

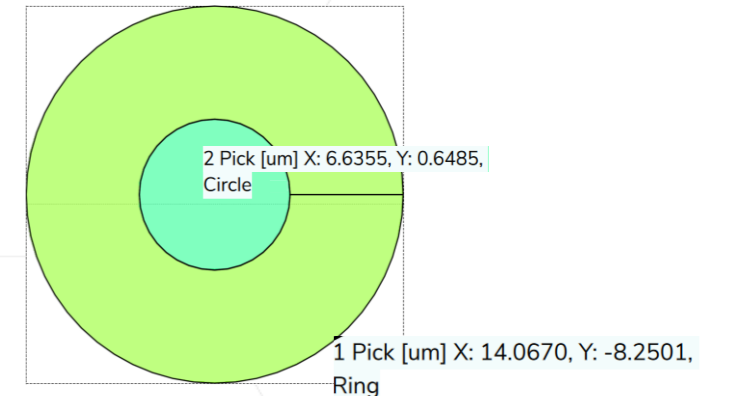
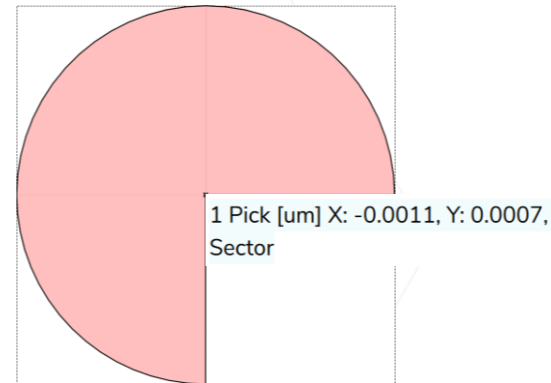
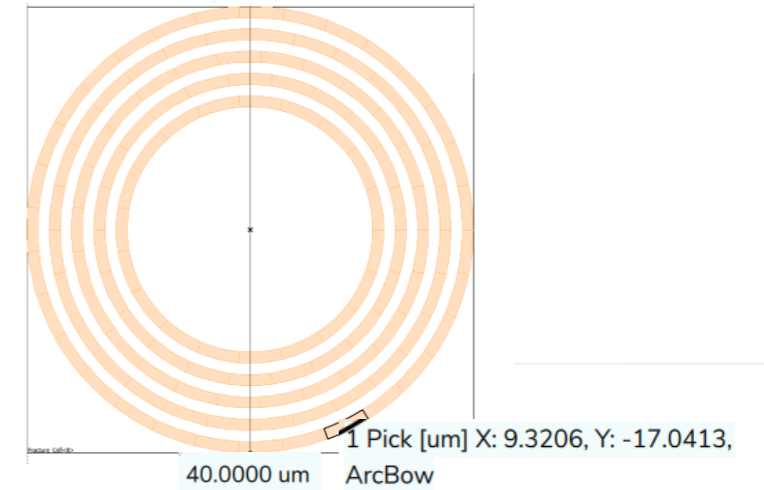
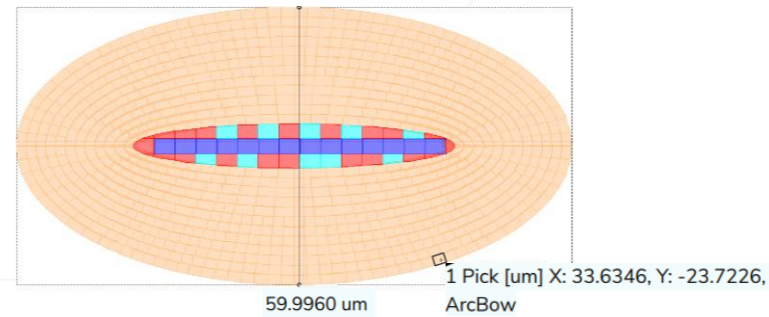
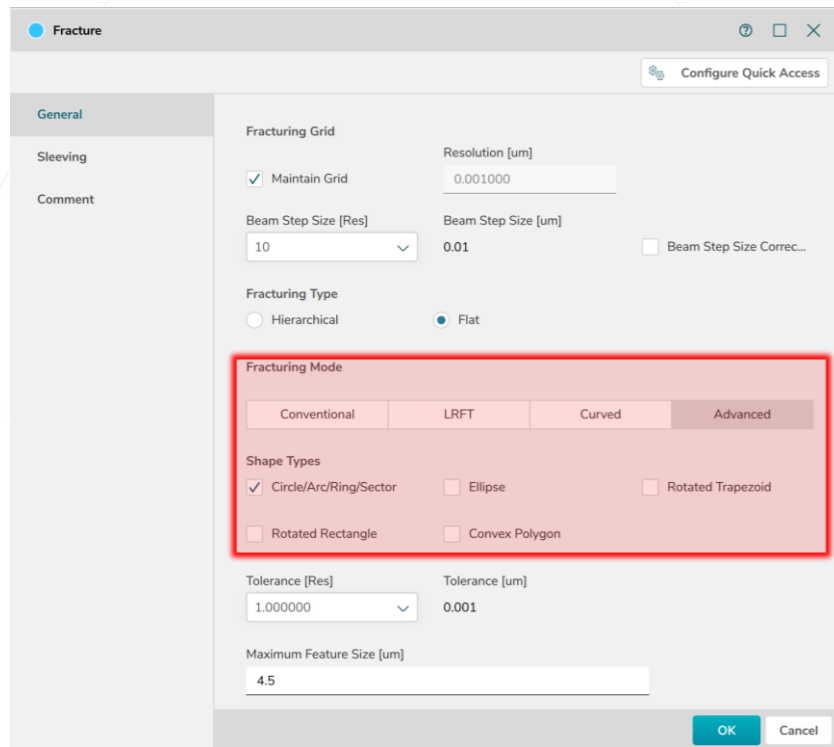
BEAMER

What's new BEAMER 7.5

Fracture Module

Advanced fracturing

Utilise **Advanced modes** for **shapes fracturing** achieving the best fracture result for **circles, arcs, rings and sectors**



Size and boundary conditions can be set by **Maximum Feature Size** and **Beam Step Size**

Use the Advanced **Rotated Rectangle** mode to fracture **Ellipses**

- **BSS** defines the accuracy for fitting rot. Rectangles into the ellipse
- **Tolerance** detects Arcs/Circles in complex polygons

Fracturing Grid

Maintain Grid Resolution [um] 0.001000

Beam Step Size [Res] 10 Beam Step Size [um] 0.01 Beam Step Size Correc...

