**CNSI Microfluidics Lab - Harrick PDC-32G Plasma Cleaner Operations**

This procedure is adapted from the University of Arizona’s SOP.

This machine is to be used by authorized personnel only.

**Load Sample:**

1. Ensure that your sample fits inside the plasma chamber.
2. If present, remove the glass sample holder plate from chamber carefully.
3. Place your sample onto the mid-section of the glass holder plate (if available).
4. Insert the glass holder plate and your sample back into plasma chamber carefully.
5. Ensure vent valve on the chamber lid is closed.
6. Ensure rubber O-ring on the lid is clean and free of any debris.
7. Place lid over the chamber opening and hold lid in place with one hand.
8. Turn on the PUMP ON/OFF switch to turn on the vacuum pump.
9. Chamber vacuum should now hold lid in place.

**Run Plasma:**

1. Ensure RF LEVEL power switch on the front panel is on OFF.
2. Turn on the POWER switch on the front panel.
3. Wait for one minute before proceeding.
4. Open the chamber lid vent valve about 1/8 of a turn (counter-clockwise) to establish an air flow into the chamber. Note: some users find more consistent results with a Nitrogen plasma instead of flowing air in the chamber. If you would like to do this:
   * Open the Nitrogen valve on the right side of the fume hood
   * Close the valve at the bottom of the left-hand flow meter on the plasma cleaner controller.
   * Open the chamber vent valve about 1/8 of a turn
   * Open the flow meter valve slightly until the chamber pressure is 450mT
5. Switch the RF LEVEL power switch to the desired setting.
6. Look for a purple glow which would indicate the presence of a plasma.
7. Run plasma for the desired time using an external timer.

**Unload Sample:**

1. Switch the RF LEVEL power to OFF.
2. **Turn off Nitrogen gas valve on the hood**
3. Turn off the POWER switch.
4. Hold the lid until chamber is fully vented and the lid comes off.
5. Open the chamber lid vent valve slowly until you hear hissing sounds from the valve to vent chamber completely.
6. Turn off the PUMP ON/OFF switch to turn off the vacuum pump. **Start chamber vent before turning pump off.**
7. Remove the glass sample holder from chamber and remove sample.
8. Clean the glass sample holder if necessary and re-insert back into chamber.