GenISys
Advancing the Standard

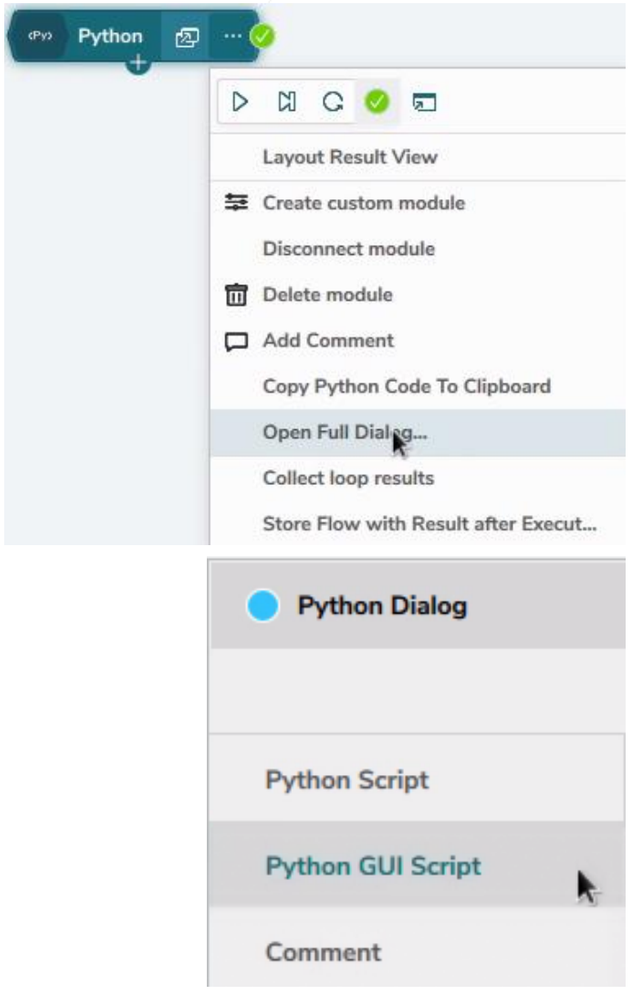
BEAMER

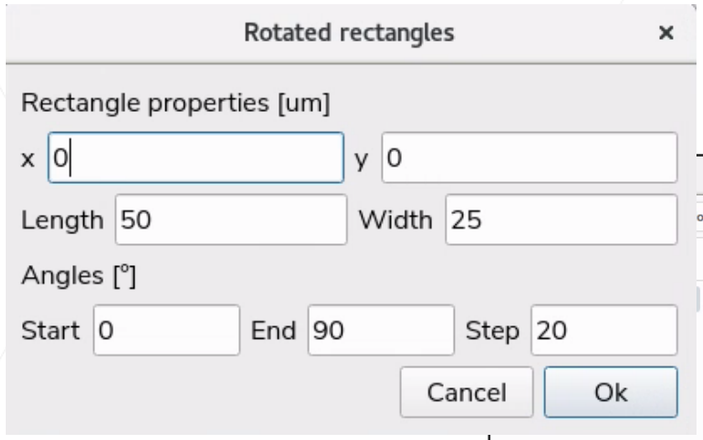
What‘s New 7.3.0

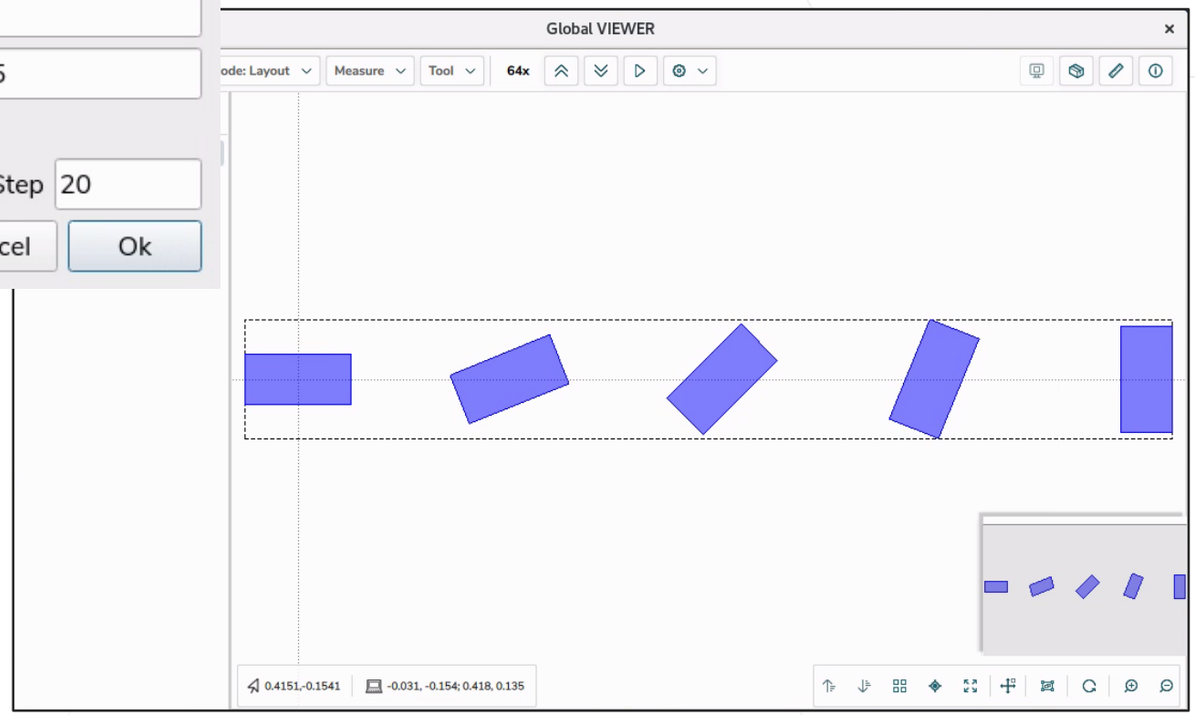
Python module

Python Module – GUI

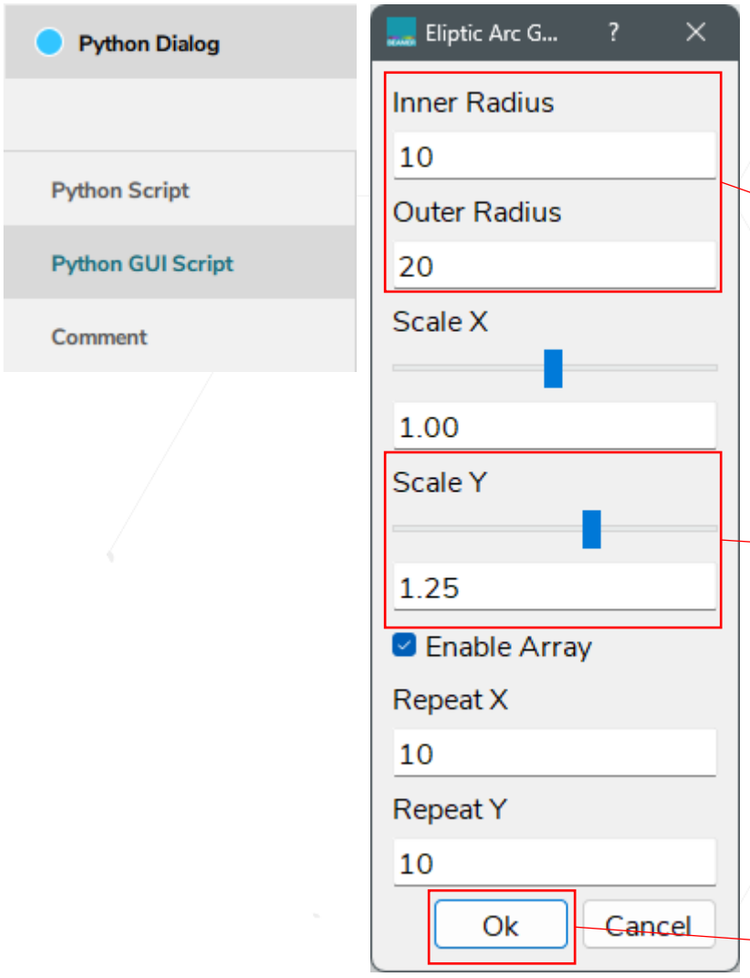
BEAMER expands the Python Module capabilities adding a **Python GUI Scripting** enabling easier and faster **BEAMER**-Python interaction







Python Module – GUI




```
# Inner and Outer Radius
layout.addWidget(QLabel('Inner Radius'))
self.inner_radius_edit = QLineEdit()
self.inner_radius_edit.setText(get_gui_parameter('inner_radius', '10'))
layout.addWidget(self.inner_radius_edit)

layout.addWidget(QLabel('Outer Radius'))
self.outer_radius_edit = QLineEdit()
self.outer_radius_edit.setText(get_gui_parameter('outer_radius', '20'))
layout.addWidget(self.outer_radius_edit)
```

Define GUI for Input boxes

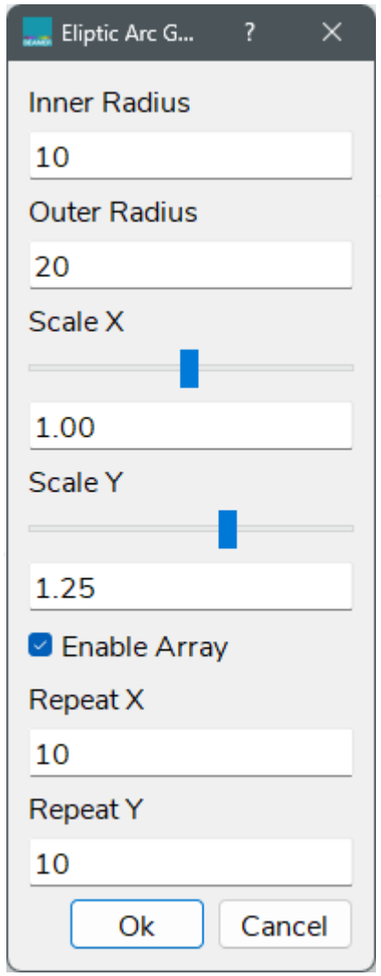
```
layout.addWidget(QLabel('Scale Y'))
self.scale_y_slider = QSlider(Qt.Horizontal)
self.scale_y_slider.setRange(1, 200)
self.scale_y_slider.setValue(100)
self.scale_y_slider.valueChanged.connect(self.update_scale_y_text)
layout.addWidget(self.scale_y_slider)
```

