- Ensure that the tool is not being used (look at the CEBPG screen and confirm that nothing is running in any terminal windows).
- Check the vacuum levels in the CSYS window; refer to illustration in Fig. 1:
  - G5: low e-09
  - G4: low e-07 or better
  - G3: low e-06 or better

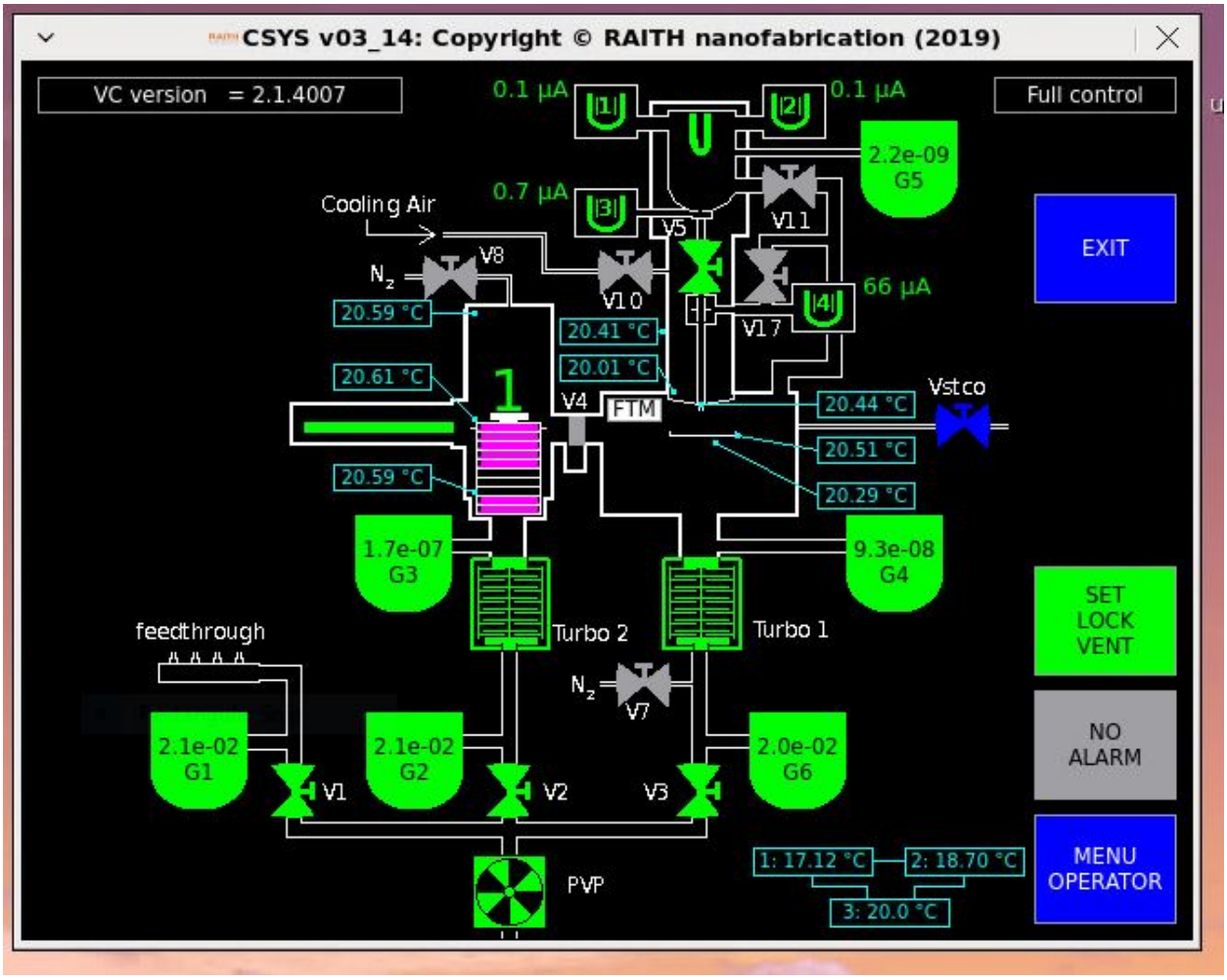

Fig. 1 Vacuum system (CSYS)

- Ensure that the gun is on. Please refer to the separate procedure covering this topic.
- Vent the airlock by pressing SET LOCK VENT on the CSYS window. V8 will turn green indicating that N2 is used to vent the airlock; you will also hear a sound.
- When V8 turns gray and the sound stops, you will see ATM written at the top of the airlock. At this time you may open the airlock door; you may encounter some resistance when opening the door – please be gentle.
- Carefully remove the holder (it costs ~$50k) you plan to use and close the airlock door.
- Evacuate the airlock (by pressing SET LOCK VACUUM on CSYS) if you anticipate a lengthy sample set up process. This will help maintain the cleanliness of the system and will reduce the airlock pump down time.

