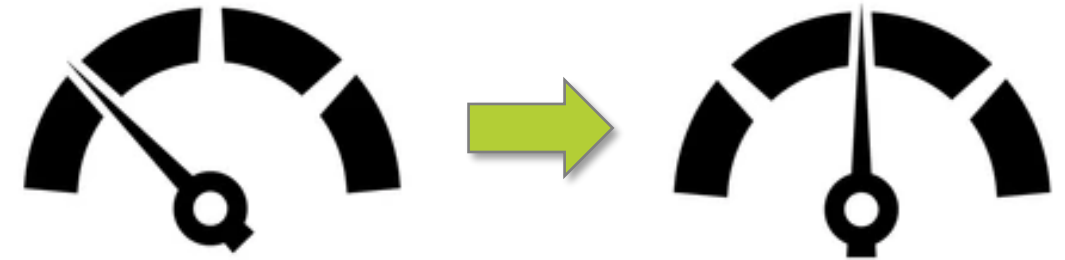# ProSEM

What's New in ProSEM 3.4

ProSEM 3.4 Key News

- General
  - Display and Processing Performance

- Feature Detection and Export
  - Parabolic Peak fit
  - GDS export for Lines&Spaces
  - Multi-Edge measurement methods

- Layout Integration/ SEM Automation
  - Viewer improvements and python layout methods/ attributes
  - Import/ export of metrology jobs
  - Image registration control and optional scale/ rotation
  - Comparison of layout element and contour/ fitting
  - Improved usability for SEM automation
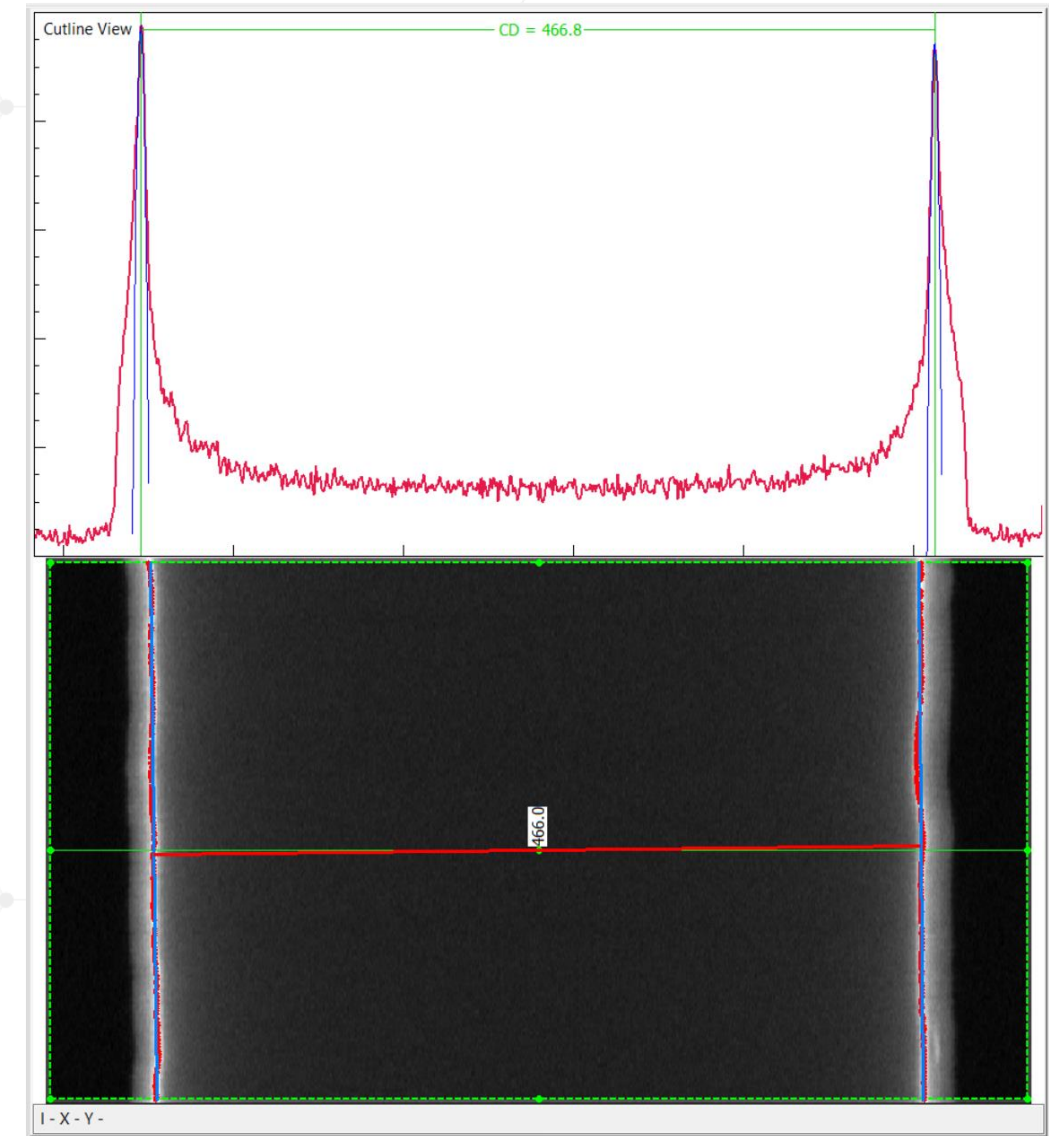
General

