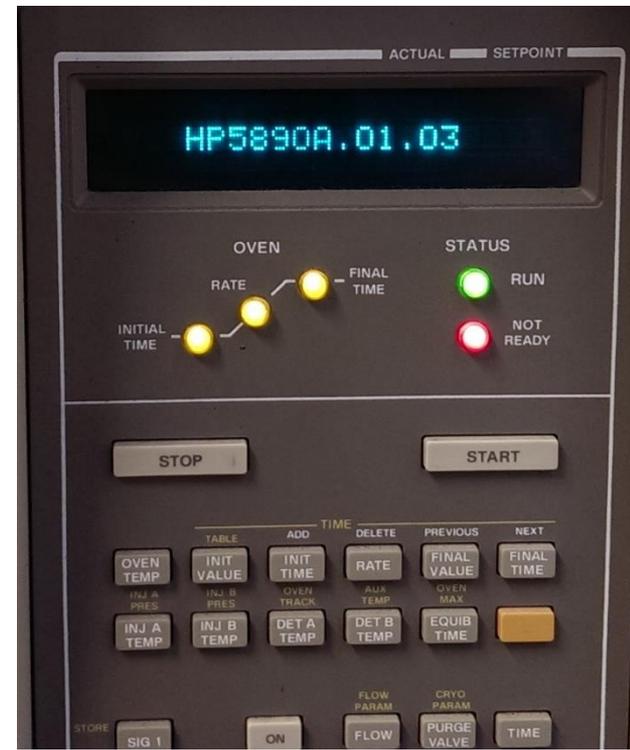
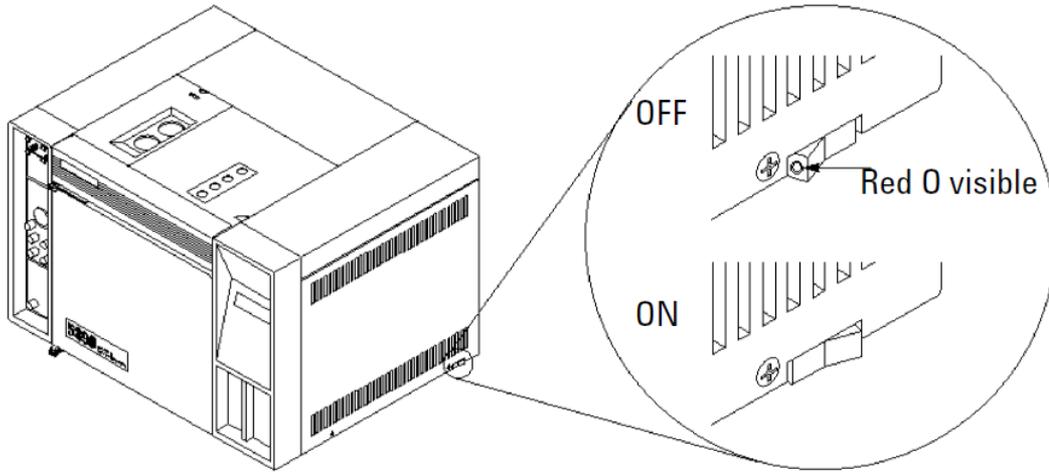


How to:
Gas Chromatography
HP 5890 Series II
Start up and data acquisition

Shaw group
University of Iowa
Amanuel Hailu
March 26, 2018

Turn the instrument on using the button located on the lower far right-hand side



Sequence of displayed messages on instrument panel display

Do not touch any of the buttons on this panel.



Emulation mode OK is the message we want, it is now ready for RS-232 connection to PC and software



