



Trace**Pro**

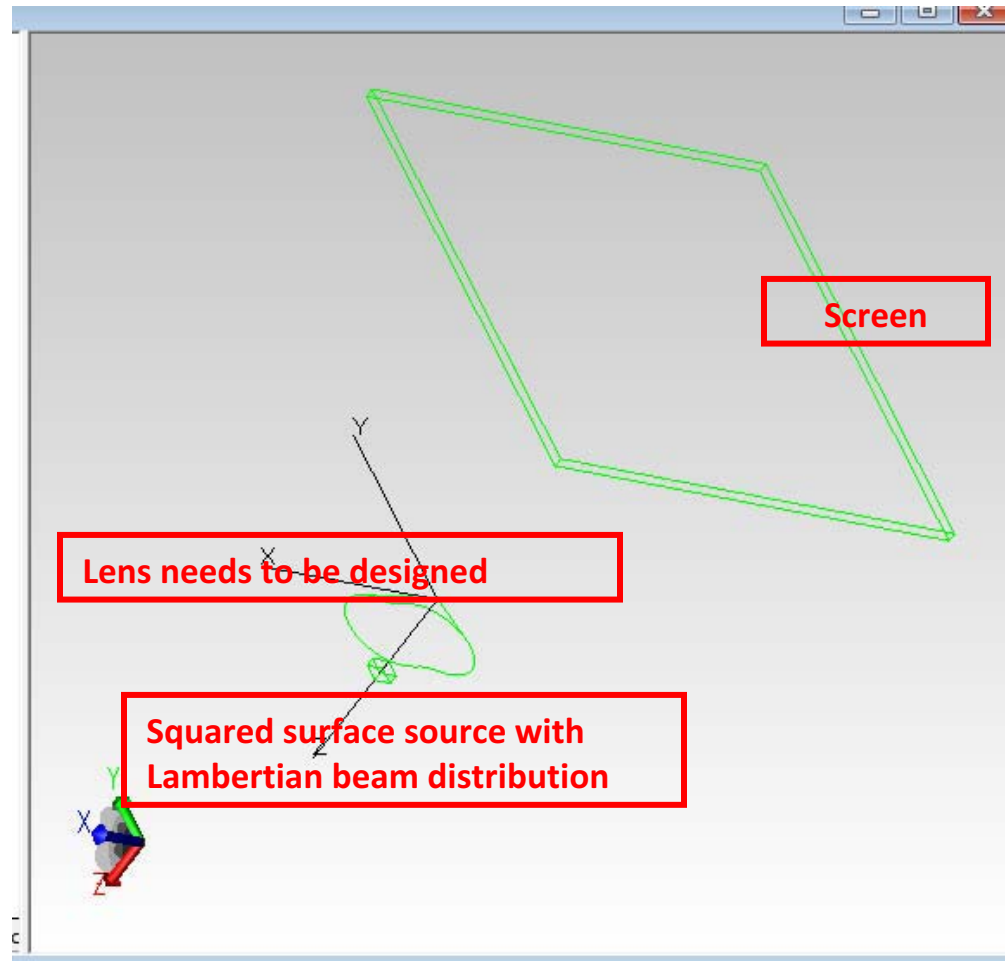
Biconic Lens Optimization



Biconic lens optimization

Model in TracePro (ex4.oml)

