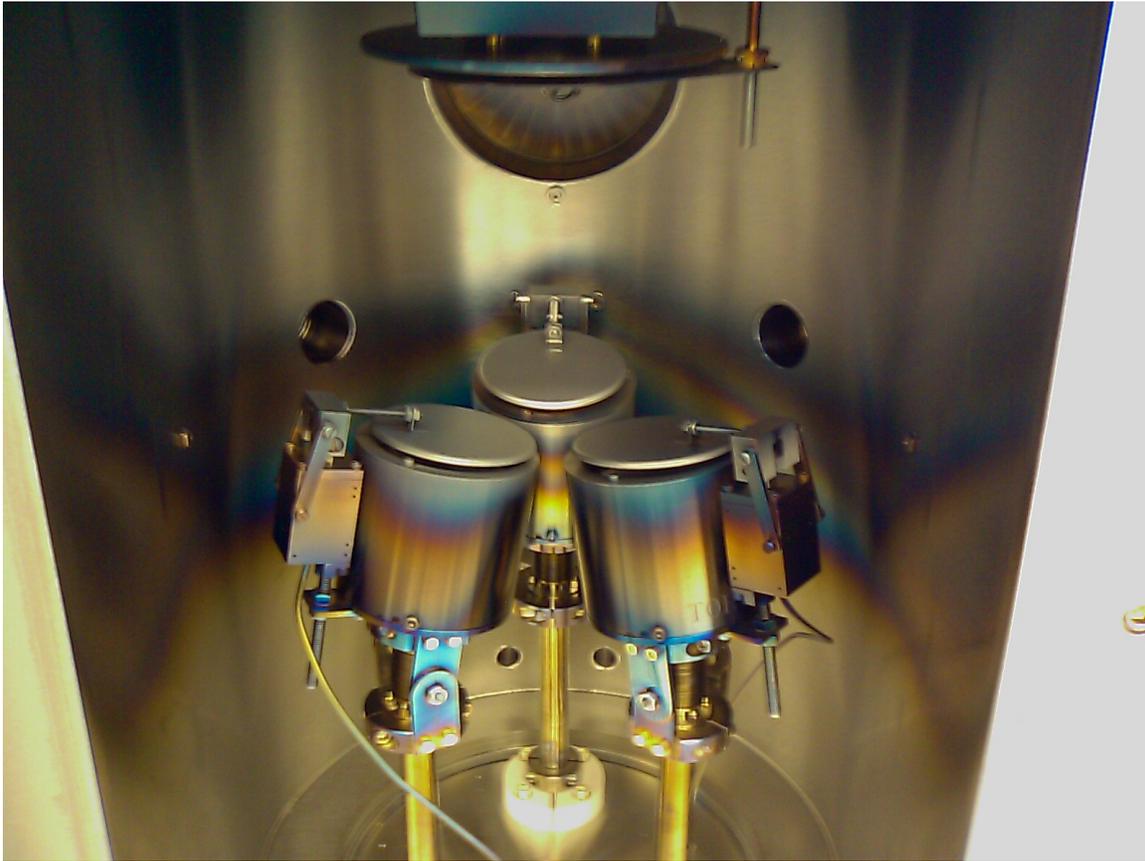


# Kurt Lesker PVD 75: Sputter Coater



| Version | Date    | Sections Affected | Author     |
|---------|---------|-------------------|------------|
| 1.0     | 8-13-08 | All Chapters      | J. Pulecio |

