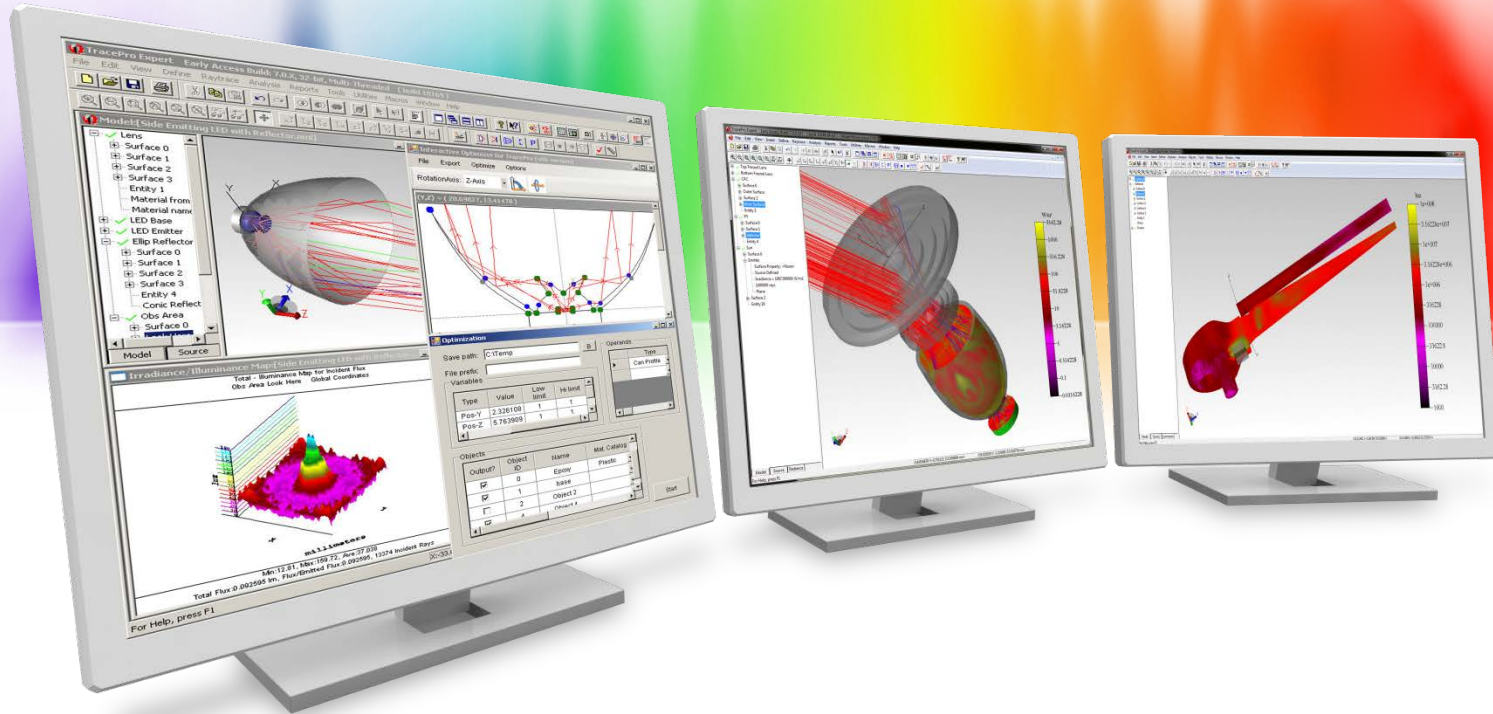


# New Features in TracePro

# New TracePro Release Numbering

- TracePro has switched to a yearly naming scheme. TracePro 2021 version 21.1 was the first release of TracePro in 2021.
- Official releases of TracePro 2021 will debut approximately every 60 days, on or around the 10<sup>th</sup> of the month, starting in February..