TracePro



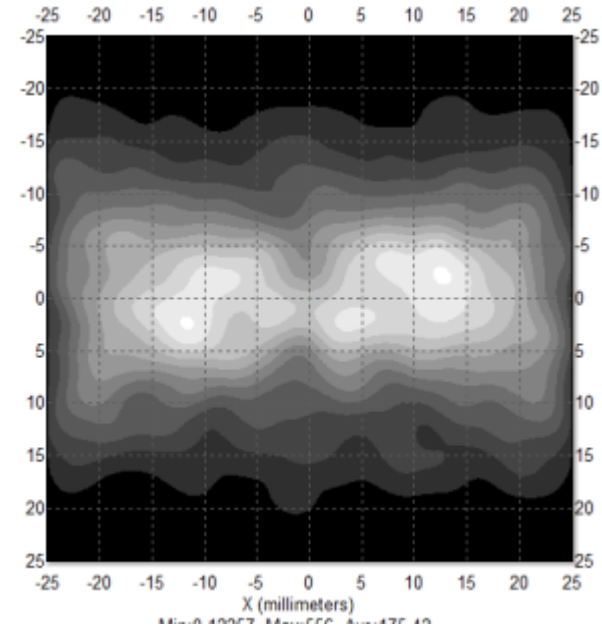
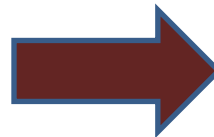
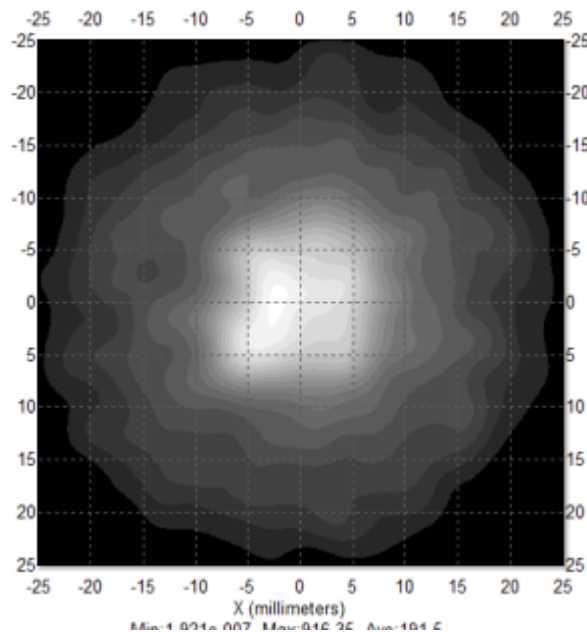


