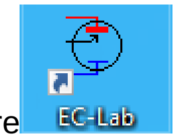
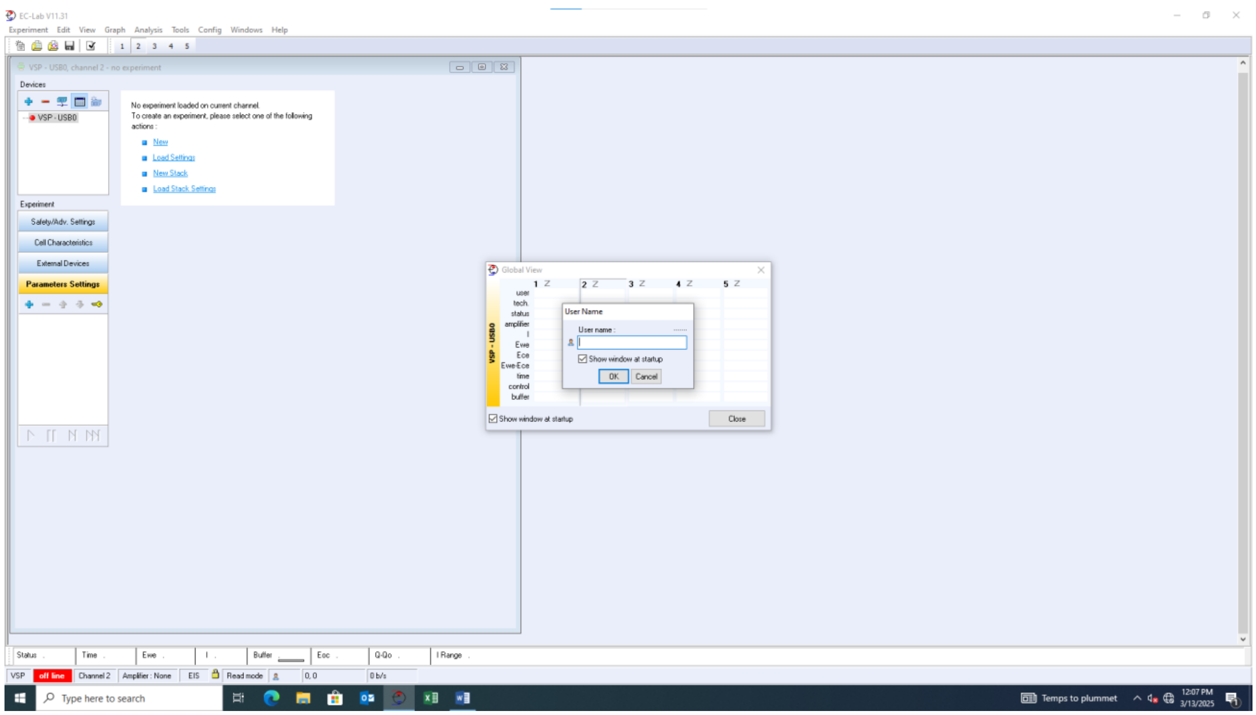
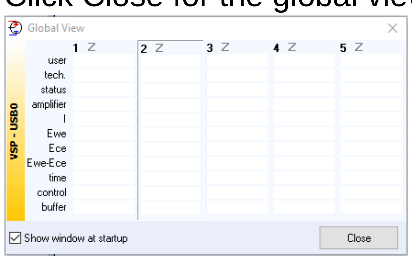
Biologic Quick Manual

1. **Linking** work station with PC via cable
2. Turn on the power by pressing the **power button** on the back of the work station
3. Double click the **shortcut** to open software 

4. You will see

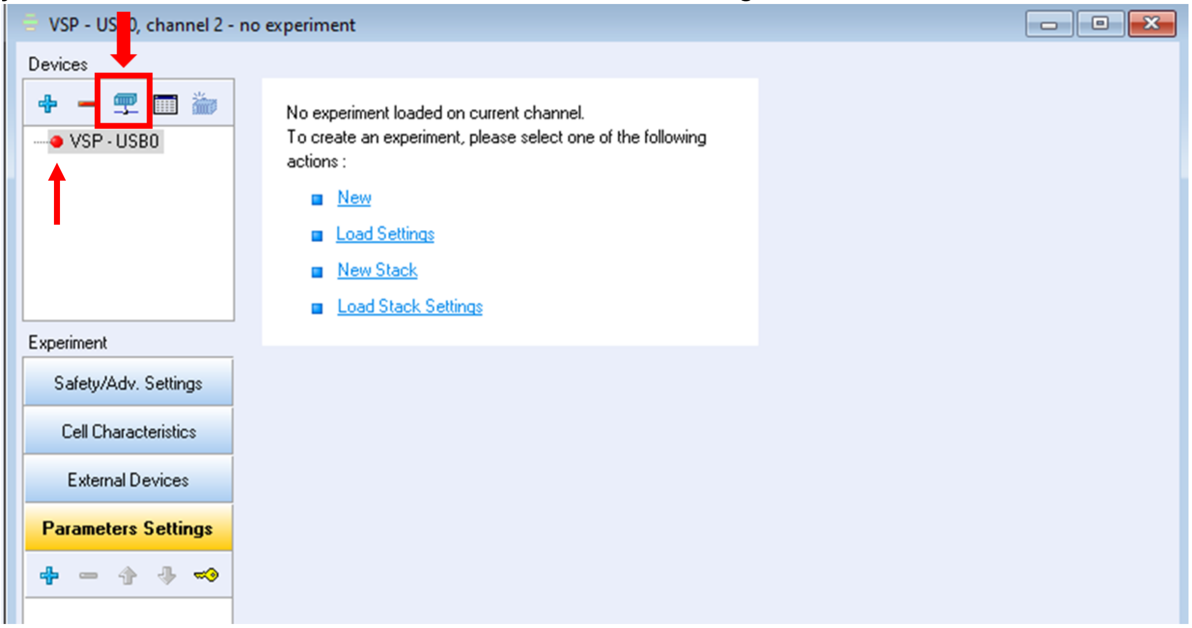


5. The user name pop up will disappear by itself, or you can click ok to continue
6. Click Close for the global view popup