CHEM-S089



Recycle Bin



Oracle VM
VirtualBox



VMware
Workstation



UniChrom



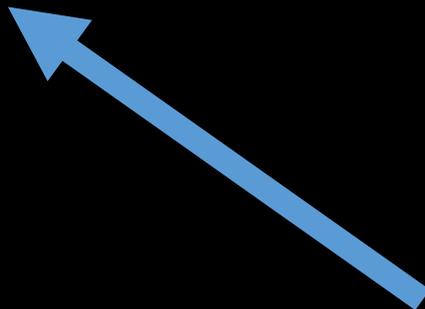
VBshared



GC data

Your gas line should be open at this point

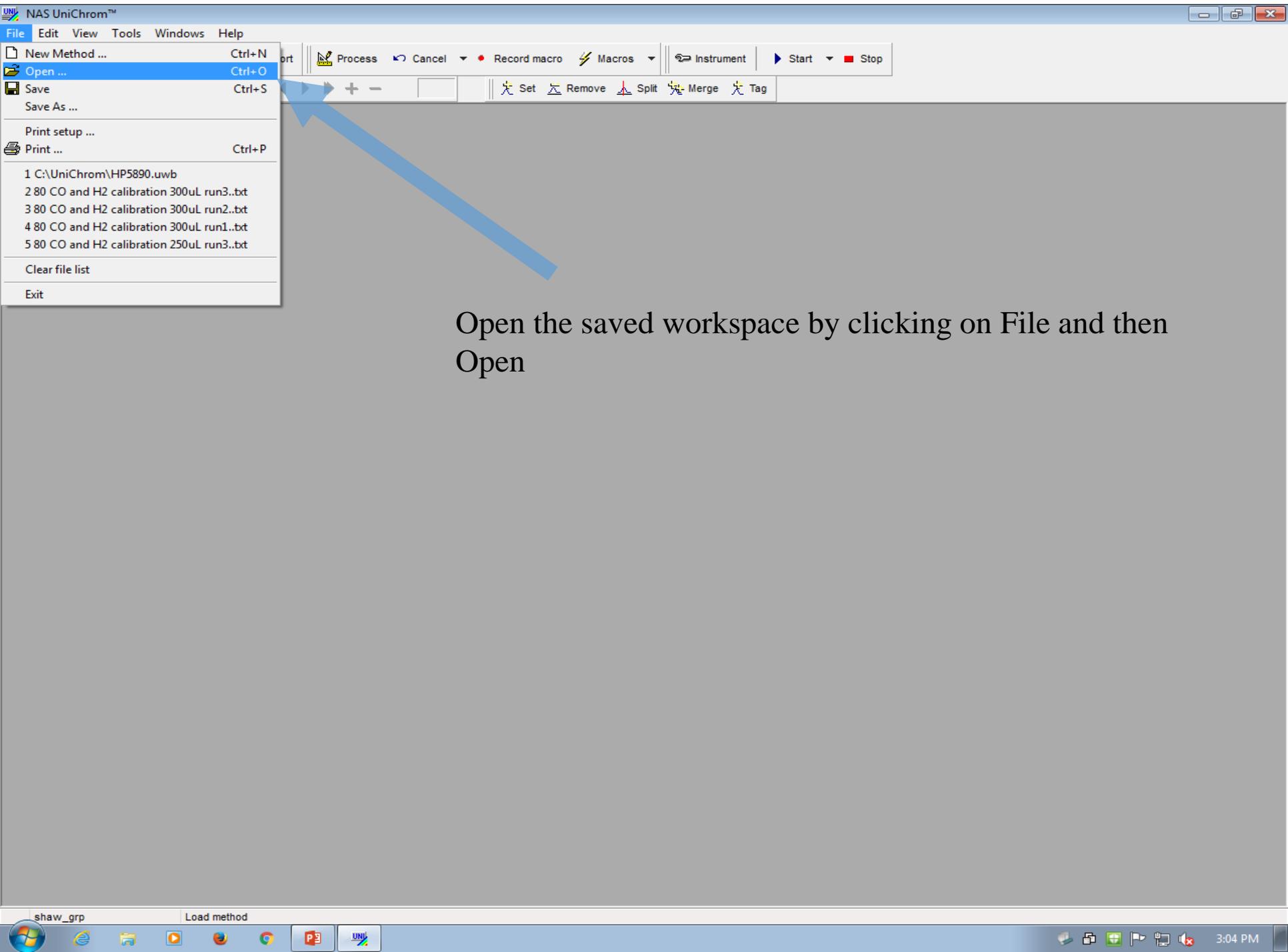
THE UNIVERSITY OF IOWA
COLLEGE OF LIBERAL ARTS AND SCIENCES



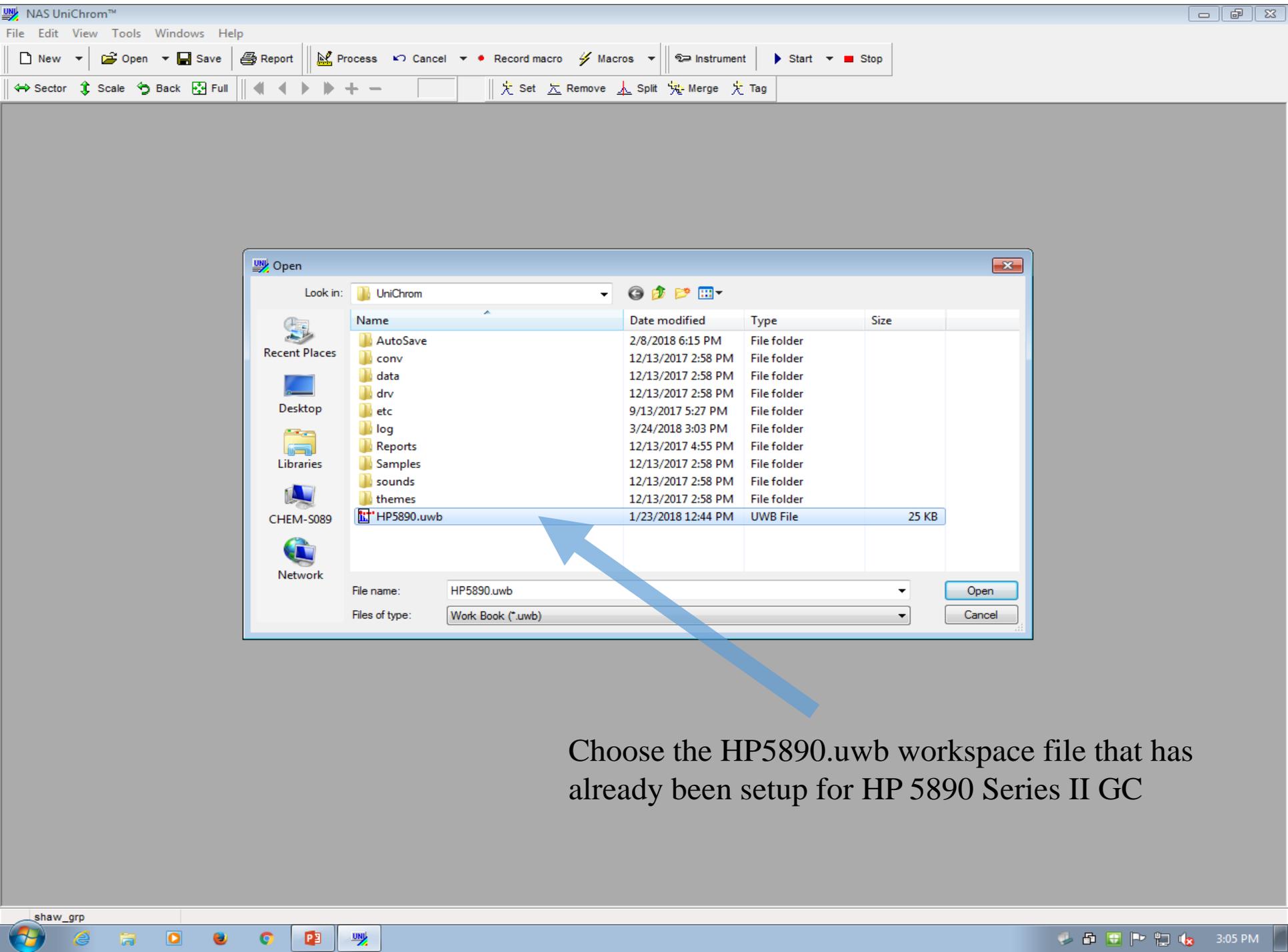
Open UniChrom software from desktop short-cut or
open software from (C:) drive under programs



