



Tutorial Part I: basic functions

What is the difference between an Igor Experiment, a Wave, a Table or a Graph ?

Experiment: In an IGOR-experiment all Waves, Tables, Graphs and Layouts are saved. The name of the experiment is the filename on your hard-drive

Wave: In a Wave numbers or letters are stored in columns, e. g. intensity-values, wavenotes and most important the range of the X-axis (see later)

Table: In a Table you can display the values of a Wave

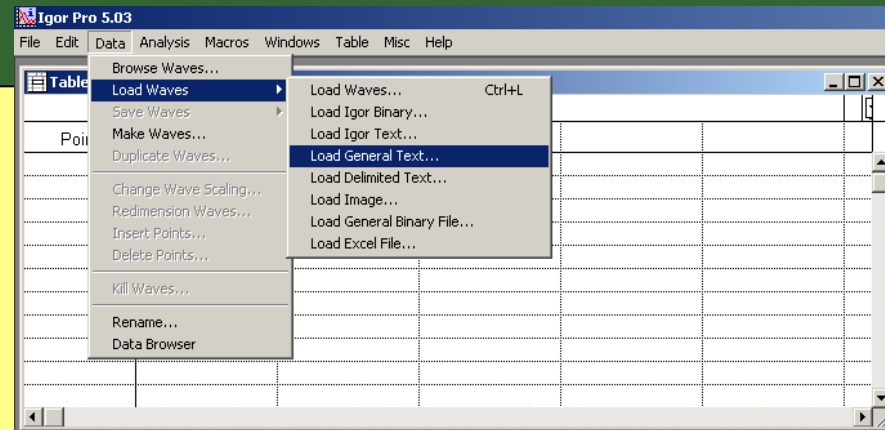
Graph: The values of a Wave are displayed in a Graph, normally a X- and a Y-value are necessary

Load Files

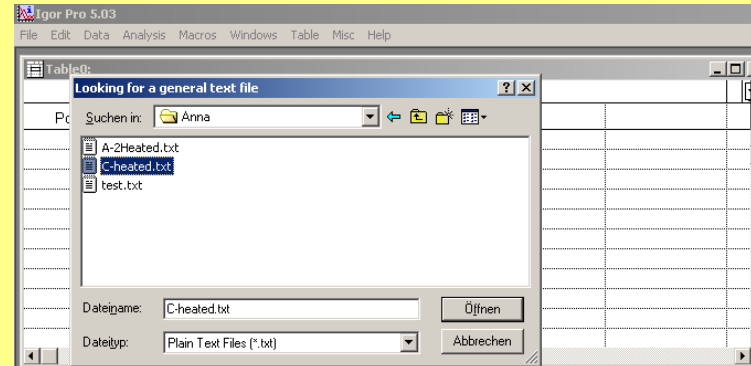
1. Select type of file:

„general text“ can be used e. G. for XRD-files

„load image“ can be used for TIF and other image files



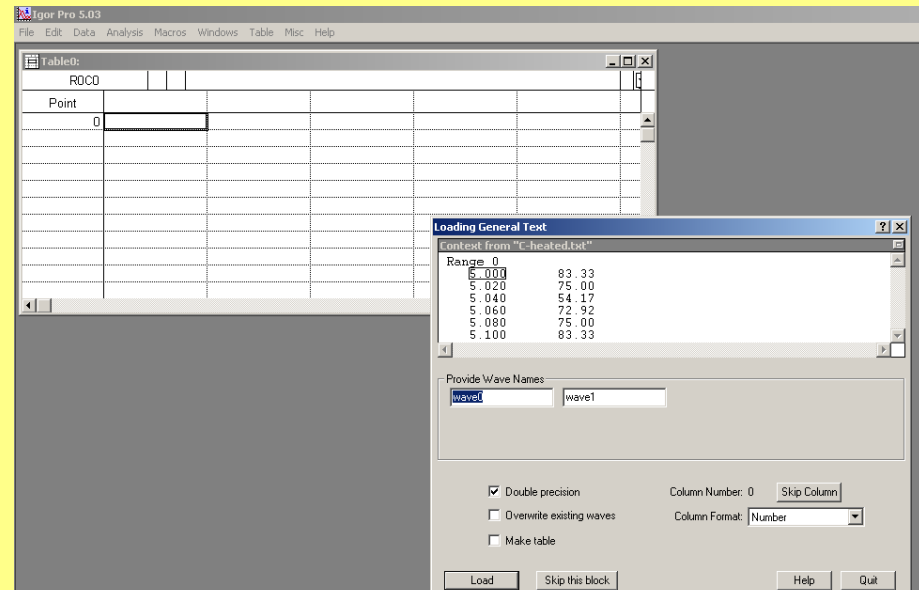
2. Select file to load



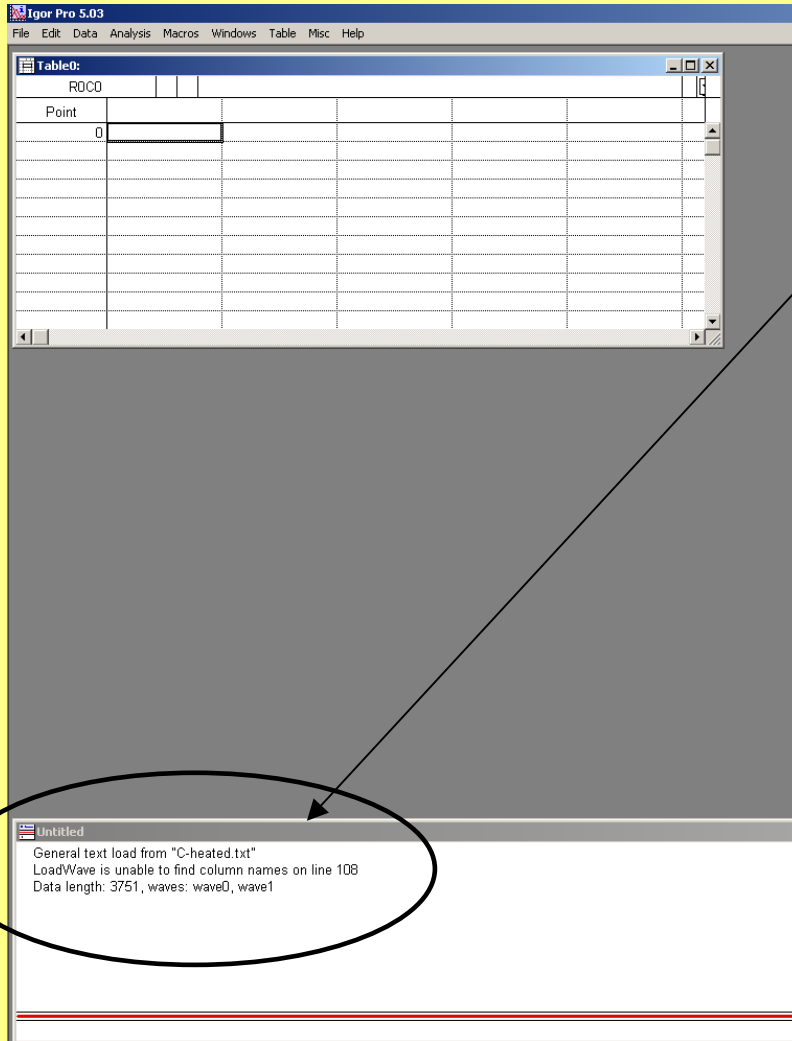
3. This dialog box appears:

Normally you can click LOAD, but you can also skip to load one or more waves

If a file-header exists it will not be displayed here



File informations

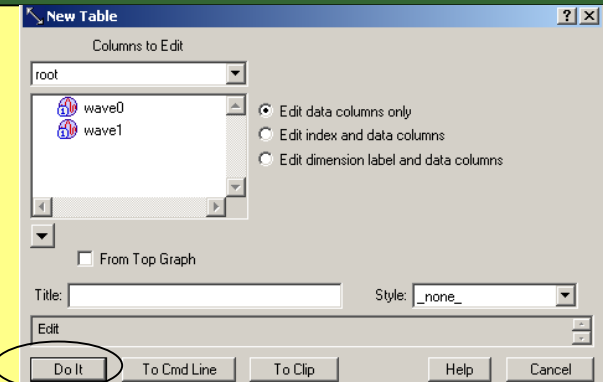
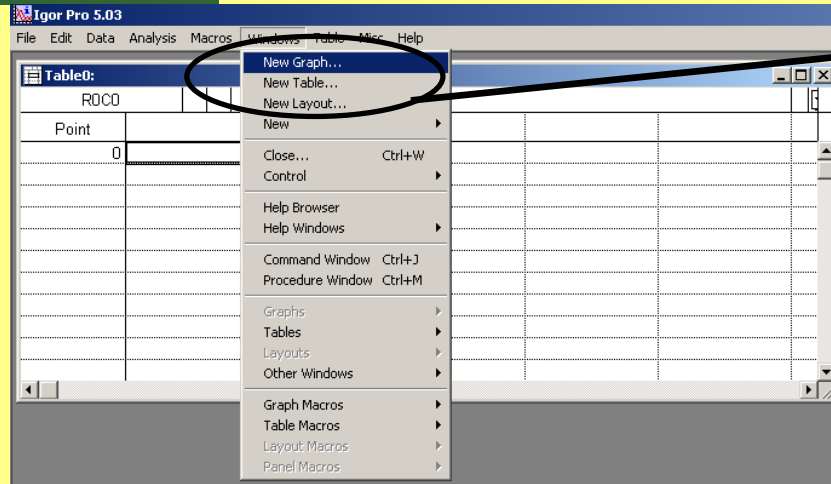


In the Comand-window some informations about the file will be logged!

After you load a file you have created one or more **Waves**

Display graph and table

New Table..:

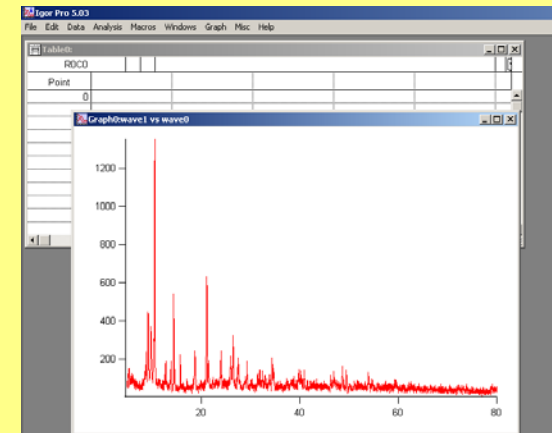
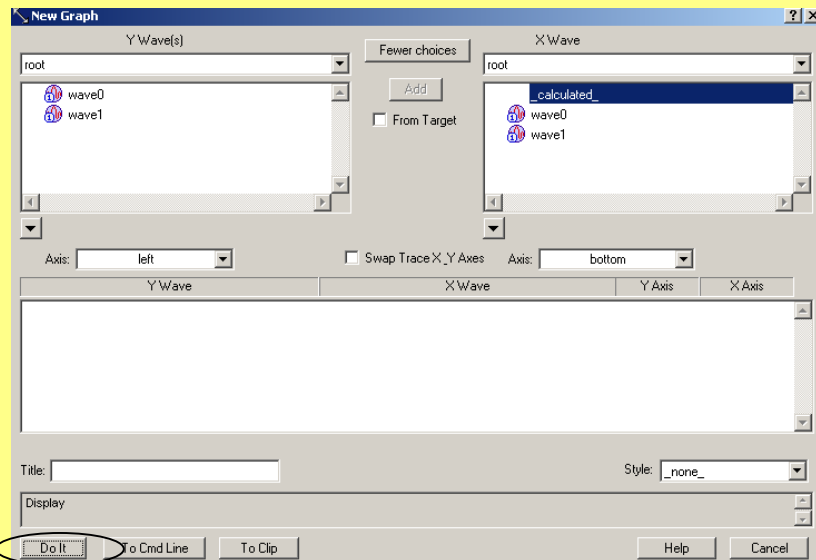


A screenshot of the resulting data table in Igor Pro. The table has columns for 'Point', 'wave0', and 'wave1'. The data is as follows:

Point	wave0	wave1
0	5	83.33
1	5.02	75
2	5.04	54.17
3	5.06	72.92
4	5.08	75
5	5.1	83.33
6	5.12	72.92
7	5.14	50
8	5.16	112.5
9	5.18	77.08
10	5.2	125
11	5.22	83.33
12	5.24	122.92
13	5.26	106.25
14	5.28	131.25
15	5.3	147.92

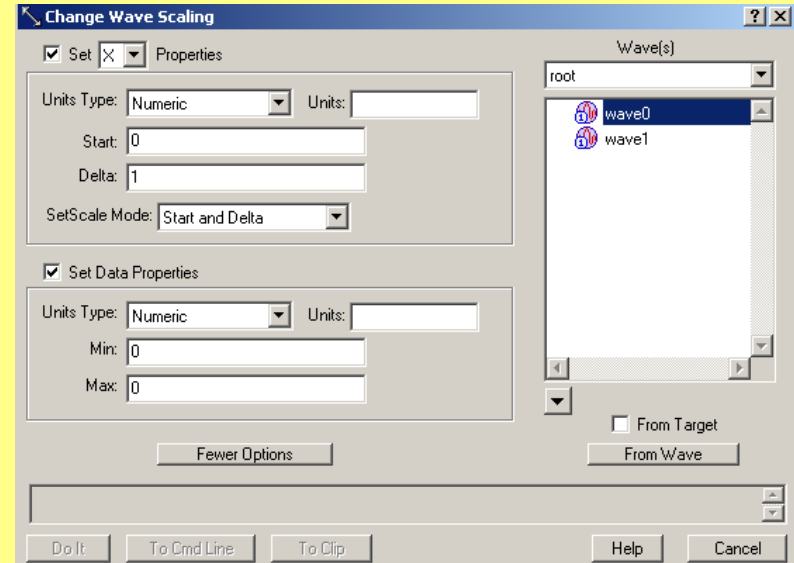
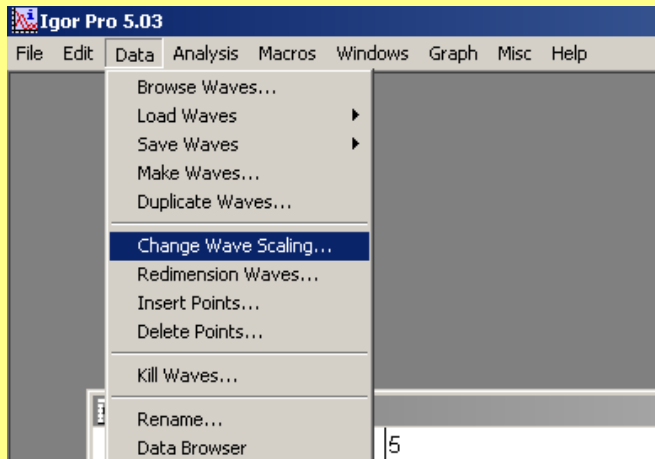
New Graph..:

Select X- and Y-axis → DO IT



Problems using Load Waves

Igor likes to have calculated X-axis for fitting routines, that means you have a starting value and normally a Delta X. This works only with aquidistant values.



In most measuring files a header is included where you can find the starting point (e. g. starting angle oder starting kinetic energy) and a Delta X value. Otherwise calculate the value!

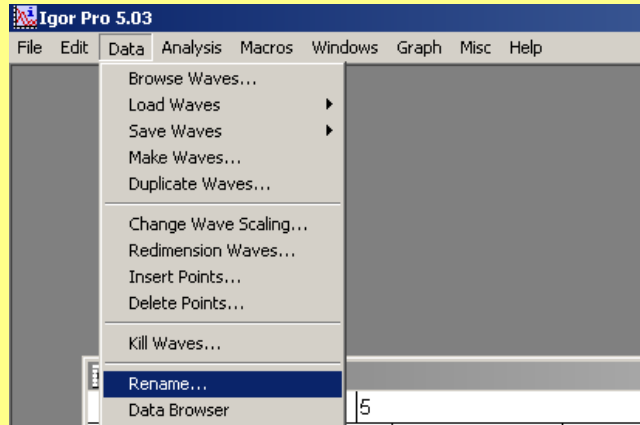
Change Wavescaling

BE CAREFUL with this function. Changes are not reversable!!! and they were not logged!!!

