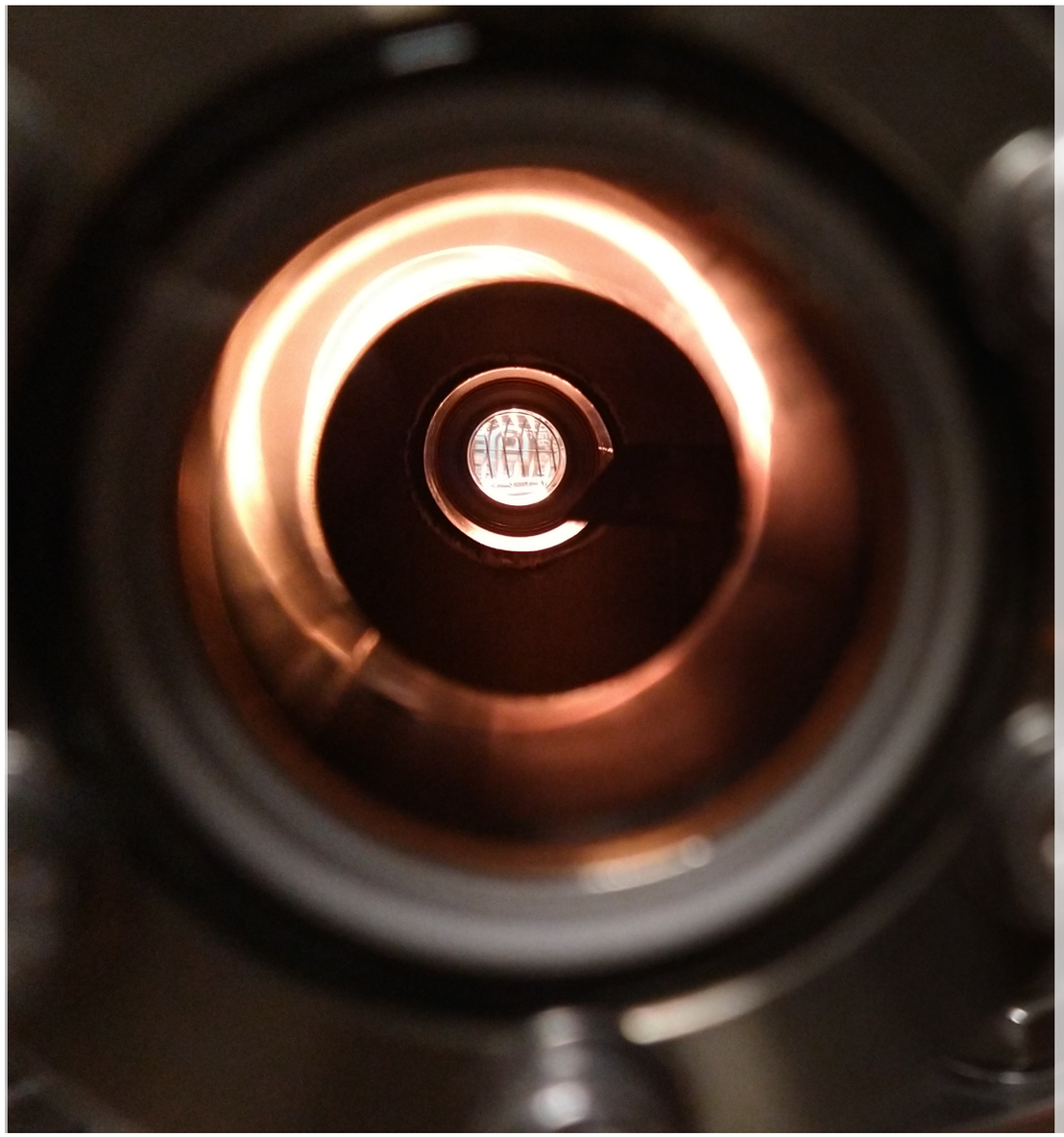
ALICE



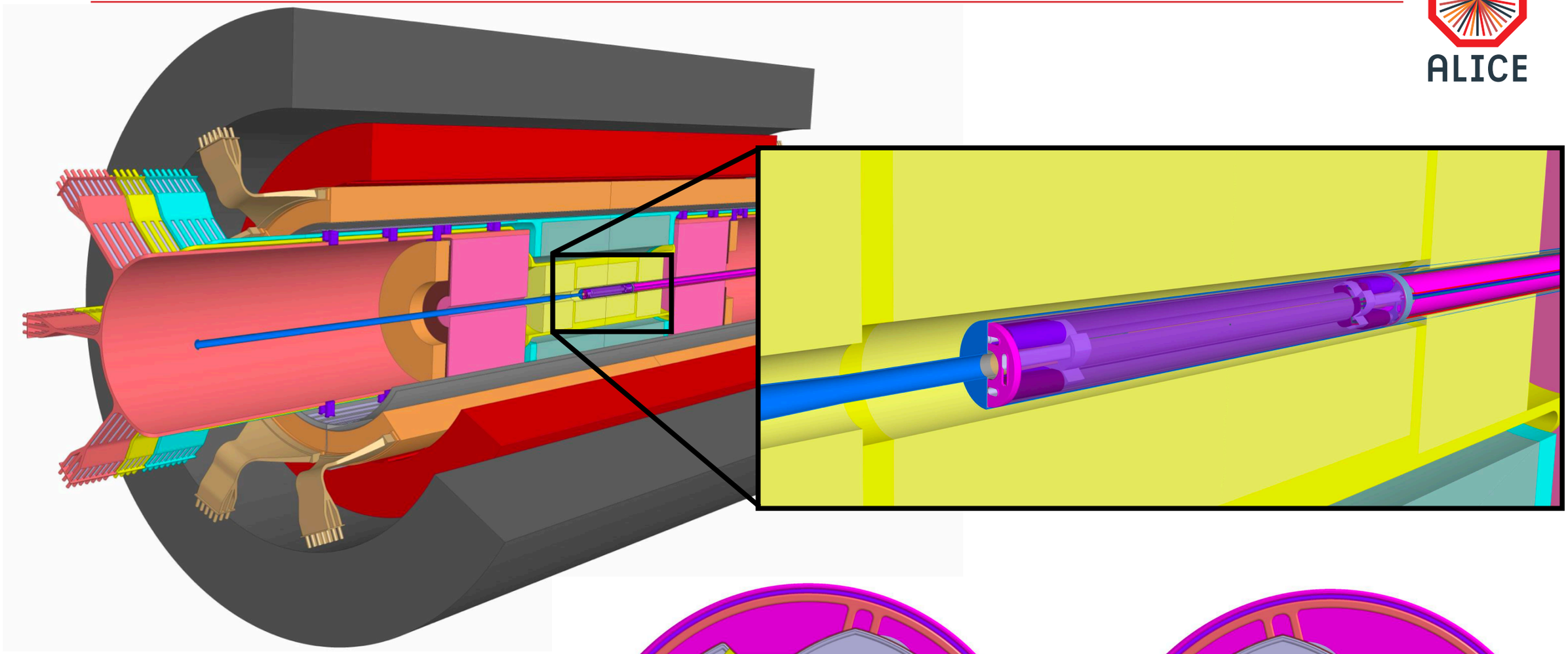
ALICE 3 - IRIS Degassing studies

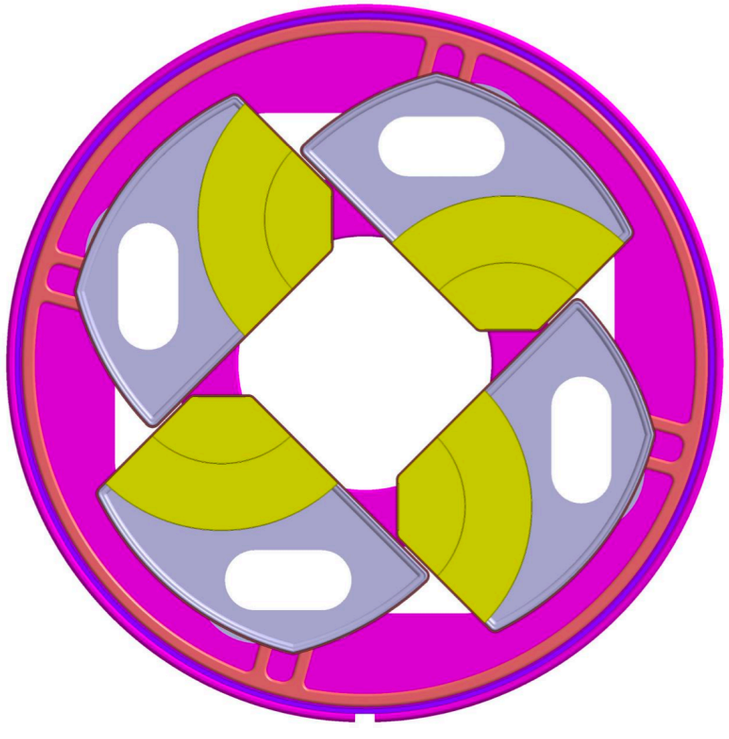
Activities update

