

The Expanding World of Nanofabrication – *an update from NanoFabrication Kingston*

March 21, 2023

Good day,

You are receiving this important update as a user of NFK, as a supervisor of a user, or as someone who requested to receive these updates.

Plasma cleaner

The vacuum pump for the plasma cleaner stopped working well enough to continue using it. A temporary pump has been installed while we wait for the new one (it was ordered in December and is now expected in September). The temporary pump is not turned on the same way, so ask me for details when you plan to use the plasma cleaner.

Also, the microwave power on the plasma cleaner is not as stable as it was. A new plasma cleaner is expected in a few weeks, but in the meantime, the plasma must be ignited at 100% power before reducing it to target value. I don't recommend using it for any precision ashing experiments for now, but the stability should be good enough for wafer cleaning and descumming.

Sputter system

The good news is that the problem with the turbo pump controller is now solved. The bad news is that the wide range gauge that measures chamber vacuum pressure is not working now. It may be a long time before we can get a replacement gauge, so we could have to live with it like this for a while unless the supplier can determine a workaround. Until the problem is solved, we will not know the baseline pressure before starting a deposition, and there is a special new procedure for pumping down the chamber. See me for details before trying to use the system.

Evaporator

The evaporator is starting to show its age. Film deposition is still working well, but there are some significant changes to how we must use the system, at least for now. The hoist motor has finally died, so the entire hoist had to be removed. The bell jar must now be manually lifted up by hand, which is not easy to do. Please ask for assistance if you need to use the evaporator, especially the first time, even if you're 6 foot 4 and full of muscles.

Additionally, the gate valve that isolates the cryopump has seen a number of years of rough use and is getting very stiff. Remember not to use too much force on this valve, and use two hands to help even out the force. This week we have started to notice a possible vacuum leak through the gate valve that affects the venting procedure. While I look into fixing this, talk to me before your next evaporation about how to monitor the problem and work around it if necessary.

See you at the lab!

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