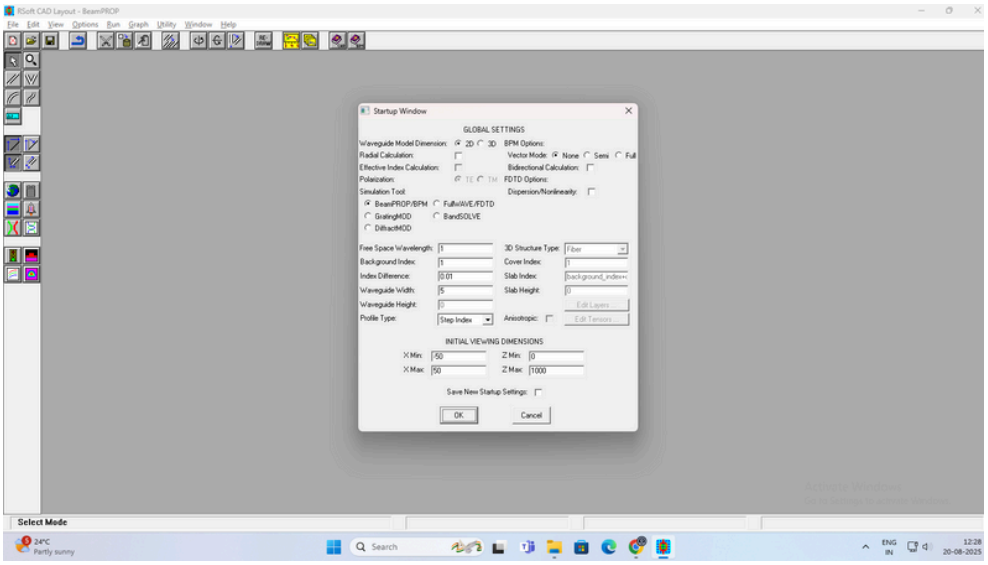
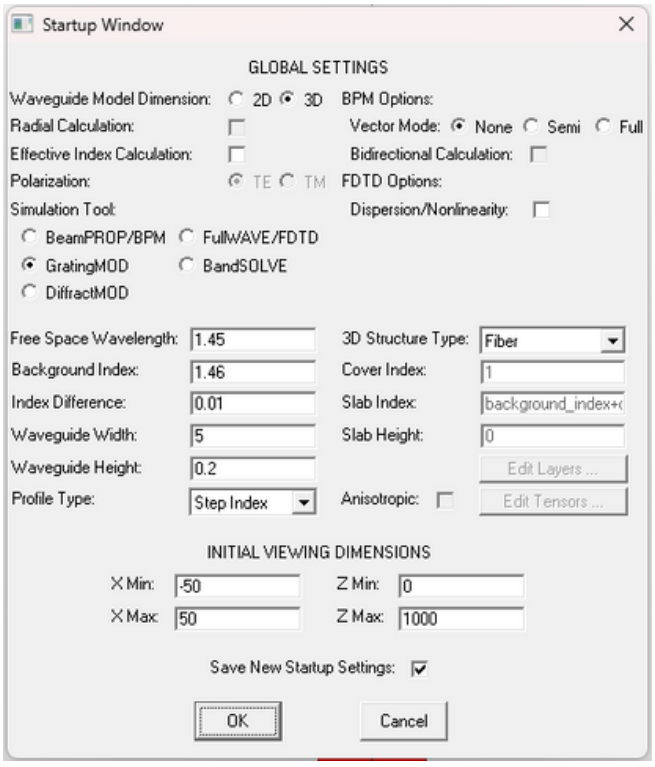
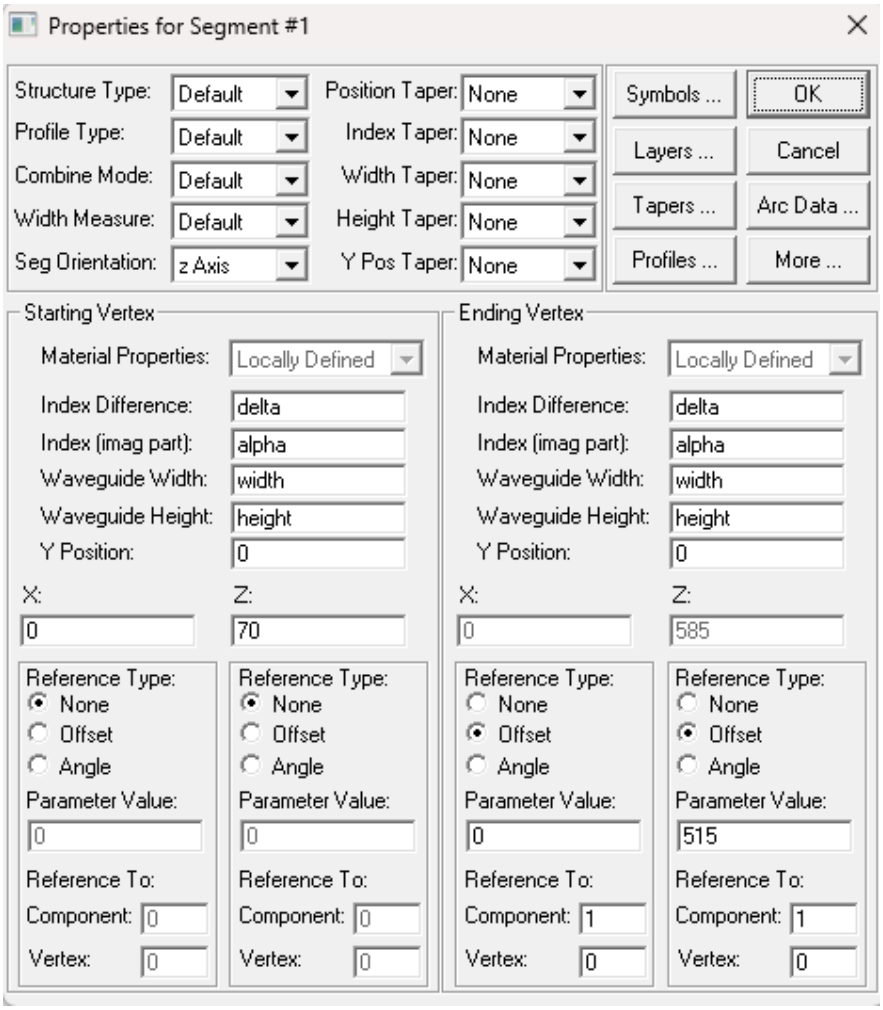
This PDF just contains images — it's not a guide or walkthrough. I had initially taken some of these images with the intention of creating a proper guide, but I never got around to it since I didn't really have the time or interest. Still, I'm leaving the images here in case they're might be useful sometime.

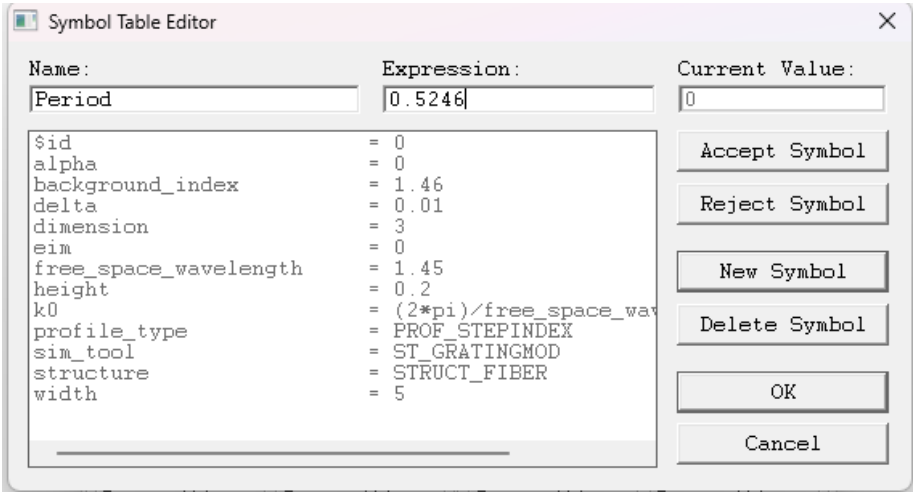
The event spanned two days and was focused on photonics. The structure was roughly 60% theory and 40% hands-on work. It involved tools like RSoft, OptiFDTD, Lumerical, and COMSOL, though most of it ended up being theoretical due to the high cost of licenses for the software.

