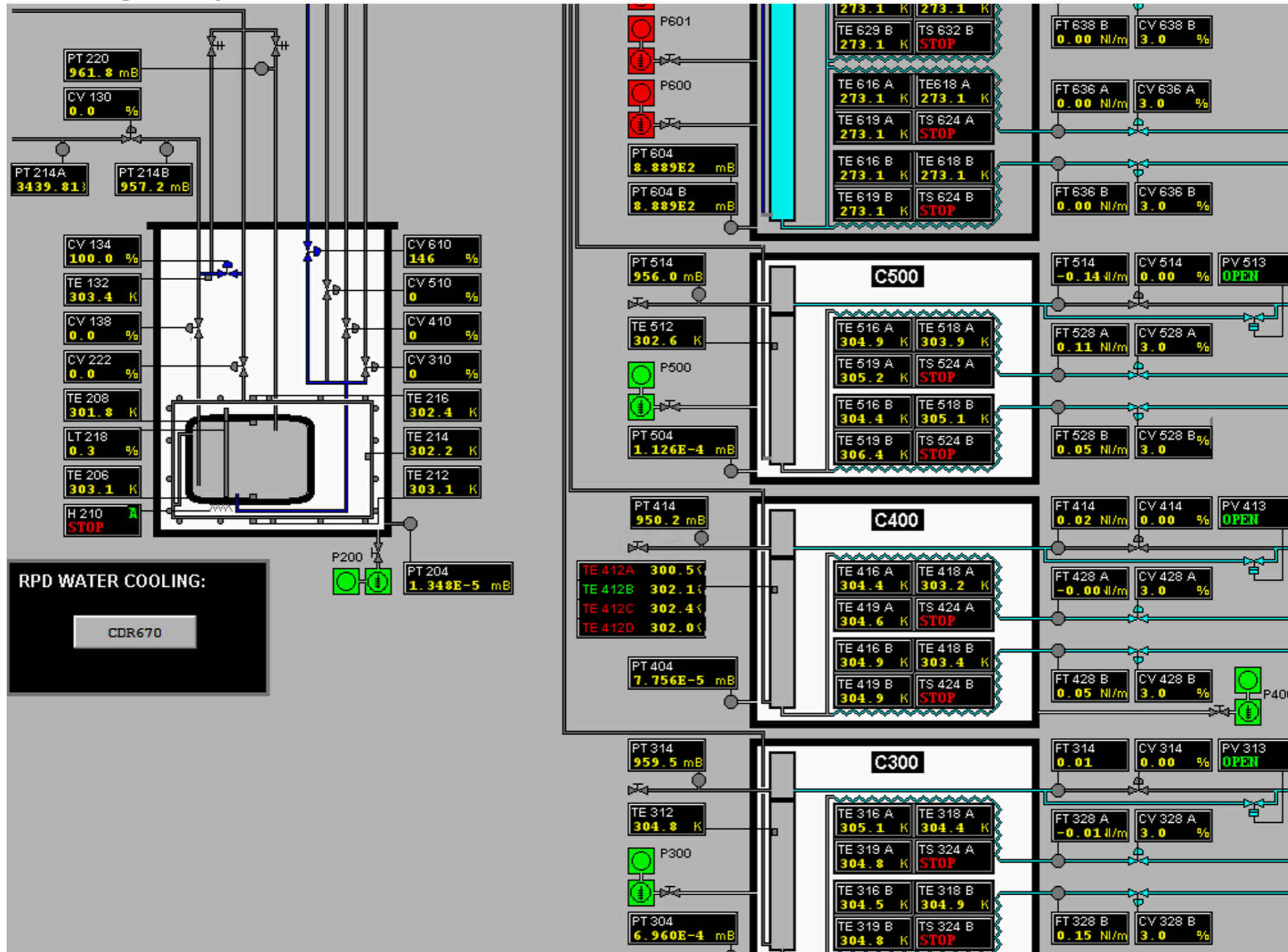
## Operation of five warm silicon station

- New support structures to adapt for beam height
- N<sub>2</sub> gas cooling for single stations
- Temperature readout based on old CEDAR system (16x PT100 probes): 8x station, 8x surrounding
- Overall stable operation after fine tuning of APV synchronisation (threshold / sync. ticks)
- Issues during the run:
  - LV supply of ADCs problematic (Deutronix) - same as for COMPASS Silicons (“ADC specific”)
  - SI01 ADCs very unstable - cause unknown
  - 1x ADC broke during HV trip
- Next:
  - Alignment required for time calibration and tracking - study of detector performance possible

