GenISys Company Anniversary

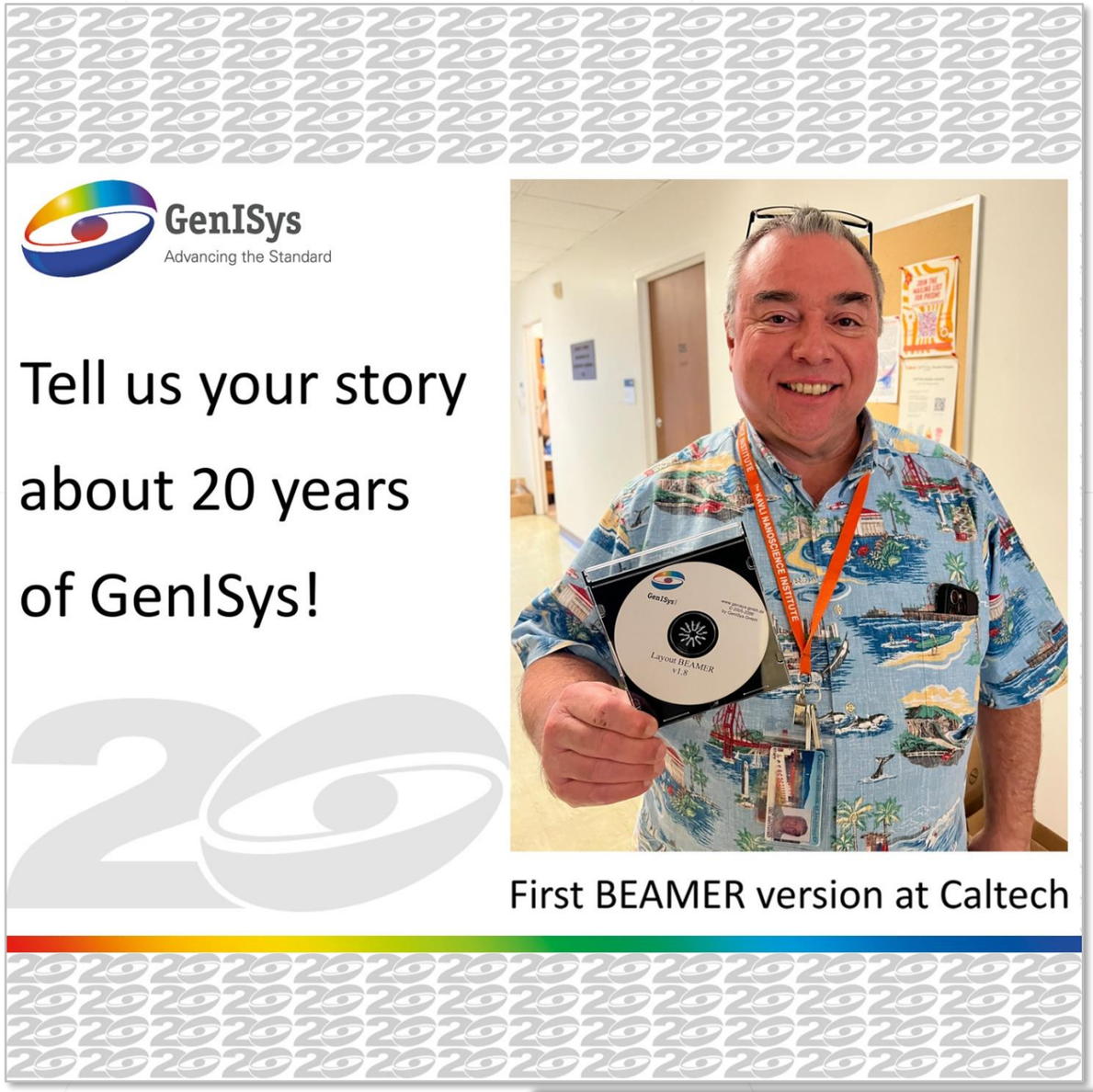
GenISys was founded in September 2005

Let’s “celebrate together” throughout the year…

→ Send us your stories or vintage photos

→ We will share nostalgic and funny throwbacks

Follow us on LinkedIn



GenISys
Advancing the Standard

GenISys MIS Team
March 2025

ProSEM

What‘s New & What‘s Next

GenISys
Advancing the Standard

SEM Metrology Products

ProSEM