- Mount your sample(s) onto the holder. Make sure there are no loose clips/screws.
- Move the holder to the alignment microscope to perform the required measurements and adjustments.
- If you previously evacuated the airlock, vent it again.
- Open the airlock door and load the holder into its original cassette position. Make sure that the holder "hook" faces towards you; please refer to Fig. 2.

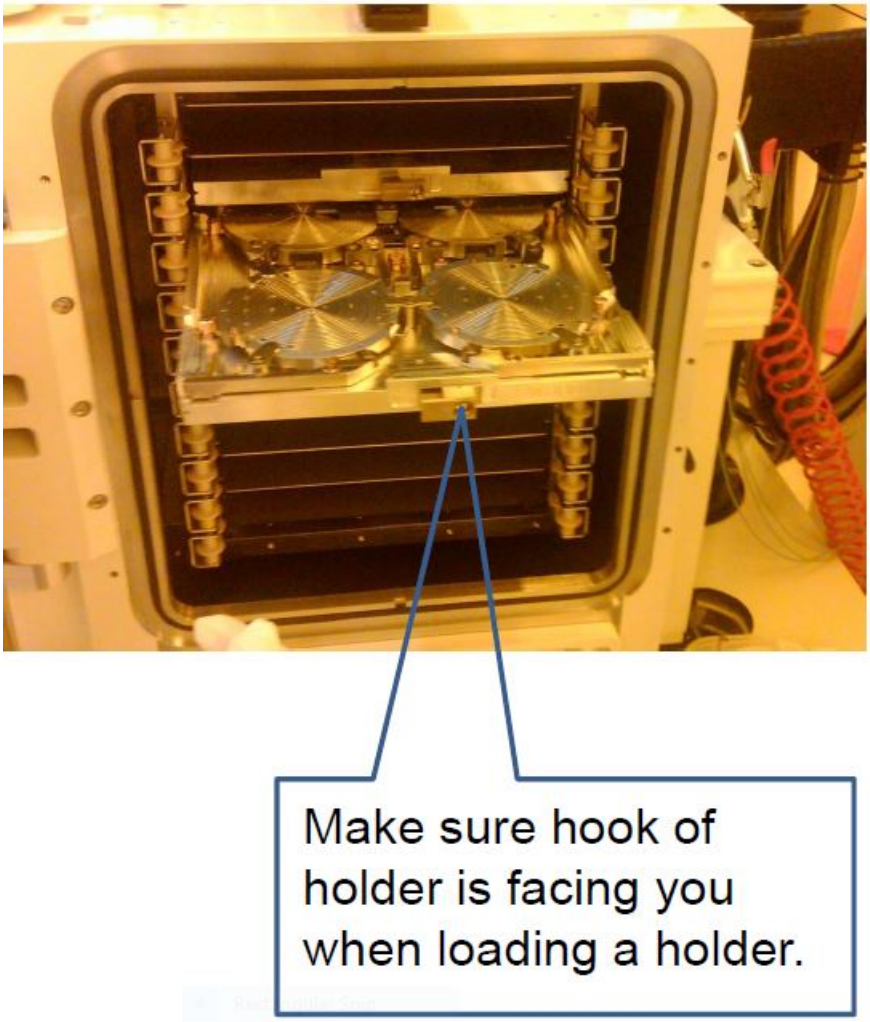

Fig. 2. Load holder into cassette.

- Evacuate the airlock (by pressing SET LOCK VACUUM on CSYS).
- While the airlock is pumping down, change environment so the system points to your files.
- While you wait for the airlock vacuum to reach 5.0e-5, you can create a job via cjob (2nd icon from the left).
- Make sure that "Schedule" is unchecked in CEBPG.
- Left click on the text area where you holder is located to select the appropriate "table" (31, 32, 33, or 34 for the 3-inch holder and 41 or 42 for the 4-inch holder). Please refer to Fig. 3.

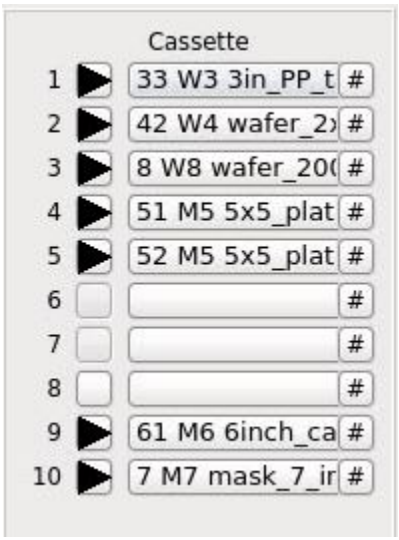

Fig. 3 Cassette section of cebpg.

