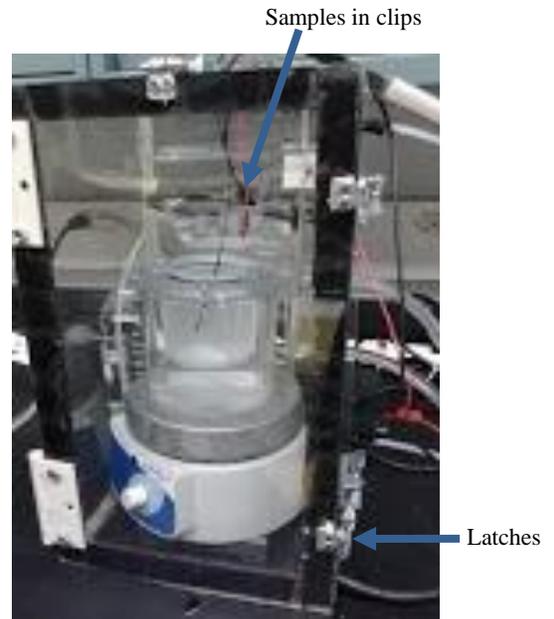


# Start-Up

## Loading Sample:

1. Place the solution filled cup into water bath
  - a. Hold down the cup with hand, when starting up chiller (next section)
2. Attach TiO<sub>2</sub> and Pt samples to alligator clips
3. Lower samples into solution
  - a. Only lower the samples into the solution, make sure the clips stay above the fluid level
4. Turn on stir plate to desired speed
5. Close reactor door and lock latches



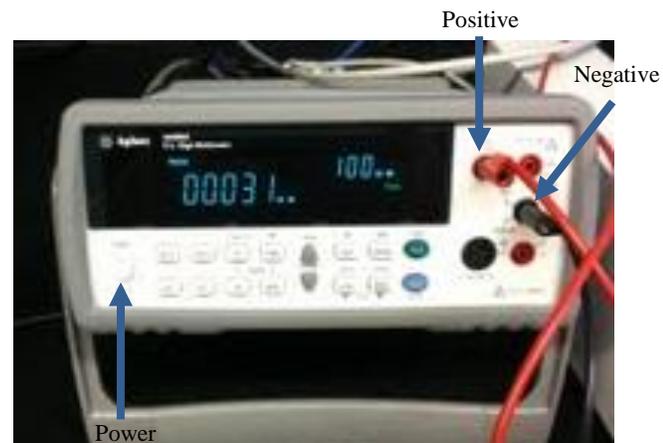
## Chiller:

1. Press the power button that is on screen
2. Press the set button
  - a. A blue light will move up and down to the left of the arrows
3. To increase the temperature touch and hold the up arrow until desired temperature
4. To decrease the temperature touch and hold the down arrow until desired temperature
5. Press the set button again to run the chiller at the given temperature



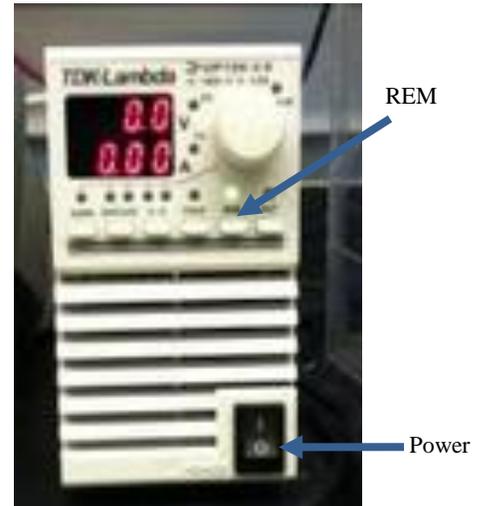
## Multimeter:

1. Make sure that the negative (black) is connected to the Platinum (Pt) electrode
2. Make sure that the positive (red) is connected to the Titanium (Ti) electrode
3. Turn the power on by pressing power button