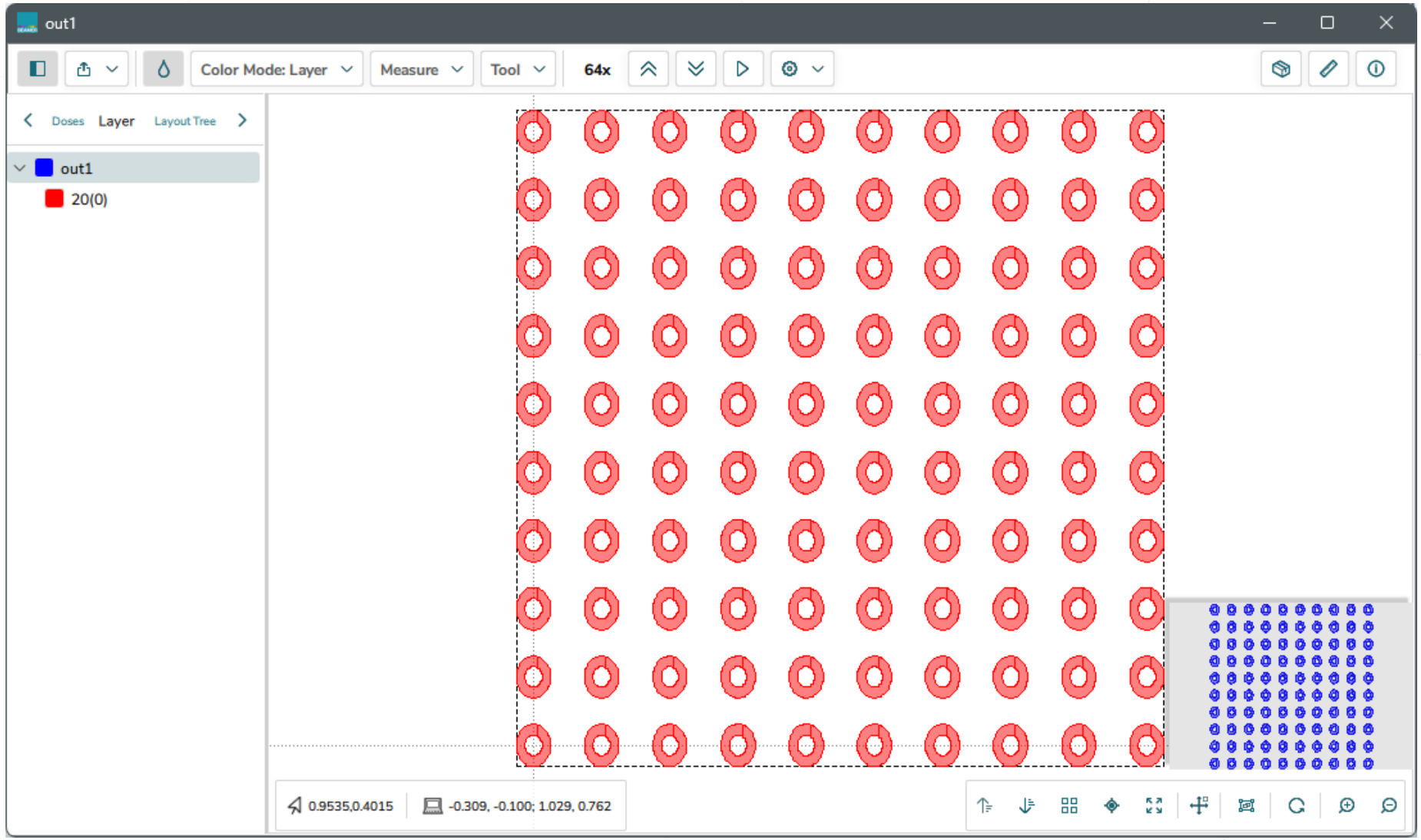
Or sliders

```
def on_confirm(self):
    set_gui_parameter('inner_radius', self.inner_radius_edit.text())
    set_gui_parameter('outer_radius', self.outer_radius_edit.text())
    set_gui_parameter('scale_x', self.scale_x_edit.text())
    set_gui_parameter('scale_y', self.scale_y_edit.text())
    set_gui_parameter('repeat_x', '1')
    set_gui_parameter('repeat_y', '1')
    if self.enable_array_checkbox.isChecked():
        set_gui_parameter('repeat_x', self.repeat_x_edit.text())
        set_gui_parameter('repeat_y', self.repeat_y_edit.text())
    gui_confirm()
    self.close()
```

Write parameters from GUI to buffer

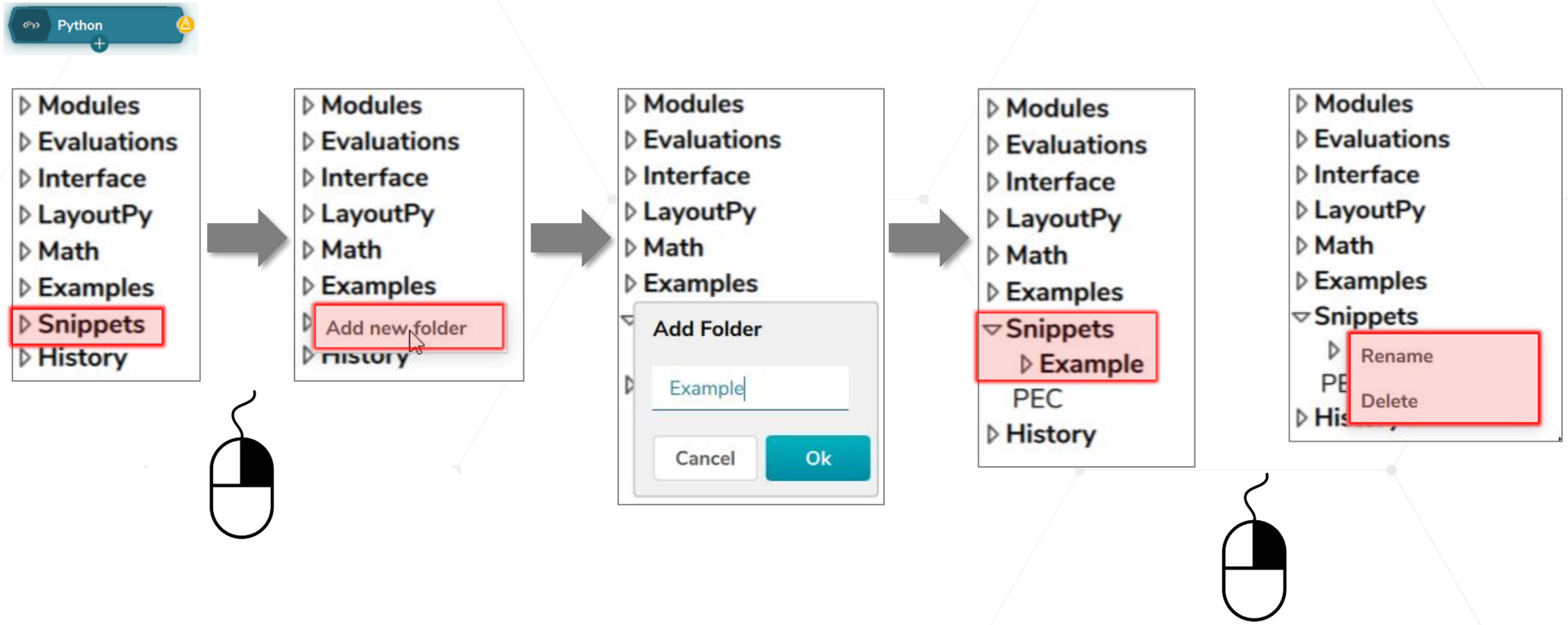
Python Module – GUI



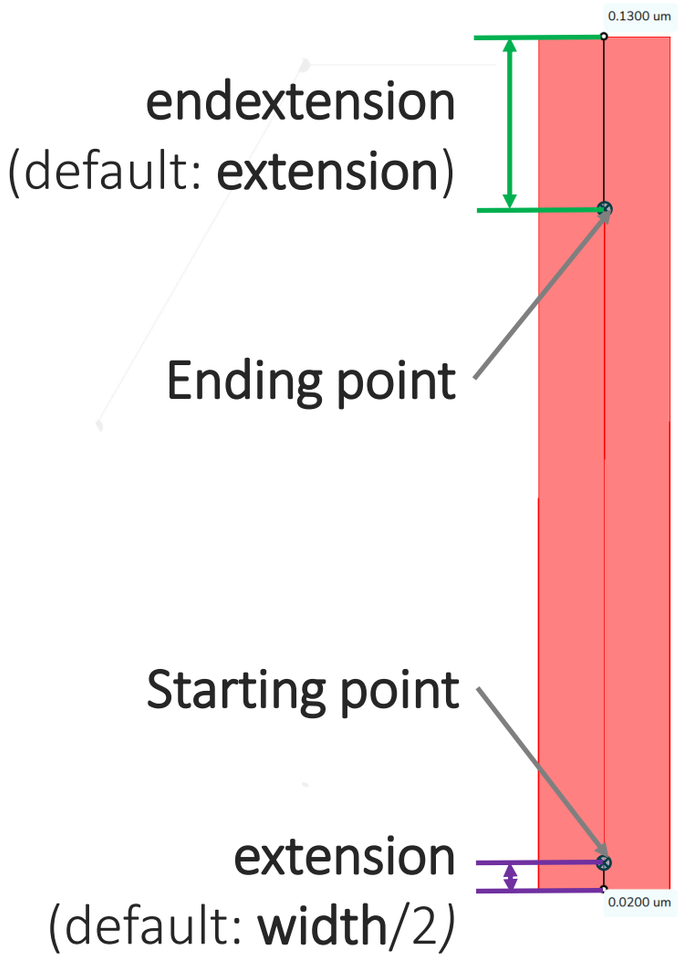


Python Module

Python module allows new **Folder** option for **Snippets**



Python Module



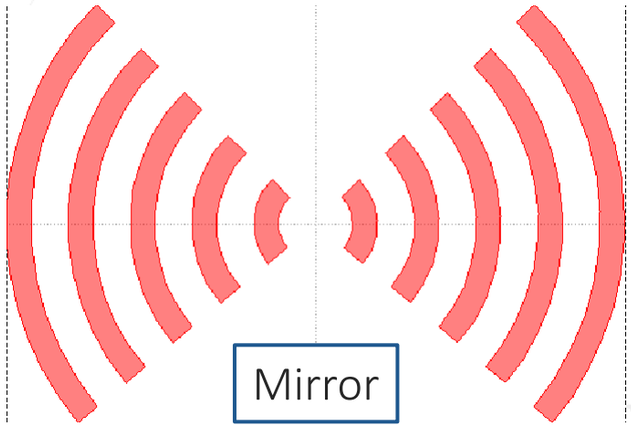
Python Path offers additional endingtype arguments **'User'** with rectangular endcaps with user-defined option

