Pro**SEM**

Advancing the Standard

Automated Feature Measurements from SEM Images

Pro**SEM** analyzes SEM image files, providing fast, consistent feature measurements for process calibration and monitoring tasks

GenISys

Fast, Consistent, and Easy Measurements from SEM Images

Performs Process Calibration and Monitoring Tasks Quickly and Reliably

Automated Finding and Fitting of Gratings and Arrays

Automated Batch Processing for Measuring Sets of Images
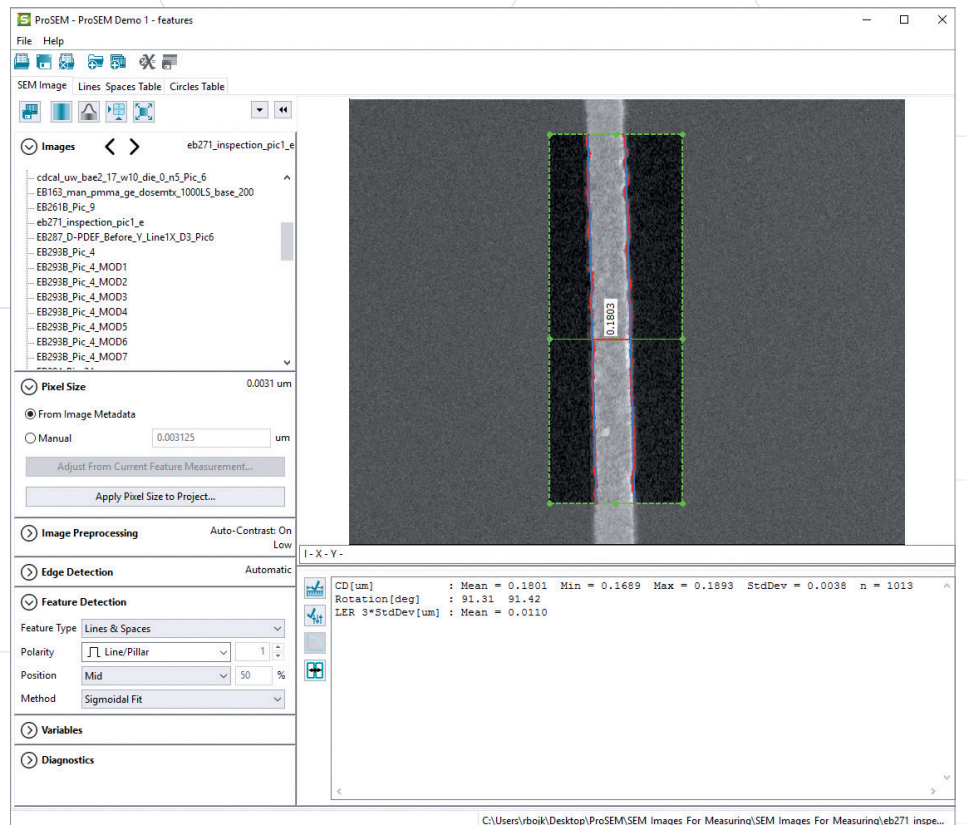
Nano-patterning requires accurate and reproducible metrology. Meaningful process calibration and process monitoring tasks need many measurements from numerous SEM images. Automated CD-SEM equipment used in IC manufacturing is expensive and not flexible. Many organizations perform wafer inspection and measurement with analytic SEM tools which offer measurement only by manual placement of cursors on the SEM image, which is time-consuming, subjective, and has poor repeatability.

Pro**SEM** makes automated feature size (CD) measurements from saved SEM image files, with a user interface designed for simplicity and productivity. Powered by efficient measurement algorithms, Pro**SEM** provides fast, reliable, repeatable measurements, for improved process calibration, monitoring, and day-to-day tasks.
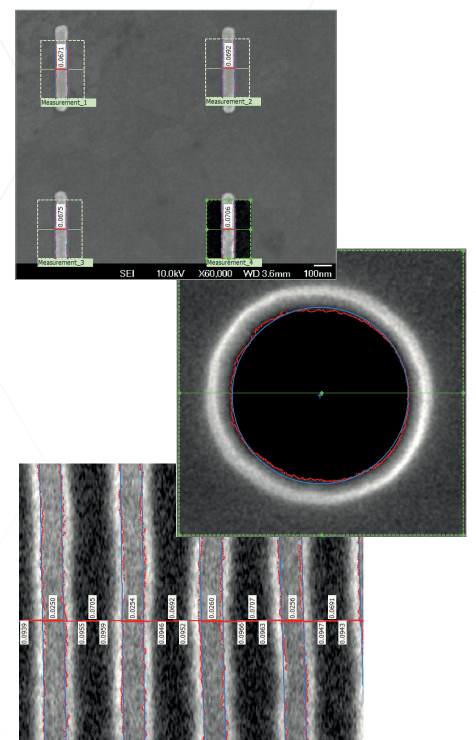
ProSEM Usage:

Pro**SEM** provides a simple, organized user interface to speed-up measurement tasks. A typical measurement flow is as quick as: opening an SEM image, drawing a box around the feature to be measured, selecting the feature type such as line, circle, rectangle, etc. and selecting the feature polarity. Measurement results are shown directly on the image.

Automatically find all similar features in the image with a single click. Regular 1-D gratings and 2-D arrays are fitted automatically.

Apply the same measurements to all images in the project with a single click. Results are displayed in a table which is easily exported. Powerful data summaries and user-defined computations enable extensive data analysis.