Biconic lens optimization

Target

Reshape the irradiance map from circular to rectangular

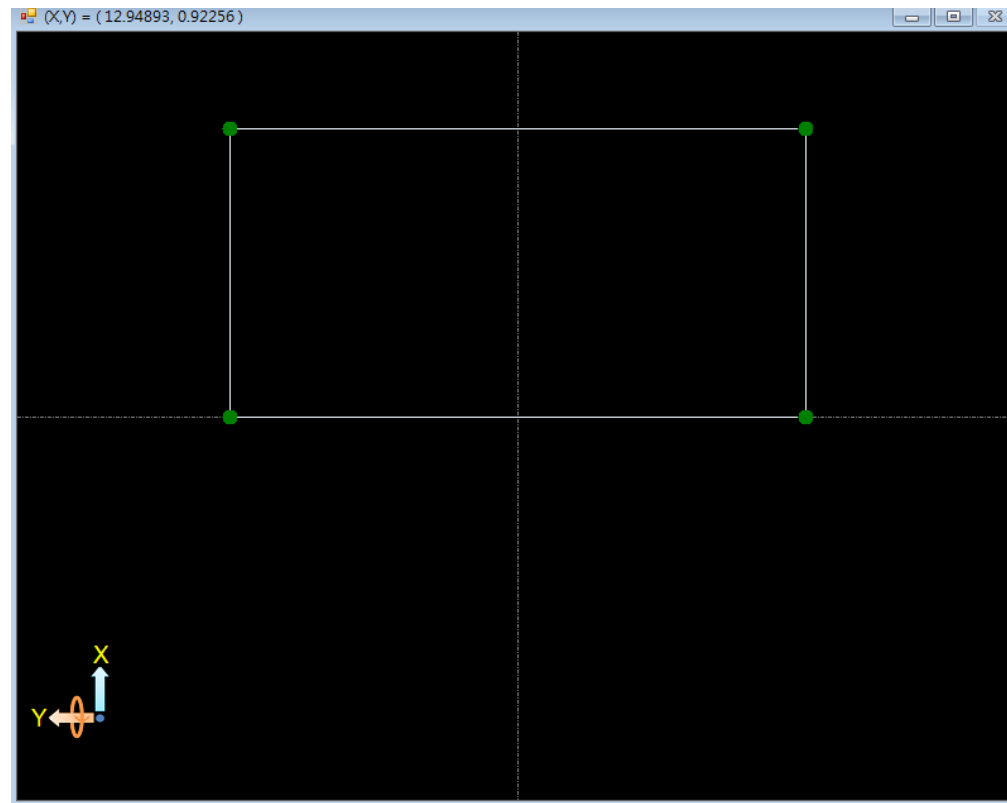
TracePro





Biconic lens optimization

Start a new design in the Interactive Optimizer. No need to make any change to the initial object, since in this example, the lens will be made by after-scheme, not from the drawing window.

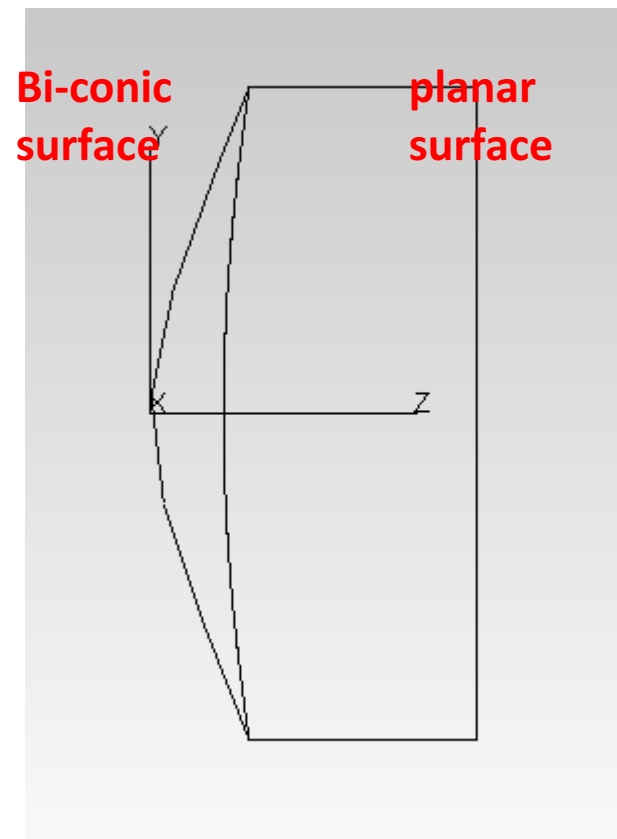


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Biconic lens optimization

Our plan is to design a biconic-planar lens to reshape the irradiance.



TracePro



Biconic lens optimization

Add four user-defined variables as shown in the screen shot below. r_x and r_y are the curvatures along x- and y- axis, respectively and c_x and c_y are the Conic constants respectively.

Variables

Object / Var name	ID	Type	Value	Low limit	Hi limit
r_x		User-defined	10.5	8	20
r_y		User-defined	10.5	8	20
c_x		User-defined	-2	2	2
c_y		User-defined	-2	2	2

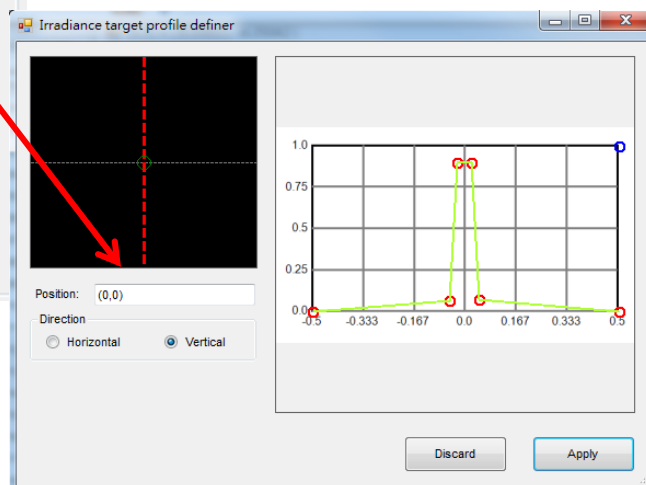


Biconic lens optimization

Two targets were set to stretch the irradiance map to a wider output in the x direction and narrower in y direction.