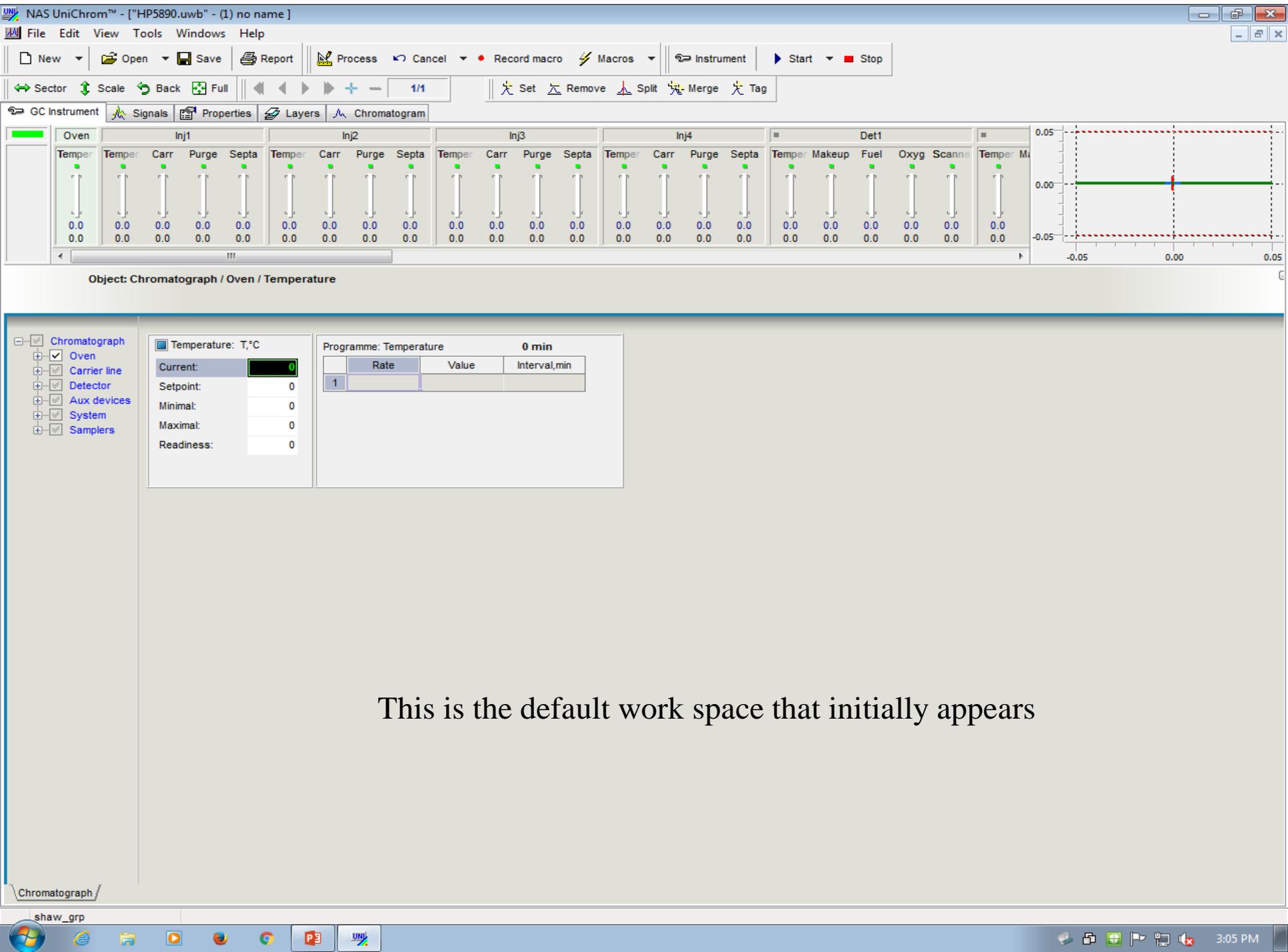
3:02 PM



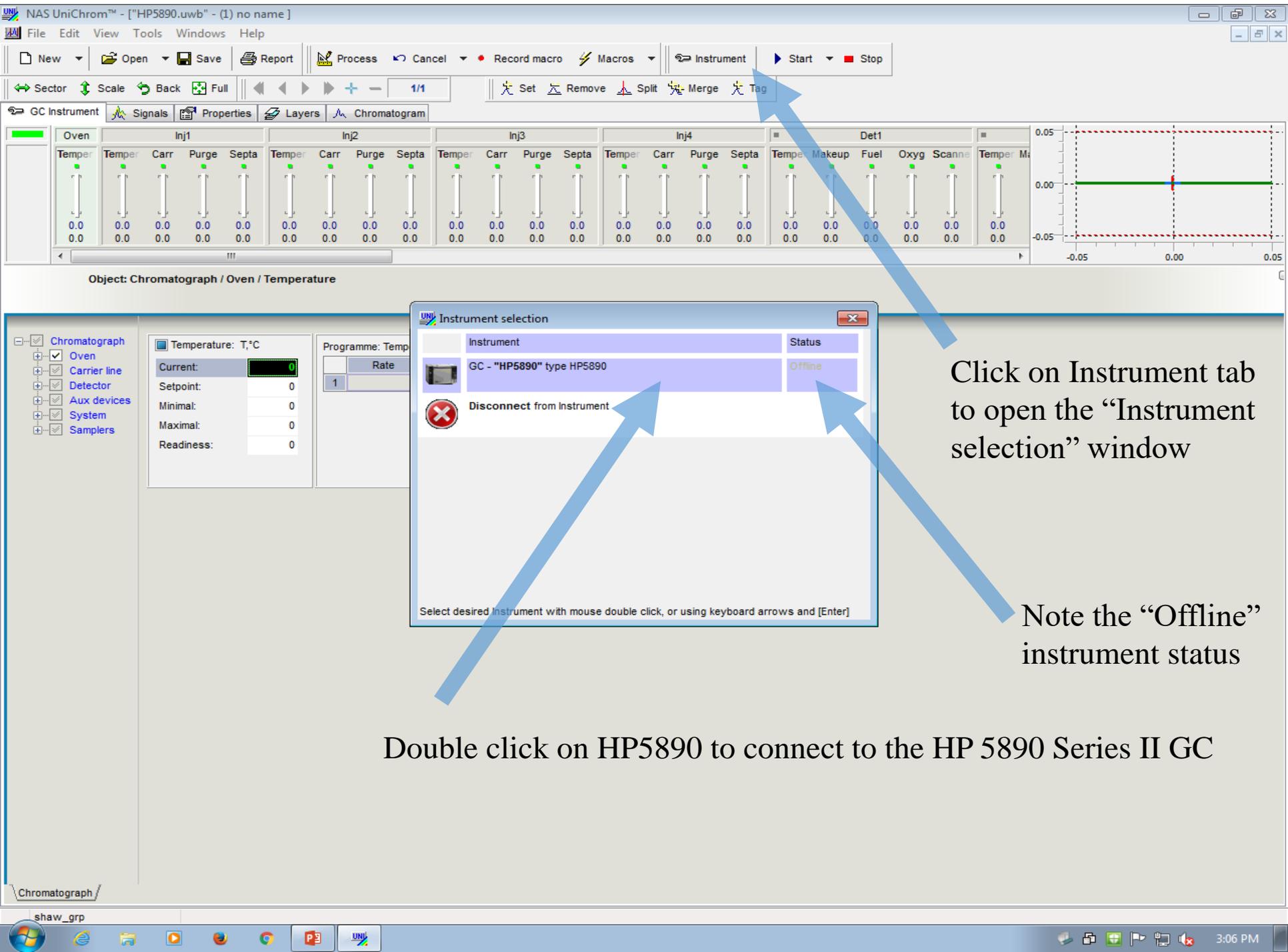
Open the saved workspace by clicking on File and then Open