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# I. Venting the System

[1] Go to Vacuum Page

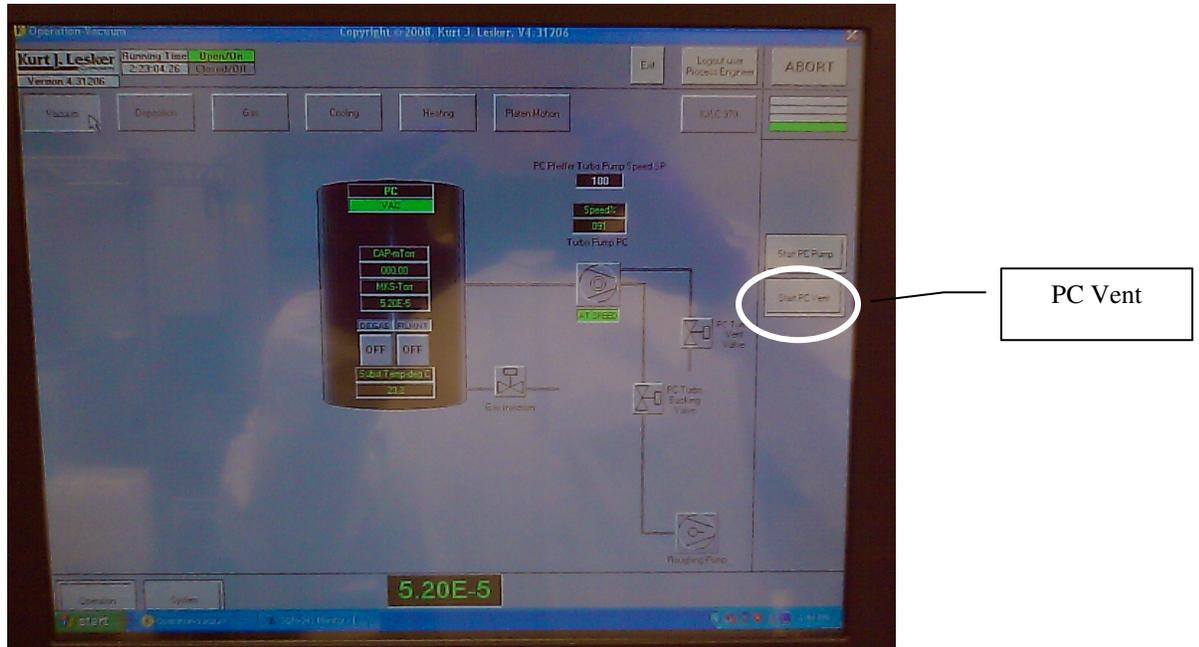


Figure 1 The Vacuum Page to start the Venting Process

[2] Hit Start PC Vent

i. It takes approximately 15 minutes to vent from  $1e-7$  Torr

## II. Loading a New Metal Target

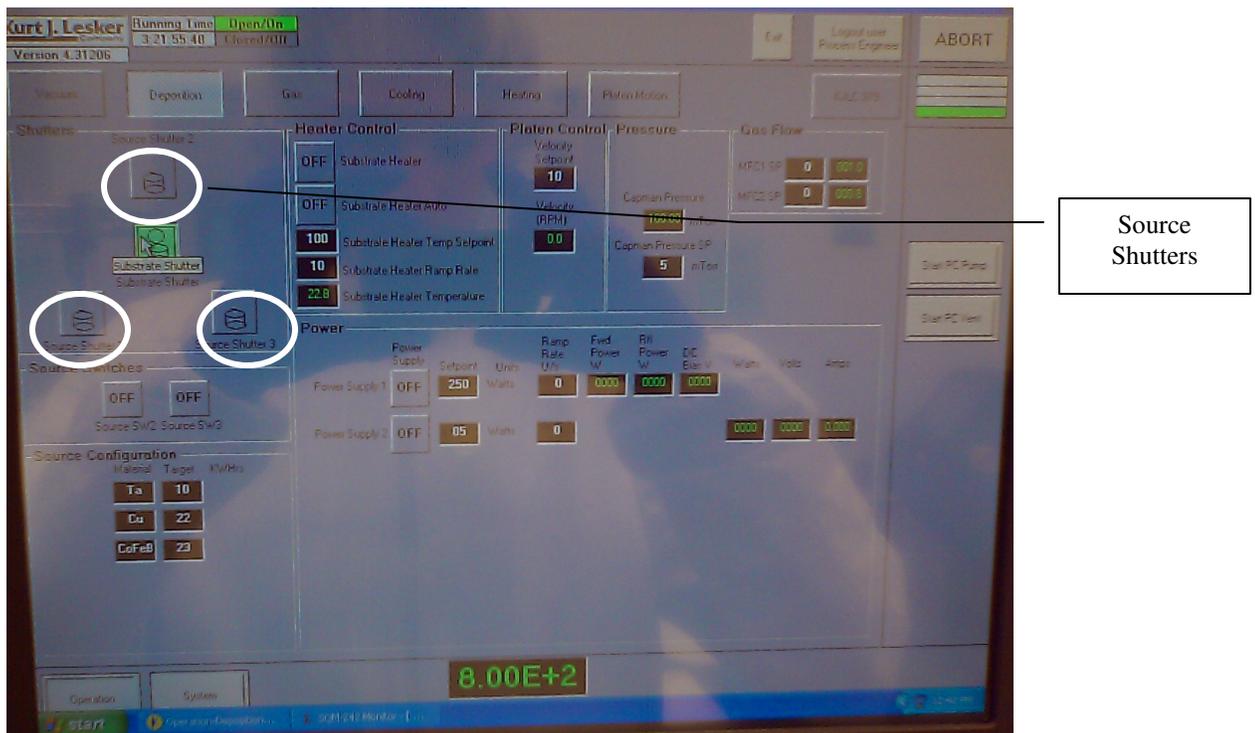
[3] Open Vacuum Chamber door

*ii. Allow the pressure to reach  $8e+2$  Torr before attempting to open*