# New Features in TracePro 2021 21.2

# TracePro 2021 21.2

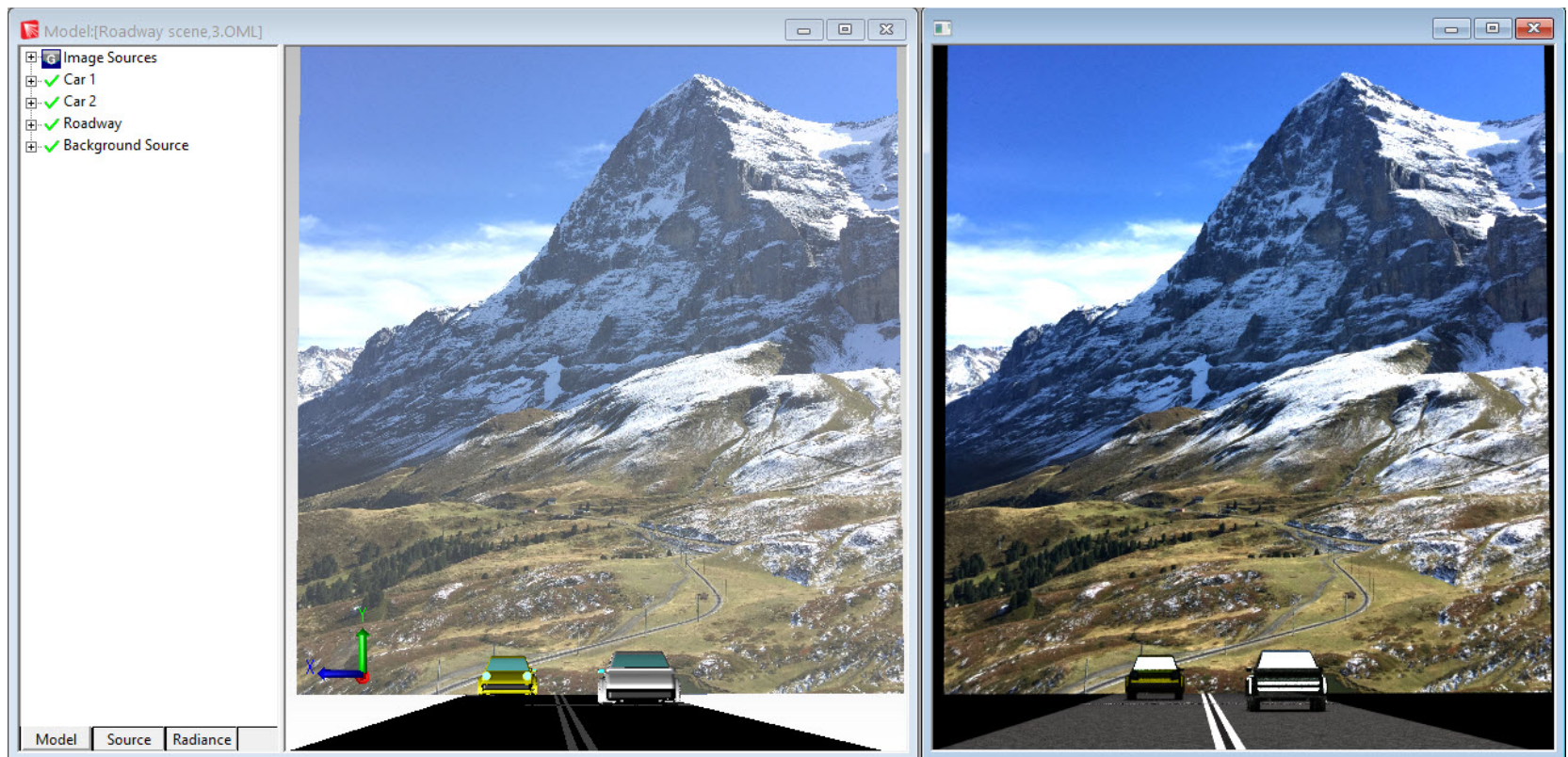
## ➤ TracePro

- New source type - Image Source
- Updated CGDM glass catalogs



# TracePro 2021 21.2

**TracePro – A new source type, the Image Source has been added. An image file such as a JPEG or Bitmap file can now be used as a source in TracePro.