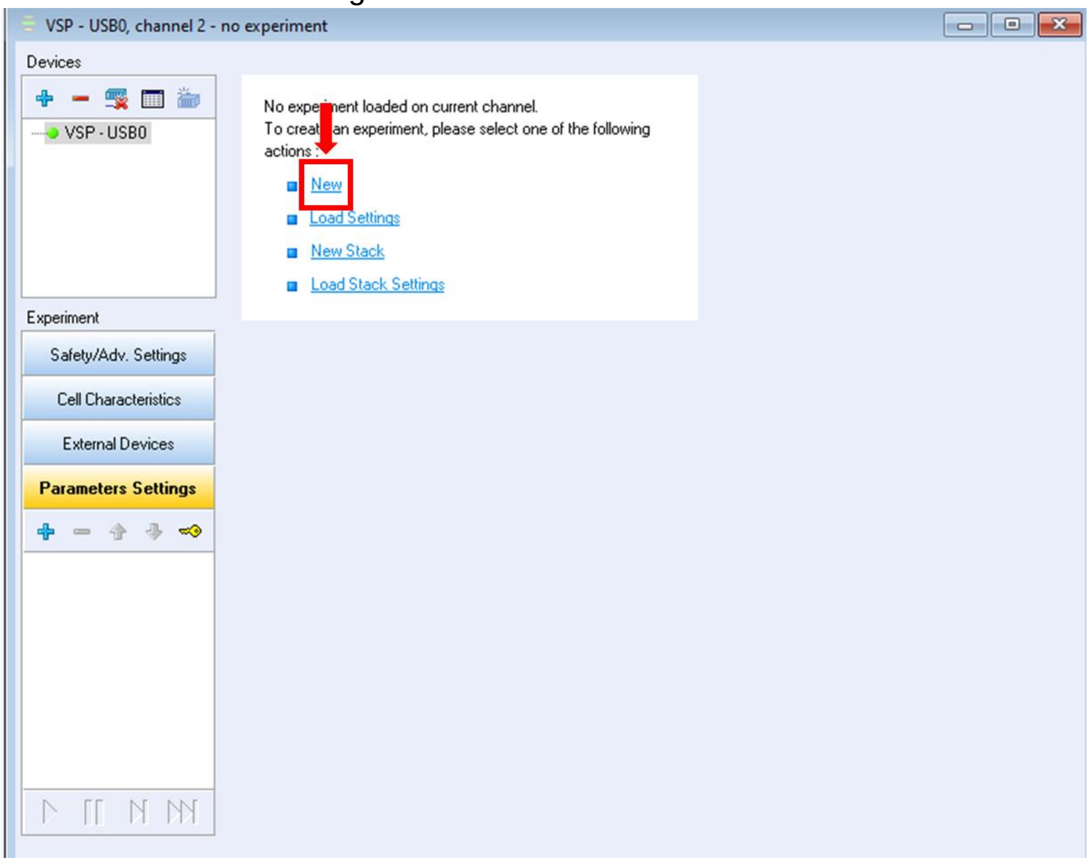
7. **Connect** device by clicking this button after hearing the device beep three times, it will take a few seconds to connect, After the device is successfully connected,

you will see the red circle in front of VSP-US80 turn green.

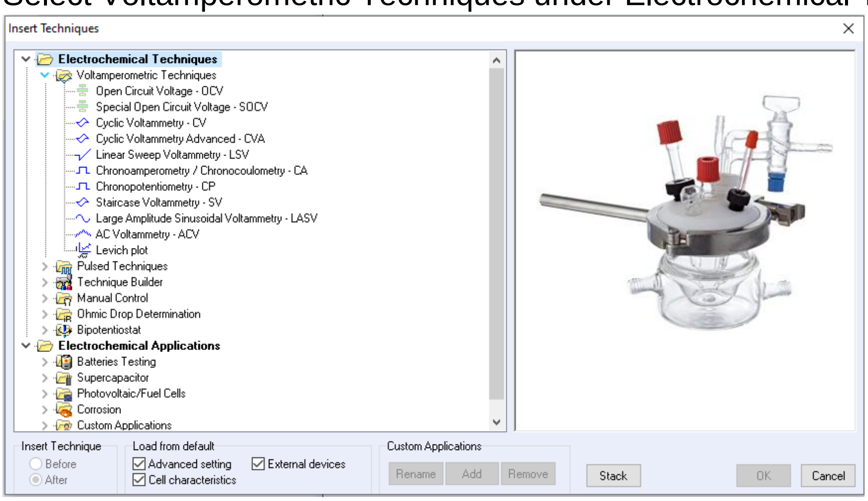


Cyclic Voltammetry (CV)

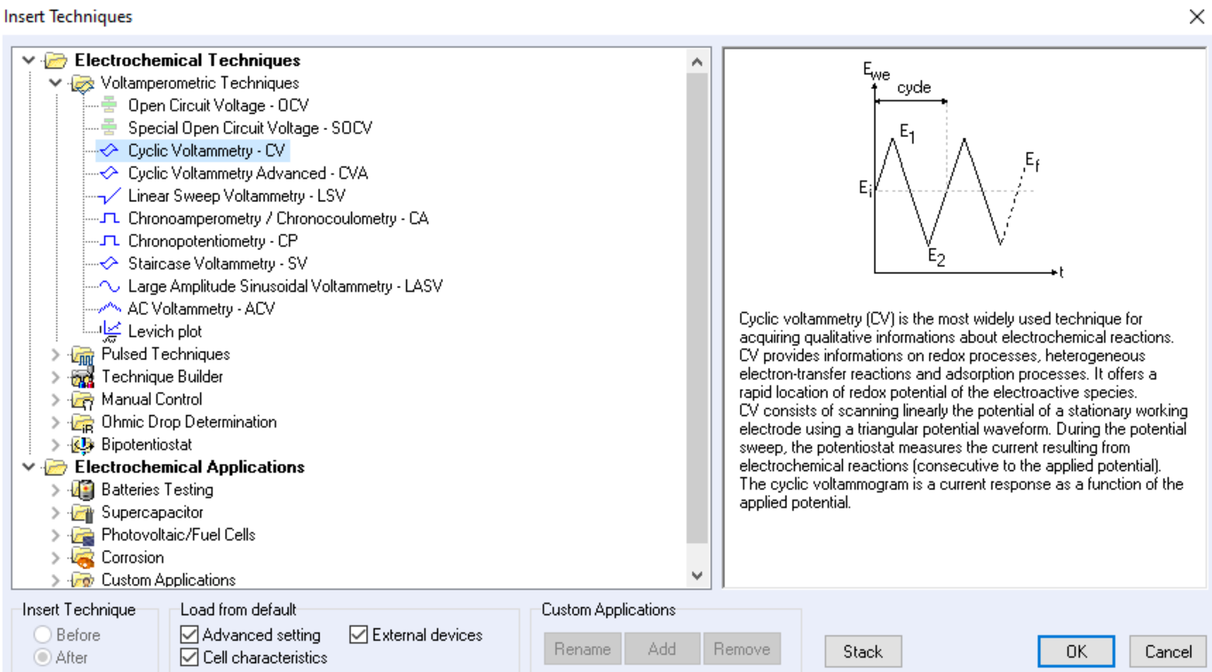
1. Click new to start an experiment or loading setting if you have one, or click  under Parameters Setting



