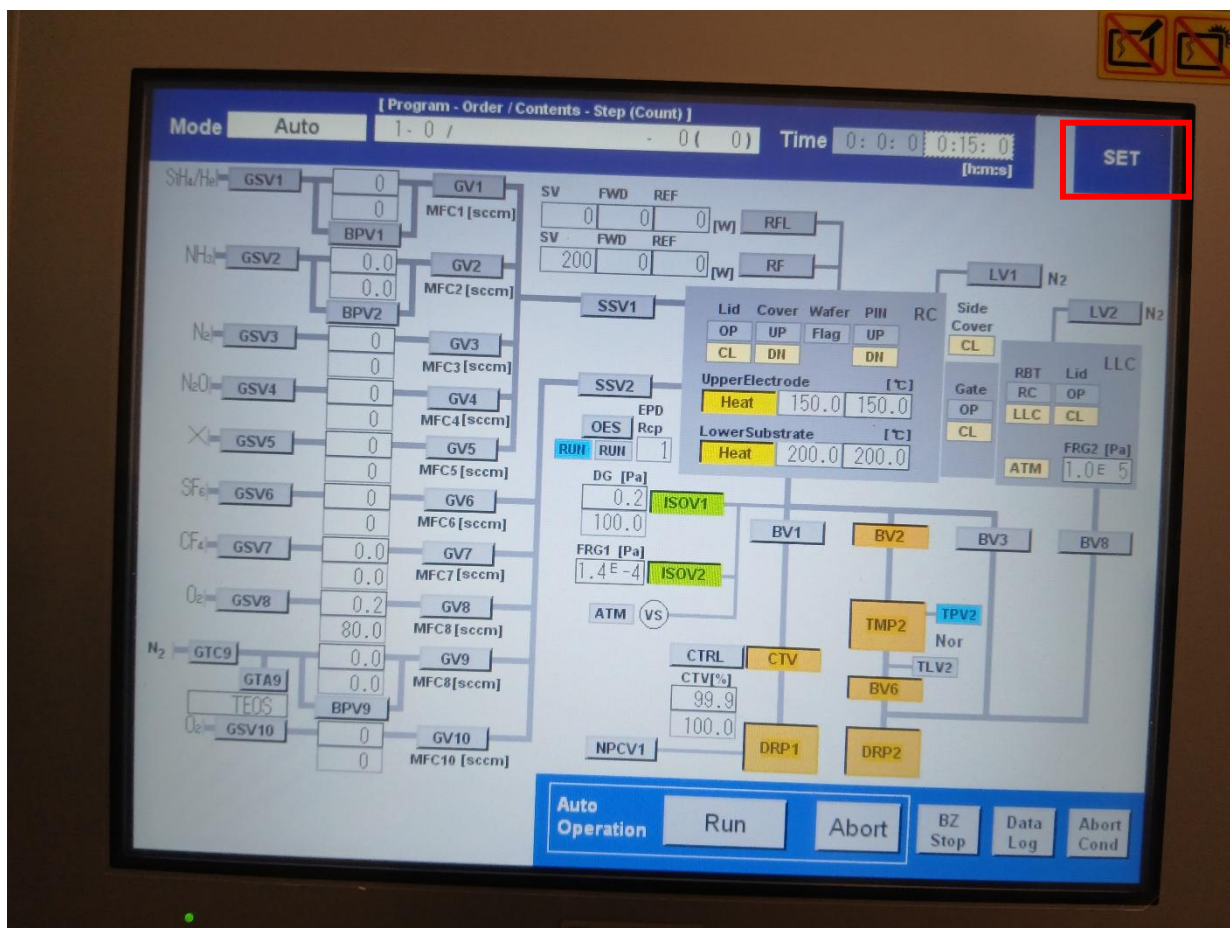


STANDARD OPERATING PROCEDURE

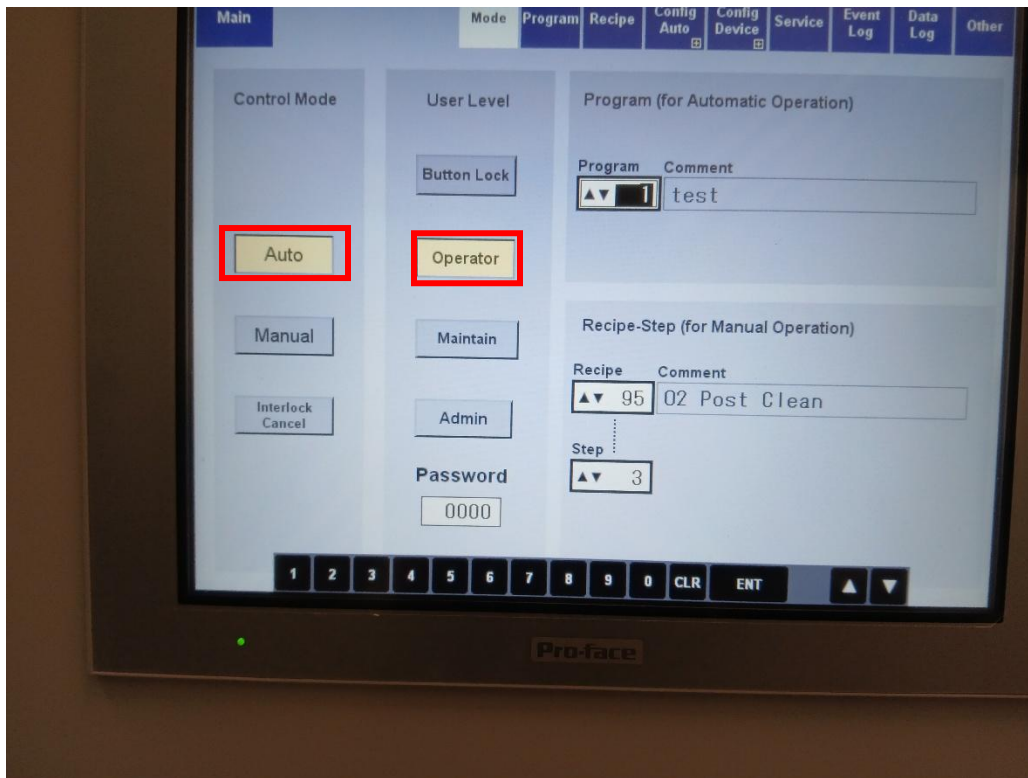
Samco PECVD

1. Start iLAB session.
2. This is the Main GUI below.

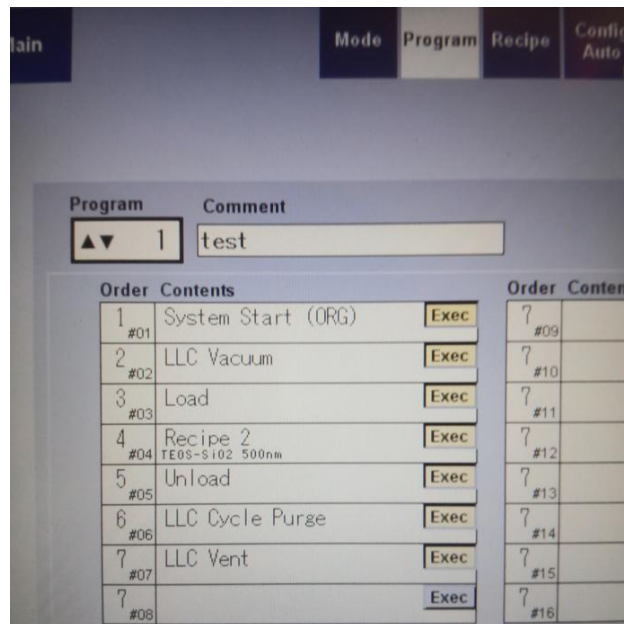


- a. All the precursor (gas) connections are displayed on the left
- b. The RF high and low frequency powers are displayed as RF and RFL and forward and reflected powers as FWD and REF respectively
- c. The temperature of the upper and lower electrodes is displayed (in $^{\circ}\text{C}$)
- d. The pressure of the main chamber is shown as FRG1 (in Pa), and the pressure of the load lock (LLC) is shown as FRG2 (in Pa)
- e. Users are supposed to write down the parameters like gas flows, electrode temperatures, forward/reflected power, process pressure, target film thickness etc. in the logbook provided

