

UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN

# OriginPro - Scientific Graphing and Analysis Software

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[illinois.edu](http://illinois.edu)



# Scientific Graphing and Analysis Software

Origin is on all Physics 403 computers.

What it can do:

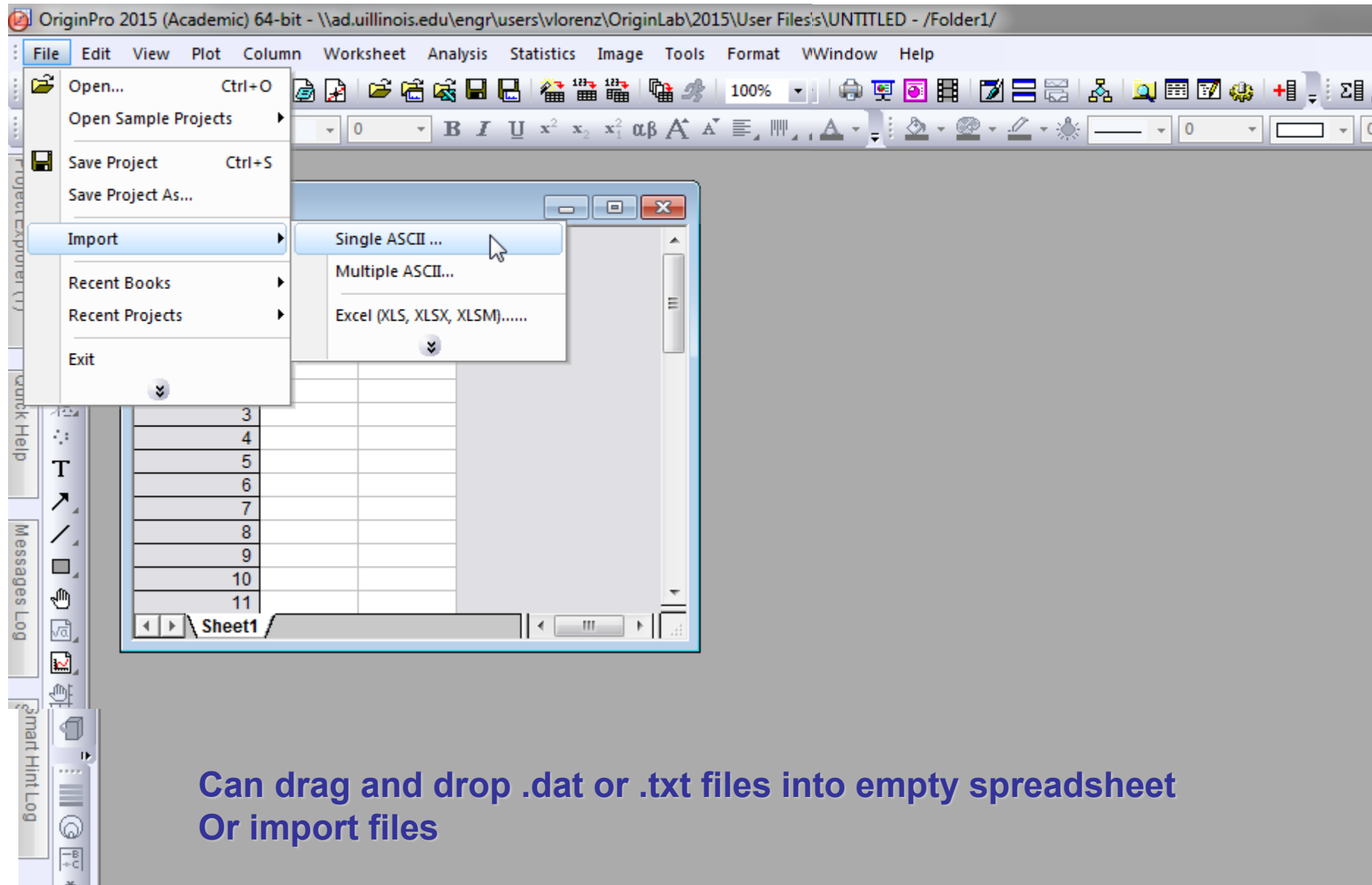
## **1. Graphical presentation of data**

## **2. Data analysis**

## **3. Preparation of publication-quality figures**

- Specially designed for scientific graphics
- “Standard” Windows application, does not require knowledge of C++ or any other high level computer language
- Can write special functions or procedures using Origin programming tools

# Importing data



The screenshot shows the OriginPro 2015 (Academic) 64-bit interface. The title bar indicates the file path: \\ad.uillinois.edu\engr\users\vlorenz\OriginLab\2015\User Files\UNTITLED - /Folder1/. The menu bar includes File, Edit, View, Plot, Column, Worksheet, Analysis, Statistics, Image, Tools, Format, WWindow, and Help. The File menu is open, showing options like Open..., Open Sample Projects, Save Project, Save Project As..., Import, Recent Books, Recent Projects, and Exit. The Import option is selected, and a sub-menu is displayed with the following options: Single ASCII ..., Multiple ASCII..., and Excel (XLS, XLSX, XLSM)..... The background shows a spreadsheet with a grid of cells, with row numbers 3 through 11 visible on the left side. The sheet is named 'Sheet1'.

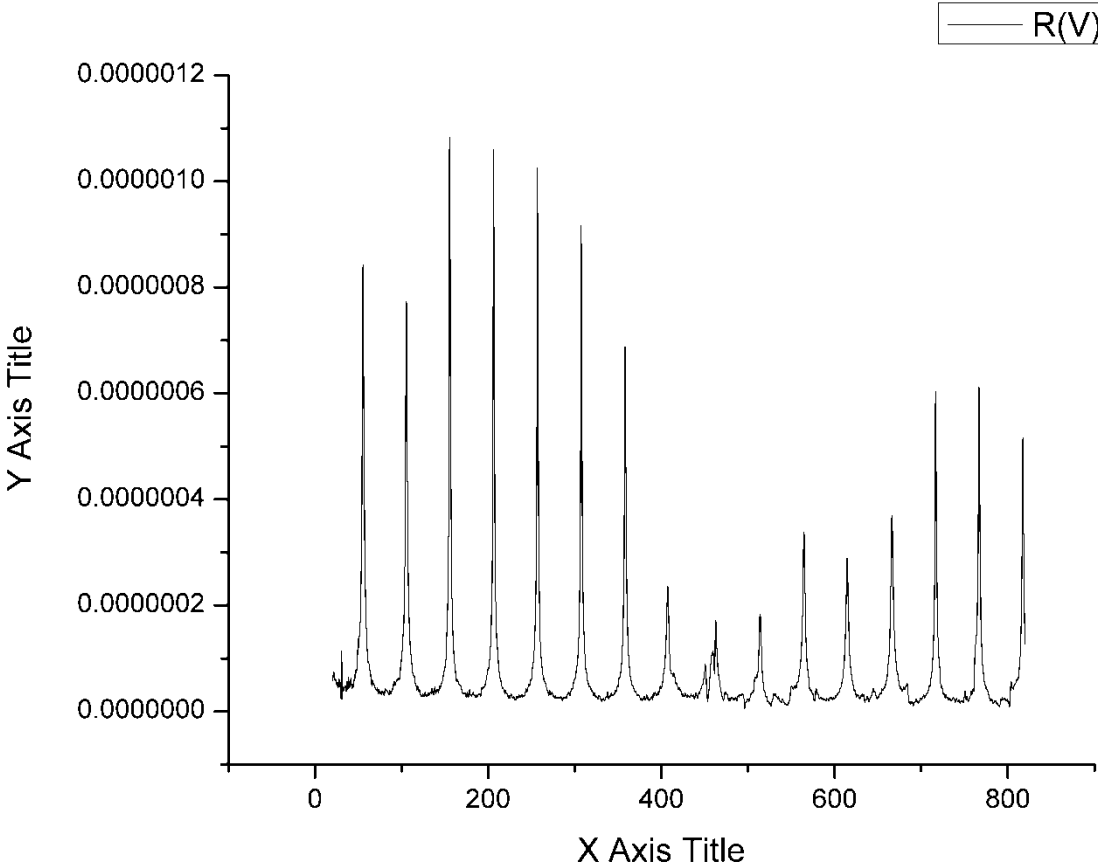
Can drag and drop .dat or .txt files into empty spreadsheet  
Or import files

# Graphical presentation of data: Basic Plot

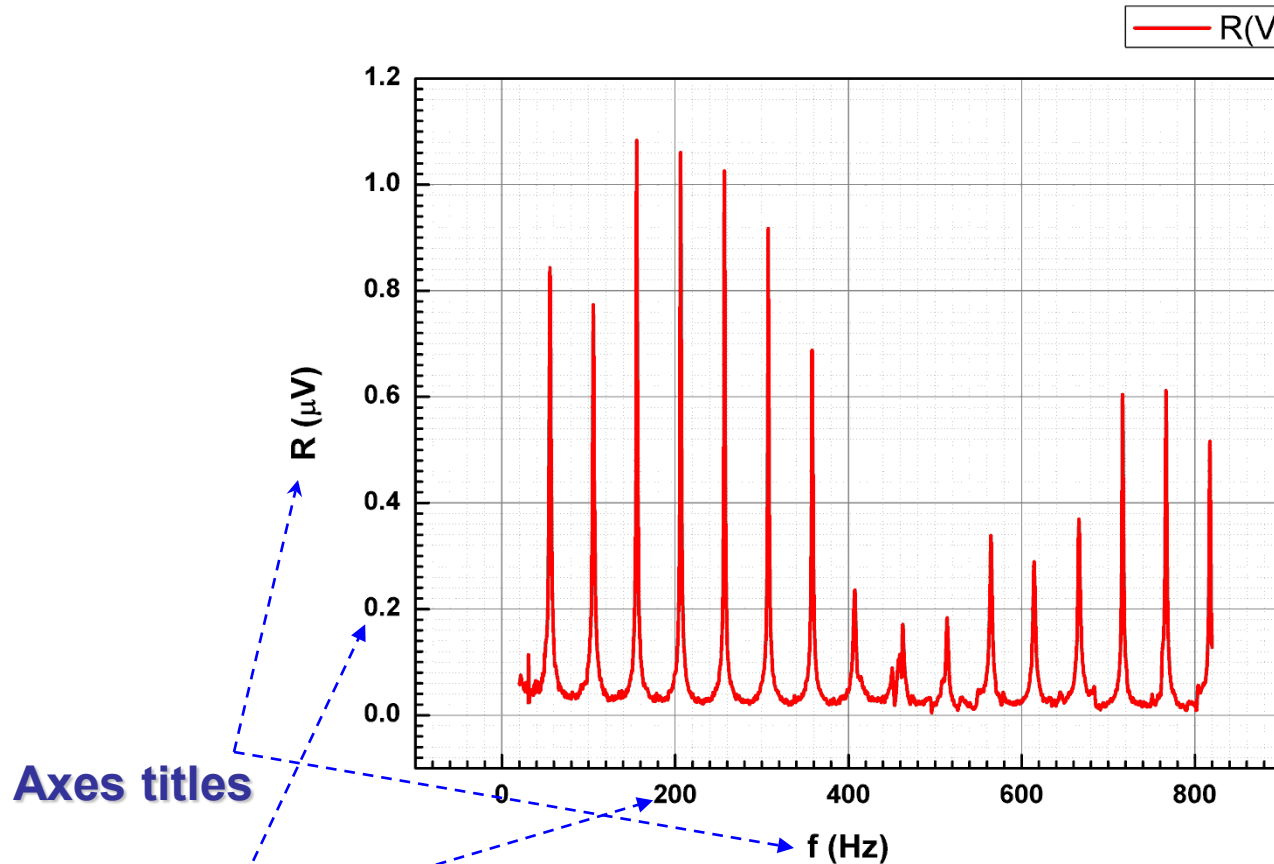
The screenshot displays the OriginPro 2015 (Academic) 64-bit interface. The main window shows a data table with columns A(X) and B(Y). A context menu is open over the table, with the 'Plot' option selected, leading to a submenu where 'Line' is chosen. The 'Line' option is further expanded to show '1 Line'.