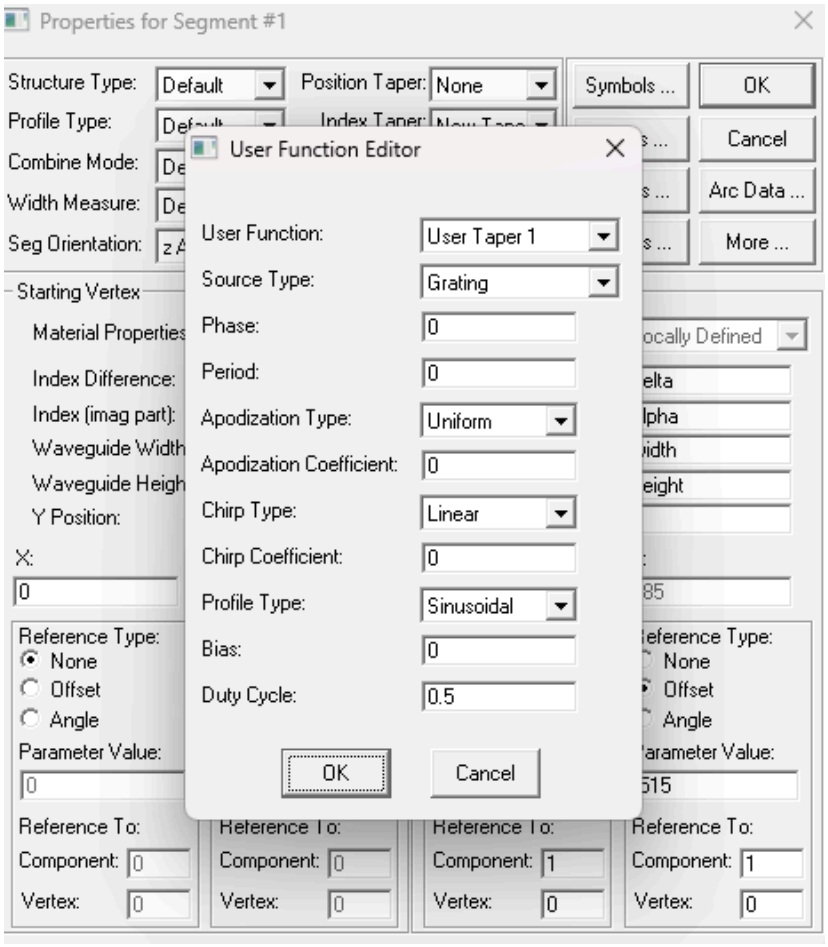
DAY 1

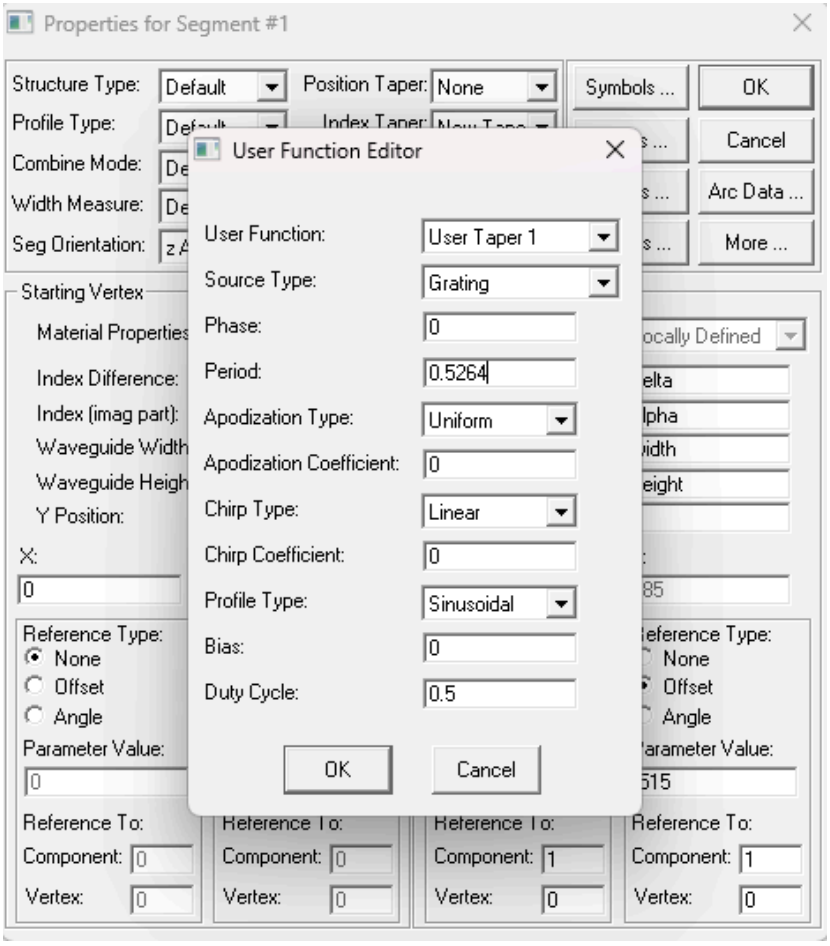


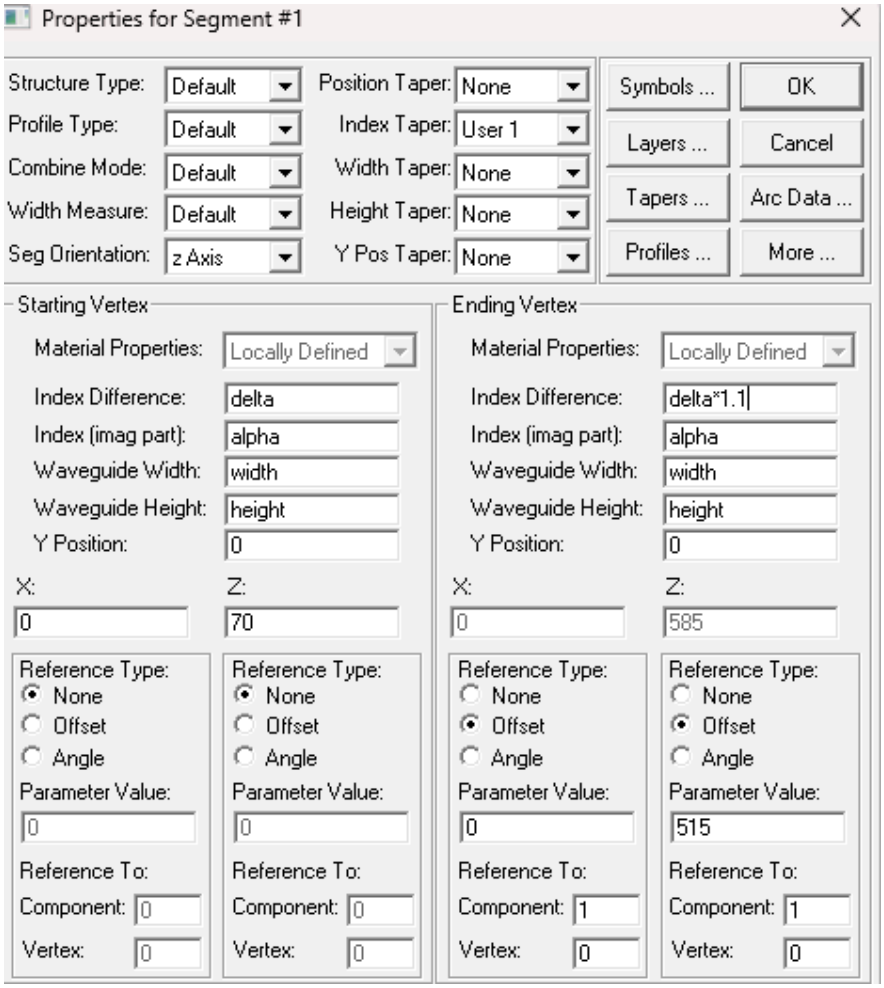


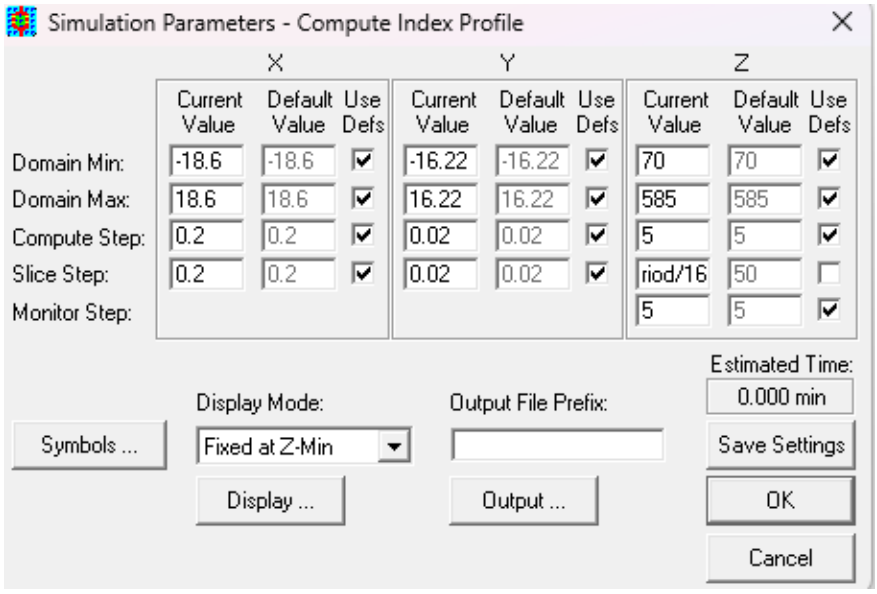

Properties for Segment #1
Structure Type: Default
Profile Type: Default
Combine Mode: Default
Width Measure: Default
Seg Orientation: z Axis
Position Taper: None
Index Taper: None
Width Taper: None
Height Taper: None
Y Pos Taper: None
Symbols ...
OK
Layers ...
Cancel
Tapers ...
Arc Data ...
Profiles ...
More ...
Starting Vertex
Material Properties: Locally Defined
Index Difference: delta
Index (imag part): alpha
Waveguide Width: width
Waveguide Height: height
Y Position: 0
X: 0
Z: 70
Reference Type: None Offset Angle
Parameter Value: 0
Reference To:
Component: 0
Vertex: 0
Ending Vertex
Material Properties: Locally Defined
Index Difference: delta
Index (imag part): alpha
Waveguide Width: width
Waveguide Height: height
Y Position: 0
X: 0
Z: 585
Reference Type: None Offset Angle
Parameter Value: 0
Reference To:
Component: 1
Vertex: 0
Reference Type: None Offset Angle
Parameter Value: 515
Reference To:
Component: 1
Vertex: 0

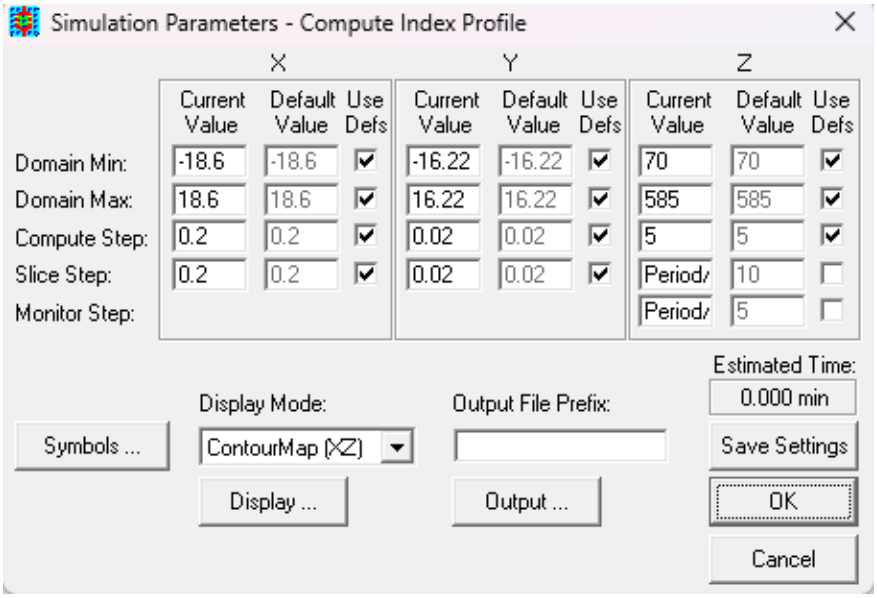

Symbol Table Editor
Name: Period
Expression: 0.5246
Current Value: 0
$id = 0
alpha = 0
background_index = 1.46
delta = 0.01
dimension = 3
eim = 0
free_space_wavelength = 1.45
height = 0.2
k0 = (2*pi)/free_space_wav
profile_type = PROF_STEPINDEX
sim_tool = ST_GRATINGMOD
structure = STRUCT_FIBER
width = 5
Accept Symbol
Reject Symbol
New Symbol
Delete Symbol
OK
Cancel

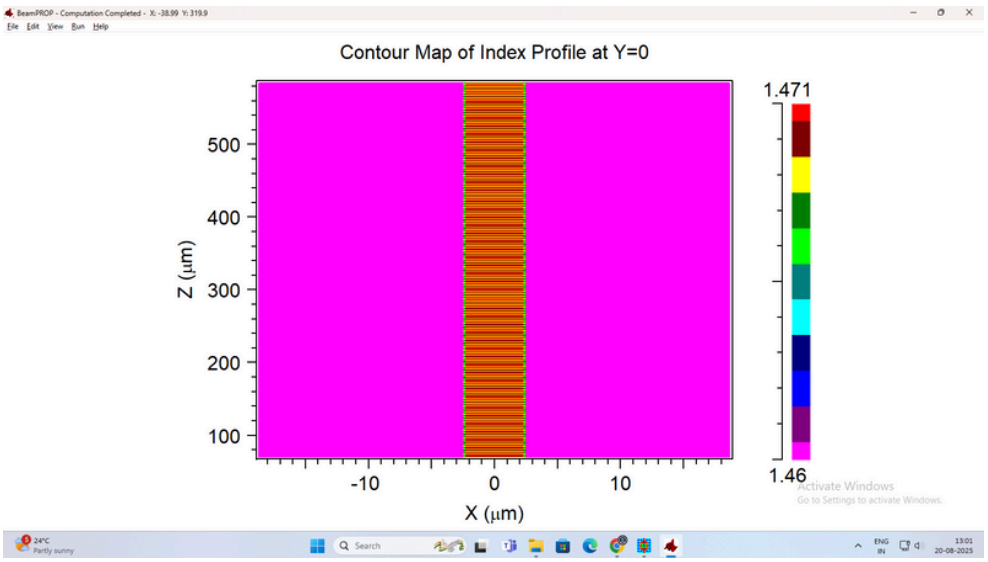

Properties for Segment #1
Structure Type: Default
Position Taper: None
Symbols ...
OK
Profile Type:
Cancel
Combine Mode:
Arc Data ...
Width Measure:
Seg Orientation:
More ...
Starting Vertex
Material Properties
Index Difference:
Index (imag part):
Waveguide Width
Waveguide Heigh
Y Position:
X:
Reference Type:
None
Offset
Angle
Parameter Value:
Reference To:
Component:
Vertex:
User Function Editor
User Function: User Taper 1
Source Type: Grating
Phase: 0
Period: 0
Apodization Type: Uniform
Apodization Coefficient: 0
Chirp Type: Linear
Chirp Coefficient: 0
Profile Type: Sinusoidal
Bias: 0
Duty Cycle: 0.5
OK
Cancel

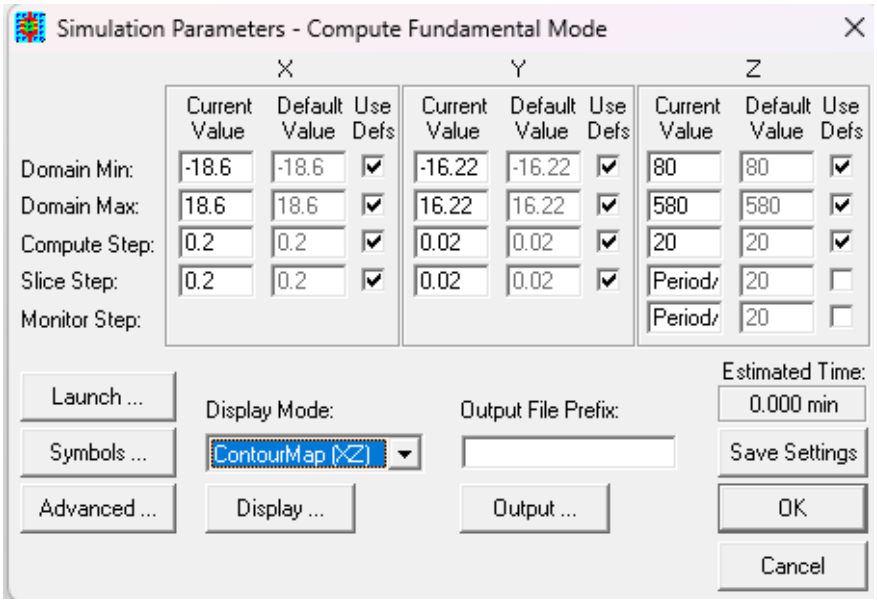

Properties for Segment #1
Structure Type: Default
Position Taper: None
Symbols ...
OK
Profile Type:
Cancel
Combine Mode:
Arc Data ...
Width Measure:
Seg Orientation:
More ...
Starting Vertex
Material Properties
Index Difference:
Index (imag part):
Waveguide Width
Waveguide Heigh
Y Position:
X:
Reference Type:
None
Offset
Angle
Parameter Value:
Reference To:
Component:
Vertex:
User Function Editor
User Function: User Taper 1
Source Type: Grating
Phase: 0
Period: 0.5264
Apodization Type: Uniform
Apodization Coefficient: 0
Chirp Type: Linear
Chirp Coefficient: 0
Profile Type: Sinusoidal
Bias: 0
Duty Cycle: 0.5
OK
Cancel