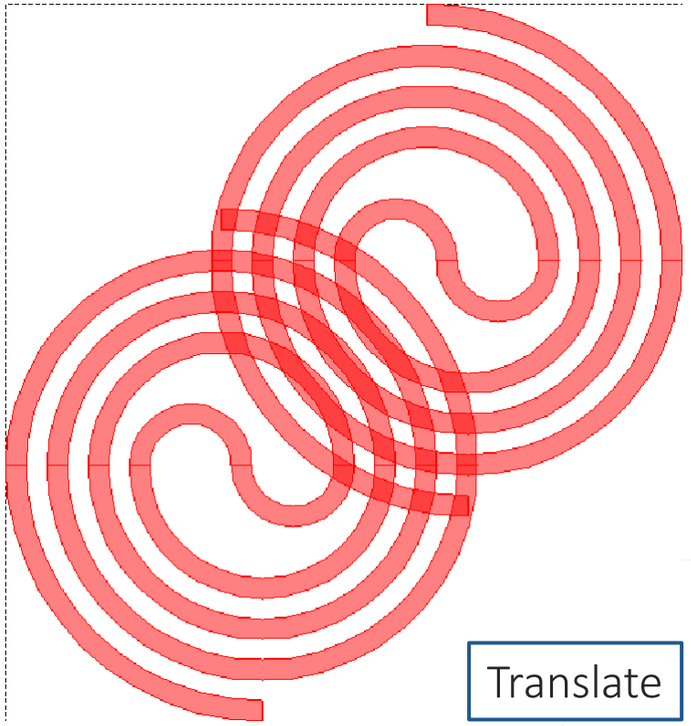
Python

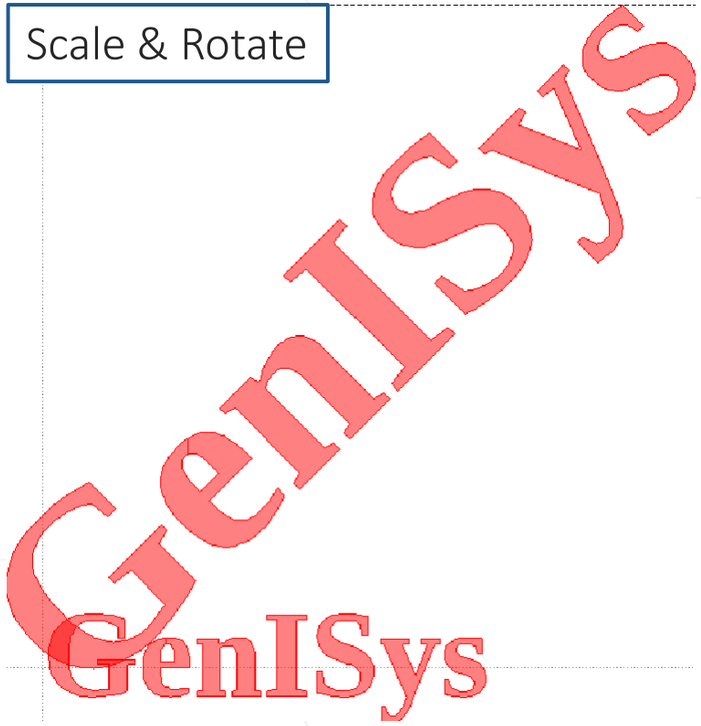
```
1   #  txn.insert(Path((x_start, y_start), (x_end, y_end), width, layer=11, endingtype='User', extension=20, endextension=130))
2   #  Inserts a path element with starting and ending points given by(x,y) coordinates. Optionally
3   #  you can define the endcap style with endingtype one of:
4   #  'None' - no endcap (default)
5   #  'Half' - the endcap is a rectangle that extends half the path width beyond the end
6   #  'Round' - a rounded endcap of radius of half the path width
7   #  'User' - rectangular endcaps of user-defined length: extension (default = width/2) and endextension (default = extension)
8   #  Sample
9       txn.insert(Path((-10000, 6000), (10000, 6000), 20, layer = 11, endingtype='User', extension=20, endextension=130))
10  #---
11
```

Shapes Operations

Mirror, **Rotate**, **Scale**, and **Translate** operations are added to the Coupler, Spiral, and Text objects, facilitating the handling of shapes within the LayoutPy environment



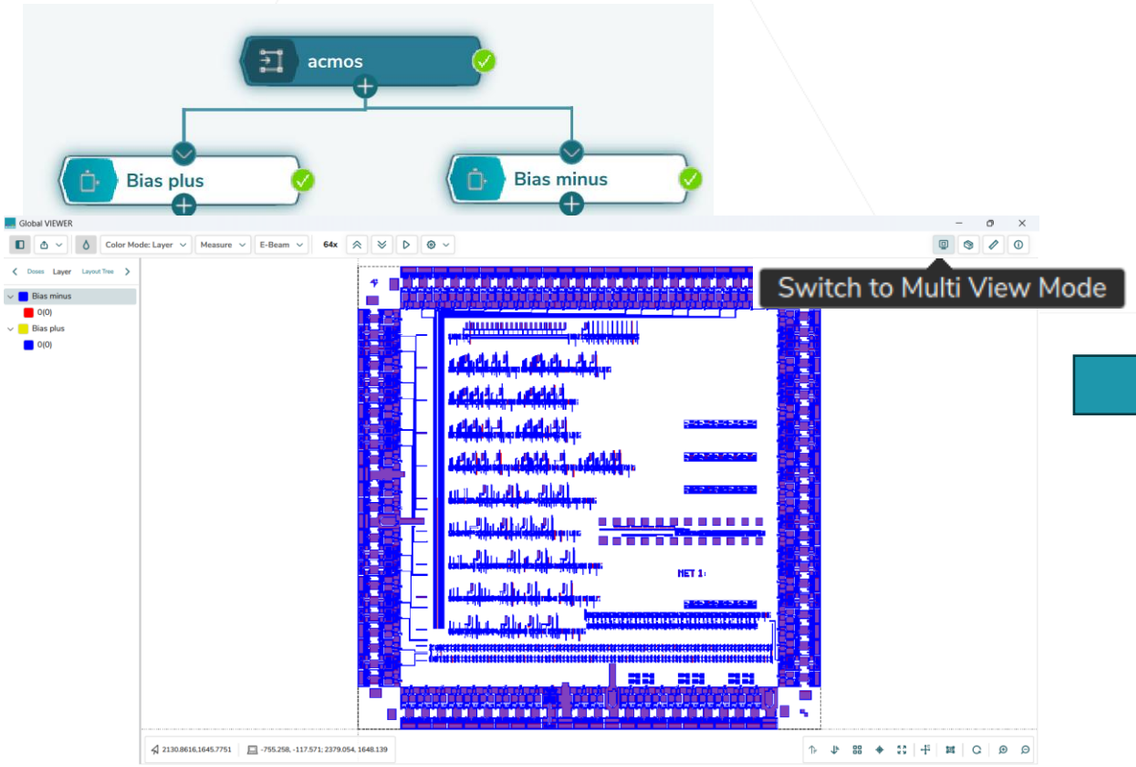


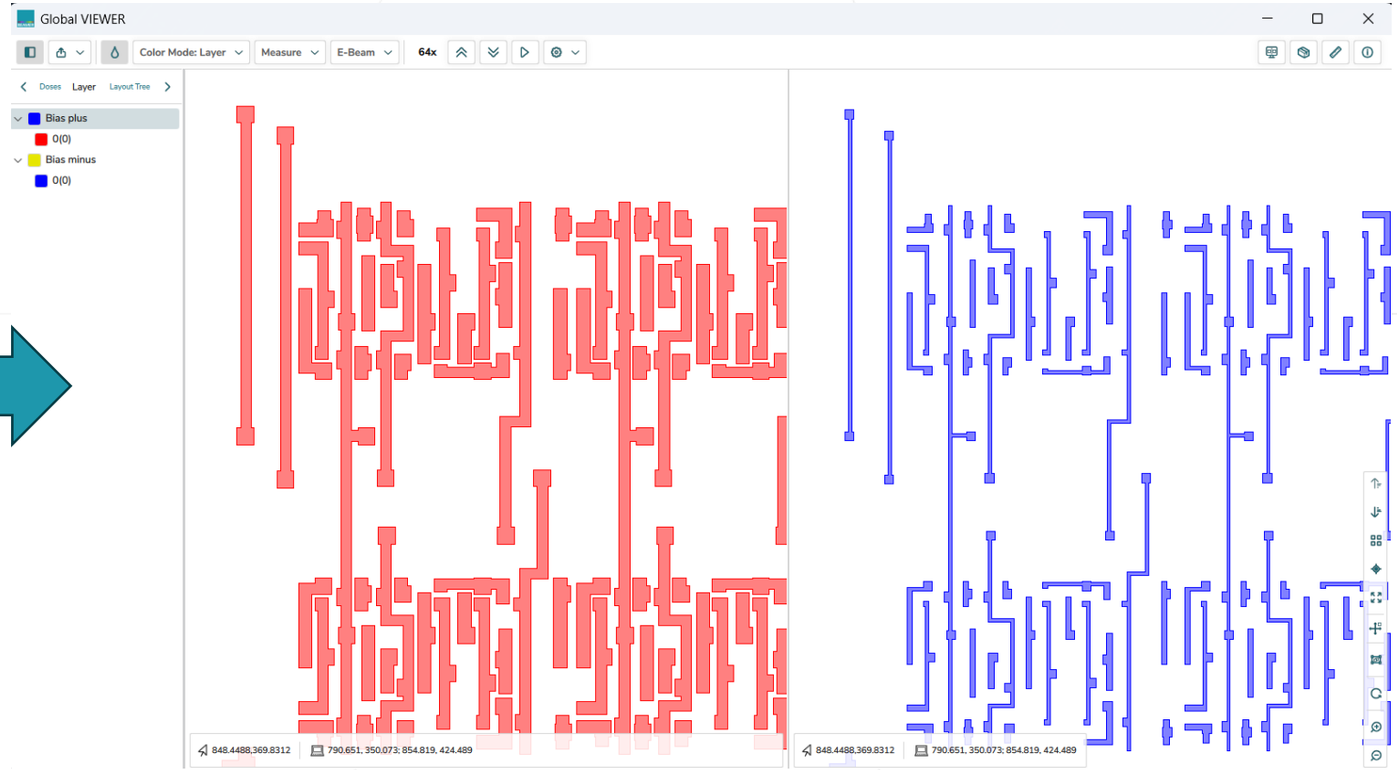


VIEWER

Switch to Multi View Mode

BEAMER integrates a Multi View Mode allowing to visualise two results side by side