	A(X)	B(Y)	C(X)	D(X)	E(X)	F(X)	G(X)
Long Name	Freq	Vrea					
Units							
Comments							
F(x)=							
Sparklines							
1	20	0.00					
2	21	-0.00					
3	22	2.07					
4	23	0.00					
5	24	0.00					
6	25	0.00					
7	26	-2.88					
8	27	0.01					
9	28	0.00					

# Graphical presentation of data: Basic Plot



# Graphical presentation of data: Basic Plot



Top and Right axes,  
grid lines

Axes titles

Bold tick labels.

For a better-looking graph, volts were converted to  $\mu V$



# Graphical presentation of data: Templates

The screenshot displays a software interface for data analysis. On the left, a table shows data points for rows 31 to 47. A dropdown menu is open, listing several templates: 'e' vs T', 'e' vs time (lin)', 'Second sound', and 'SECOND SOUND(R vs f & T vs f)'. The last option is highlighted in blue. Below the menu is a button labeled 'Open Sample...'. At the bottom, a toolbar contains various icons, with a red arrow pointing to the 'Open template' icon (a document with a grid).

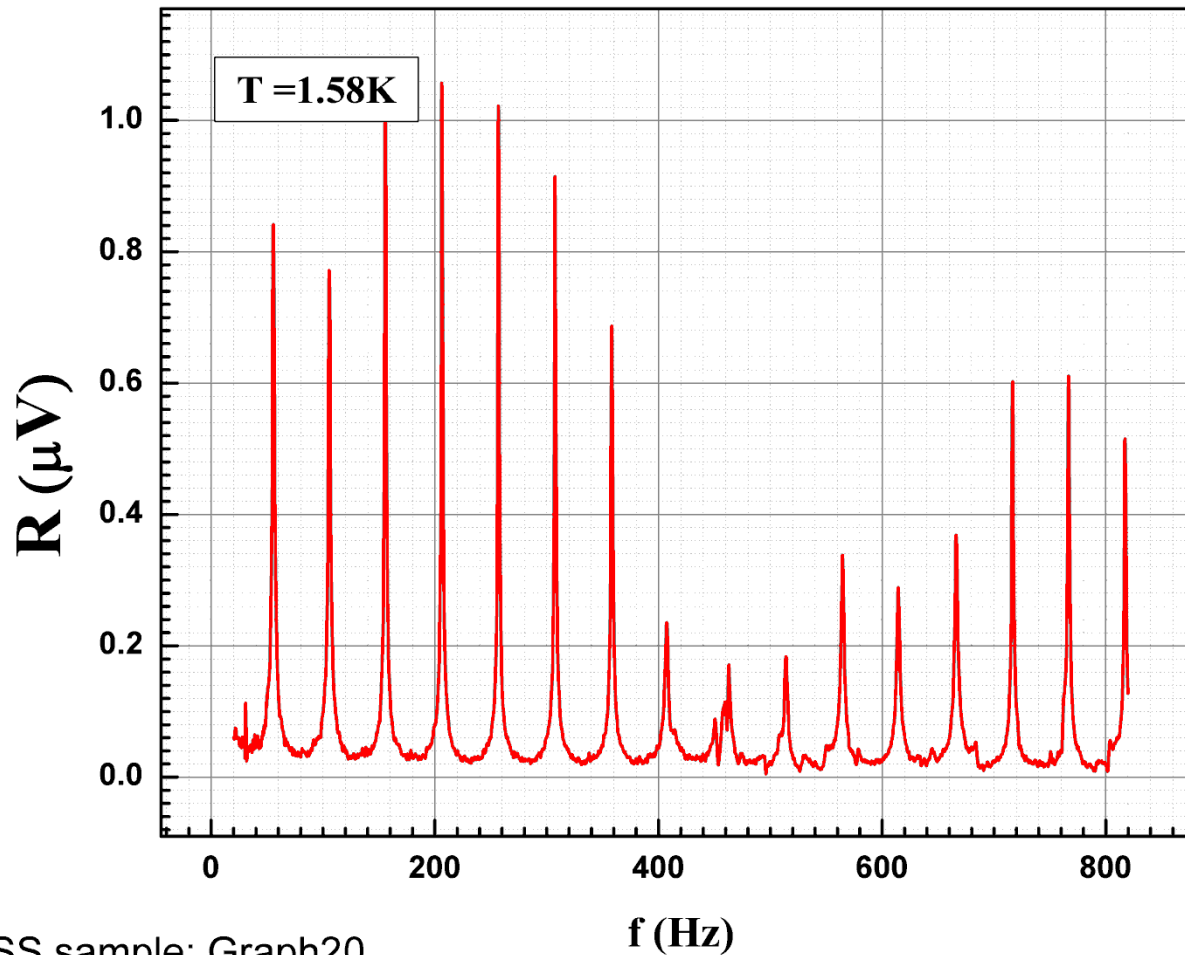
31	646							
32	64618							
33	646							
34	646							
35	64619							
36	646							
37	646							
38	646							
39	646							
40	646							
41	646							
42	646							
43	64620							
44	646							
45	646							
46	64621.577	9.777	99.741	100	-0.98961	0.00197	254.45635	41.10394
47	64621.797	9.997	99.749	100	-0.98954	0.00191	254.1234	41.03915