[4] Go to Deposition Page

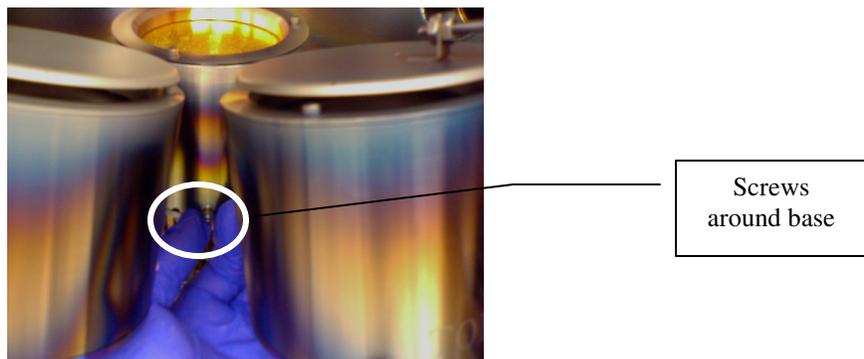
[5] Hit source shutter (#)

*iii. This is to open the shutter of the desired target you want to replace*



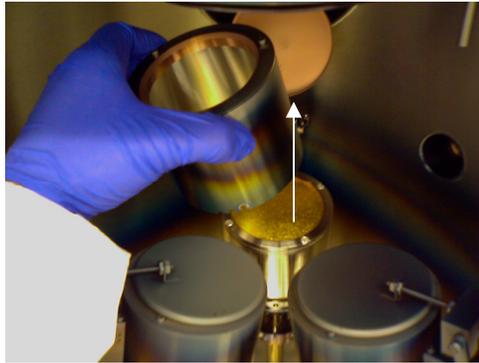
**Figure 2 Deposition Page to open Source shutter.**

[6] Hand loosen the three screws located around the base of the source cover



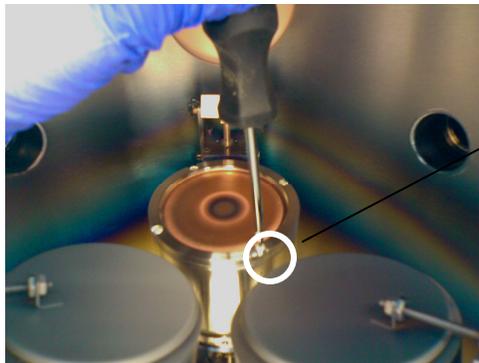
**Figure 3 Screws around the base of the source cover.**