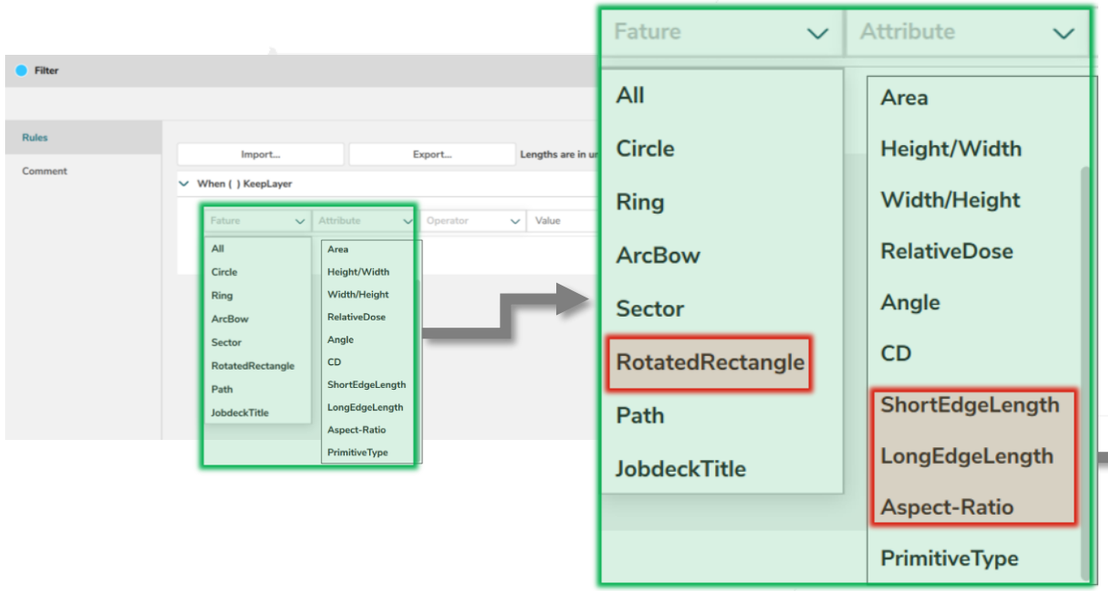


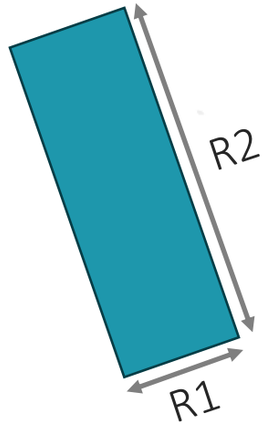
Zooming and navigating one layout moves and adjusts the second layout accordingly

Filter module

Support Edge Length For Rotated Rectangle

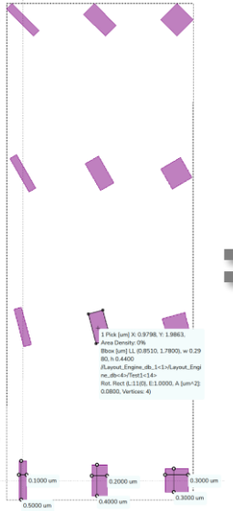
Filter module adds additional **Attributes** for **Rotated Rectangle**



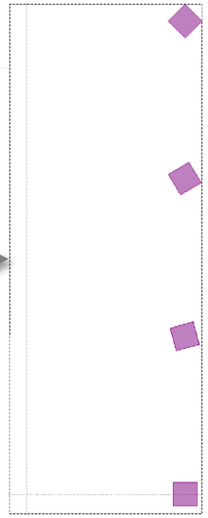


R1: **ShortEdgeLength**
R2: **LongEdgeLength**

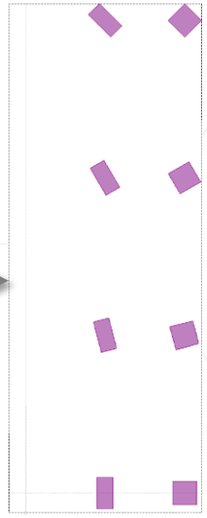
Aspect-Ratio = R1/R2



Layout



ShortEdgeLength
> 0.25

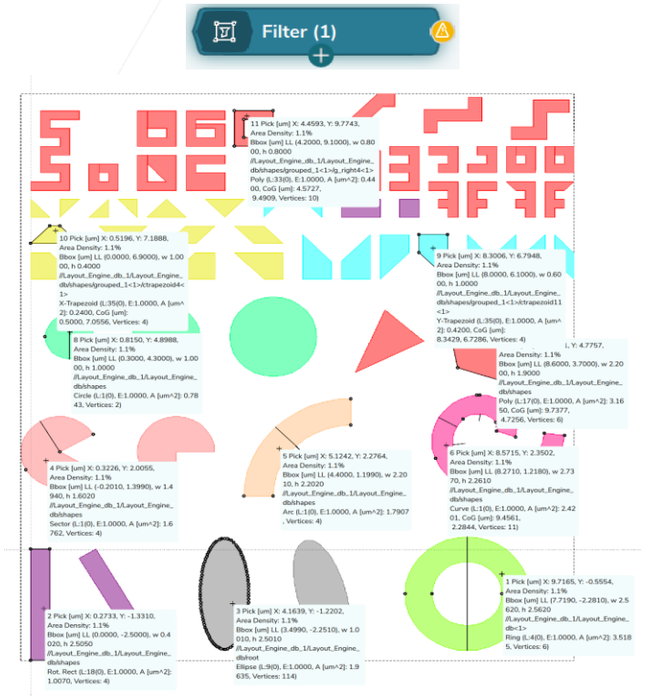


Aspect-Ratio
> 0.25

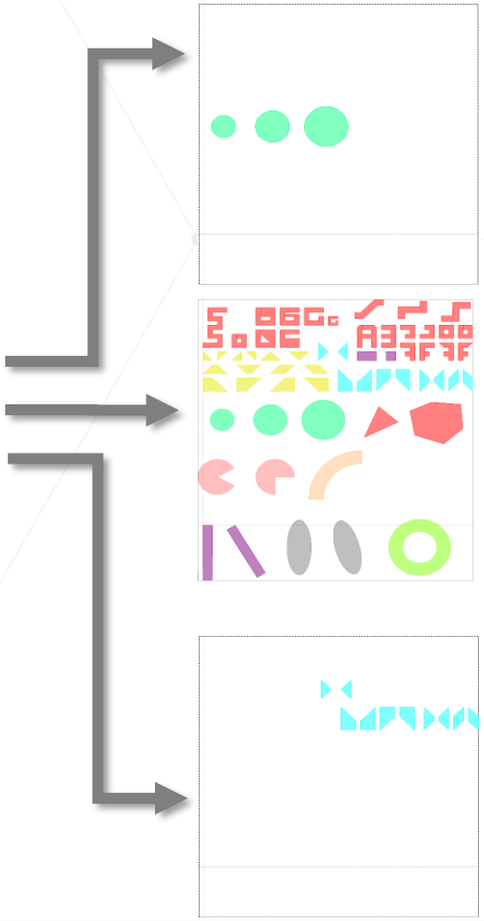
Filter Module: Filter by PrimitiveType

New **PrimitiveType Attribute** for the **Filter** module

- Use the Attribute **PrimitiveType** to specify the desired element type
- **Operations** to match (==) or exclude (!=) specific primitive type
- **Value** to easily choose the element type



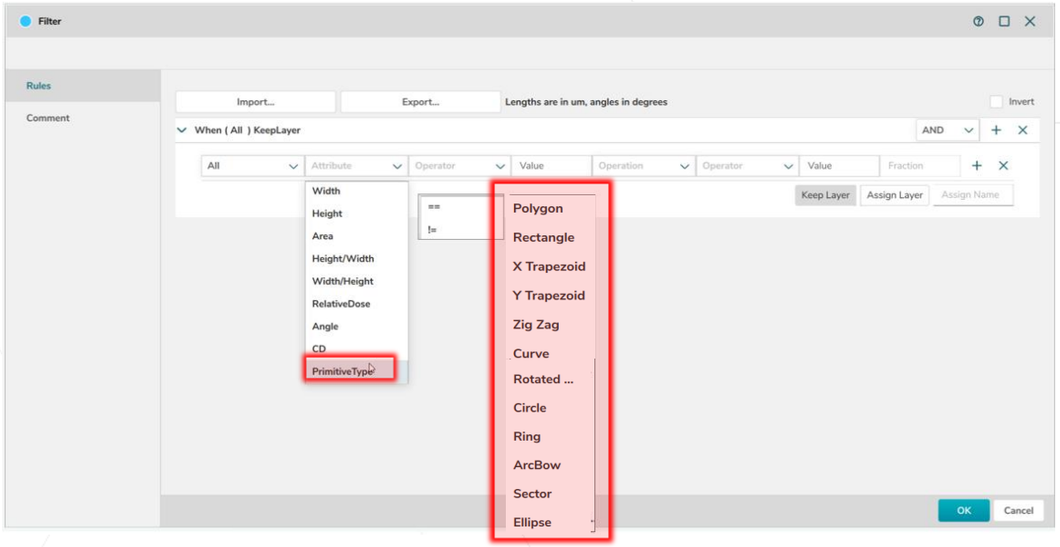
Layout (color by **Element type**)