- Improved performance

  - General clean-up and refactoring
  - Focus on more efficient GUI updates
  - Improvement of some algorithms/ methods
  - Achieved faster operation for
    - Loading of layouts
    - Handling projects with many measurements
    - Loading large images
    - Batch processing/ handling many images
    - Find similar template matching

➔ *Continued effort…*

Feature Detection & Export

- Improvements for top edge measurement

  - First level of feature detection based on sigmoid
  - From there apply parabolic fit
  - Unified code with other detection/ fitting methods
  - More stable algorithm

  → Better detection robustness

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- Extended shapes export for L&S

  - Edge points/ contour and fitted lines
  - Exported in two ways in separate layers
    - Lines (width 0):   layers 0 and 1
    - Closed polygons: layers 2 and 3

  → More/ better controlled data export
  → Enables additional analysis
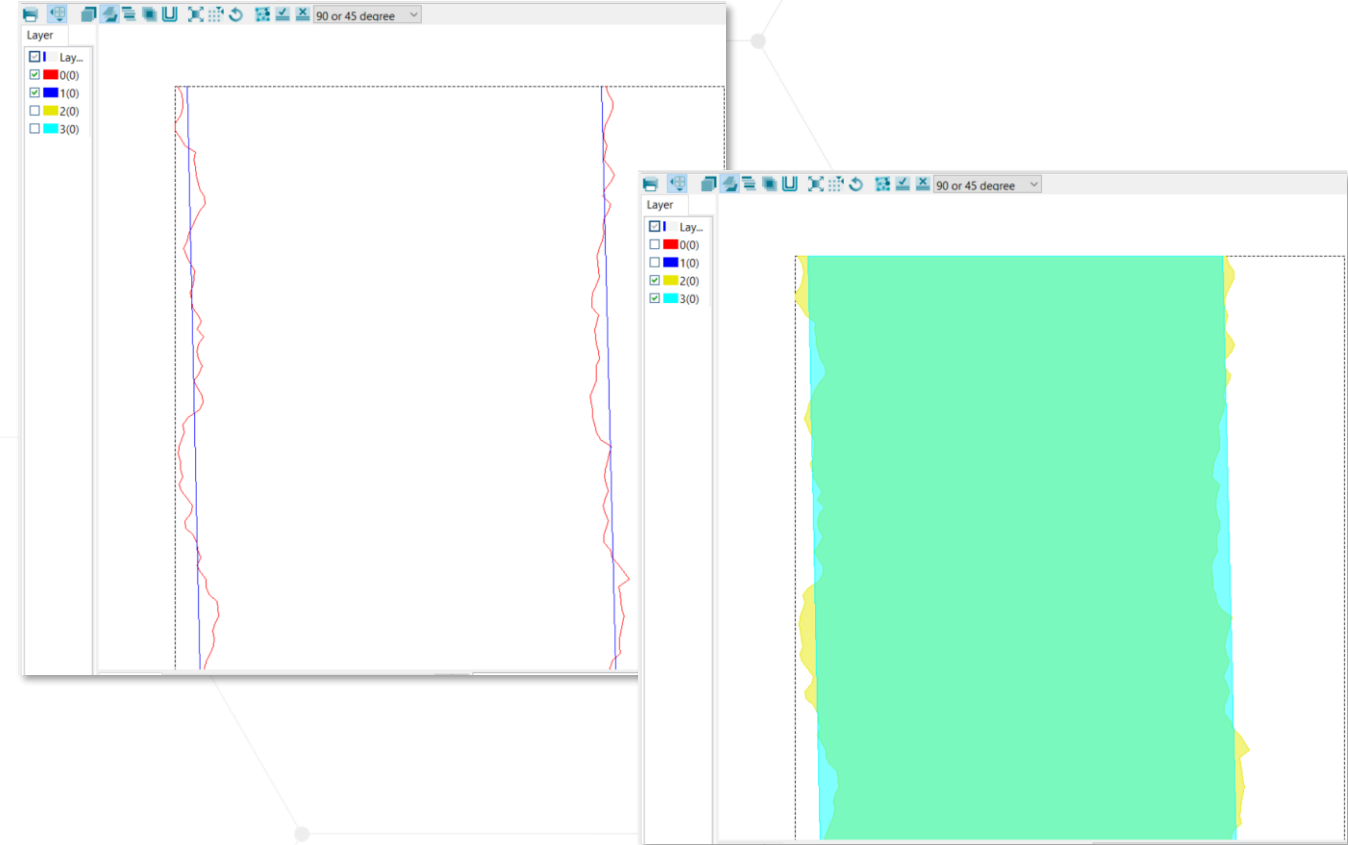
- Extended method settings