Fracturing Type

Hierarchical Flat

Fracturing Mode

Conventional LRFT Curved **Advanced**

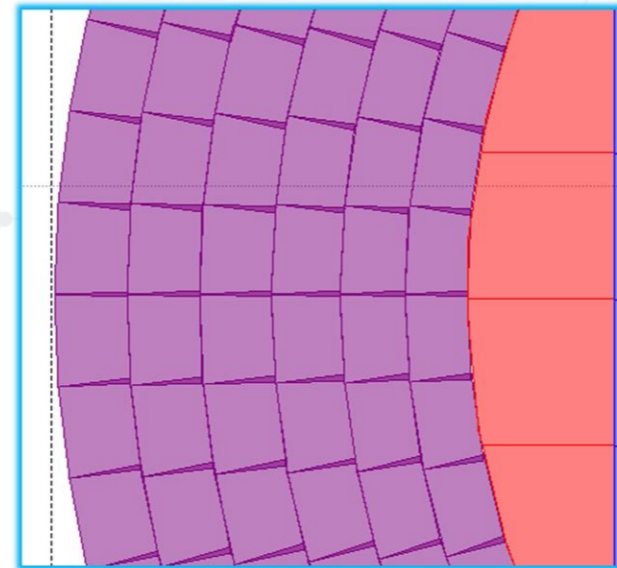
Shape Types

Circle/Arc/Ring/Sector Ellipse Rotated Trapezoid

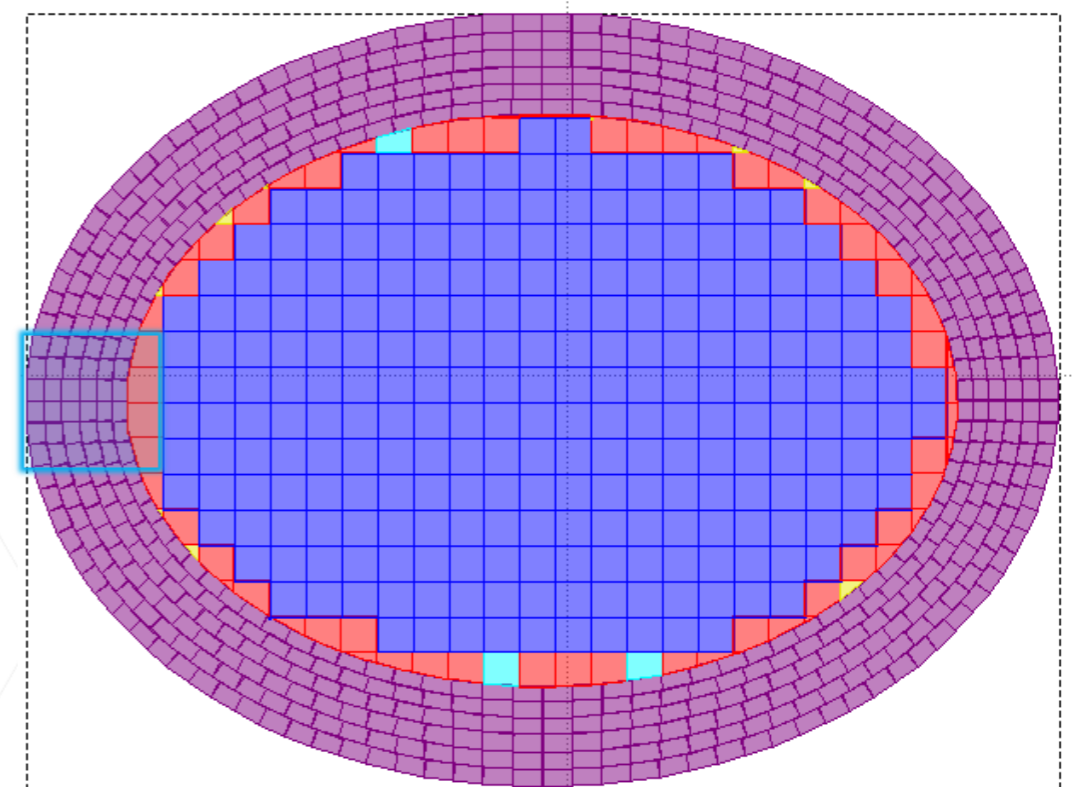
Rotated Rectangle Convex Polygon

Tolerance [Res] 1.000000 Tolerance [um] 0.001

Maximum Feature Size [um] 0.3



Overlaps **larger than 5%** at the inner edge trigger **ring width reduction**



Apply the Advanced **Arcs** mode to detect arcs inside **complex polygons**

Fracturing Grid

Maintain Grid Resolution [um]

Beam Step Size [Res] Beam Step Size [um] Beam Step Size Correc...

Fracturing Type

Hierarchical Flat

Fracturing Mode

| | | | |
|--------------|------|--------|-----------------|
| Conventional | LRFT | Curved | Advanced |
|--------------|------|--------|-----------------|

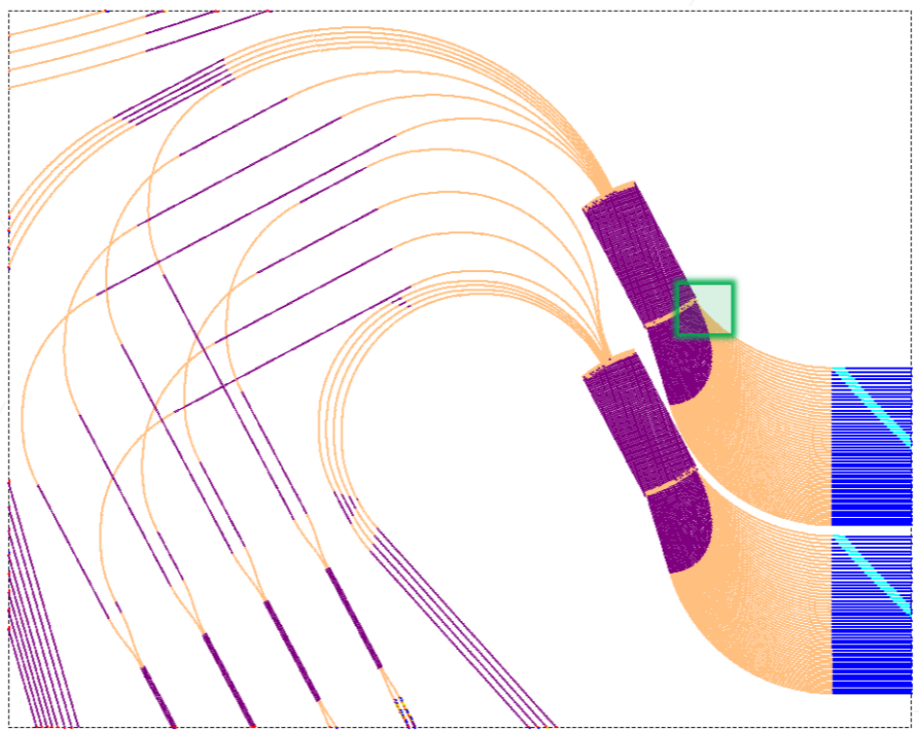
Shape Types

Circle/Arc/Ring/Sector Ellipse Rotated Trapezoid

Rotated Rectangle Convex Polygon

Tolerance [Res] Tolerance [um]

Maximum Feature Size [um]



```

1 Pick [um] X: -4316.7758, Y: 1479.0530,
Flat - Area Density: 84.7%
Bbox [um] LL (-4318.4556, 1476.6095), w 4.5860, h 4.5728
//Fracture_Cell
Rotated Rectangle (L:Z(0), E:1.0000, A: 10.6153 um²
Angle: -51.4058°
Width: 3.2167 um
Height: 3.3000 um
Center: -4316.1626 um, 1478.8959 um)
2 Pick [um] X: -4301.5229, Y: 1468.9782,
Flat - Area Density: 60%
Bbox [um] LL (-4303.9766, 1465.0993), w 4.4900, h 4.4641
//Fracture_Cell
ArcBow (L:Z(0), E:1.0000, A: 10.0589 um²
Inner Radius: 618.1619 um
Outer Radius: 621.4619 um
Center: -3832.7571 um, 1872.5873 um
Start: 220.6904°
Sweep: 0.2818°)
  
```

Fracture challenging waveguides into primitive shapes with Convex Polygons

Fracturing Grid

Maintain Grid Resolution [um] 0.000100

Beam Step Size [Res] 1 Beam Step Size [um] 0.0001 Beam Step Size Correc...