Properties for Segment #1
Structure Type: Default
Profile Type: Default
Combine Mode: Default
Width Measure: Default
Seg Orientation: z Axis
Position Taper: None
Index Taper: User 1
Width Taper: None
Height Taper: None
Y Pos Taper: None
Symbols ...
OK
Layers ...
Cancel
Tapers ...
Arc Data ...
Profiles ...
More ...
Starting Vertex
Material Properties: Locally Defined
Index Difference: delta
Index (imag part): alpha
Waveguide Width: width
Waveguide Height: height
Y Position: 0
X: 0
Z: 70
Reference Type: None Offset Angle
Parameter Value: 0
Reference To:
Component: 0
Vertex: 0
Ending Vertex
Material Properties: Locally Defined
Index Difference: delta*1.1
Index (imag part): alpha
Waveguide Width: width
Waveguide Height: height
Y Position: 0
X: 0
Z: 585
Reference Type: None Offset Angle
Parameter Value: 515
Reference To:
Component: 1
Vertex: 0

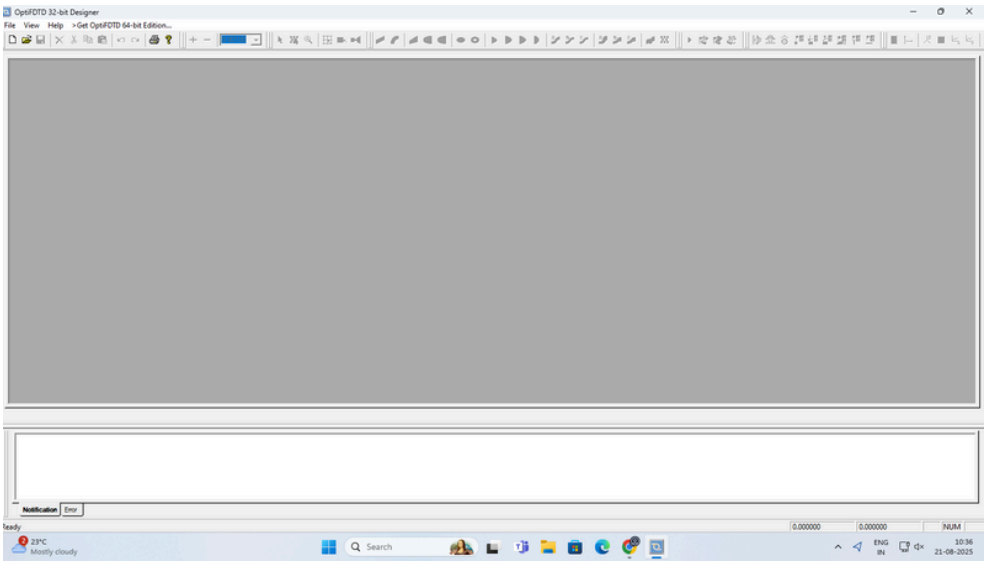

Simulation Parameters - Compute Index Profile
X
Y
Z
Current Value
Default Value
Use Defs
Domain Min: -18.6 -18.6 -16.22 -16.22 70 70
Domain Max: 18.6 18.6 16.22 16.22 585 585
Compute Step: 0.2 0.2 0.02 0.02 5 5
Slice Step: 0.2 0.2 0.02 0.02 riod/16 50
Monitor Step: 5 5
Estimated Time:
0.000 min
Symbols ...
Display Mode: Fixed at Z-Min
Output File Prefix:
Save Settings
Display ...
Output ...
OK
Cancel

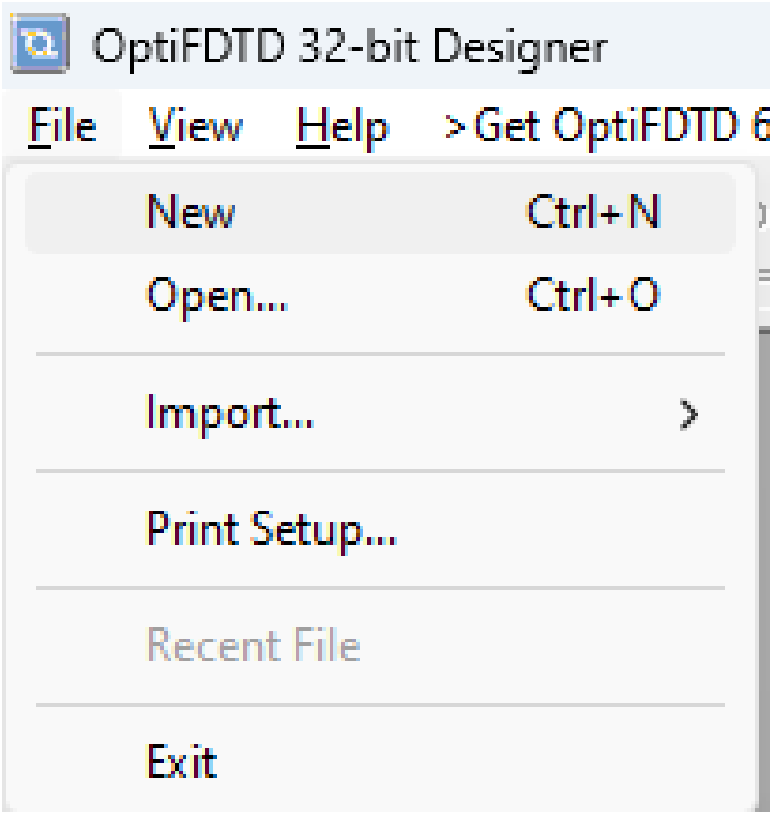

Simulation Parameters - Compute Index Profile
X
Y
Z
Current Value
Default Value
Use Defs
Domain Min:
Domain Max:
Compute Step:
Slice Step:
Monitor Step:
-18.6
18.6
0.2
0.2
-16.22
16.22
0.02
0.02
70
585
5
Period/
10
Period/
5
Estimated Time:
0.000 min
Symbols ...
Display Mode:
ContourMap (XZ)
Output File Prefix:
Save Settings
Display ...
Output ...
OK
Cancel

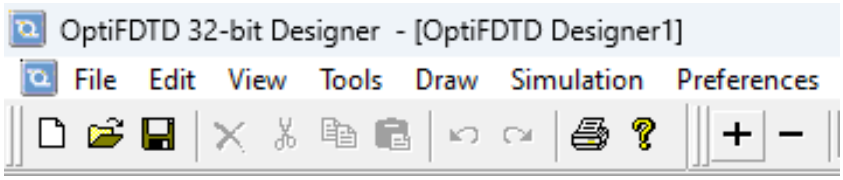

Contour Map of Index Profile at Y=0
1.471
1.46
500
400
300
200
100
Z (μm)
-10
0
10
X (μm)

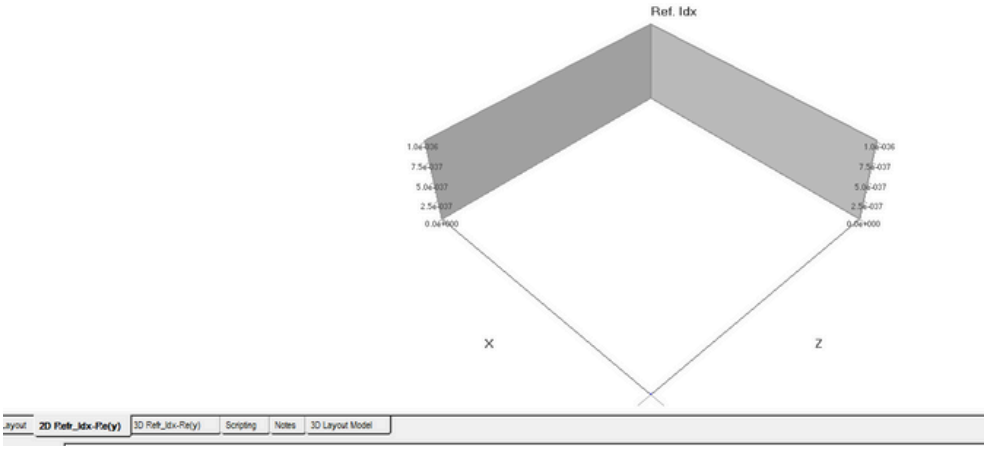

Simulation Parameters - Compute Fundamental Mode
X
Y
Z
Current Value
Default Value
Use Defs
Domain Min:
Domain Max:
Compute Step:
Slice Step:
Monitor Step:
-18.6
18.6
0.2
0.2
-16.22
16.22
0.02
0.02
80
580
20
Period/
20
Period/
20
Estimated Time:
0.000 min
Launch ...
Symbols ...
Advanced ...
Display Mode:
ContourMap (XZ)
Output File Prefix:
Save Settings
Display ...
Output ...
OK
Cancel

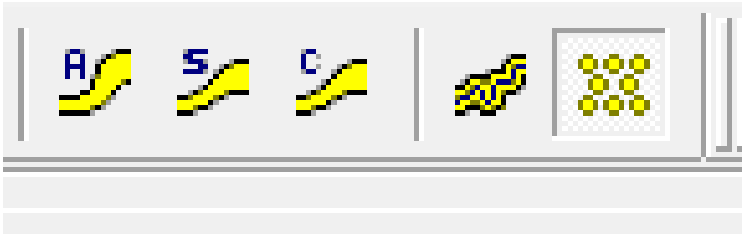
DAY 2

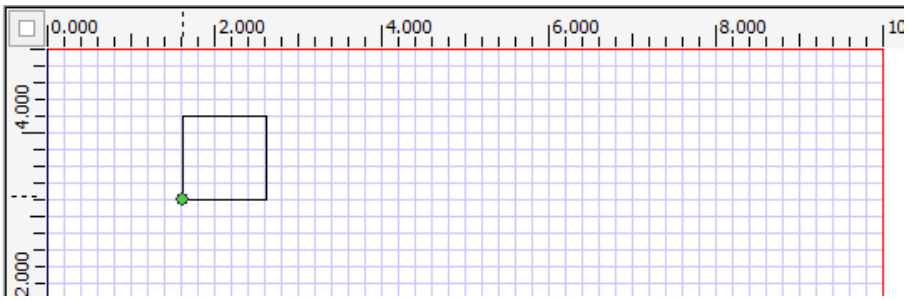



OptiFDTD 32-bit Designer
File
View
Help
>Get OptiFDTD 6
New Ctrl+N
Open... Ctrl+O
Import...
Print Setup...
Recent File
Exit









PARAMETER

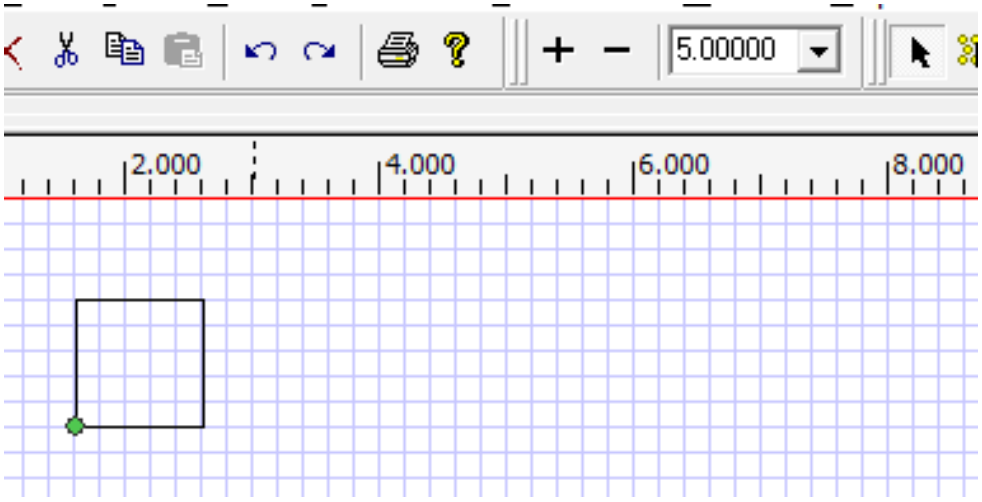
number of holes / micro pillar in x and y direction - 27 .33