[7] Remove cover by sliding it up



**Figure 4 Slide the source cover up.**

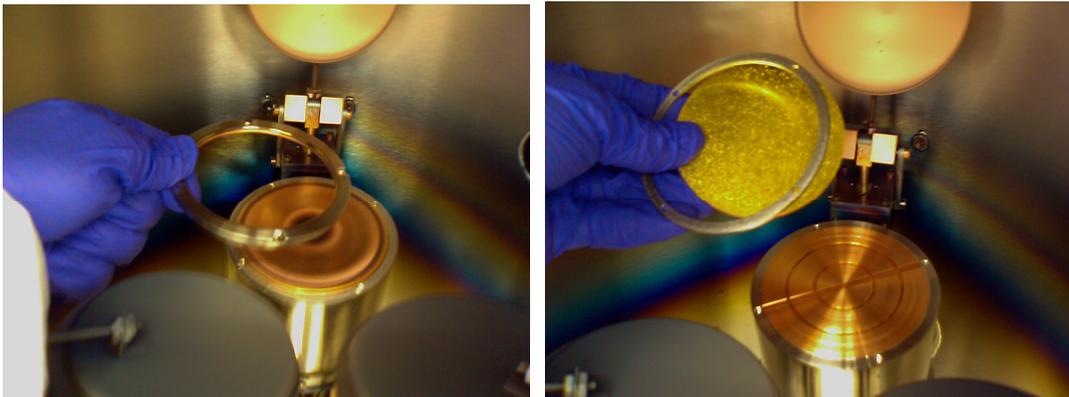
[8] Remove the four screws around the target retainer ring (flat head)



Flat head  
screws

**Figure 5 Remove four flat head screws**

[9] Remove retainer ring, metal ring, and metal target



**Figure 6 Remove Retainer ring, metal ring, and metal target.**

- [10] Place removed metal target in appropriate storage container

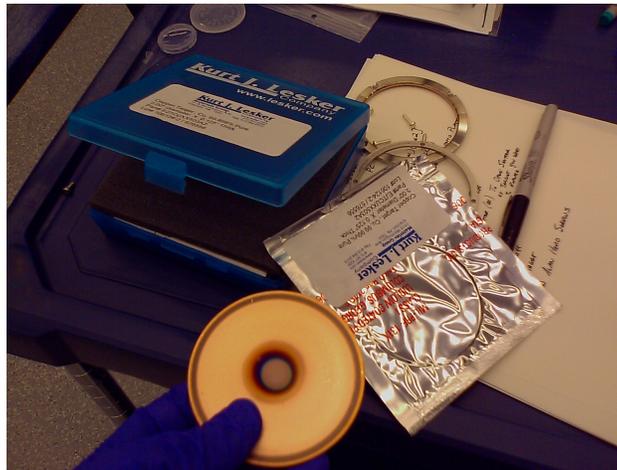


Figure 7 Place removed target in box.

- [11] Place new metal target in place
- [12] Reverse steps above
- [13] Hit source shutter # to close shutter
- [14] Enter new metal target in the computer under appropriate source number

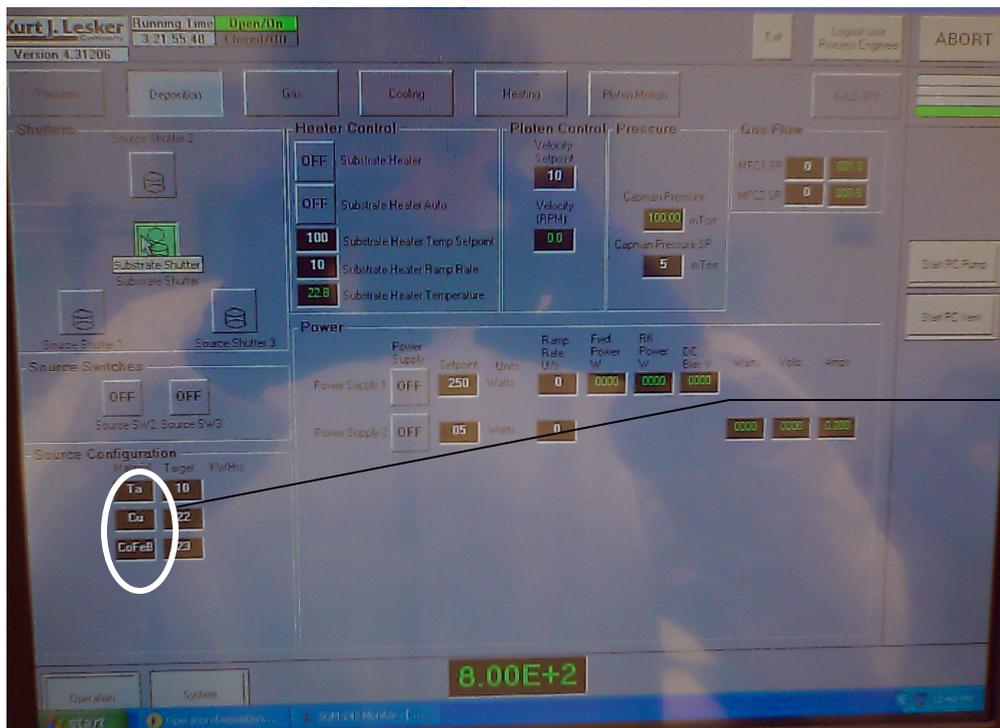


Figure 8 Enter new target into the computer.