**



# TracePro 2021 21.2

**TracePro – A new source type, the Image Source has been added. An image file such as a JPEG or Bitmap file can now be used as a source in TracePro.**

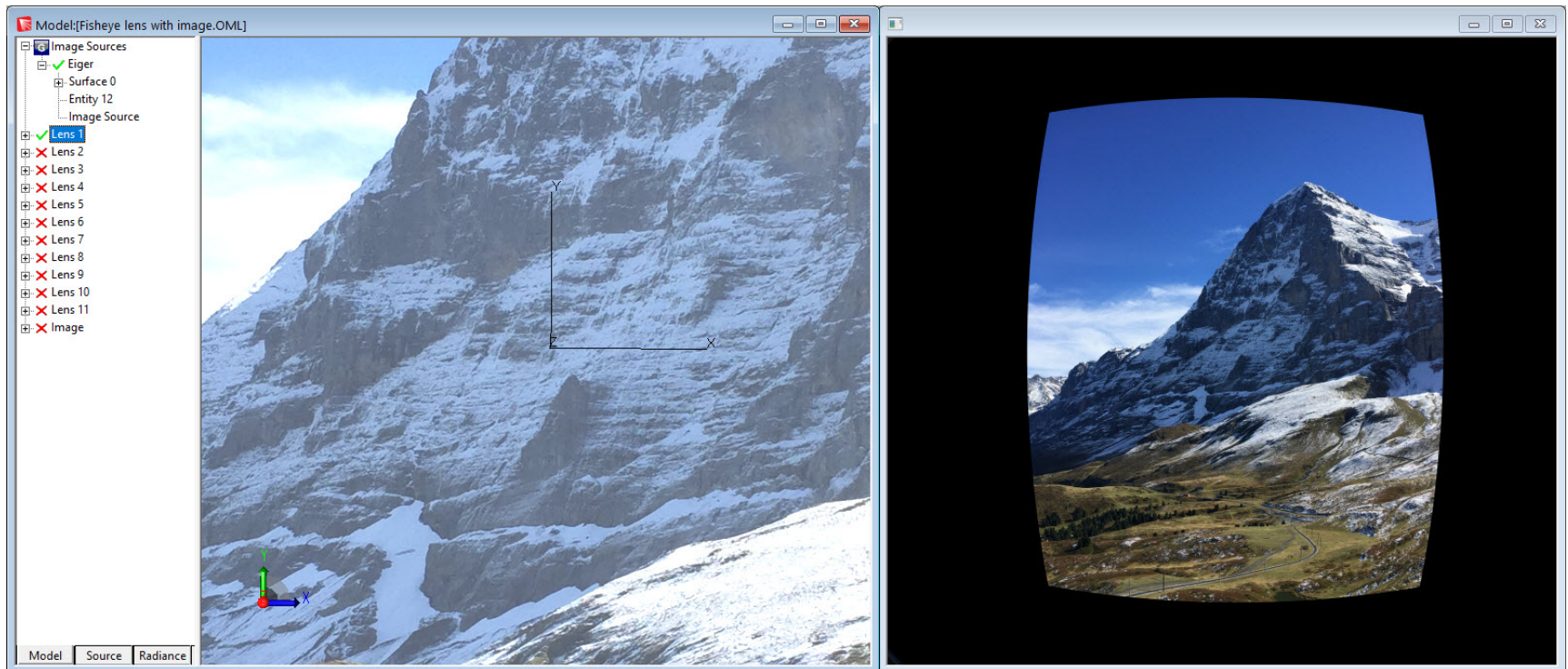
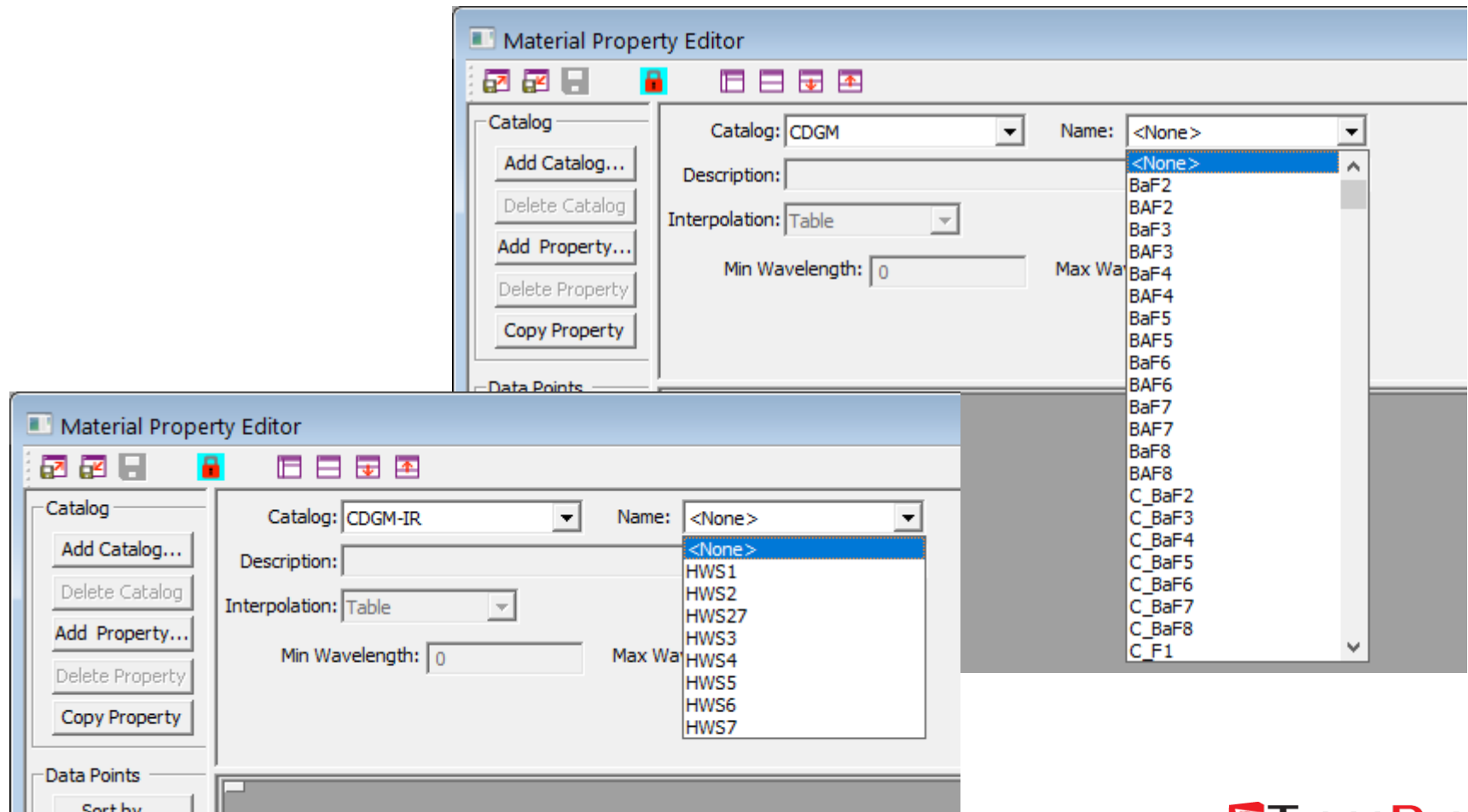