Choose the HP5890.uwb workspace file that has already been setup for HP 5890 Series II GC



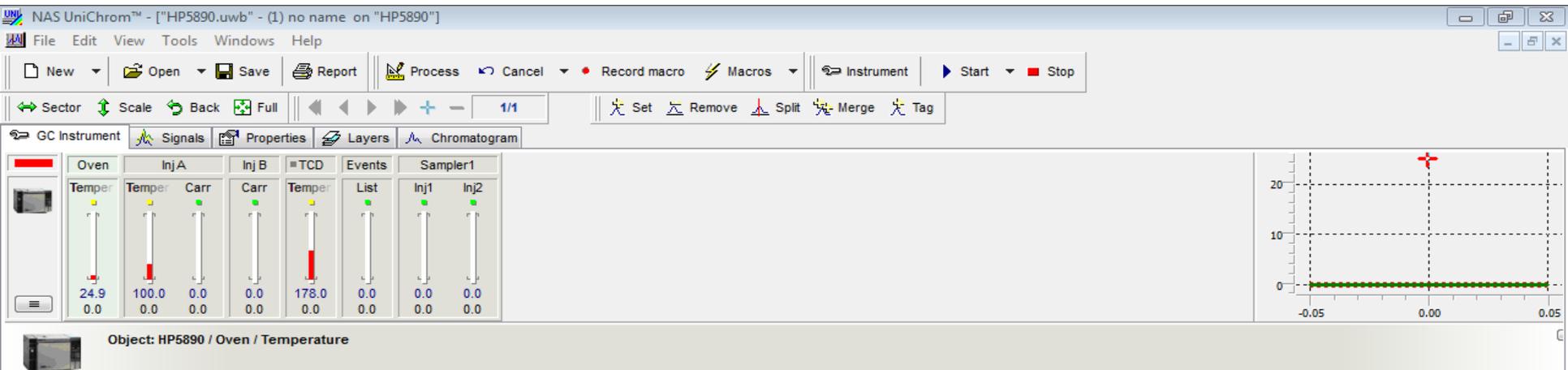
This is the default work space that initially appears



Click on Instrument tab to open the "Instrument selection" window

Note the "Offline" instrument status

Double click on HP5890 to connect to the HP 5890 Series II GC



Object: HP5890 / Oven / Temperature

Temperature: T,°C

Programme: Temperature 0 min

| Rate | Value | Interval,min |
|------|-------|--------------|
| 1 | | |

Current: 24.85
Setpoint: 0
Minimal: 0
Maximal: 400
Readiness: 0.5

Instrument selection

| Instrument | Status |
|---------------------------|--------|
| GC - "HP5890" type HP5890 | Idle |

Disconnect from Instrument

Select desired Instrument with mouse double click, or using keyboard arrows and [Enter]

GC settings in "red" = system not ready.
Adjust "Setpoint" to desired temperature for:

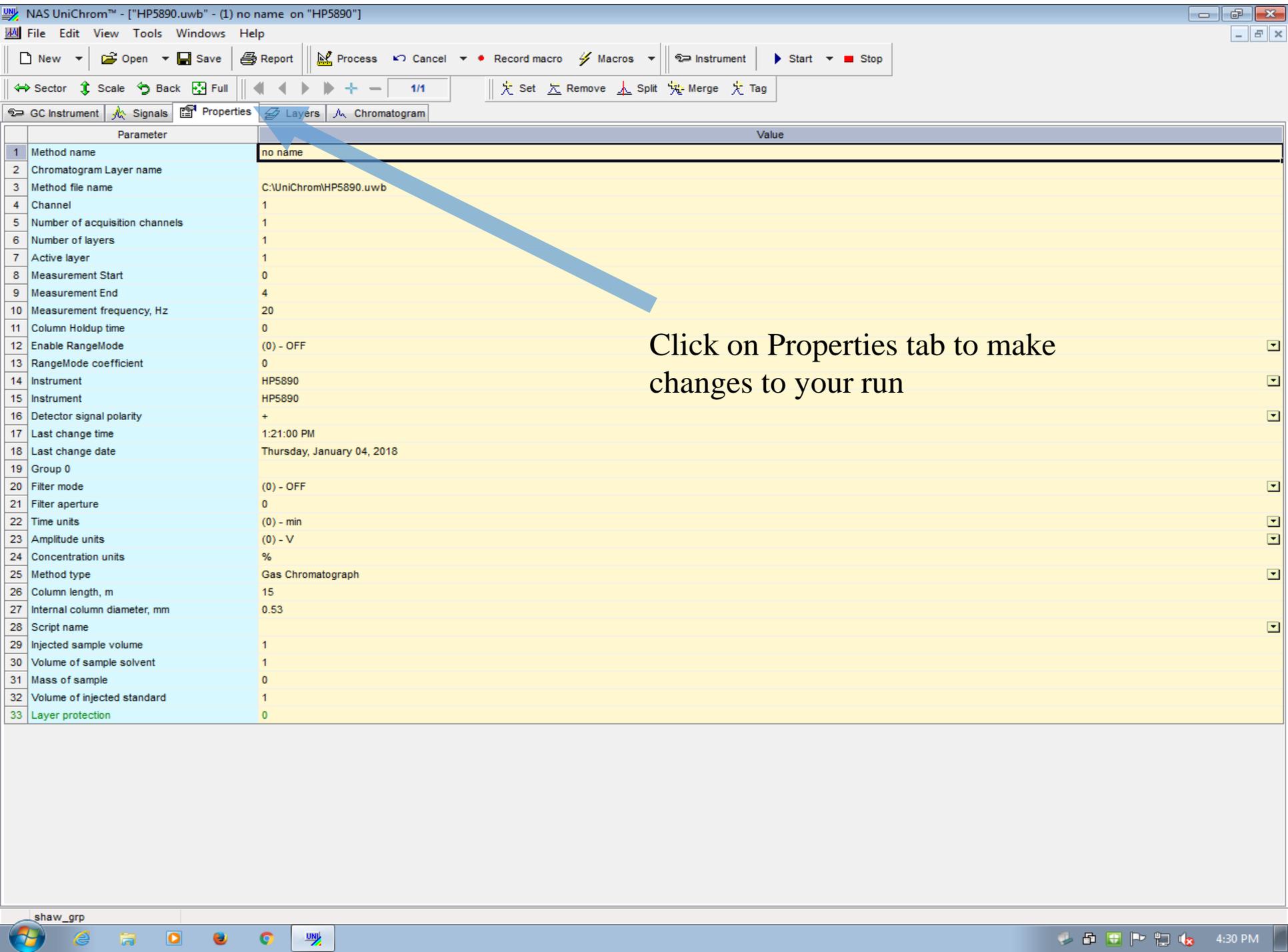
- I. Oven
- II. Carries Line (Inj A)
- III. Detector (TCD)