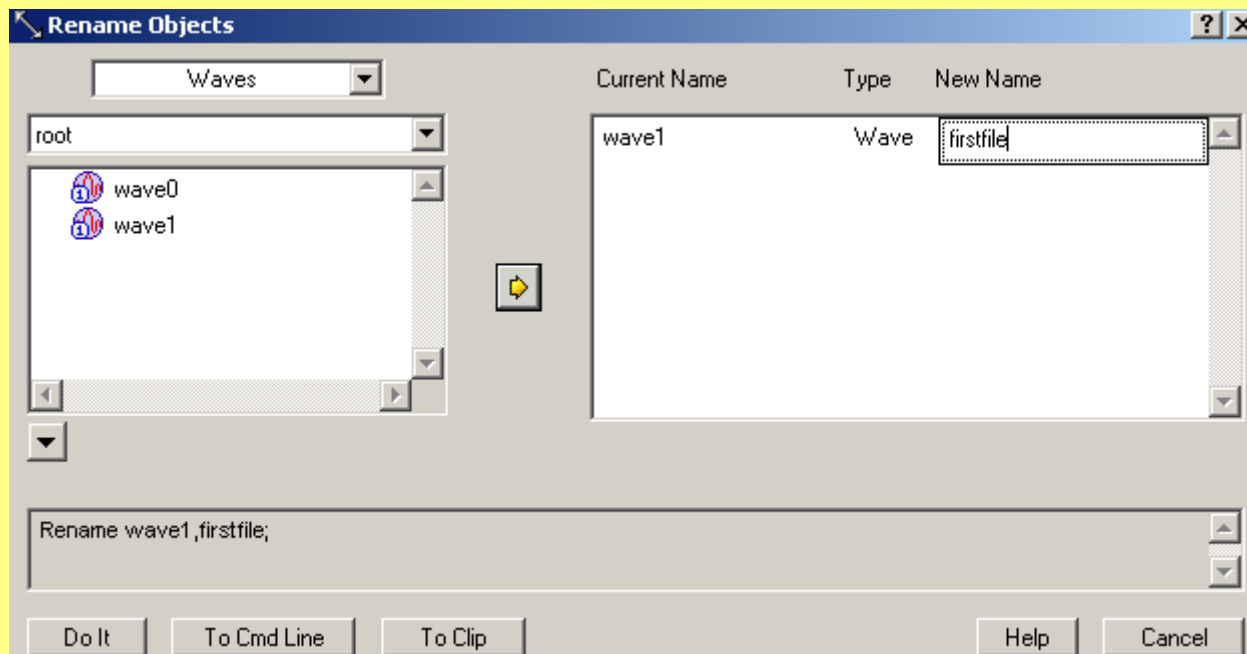
1. Select the wave with the Y-values
2. Select: Start and Delta
3. Klick on FROM Wave → Values for X0 and Delta X are read out of the wave, if the don't exist, X=0 and Delta=1
4. Enter the start value and a valid Delta X
5. DO IT
6. Now you are able to display a graph just by selecting the Y-axis, X-axis must be calculated (default)
7. The same graph is displayed now as before but with a calculated X-axis

Rename WAVES

Often Wavenames are more or less hyroglyphs. With the rename function you can set user defined names.



1. Select Wave to rename
2. Press →
3. Enter NewName
4. DO IT



Graph manipulation

Add Annotation:

Point	wave0
0	5
1	5.02
2	5.04
3	5.06

Here you can type in what ever you want!

When you click on Annotation/Textbox and you select LEGEND an Legend which includes the filename is created!

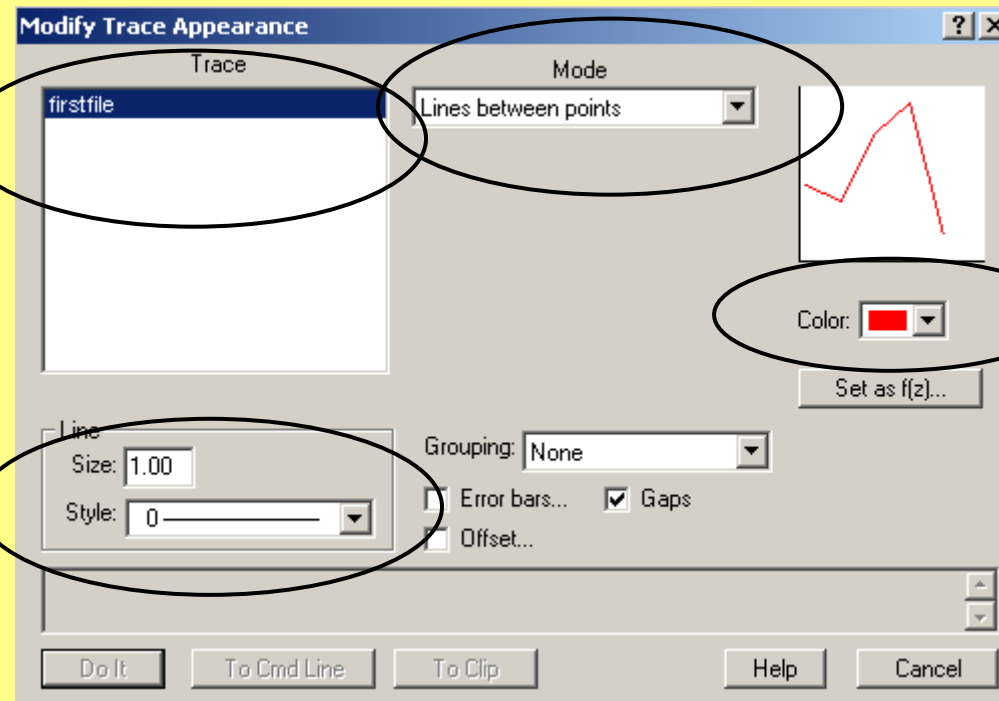
This box gives you a preview of your annotation.