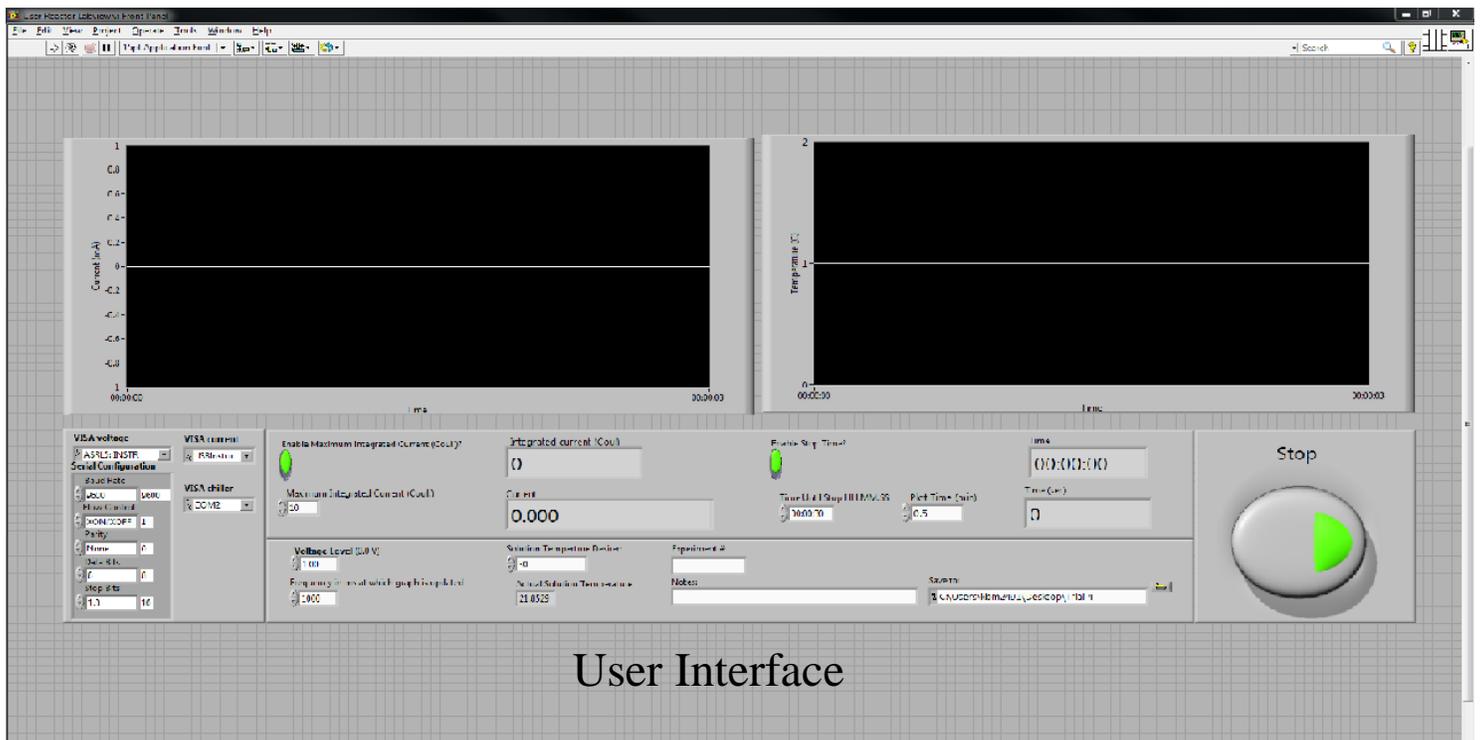
## Power Supply:

1. Turn the switch in the lower right hand corner to on
2. Turn on the remote button (REM), light turns green



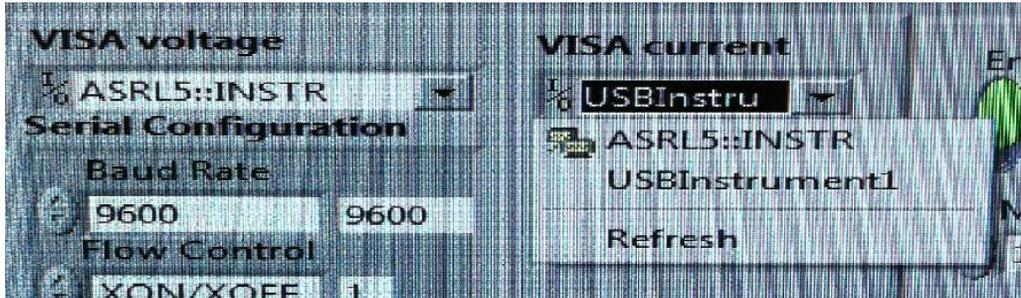
## Labview:

1. Log on to computer
2. Open Labview file: User Reactor Labview.vi



User Interface

3. Connect Power Supply and Multimeter
  - a. In the VISA voltage box type: ASRL5::INSTR
  - b. In the VISA current box:
    - i. Pull down menu
    - ii. Click Refresh
    - iii. Pull down the menu again
    - iv. Select USBInstrument1



4. Input desired values for the following boxes:
  - a. Voltage Level
  - b. Solution Temperature Desired
  - c. Experiment Number
  - d. Notes
  - e. Time Unit Stop (HH:MM:SS)
  - f. Plot time (min)

Enable Maximum Integrated Current (Coul.?) <input type="checkbox"/>	Integrated current (Coul) 0	Enable Stop Time? <input type="checkbox"/>	Time 00:00:00
Maximum Integrated Current (Coul.) 10	Current 0.000	Time Until Stop HH:MM:SS 00:00:30	Plot Time (min) 0.5
Voltage Level (0.0 V) 1.00	Solution Temperature Desired 30	Experiment #: 	Time (sec) 0
Frequency in ms at which graph is updated 1000	Actual Solution Temperature 21.8529	Notes: 	Save to: C:\Users\kbm2491\Desktop\Trial 4

5. In Save to box input desired save location
  - a. The data will be saved as a Notepad file
6. To run, click the single white arrow in the upper left hand corner of the screen
  - a. The arrow will turn from white to black
7. For safety reasons, there is a stop switch in the bottom right hand corner of the screen
  - a. When clicked the green light will turn to red
  - b. The system will be completely stopped when the background looks like a grid again
8. File will be found in the chosen location as a text document
  - a. Data can be imported into Excel for further analysis

# **Shut-Down**

## Labview:

1. After the testing time has finished or the stop button is clicked, wait for the grid background to appear
2. When the background changes it is now safe to close out the program
3. Power off Chiller, Multimeter and Power Supply

## Unloading Sample:

1. Unlatch and open door
2. Turn off stir plate
3. Raise sample out of solution
  - a. Remove from alligator clips
4. Dispose of solution in cup