Pro**SEM** makes quick work of repetitive measurements; a full set of images is analyzed faster and more consistently than manual methods, enhancing metrology productivity.
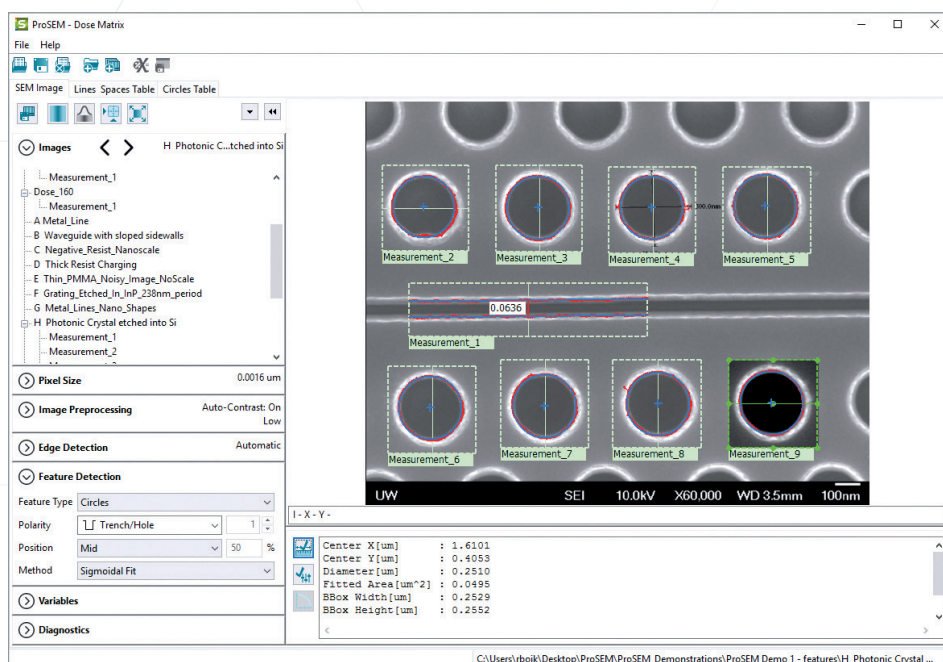
Pro**SEM** Features:

Edge Finding Algorithms

- Sigmoidal Fit
- Maximum Derivative
- Signal Peak
- Baseline Regression

Visualization

- SEM Image
- 1-D Cross Section Plots
- Fitted Arrays
- Power Spectral Density (PSD)

Pixel Size Calibration (Image Scaling) by

- SEM Metadata (if available)
- SEM Scale Bar
- Grating Period Measurement
- Manual

Line Edge Roughness

- 3-sigma LER
- Power Spectral Density (PSD) Plot

Feature Types

- Lines / Trenches
- Circular Pillars / Holes
- Rectangles, Ellipses, Polygons
- Arbitrary Shapes

Data Handling

- Data Tables with Results and Input Settings
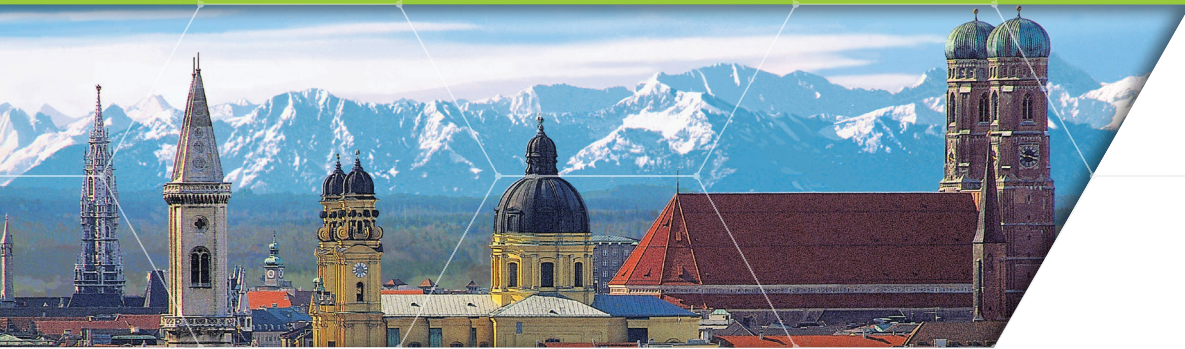- User Variables and Formulas
- Export to CSV

Automation

- Find Similar Features within Image
- Fit 1-D Grating or 2-D Array
- Batch Processing of a Set of Images

Platform Support

- Windows 7 / 8 / 10 64-bit
- Linux 64: Redhat 5.4+, Ubuntu 14.04+
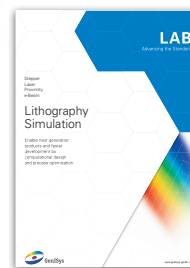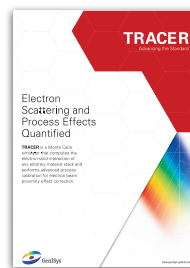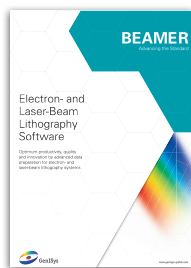
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performs advanced process
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Laser
Proximity
e-Beam

Lithography
Simulation

Enable next-generation
products and faster
development by
computational design
and process optimization

Based in Munich (Germany), with offices in Tokyo (Japan), and California (USA), **GenISys** develops, markets and supports flexible, high-performance software solutions for the optimization of micro- and nano-fabrication processes. Addressing the market for lithography and inspection, **GenISys** combines deep technical expertise in layout data processing, process modeling, correction and optimization with high caliber software engineering and a focus on ease of use.

GenISys products give researchers, manufacturers, and system suppliers unparalleled efficiency, ease of use and optimal value in research, development, and production of future nano-patterning technologies.

As a company focused on customer service, **GenISys** delivers fast, highly dedicated support for the application and development of the functionality needed to meet demanding customer requirements.