Trace

Operands						
	Type	Opt.	Wgt.	Surface	Location	Target
▶	Irr Profile	Similarity	1.0	target		{0:0:H:(-0.5...
	Irr Profile	Similarity	1.0	target		{0:0:V:(-0.5...





Biconic lens optimization

Now, uncheck all objects, but remember to input the after-scheme info in the first row.

Objects

Output?	Object ID	Name	Mat. Catalog	Mat. Property	Geo. type	Linked Obj / Length	After-scheme
		Pre-processor					surf1=face:biconic(var("rx"),var("ry"),var("cx"),var("cy"))
☐	0	Object 0			RadialSym...		

Scheme editor

```
surf1=face:biconic(var("rx"),var("ry"),var("cx"),var("cy"))
surf2=face:planar()
makelens("lens",surf1,surf2,5,10)
applymaterial("lens","Plastic","pmma")
```

TraceP

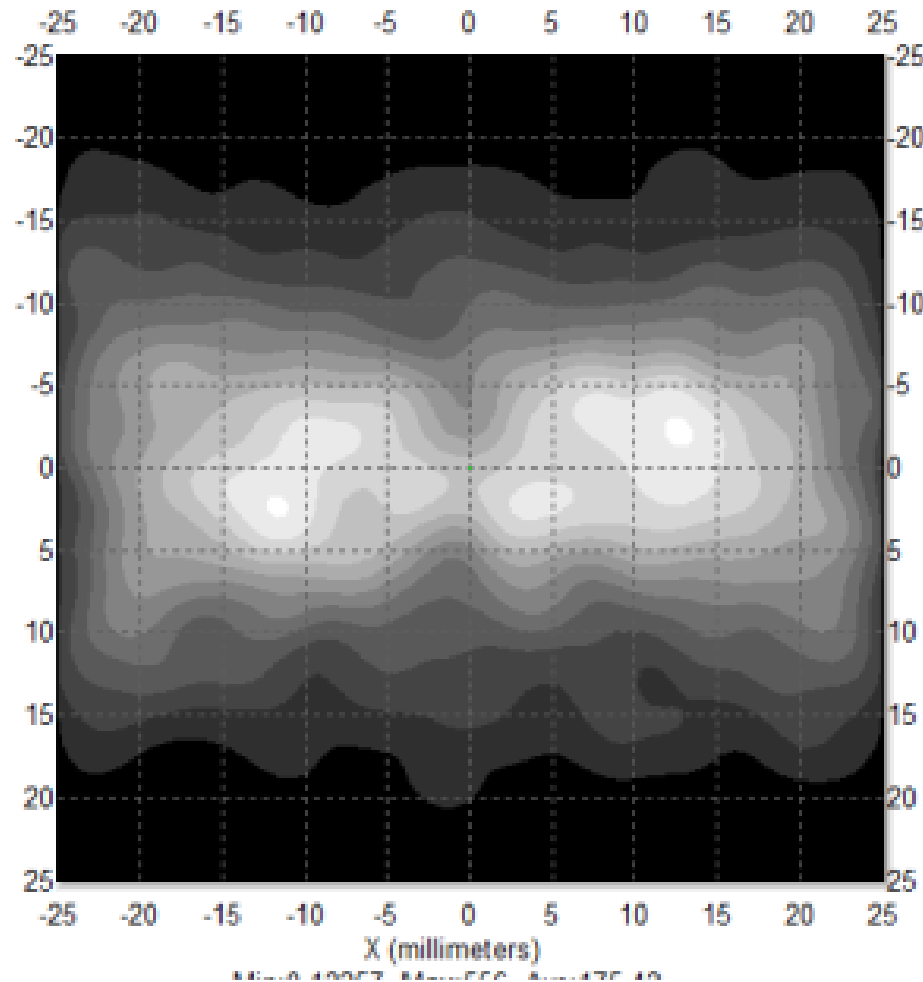
The explanations for all commands can be found in the command reference document.

Discard Apply



Biconic lens optimization

Final result



TracePro