3. Click SET on the top right and then click Mode and this screen should appear.



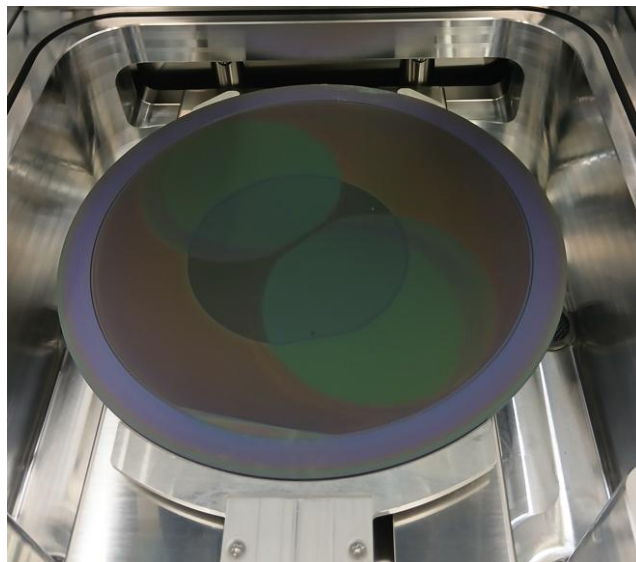
4. Users will be using this tool in “Operator” user level access only (circled in red). The Control Mode will always be “Auto” for users (circled in red).
5. To run a process users must select a relevant **Program** and run that **Program**. An example of what a Program looks like is shown below.



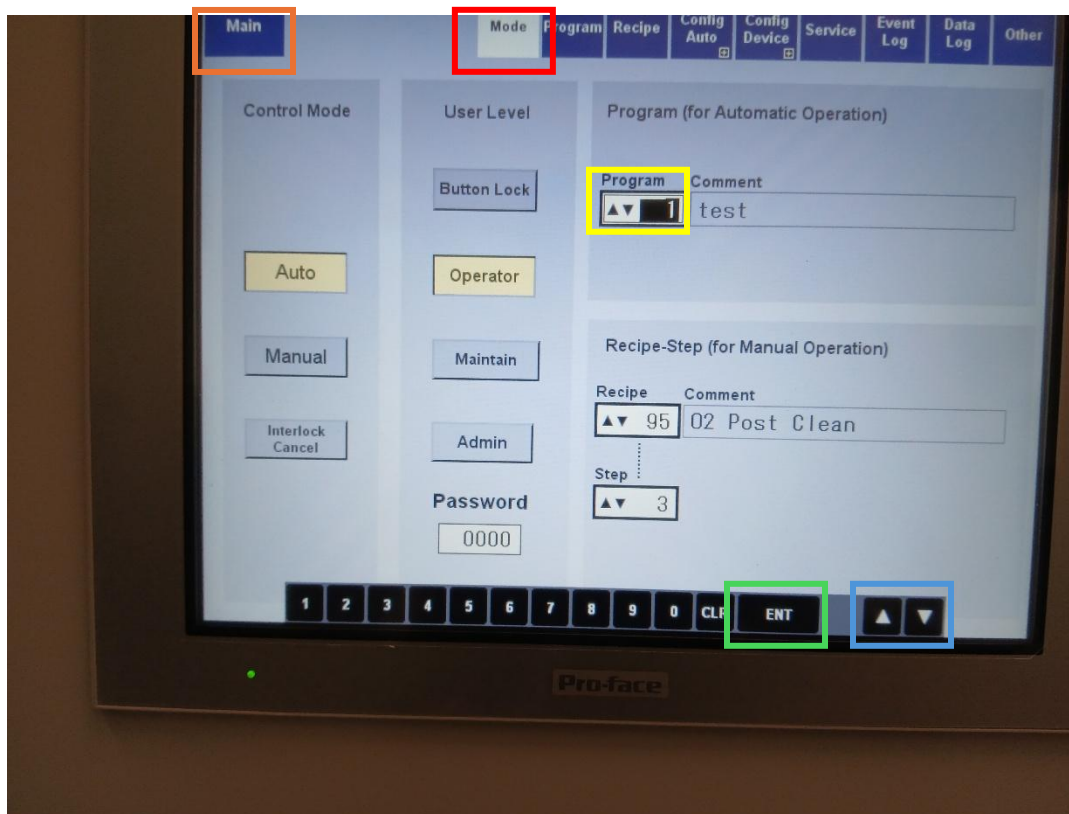
6. A Program consists of multiple steps, and a Recipe is a sub-step of a Program. A Program can have more than one Recipes as its sub-steps.
7. Only Aggiefab staff can create, edit a new recipe and then create a new Program and include that new Recipe in the new Program.
 - a. Users will only have “Operator” level access, and they cannot create new Recipe and new Programs.
 - b. Users must inform Aggiefab staff if they want to create/edit/make changes in a new Recipe beforehand.
8. Press the two LLC Lid Open/Close switches together (circled in red) until the load lock lid opens.