SEM Image Analysis & Metrology Software

- → Easy-to-use software
- → Offline image metrology
- → SEM tool external control
- → Single chip and few sites

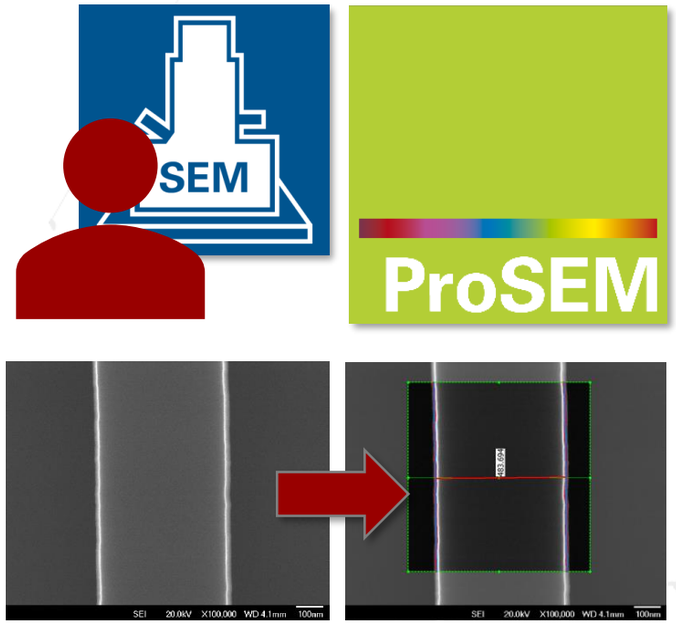
InSPEC

Integrated SEM Metrology & Inspection Upgrade Kit

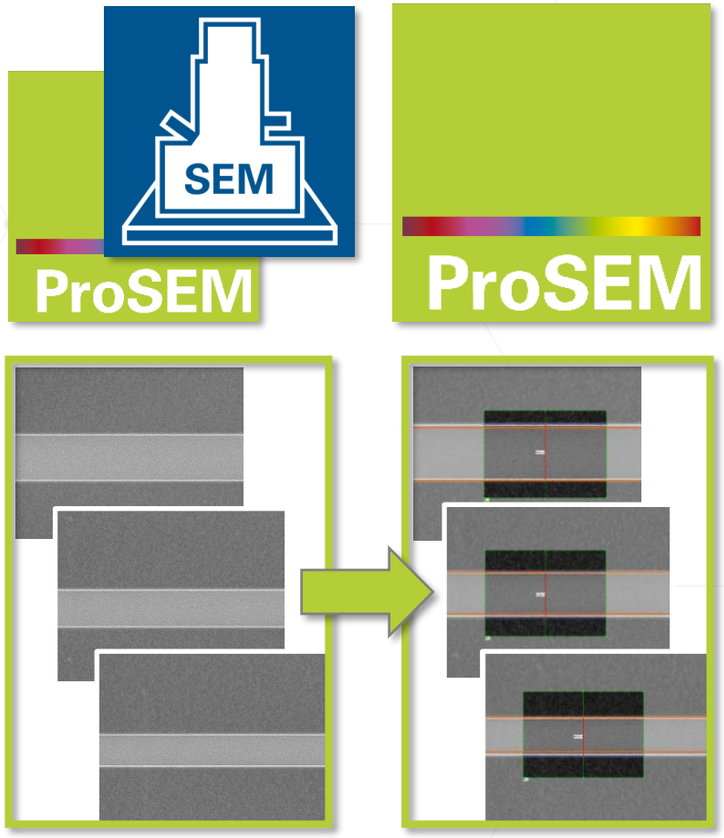
- → Advanced solution upgrade kit
- → Integrated tool for experts
- → True SEM metrology automation
- → Multiple chips and many sites