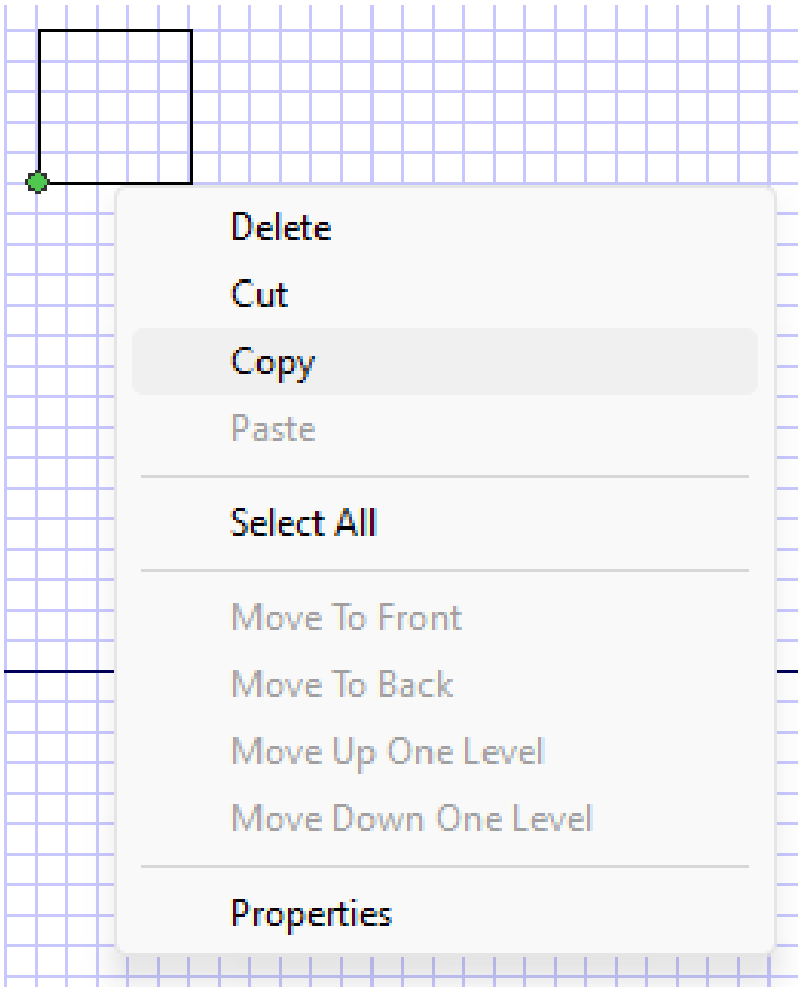
radius of micro pillar / holes- 0.12um - 0.2um

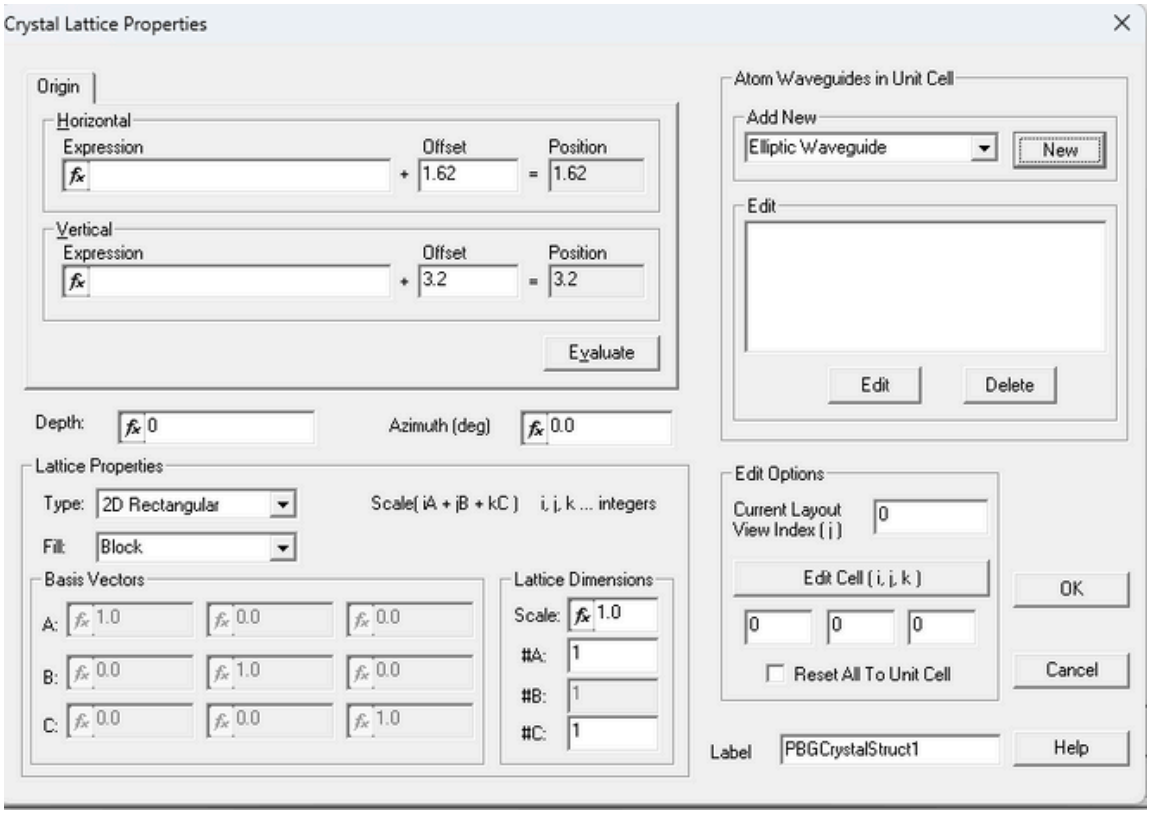
lattice constant of crystal structure - 0.12 - 1um

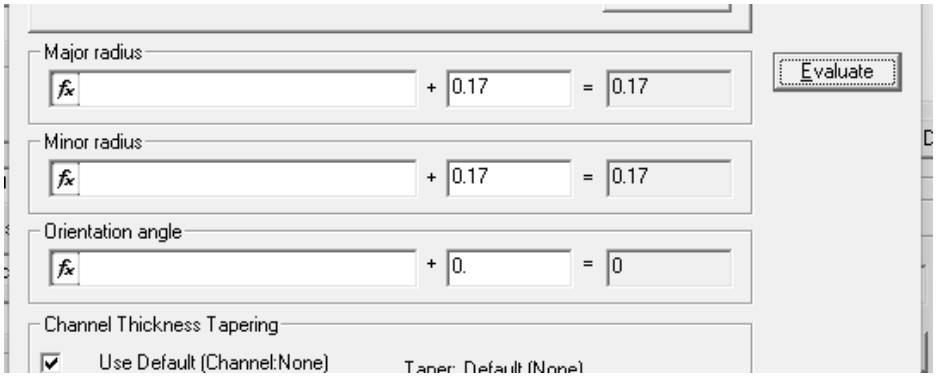
lattice configuration - square lattice hexagonal

type of configuarations

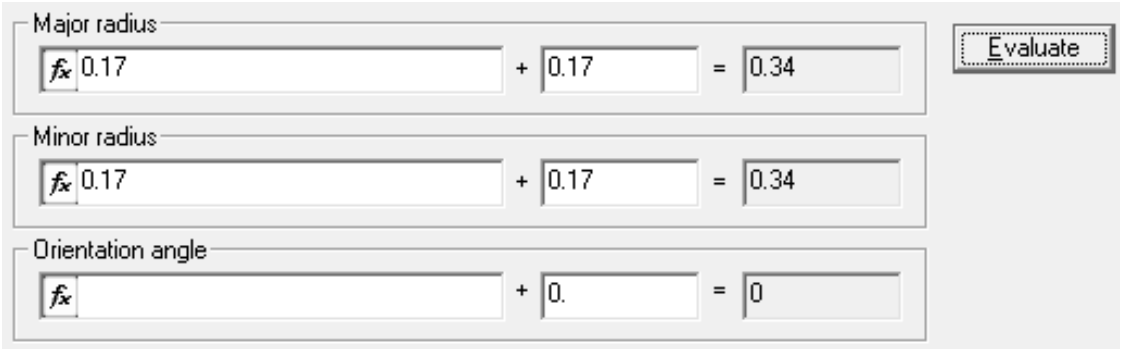

5.00000
2.000
4.000
6.000
8.000

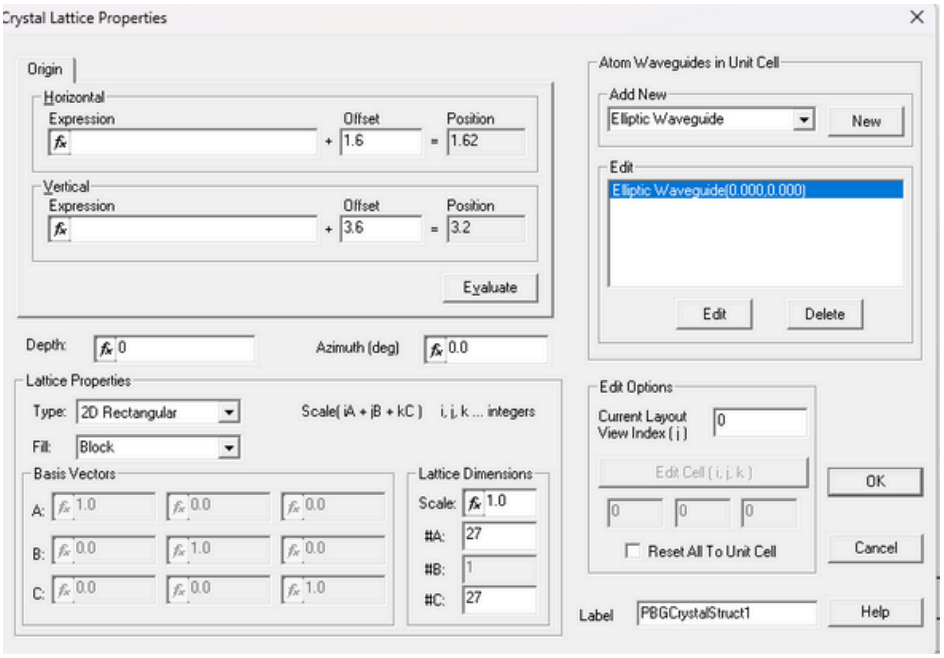

Delete
Cut
Copy
Paste
Select All
Move To Front
Move To Back
Move Up One Level
Move Down One Level
Properties