== Circle

!= Curve

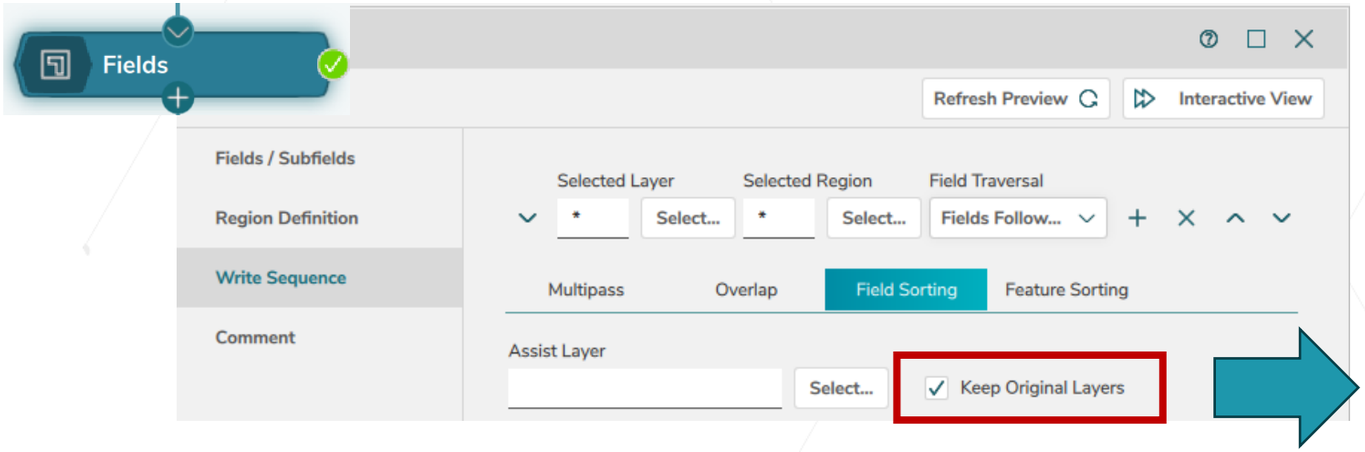
== Y Trapezoid

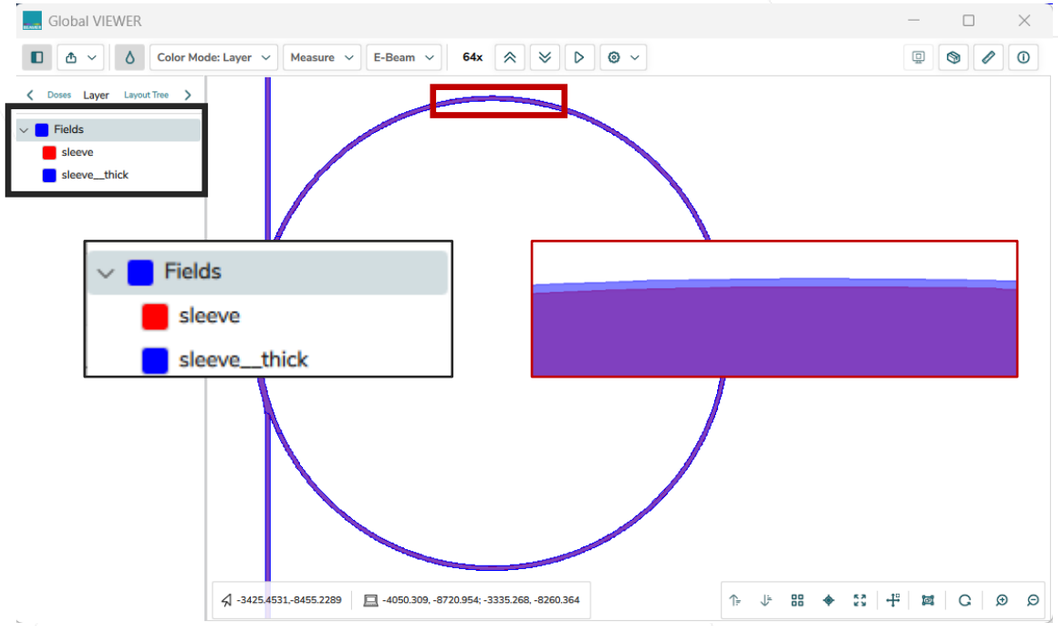


Field / Feature sorting

Fields follow geometry - Keeping Original Layers

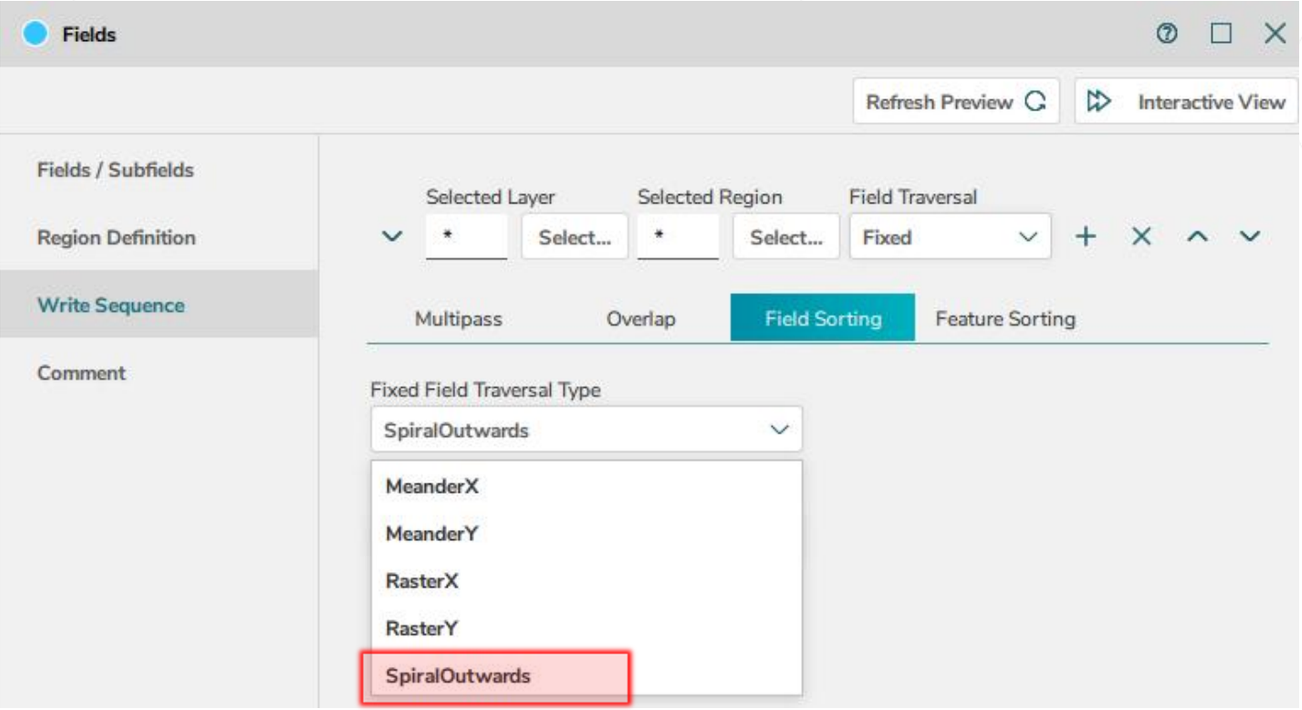
The *Field Follow Geometry* in the **Fields** Module allows **preserving the name of different layers** in a layout without the need of using extra modules

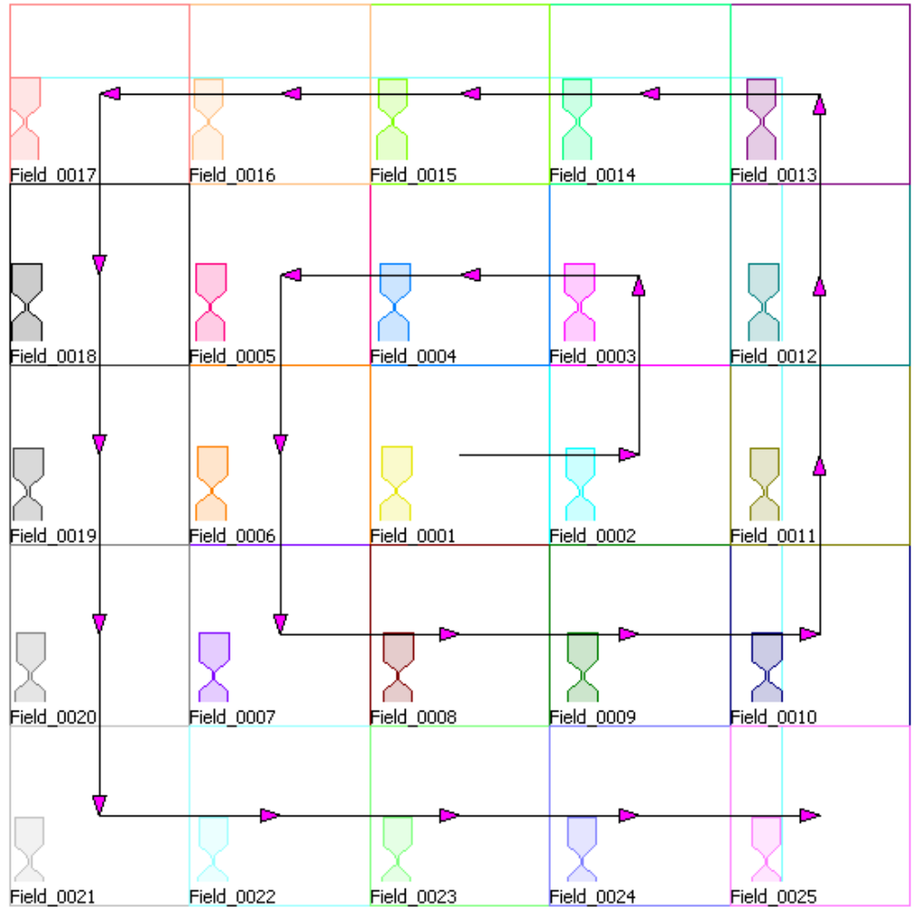




Field Sorting – SpiralOutwards

Spiral Outwards has been added to the Write Sequence/ Fixed Field Traversal mode/ Field Sorting/ Fixed Field Traversal Type setting.