SEM Metrology Scenarios

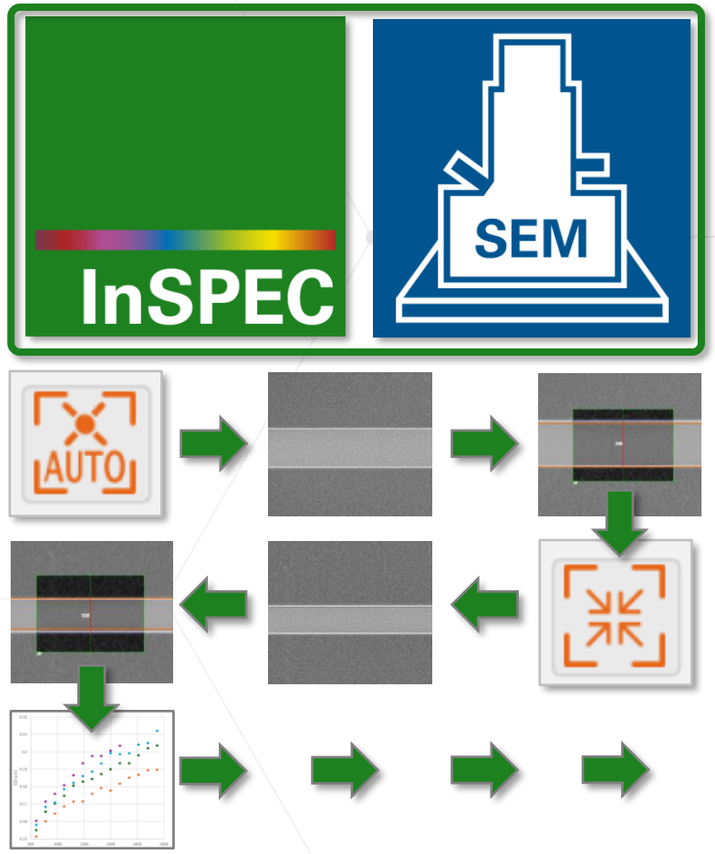
Offline SEM Image Metrology



External SEM Control and Image Metrology



Integrated Automation for SEM Metrology



Overview

ProSEM 3.6 Key News

- General
  - Update on Operating System support
- Feature Detection and Measurements
  - Edge Roughness and PSD plots for groups
  - Advanced Package: User control for template matching
  - Advanced Package: Tilt projection correction of measurements
  - Advanced Package: New feature type “Rounded Rectangles”
- Layout Integration/ SEM Tool Control
  - Control of image polarity in registration
  - Image registration and standard measurements/ recipes
  - SEM drive with 1-click shortcut
  - New SEM interfaces available (JEOL, Hitachi, Thermo Fisher)