Fracturing Type

Hierarchical Flat

Fracturing Mode

| | | | |
|--------------|------|--------|-----------------|
| Conventional | LRFT | Curved | Advanced |
|--------------|------|--------|-----------------|

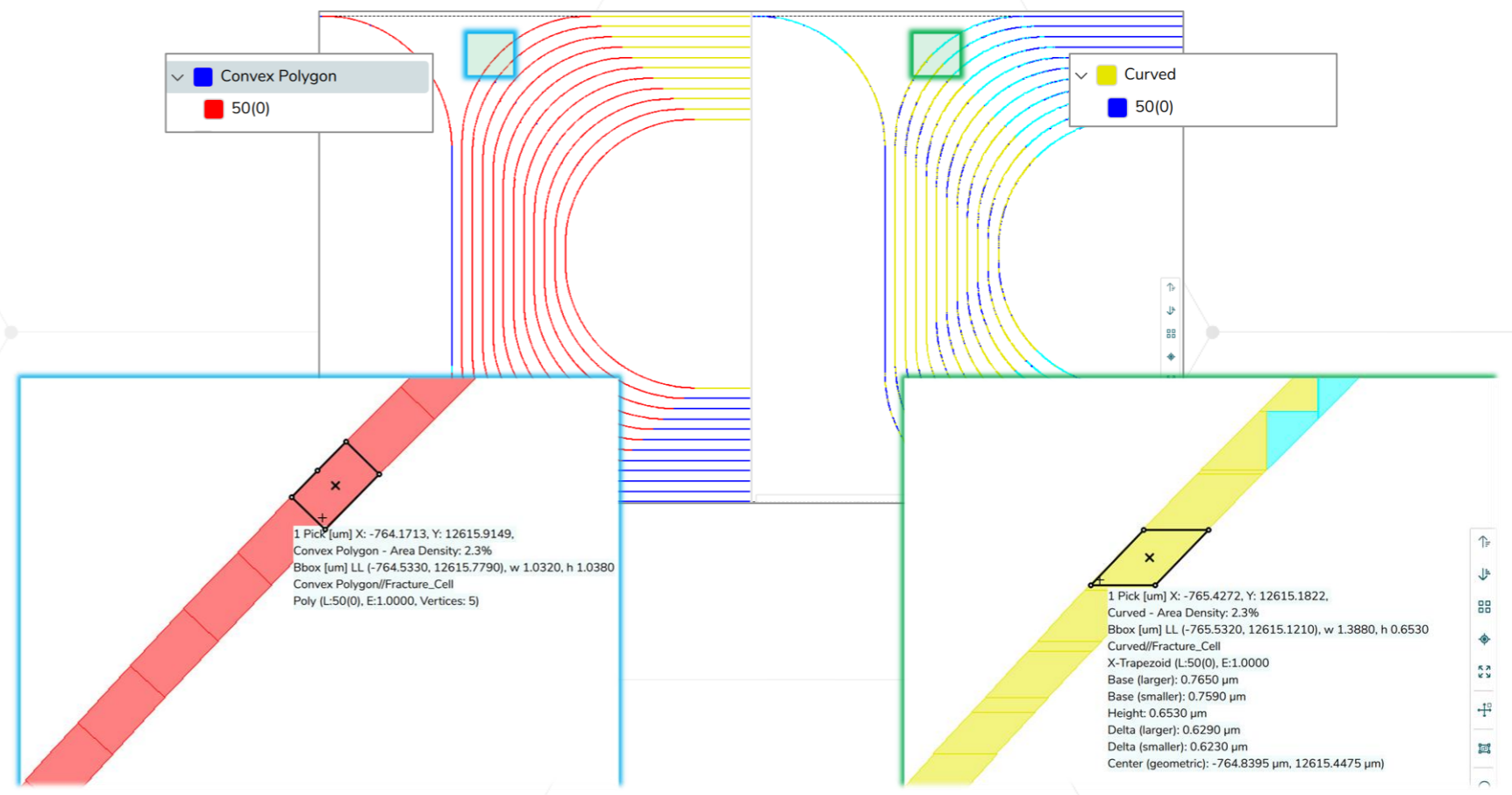
Shape Types

Circle/Arc/Ring/Sector Ellipse Rotated Trapezoid

Rotated Rectangle Convex Polygon

Tolerance [Res] 100 Tolerance [um] 0.01

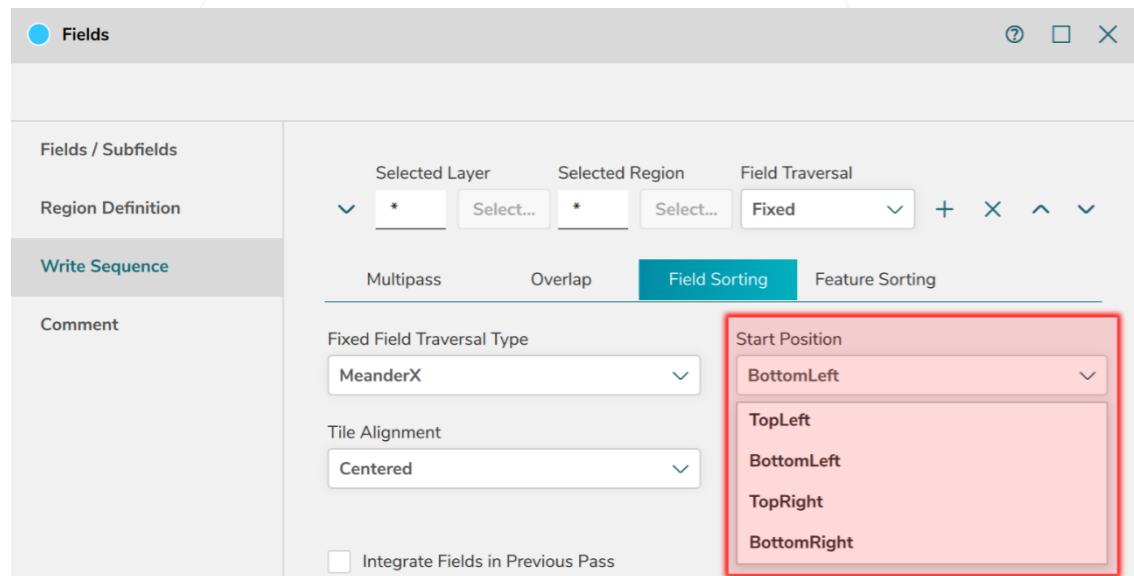
Maximum Feature Size [um] 0



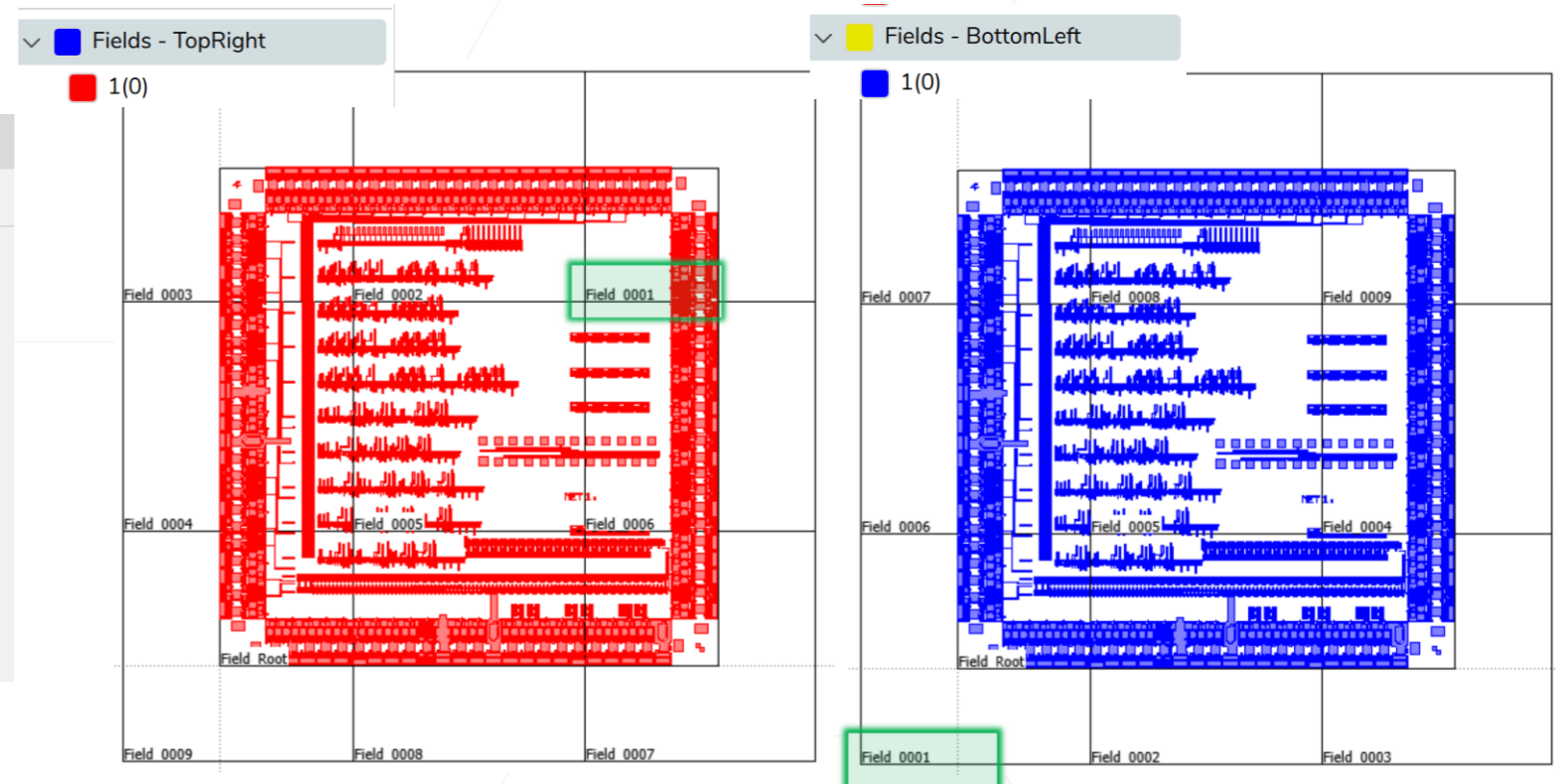
Fields Module