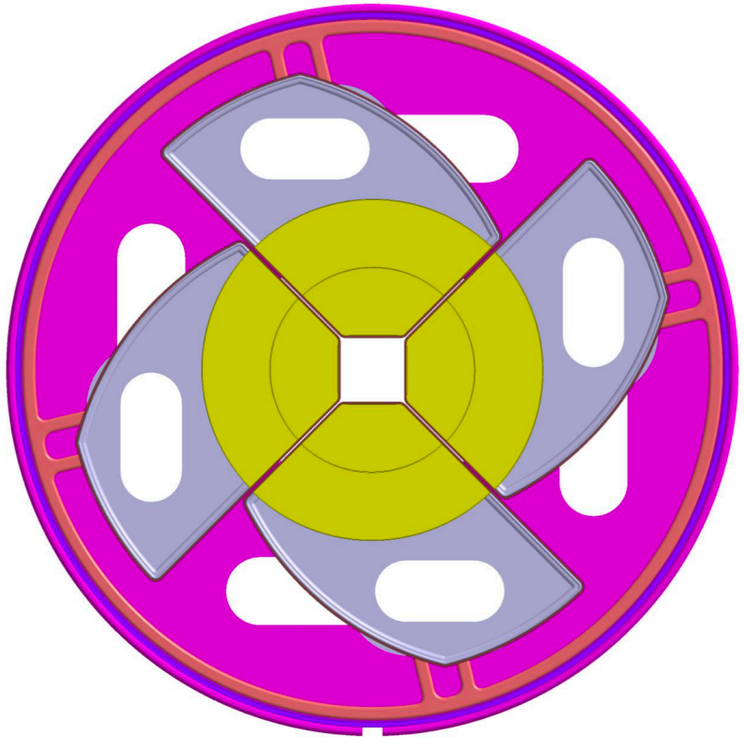
Triloki's presentation during last AUW in Torino:
https://indico.cern.ch/event/1301029/contributions/5674863/attachments/2764004/4814143/Triloki_Exp_Facilities_INFN_Bari.pdf