- [15] Log in book

### III. Loading sample

[16] Go to Deposition page

[17] Hit Substrate Shutter to open shutter



Figure 9 Deposition Page for opening substrate shutter.

[18] Open Vacuum Chamber door

[19] Remove Platter

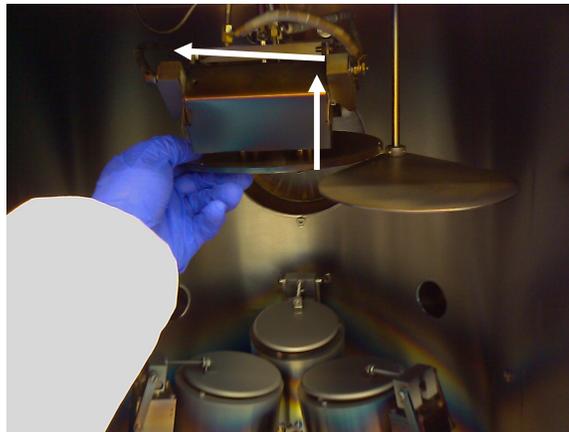


Figure 10 To remove platter lift up and to the left.

[20] Load sample using clips

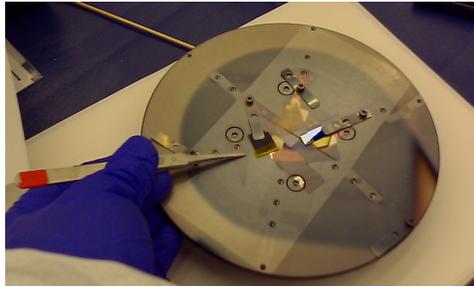


Figure 11 Loading your sample using the clips.

[21] Replace Platter

[22] Hit Substrate Shutter to close shutter

[23] Close Vacuum Chamber door

[24] Go to Vacuum Page

[25] Hit Start PC Pump to begin pump sequence

*iv. It normally takes about 20-30 minutes to reach 1e-6 Torr*

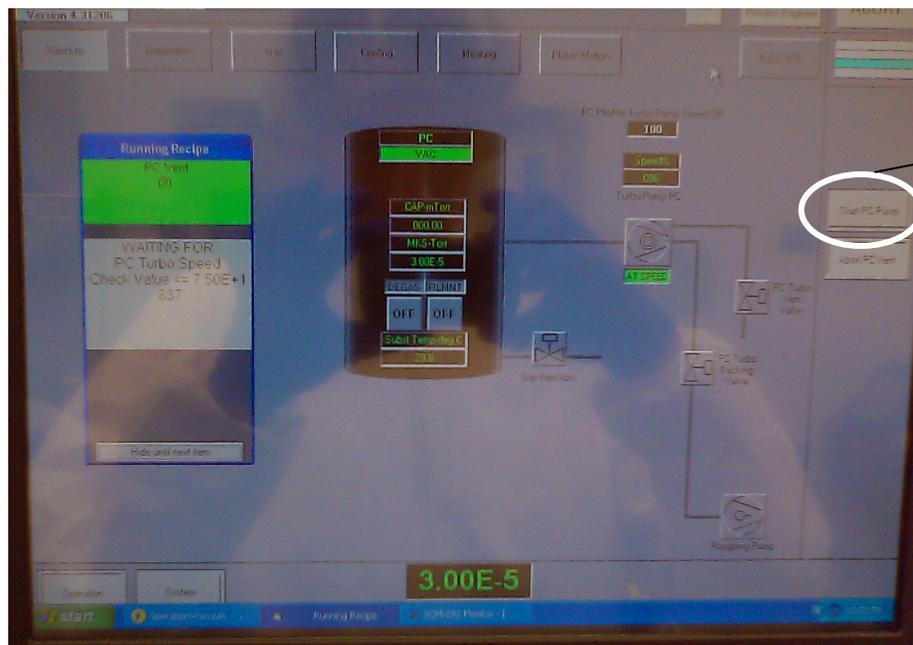
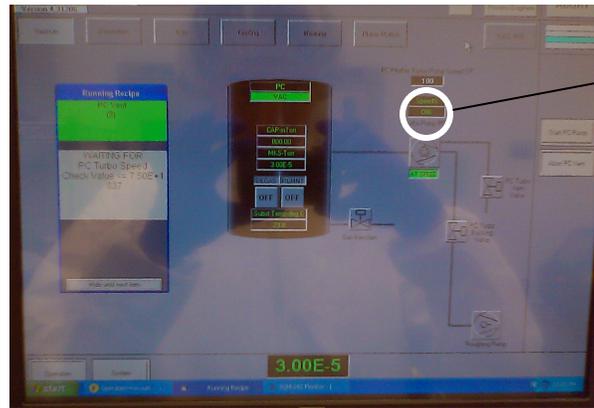