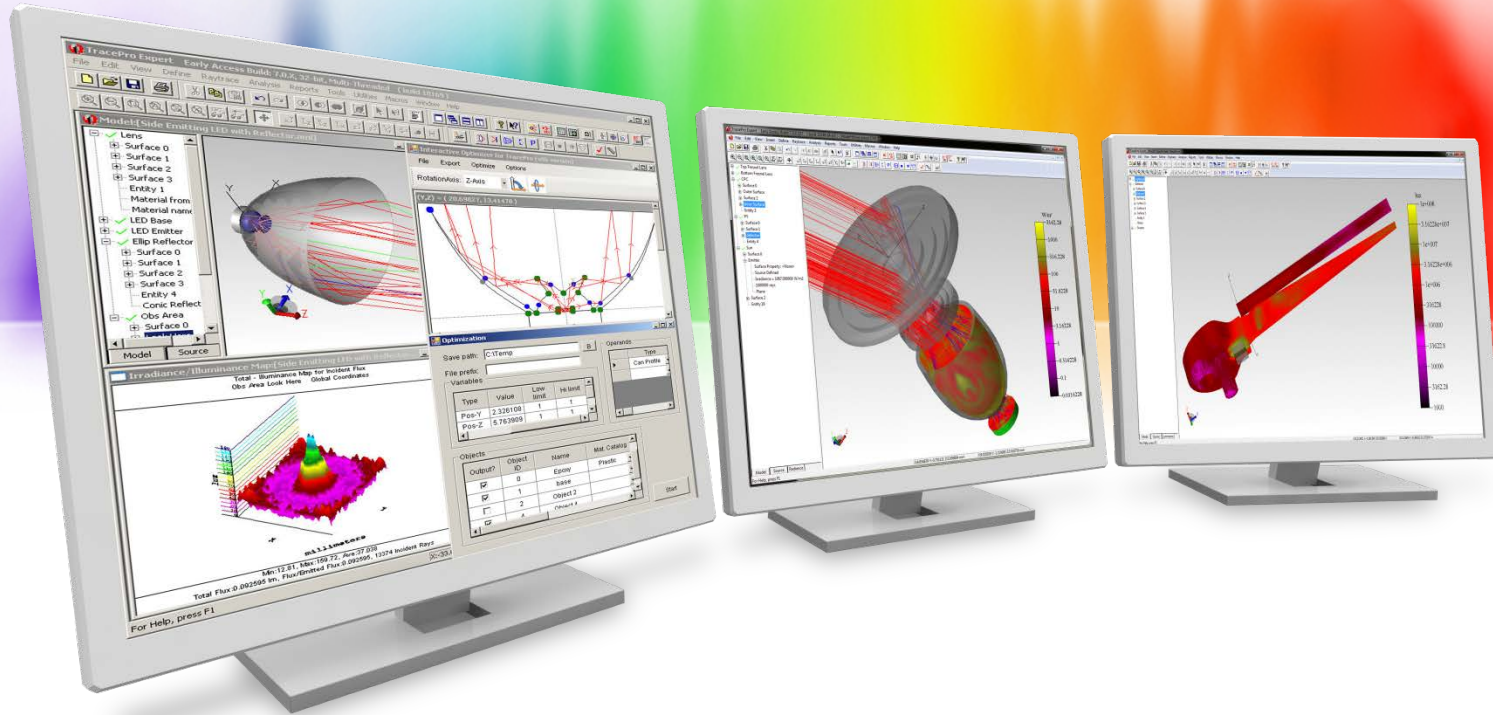
Image as viewed through a wide angle lens

# TracePro 2021 21.2

**TracePro – The CDGM glass catalog as been updated to reflected the latest data. A new CDGM-IR catalog of IR glass has been added.**







