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

Can drag and drop .dat or .txt files into empty spreadsheet
Or import files
Graphical presentation of data: Basic Plot
Graphical presentation of data: Basic Plot
Graphical presentation of data: Basic Plot

For a better-looking graph, volts were converted to µV.
Graphical presentation of data: Templates

Open template

Template for “second sound” plots
Graphical presentation of data: Fitting, etc.

Second sound data

SS sample: Graph20
Graphical presentation of data: Fitting, etc.
Graphical presentation of data: Fitting, etc.

**Second sound data**

Data: SecondSoundT_RV
Model: Lorentz
Equation: $y = y_0 + (2A/\pi)(w/(4(x-xc)^2 + w^2))$
Weighting:
y  No weighting

Chi$^2$/DoF  = 1.9337E-16
R$^2$     = 0.99151

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>y0</td>
<td>3.4484E-8</td>
<td>±2.746E-10</td>
</tr>
<tr>
<td>xc1</td>
<td>55.54462</td>
<td>±0.00776</td>
</tr>
<tr>
<td>w1</td>
<td>2.98817</td>
<td>±0.02228</td>
</tr>
<tr>
<td>A1</td>
<td>3.6694E-6</td>
<td>±1.9666E-8</td>
</tr>
</tbody>
</table>

SS sample: Graph25

f (Hz)
Graphical presentation of data: Fit Linear

Y = 1.57256 + 2.74309E-6 X

T (K)

time (s)
Graphical presentation of data: Fit Polynomial

\[ Y = 1.5716 + 4.66073 \times 10^{-6} X - 8.21297 \times 10^{-10} X^2 \\
+ 8.30442 \times 10^{-14} X^3 + 3.03266 \times 10^{-18} X^4 \]
Graphical presentation of data: 2-layer graph

Second sound data

SS sample: Graph20
Graphical presentation of data: Smoothing

Second sound data

SS sample: Graph20
Working with data: Worksheets
Working with data: Worksheets
Layouts

Setup for measurement of s/c properties

- Agilent E3649A
- SR 830
- Agilent 34420A

DC

R_{DC}

R_1

R_{AC}

SAMPLE

I_1

V_1

I_2

V_2
Custom tools
Using digitizer script
Origin at UIUC Webstore.

This offer contains version 2017, 2018, 2019

https://webstore.illinois.edu
A very short and simple manual covering only the main operations with Origin, and manuals from Origin are on the server (\PhyapIportal\PHYCS403\Common\Origin manuals).

Video Tutorials on the company website

Example Origin graphs

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

Ferroelectric Experiment

$\varepsilon''/1000$ vs. $T$ (K) and log(f)

illinois.edu
Example Origin graphs

Optical pumping

Detector signal (V)

Lock-in output (μV)

f (MHz)

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

Tunneling Experiment

Sample #

Al-Al₂O₃-Pb

T=1.49K

Tunneling 1: Graph9

Sample n2 run8 zoom temp 1.55K
Example Origin graphs

Second sound

T = 1.51-1.63K
Example Origin graphs

Magnet mapping

![3D Magnet Mapping Graph](https://example.com/magnet_mapping_graph.png)