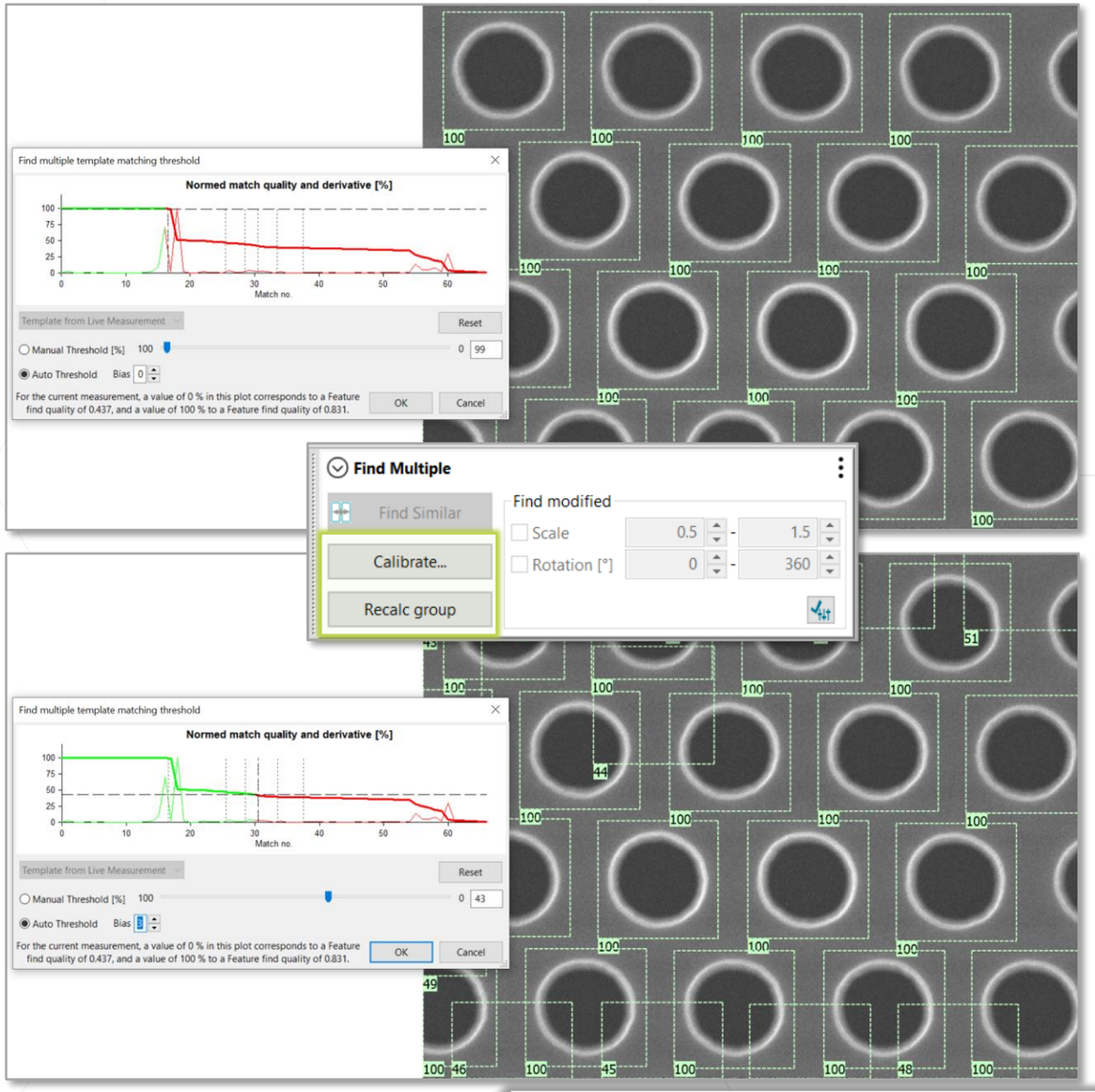
→ See “What’s New” document on website

User Control for Template Matching

Find Multiple (similar and modified)

- Template matching used for multiple features
- Usually, threshold is set automatically
- Challenging cases require more user control
- New calibration of threshold allows for
  - Manual and Auto Threshold adjustment
  - “Bias” to control number of matches
  - “Bias” is useful for recipe/ batch
- Available in Advanced package or higher