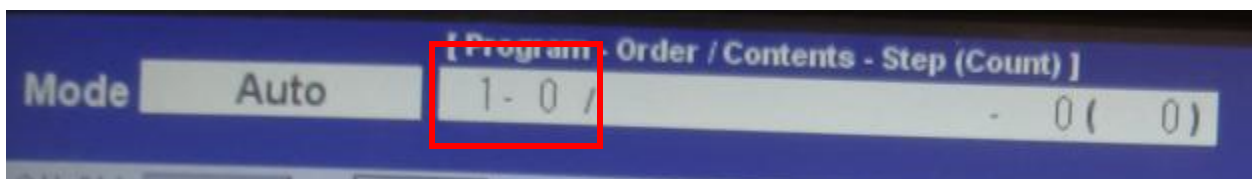
9. The sample carrier is an 8-inch carrier as shown below.



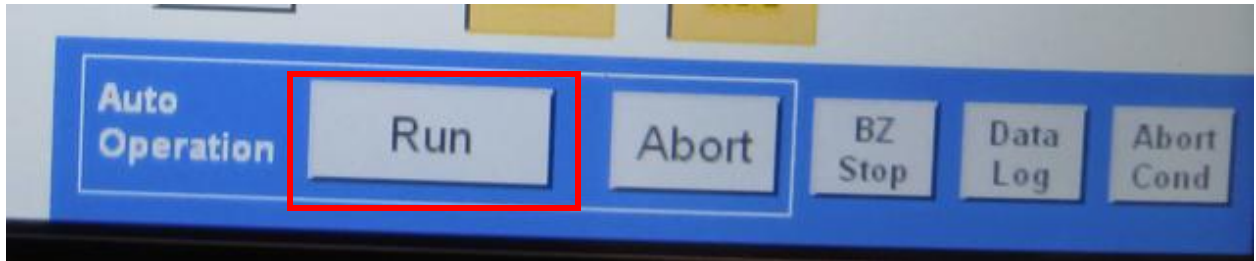
10. Maximum two 4" wafers can be placed on the carrier, and coupons can also be placed. DO NOT use Kapton tapes or any kind of glue/tapes.
11. Close the load lock lid and press the LLC Lid Open/Close switches together (as shown in step 8) until the lid closes.
12. Click Mode (circled in red) when the screen below appears. Click on Program (circled in yellow) and then use the arrows below (circled in blue) to navigate to the relevant Program number you want to run and after navigating to the right Program number click ENT (circled in green).



13. Click Main (circled in orange in step 12 picture) and the Main GUI should appear (picture shown in step 2). Confirm that the Program number at the top of the screen is set to the Program number you want to run (circled in red below).



14. For example, if you select program number 1 as per step 12 instructions, then confirm that Program number 1 is displayed on top of the screen of the Main GUI.
15. After confirming the correct Program number on top the Main GUI click Run on the bottom of the Main GUI (circled in red)



16. The steps of the Program you want to run will be executed and after completion of all the steps the loading arm with the carrier wafer and the sample will come out and the load lock will be vented. The completion of the entire Program is indicated by five alarm beeps.
17. Users are supposed to write down the parameters like gas flows, electrode temperatures, forward/reflected power, process pressure, target film thickness etc. in the logbook provided
18. Follow the instructions of step 8 to open the load lock lid and use tweezers (more than one if needed) to take the sample(s) out.
19. Users are suggested to place their sample(s) on the metal frame of the load lock to cool the sample(s) down before placing them in plastic containers.
20. Close the lid of the load lock if you have not done it already and end the iLAB session.

Note:

1. If total film thickness equals 5 microns, chamber cleaning Program with the chamber clean recipe needs to be run using AlN 8-inch carriers. This will be done by Aggiefab staff.
2. If users want to switch between TEOS based SiO_2 process to any SiH_4 based process, then a chamber clean Program needs to be run followed by a SiH_4 - SiO_2 precoat Program for SiO_2 deposition or by a SiH_4 -SiN precoat Program for SiN deposition. This will be done by Aggiefab staff.
3. If users want to switch between SiH_4 based SiO_2 to SiH_4 based SiN then a chamber clean Program needs to be run followed by a SiH_4 -SiN precoat Program with the SiH_4 -SiN recipe. This will be done by Aggiefab staff.

SIGNATURES AND REVISION HISTORY

Author of this document: Prithvi Basu

Author Title or Role: Research Engineer

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Revision: Original Issue

Approvals

Technical Manager Signature:

Date: Revision History:

Revision	Author	Date
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Rev A		
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Rev C		