Change Color and Style

To modify the graphstyle double click on the Wave in the graph you want to modify. This dialog box will appear

If you have more than one Wave in the graph you can select the wave here

Modifies the mode: Default is a line, but Dots, squares... are also possible



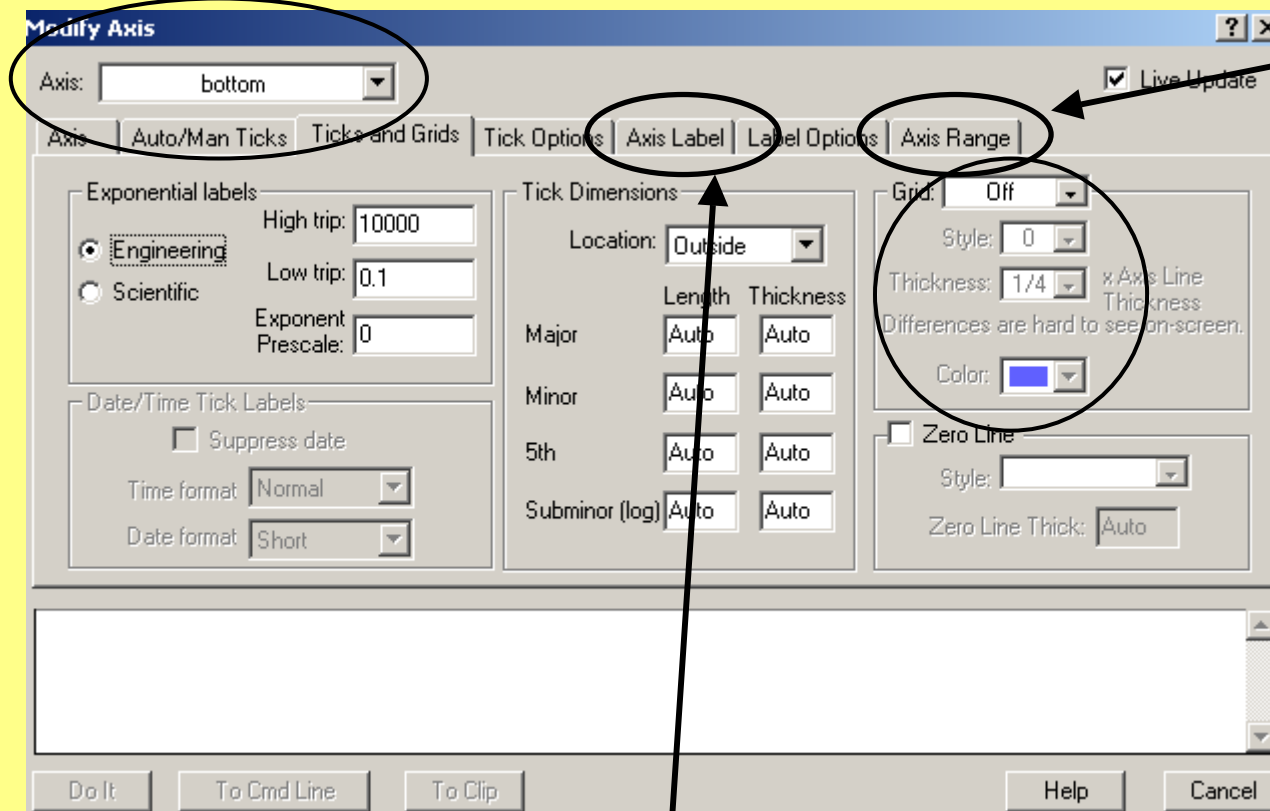
Modifies the thickness of your line or changes the style.

Color of the displayed wave in this graph

Modifying the Graph-range and more...

...by a double click on one of the axis this box appear:

Select the Axis you want to modify.