→ Enables the use of find multiple for challenging use cases



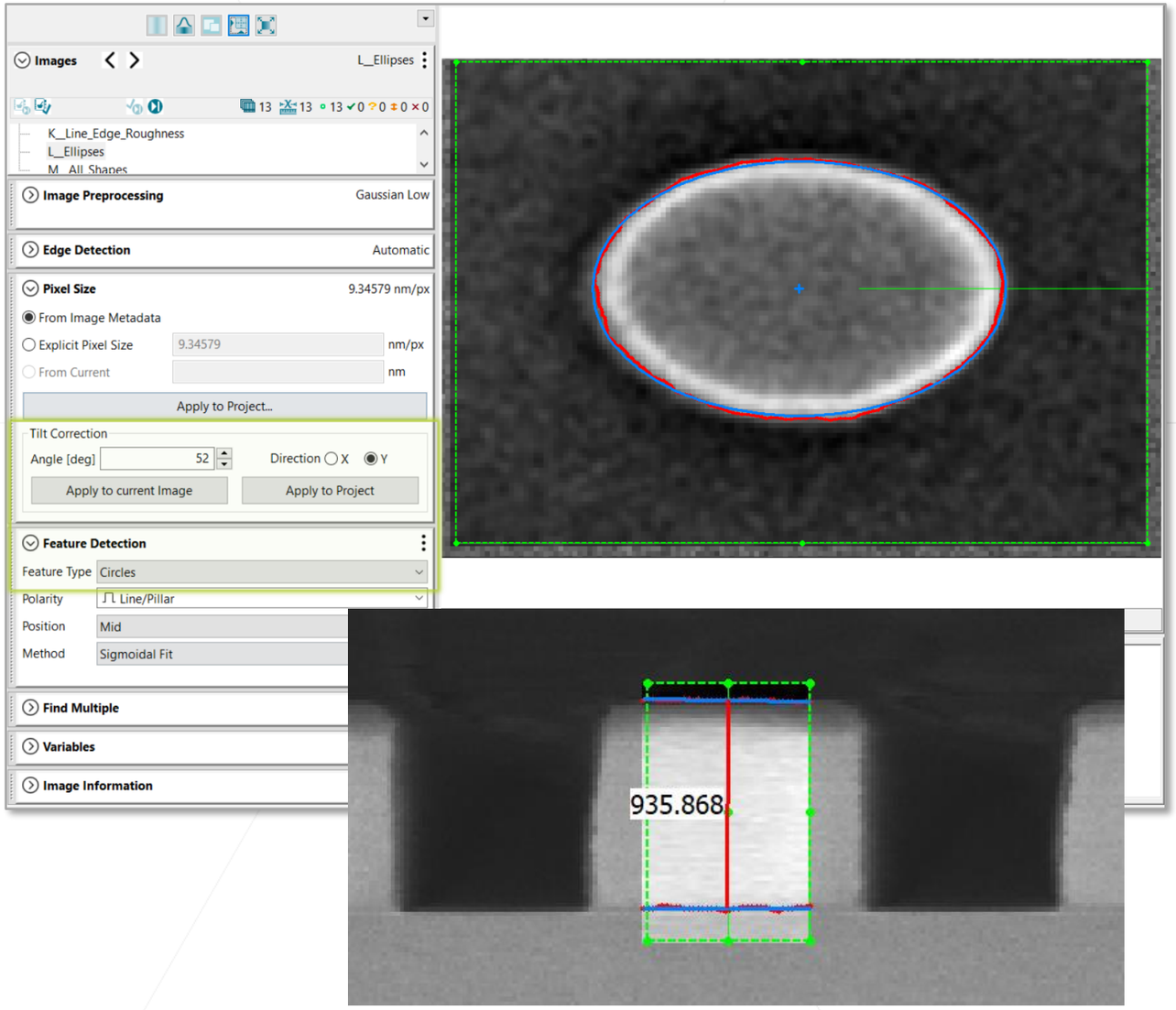
Tilt Projection Correction

Measurements on tilted images

- Set tilt angle/ direction of view on image
- Correction for:
  - Measurement results
  - Shape fitting
- Display of image and contour uncorrected
- Example shown: fitted as circle
- Available in Advanced package or higher