Fixed Field Sorting

Control field ordering with the **Start Position** option under the **Fixed Field Traversal** writing strategy



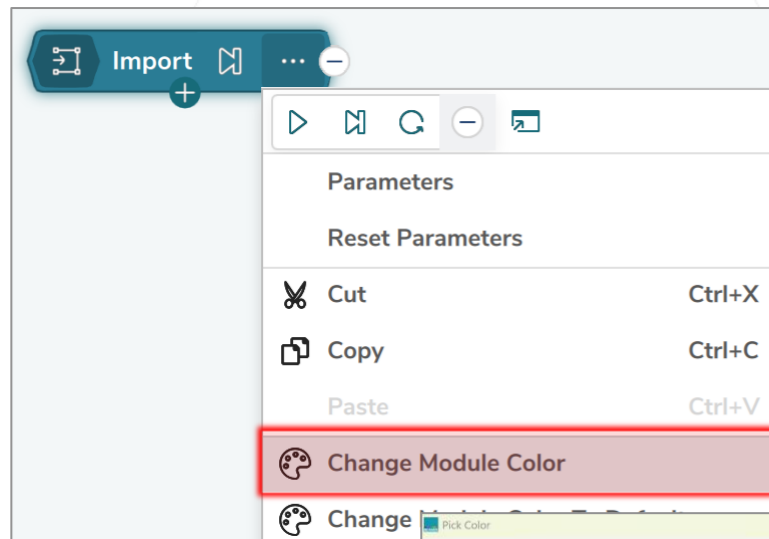
Applies when regions are larger than a Main Field size otherwise Central to Field



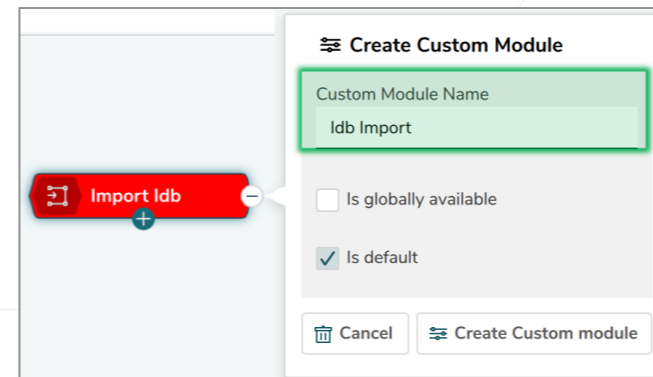
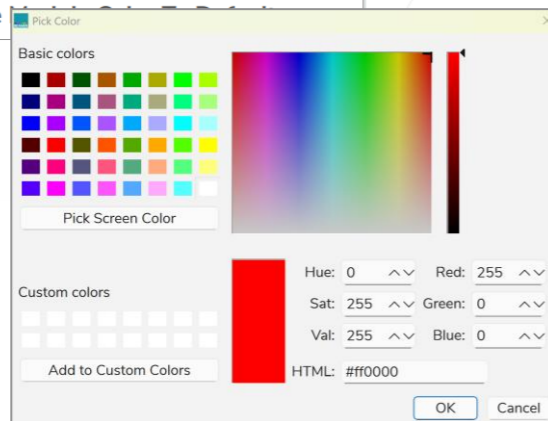
Usability

Improved Coloured Modules

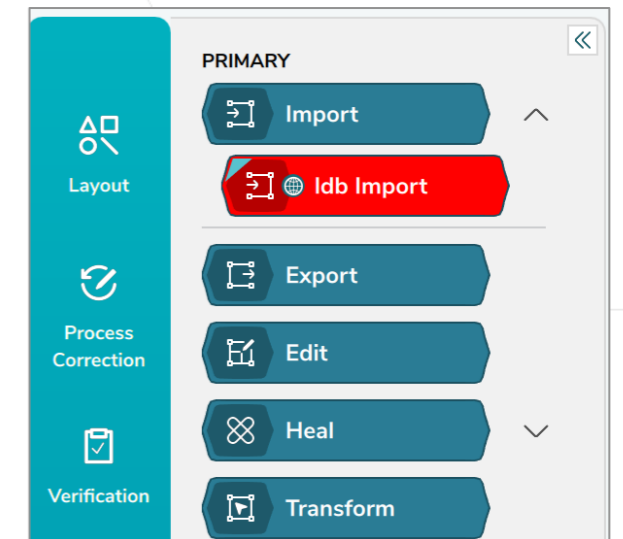
Save **colour preferences** and set **default colours** when creating **Custom Modules**