  - For measurement methods peak and valley
  - Additional settings control over polarity
  - Specify to rising or falling (like sigmoid)

- More intuitive display

  - Definitions table is default upon start
  - For Multi-Edge and Segmented Contour

![GenISys logo] **GenISys**
Advancing the Standard

Layout/ Automation

- Viewer improvements

  - Color by layer as new default
  - Now all Viewer fill options are available

  → Better visibility
  → Intuitive field checks etc.

- Python for Layout

  - New methods and attributes
  - Load layouts, jobs, apply measurements, etc.
  - For details see the integrated help

GenISys
Advancing the Standard
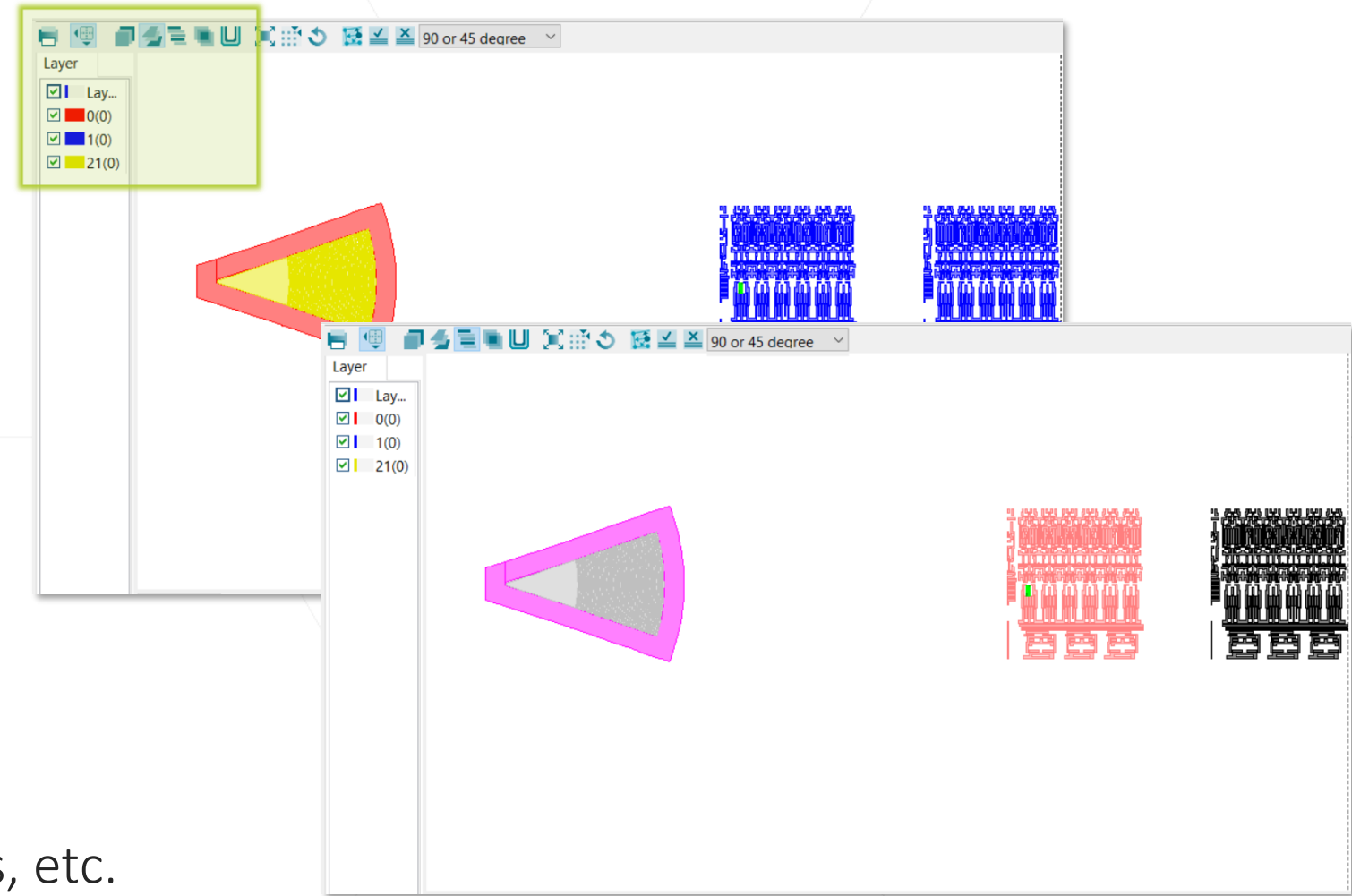
- New registration tab with additional functionality