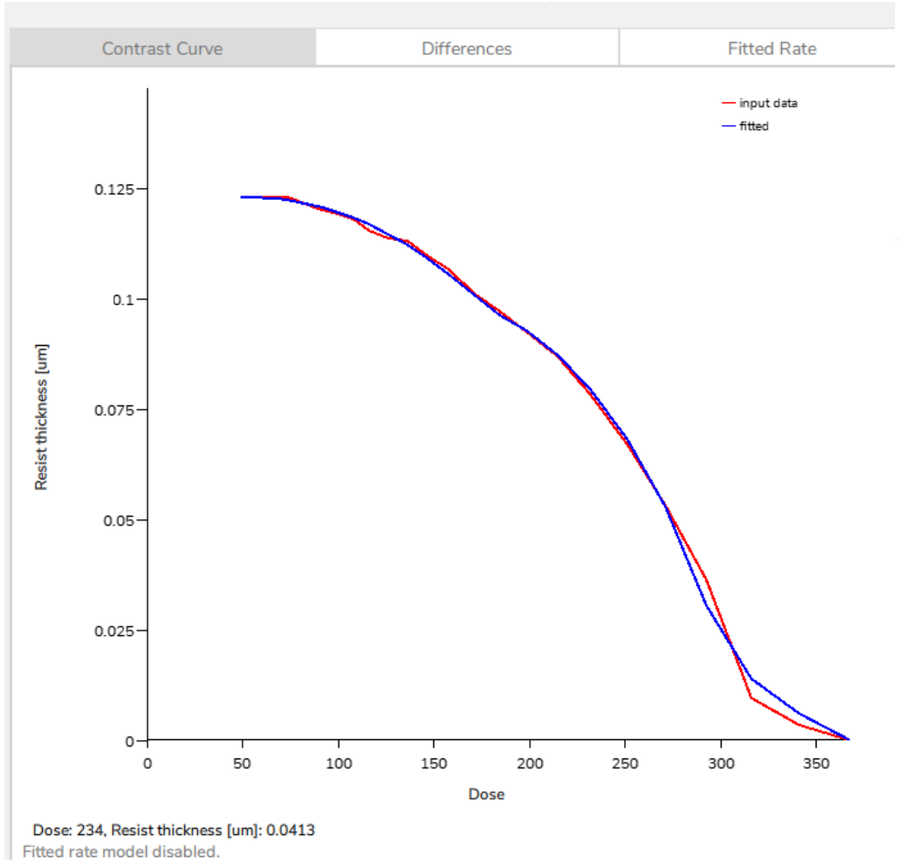


PEC

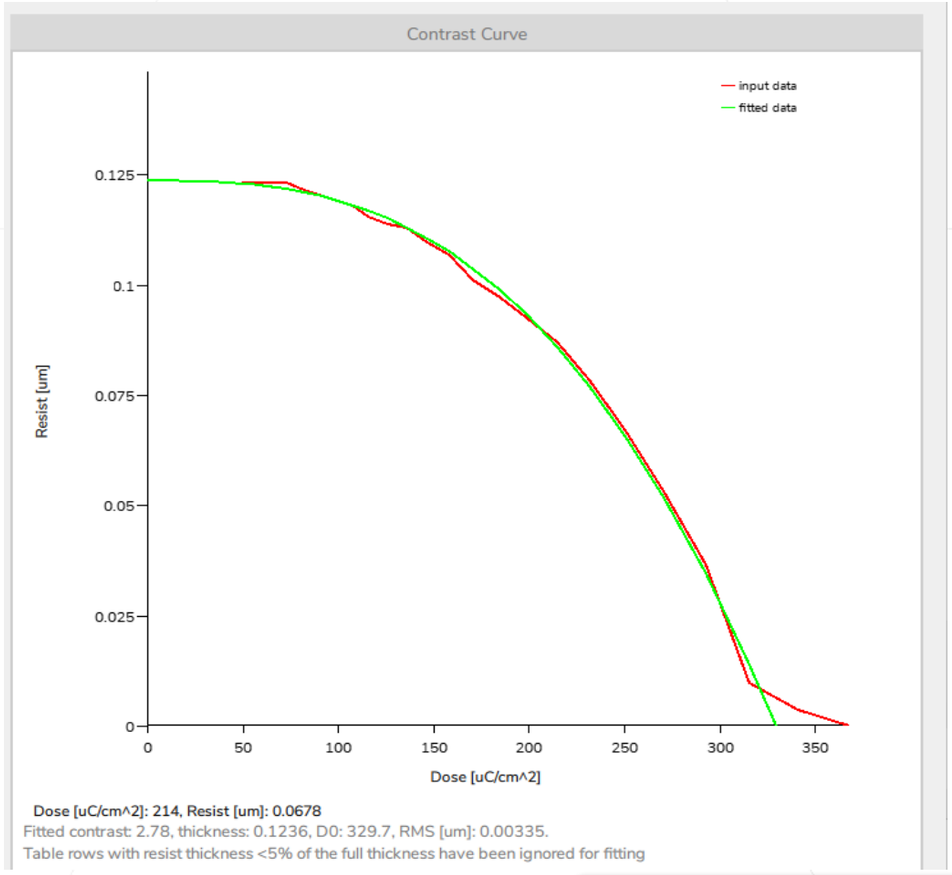
Enhancement in Contrast Curve Fitting

- In material database, contrast curve fitting is improved, taking into account the PSF.
- The quality of the fitting directly impacts the accuracy of 3D PEC correction.

BEAMER 7.3

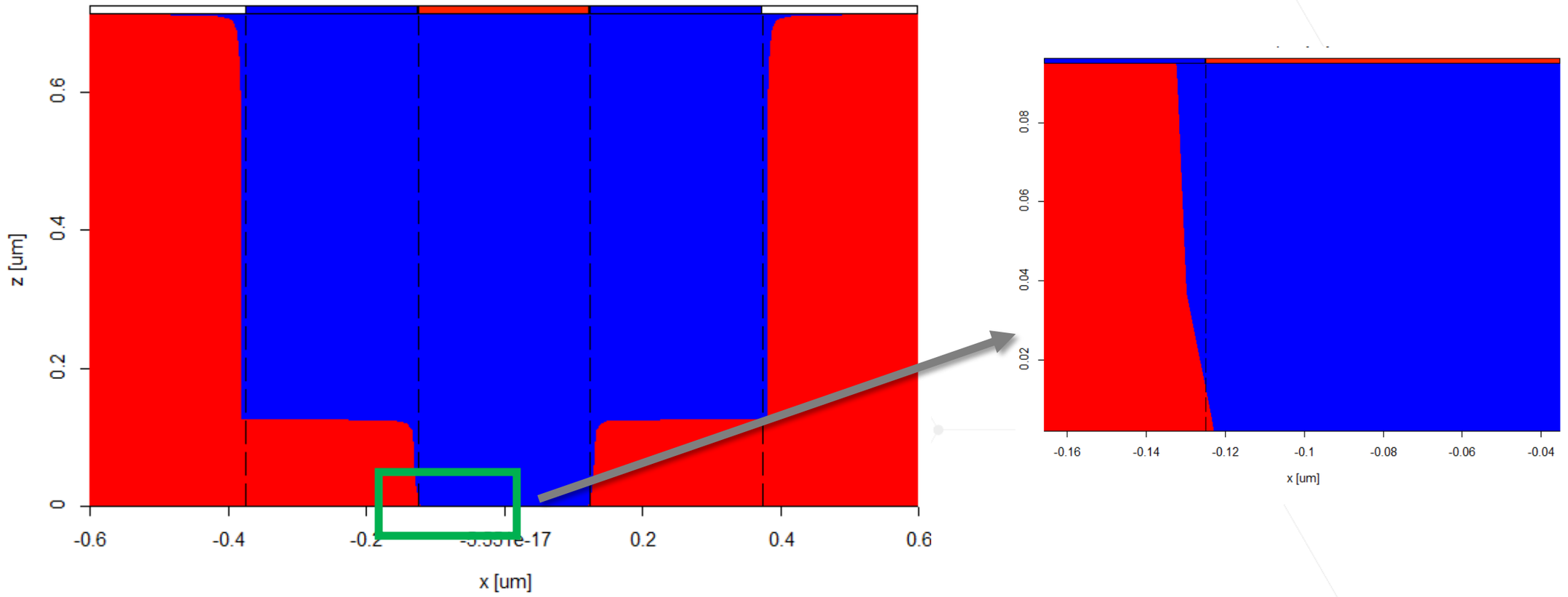


BEAMER 7.2



T-Gate Example

- One T-Gate example shows the simulation of cross view after development. With dose optimization by T-Gate PEC, the Gate CD meets the target at the resist bottom.

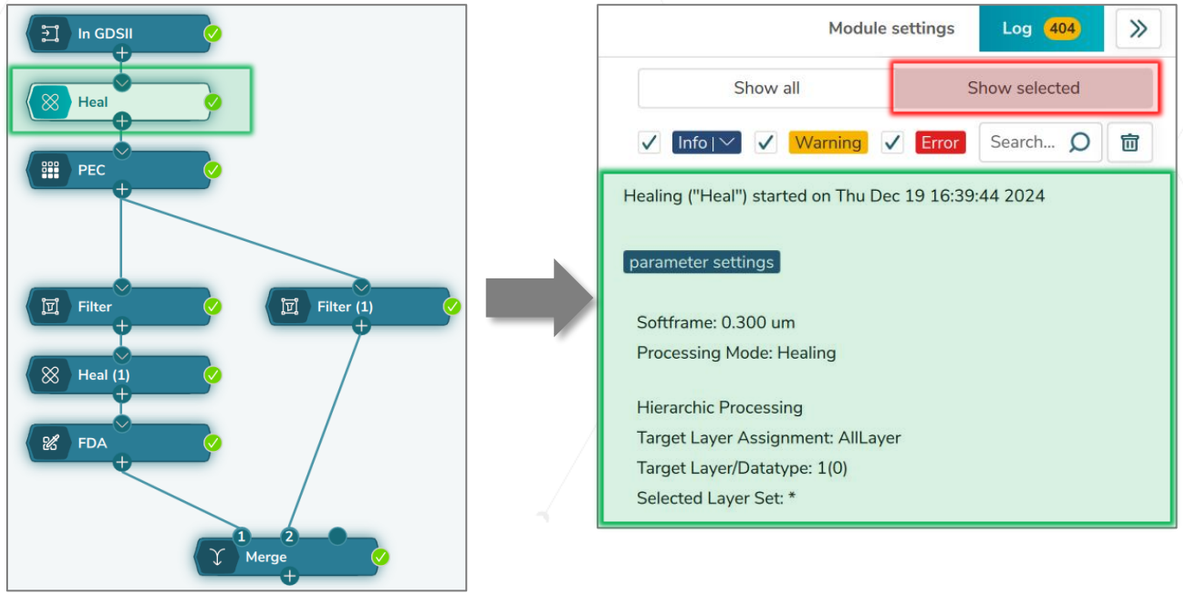


Usability

Log view

Improving **Log view** for **BEAMER 7.3.0**

- Selected module can be viewed separately by “**Show selected**”
- Log scroll bar is always visible