Dr. Triloki Pandit

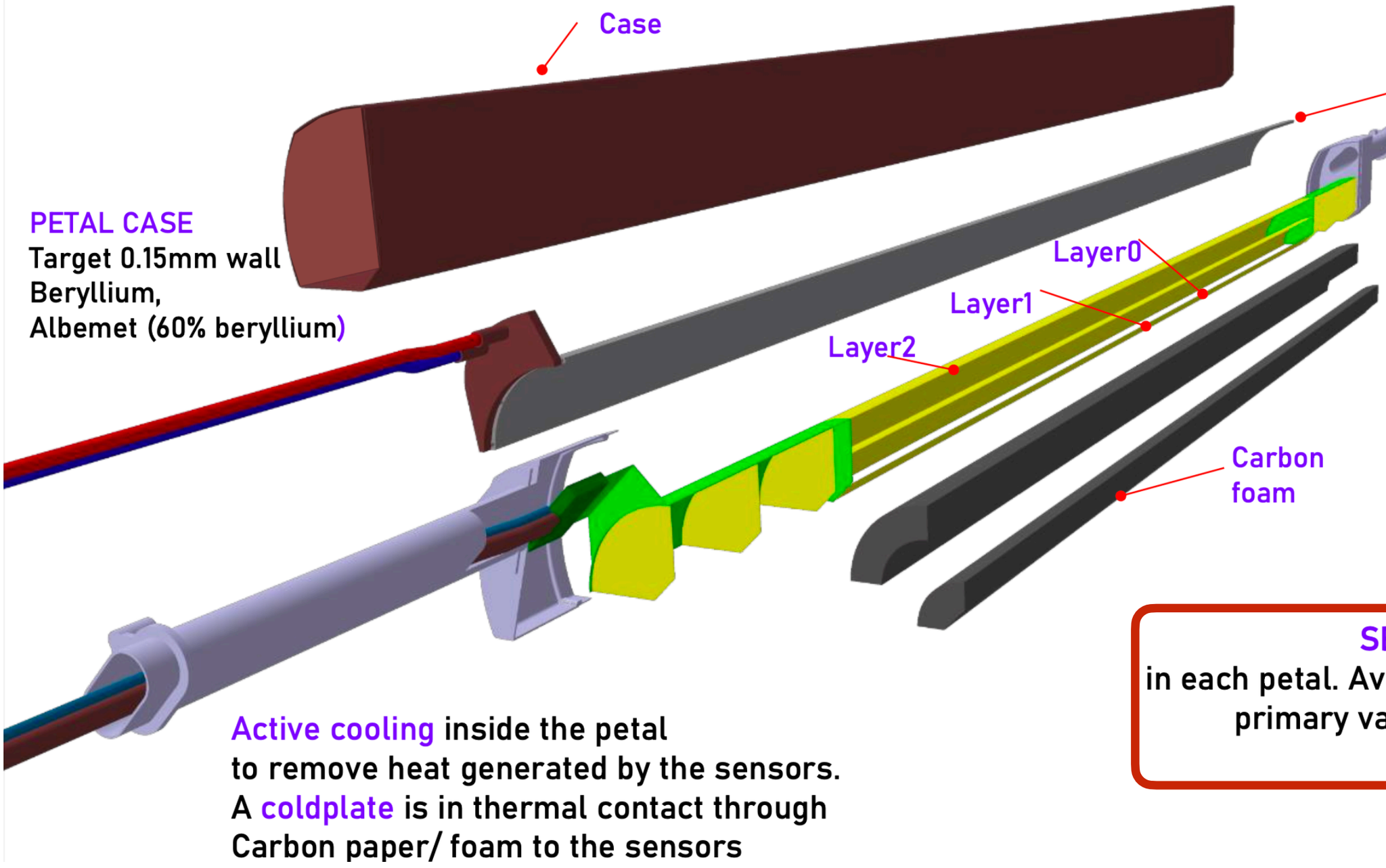
Supported by ALICE Bari team, workshop and
long standing vacuum experts (even if retired) colleagues