Don't change anything else

Once this workspace loads, click on Instrument tab again to bring up the "Instrument selection window again, note the "idle" instrument status

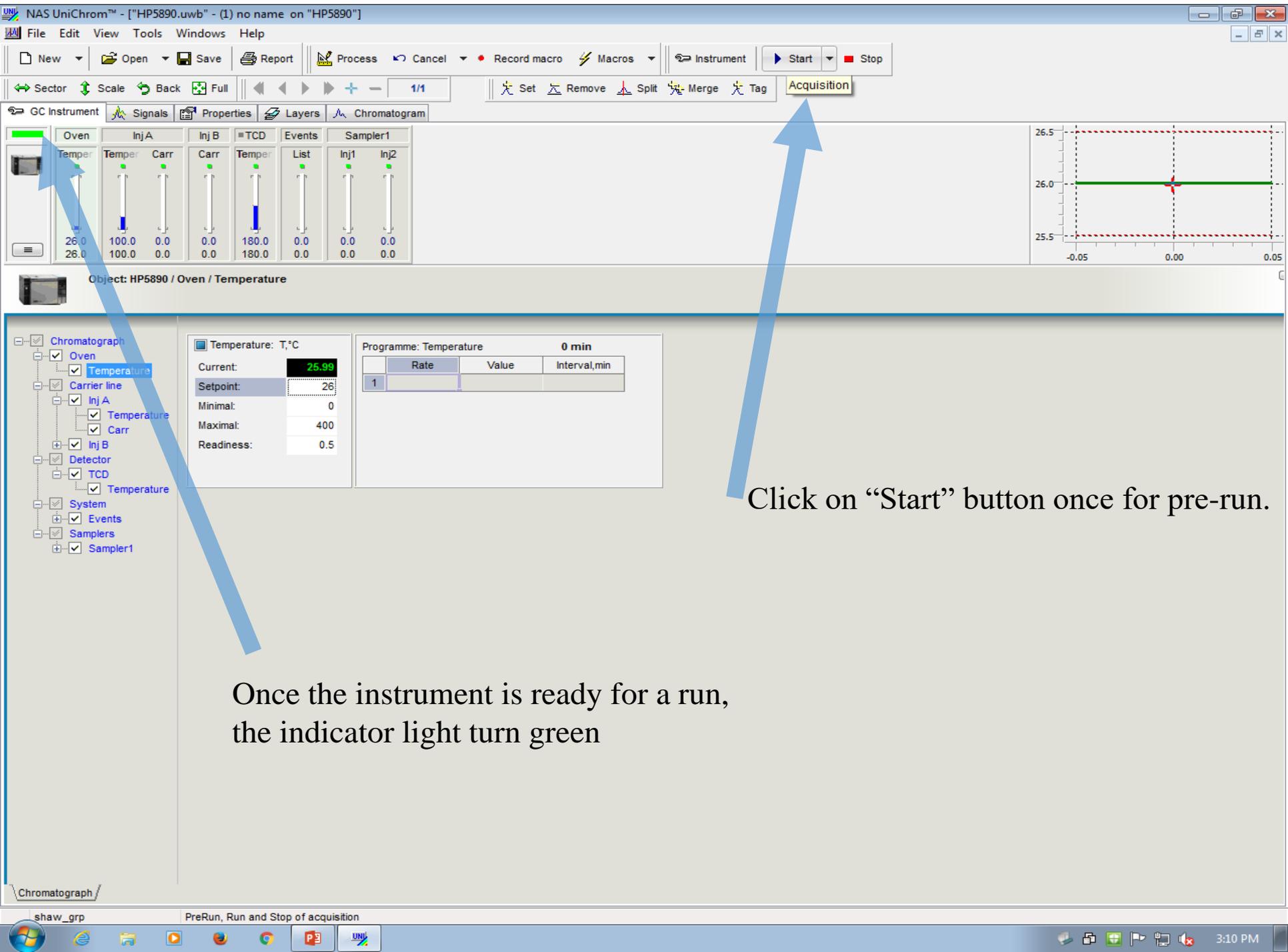
Check display panel on instrument panel, either one of the following messages means the UniChrom software is connected to the instrument





Click on Properties tab to make changes to your run

| | Parameter | Value |
|----|--------------------------------|----------------------------|
| 1 | Method name | no name |
| 2 | Chromatogram Layer name | |
| 3 | Method file name | C:\UniChrom\HP5890.uwb |
| 4 | Channel | 1 |
| 5 | Number of acquisition channels | 1 |
| 6 | Number of layers | 1 |
| 7 | Active layer | 1 |
| 8 | Measurement Start | 0 |
| 9 | Measurement End | 4 |
| 10 | Measurement frequency, Hz | 20 |
| 11 | Column Holdup time | 0 |
| 12 | Enable RangeMode | (0) - OFF |
| 13 | RangeMode coefficient | 0 |
| 14 | Instrument | HP5890 |
| 15 | Instrument | HP5890 |
| 16 | Detector signal polarity | + |
| 17 | Last change time | 1:21:00 PM |
| 18 | Last change date | Thursday, January 04, 2018 |
| 19 | Group 0 | |
| 20 | Filter mode | (0) - OFF |
| 21 | Filter aperture | 0 |
| 22 | Time units | (0) - min |
| 23 | Amplitude units | (0) - V |
| 24 | Concentration units | % |
| 25 | Method type | Gas Chromatograph |
| 26 | Column length, m | 15 |
| 27 | Internal column diameter, mm | 0.53 |
| 28 | Script name | |
| 29 | Injected sample volume | 1 |
| 30 | Volume of sample solvent | 1 |
| 31 | Mass of sample | 0 |
| 32 | Volume of injected standard | 1 |
| 33 | Layer protection | 0 |



Click on "Start" button once for pre-run.