Change module's colour



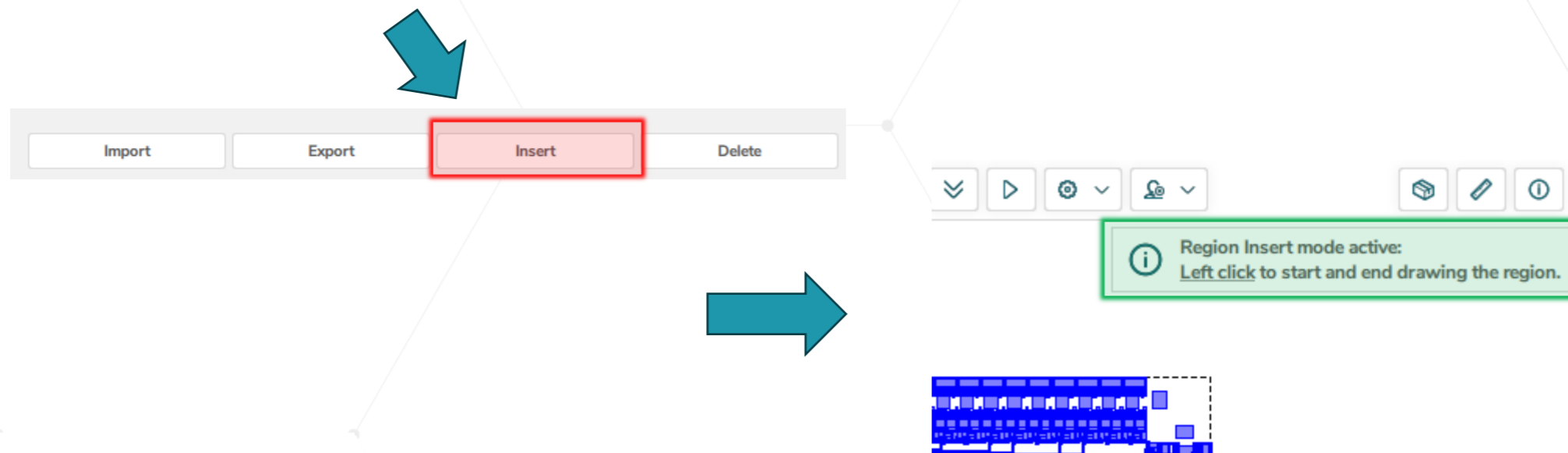
Create a Custom module



The module colour is maintained

Modules equipped with region selection display in the Interactive Viewer
instructions for **drawing** a **region** upon **clicking Insert**

Activate the region selection



Obtain **Process duration** for **short-, mid- and long-range** corrections from the **PEC module**

info

```
short Range begin Tue Dec 16 15:32:02 2025  
short Range done at Tue Dec 16 15:32:02 2025  
mid Range begin Tue Dec 16 15:32:02 2025  
mid Range done at Tue Dec 16 15:32:02 2025  
long Range begin Tue Dec 16 15:32:02 2025  
long Range done at Tue Dec 16 15:32:03 2025
```

Equivalent Alpha[um]: 0.006, Equivalent Beta[um]: 21.878,
Equivalent Eta : 0.605

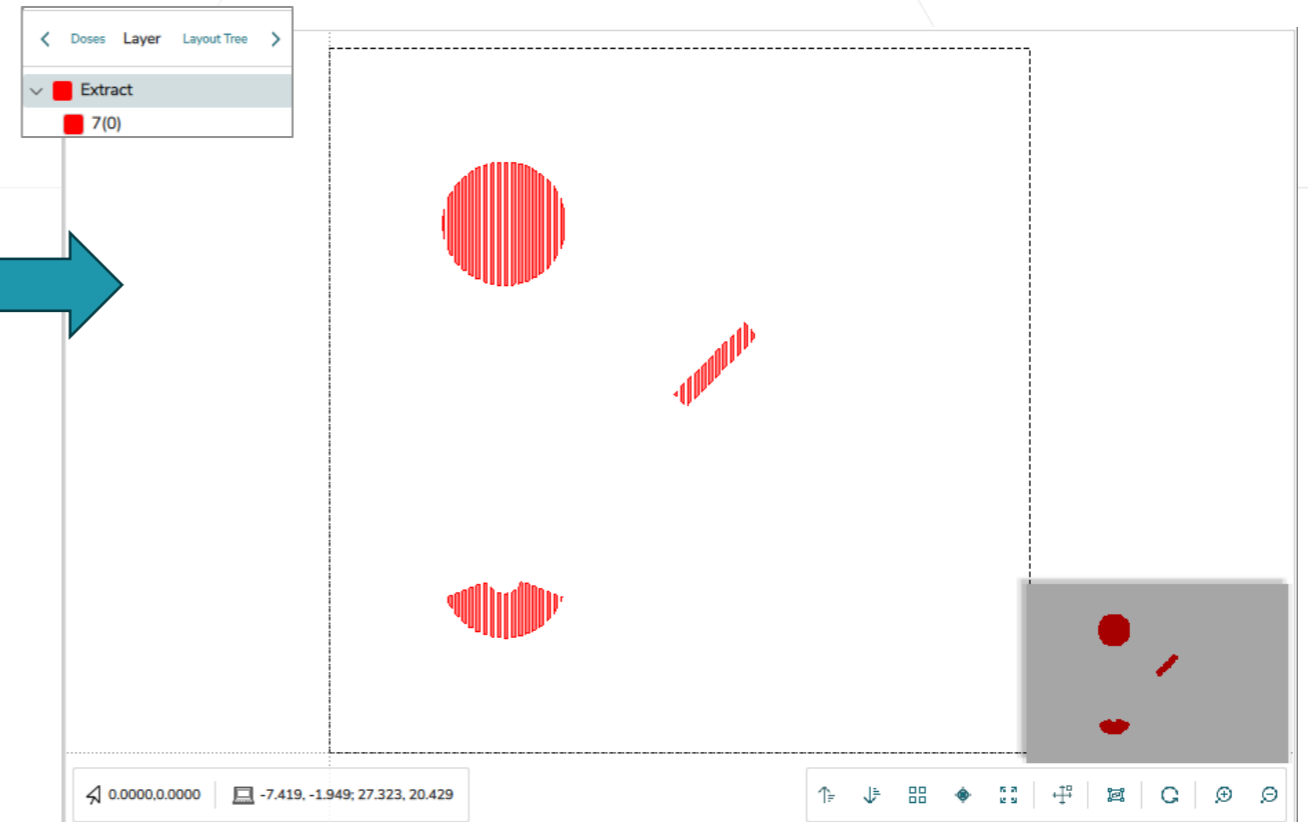
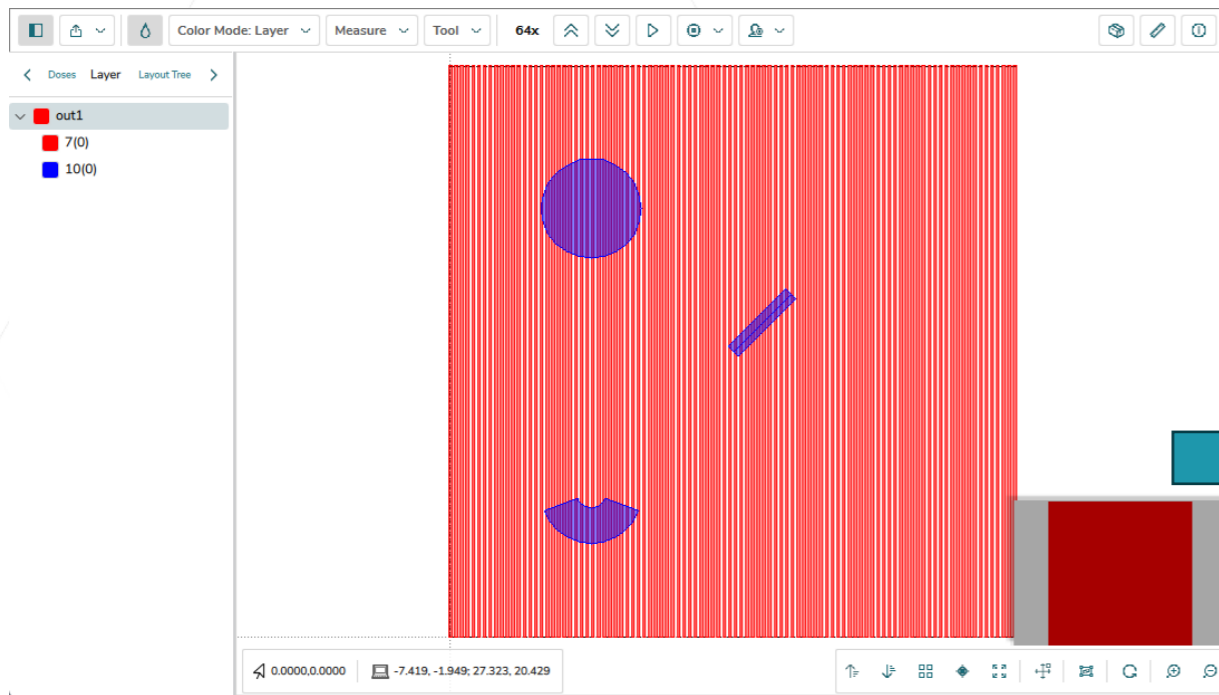
Min. layout independent LR dose factor = 0.726