From Corrado's slides at Torino AUW:
https://indico.cern.ch/event/1301029/contributions/5624139/attachments/2765551/4828173/20231205_alice_upgrade_week-r2.pdf



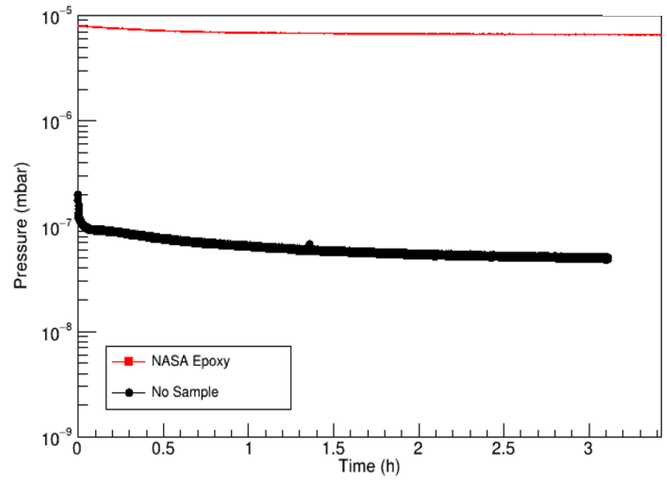
From Corrado's slides at Torino AUW:
https://indico.cern.ch/event/1301029/contributions/5624139/attachments/2765551/4828173/20231205_alice_upgrade_week-r2.pdf