Once the instrument is ready for a run,
the indicator light turn green

NAS UniChrom™ - [.: "HP5890.uwb" - /1/ no name on "HP5890"]

File Edit View Tools Windows Help

New Open Save Report Process Cancel Record macro Macros Instrument Start Stop

Sector Scale Back Full 2/2 Set Remove Split Merge Tag

GC Instrument Signals Properties Layers Chromatogram

Oven Inj A Inj B TCD Events Sampler1

Temper Carr Carr Carr Temper List Inj1 Inj2

26.0 100.0 0.0 0.0 180.0 0.0 0.0 0.0

26.0 100.0 0.0 0.0 180.0 0.0 0.0 0.0

Object: HP5890 / Oven / Temperature

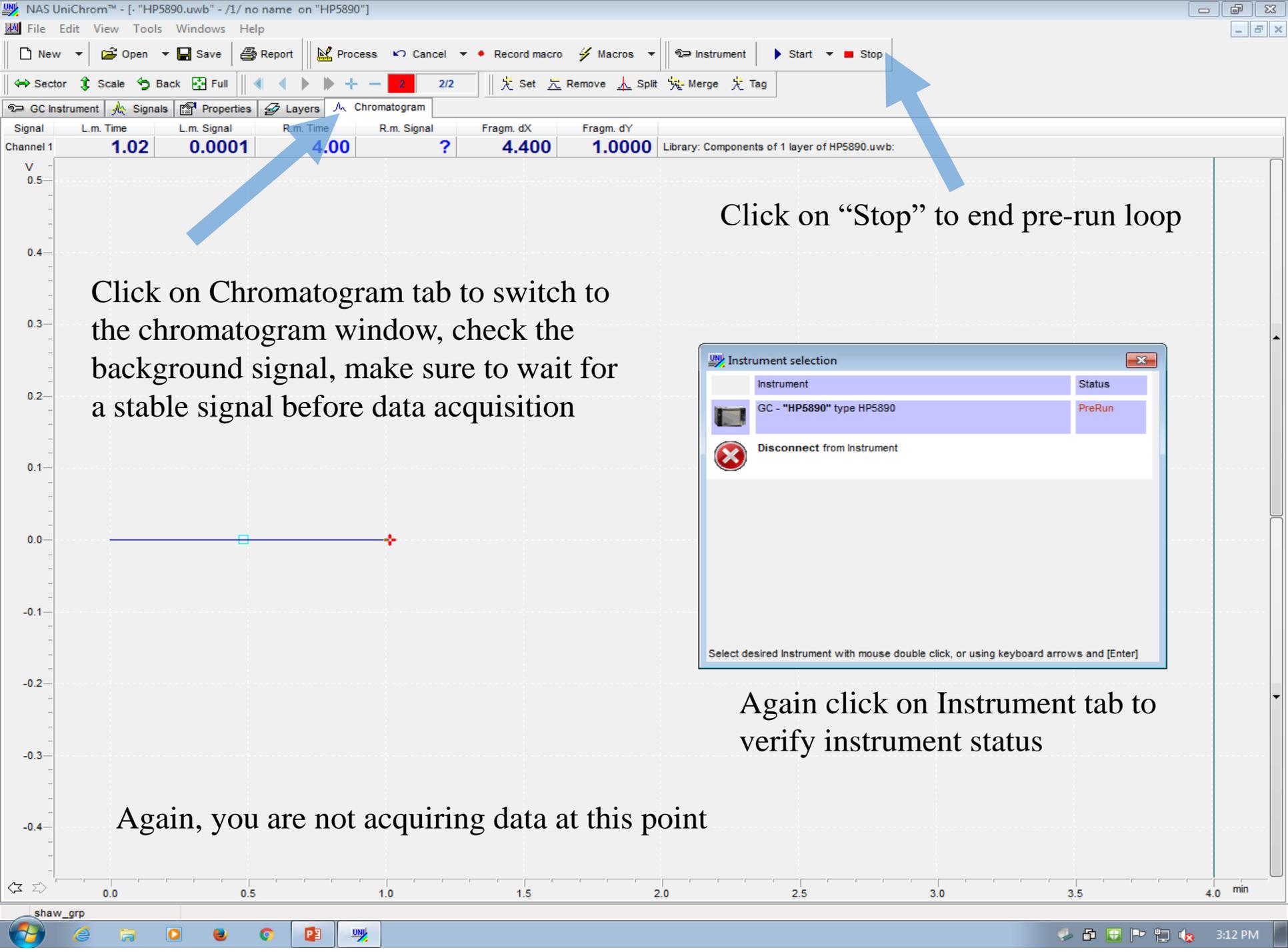
Click on Instrument tab to verify instrument status

Note that is this box is in red, the instrument is in a pre-run loop, it is not acquiring data

Instrument selection

| Instrument | Status |
|----------------------------|--------|
| GC - "HP5890" type HP5890 | PreRun |
| Disconnect from Instrument | |

Select desired Instrument with mouse double click, or using keyboard arrows and [Enter]