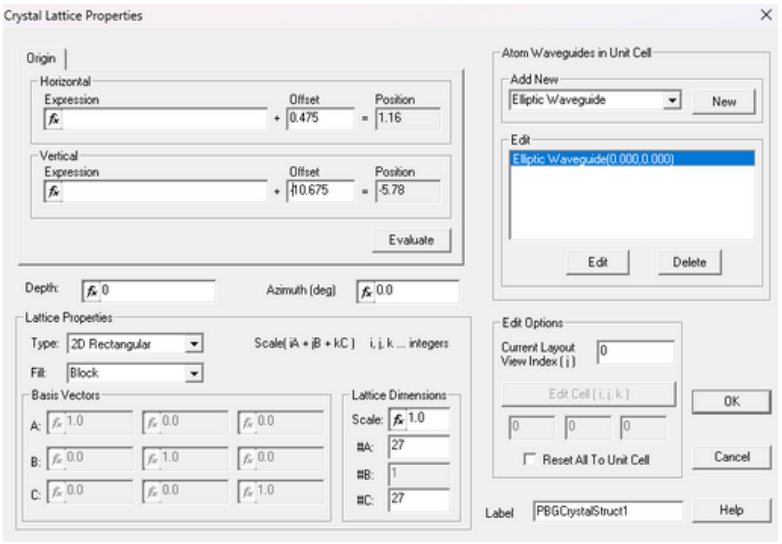


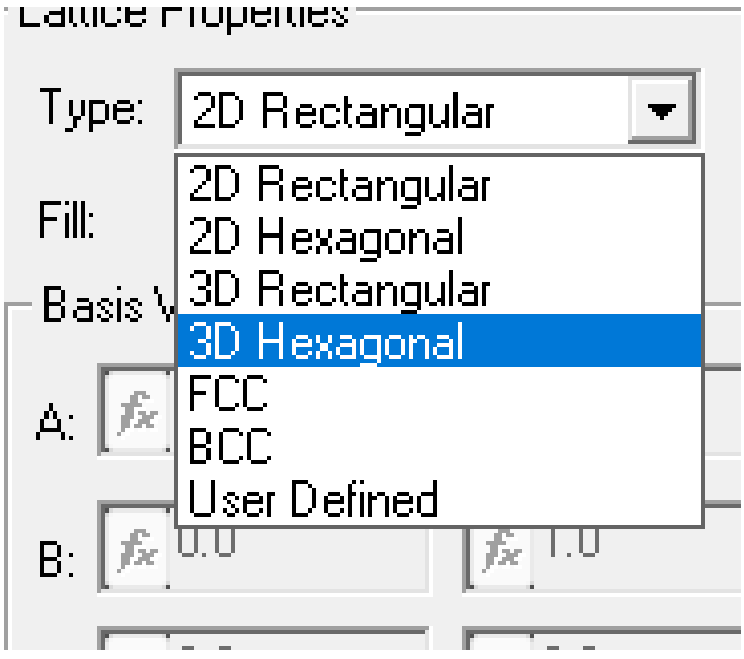


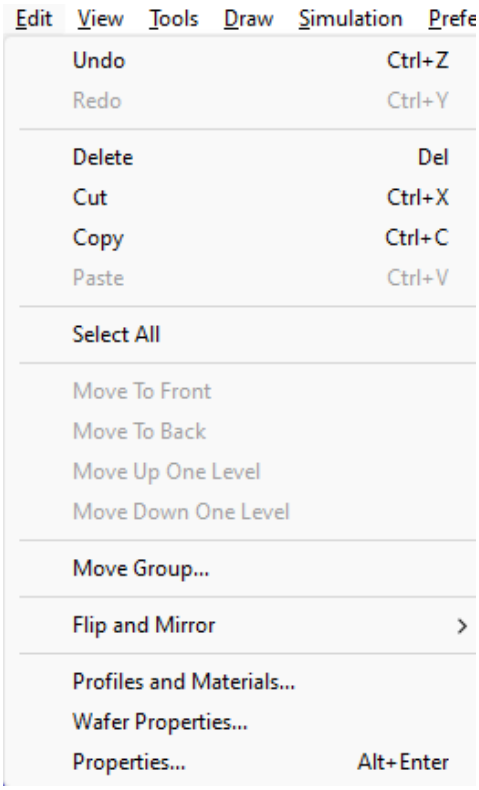
double click

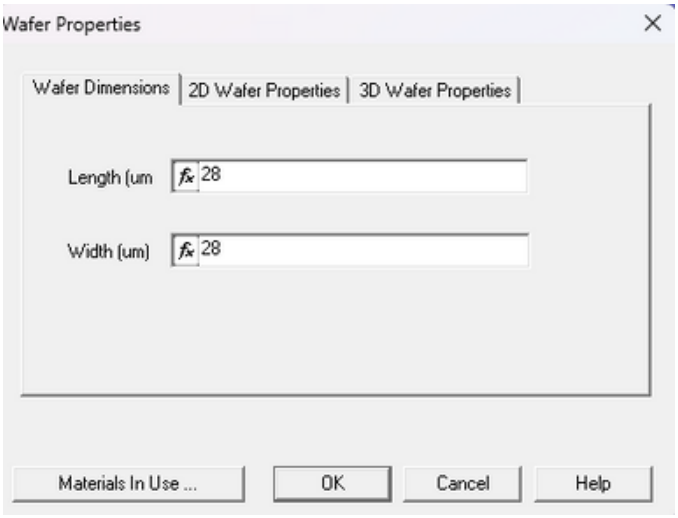


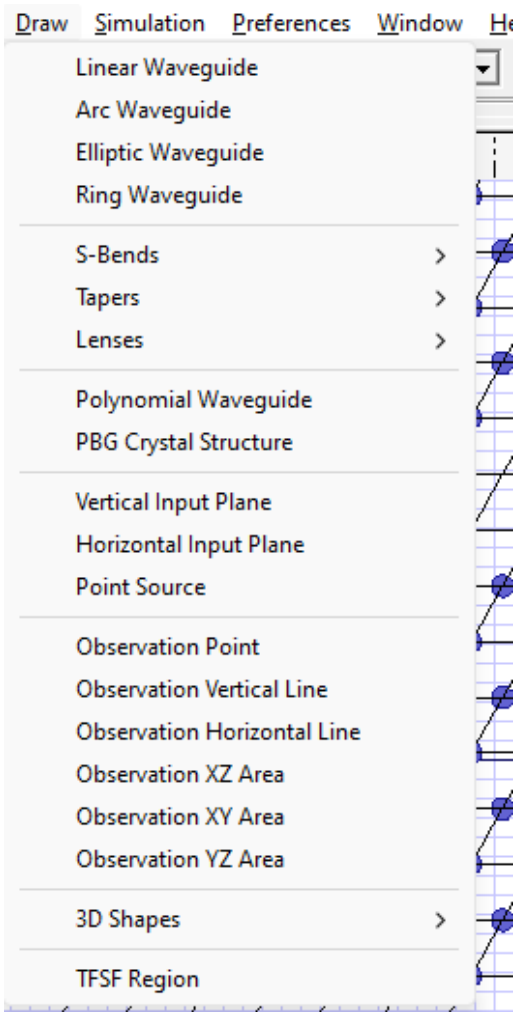

Crystal Lattice Properties
Origin
Horizontal
Expression
Offset
Position
1.6
1.62
Vertical
Expression
Offset
Position
3.6
3.2
Evaluate
Depth:
0
Azimuth (deg)
0.0
Lattice Properties
Type:
2D Rectangular
Scale(iA + jB + kC)
i, j, k ... integers
Fill:
Block
Basis Vectors
A:
B:
C:
Lattice Dimensions
Scale:
1.0
#A:
27
#B:
1
#C:
27
Atom Waveguides in Unit Cell
Add New
Elliptic Waveguide
New
Edit
Elliptic Waveguide(0.000,0.000)
Edit
Delete
Edit Options
Current Layout
View Index (i)
0
Edit Cell (i, j, k)
Reset All To Unit Cell
OK
Cancel
Label
PBGCrystalStruct1
Help

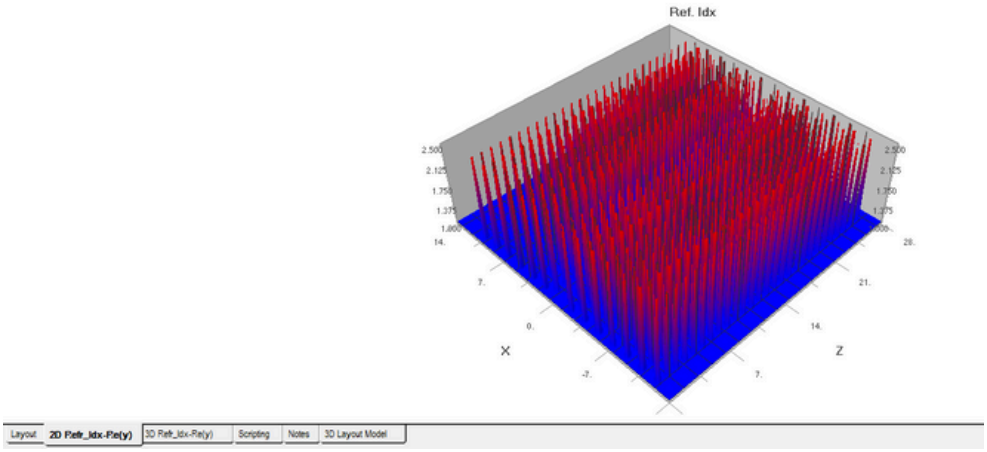

Crystal Lattice Properties
Origin
Horizontal
Expression
Offset
Position
0.475
1.16
Vertical
Expression
Offset
Position
-0.675
-5.78
Evaluate
Depth:
0
Azimuth (deg)
0.0
Lattice Properties
Type:
2D Rectangular
Scale(iA + jB + kC)
i, j, k ... integers
Fill:
Block
Basis Vectors
A:
B:
C:
Lattice Dimensions
Scale:
1.0
#A:
27
#B:
1
#C:
27
Atom Waveguides in Unit Cell
Add New
Elliptic Waveguide
New
Edit
Elliptic Waveguide(0.000,0.000)
Edit
Delete
Edit Options
Current Layout
View Index (i)
0
Edit Cell (i, j, k)
Reset All To Unit Cell
OK
Cancel
Label
PBGCrystalStruct1
Help

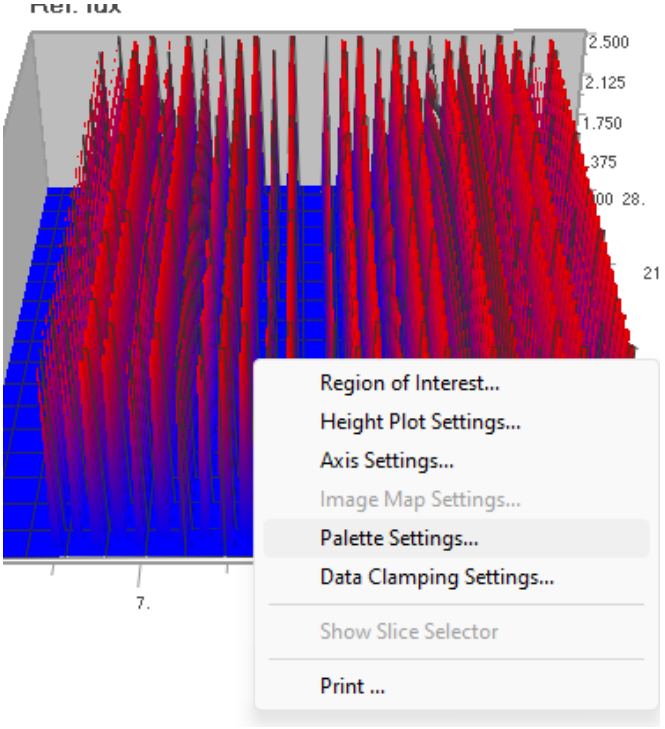

Type:
2D Rectangular
Fill:
A:
B:
2D Rectangular
2D Hexagonal
3D Rectangular
3D Hexagonal
FCC
BCC
User Defined

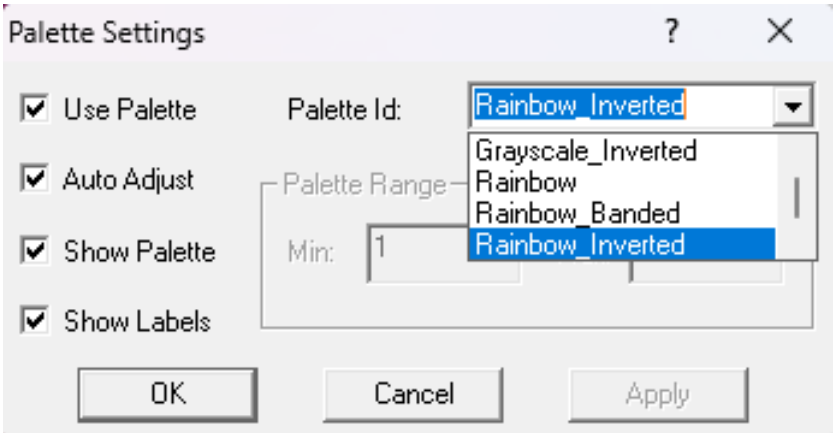

Edit View Tools Draw Simulation Prefe
Undo Ctrl+Z
Redo Ctrl+Y
Delete Del
Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Select All
Move To Front
Move To Back
Move Up One Level
Move Down One Level
Move Group...
Flip and Mirror
Profiles and Materials...
Wafer Properties...
Properties... Alt+Enter

