

pfRICH - Mirror work

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Status

We are **READY** for the first coat!

We plan to do it on Friday

We have done:

- Fixed motor for one chiller and tested both chillers for overnight.
- Vacuum state at 3×10^{-6} torr
- We measured and loaded the material - chromium and aluminium.
Ready for first coating.

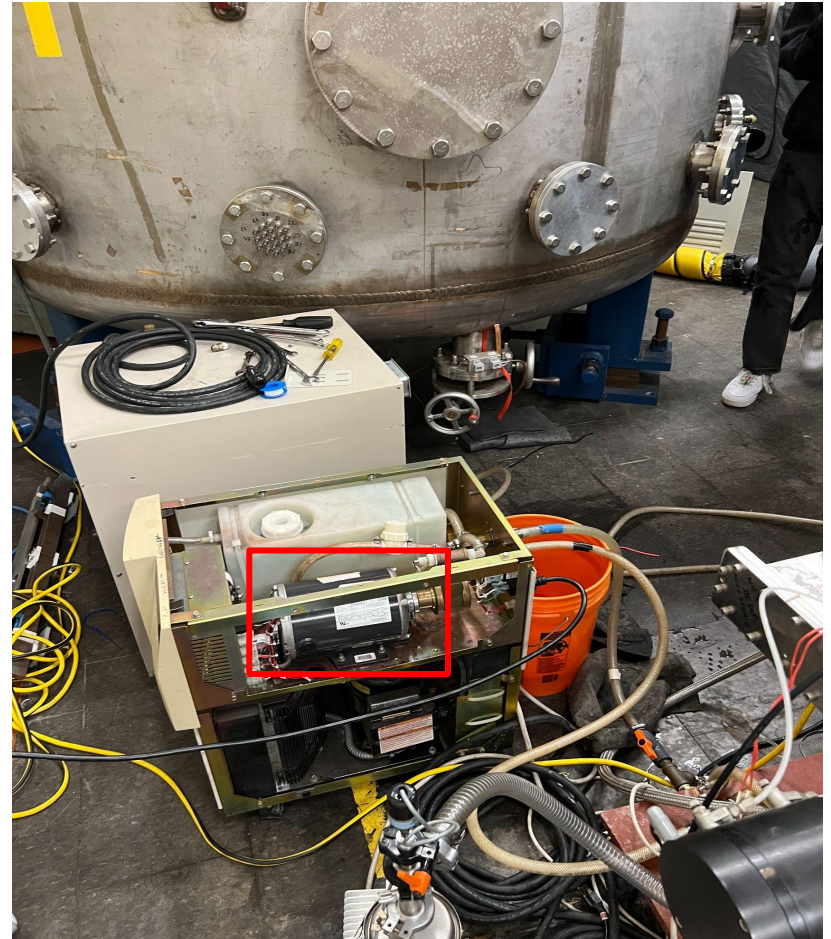


Details - Chillers

One chiller was working and the other was not. We replaced a new motor for the chiller and it worked after some testing...(see pictures)

Now, one chiller (top) is cooling the electron gun, and the other (bottom) is cooling the turbo pump.

We are still waiting for a new chiller, which may come in the coming weeks.