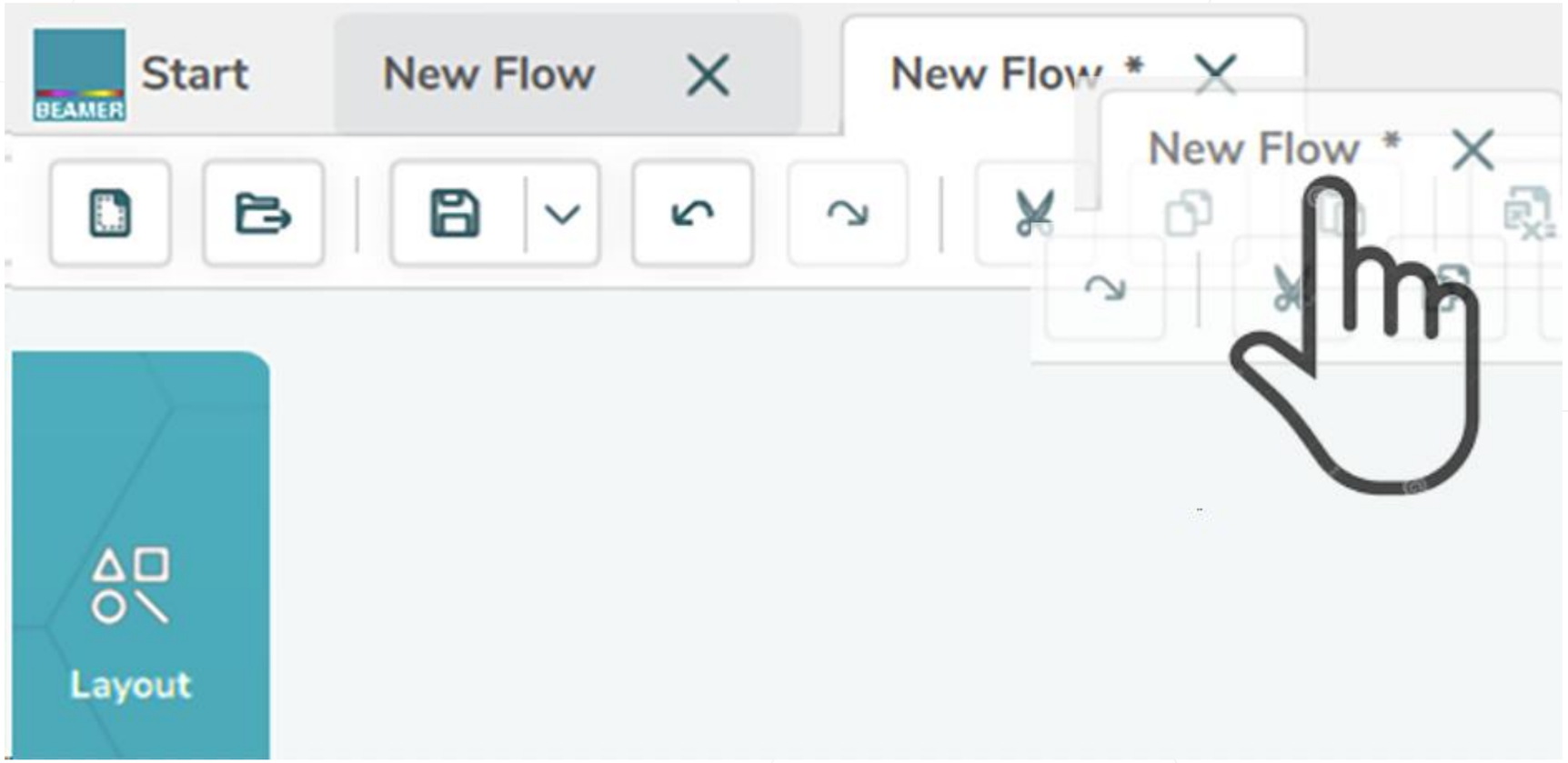


„**Show selected**“ option for selected module

Scroll bar always visible & position sets always to the end after run

Improved tab ordering management

You can now rearrange the positions of the tabs within a window by dragging them with your mouse

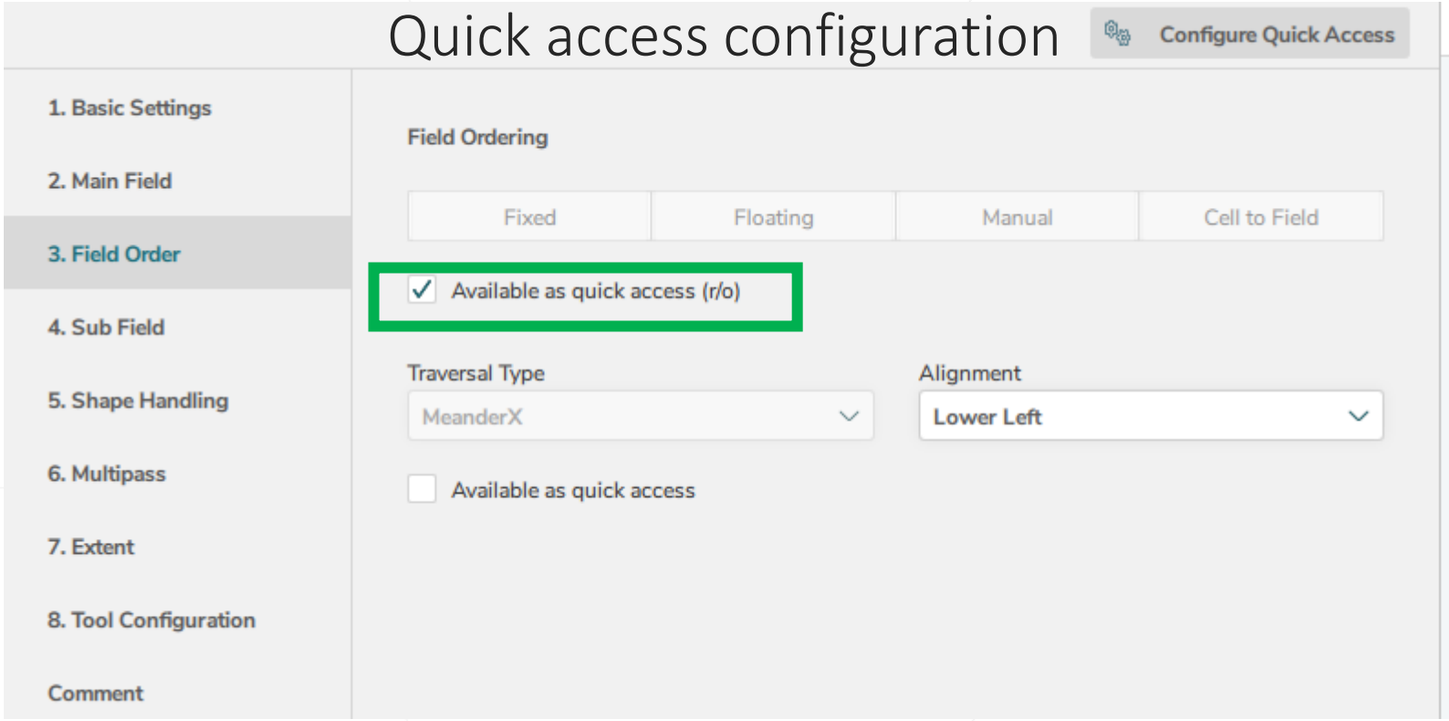


Read-Only Parameters in Quick Access

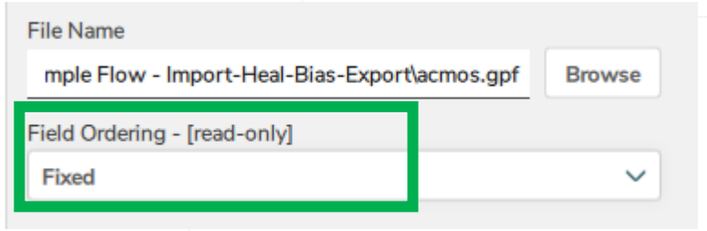
Read-Only parameters are supported in quick access.

- Being read-only is indicated in both quick access configuration and quick access panel.