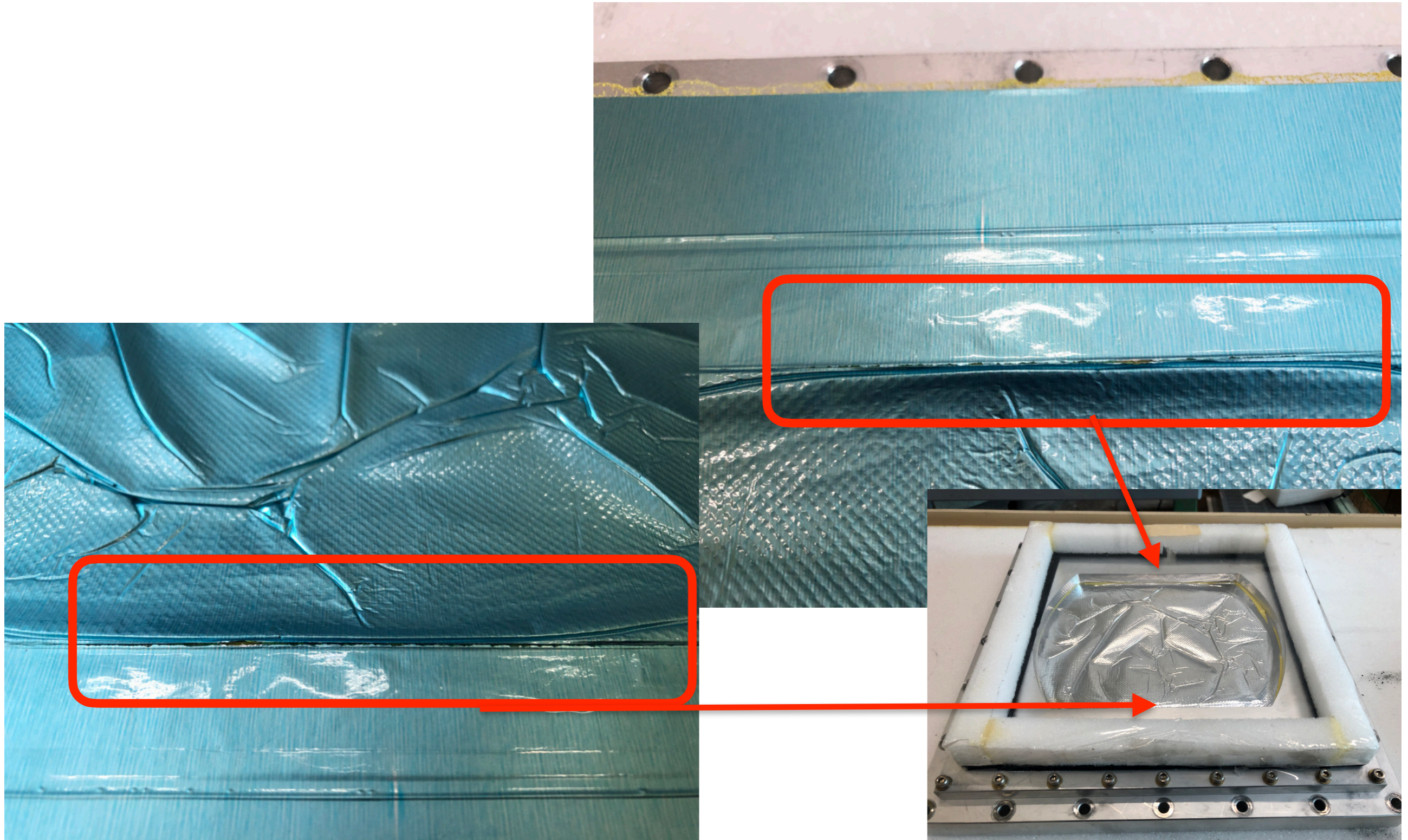


# Additional information

# Cooling System Overview



# Overpressure on Station Windows - Fix of SI01 Downstream





# Overpressure on Station Windows - Result

Detector	Value (E-4 mBar)	Value before (E-4 mBar)	Comment
SI01 Upstream	6.2	4.4	OK
SI01 Downstream	6.2	4.4	Fixed - OK
SI02 Upstream	4.5	3.8	OK
SI02 Downstream	1.1	1.2	OK

Station	Value (E-4 mBar)	Value before (E-4 mBar)	Comment
SI01	8.1	8.9	OK
SI02	1.1	4.2	OK
SI03	1.2	8.2	OK

Difference of values also related to different length of pumping time!

- All stations are fine from the vacuum side
- Open questions: Influence due to wrinkles on windows - stability? beam?