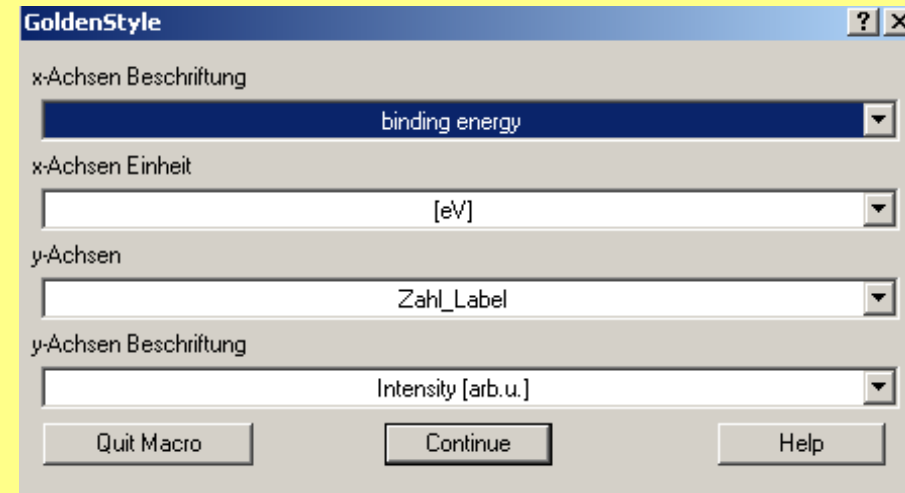
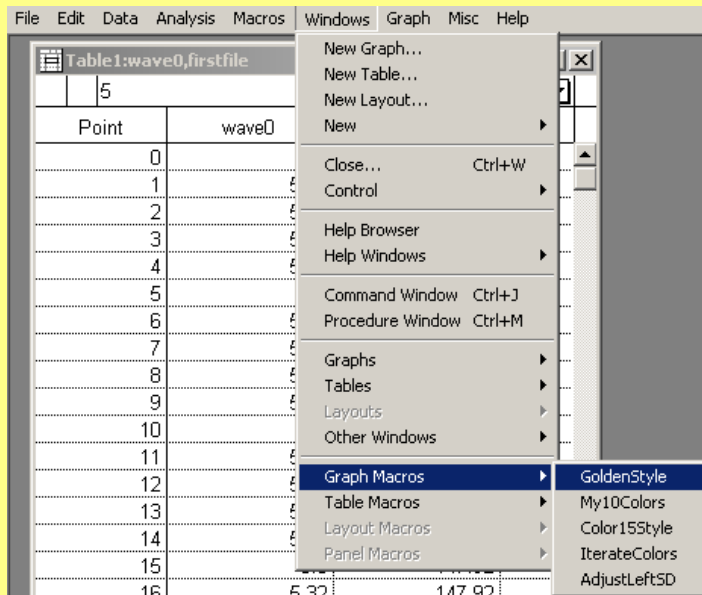
Set X- and Y-range

Adds a Grid to the graph to the selected axis.

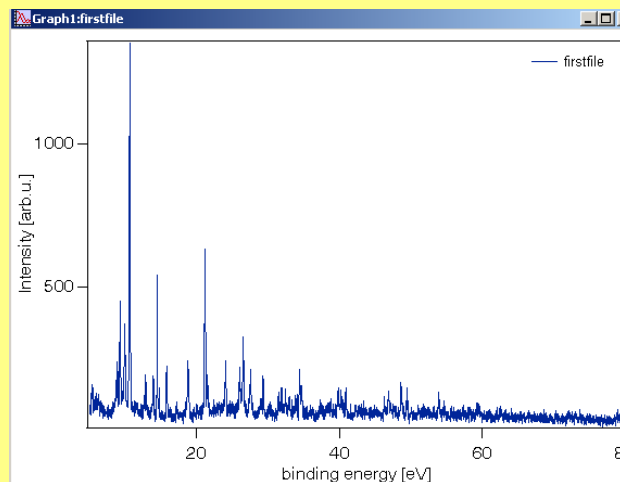
User defined labels

USER defined Marcos and Functions

Graphstyle Marco:

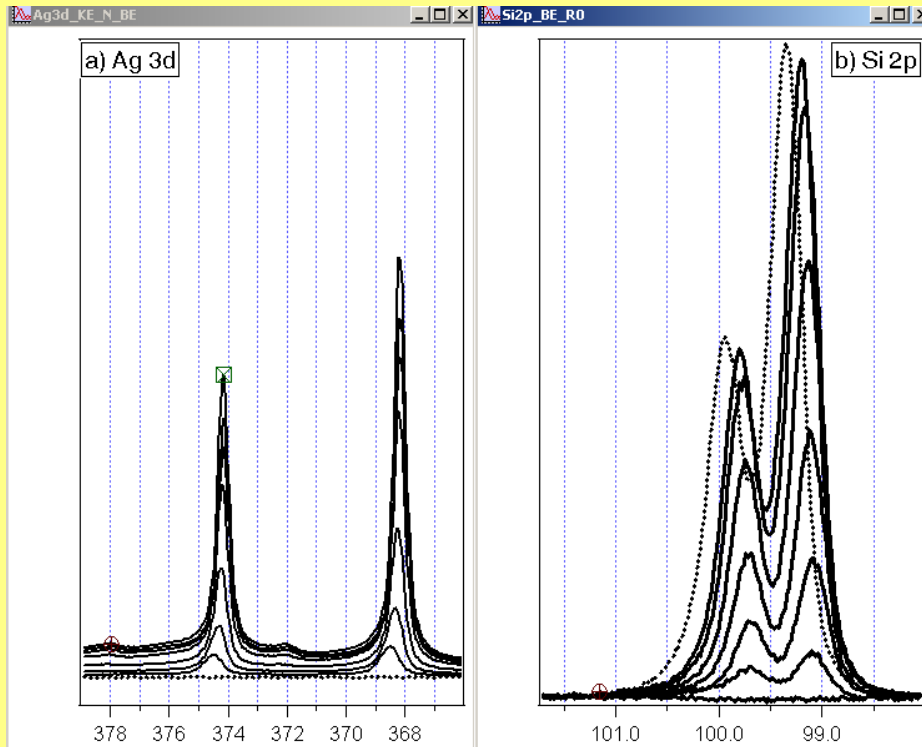


A very usefull marco is the GoldenStyle, which modifies the standard Graph-layout to a very nice one ☺ ! Select X and Y-Axis (Achse) and click on CONTINUE.