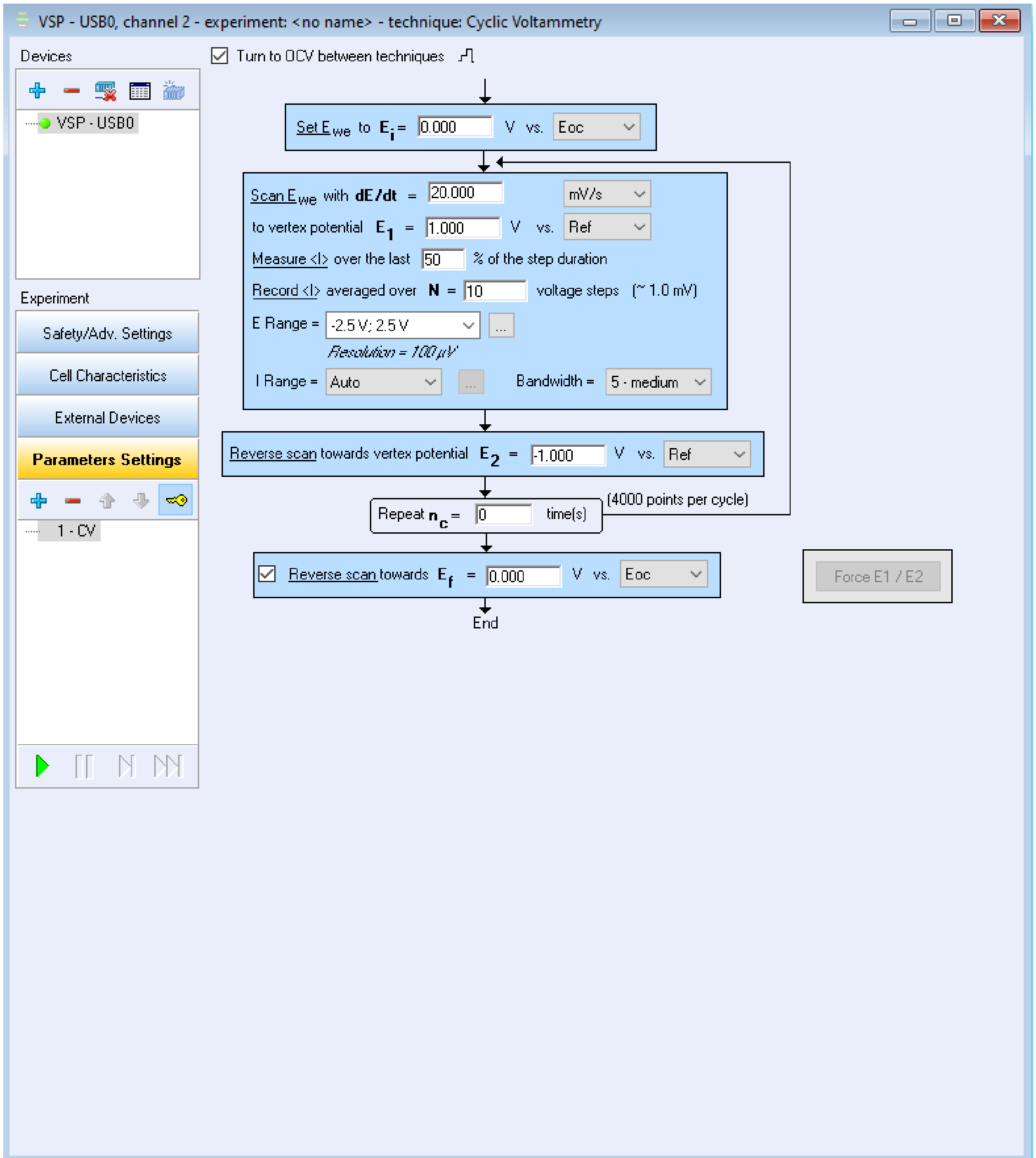
2. Select Voltamperometric Techniques under Electrochemical Techniques



3. Select Cyclic Voltammetry – CV and press OK

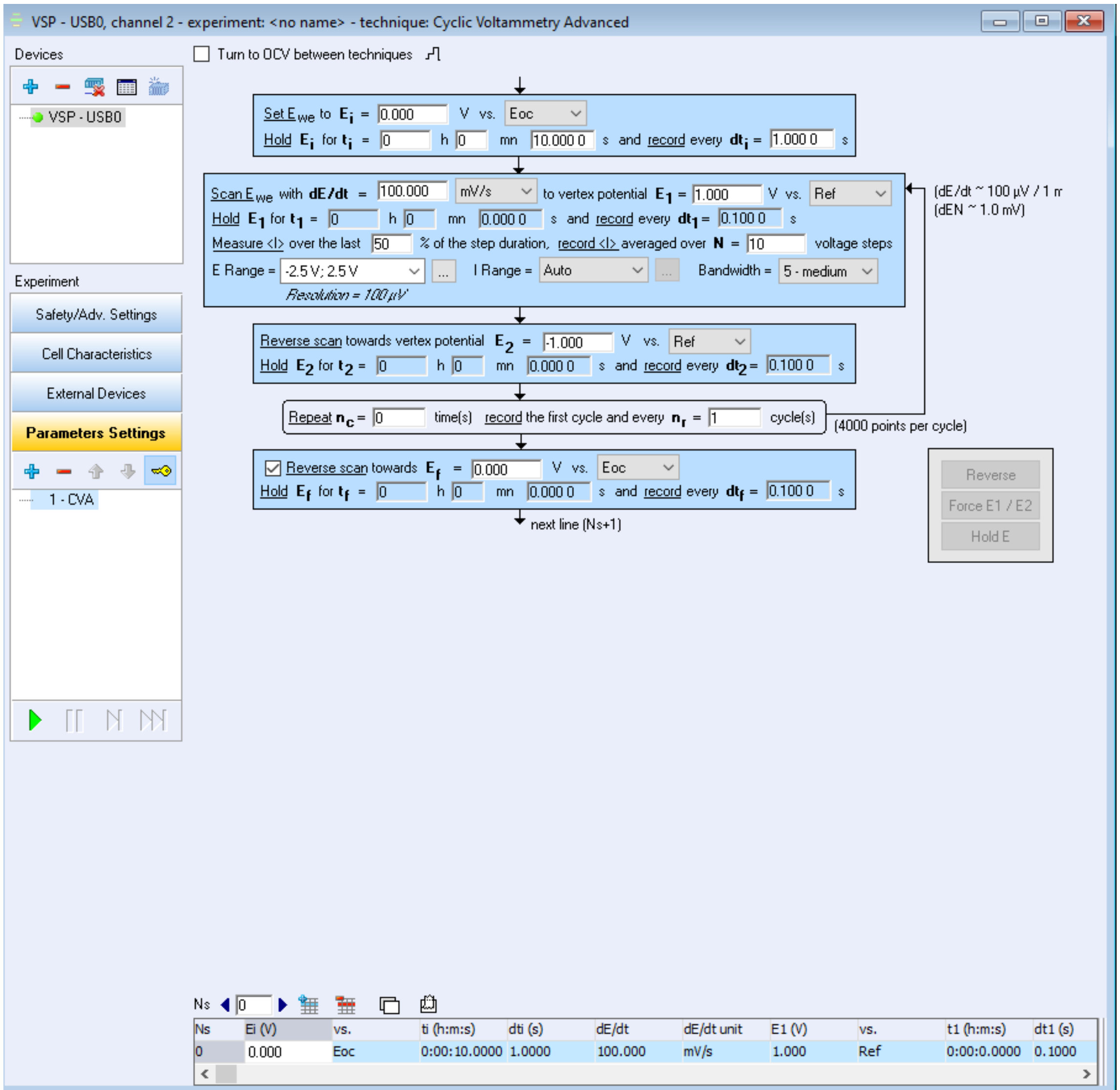


4. Now you are able to define the parameters you want (Such as start potential (Ei), scan rate (dE/dt), potential range (E1 and E2), and repeat time (nc)).