Number Doseclasses: 92

Extract Module

Special Shapes

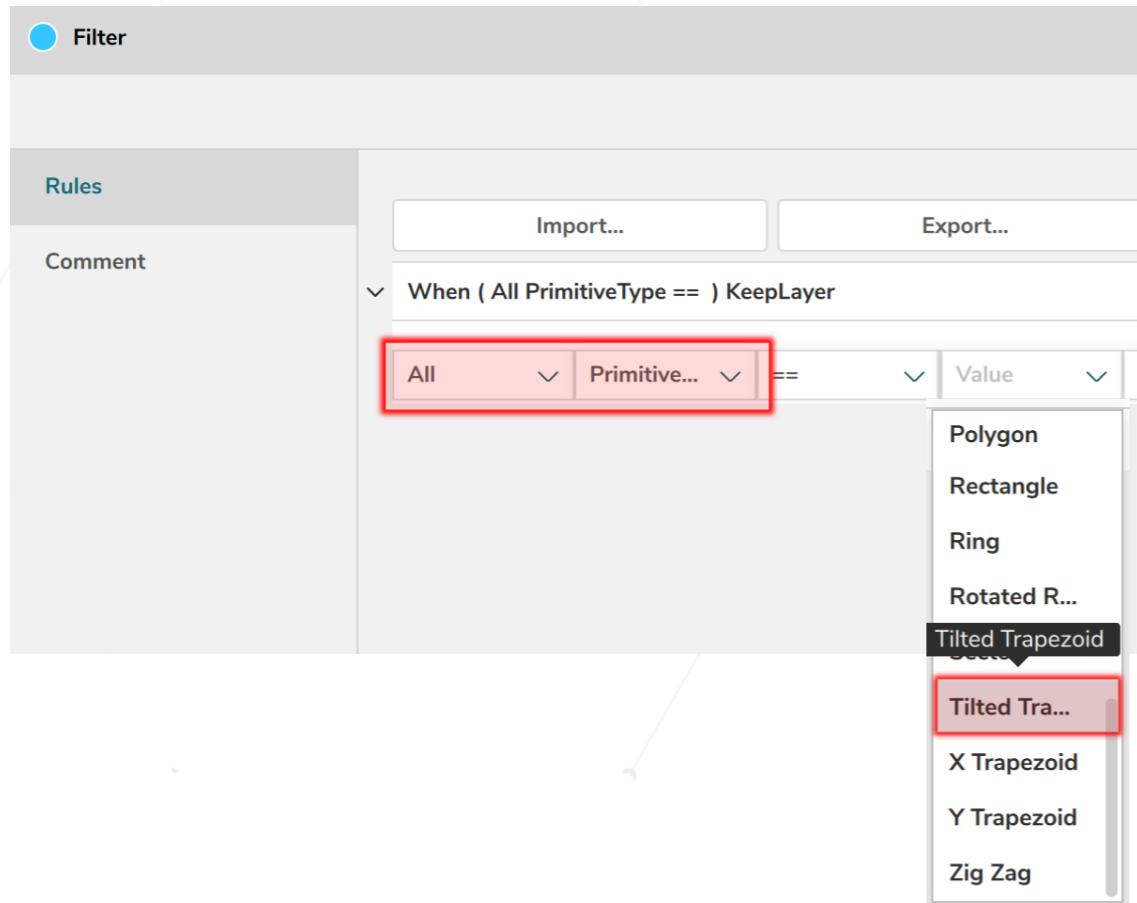
Clip **special shapes** like **circles**, **arcs** and **rotated rectangles**



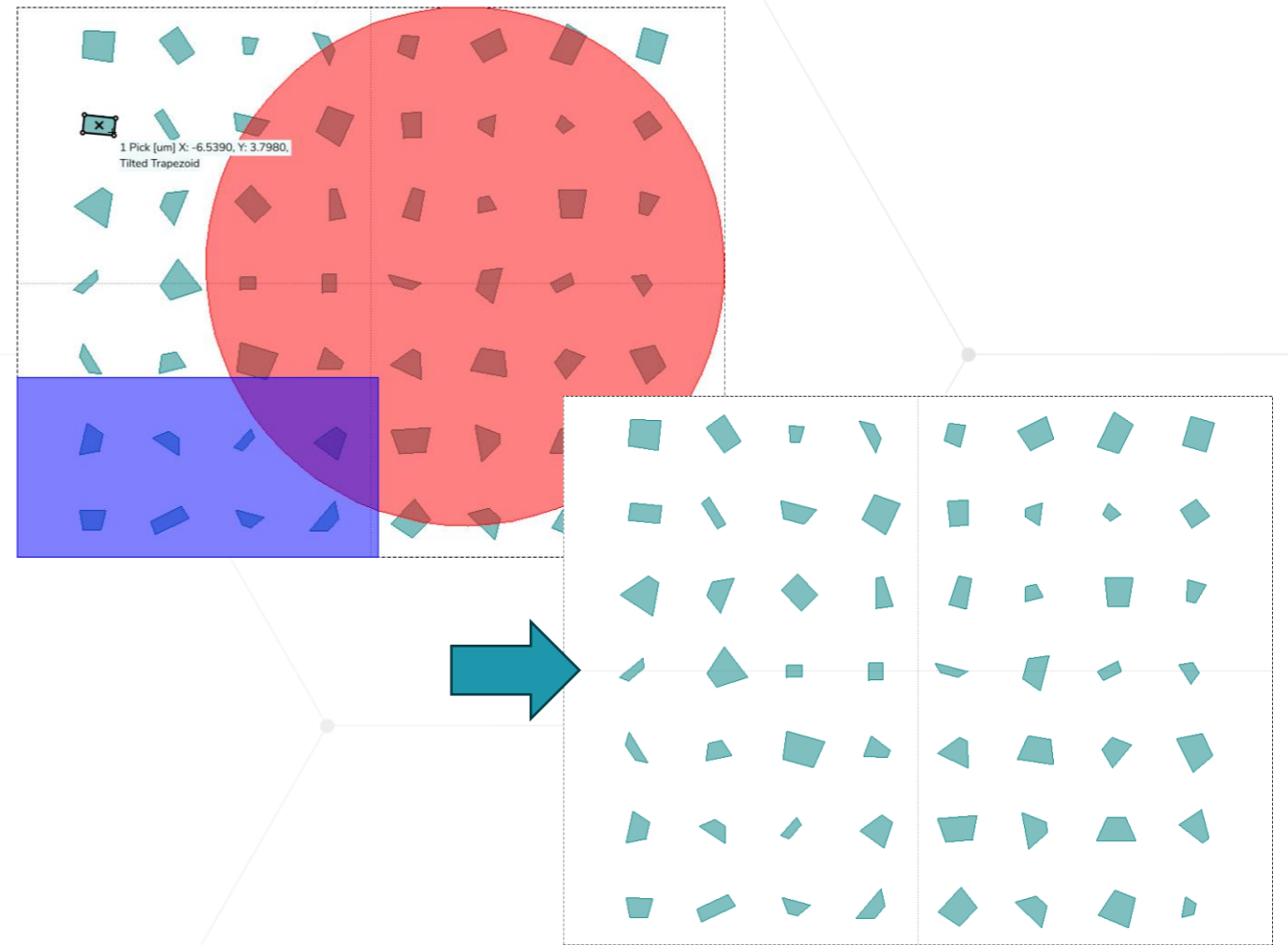
Filter Module

Tilted Trapezoids

Screen Tilted Trapezoids when using the Primitive Type condition



The screenshot shows the 'Filter' configuration window. Under the 'Rules' section, there is a rule: 'When (All PrimitiveType ==) KeepLayer'. A dropdown menu is open for the 'Primitive...' field, listing various primitive types: Polygon, Rectangle, Ring, Rotated R..., Tilted Trapezoid, Tilted Tra..., X Trapezoid, Y Trapezoid, and Zig Zag. The 'Tilted Tra...' option is highlighted with a red box.