By clicking on the Labels you can modify them.

Offsets

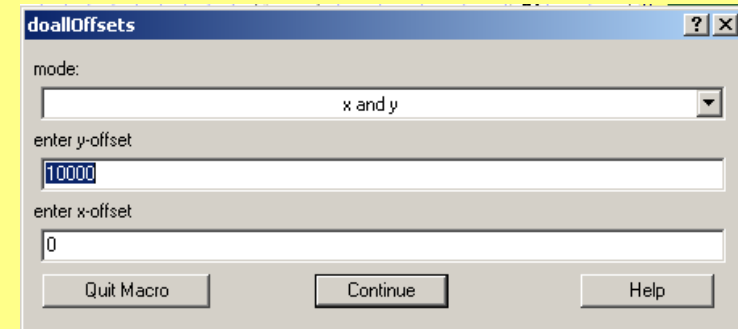


For setting offsets you can click on the Wave you want to shift.

Problem: You must enter for each Wave an individual offset (normally only Y-direction)

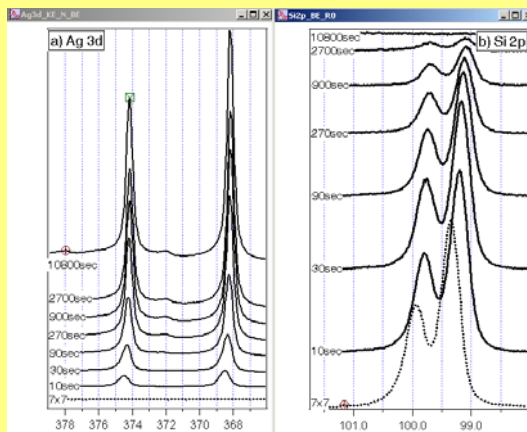
To set an equal offset between this bunch of graphs you can use an other USER-Macro:

→ Macro → Graphs → DoAllOffsets

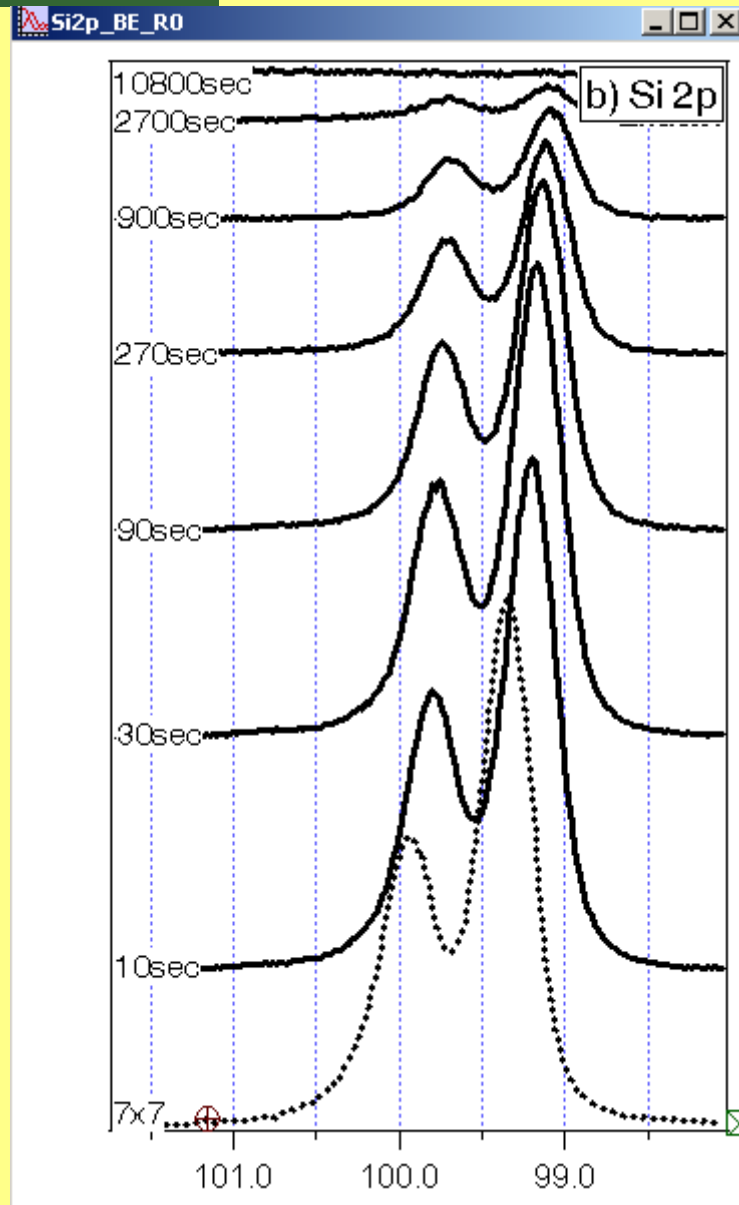


Enter a good value end Continue!

→ Each Wave will be shifted to the next of the value you entered.