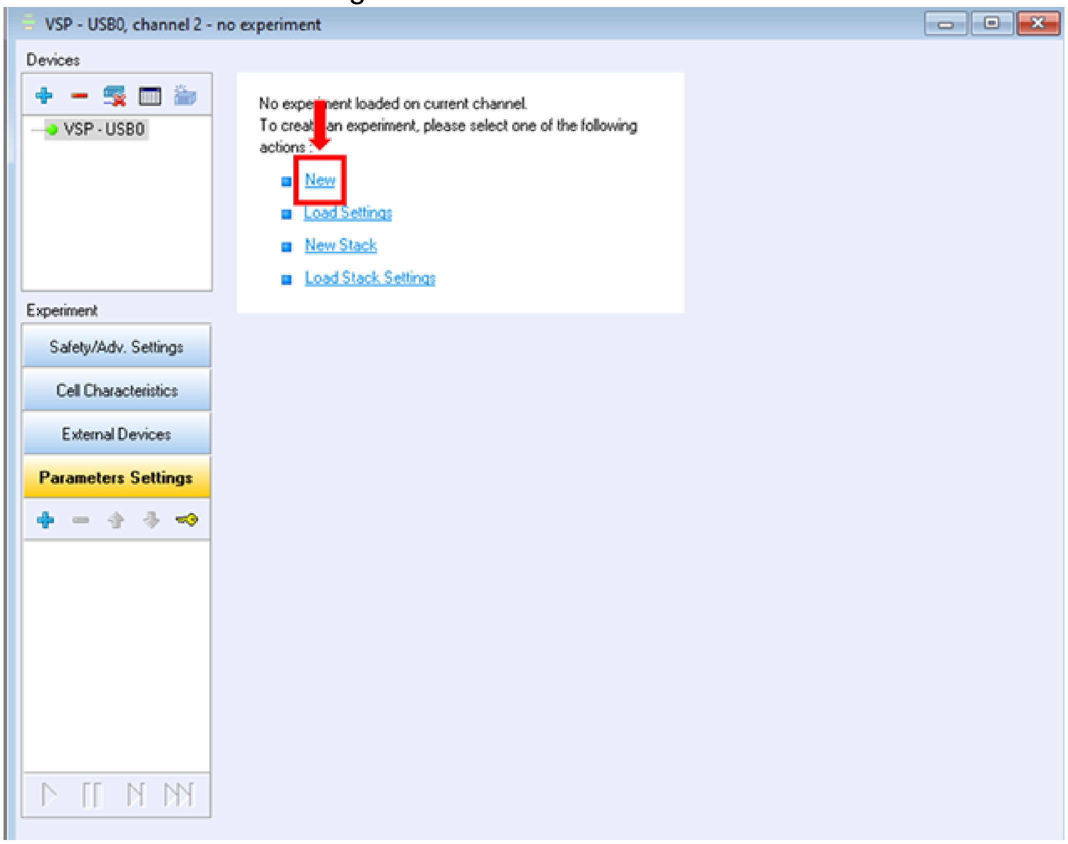
5. After you entered the designated parameters, click  on the left lower part to start testing.

6. You can have more freedom to input if you select cyclic voltammetry advanced

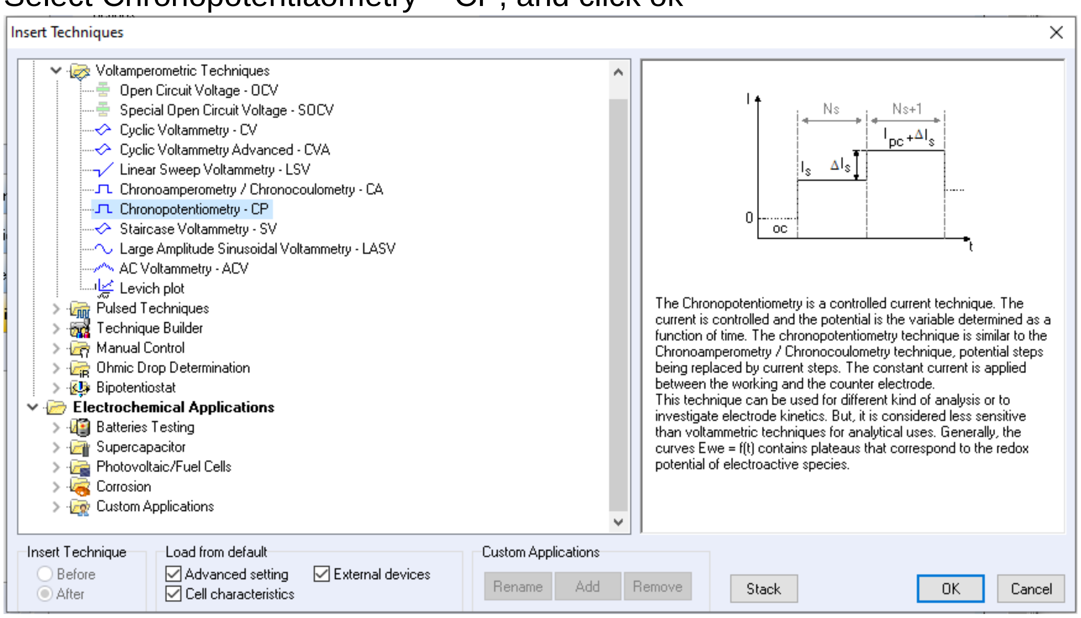


Chronopotentiometry (CP)