  - Option to correct for scale and rotation
  - Apply downsampling for faster registration
  - Disable direct registration

  → Improved SEM calibration based on lithography
  → Faster image registration for large sets
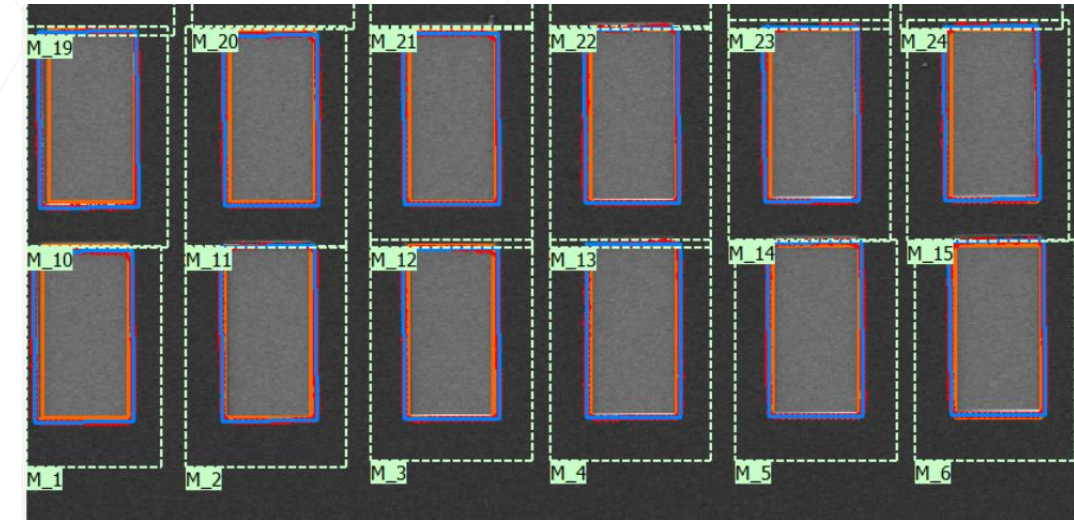 → Control timing of registration and processing
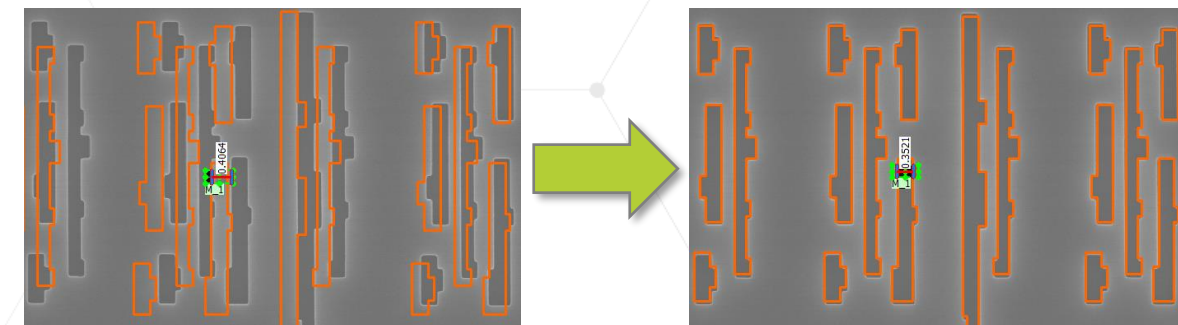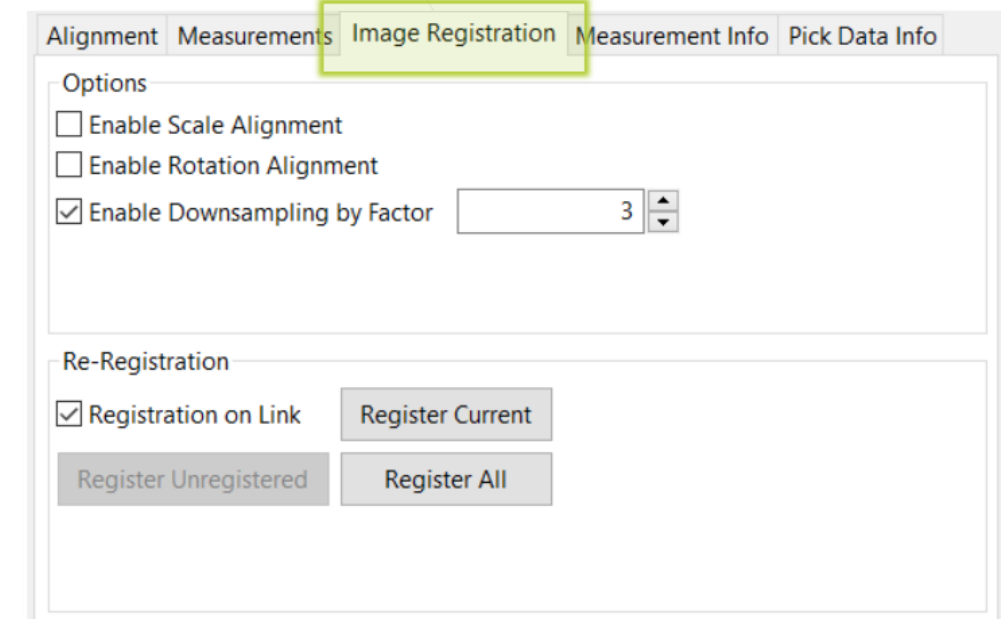
- Comparison of element position