→ Especially for cross-section analysis

→ Better usability with less data processing

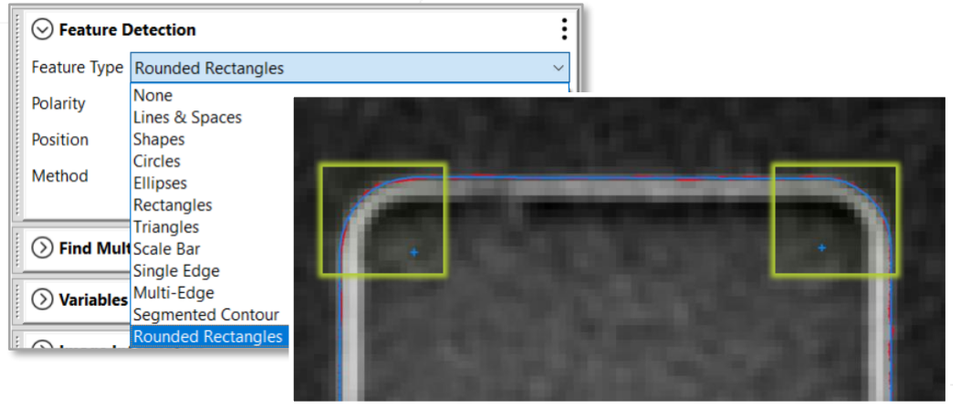


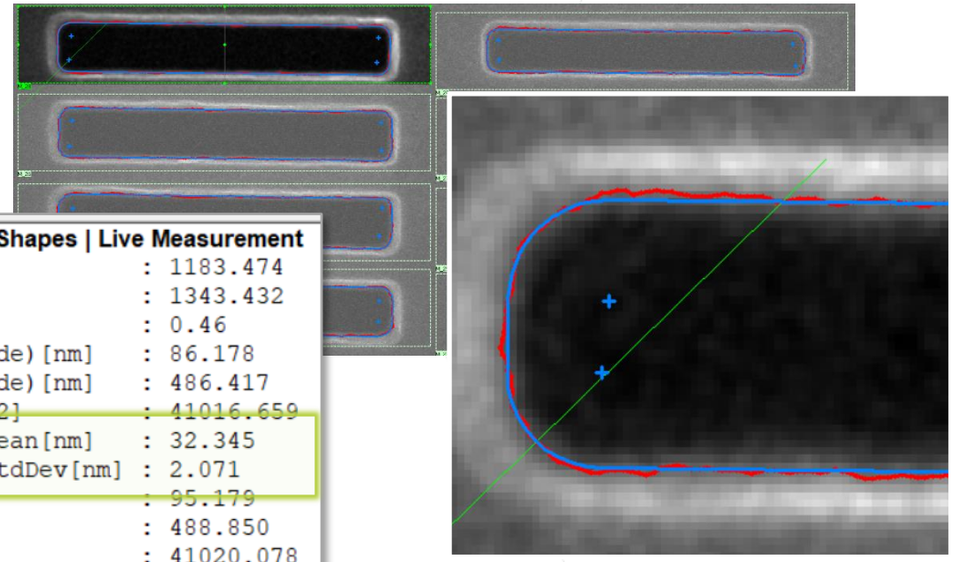
New Feature Type “Rounded Rectangles”

Fitted rectangles including corner rounding

- Measures corner radius mean and standard deviation
- Fits rectangle sides and 4 corners
- Individual results accessible via script
- Available in Advanced package or higher

→ Improves fitting being closer to SEM contour
→ Provides important results for process parameters