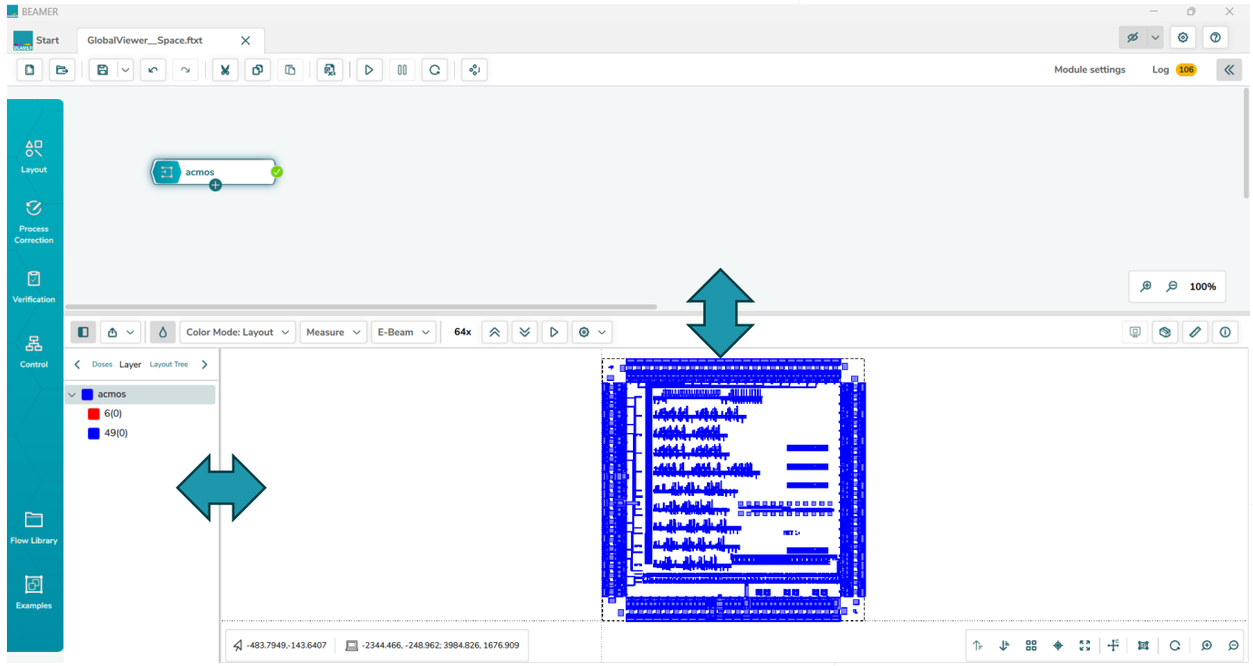
Quick access configuration



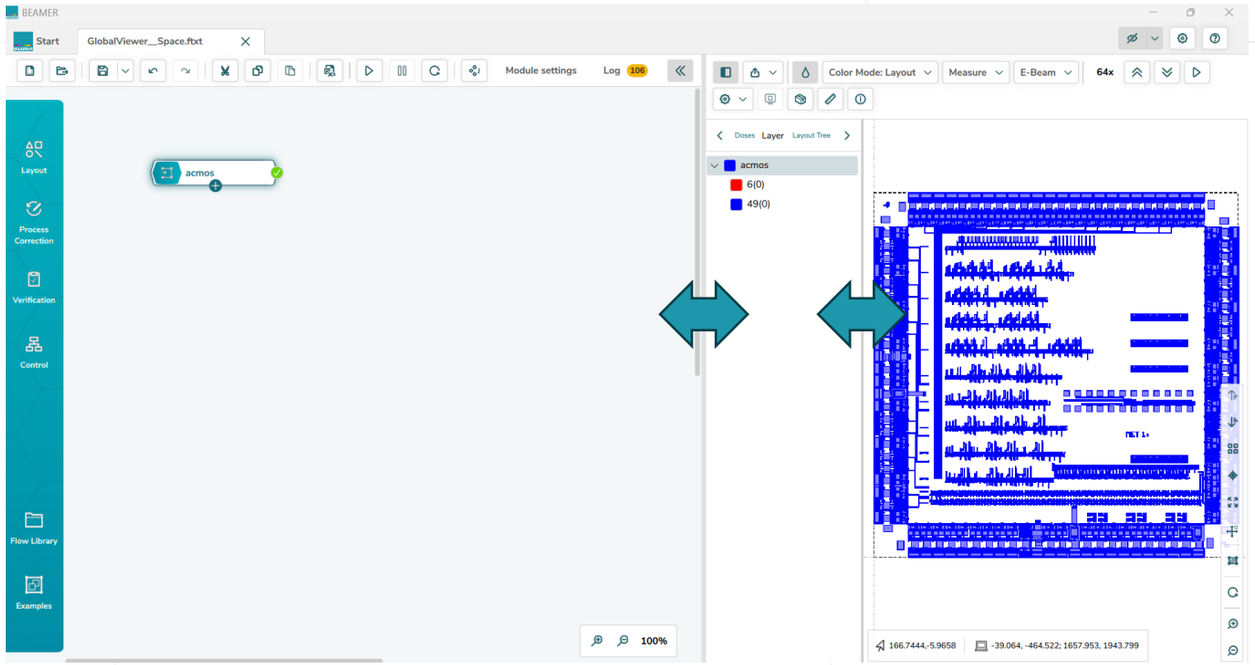
Quick access panel



Flow working area and Global Viewer

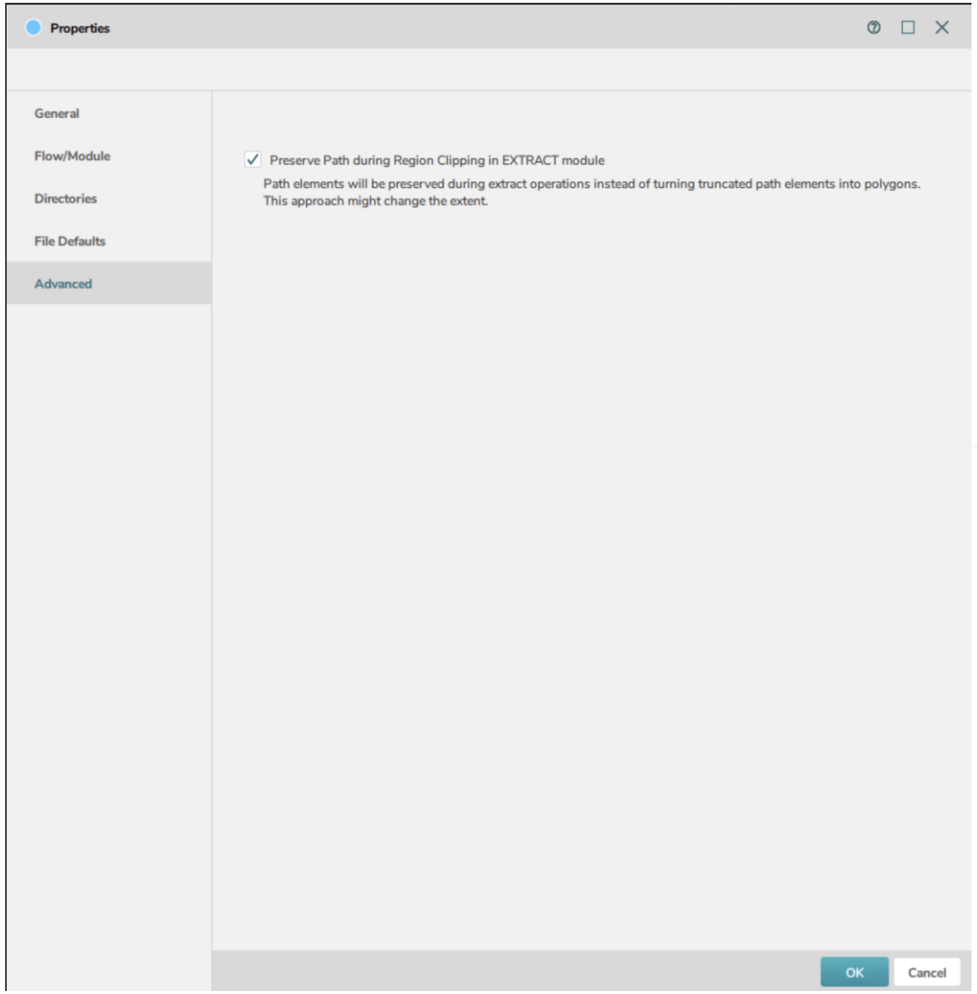


- Side Bar width can be reduced **increasing** the **effective view area** and giving more space for layout's inspection
- Flow area divider gets more **flexible** increasing **flow working space**



Properties

Properties dialog



A new tab has been added to the properties dialog to enable special functionalities e.g.

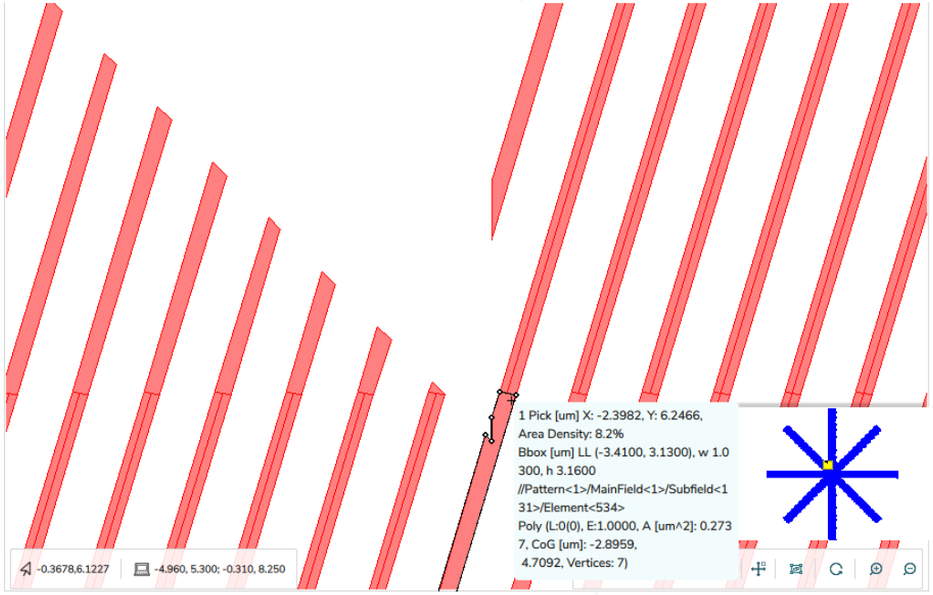
“Preserve path during region clipping in EXTRACT module”.

The default behaviour of BEAMER in this operation would lead to a truncation of the path and its conversion to a polygon.

With this function enabled, the path is clipped at the region boarder but persevered as a path element. This behaviour can benefit the handling on the Export on systems that address path elements different to polygons.

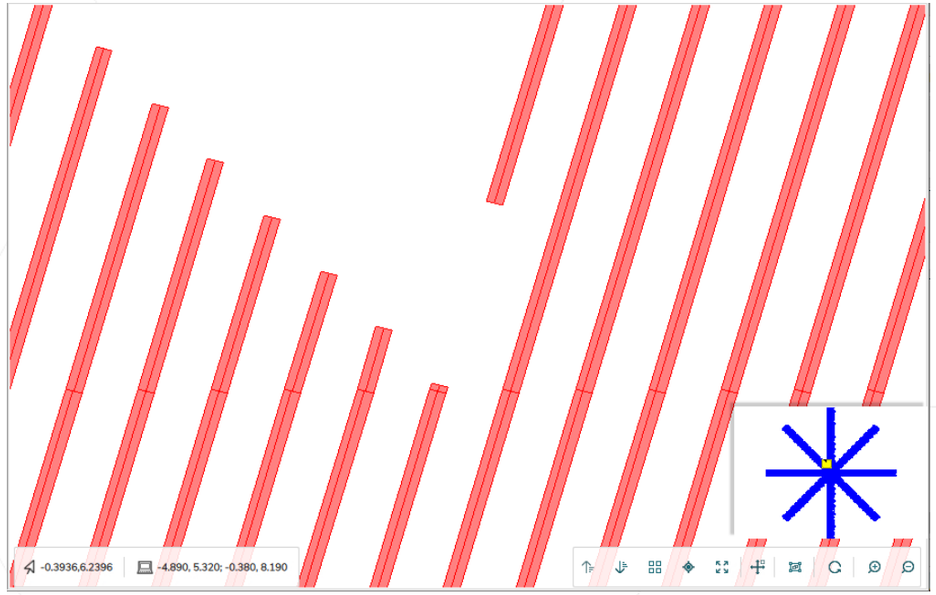
Preserve path during region clipping

Option disabled



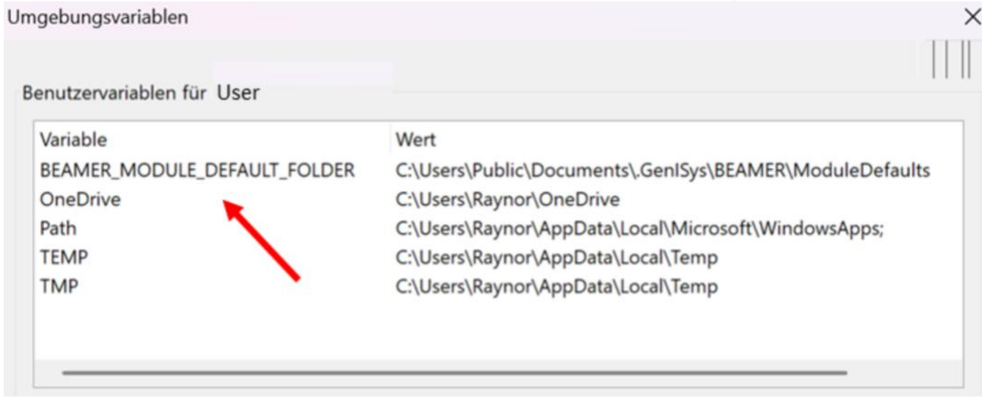
- Path elements are preserved, if not touched by extract region.
- All elements touched by the extract region are converted into polygons

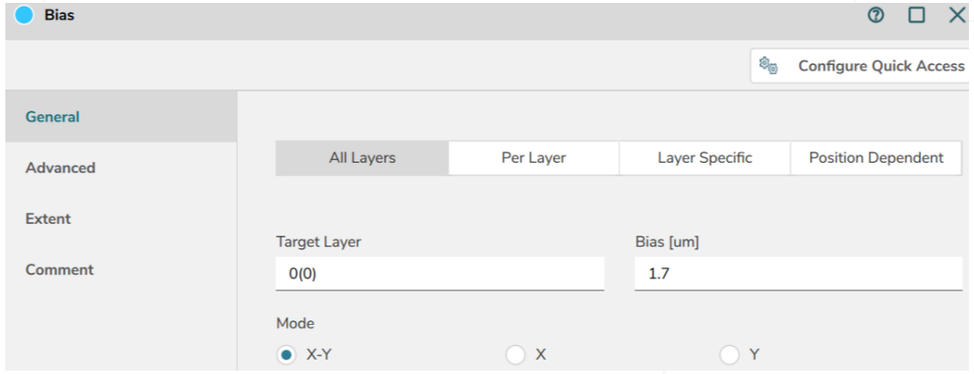
Option enabled



- Path elements are preserved

Default Module Settings





- Default Modules with user specific settings for each module and for each specific import and export formatter can be created.
- In System/Environmental settings create a folder, for example: C:\Users\Public\Documents\.GenISys\BEAMER\ModuleDefaults where the default modules will be stored.
- Save a module, such as Bias, with user-defined settings in this folder. When opened, the module (Bias, in this case) will use the default settings.

Thank You!

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