- The arrow at the left of the text is used to manually load the holder onto the stage. Manual load is not needed as that is part of the automated machine sequence.
- Click on the **#** at right of text in the cassette position that contains your holder. The window in Fig. 4 will open.

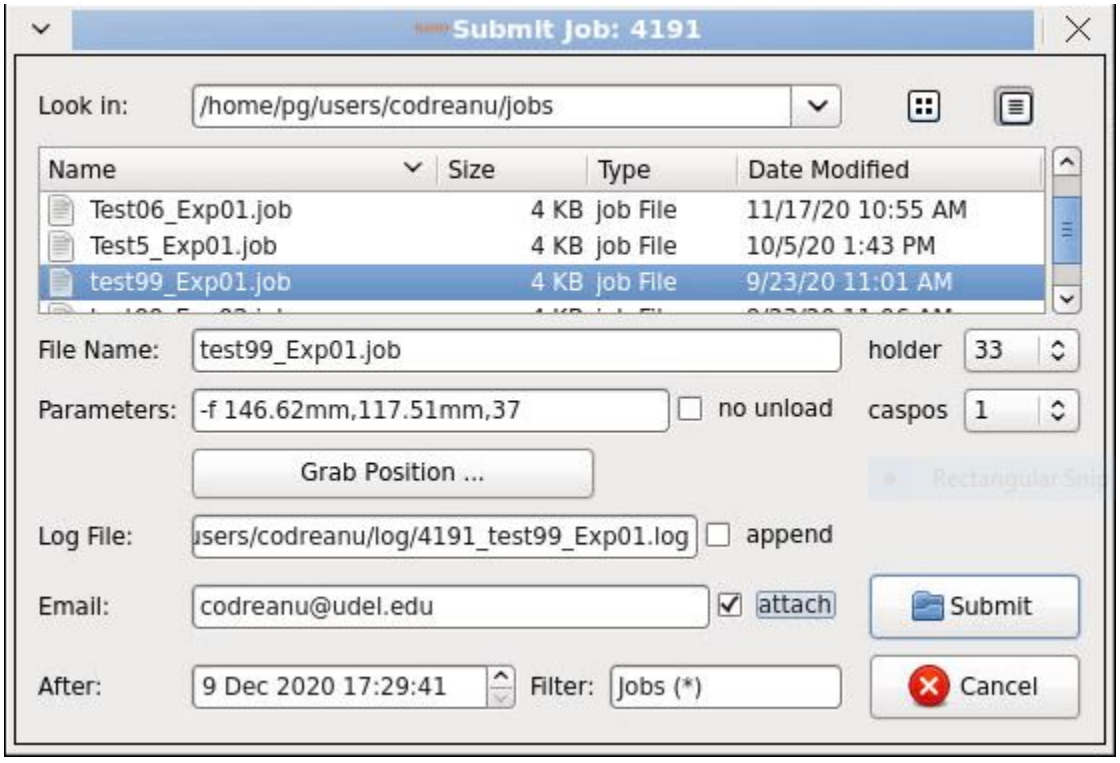

Fig. 4 Schedule a job.

- Confirm that the correct holder and cassette position (caspos) are displayed.
- Select the job file you would like to run.
- Under “Parameters” enter the coordinates of the pattern or alignment marks. Please remember to start with “-f”.
- Check “no unload” if you are exposing other samples on the same holder; this avoids unloading/loading the holder between samples.
- Select that time when you would like the job to run. If you accept the indicated time, the job will run immediately. If you select a later time, the job will wait until at least that time (the machine will complete other jobs that started before the time you indicate before it starts yours).
- Wait until the G3 pressure is 5.0e-5.
- Check “Schedule” on CEBPG. Simply put, “Schedule” means “run”.
- The machine will load the holder, calibrate itself, look for alignment marks (if marks are used), expose your pattern(s), and unload the holder.
- After the job is complete and the holder is unloaded, vent the airlock (SET LOCK VENT).
- Open the airlock, remove the holder and remove your sample(s). Make sure there are no loose clips/screws.
- Replace the holder into the cassette, close the airlock door, and evacuate (SET LOCK VACUUM) the airlock.
- Wait until G3 turns green on CSYS.
- Make sure that “Schedule” is checked on cebpg. If someone has jobs scheduled to run after hours, they will not run if “Schedule” is not checked.