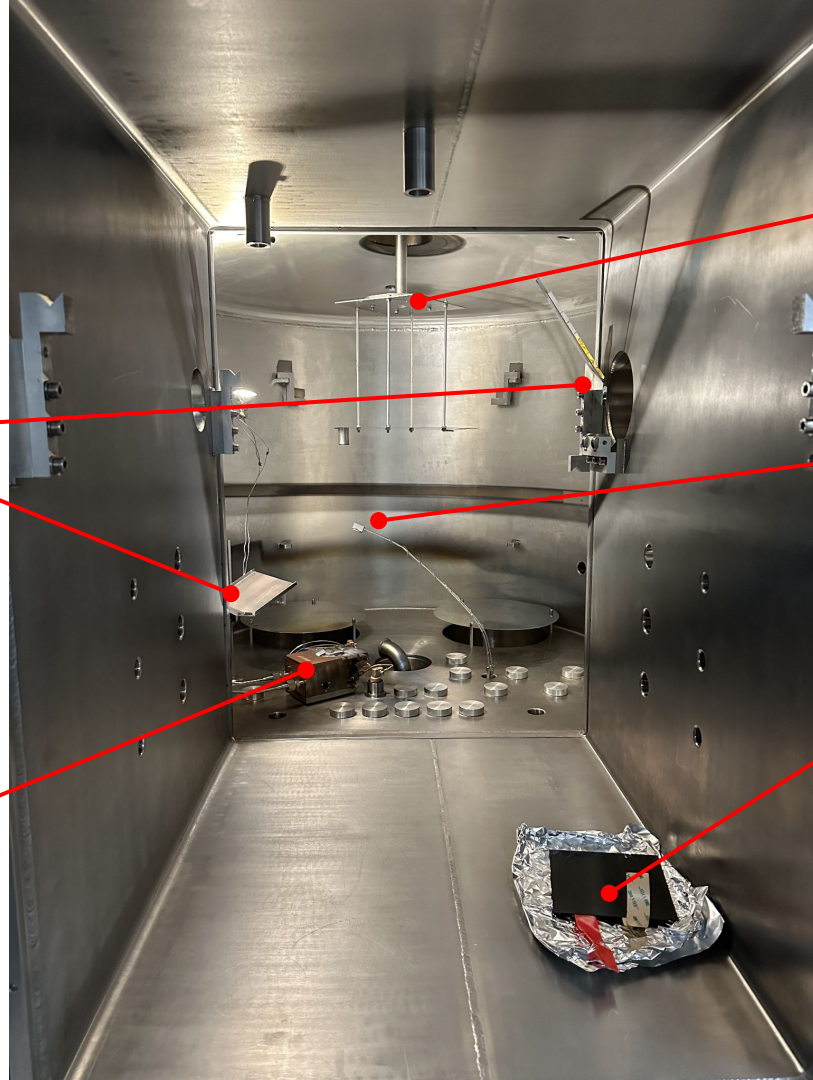
Monitoring Mirrors

Mounting Fixture
+ Test Samples

Quartz Crystal
Microbalance

Test Carbon Fiber
Sample + Tape
stability

Electron gun +
filled crucibles



Where are we? How ready are we?

- **Water cooling system Stability** ✓

- 24 hour continuous operation

- **Vacuum quality** ✓

- 3×10^{-6} Torr (current configuration limit)

- **Tape stability** ✓

- Stickiness and outgassing test

- **Rotation Motor** ✓

- Continuous 1 hour operating ~ 1 rev/s





Material Loaded into crucibles:

Initial Mass Crucible 1:
5.10 grams
Mass of Al added:
3.65 grams

Initial Mass Crucible 2:
5.06 grams
Mass of Cr:
7.07 grams

Roughly $\sim 3/4$ of the crucibles are filled to prevent overflow and damage. With an expected evaporation time of ~ 20 minutes, all the material should be depleted.



Ionization Gauge: Measure of pressure inside the chamber ($\sim 3 \times 10^{-6}$ torr)

Summary

- Good progresses have been made;
- Ready for the first coating test on Friday 9am.

Next Step:

- Reflectivity measurement at BNL will follow.
- Tighten up the protocol on “clean” coating condition.
 - We are coating in a dirty environment
 - Requested PED fund to help with this.
- Practice and optimize the coating parameter

Sincere Gratitudes for SPhenix Colleagues' help

- To **Ross Corliss** and **Vassu Doomra** for their patience and guidance in preparing and setting up the evaporator.

Documentation during the coating process

- **Coating Documentation:**

<https://docs.google.com/spreadsheets/d/1qd2DJs3Ms1QuVJTnB4B2kjaajST8t2qY7ZGq4mlvHr0/edit?usp=sharing>

- **Coating Plan:**

<https://elog.cfnsbu.physics.sunysb.edu/SoLID/17>

- **elog to keep track of the progress:**

<https://elog.cfnsbu.physics.sunysb.edu/SoLID/>

- **First coating preparation:**

<https://elog.cfnsbu.physics.sunysb.edu/SoLID/>

Backup