

# Introduction to Origin & OriginPro

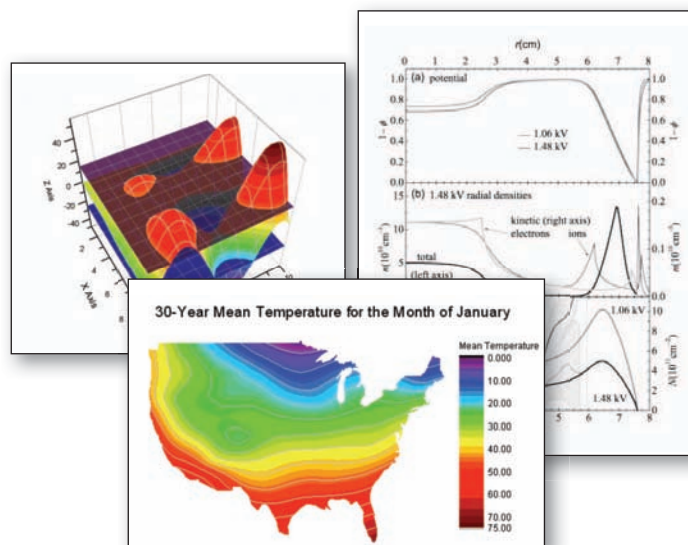
**Origin** is an easy-to-use software application that provides powerful data analysis and publication-quality graphing capabilities tailored to the needs of scientists and engineers.

**OriginPro** offers all of the features of Origin plus extended analysis tools for Peak Fitting, Surface Fitting, Statistics, Signal Processing, and Image Handling. OriginPro is the software of choice for those who want a single data analysis and graphing solution.

## 2D, 3D & Contour Graphing

With over 70 graph templates, Origin makes it easy to create and customize publication-quality graphs.

- Create a graph in two easy steps: simply select the data and then click the desired graph icon.
- Origin provides the flexibility to plot multiple datasets in one graph, even when the datasets reside in different workbooks or matrices.
- Origin offers customization options for all elements of your graph.
- Format settings can be saved as a theme and applied to other graphs.
- A customized graph can be saved as a template for creating similar graphs in the future.



## Curve Fitting

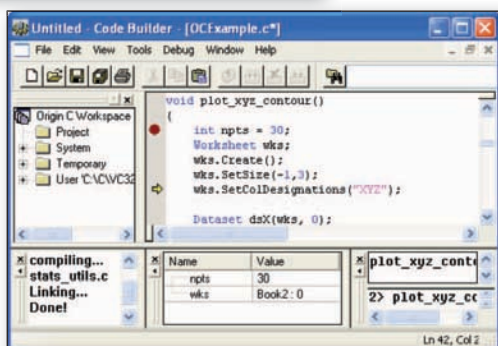
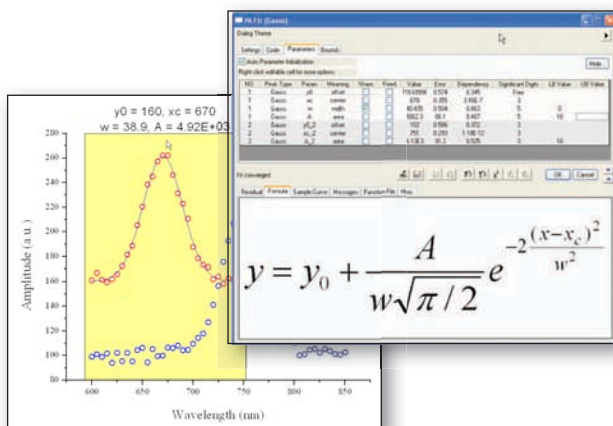
Origin provides two tools to perform linear and non-linear curve fitting: the Quick Fit Gadget, with a region of interest (ROI) that can be moved and resized, and the full-fledged curve fitter, NLFit. With either tool, fitting proceeds in four easy steps:

- (1) Select the data
- (2) Open the tool
- (3) Choose the function
- (4) Fit the data and produce a report

Origin supports over 150 built-in fitting functions and provides a wizard to help you create your own. Place bounds and constraints on your fitting parameters. Fit multiple datasets individually or globally with shared parameters. Fit replicate data with the Concatenate Fit option.

## Programming

Origin includes two built-in programming languages: Origin C and a scripting language called LabTalk. Origin is also an Automation Server for users of VB, C++, C# and LabVIEW.