Python Module

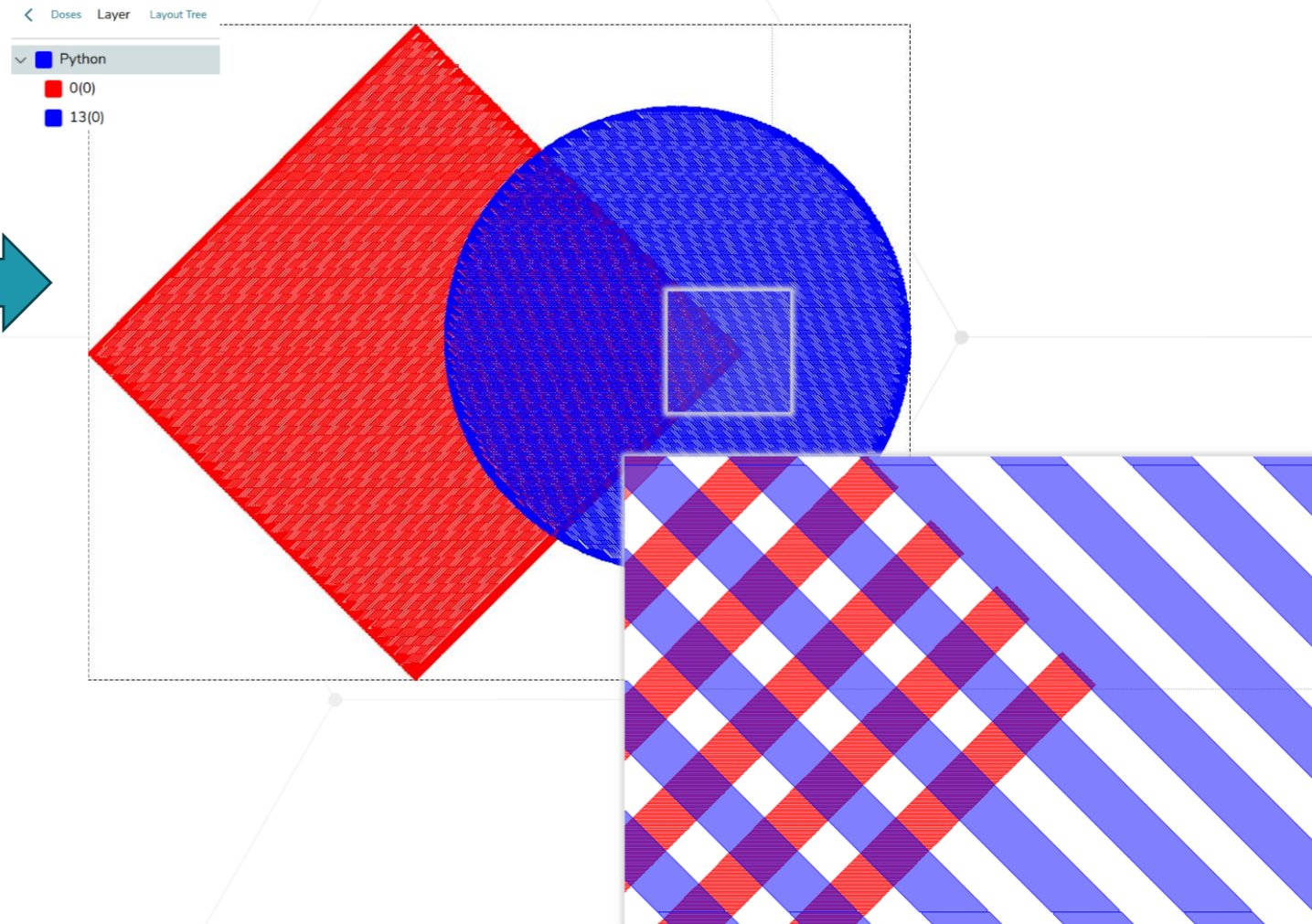
Generate Gratings script

Upgraded Generate Grating Script

Take advantage of **boosted** script **performance** with its improved **writing field order** and script **robustness**



```

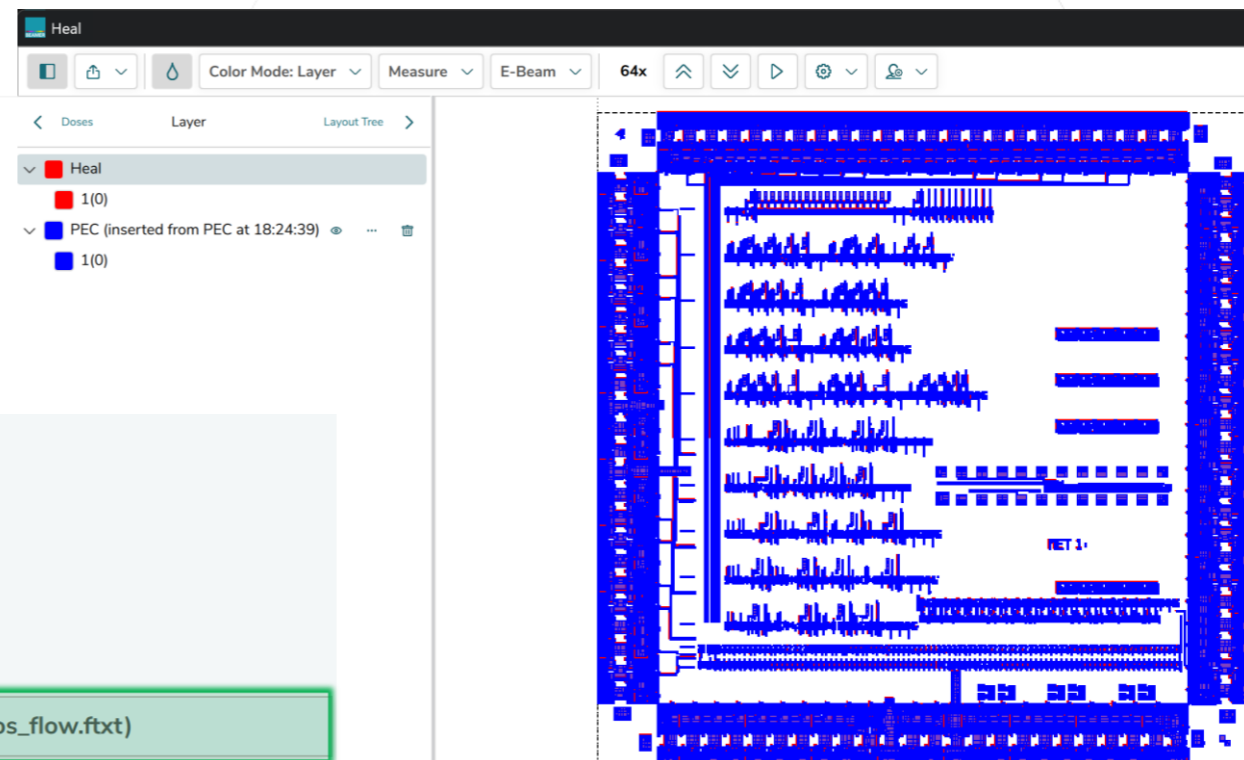
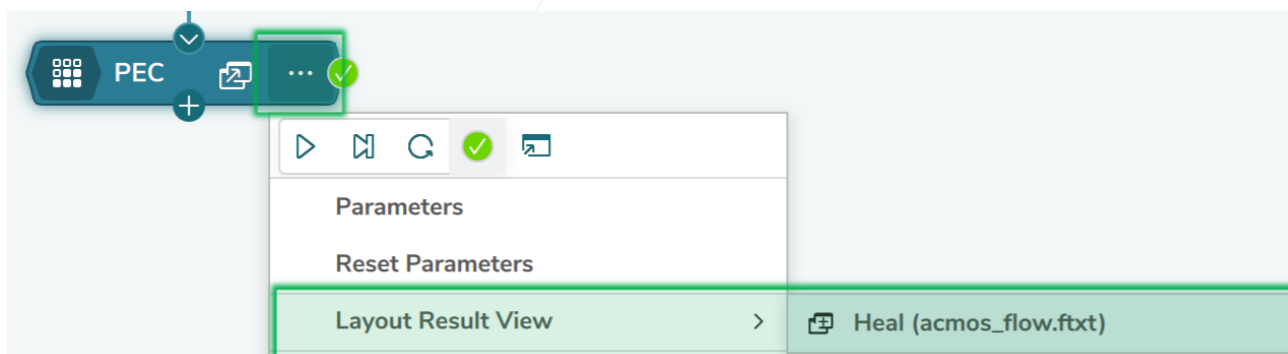
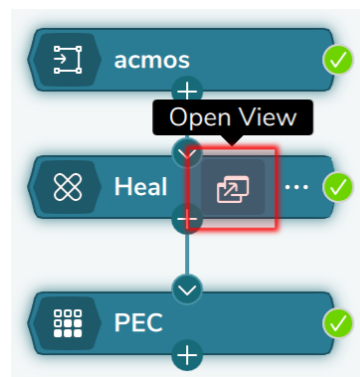
Python Dialog
Python Script
Python GUI Script
Comment
1 #
2 # A script to generate from an incoming pattern a grating populated outline
3 #
4 from LAYOUTpy import *
5 import math
6 import numpy as np
7
8
9 # GRATING PARAMETERS #
10
11 # parameters = [[layer, angle [°], width [um], pitch [um]]]
12 parameters = [[0, 45, 50, 100], [13, 135, 50, 100]]
13
14 #
15 # TOOL SETTINGS
16 #
17 subfieldsize = 4 # Subfield Size in [um]
18 subfield_usage = 0.9 # factor of subfield usage
19 mainfieldsize = 800 # Mainfield Size in [um]
20 res = 0.01 # Resolution in [um]
21 degree45_factor = 0.6 # use this factor in case your angle is 45 degrees to reduce y mainfield size