13JUN22\_s5\_n32\_ramp

Open template

# Graphical presentation of data: Templates

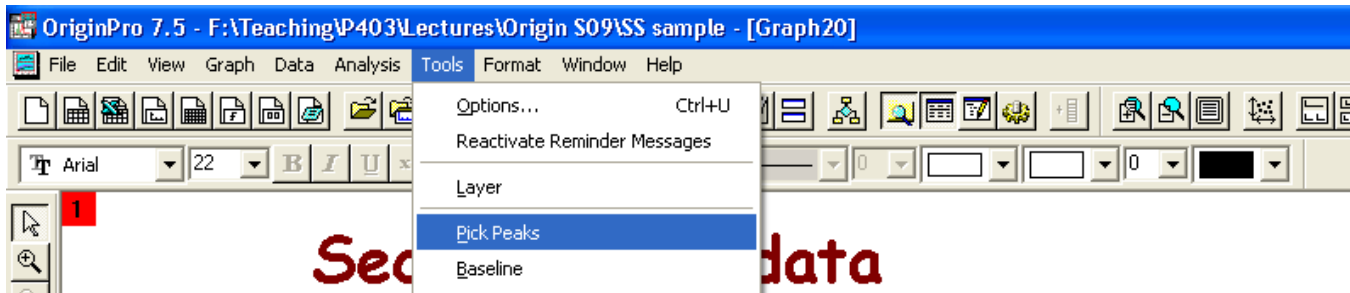
## Second sound data



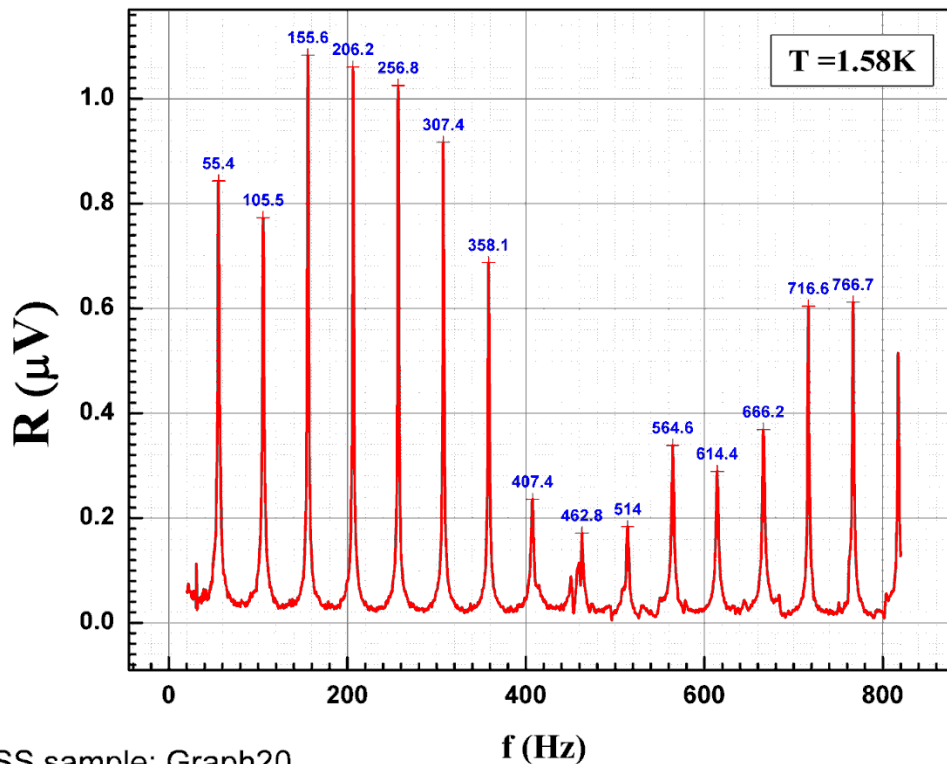
SS sample: Graph20



# Graphical presentation of data: Fitting, etc.

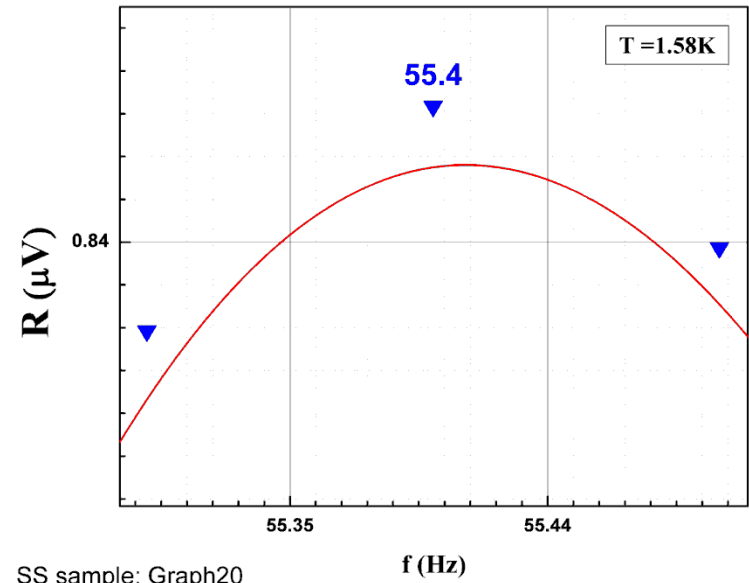


## Second sound data



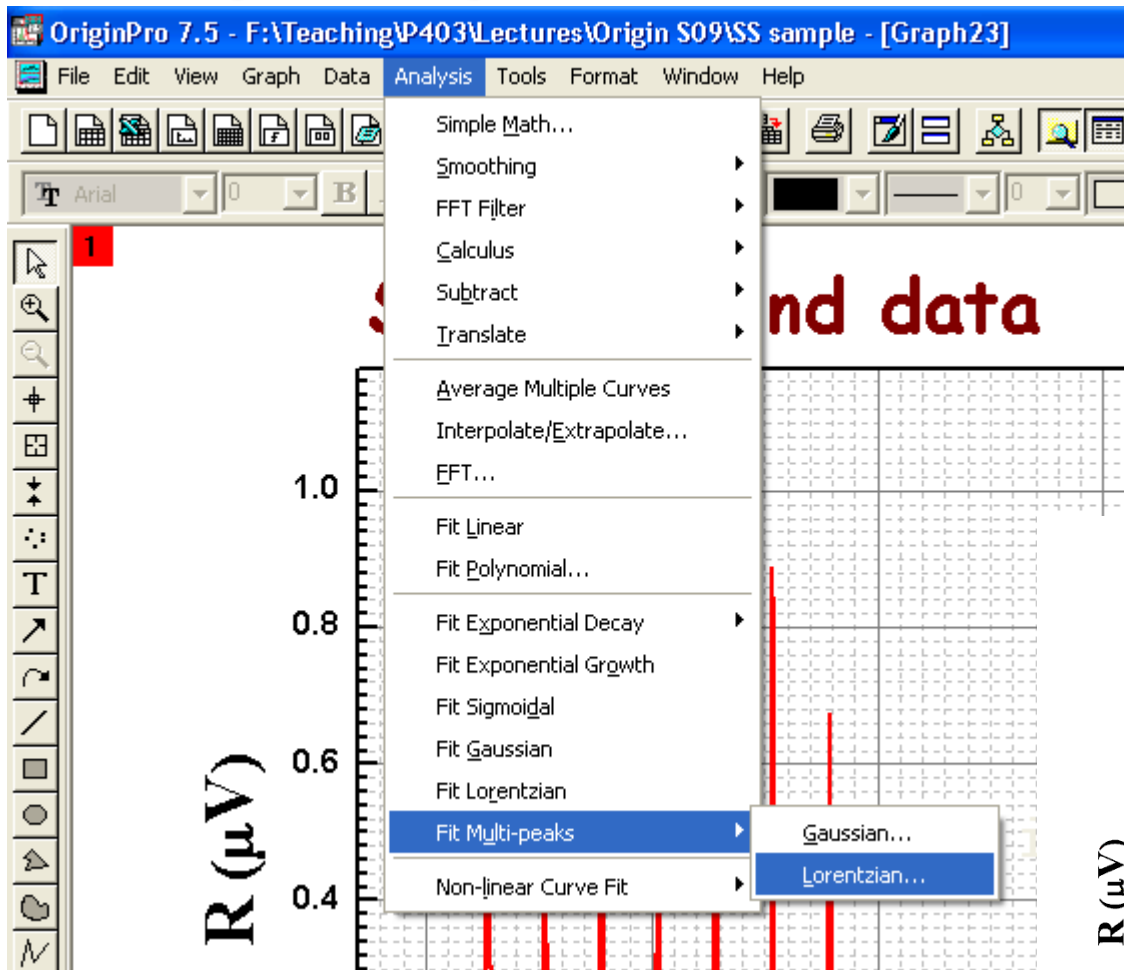
SS sample: Graph20

## Second sound data

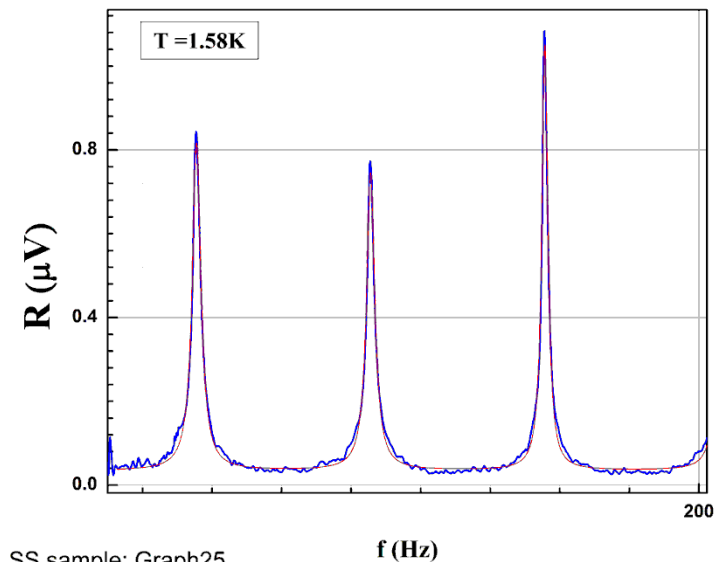


SS sample: Graph20

# Graphical presentation of data: Fitting, etc.

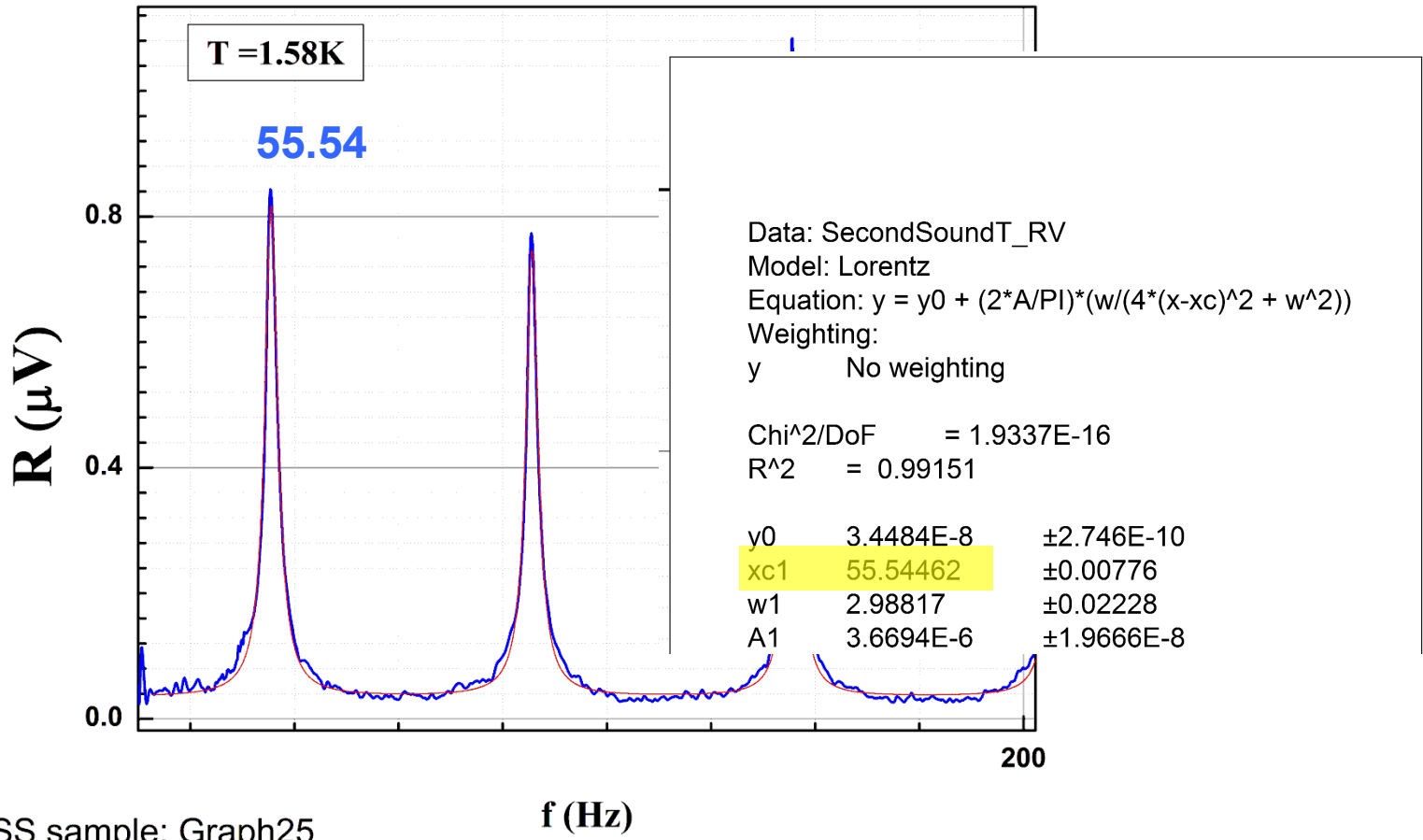


Second sound data

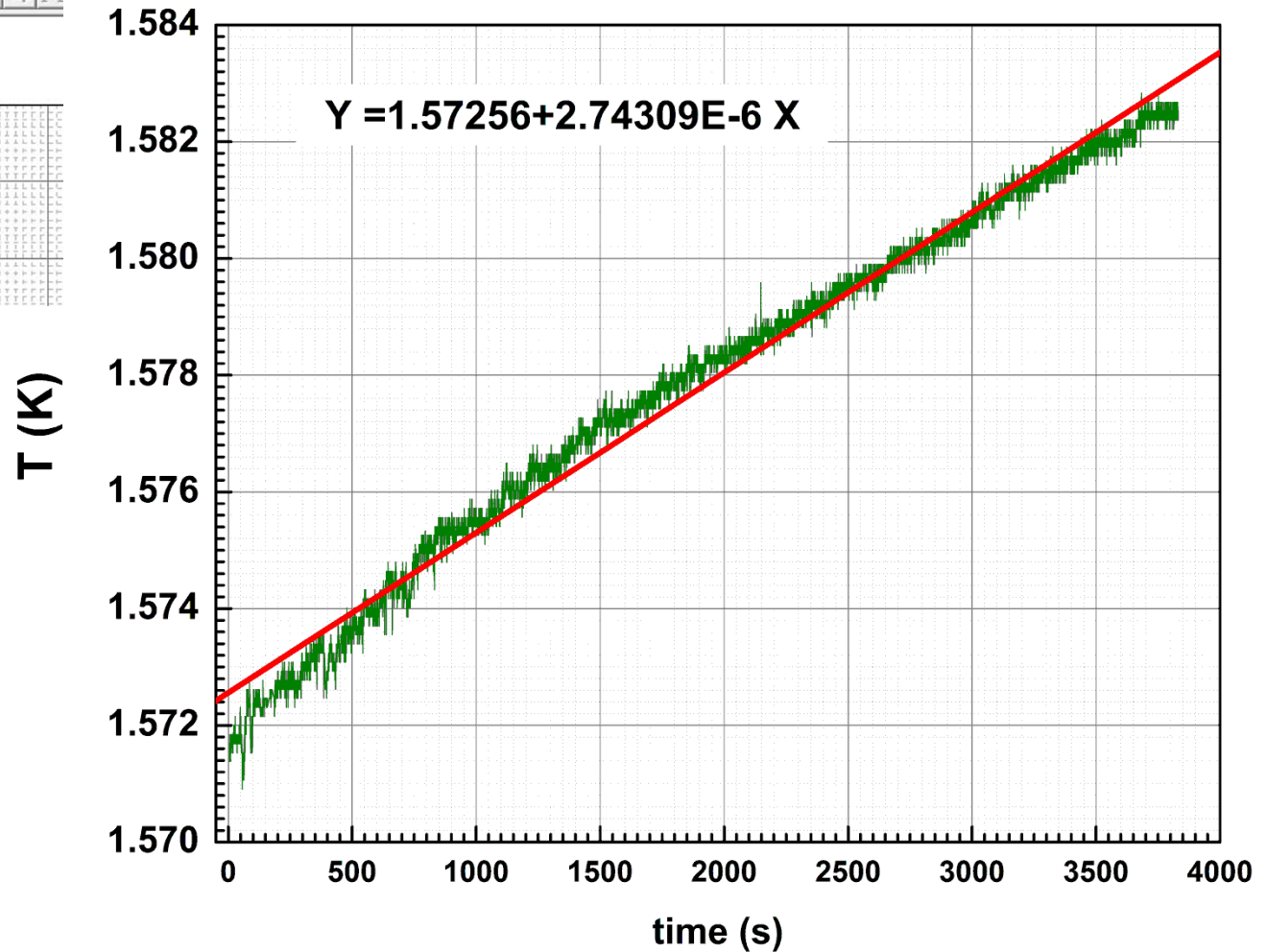
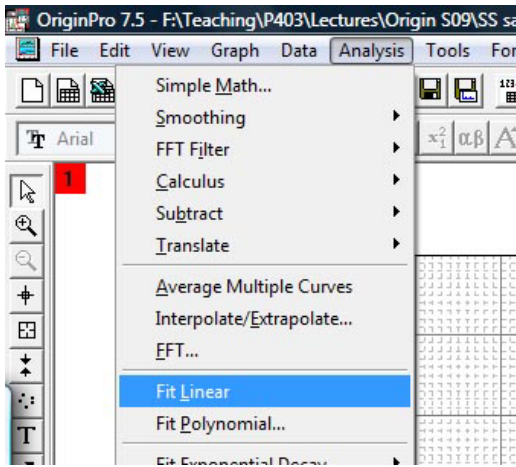