Figure 12 Vacuum Page to begin pump down sequence.

## IV. Preparing to Deposit metal:

[26] Reduce turbo pump speed to approximately 50%

v. It will take about 30 minutes for the turbo pump to it's reduce speed



Click on number to change percentage

Figure 13 Reducing the turbo pump.

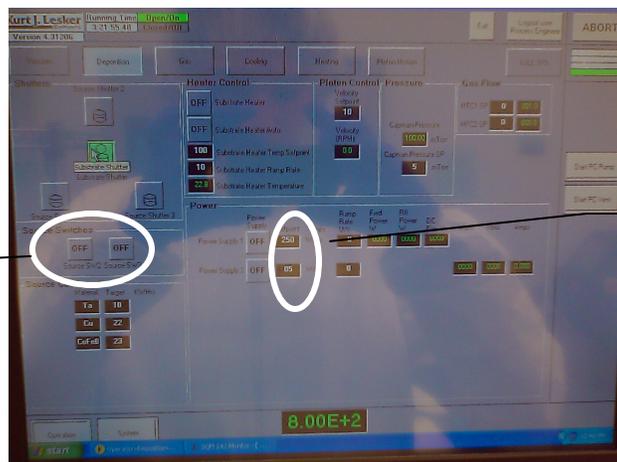
[27] Go to Deposition Page

[28] Hit the Source switch if necessary

vi. If your target is in source 2 or source 3 you will have to select the appropriate source switch

[29] Set appropriate Power source to desired wattage

vii. Remember for Source 1 would set the wattage for Power Source 1 and for Sources 2 & 3 you use Power Source 2



Source Switch for Source 2 or 3

Power Source Wattage Adjustment

Figure 14 Adjusting the Power Source Wattage.