# New Features in TracePro 2021 21.1



# TracePro 2021 21.1

## ➤ **Interactive Optimizer**

- New capability for editing values of points in the Irradiance Profile operand

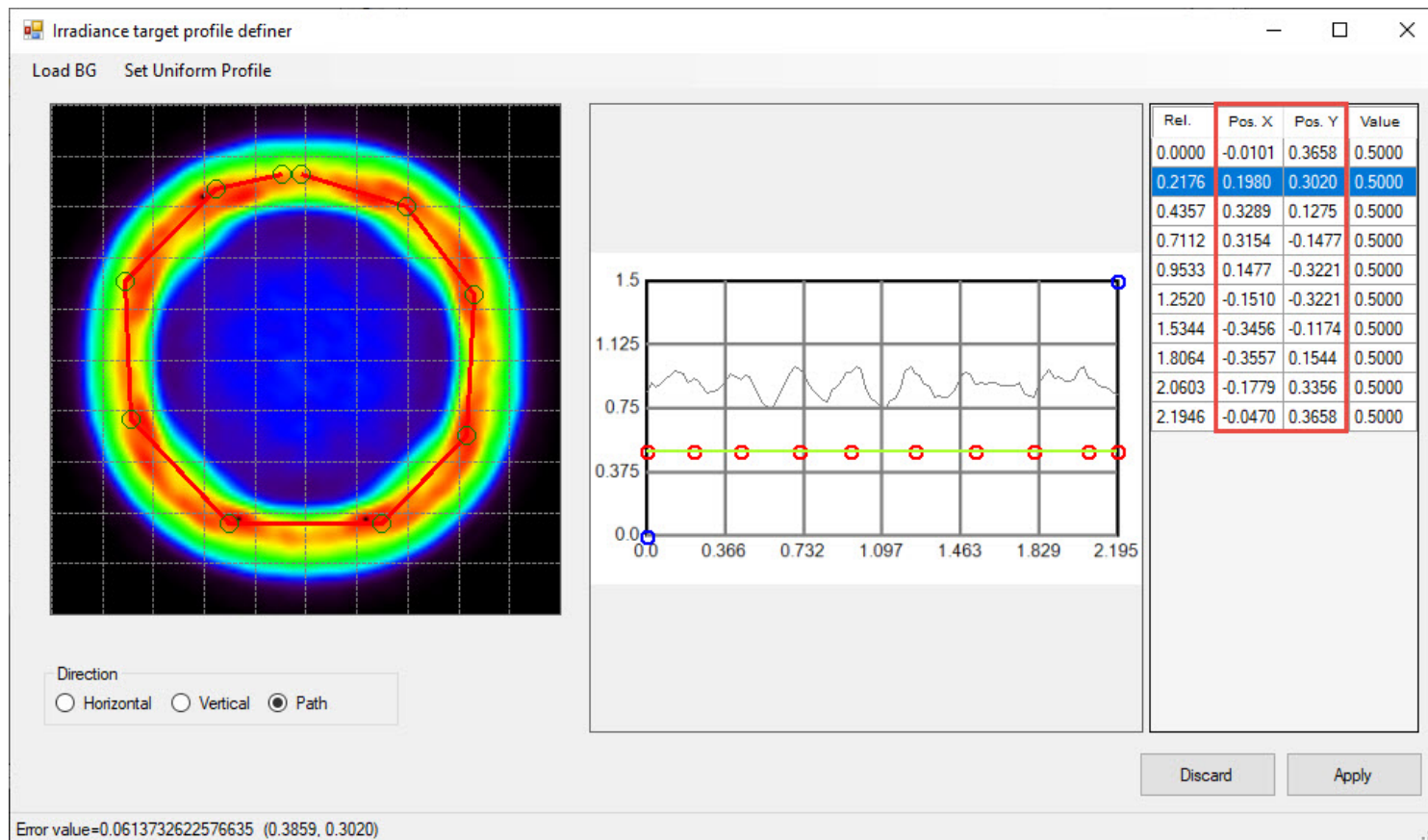
## ➤ **Lighting Toolkit**

- New FMVSS 108 regulations have been added

## ➤ **New Scheme command**

# TracePro 2021 20.1

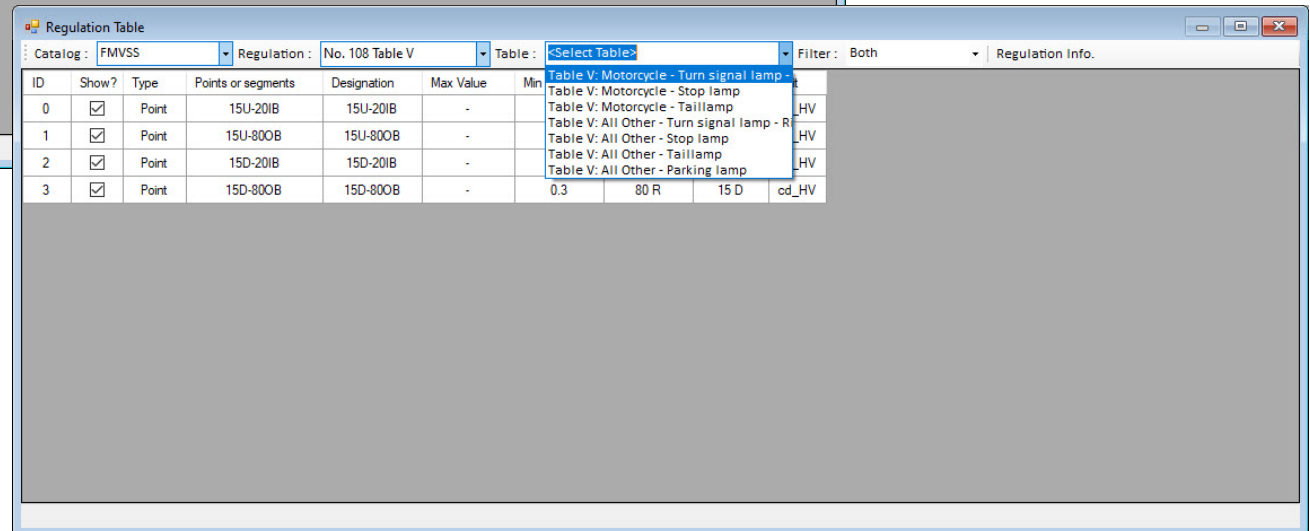
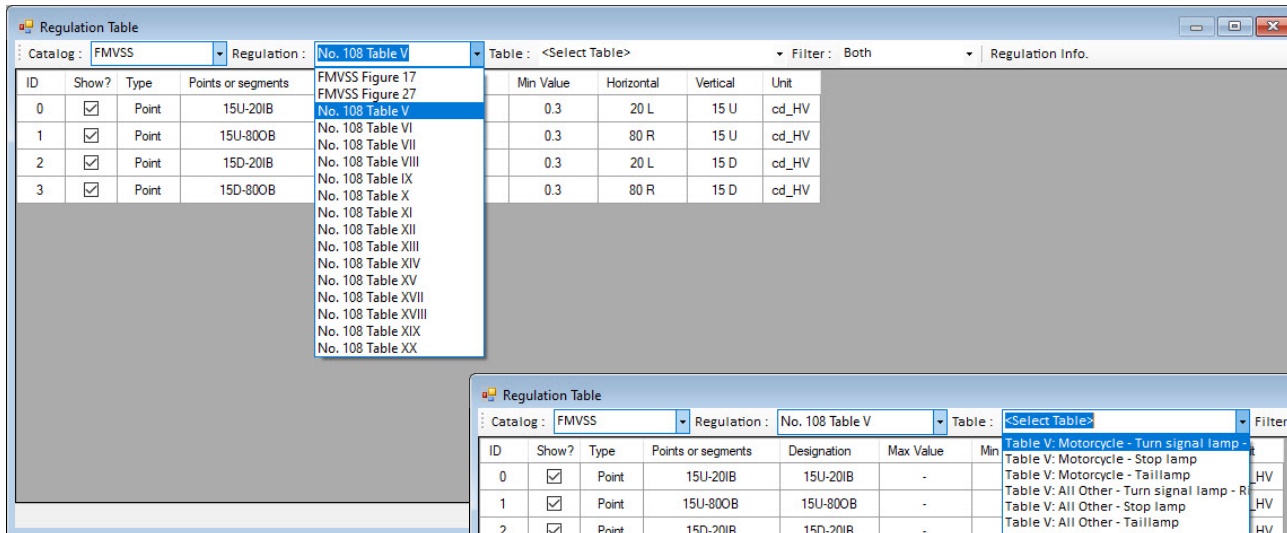
**Interactive Optimizer – The capability to edit the values of points when defining the Irradiance Profile operand has been added**