# Graphical presentation of data: Fitting, etc.

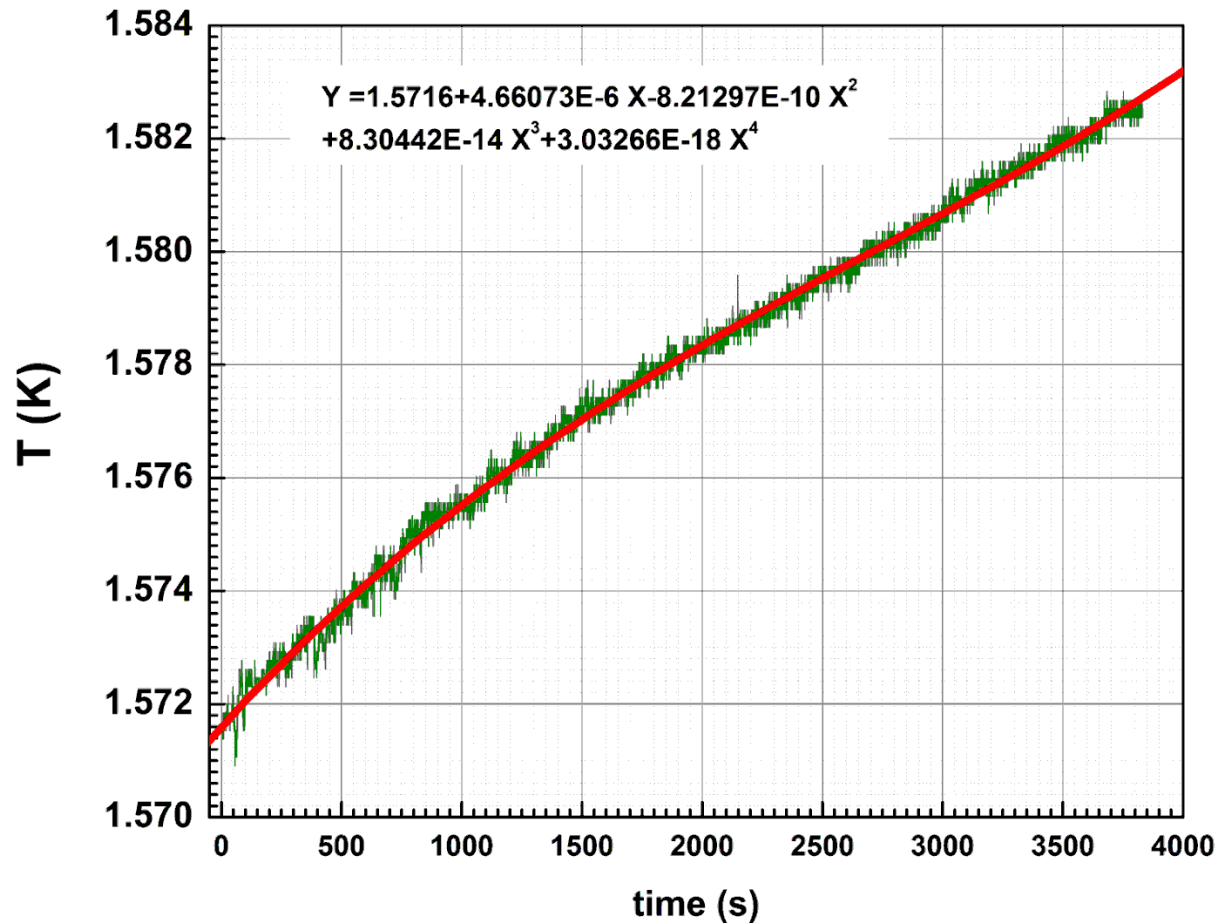
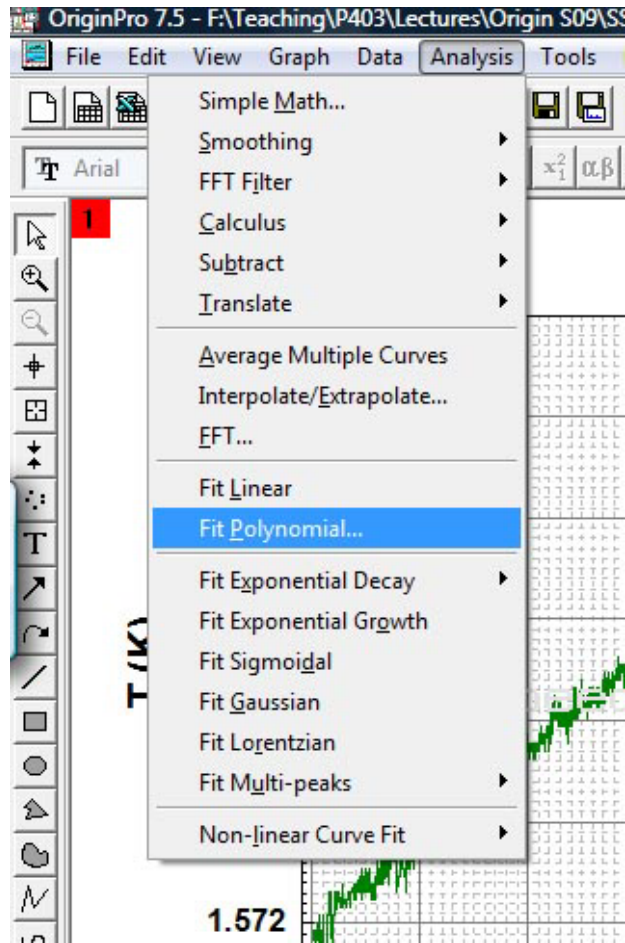
## Second sound data



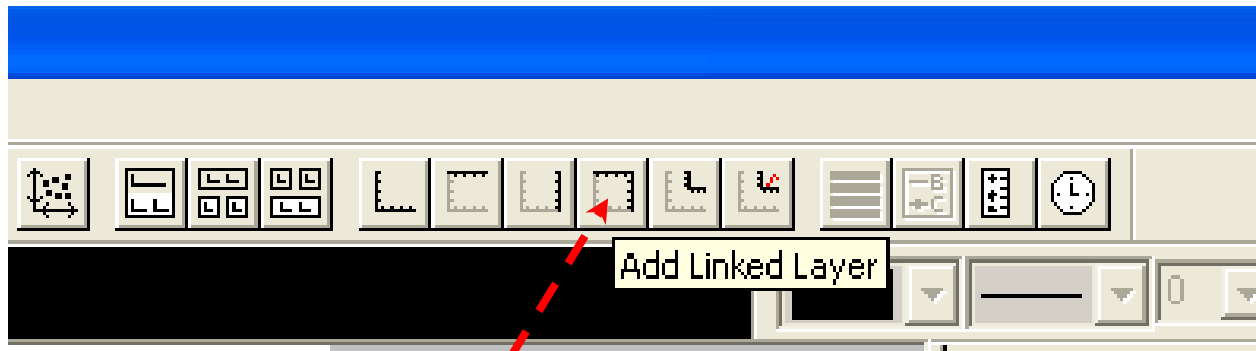
# Graphical presentation of data: Fit Linear