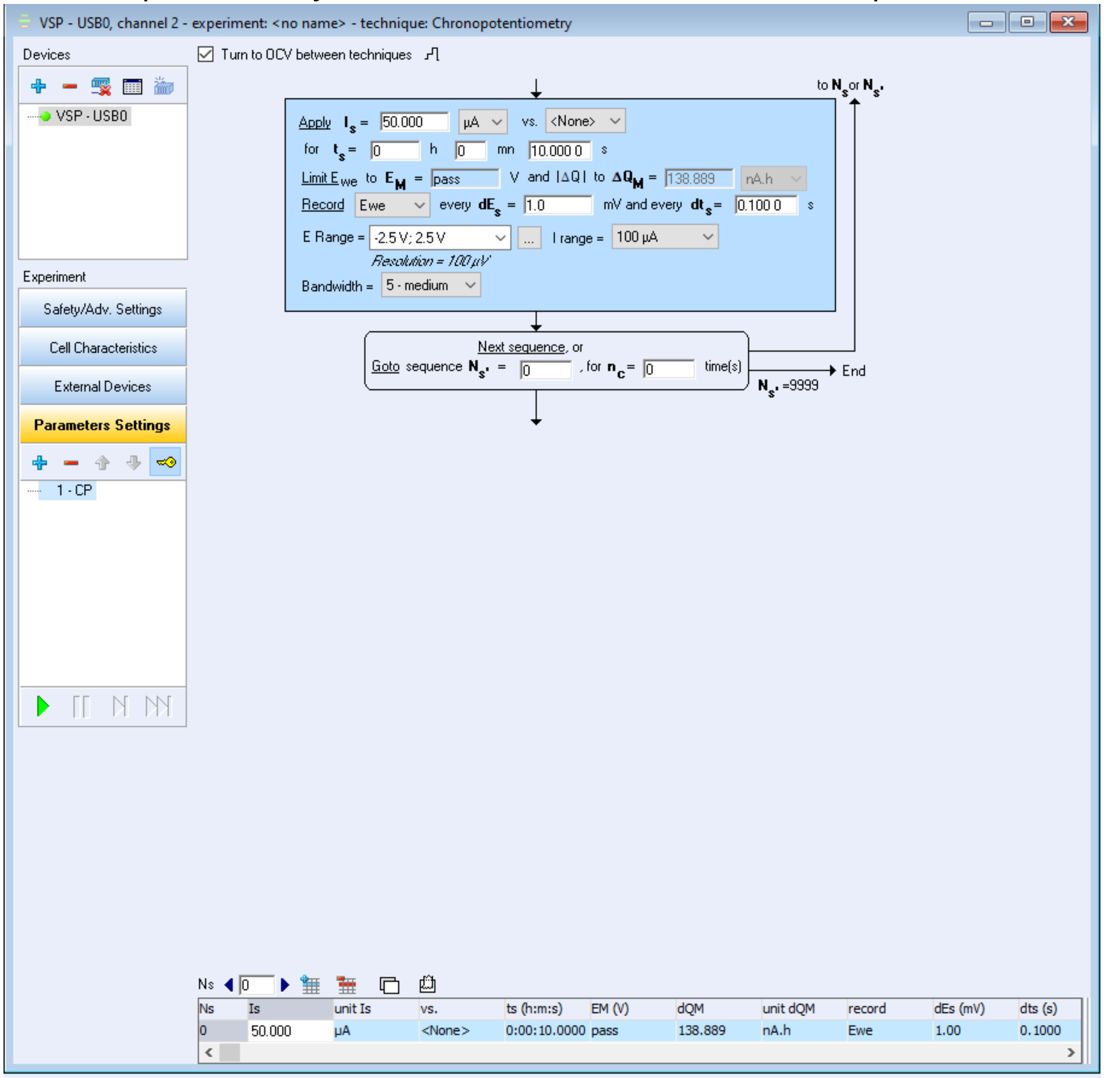
1. Click new to start an experiment or loading setting if you have one, or click under Parameters Setting



2. Select Chronopotentiaometry – CP, and click ok

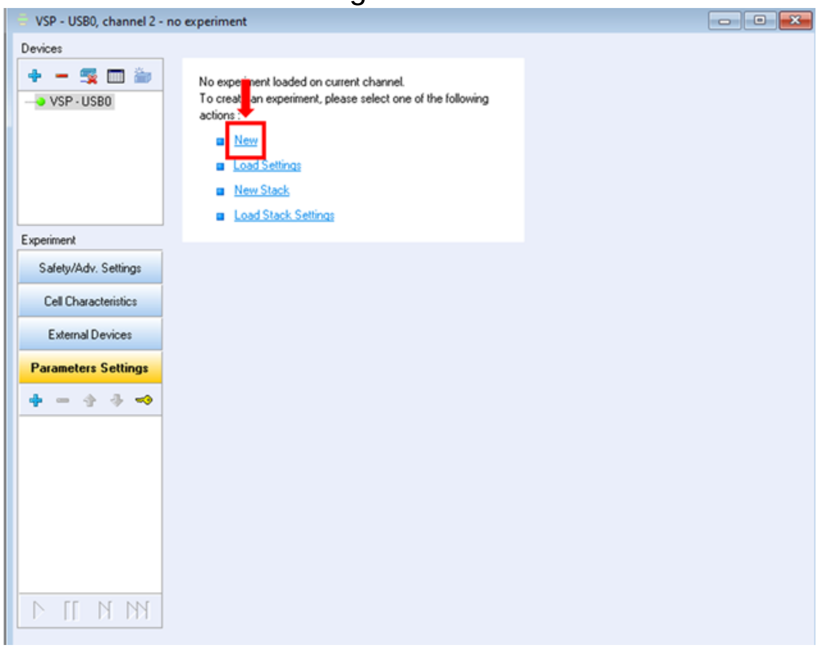


3. Enter the parameters you want and click ▶ in the left lower part

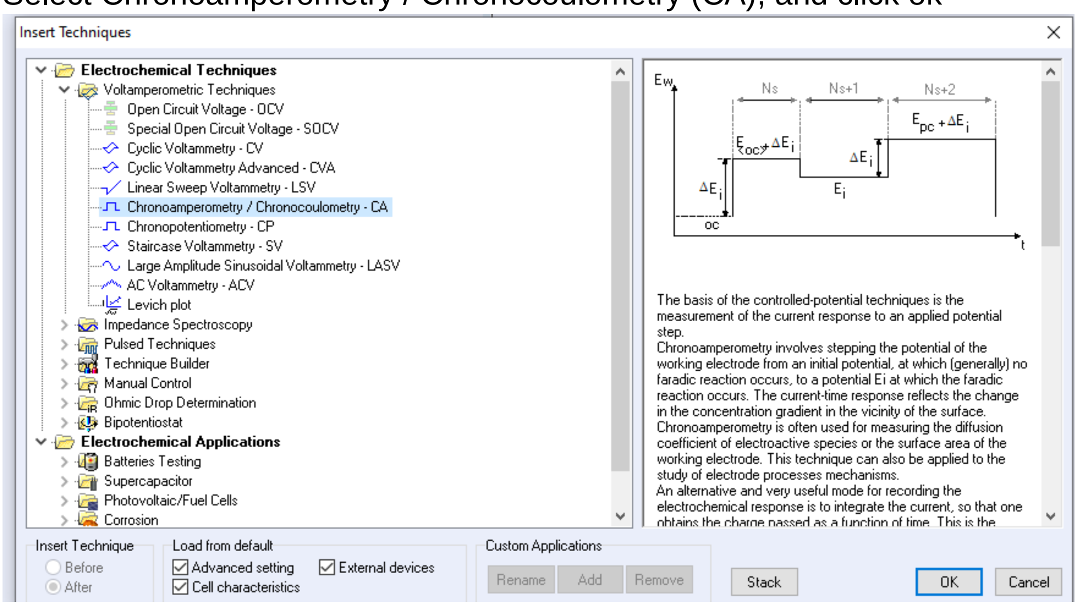


Chronoamperometry / Chronocoulometry (CA)