    - Determine center of gravity for **edge contour** (red) or center of **fitted shape** (blue, if available)
    - Identify nearest **layout element** (orange) and position
    - Calculate difference and report as "LayoutShiftX/Y"

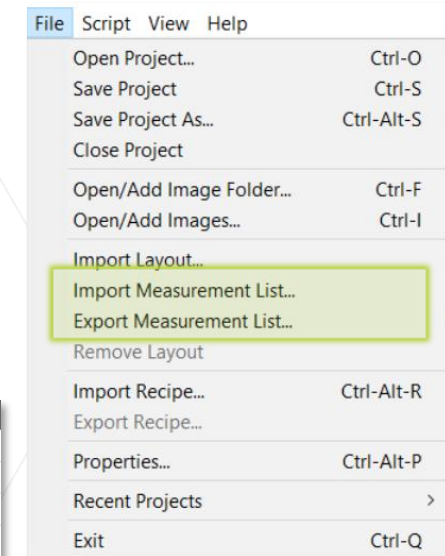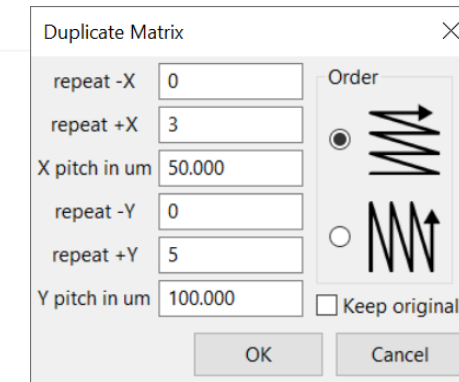   → Additional data/ analysis based on layout reference
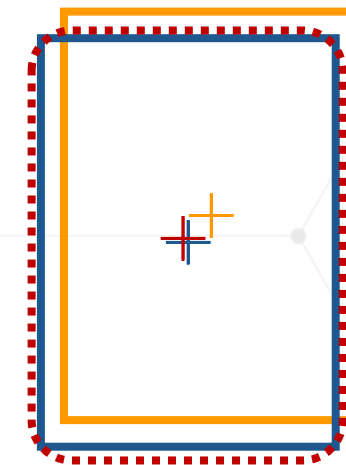
LayoutShiftX[nm]	LayoutShiftY[nm]
19.8	-166.9