# TracePro 2021 20.1

## ➤ Lighting Toolkit

- 62 FMVSS 108 regulations have been added

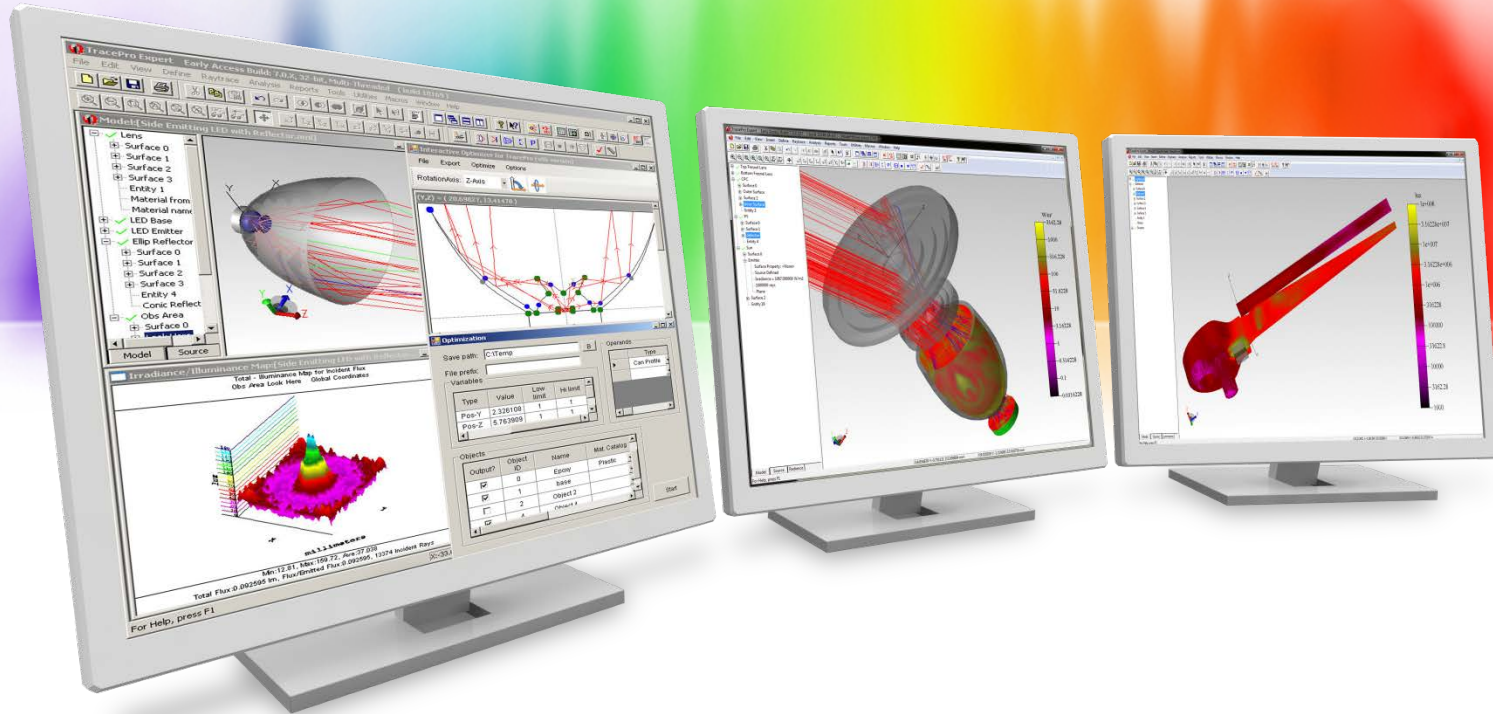


# TracePro 2021 20.1

## ➤ **Scheme command**

- New Scheme command has been added
  - edit:rotate-objects





# New Features in TracePro 2020 20.6

# TracePro 2020 20.6

## ➤ **TracePro**

- New RepTile geometry shape – Circular Hip Roof

## ➤ **Lighting Toolkit**

- New SAE J595 regulations have been added

## ➤ **Surface Property Generator**

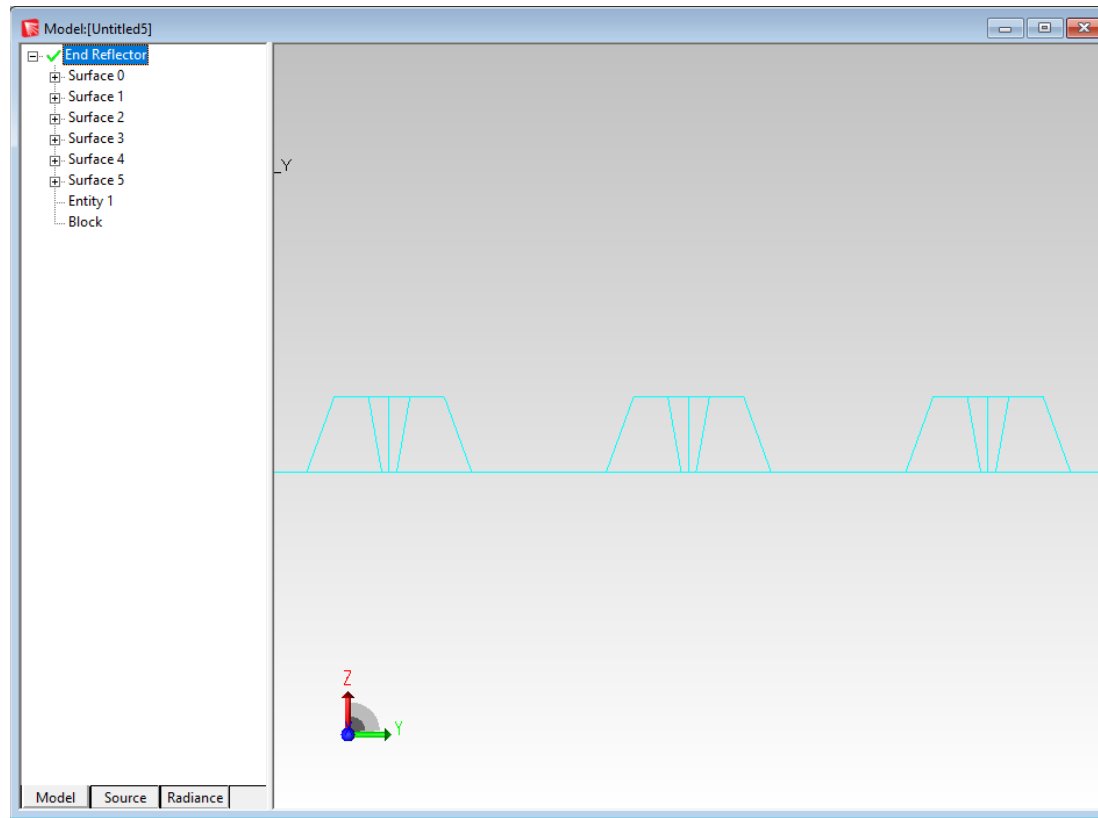
- New Import Data options have been added

## ➤ **New Scheme commands**

# TracePro 2020 20.6

## ➤ TracePro

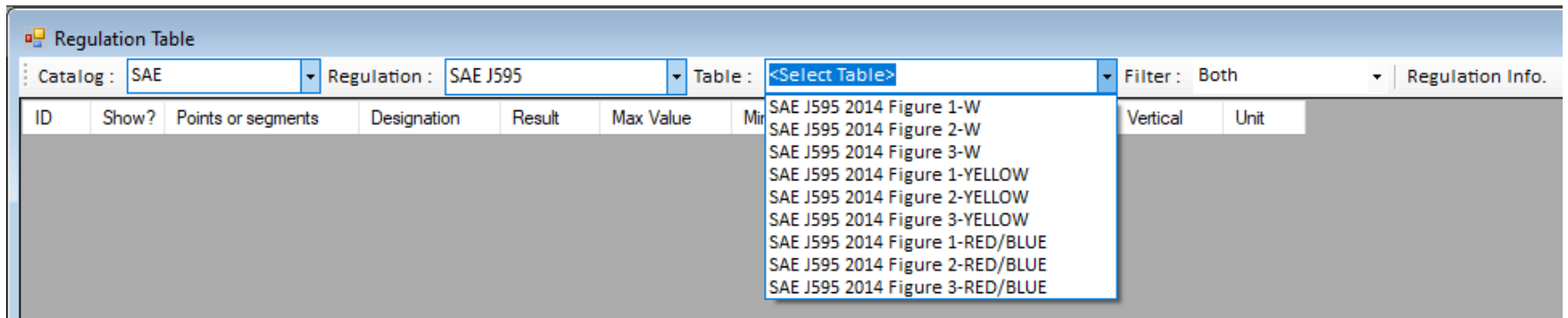
### ➤ New RepTile shape – Circular Hip Roof