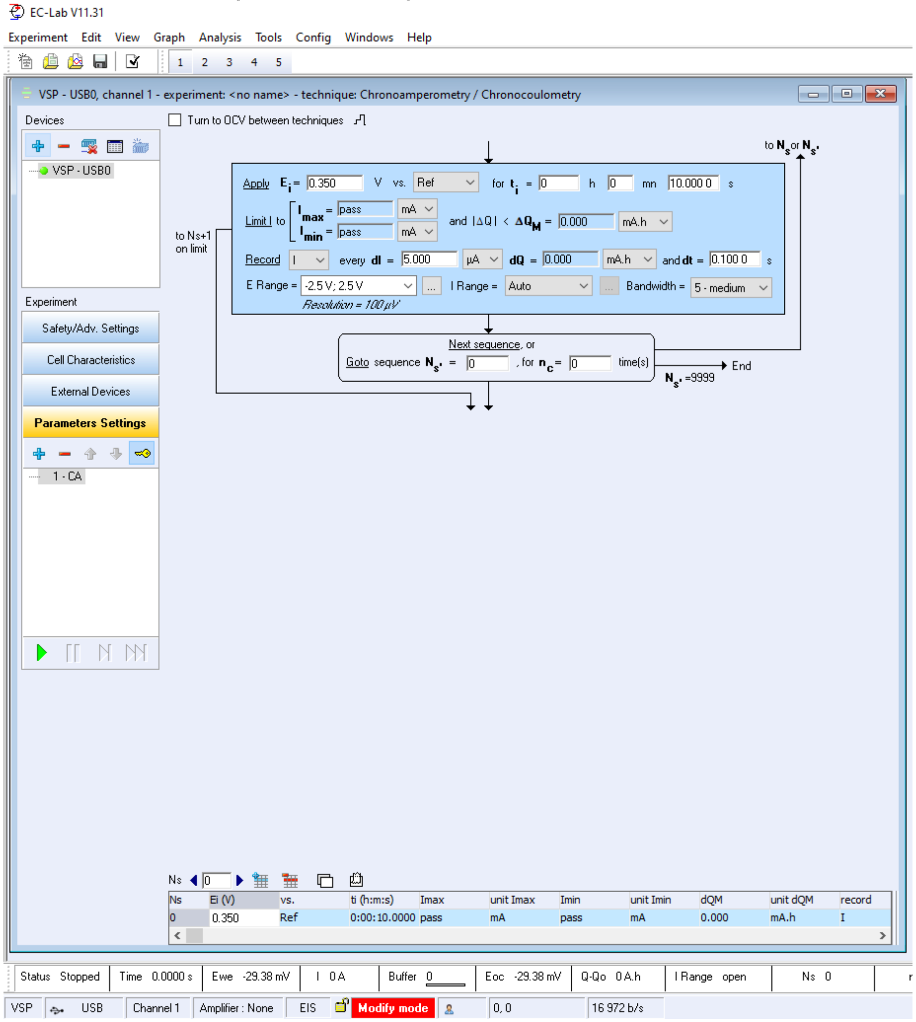
1. Click new to start an experiment or loading setting if you have one, or click  under Parameters Setting



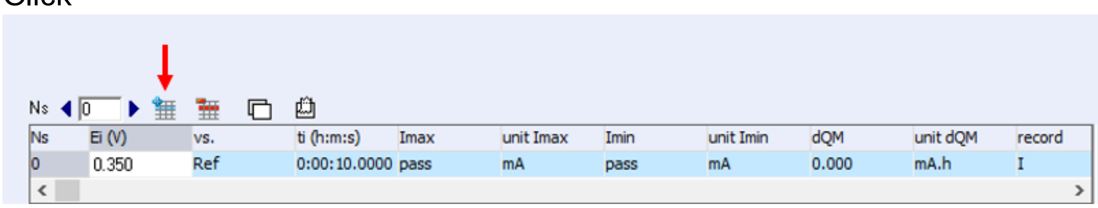
2. Select Chronoamperometry / Chronocoulometry (CA), and click ok



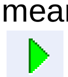
3. You can set the parameters you want to like Ei and ti.



4. Click

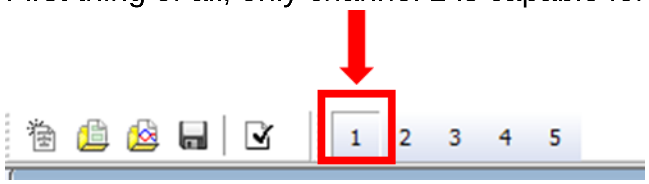


to add more steps if you want to do so, set Ei = 0 vs. Eoc if you want to rest. Click  means deleting this step.

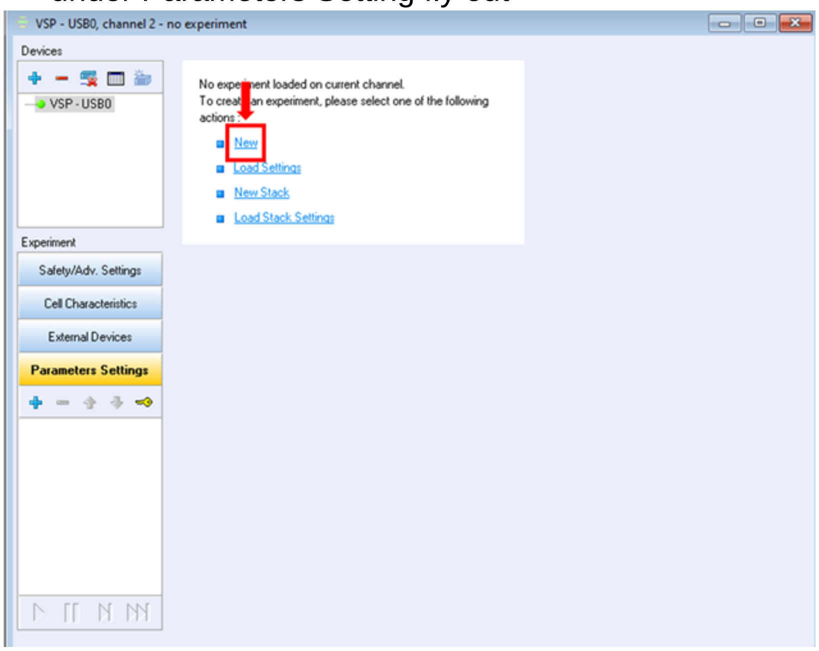
5. Click  in the left lower part to start

Potentio Electrochemical impedance spectroscopy (PEIS)

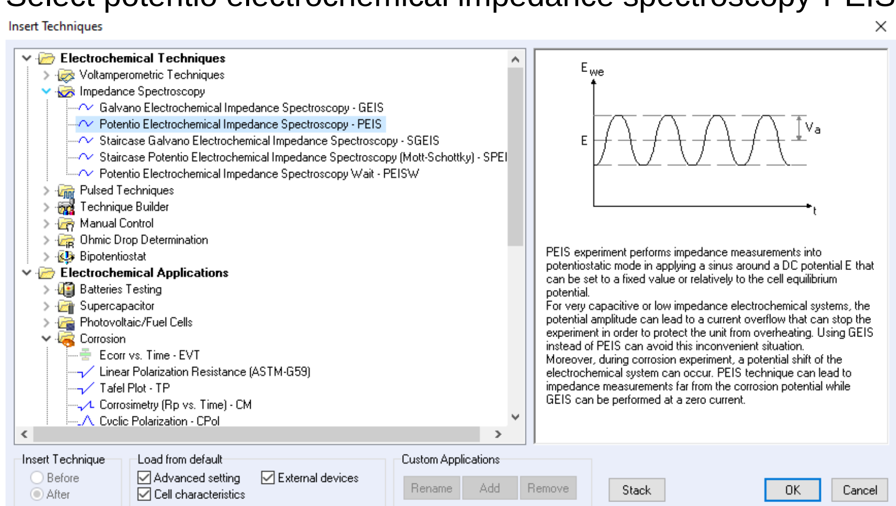
1. First thing of all, only channel 1 is capable for EIS measurement!