[30] Go to Gas Page

[31] Set Capman Pressure SP to desired pressure setpoint

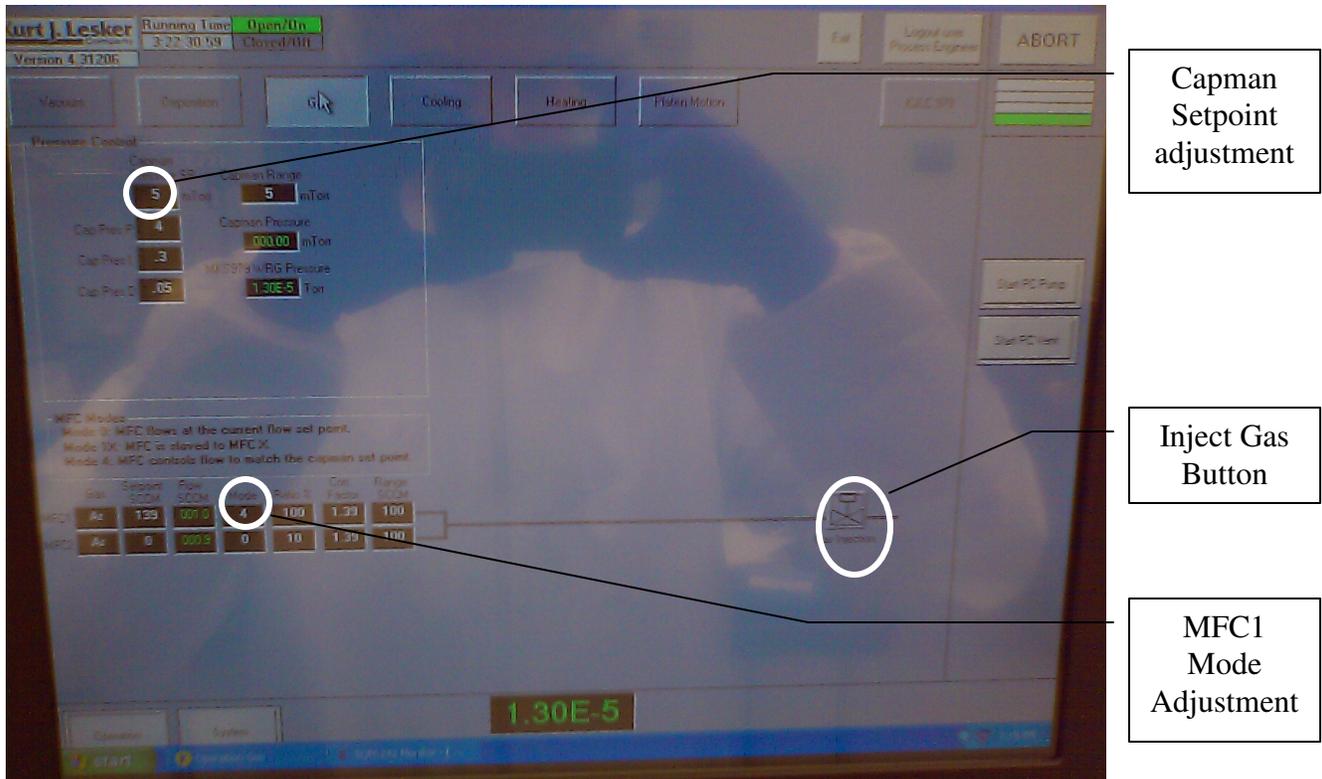
*viii. Lets say about 5mTorr for a first run*

[32] Set MFC1 to mode 4

*ix. This sets the computer to regulate the pressure of the injected gas so that the chamber pressure is maintained at the desired Capman Pressure setpoint*

[33] Once the turbo pump has reached a 50% speed hit the Gas Inject button

*x. Allow the pressure to stabilize in the chamber*



**Figure 15 Injecting Gas into Chamber.**

- [34] Start the Crystal Monitor
- a. Load/Set material parameters
  - b. Zero Sensor
  - c. Hit Start

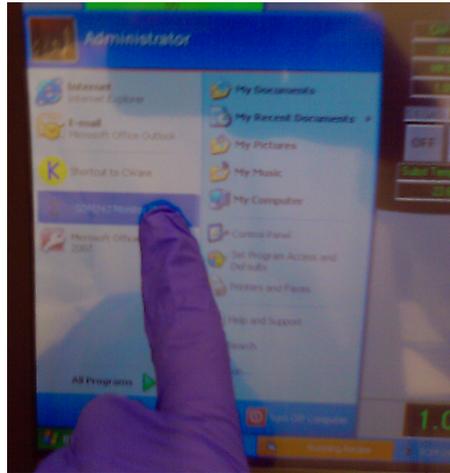


Figure 16 Select Crystal Monitor from Programs.

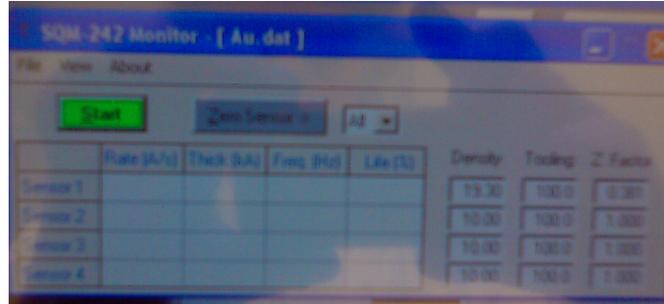


Figure 17 Start and Zero Crystal Monitor.