# TracePro 2020 20.6

## ➤ Lighting Toolkit

- 9 SAE J595 regulations have been added





# TracePro 2020 20.6

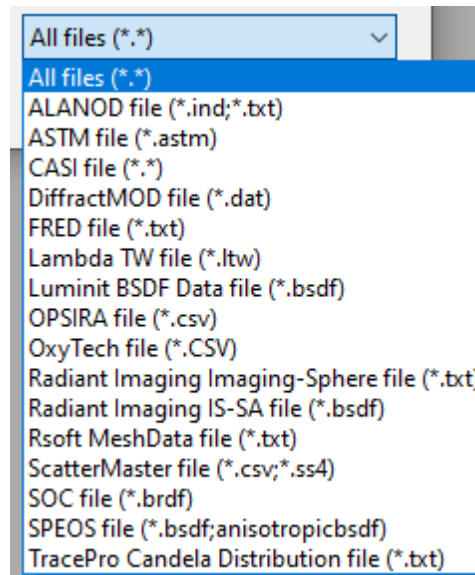
## ➤ Surface Property Generator

➤ Import of 3 new data types is now supported

➤ ASTM file format

➤ Rsoft NeshData format

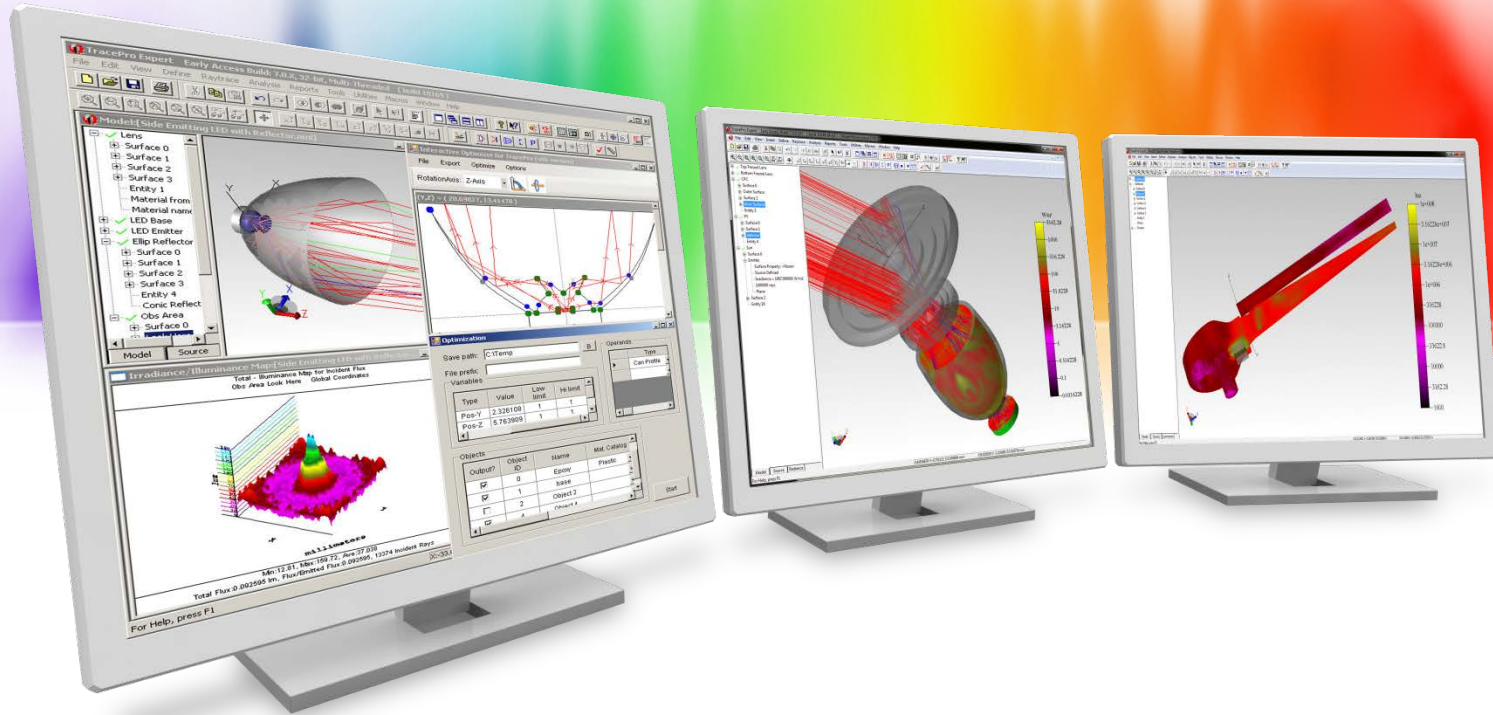
➤ OPTIS – brdf surface file v3.0



# TracePro 2020 20.6

## ➤ **Scheme commands**

- New Scheme commands have been added
  - edit:copy-sources
  - edit:paste-sources
  - geometry:primitive-block
  - geometry:primitive-sphere
- New arguments for edit:cut, edit:copy, and edit:move Scheme commands have been added



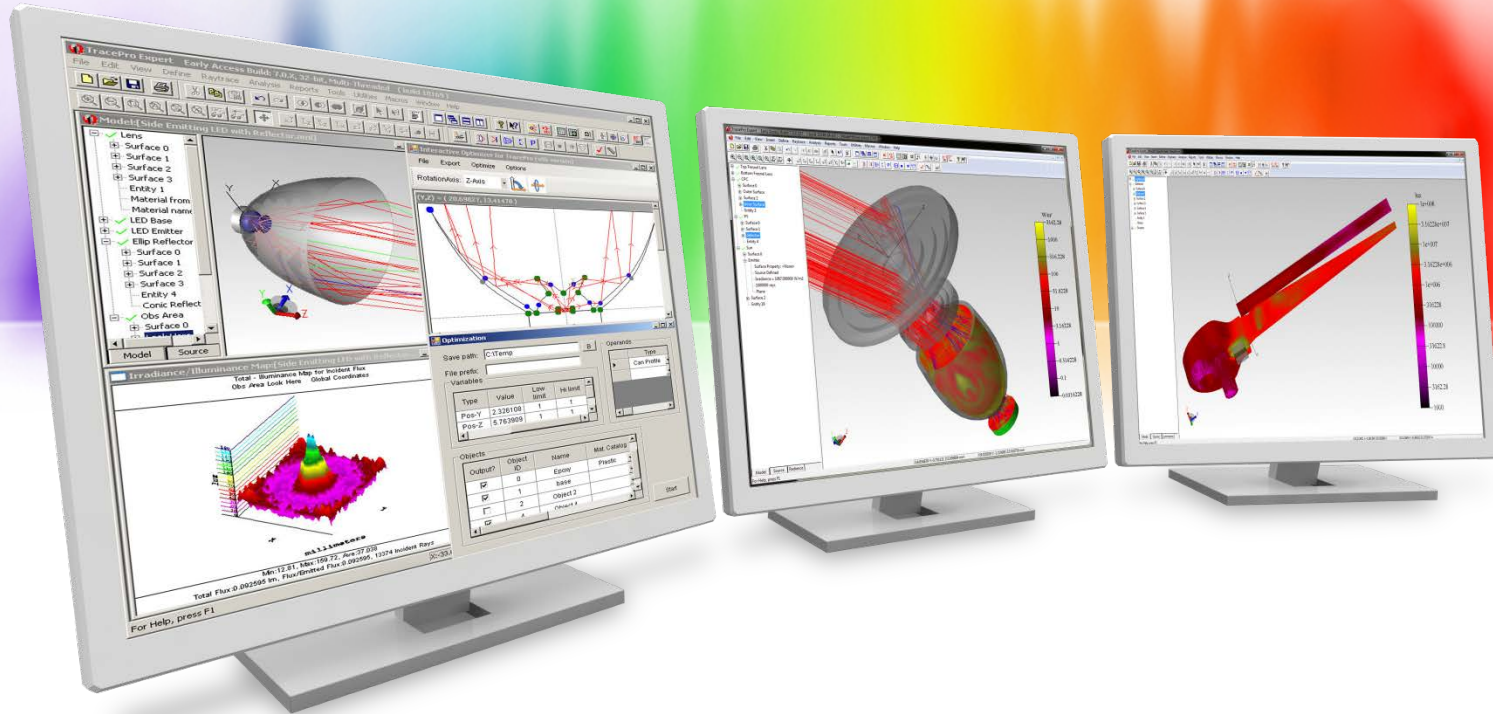
# New Features in TracePro 2020 20.5

# TracePro 2020 20.5

## ➤ TracePro

- New Scheme commands for setting and getting the current setting for Collect Path Sort Data
  - (raytrace:set-collect-path-sort-data-on)
  - (raytrace:set-collect-path-sort-data-off)
  - (raytrace:get-collect-path-sort-data?)