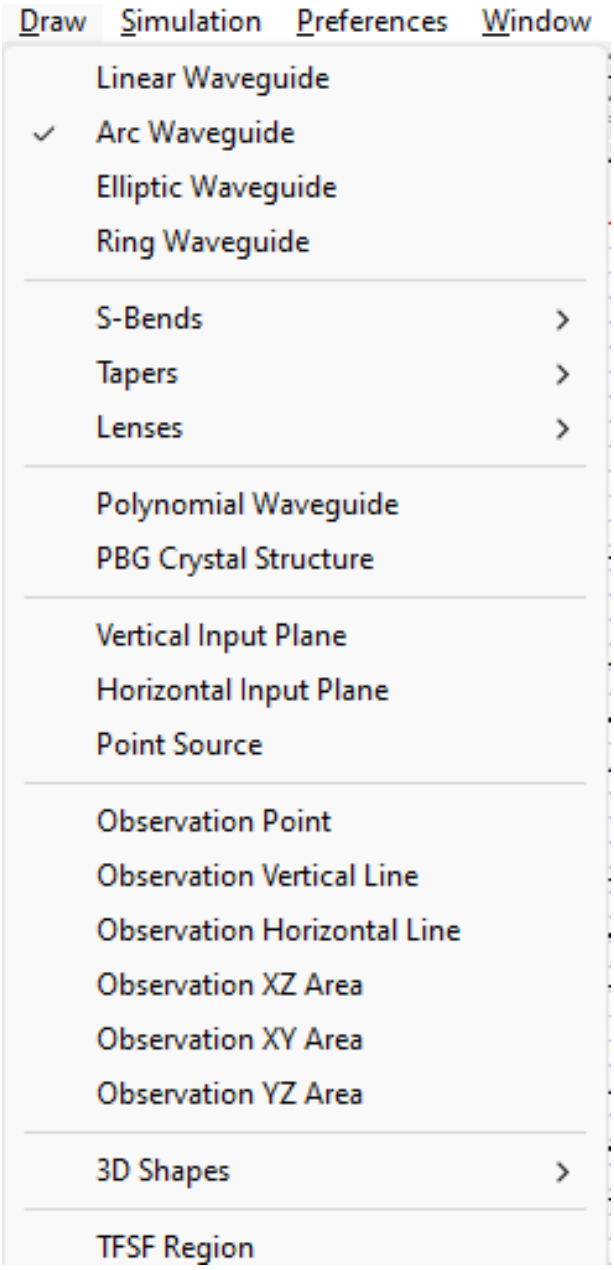

Wafer Properties
Wafer Dimensions
2D Wafer Properties
3D Wafer Properties
Length (um
28
Width (um)
28
Materials In Use ...
OK
Cancel
Help


Draw Simulation Preferences Window
Linear Waveguide
Arc Waveguide
Elliptic Waveguide
Ring Waveguide
S-Bends
Tapers
Lenses
Polynomial Waveguide
PBG Crystal Structure
Vertical Input Plane
Horizontal Input Plane
Point Source
Observation Point
Observation Vertical Line
Observation Horizontal Line
Observation XZ Area
Observation XY Area
Observation YZ Area
3D Shapes
TFSF Region

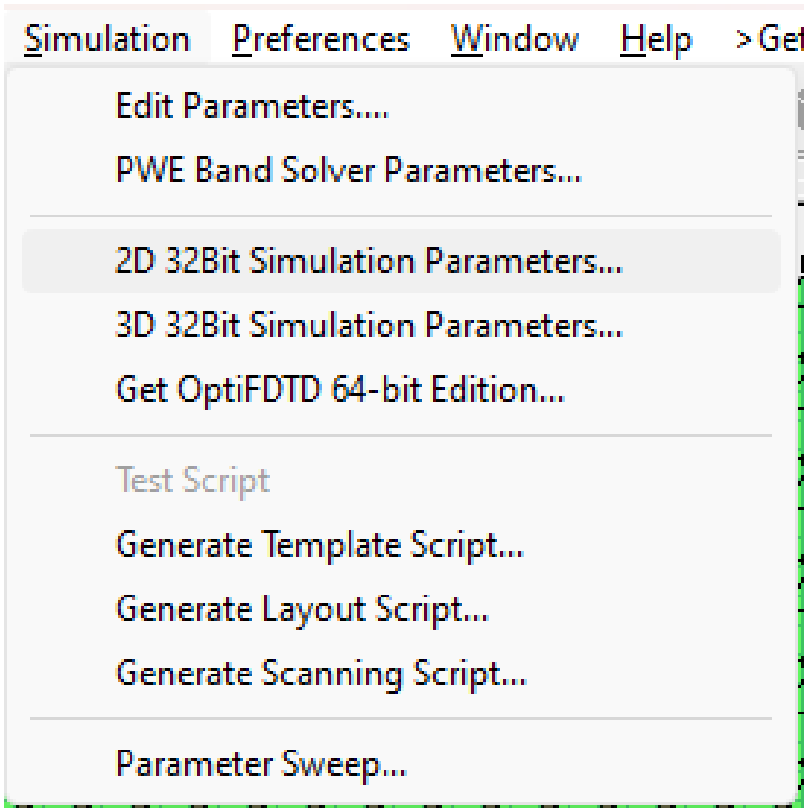

Ref. Idx
X
Z
Layout
2D Refr_Idx-Re(y)
3D Refr_Idx-Re(y)
Scripting
Notes
3D Layout Model


2.500
2.125
1.750
Region of Interest...
Height Plot Settings...
Axis Settings...
Image Map Settings...
Palette Settings...
Data Clamping Settings...
Show Slice Selector
Print ...

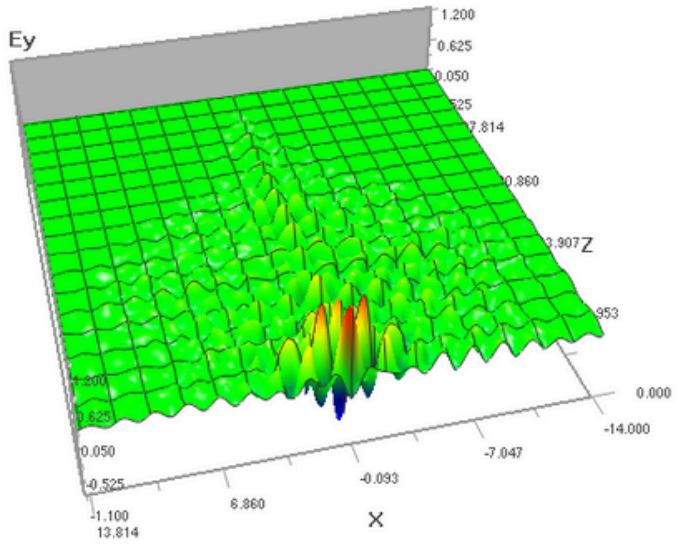

Palette Settings
Use Palette
Auto Adjust
Show Palette
Show Labels
Palette Id:
Rainbow_Inverted
Grayscale_Inverted
Rainbow
Rainbow_Banded
Rainbow_Inverted
Palette Range
Min:
1
OK
Cancel
Apply

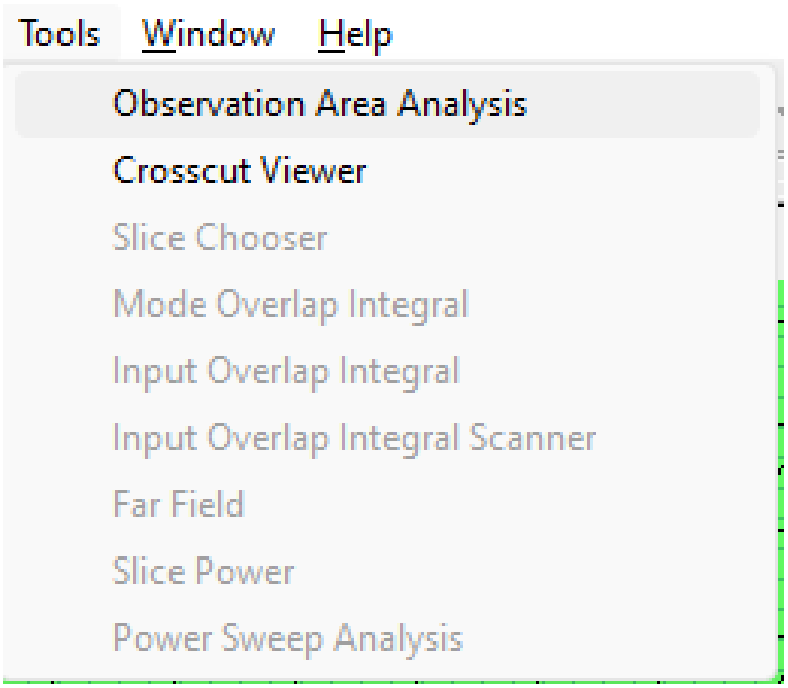


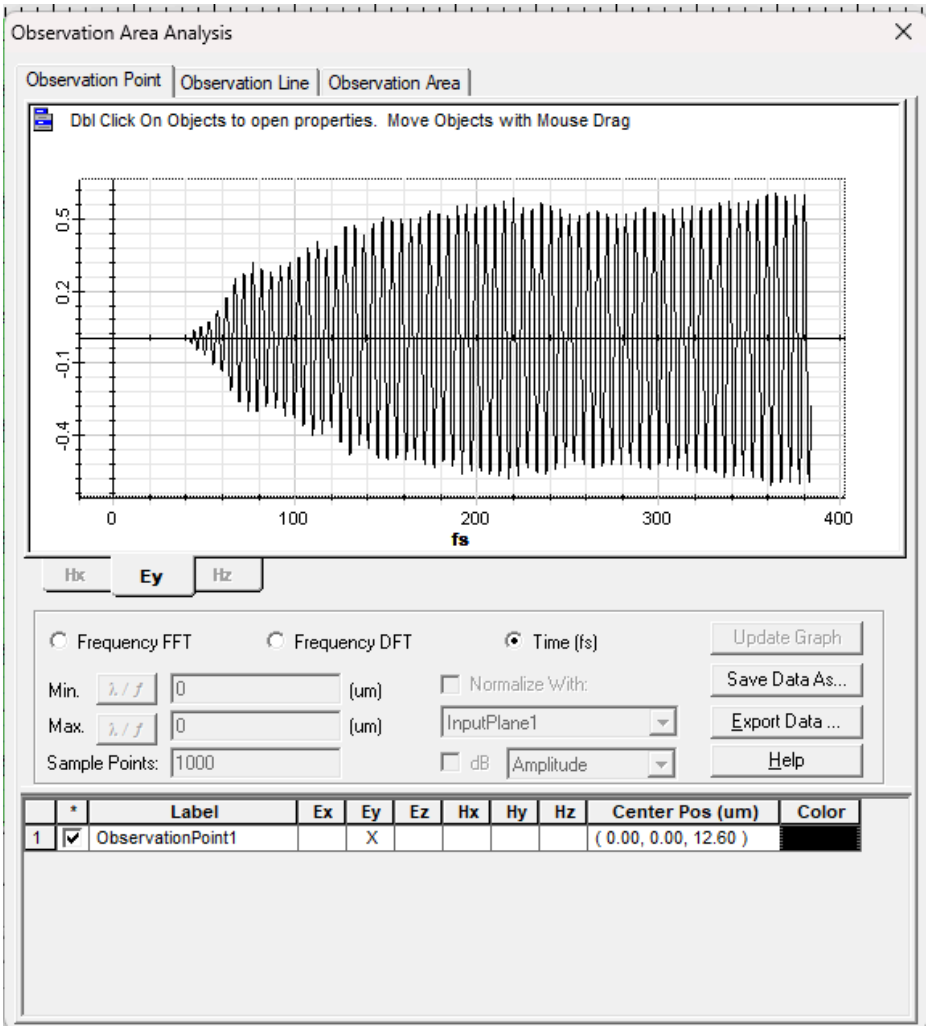
observation VERTICAL LINE AREA AND POINTS
click and observe in 2D