22 # and by this avoid 0 subfields in x
    
```



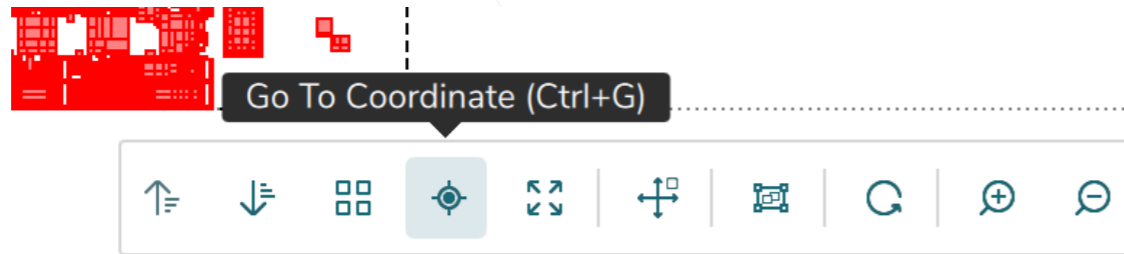
VIEWER

Examine many layouts in a single VIEWER

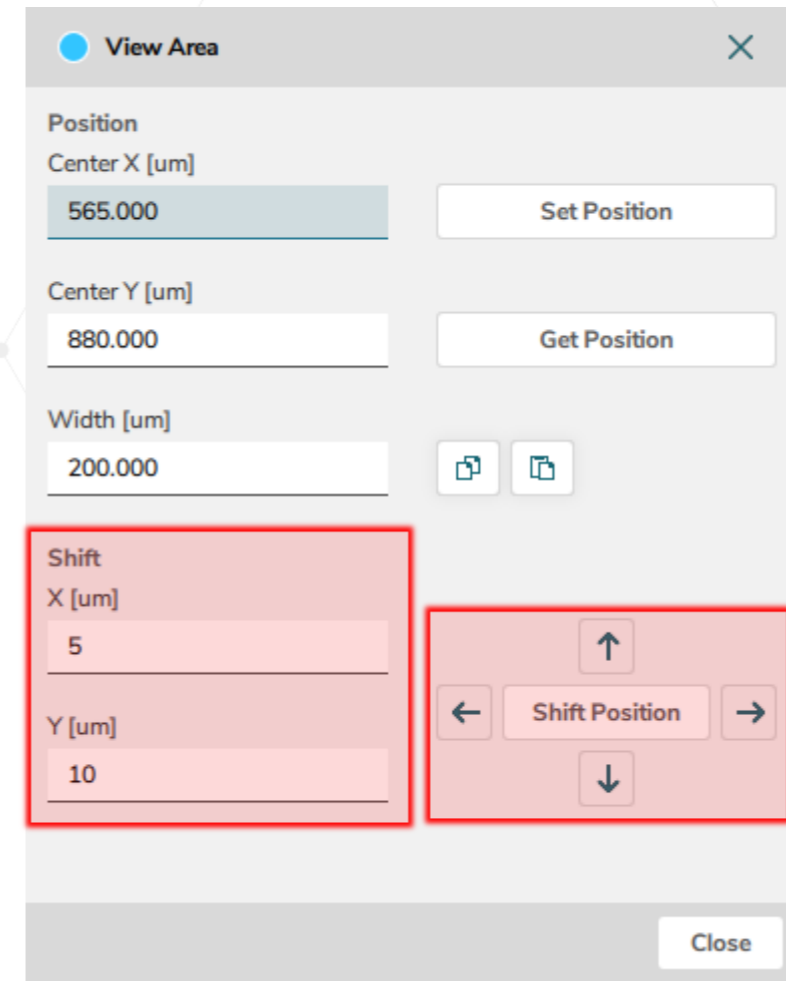
- Global VIEWER  Ctrl + left clicking on the desired modules
- Module VIEWER  Select **Layout Result View** followed by choosing the opened viewers



Control **discrete movements** in the View Area using **stepped increments**



Define step in the **Shift XY** and use **Left/Right/Up/Down** arrows



Thank You!

help@genisys-gmbh.com



Headquarters

GenISys GmbH
Inselkammerstr. 5
D-82008 Unterhaching (Munich)
GERMANY

☎ +49 (0)89 954 5364 0

☎ +49 (0)89 954 5364 99

✉ info@genisys-gmbh.com

USA Office

GenISys Inc.
P.O. Box 410956
San Francisco, CA
94141-0956
USA

☎ +1 (408) 353 3951

✉ usa@genisys-gmbh.com

Japan / Asia Pacific Office

GenISys K.K.
German Industry Park
1-18-2 Hakusan Midori-ku
Yokohama 226-0006
JAPAN

☎ +81 (45) 530 3306

☎ +81 (45) 532 6933

✉ apsales@genisys-gmbh.com