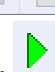


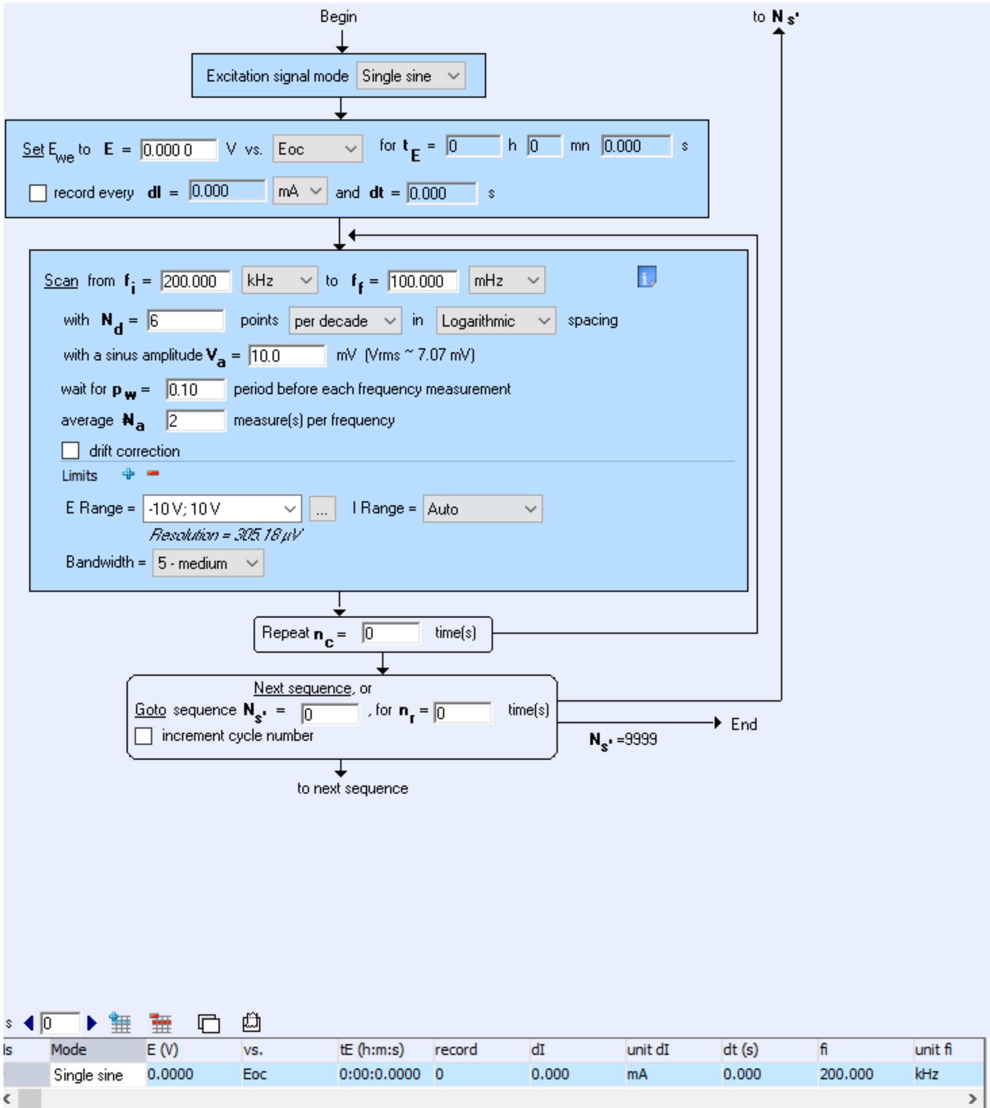
2. Click new to start an experiment or loading setting if you have one, or click  under Parameters Setting fly out