## V. Depositing Metal:

- [35] Under the Deposition page, hit Power Supply # On
  - xi. You should see a plasma on the metal target source*
- [36] Open the Source shutter
- [37] Adjust wattage to reach desired deposition rate
- [38] Close the Source shutter
- [39] Zero Crystal Monitor
- [40] Open Source shutter
- [41] Open Substrate shutter
- [42] Close Substrate shutter once desired thickness is reached
- [43] Turn off Power Supply (#)
- [44] Close Source Shutter
- [45] Turn off Source Switch
- [46] Stop Crystal Monitor
- [47] Zero Crystal Monitor

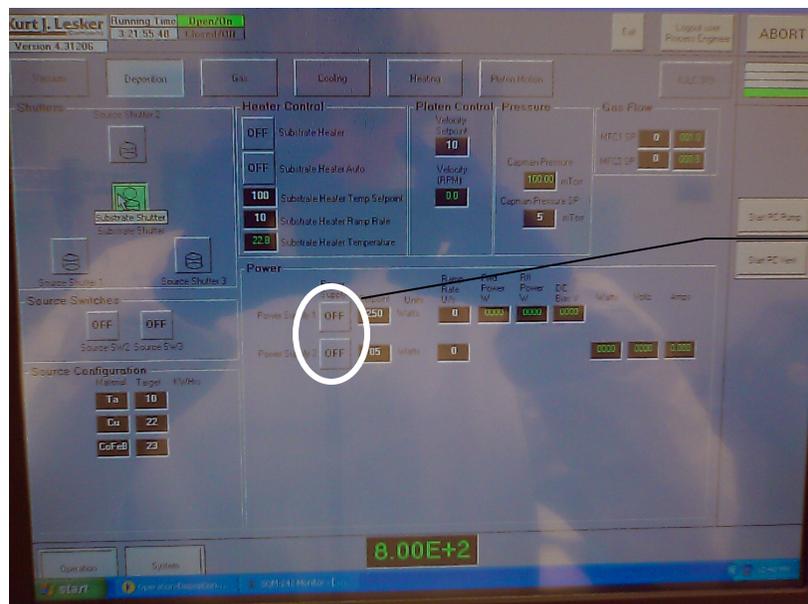


Figure 18 Power Supply On/Off on the Deposition Page.

## VI. Removing Sample:

- [48] Go to Vacuum Page
- [49] Hit Start PC Vent
  - xii. This should take about 5 minutes from 5mTorr*
- [50] Open Vacuum Chamber door
- [51] Open Substrate Shutter
- [52] Remove Platter
- [53] Remove Sample
- [54] Replace Platter
- [55] Close Substrate Shutter
- [56] Close Vacuum Chamber Door
- [57] Hit Start PC Pump
- [58] Log results in book

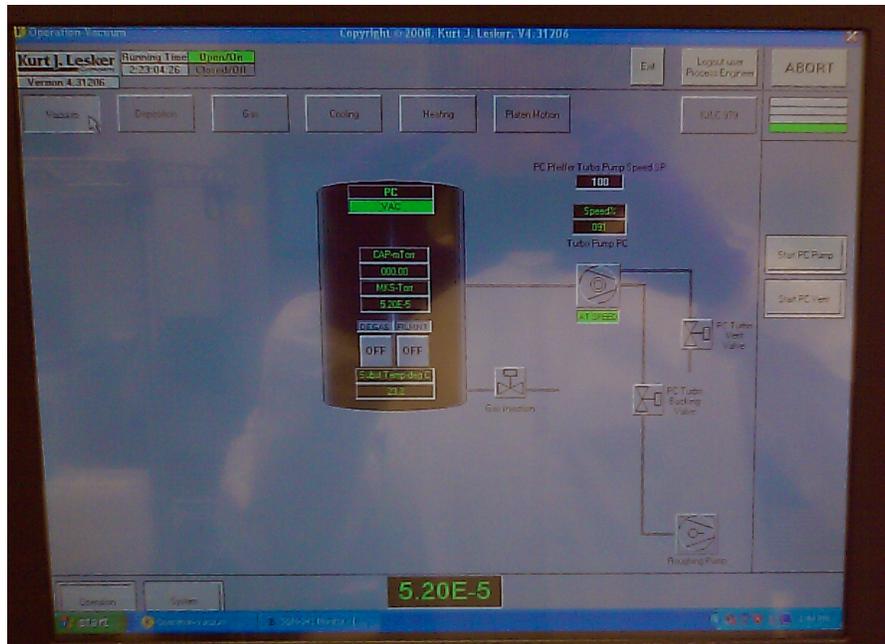


Figure 19 Vacuum Page.