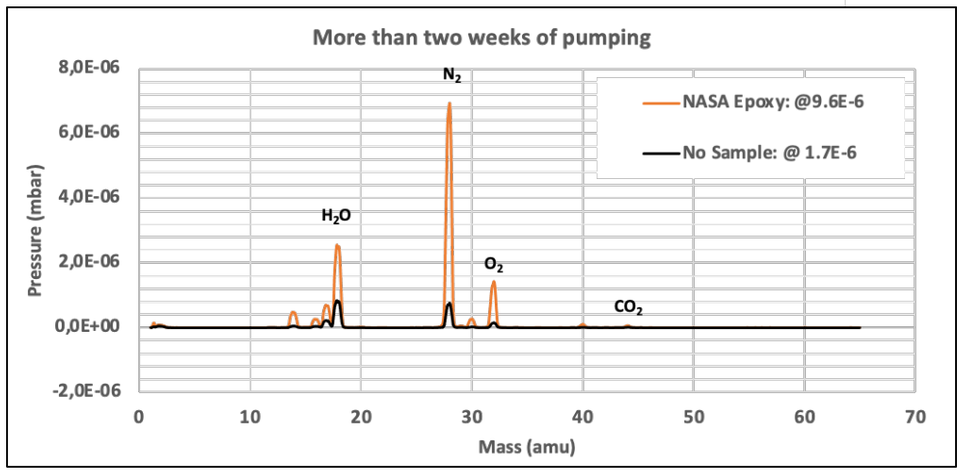
DEGASSING MEASUREMENT TECHNIQUES

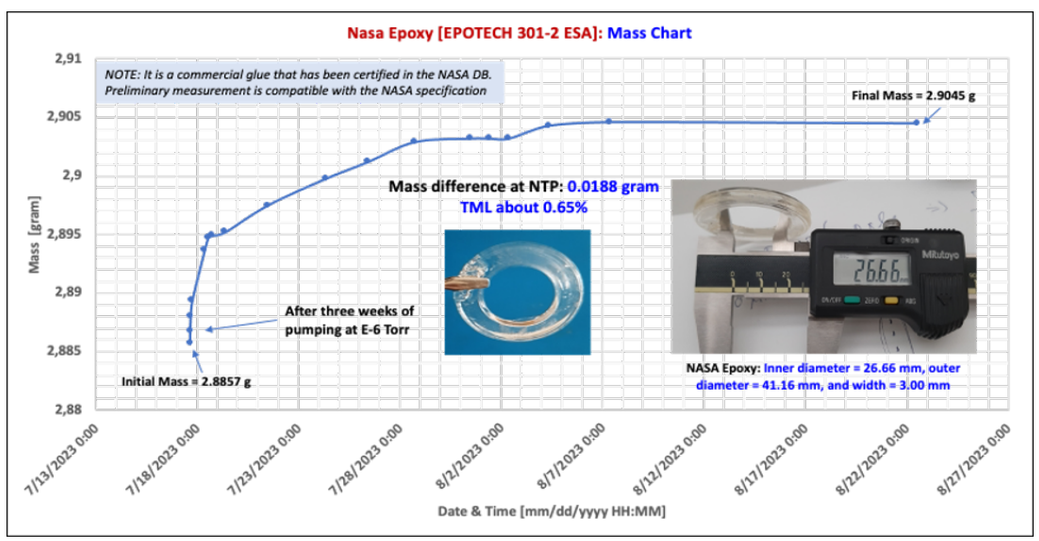
1. Comparing the vacuum level with and without sample

