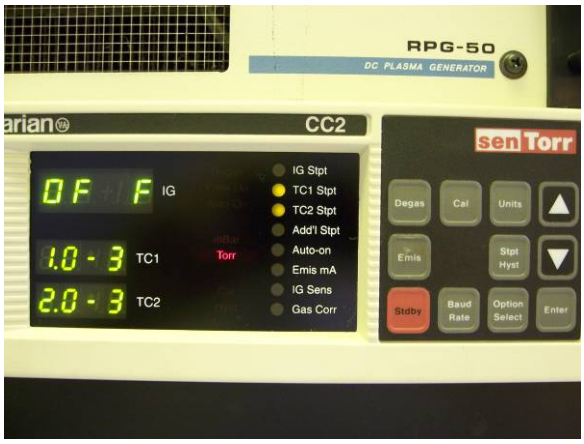
Denton Discovery 18

Idle condition check:

- Cryopump temperature is less than 12K

- High-vacuum gage is OFF
  - Top Green LED display on the Varian CC2 controller



- Mass flow controllers are all set to Remote.

- Chamber is under vacuum
  - Lid is closed and not latched

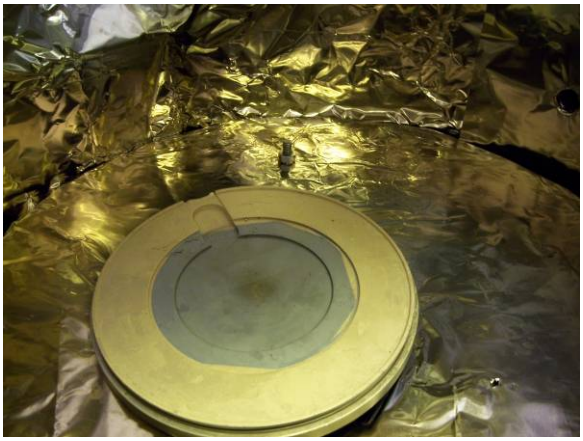
- The material you wish to deposit is loaded on a cathode
  - Check the red magnetic labels on the panel below the chamber

- Compressed gas cylinders are not empty
  - The pressure gauges can be viewed through the window behind the Denton

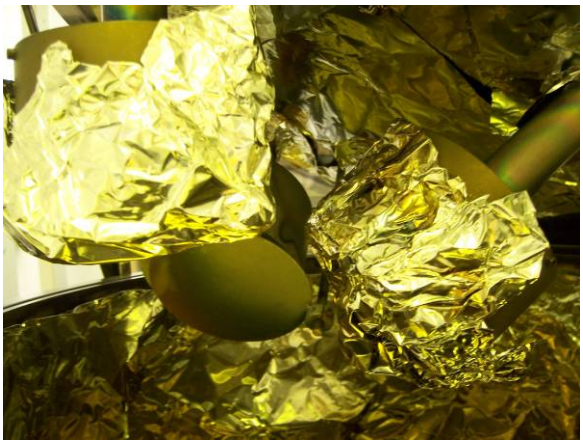
Loading a sample:

- Press the AutoVent key
  - Found in the Pumps and Valves menu

- Load sample onto the disc inside the chamber



- Cover cathodes you won't use with aluminum foil

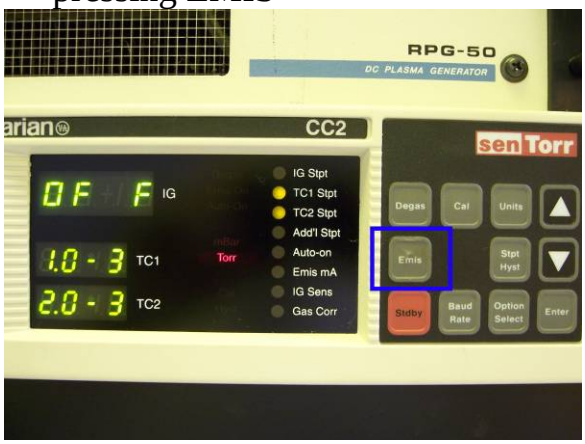


- Close the chamber lid and latch it
-

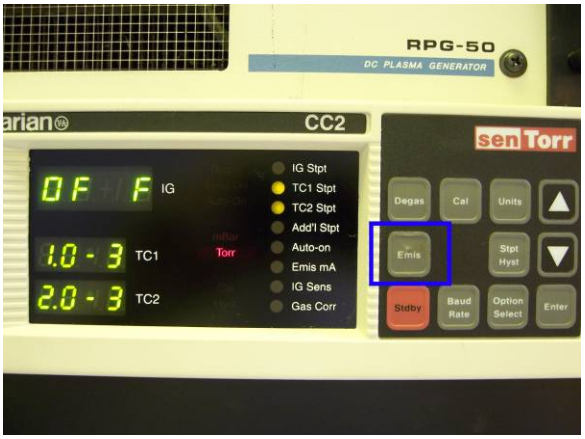
- Press the Autopump key

Running a process:

- After the high-vac valve has opened turn on the high vacuum gauge by pressing EMIS



- Wait for the vacuum gauge to read 5 x 10^{-6} Torr or lower and turn it off using the EMIS key again



- Press Return and then Auto Process to go to the Process screen.

- Set the desired power supply level on an appropriate power supply

- Select gases, power supply/cathode, pre-sputter, and sputter times
  - Gas and power supply/cathode choices will be green when enabled

- Press AutoProcess to run it

Common Process Parameters

- DC sputtering
  - 200 Watts
  - 5mTorr Argon pressure
  - 30 second pre-sputter
  - **Aluminum** deposition rate: 0.68nm/s
  - **Chrome** deposition rate: 0.625nm/s
  - **Gold** deposition rate: 1.11nm/s

- RF sputtering
  - 200 Watts
  - 5mTorr Argon pressure
  - 60 second pre-sputter
  - **Silicon Dioxide** deposition rate: 0.167nm/s

- Reactive Sputtering
  - **Indium Tin Oxide**: 150W, 221sccm Argon flow, 1.2sccm Oxygen flow
    - 0.344nm/s
    - 200 Ω/cm