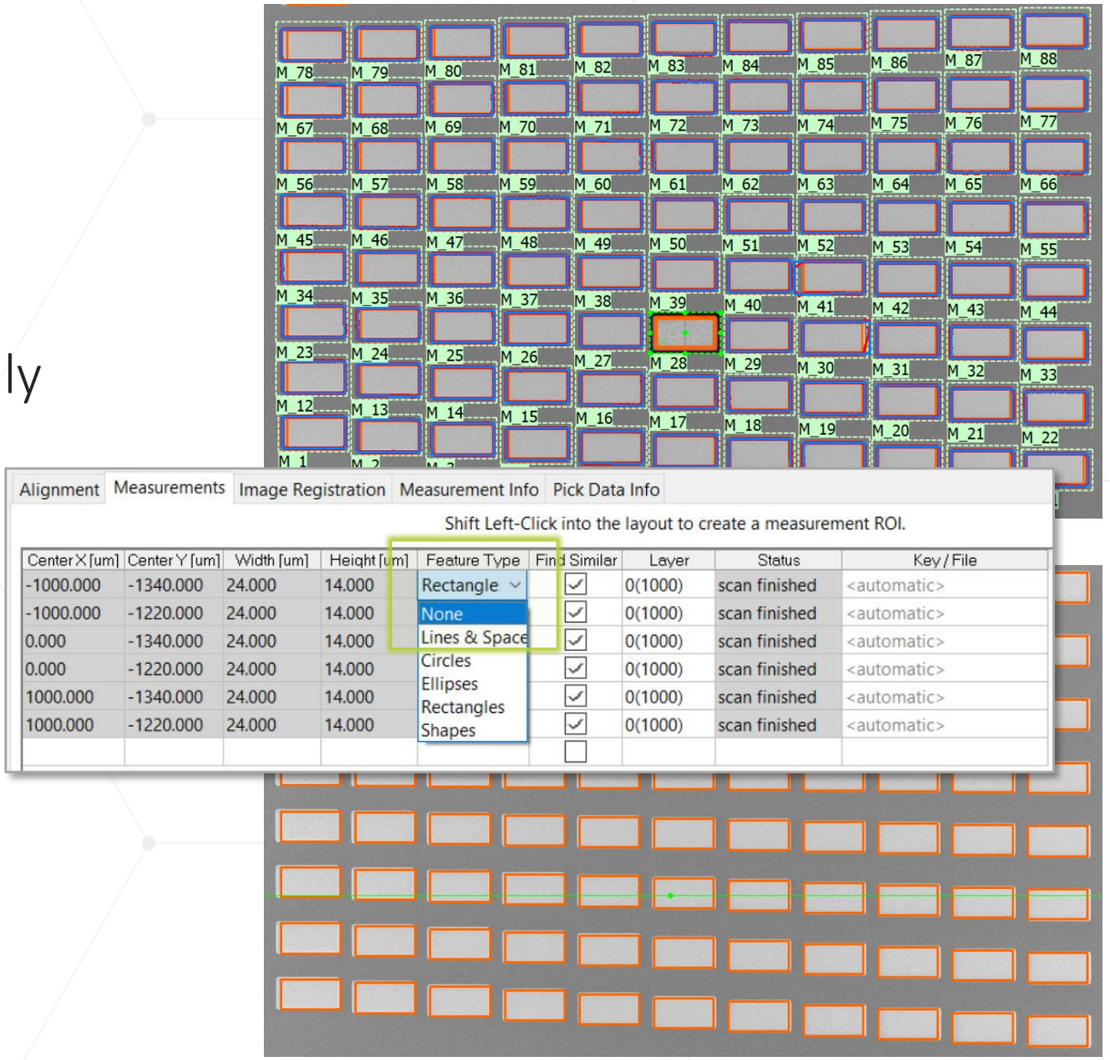
J__Rectangles_or_Shapes | Live Measurement	
Center X[nm]	: 1183.474
Center Y[nm]	: 1343.432
Rotation[deg]	: 0.46
Width (short side)[nm]	: 86.178
Height (long side)[nm]	: 486.417
Fitted Area[nm^2]	: 41016.659
Corner Radius Mean[nm]	: 32.345
Corner Radius StdDev[nm]	: 2.071
BBox Width[nm]	: 95.179
BBox Height[nm]	: 488.850
Area[nm^2]	: 41020.078