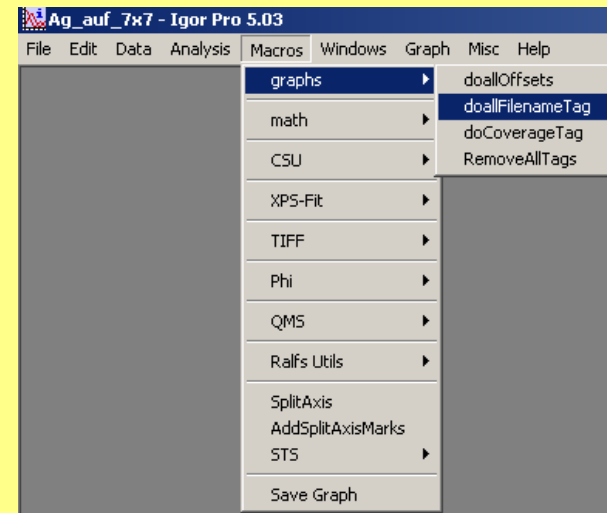
Wavename Tags (auto)



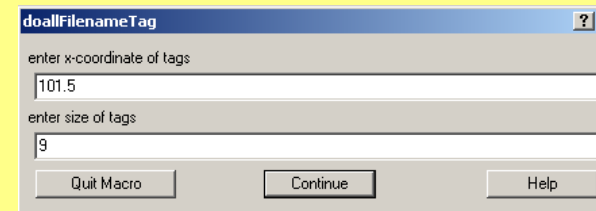
To create Wavename Tags you must add a new annotation for each Wave in the graph. This is a complicate and very tricky procedure!

Better use:

Macro → Graphs → DoallFilenameTag



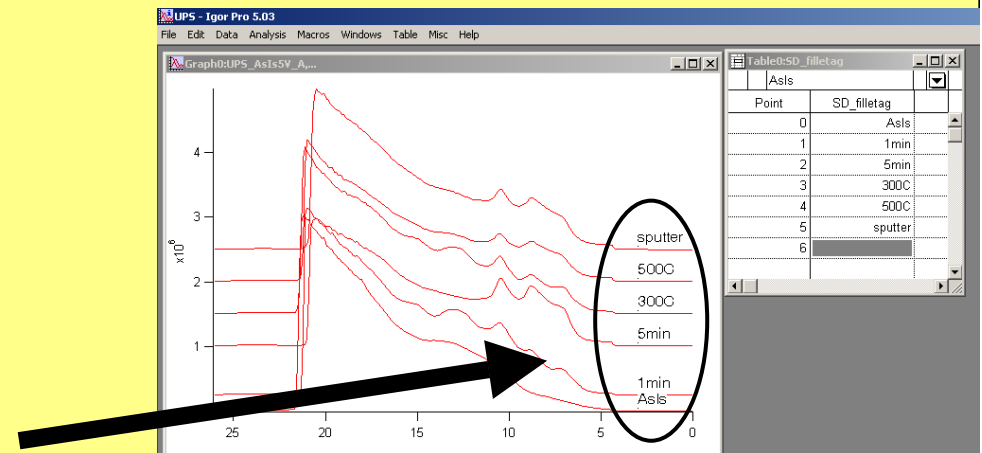
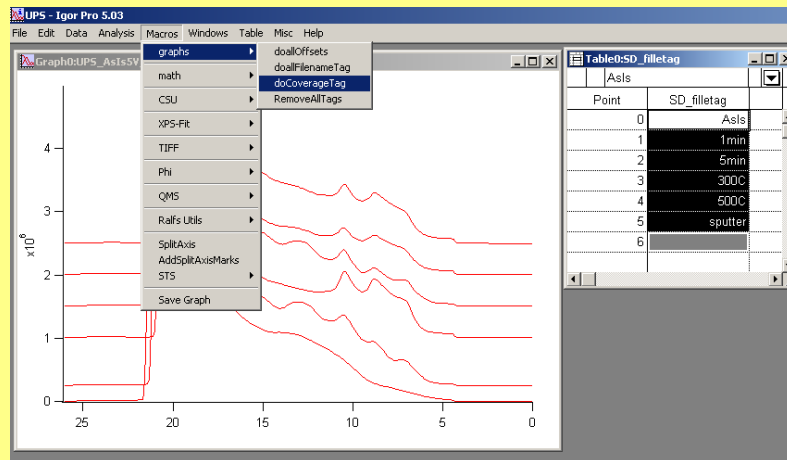
Enter a X-position and a Fontsize(enter size of Tags)



The filename will appear at the entered value!

User defined Tags

1. Make a new Wave
2. Enter in the order of the traces in the graph the Tags you want to create
3. Rename Wave: SD_NAME. The „SD_“ is necessary!



doCoverageTag

Thicknesswave

enter x-coordinate of tags

enter size of tags

unit of tags

Quit Macro Continue Help

- Select SD_Wave
- X-position of the Tag
- Font size of the Tag
- If wanted: select a unit

Some Tips and Tricks

Autoscale: STRG-A or -A

Info: STRG-I or -I

Tools: STRG-T or -T

Manuel offset: SHIFT-left mousebutton (3sec) → move
spectrum in Y-direction

Avoiding BAD FILE-names and WAVE-names:

- Try to start (or end) a file- or a Wavename with a number
- Avoid special letters like: +, -, /; _ is ok
- use not to long names