# Graphical presentation of data: Fit Polynomial

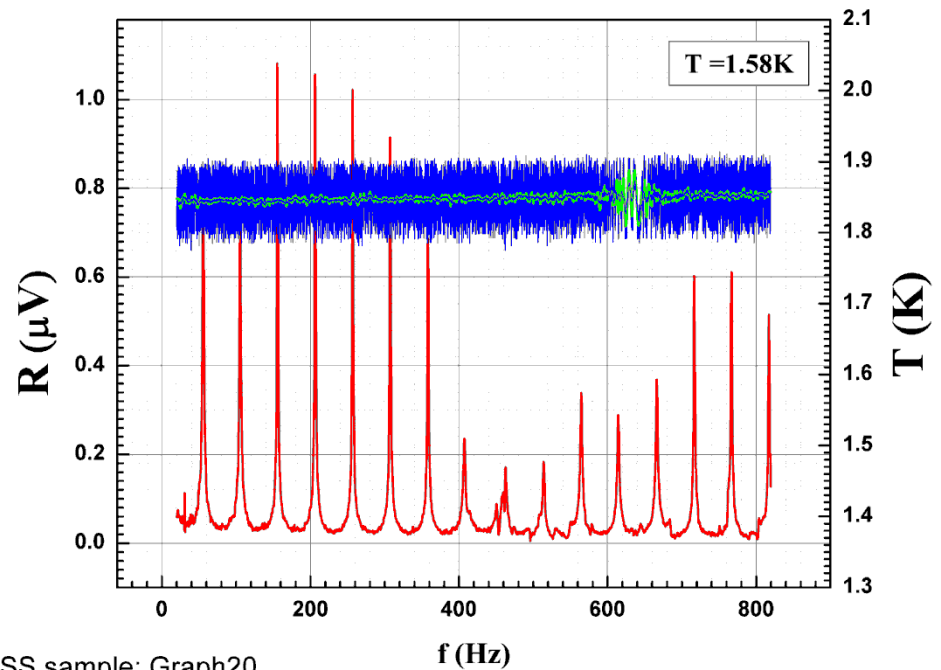


# Graphical presentation of data: 2-layer graph



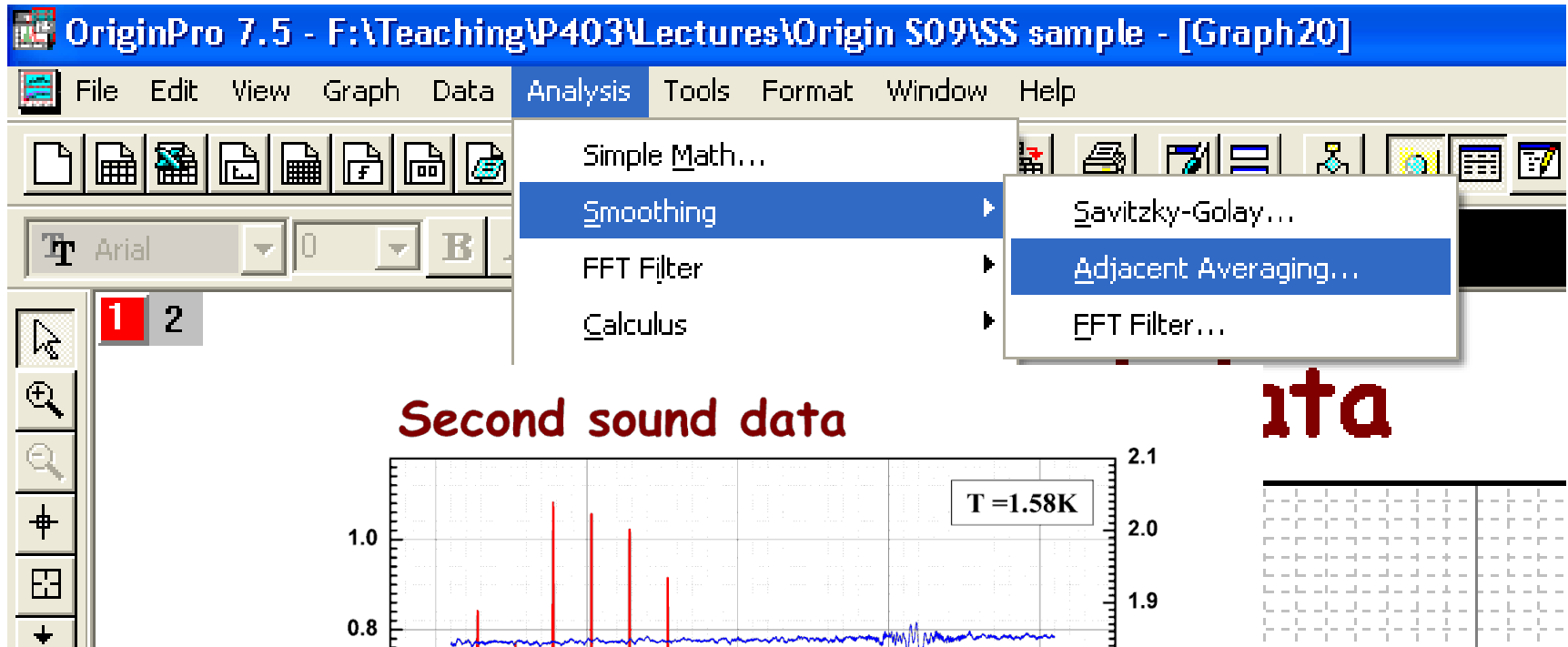
Add Layer

## Second sound data

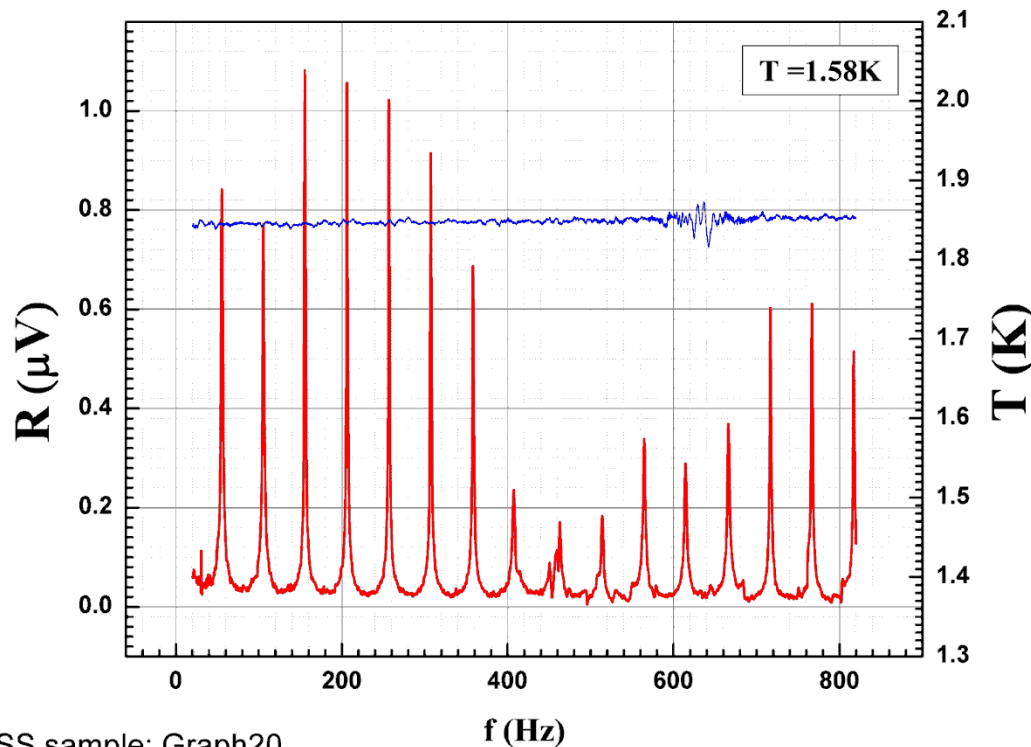


SS sample: Graph20

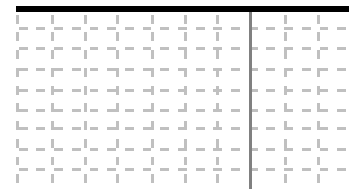
# Graphical presentation of data: Smoothing



Second sound data



ita





# Working with data: Worksheets

The screenshot displays the OriginPro 2015 interface. The main window shows a worksheet with columns A(X) and B(Y). A context menu is open over column B(Y), with 'Statistics on Column...' selected. A separate window titled 'SecondSound2 - SecondSound\_T2\_16K VERY\_BIG' displays the results of the statistics calculation for column T(K).

**Worksheet Data (SecondSound2 - SecondSound\_T2\_16K VERY\_BIG):**

	A(X)	B(Y)
Long Name	time (s)	T(K)
Units		
Comments		
F(x)=		
Sparklines		
1	5.35899	1.57
2	5.84299	1.57
3	6.281	1.57
4	6.71799	1.57
5	7.172	1.57
6	7.60899	1.57
7	8.437	1.57
8	8.906	1.57
9	9.39	1.57
10	9.85899	1.57
11	10.297	1.57
12	10.71799	1.57
13	11.156	1.57

**Statistics on Column T(K):**

	N total	Mean	Standard Deviation	Sum	Minimum	Median	Maximum
T(K)	49801	1.60112	0.0161	79737.52969	1.57091	1.60099	1.63058

Calculate statistics on the selected column(s) Average=1.60112 Sum=79737.52969 C

# Working with data: Worksheets

The image shows a LabTalk software interface with two windows. The background window displays a data table with columns A(X) through I(Y) and rows 1 through 19. A context menu is open over column B(Y), with 'Set Column Values...' selected. The foreground window is the 'Set Values' dialog box, showing the formula 'col(B) - 273' for column B. A large blue arrow points from the dialog box back to the data table.

	A(X)	B(Y)	C(Y)	D(Y)	E(Y)	F(Y)	G(Y)	H(Y)	I(Y)
Long Name	time (s)	T(K)				f (Hz)	X (V)	Y(V)	R(V)
Units									
Comments									
F(x)=									
Sparklines									
1	5.35899	1.571							
2	5.84299	1.571							
3	6.281	1.571							
4	6.71799	1.571							
5	7.172	1.571							
6	7.60899	1.571							
7	8.437	1.571							
8	8.906	1.571							
9	9.39	1.571							
10	9.85899	1.571							
11	10.297	1.571							
12	10.71799	1.571							
13	11.156	1.571							
14	11.59299	1.571							
15									
16									
17									
18									
19									

Set Values - [SecondSound2]"SecondSound\_T2\_16K VE...

Formula wcol(1) Col(A) Function Variables Options

Row (i): From <auto> To <auto>

Col(B) =

col(B) - 273

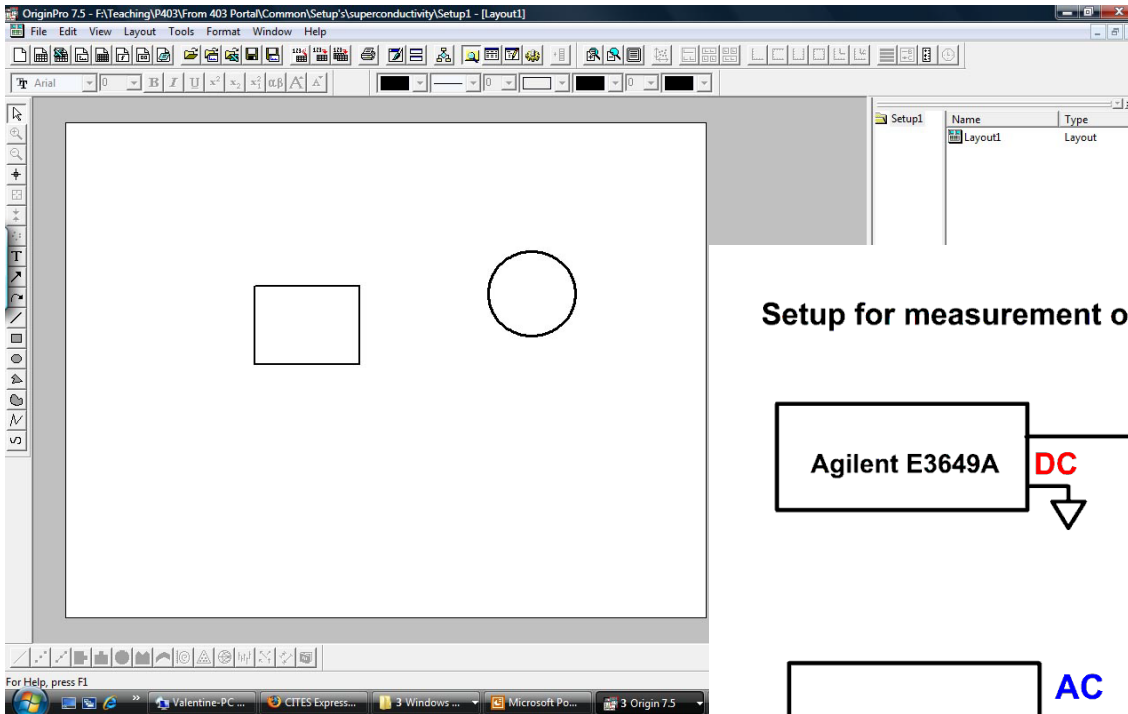
Recalculate Auto

OK Cancel Apply

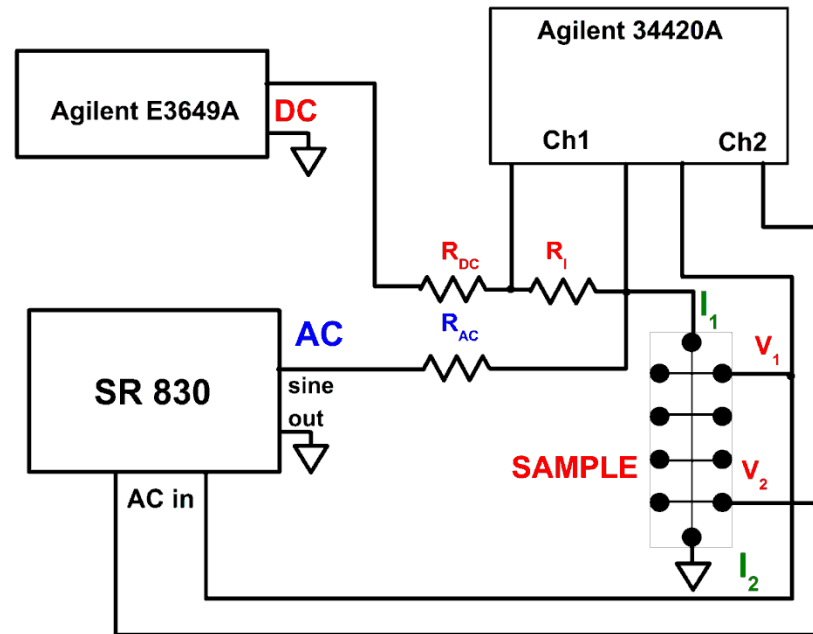
Before Formula Scripts

Enter LabTalk script to define variables or execute calculation before formula.