Layout Registration Only

Layout registration with standard measurements

- Automation list supports different feature types
- Usually, includes fitting and measurement
- New type “None”: no measurement, registration only
- Easier combined with standard metrology
- Apply recipes to registered images

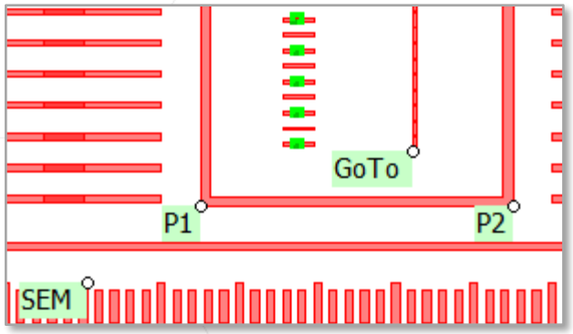
→ Combines layout with existing standard recipes
→ Faster and without unwanted result data



SEM Tool Control

Convenience shortcut for SEM drive

- 1-click command for stage navigation (Alt + left click)
- Available with valid global alignment
- Shortcut for: pick XY – GoTo – Move to

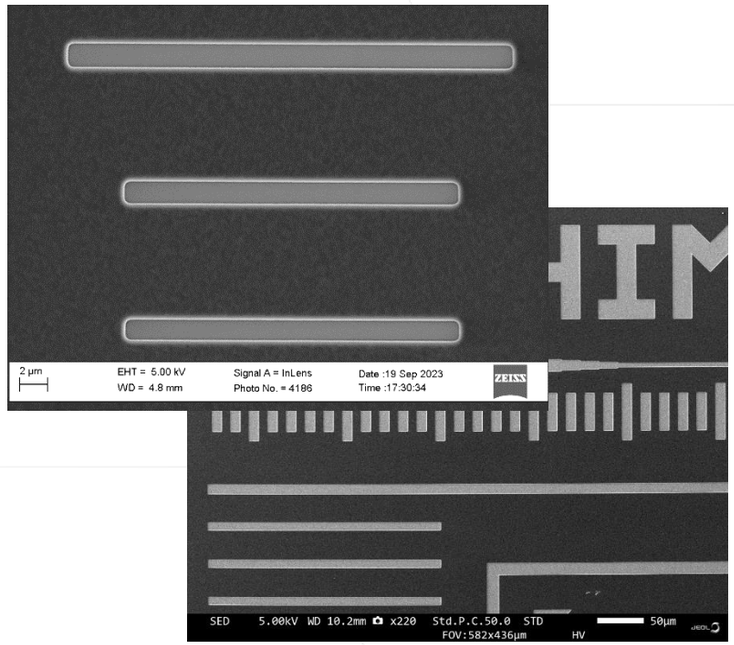


Supported SEM interfaces (ref. InSPEC)

- ZEISS serial interface (Remcon32)
- JEOL ethernet interfaces (Eik, MEC)
- Hitachi interfaces (RS232, ethernet)
- Thermo Fisher (new ethernet)

- Other (Tescan) possible and pilot sites welcome

→ Please contact GenISys team for details



ZEISS

JEOL

HITACHI
Inspire the Next

ThermoFisher
SCIENTIFIC

ProSEM What‘s Next

Ideas planned for ProSEM 3.7 — Fall 2025

- Import of large sets of images (preview/ gallery, exclude etc.)
- Add down-sampling to image preprocessing
- Improve color image import (optical)
- PSD with characteristic peaks: display or report key frequencies
- Auto-save and/ or recovery
- Use SEM stage coordinates from image meta data for alignment to layout
- Tool control: re-scan selected/ failed images only

Next major release ProSEM 4.0 — Q2 2026

- UI based on qt technology
- New algorithm for contour detection → affecting part of the workflow

Thank You!

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