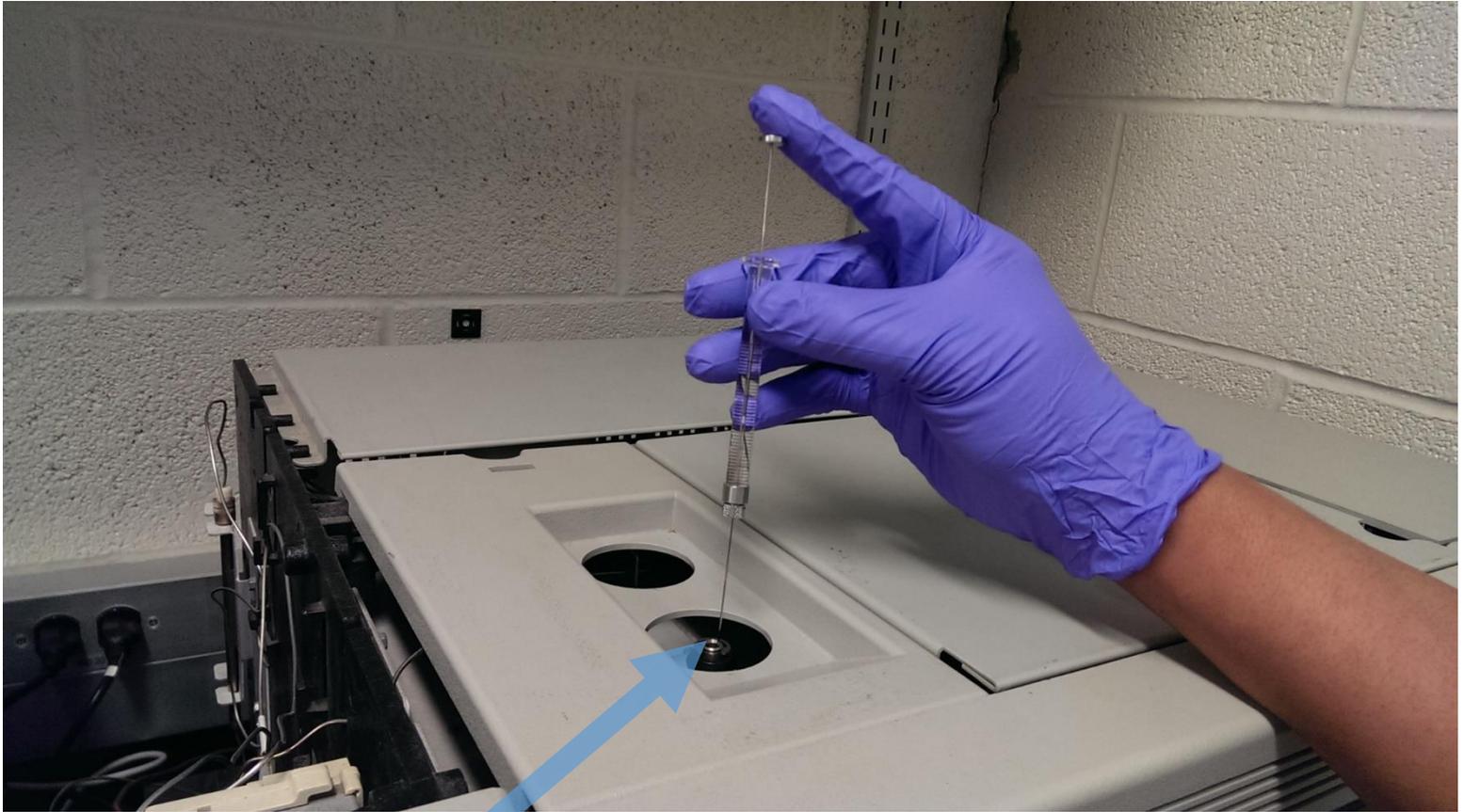
Click on Chromatogram tab to switch to the chromatogram window, check the background signal, make sure to wait for a stable signal before data acquisition

Click on "Stop" to end pre-run loop

Again, you are not acquiring data at this point

Again click on Instrument tab to verify instrument status

The instrument is now ready for data acquisition



Inject your sample into the injection port

Use appropriate syringes for sample types:

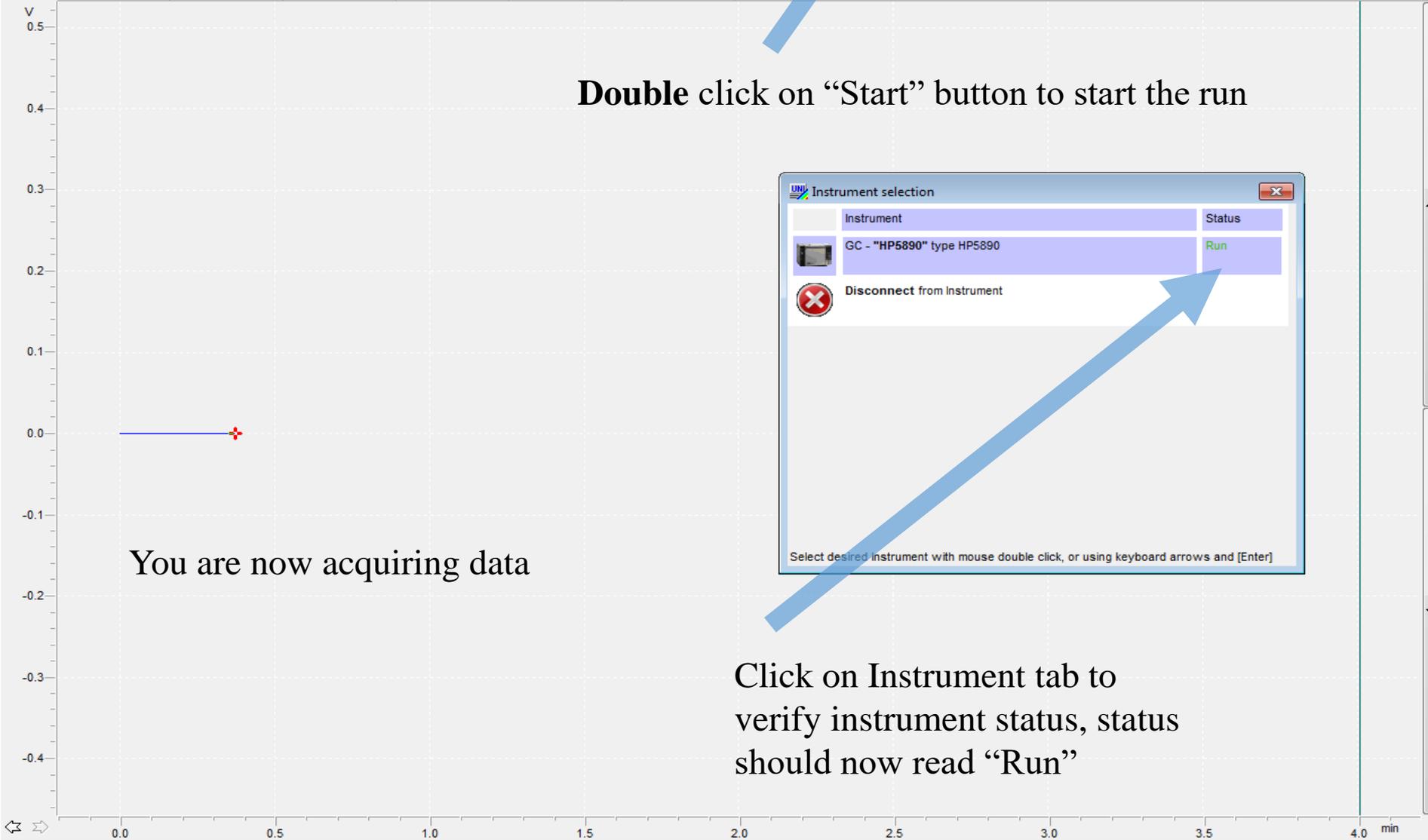
- gas sample - use gas tight glass syringes
- liquid sample - use water tight glass syringes

File Edit View Tools Windows Help

New Open Save Report Process Cancel Record macro Macros Instrument Start Stop

Sector Scale Back Full 3/3 Set Remove Split Merge Tag

| Signal | L.m. Time | L.m. Signal | R.m. Time | R.m. Signal | Fragm. dX | Fragm. dY | Library: Components of 1 layer of HP5890.uwb: |
|-----------|-----------|-------------|-----------|-------------|-----------|-----------|---|
| Channel 1 | 0.37 | 0.0002 | 4.00 | ? | 4.400 | 1.0000 | |