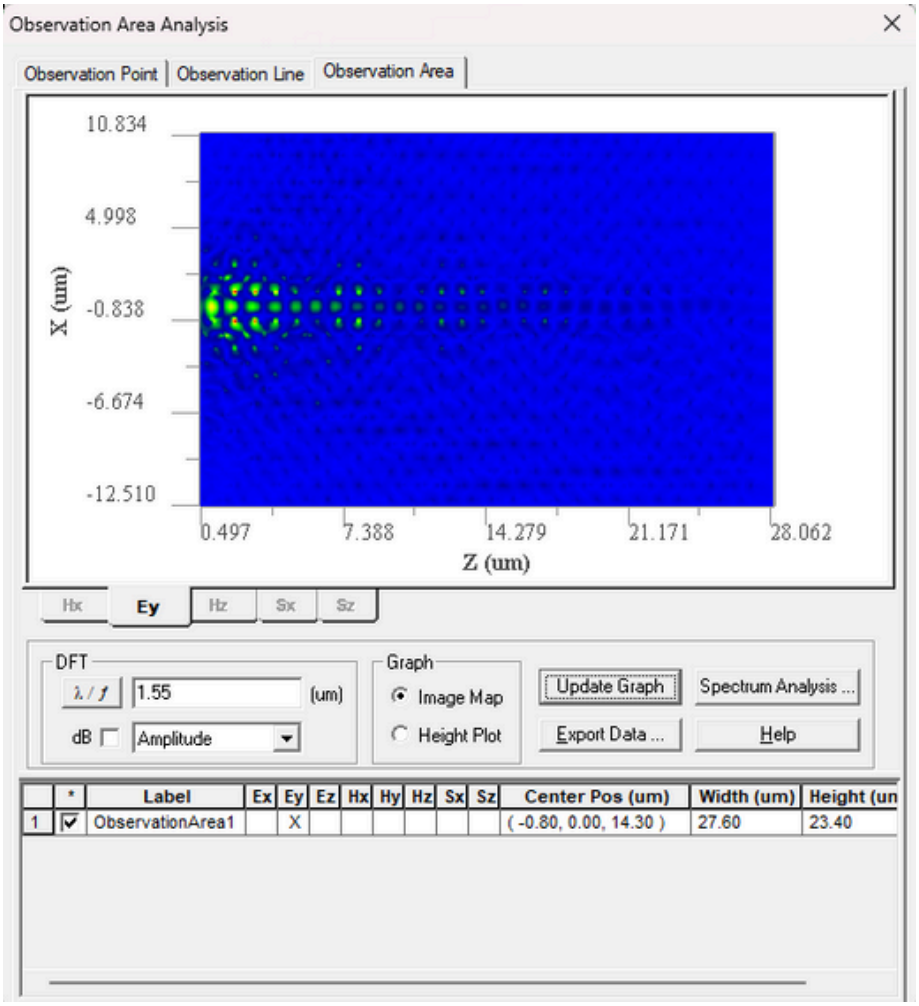

Simulation
Preferences
Window
Help
Edit Parameters....
PWE Band Solver Parameters...
2D 32Bit Simulation Parameters...
3D 32Bit Simulation Parameters...
Get OptiFDTD 64-bit Edition...
Test Script
Generate Template Script...
Generate Layout Script...
Generate Scanning Script...
Parameter Sweep...

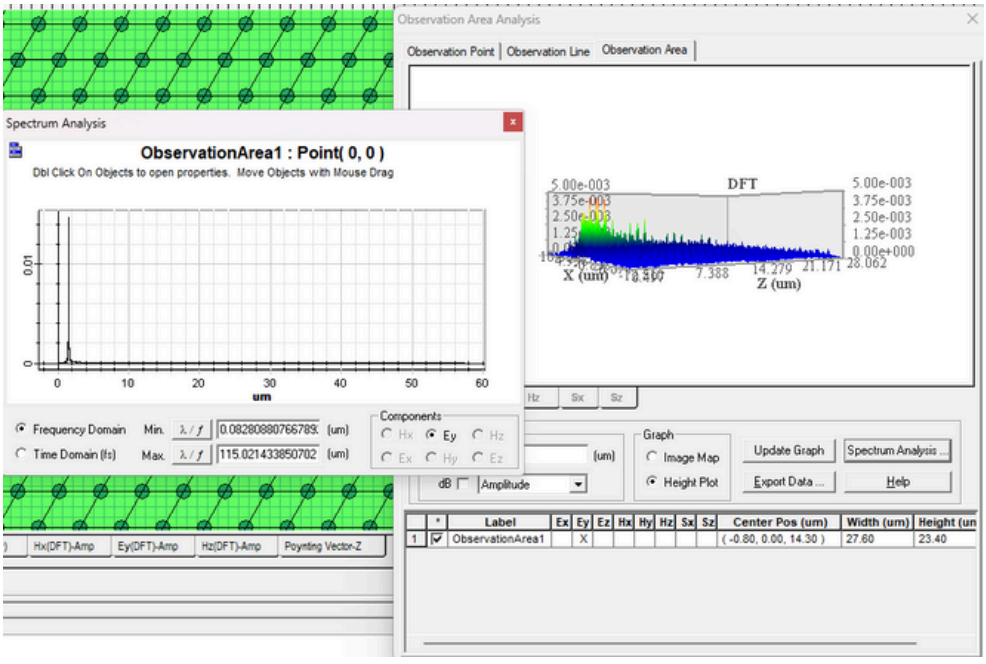
run save

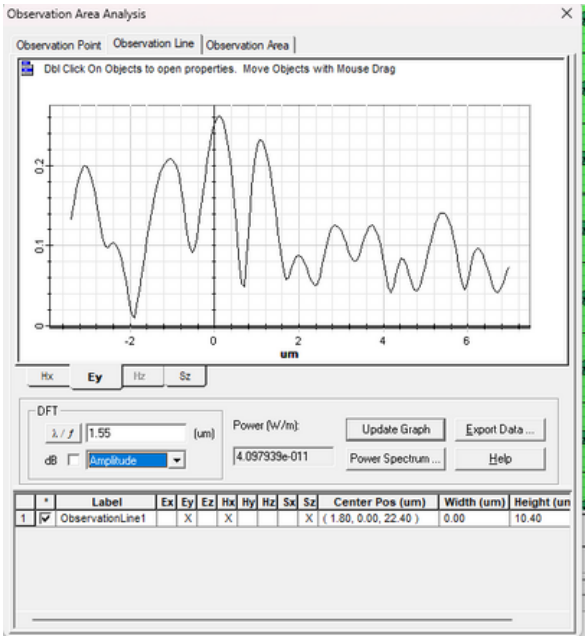

Ey
1.200
0.625
0.050
-0.525
-1.100
13.814
6.860
-0.093
-7.047
-14.000
0.000
Z
X

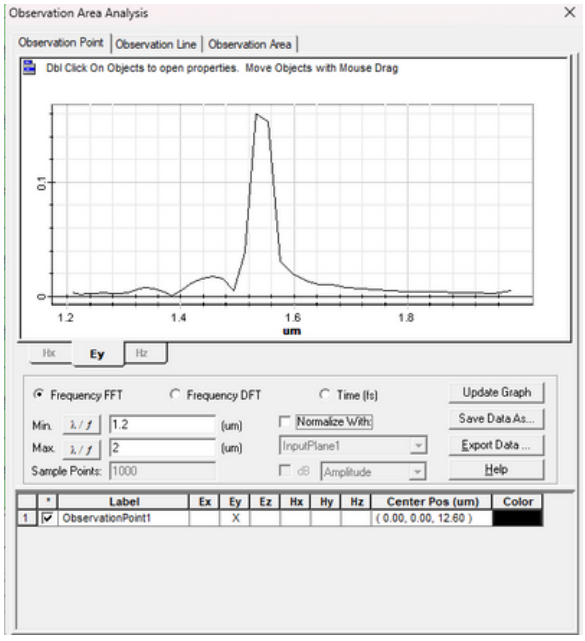

Tools
Window
Help
Observation Area Analysis
Crosscut Viewer
Slice Chooser
Mode Overlap Integral
Input Overlap Integral
Input Overlap Integral Scanner
Far Field
Slice Power
Power Sweep Analysis

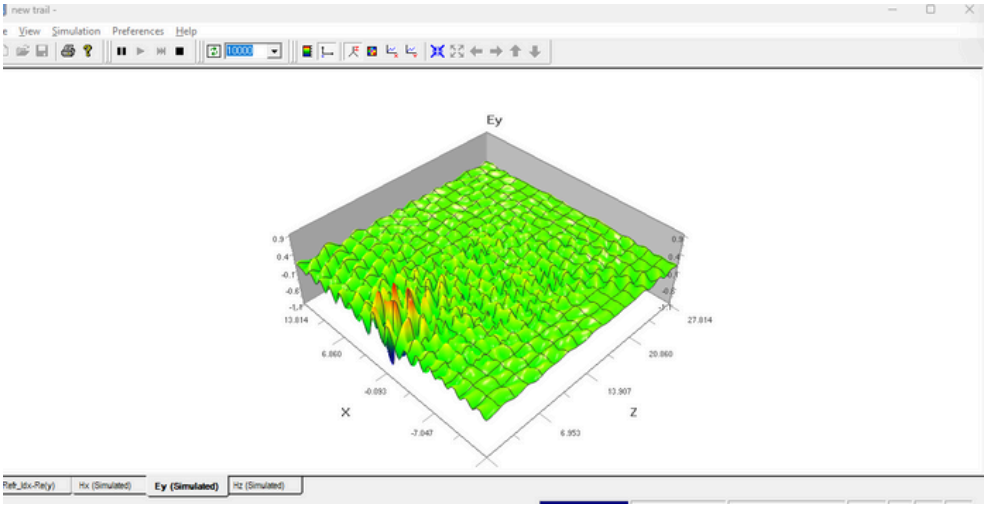

Observation Area Analysis
Observation Point
Observation Line
Observation Area
Dbl Click On Objects to open properties. Move Objects with Mouse Drag
0.5
0.2
-0.1
-0.4
0
100
200
300
400
fs
Hx
Ey
Hz
Frequency FFT
Frequency DFT
Time (fs)
Update Graph
Min.
0
(um)
Normalize With:
Save Data As...
Max.
0
(um)
InputPlane1
Export Data ...
Sample Points:
1000
dB
Amplitude
Help
* Label Ex Ey Ez Hx Hy Hz Center Pos (um) Color
1 ObservationPoint1 X (0.00, 0.00, 12.60)

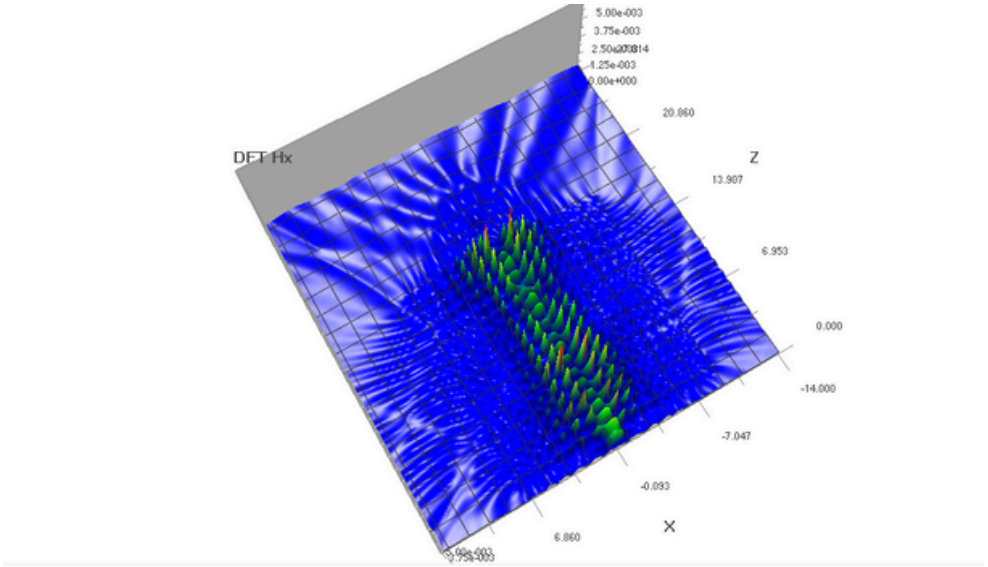

Observation Area Analysis
Observation Point
Observation Line
Observation Area
10.834
4.998
-0.838
-6.674
-12.510
X (um)
0.497
7.388
14.279
21.171
28.062
Z (um)
Hx
Ey
Hz
Sx
Sz
DFT
λ / f
1.55
(um)
dB
Amplitude
Graph
Image Map
Height Plot
Update Graph
Spectrum Analysis ...
Export Data ...
Help
Label
Ex
Ey
Ez
Hx
Hy
Hz
Sx
Sz
Center Pos (um)
Width (um)
Height (un
1
ObservationArea1
X
(-0.80, 0.00, 14.30)
27.60
23.40