3. Select potentio electrochemical impedance spectroscopy-PEIS

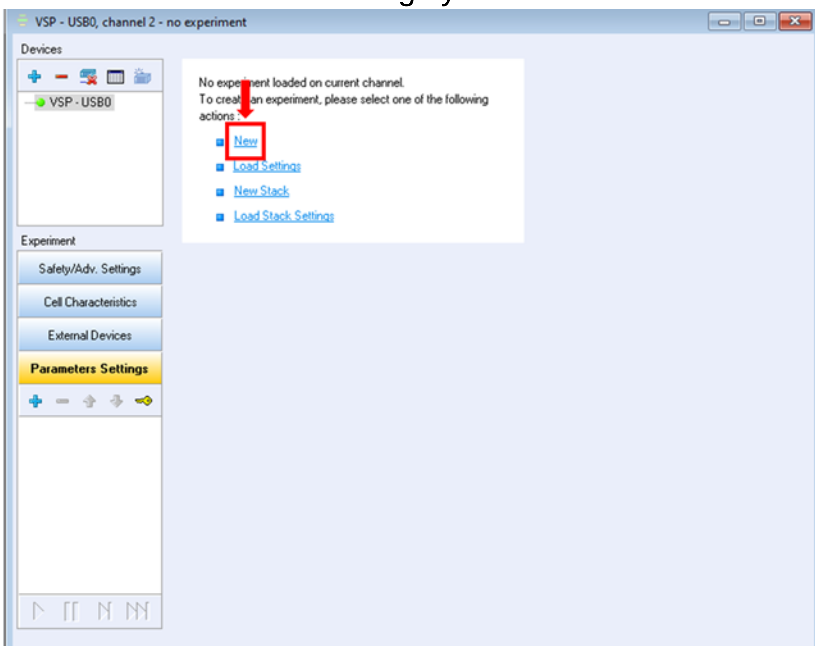


4. Enter the parameters you want and click 

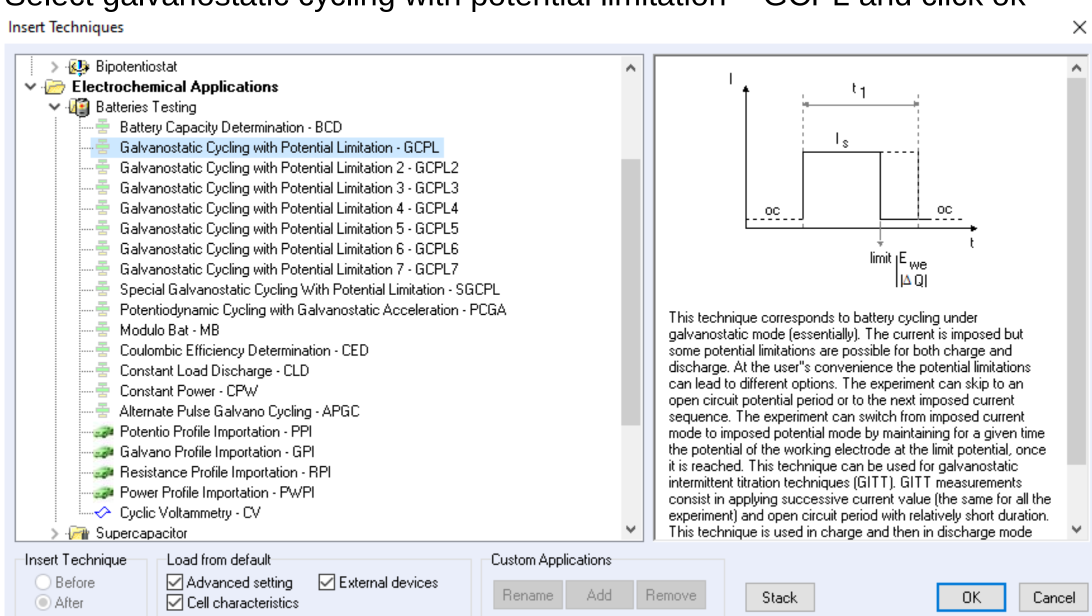

Begin
to N s'
Excitation signal mode Single sine
Set Ewe to E = 0.000 0 V vs. Eoc for tE = 0 h 0 mn 0.000 s
record every dI = 0.000 mA and dt = 0.000 s
Scan from fi = 200.000 kHz to ff = 100.000 mHz
with Nd = 6 points per decade in Logarithmic spacing
with a sinus amplitude Va = 10.0 mV (Vrms ~ 7.07 mV)
wait for pw = 0.10 period before each frequency measurement
average Na 2 measure(s) per frequency
drift correction
Limits
E Range = -10 V; 10 V
Resolution = 305.18 µV
I Range = Auto
Bandwidth = 5 - medium
Repeat nc = 0 time(s)
Next sequence, or
Goto sequence Ns' = 0 , for nr = 0 time(s)
increment cycle number
End
Ns' =9999
to next sequence
ls Mode E (V) vs. tE (h:m:s) record dI unit dI dt (s) fi unit fi
Single sine 0.0000 Eoc 0:00:0.0000 0 0.000 mA 0.000 200.000 kHz

Charge and discharge (Galvanostatic cycling with Potential limitation – GCPL)

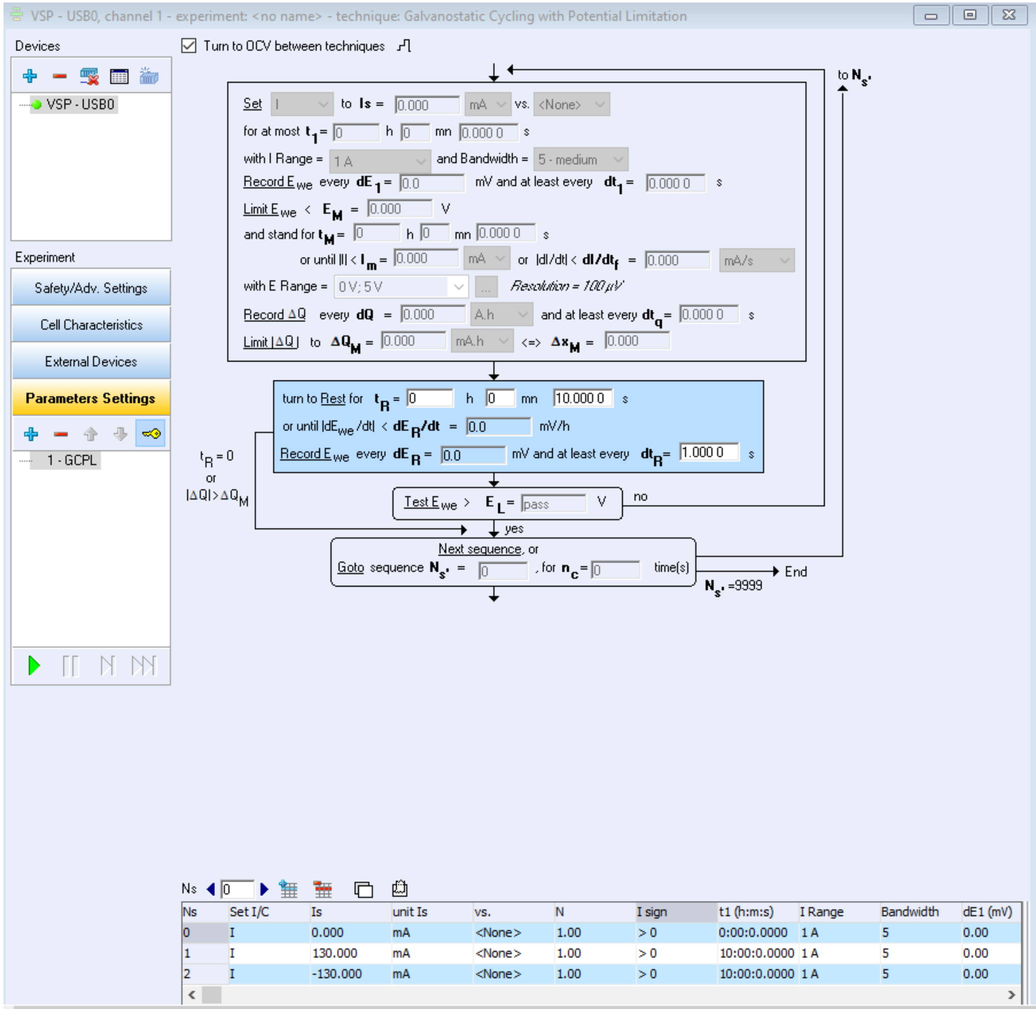
1. Click new to start an experiment or loading setting if you have one, or click  under Parameters Setting fly out



2. Select galvanostatic cycling with potential limitation – GCPL and click ok

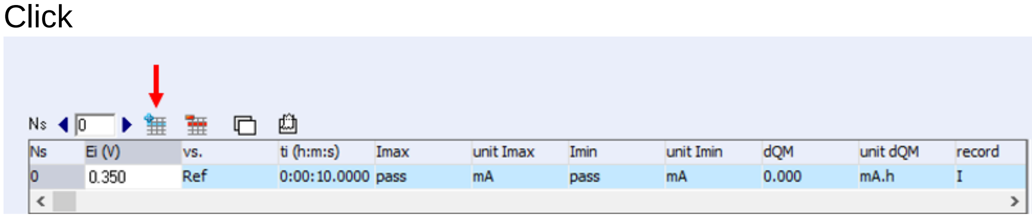


3. You will see

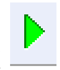


4. In Ns = 0, you will set the rest time as shown in the above picture
5. In Ns = 1, click blue arrow in 

, or the region to active the window, here you will set the parameters for first step charge or discharge. Use positive current values (Is) of current for charge and negative Is values for discharge. Set the parameters you want such as current value, cut-off voltage, hold at cut-off voltage time, record time, etc
6. In Ns = 2, you can set the next step charge or discharge. In the case of charge first, you will set Ns = 2 in discharge mode by input negative Is value. Change the parameters accordingly such as discharge cut-off voltage or so.
7. Click



to add more steps if you want.

8. After you set up all the parameters you want, click  to start
9. You can play with more freedom in GCPL2/3/4…

For any questions, feel free to contact Jiaqi Wang (jiaqi.wang@anl.gov).

HAVE FUN!