Double click on "Start" button to start the run

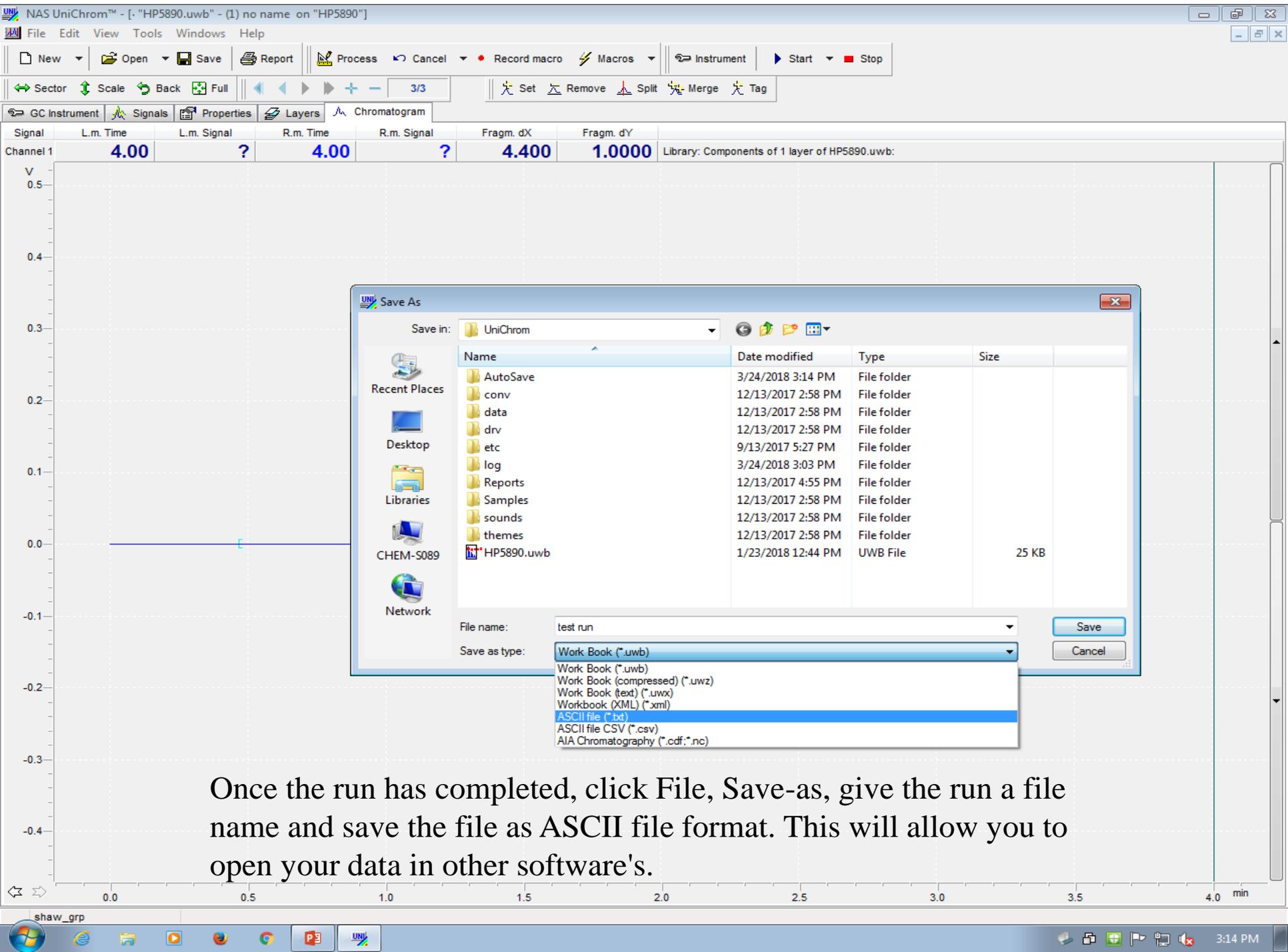
| Instrument | Status |
|---------------------------|--------|
| GC - "HP5890" type HP5890 | Run |

Disconnect from Instrument

Select desired instrument with mouse double click, or using keyboard arrows and [Enter]

You are now acquiring data

Click on Instrument tab to verify instrument status, status should now read "Run"



Once the run has completed, click File, Save-as, give the run a file name and save the file as ASCII file format. This will allow you to open your data in other software's.

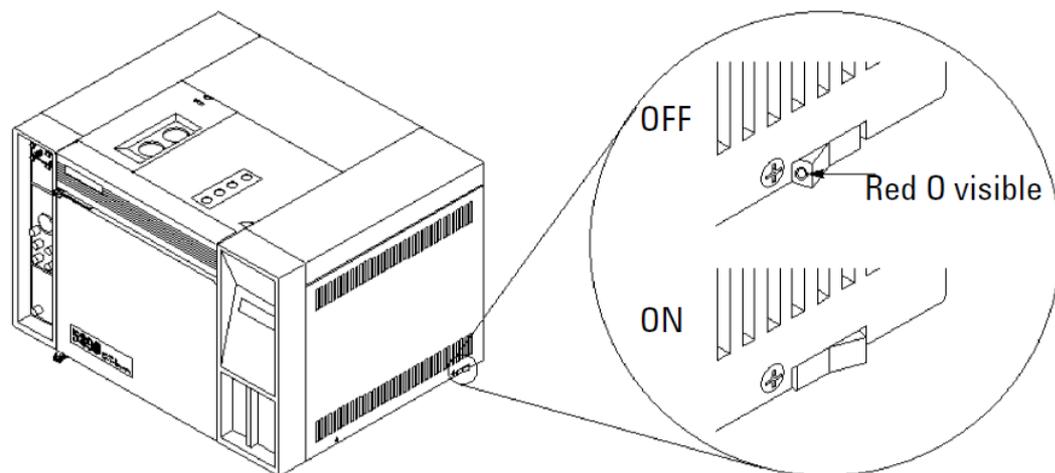
You are all done with data acquisition, good job

I. Exit Unichrom software,

Do not save any changes to HP5890.uwb workspace file

I. Turn the instrument off using the button the lower far right-hand side

II. Turn off the gas line



Refer to the instrument User Manual on how to swap the GC column and how to change the septum and etc., if repairs are needed. The manuals are located in the cabinet directly underneath the GC instrument



We have enough spare parts to re-build 2 more GC instruments, look through the bins located underneath the E-chem station for spare parts