- Improved usability

  - Current SEM stage position visualized in Layout Viewer
  - Focus correction used for interactive navigation
    (when focus interpolation is enabled)

  - → SEM position always visible
  - → Navigation can be tested including focus correction
  - → More intuitive and interactive alignment/ navigation
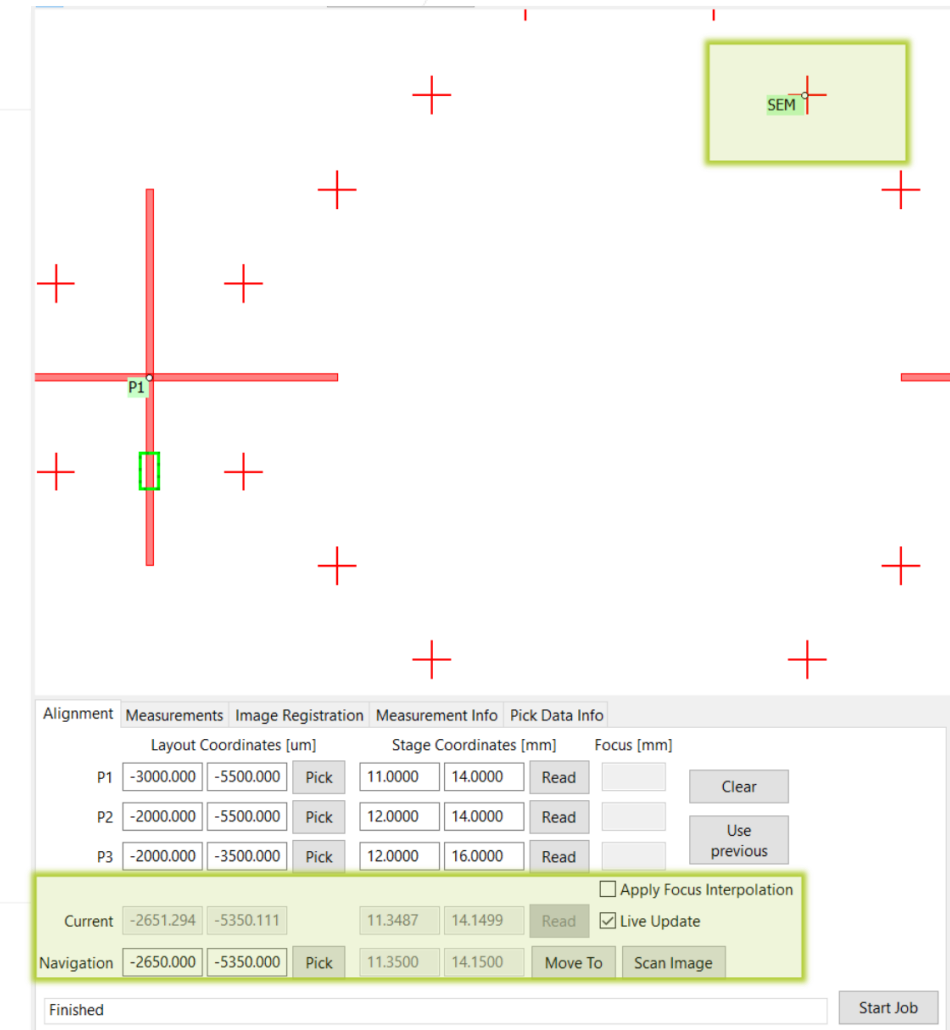
- Improved functionality and usability

  - Duplicate matrix for creating many measurement
    - Previous settings are saved
    - X/Y ordering can be controlled
  - Import/ export of metrology jobs

  → Useful for large metrology jobs
  → Create and share jobs easily

Thank You!

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