2. Comparing residual atmosphere of vacuum chamber with and without sample using RGA

3. Comparing the mass of sample before and after pumping

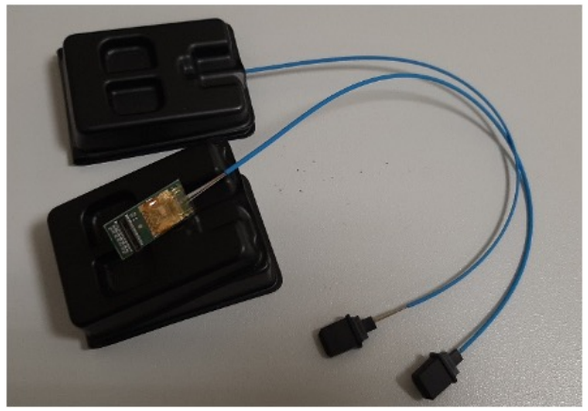


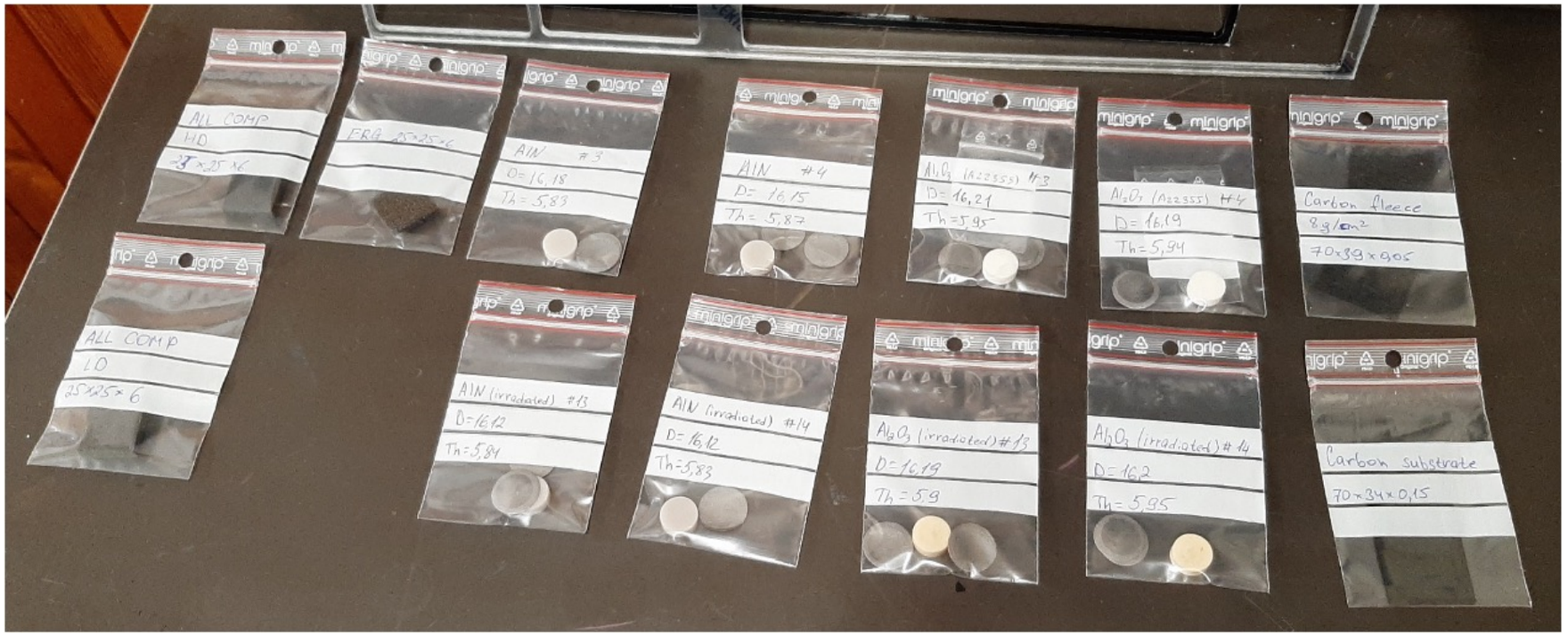




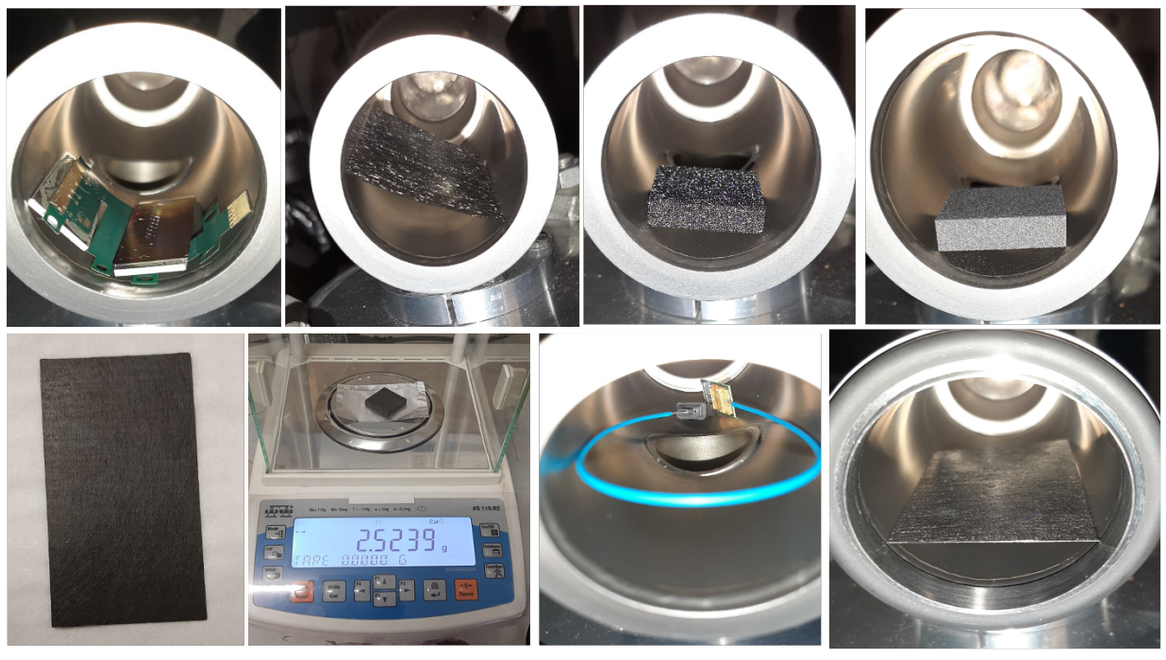
From Triloki's slides at Torino AUW:
https://indico.cern.ch/event/1301029/contributions/5674863/attachments/2764004/4814143/Triloki_Exp_Facilities_INFN_Bari.pdf

AVAILABLE MATERIAL TO BE TESTED





- **CARBON**
  - Carbon (LAYPUS) Substrate of the cold plate
  - Carbon Fleece of the cold plate
  - Carbon foam All comp high density
  - Carbon foam All comp low density
  - Carbon foam ERG duocel
- **ALUMINUM**
  - Aluminium nitride (AIN) 3D printed sample
  - Alumina (Al_2O_3) 3D printed sample
  - AlSi 3D printed sample
- **Optical Fibre with connector**
- **Si wafer**
- **Flex Printed Circuit**



From Triloki's slides at Torino AUW:
https://indico.cern.ch/event/1301029/contributions/5674863/attachments/2764004/4814143/Triloki_Exp_Facilities_INFN_Bari.pdf

PRELIMINARY SETUP (UNTIL 2023)

