STANDARD OPERATING PROCEDURE
FOR
ANGSTROM EBEAM EVAPORATOR

DPS emergency number 213-740-4321
OVERVIEW

Tool Parts

1 – **Deposition Chamber.** The Deposition Chamber is only opened during Maintenance and Materials loading.

2 – **Loadlock Chamber.** Samples are loaded into the Loadlock Chamber.

3 – **Aeres Software.** The Aeres Software allows for chamber control, recipe creation, and recipe monitoring.

4 – **Grounding Rod.** Touch the Grounding Rod before performing Maintenance.

5 – **Emergency Stop.** Use the Emergency Stop when a hazard for the operator or the tool is present during operation.

DPS emergency number 213-740-4321
Ares Software – Main Page

1 – Main Menu. Select pages from the Main Menu.
2 – Left Submenu. Left Submenu of the Main Page allow users to select loaded materials and recipes.
3 – Recipe Progress. Monitor recipe steps and times in the Recipe Progress column.
4 – Chamber Status. The top right corner of Main Page displays Chamber Pressure and Loadlock process pressure. The Loadlock process pressure reads accurately between 1 - 100 mTorr.
5 – Start Recipe Button. Press Start Button to start Current Recipe.
7 – Recipe Selection and Load Button. Click to scroll down list of Recipes to load.
1 – **Main Menu.** Select pages from the Main Menu.
2 – **Left Submenu.** Left Submenu of System Page contains list of manual controls and overrides.
3 – **Chambers Submenu.** Select between Deposition Chamber or Loadlock Chamber control.
4 – **Chamber Control Tabs.** Control action for selected chamber.
5 – **Chamber/Cryo Status.** Displays current chamber pressure. Displays Cryo Pressure and Temperature for Deposition Chamber.
6 – **Start Button.** Press to start selected action.

**VERIFY TOOL STATUS**

1. Enable the tool on Nemo.
2. Verify Chamber Pressures are between $10^{-10} - 10^{-8}$ Torr.
3. Verify Cryo Temperature is below 12K.

**VENTING CHAMBER**

1. Select System from the bottom Main Menu.
2. Select Vacuum System at the Left Submenu.

DPS emergency number 213-740-4321
3. Select Loadlock from the Chambers Submenu

4. Select Vent Tab

5. Select Start and wait 5 minutes for Loadlock to vent to atmosphere.

6. Gently pull open the Loadlock handle. The Loadlock Door will open when the Loadlock reaches atmospheric pressure.

7. Insert the Stage Carrier Rod through the opening located behind the Stage with the Rod Groove facing up. Lift up to secure and unload the Stage from the Loadlock.
8. Place the Stage flushed onto the Support Frame. The Stage is facing down in this position. Remove the Stage Carrier Rod.
9. Use both hands to flip the Stage over and place the Stage flushed onto the Support Frame.

10. The Stage is now facing up.
   a. To load sample for a process, use clips on the Stage to secure sample. Align Sample to engraved crosshairs on the Stage for Angle Deposition.
   b. To unload sample after a process, loosen clips and retrieve your sample. Retighten clips.

11. Use both hands to flip the Stage over again and place the Stage flushed facing down onto the Support Frame with the Latch Opening pointing left. This orientation will ensure proper loading onto the Loadlock Stage Support.
12. Insert the Stage Carrier Rod into the Latch Socket with the Groove facing up. Lift up the Stage Carrier Rod from the Support Frame.

13. Load the Stage into the Loadlock by aligning the Stage Groove to the right side of the Loadlock Stage Support. The Stage will be flushed when properly aligned.

14. Use Cleanroom Wipe with Isopropanol to wipe down O-ring and Loadlock Door. Ensure O-ring is free of particles.
15. Close Loadlock Door.
16. Select Pump Down Tab.

17. 
   a. If you are running a process, wait for 20 minutes until Loadlock Pressure reaches $2.0 \times 10^{-6}$ Torr. The pump time is 20 minutes if the O-ring is free of particles.
   b. If you are finished operating the tool, verify the Loadlock is pumping down and then Disable the tool on Nemo.

**RUN RECIPES**

1. Select Main from the bottom menu.

2. Select Process from the left menu.

3. Click on the scroll down Recipe List and Select Browse…
4. Select your recipe and press Open.
5. Press Load Recipe.

6. Verify Current Recipe is your loaded recipe.

7. Press Start to run recipe and wait for your recipe to complete.

8. Click on the scroll down Recipe List.
9. Select Transfer_from_dep recipe.
11. Verify Current Recipe is Transfer_from_Dep recipe.

12. Press Start to run recipe and wait for the Transfer_from_Dep recipe to complete.

13. Return to Venting Chamber steps to unload Stage and retrieve sample.

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