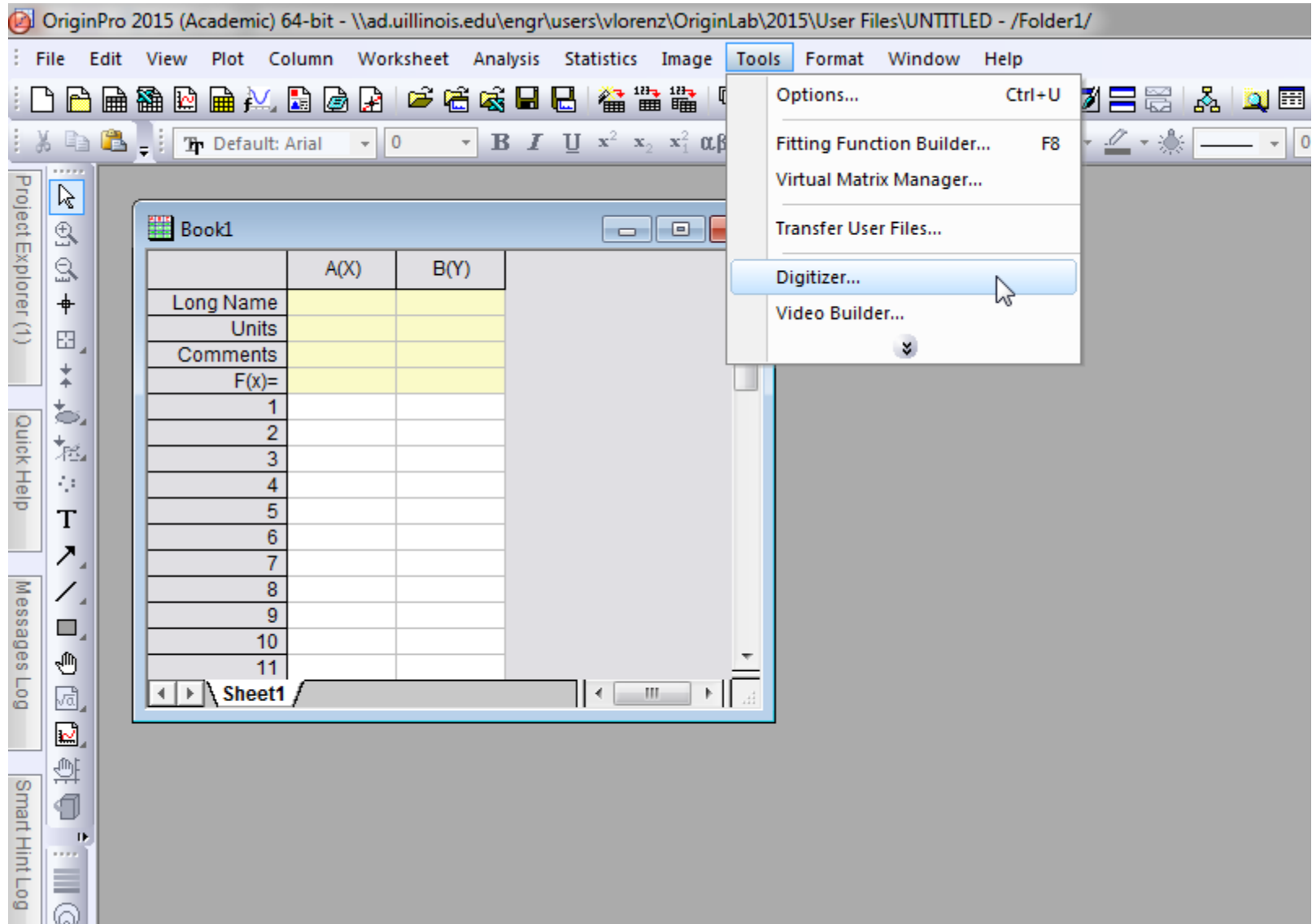
# Layouts



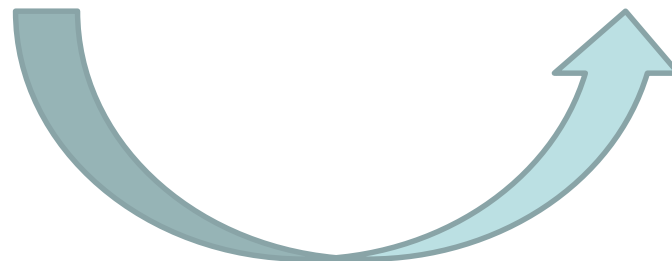
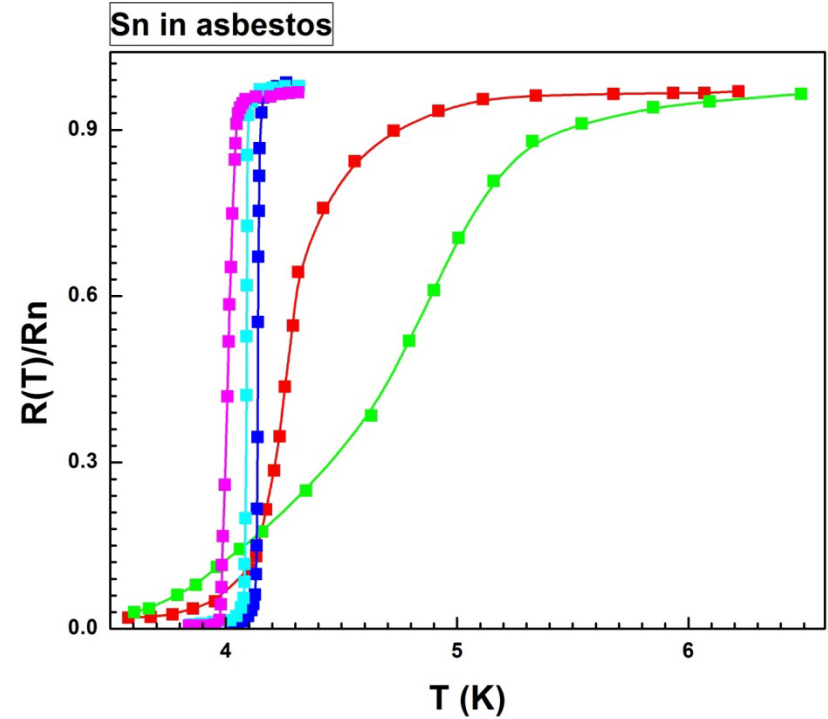
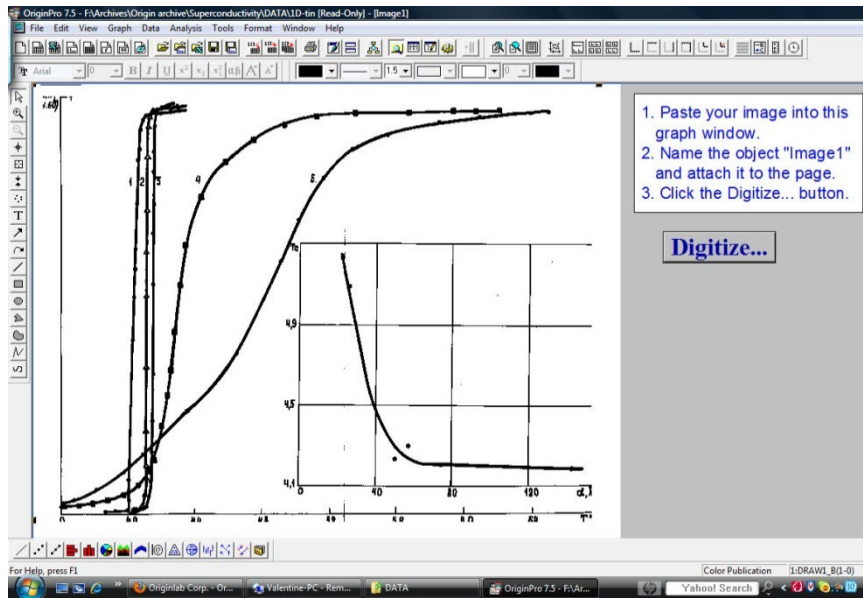
Setup for measurement of s/c properties