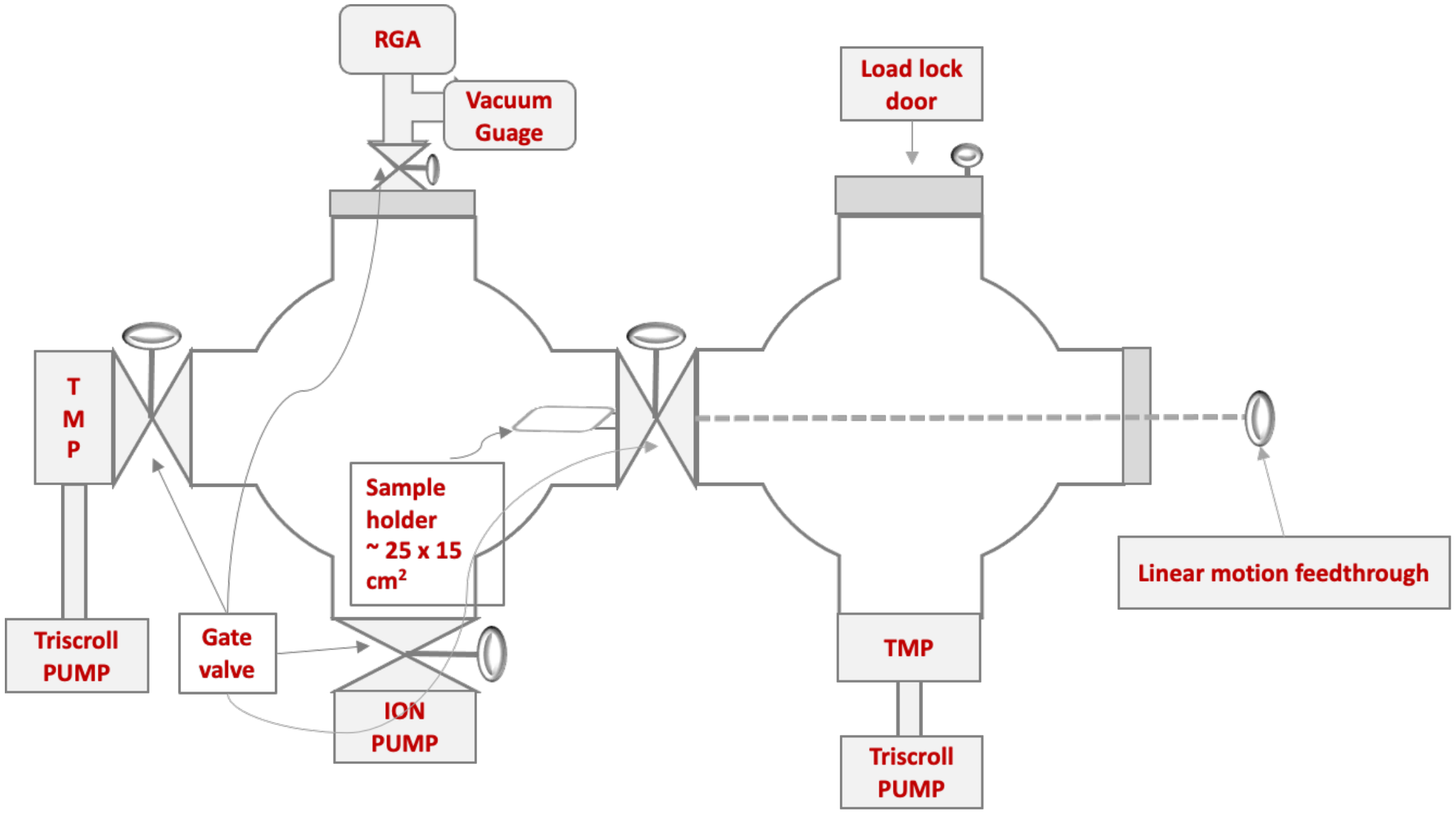
Vacuum system → compact Agilent system, pre- and turbo-pump up to 10^{-6} mbar
+ really small vacuum volume
Measurement tool → SRS Residual Gas Analyzer
Goals → components degassing studies + vacuum effects on wire-bonding and MAPS

NEXT SETUP (UNDER ASSEMBLY)

Vacuum system → pre- and turbo- and ion-pump up to 10^{-9}-10^{-10} mbar + larger vacuum volume, main and second chambers + linear motion feedthrough