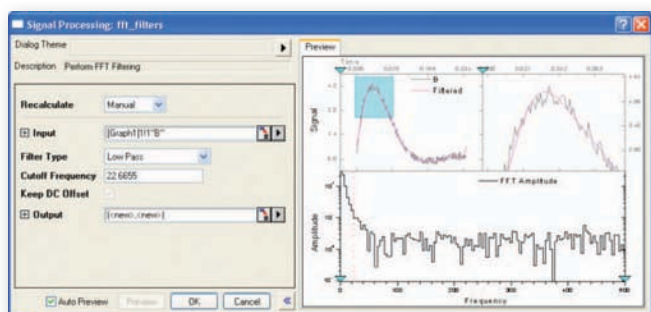
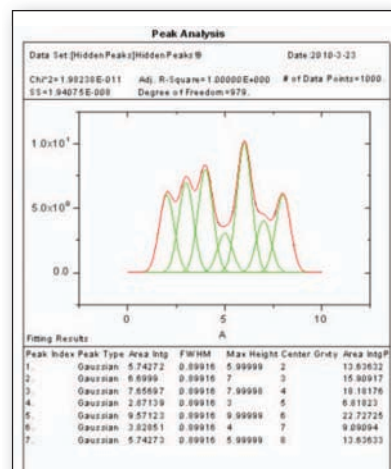


## Peak Analysis

Origin provides two tools for analyzing peak data. The Quick Peaks Gadget can perform peak analysis of plotted data within a region of interest. The Peak Analyzer wizard guides you through baseline creation and subtraction, peak finding, and peak integration. OriginPro provides additional baseline and peak fitting capability.

## Statistics

Origin provides tools for Descriptive Statistics, Correlation Coefficient\*, Discrete Frequency\*, Parametric Hypothesis Tests (including Student's Tests and ANOVA), Repeated Measures ANOVA\*, Nonparametric Tests\* (including Two Sample Kolmogorov-Smirnov Test and Wilcoxon Signed Rank Test), Power and Sample Size\*, Multivariate Analysis\*, Survival Analysis\*, and ROC Curves\*.



## Signal Processing

Origin provides a wide array of tools for signal processing, including FFT, convolution, deconvolution, smoothing, decimation\*, envelope detection\* and wavelet transforms\*.

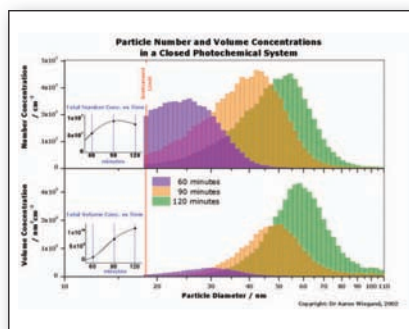
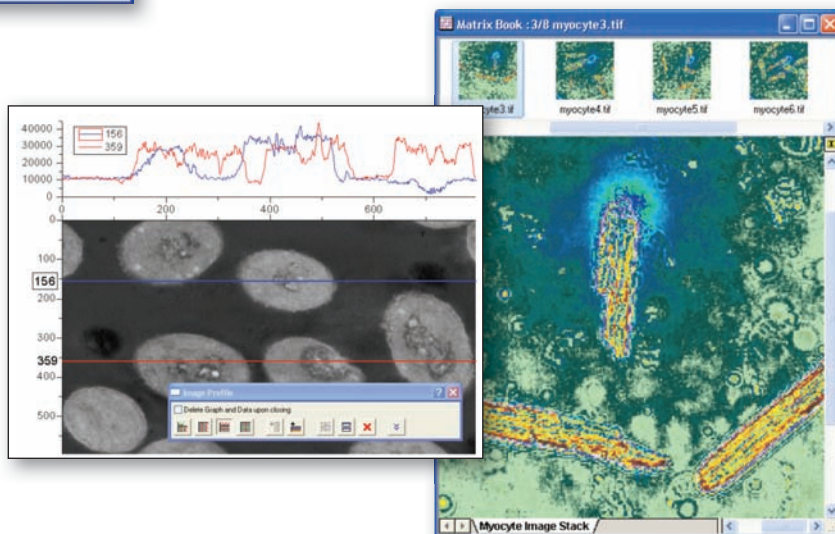
Most tools provide a preview window including options such as zooming into an image, and interactive controls such as moving a vertical line to set cutoff frequencies for filtering.

## Image Handling

Import multiple images into a matrix window, and quickly view and rearrange images using the thumbnail panel.

Perform arithmetic transforms\*, geometric transforms, and image conversion.

The image profile tool allows viewing and comparing multiple horizontal and vertical profiles.



## Publication-Quality Results

Add your Origin graphs, worksheets, and reports to technical publications, posters, and lab reports. Create custom reports and slide shows inside of Origin. Batch export your graphs to Microsoft PowerPoint or save them in a wide variety of popular formats including EPS, PNG, JPEG, and PDF.

\*available only in OriginPro.