# Custom tools



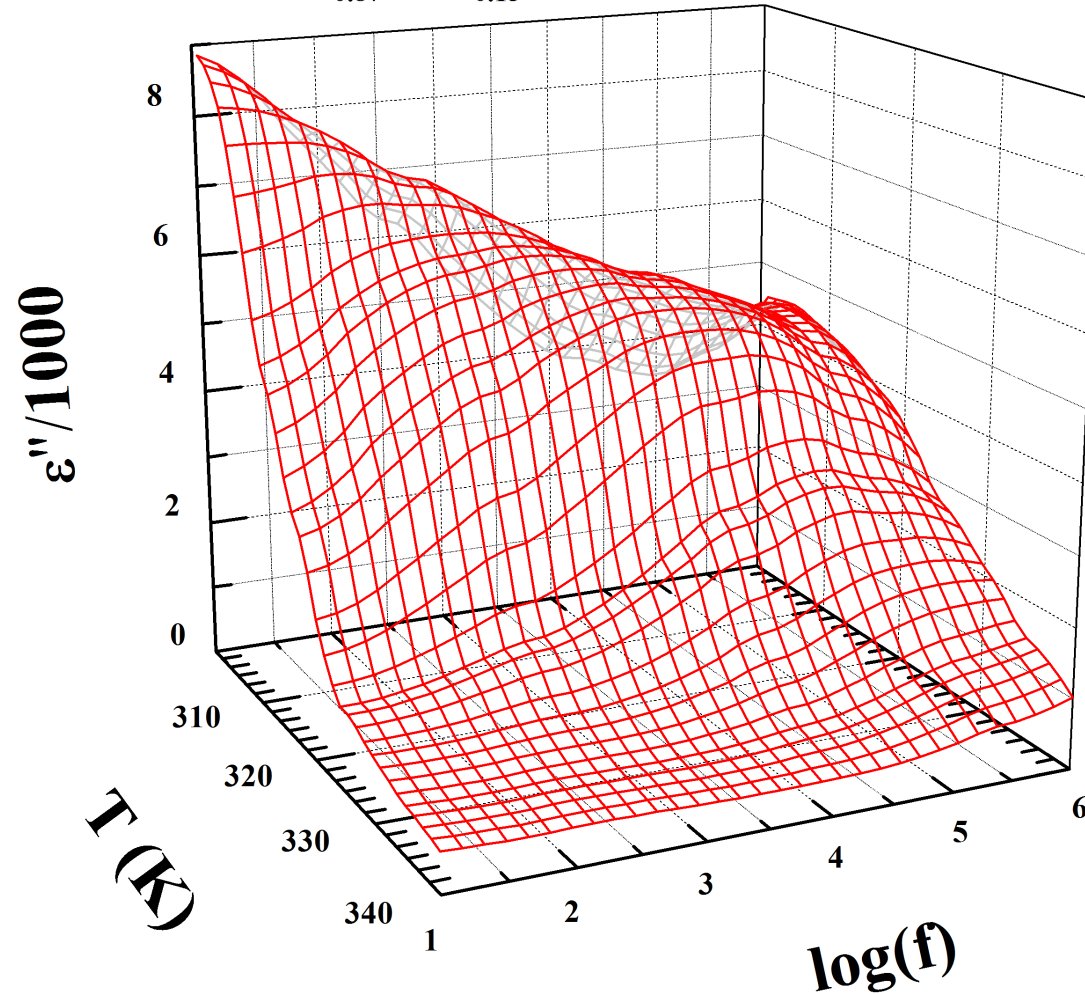
# Using digitizer script



# Example Origin graphs

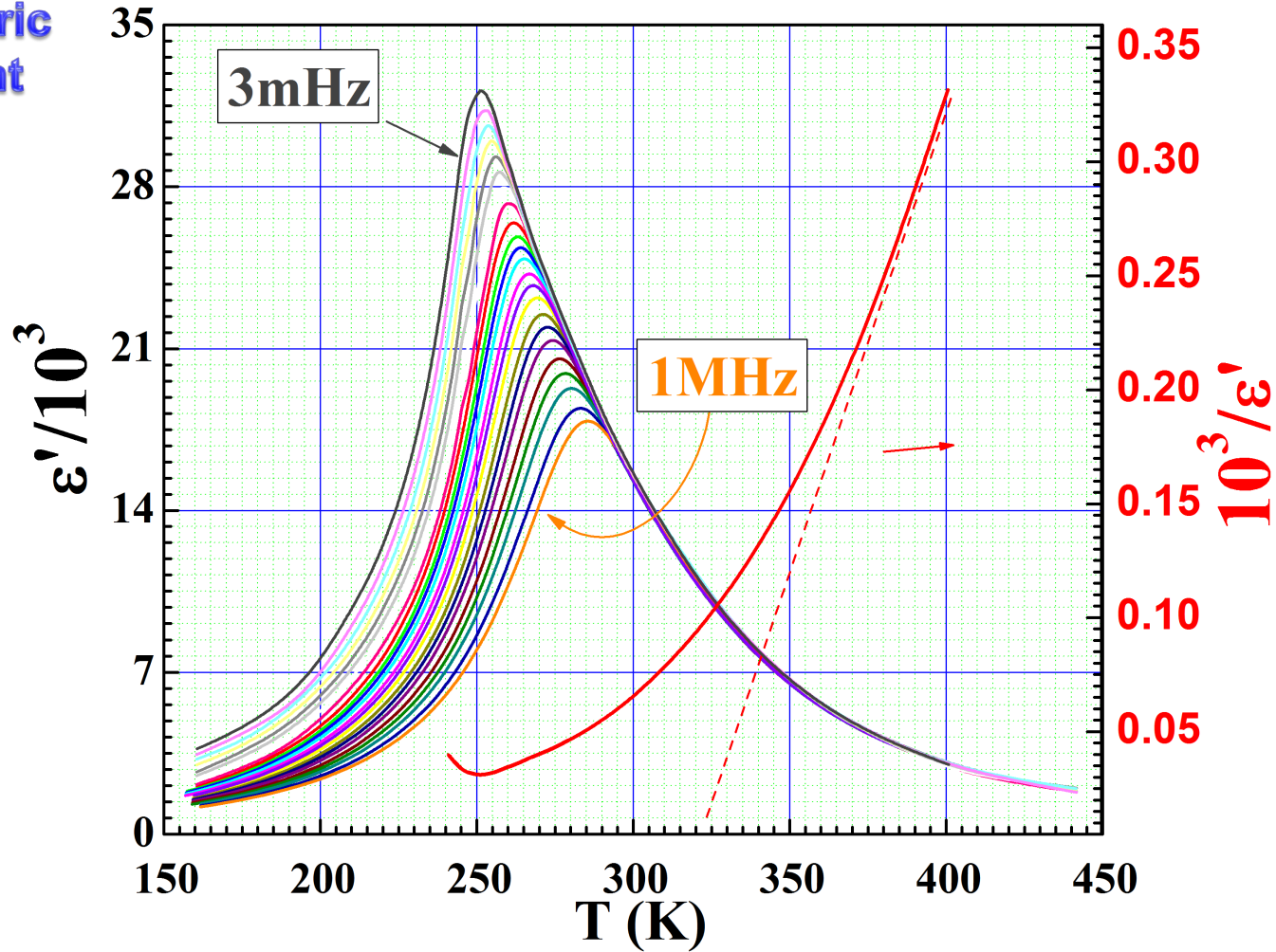
$(\text{PMN})_{0.87}(\text{PT})_{0.13}$ , single crystal