Measurement tool → SRS Residual Gas Analyzer

Goals → components degassing studies + vacuum effects on wire-bonding and MAPS



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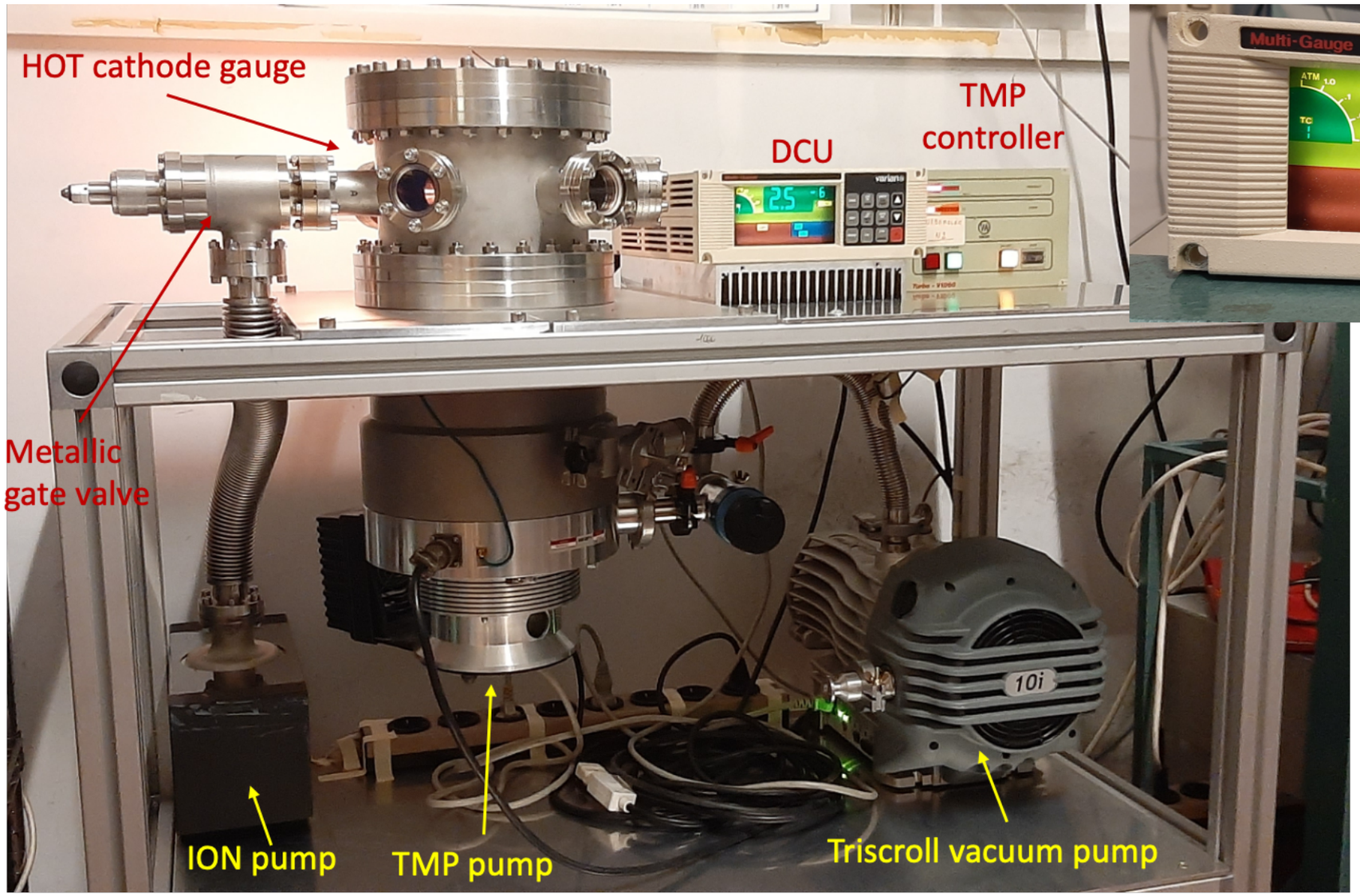
Goals → components degassing studies + vacuum effects on wire-bonding and MAPS



STATUS IN DECEMBER

1. Reached 10^{-8} mbar without:
   - heating tape
   - ion pump

2. RGA filament broken after measurements with carbon foam

NEXT SETUP (UNDER ASSEMBLY)

Vacuum system → pre- and turbo- and ion-pump up to 10^{-9}-10^{-10} mbar + larger vacuum volume, main and second chambers + linear motion feedthrough

Measurement tool → SRS Residual Gas Analyzer

Goals → components degassing studies + vacuum effects on wire-bonding and MAPS

IN FEBRUARY

1. Heating tape
2. Pumps controllers
3. Broke RGA filament replaced
4. Linear motion feedthrough received

UNDER PROCUREMENT

1. Gate valve

FUTURE SETUP

Vacuum system → pre- and turbo- and ion-pump up to 10^{-9}-10^{-10} mbar + large vacuum volume

Measurement tool → SRS Residual Gas Analyzer

Goals → degassing studies on a copy of IRIS