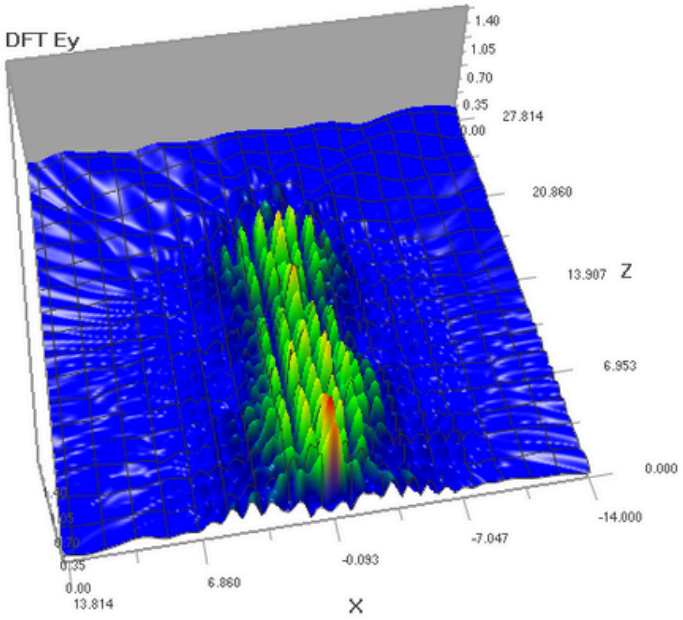

Spectrum Analysis
ObservationArea1 : Point(0, 0)
Dbl Click On Objects to open properties. Move Objects with Mouse Drag
0.01
0
0
10
20
30
40
50
60
um
Frequency Domain
Time Domain (fs)
Min.
Max.
0.082808807667893
115.021433850702
(um)
Components
Hx
Ey
Hz
Ex
Hy
Ez
Hx(DFT)-Amp
Ey(DFT)-Amp
Hz(DFT)-Amp
Poynting Vector-Z
Observation Area Analysis
Observation Point
Observation Line
Observation Area
DFT
5.00e-003
3.75e-003
2.50e-003
1.25e-003
0.00e+000
X (um)
7.388
14.279
21.171
28.062
Z (um)
Graph
Image Map
Height Plot
Update Graph
Spectrum Analysis ...
Export Data ...
Help
Amplitude
Label
Center Pos (um)
Width (um)
Height (un
ObservationArea1
(-0.80, 0.00, 14.30)
27.60
23.40

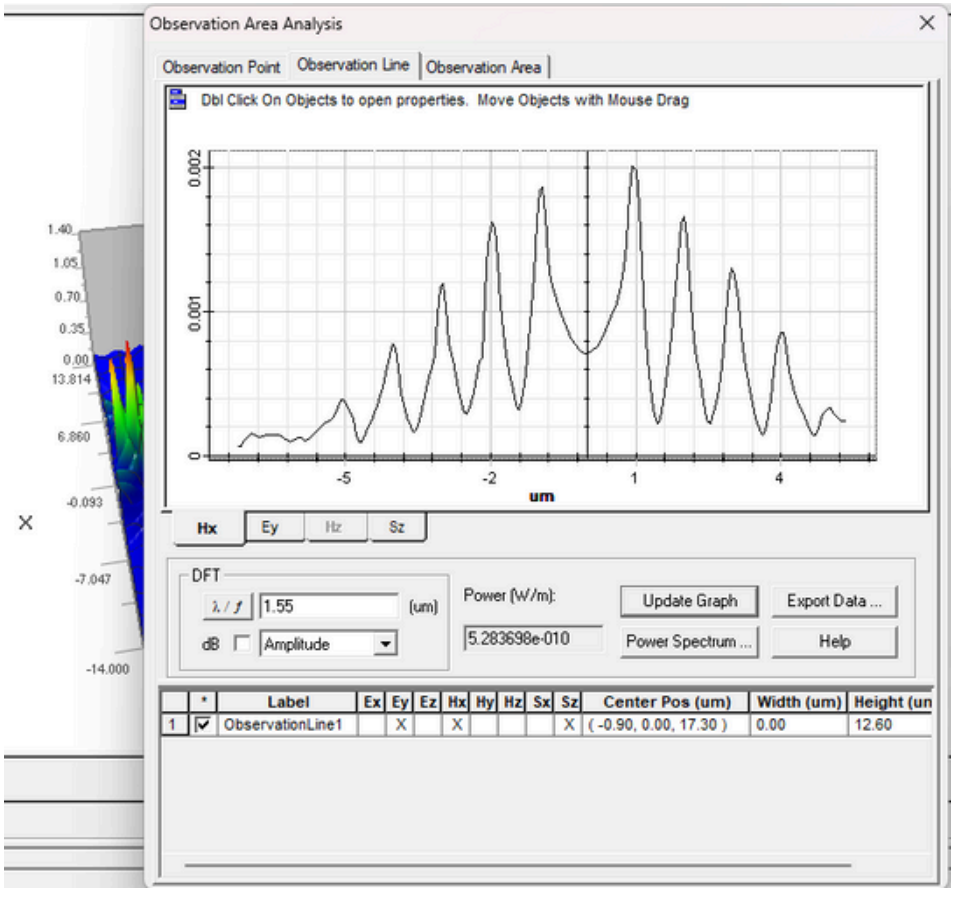

Observation Area Analysis
Observation Point
Observation Line
Observation Area
Dbl Click On Objects to open properties. Move Objects with Mouse Drag
0.2
0.1
0
-2
0
2
4
6
um
Hx
Ey
Hz
Sz
DFT
λ / f
1.55
(um)
dB
Amplitude
Power (W/m):
4.097939e-011
Update Graph
Export Data ...
Power Spectrum ...
Help
Label
Ex
Ey
Ez
Hx
Hy
Hz
Sx
Sz
Center Pos (um)
Width (um)
Height (un
1
ObservationLine1
X
X
X
(1.80, 0.00, 22.40)
0.00
10.40

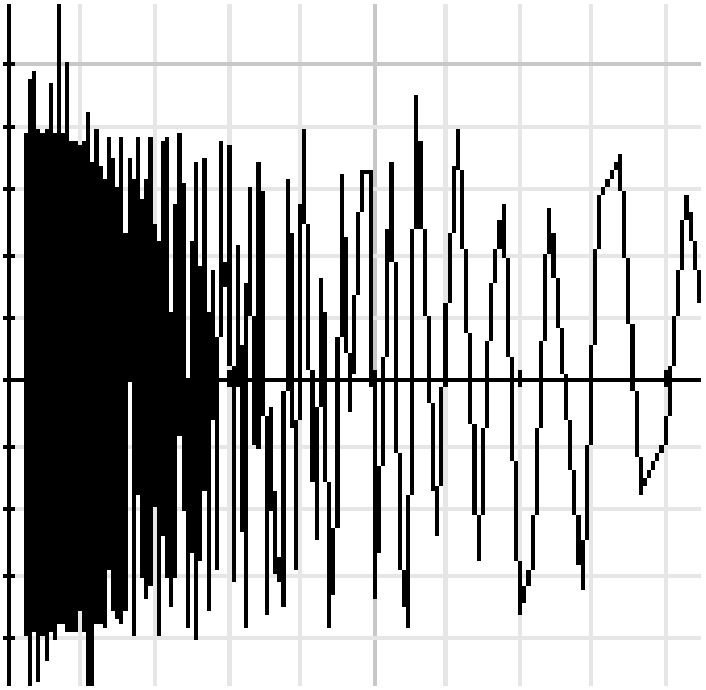

Observation Area Analysis
Observation Point
Observation Line
Observation Area
Dbl Click On Objects to open properties. Move Objects with Mouse Drag
0.1
0
1.2
1.4
1.6
1.8
um
Hx
Ey
Hz
Frequency FFT
Frequency DFT
Time (fs)
Update Graph
Min.
λ / f
1.2
(um)
Normalize With:
Save Data As...
Max.
λ / f
2
(um)
InputPlane1
Export Data ...
Sample Points:
1000
dB
Amplitude
Help
Label
Ex
Ey
Ez
Hx
Hy
Hz
Center Pos (um)
Color
1
ObservationPoint1
X
(0.00, 0.00, 12.60)

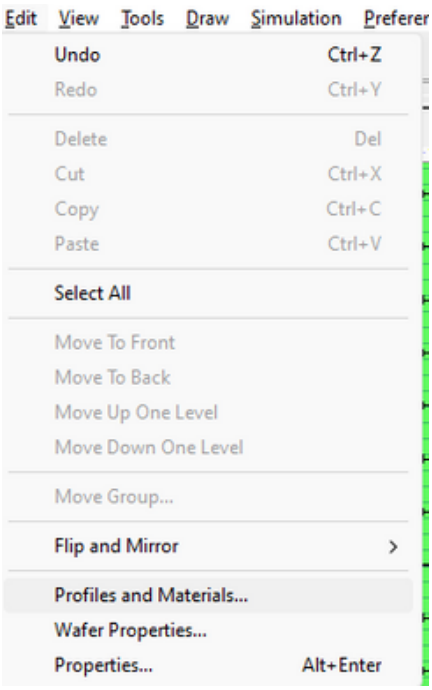

new trail -
View
Simulation
Preferences
Help
Ey
X
Z
13.814
6.860
-0.093
-7.047
6.953
13.907
20.860
27.814
Ref_Idx-Re(y)
Hx (Simulated)
Ey (Simulated)
Hz (Simulated)

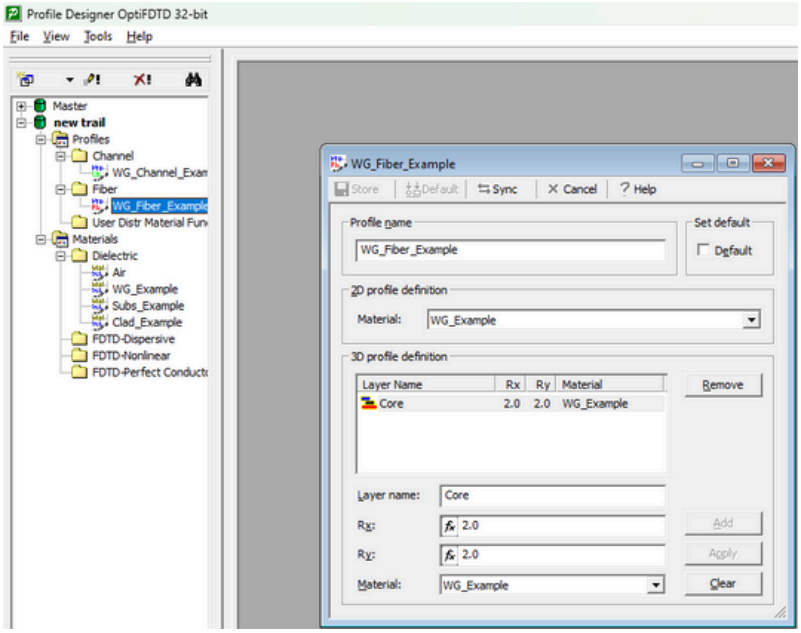

5.00e-003
3.75e-003
2.50e-003
1.25e-003
0.00e+000
DFT Hx
20.860
Z
13.907
6.953
0.000
-14.000
-7.047
-0.093
X
6.860


DFT Ey
1.40
1.05
0.70
0.35
0.00
27.814
20.860
13.907
Z
6.953
0.000
-14.000
-7.047
-0.093
6.860
13.814
X


Observation Area Analysis
Observation Point
Observation Line
Observation Area
Dbl Click On Objects to open properties. Move Objects with Mouse Drag
0.002
0.001
0
-5
-2
1
4
um
Hx
Ey
Hz
Sz
DFT
λ / f
1.55
(um)
dB
Amplitude
Power (W/m):
5.283698e-010
Update Graph
Export Data ...
Power Spectrum ...
Help
Label
Ex
Ey
Ez
Hx
Hy
Hz
Sx
Sz
Center Pos (um)
Width (um)
Height (un
1
ObservationLine1
X
X
X
(-0.90, 0.00, 17.30)
0.00
12.60




Edit View Tools Draw Simulation Preferer
Undo Ctrl+Z
Redo Ctrl+Y
Delete Del
Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Select All
Move To Front
Move To Back
Move Up One Level
Move Down One Level
Move Group...
Flip and Mirror
Profiles and Materials...
Wafer Properties...
Properties... Alt+Enter


Profile Designer OptiFDTD 32-bit
File View Tools Help
Master
new trail
Profiles
Channel
WG_Channel_Exar
Fiber
WG_Fiber_Example
User Distr Material Fun
Materials
Dielectric
Air
WG_Example
Subs_Example
Clad_Example
FDTD-Dispersive
FDTD-Nonlinear
FDTD-Perfect Conduct
WG_Fiber_Example
Store
Default
Sync
Cancel
Help
Profile name
WG_Fiber_Example
Set default
Default
2D profile definition
Material:
WG_Example
3D profile definition
Layer Name
Rx
Ry
Material
Core
2.0
2.0
WG_Example
Remove
Layer name:
Core
Rx:
2.0
Ry:
2.0
Material:
WG_Example
Add
Apply
Clear