Ferroelectric  
Experiment



# Example Origin graphs

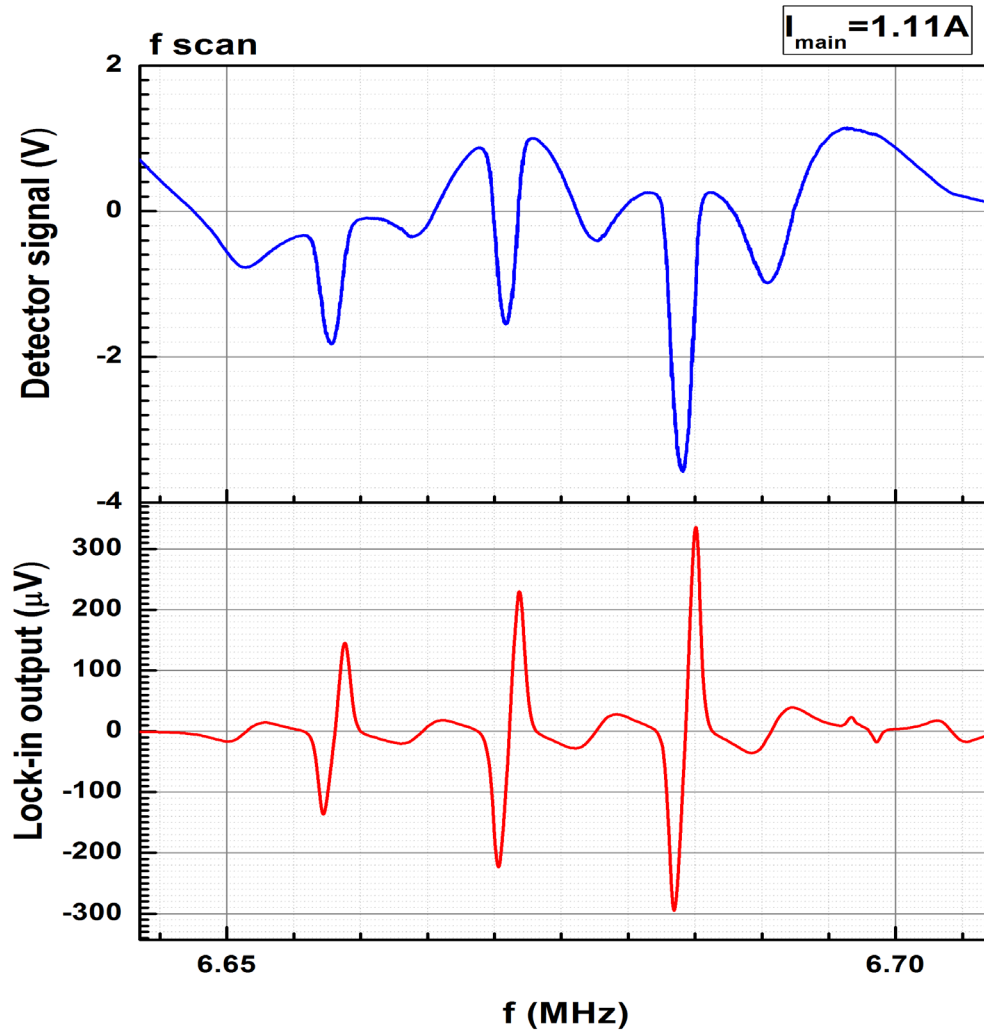
Ferroelectric  
Experiment





# Example Origin graphs

Optical  
pumping

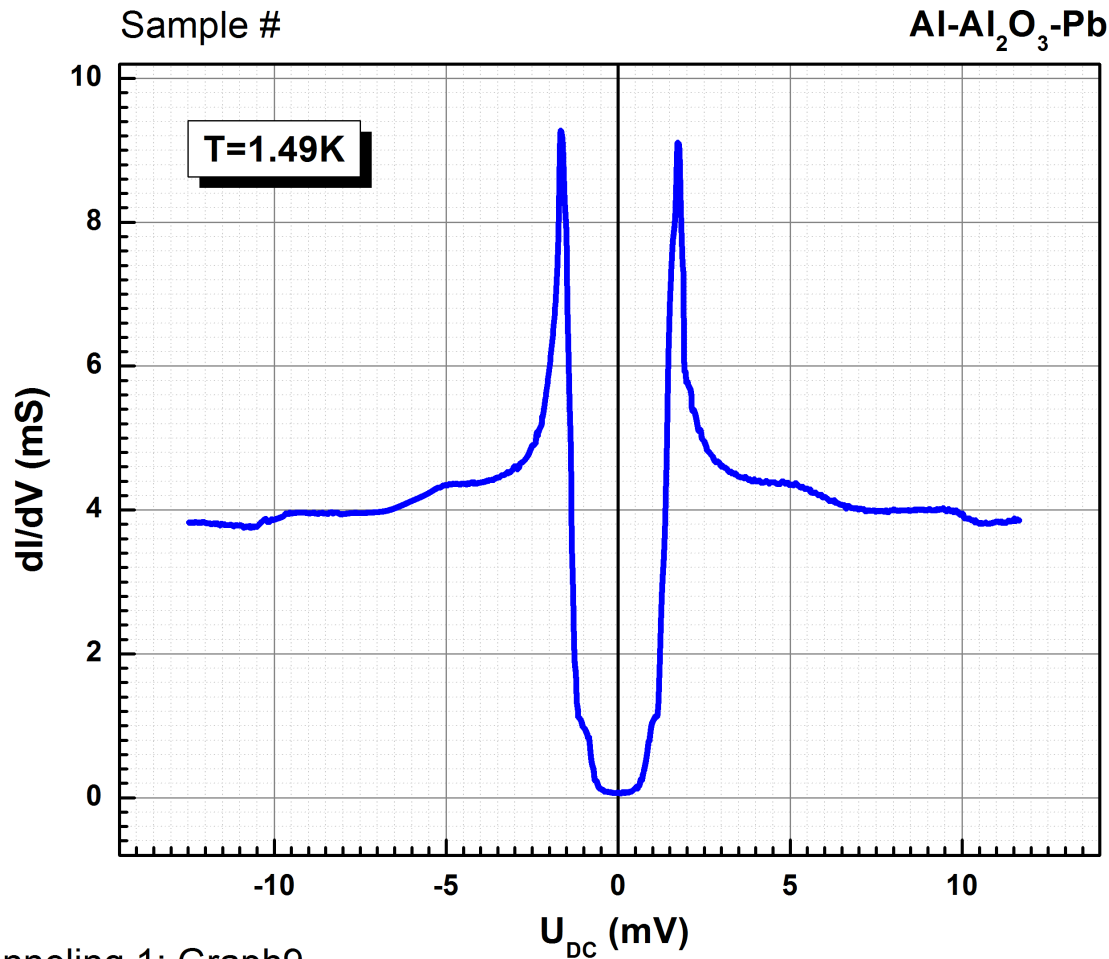


Mapping 0.5-2.5A from March 1st 2012: Graph7



# Example Origin graphs

Tunneling  
Experiment



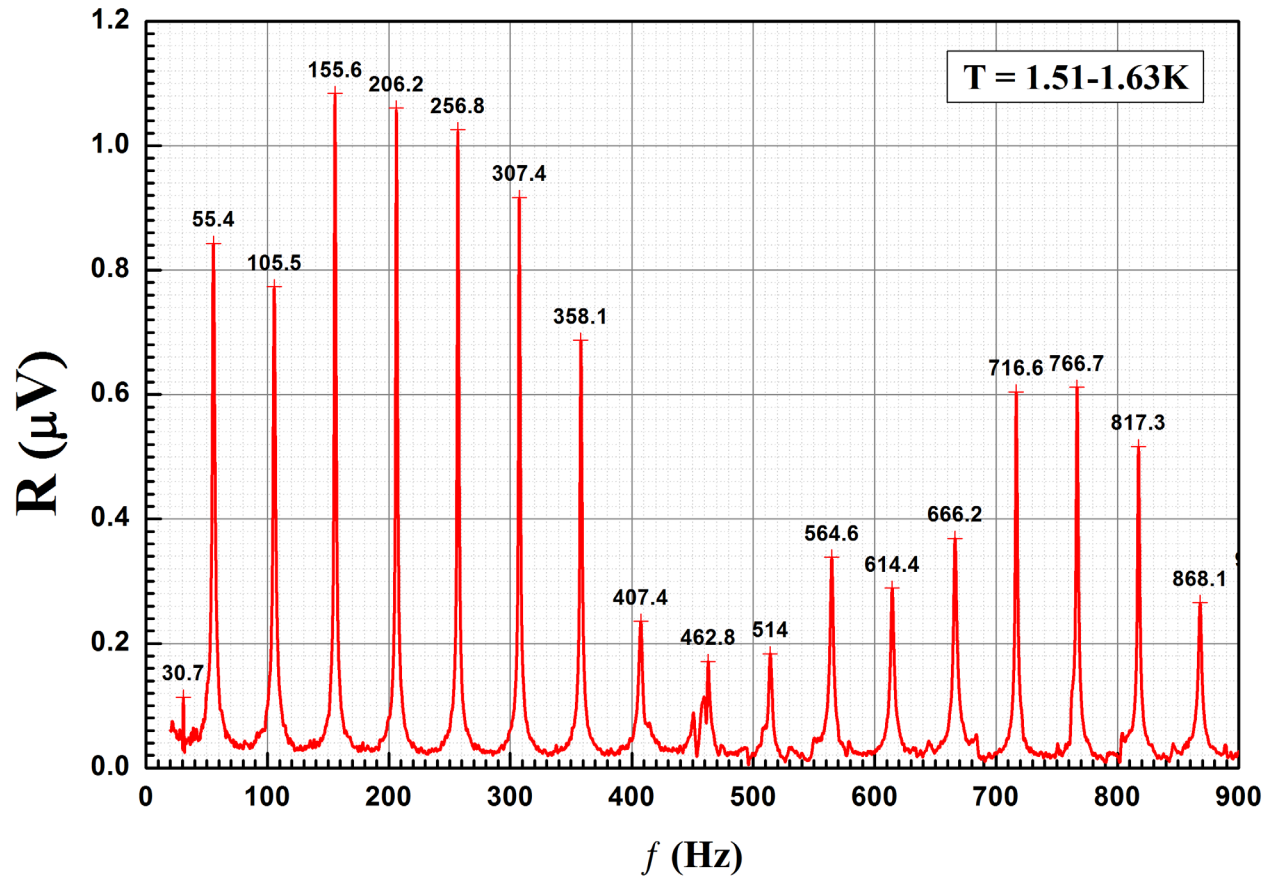
Tunneling 1: Graph9

Sample n2 run8 zoom temp 1.55K



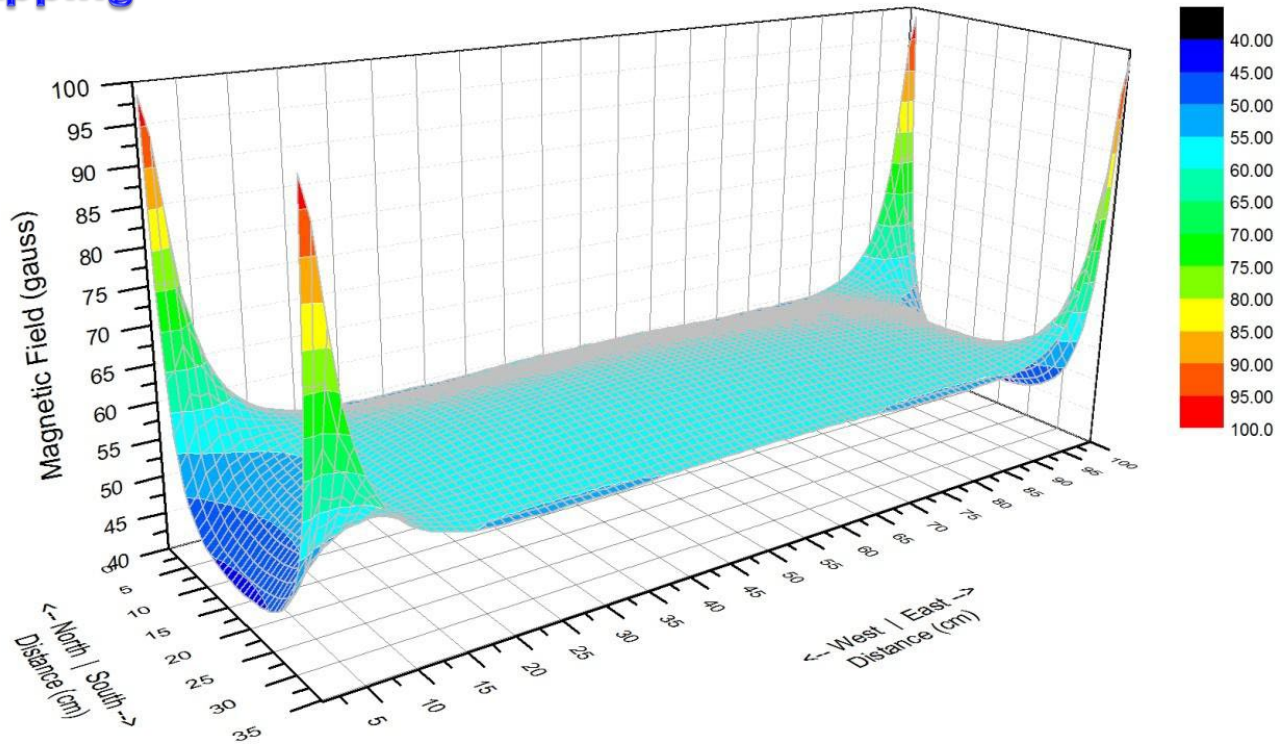
# Example Origin graphs

Second  
sound



# Example Origin graphs

## Magnet mapping



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The Ultimate Software for Graphing & Analysis

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Over 500,000 registered users across corporations, universities and government research labs worldwide, rely on Origin to import, graph, explore, analyze and interpret their data. With a point-and-click interface and tools for batch operations, Origin helps them optimize their daily workflow. Browse the sections below to learn more.

#### Graphing

#### Data Analysis & Statistics

#### Testimonials

I absolutely love Origin. I can't tell you how powerful, user-friendly, and useful this program is. It has helped me do science and engineering, extracting patterns from data, make visually appealing plots...

#### User Stories

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PRODUCT SEARCH: [input] GO BROWSE ALL

Home > Personal Purchase > Software > Free Software

### OriginPro 8.6

**\$0.00**

OriginLab, Inc.

Eligibility: UIC Faculty, UIC Staff, UIC Students, UIS Faculty, UIS Staff, UIS Students, UIUC

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OriginLab logo

Origin Blog

<https://webstore.illinois.edu>



# Running Origin remotely

Here is another way to run Origin without needing to install it on your own computer (e.g. if you have a Mac, which is not supported by Origin):

1. Connect to VPN
2. Install and run Citrix:  
<http://it.engineering.illinois.edu/ews/lab-information/remote-connections/connecting-citrix>
3. Click on "Apps" and then "Origin"
4. To open and save files, use your EWS folder at this address: "smb://ad.uillinois.edu/engr-ews/[Your netID]"

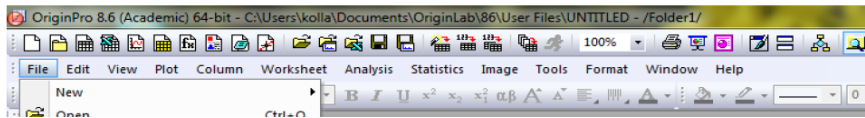


# Origin manuals



Working with Origin 8.6.

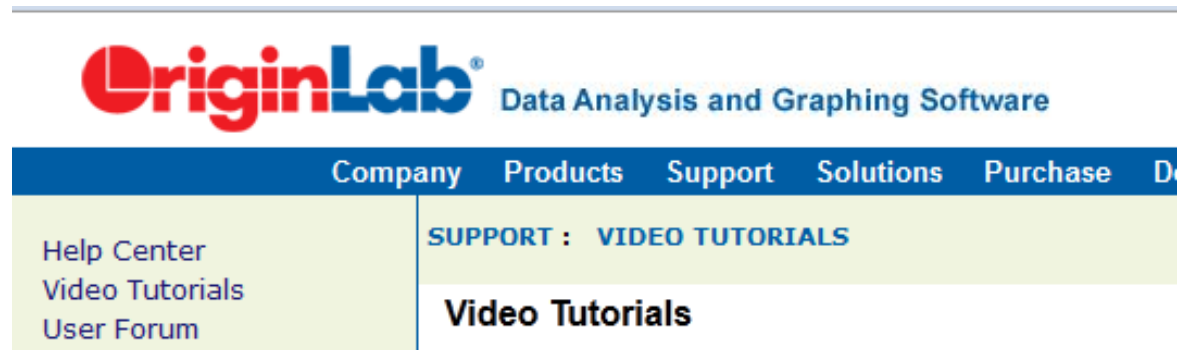
*Step1. Importing data*



A very short and simple manual covering only the main operations with Origin, and manuals from Origin are on the server ([\\Phyapportal\PHYCS403\Common\Origin manuals](http://Phyapportal\PHYCS403\Common\Origin manuals)).

Do not forget about Origin Help

Video Tutorials on the company website



<http://www.originlab.com/index.aspx?go=SUPPORT/VideoTutorials>