# New Features in TracePro 2020 20.4

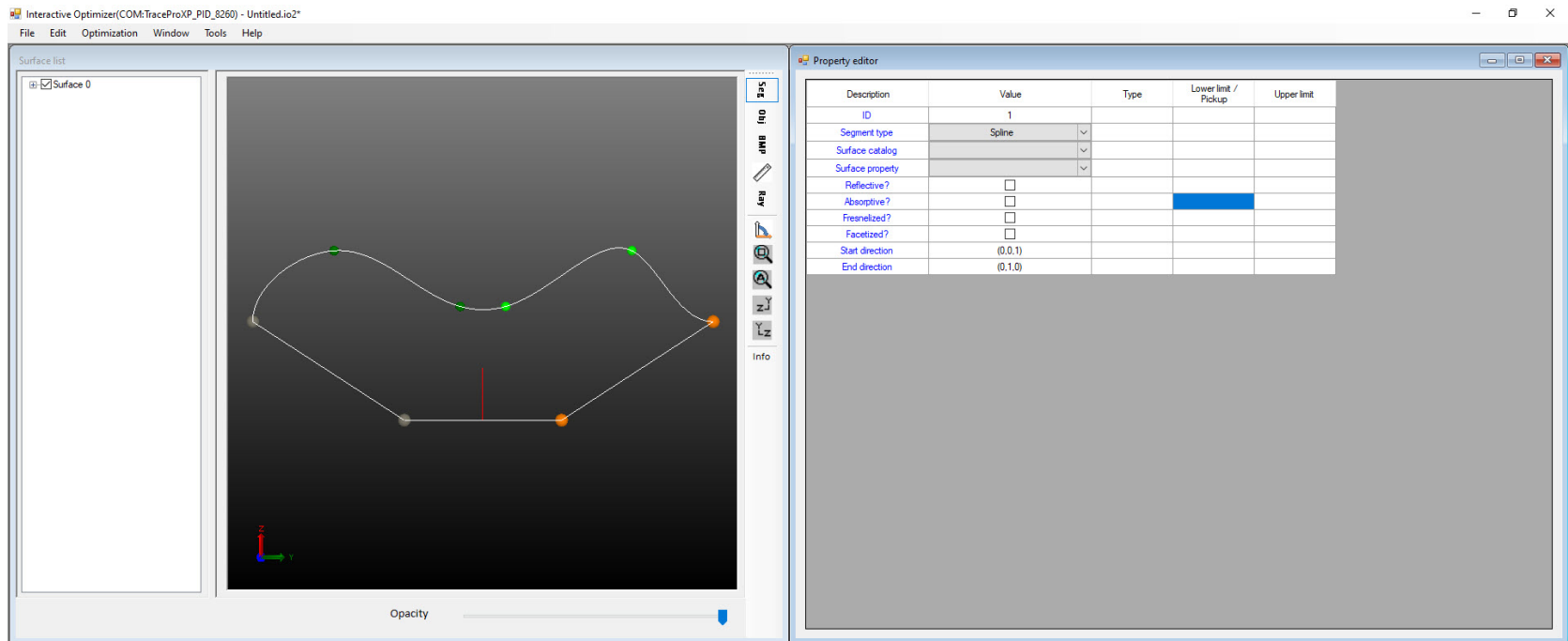
# TracePro 2020 20.4

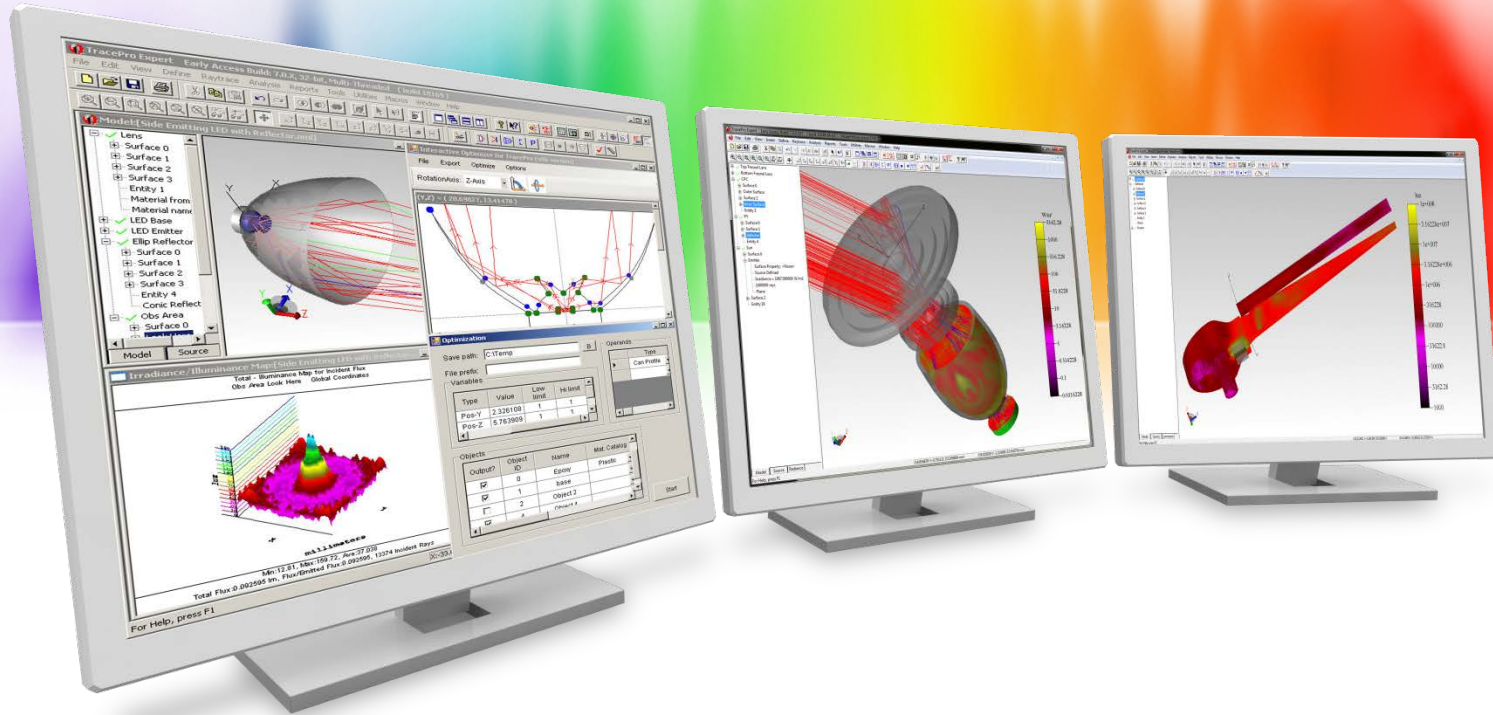
## ➤ **Interactive Optimizer**

- Two new properties for the Spline segment: Start direction and End direction

# TracePro 2020 20.4

**Interactive Optimizer – New Start and End directions can be used to control the terminal slope of a generated spline curve**





# New Features in TracePro 2020 20.3



# TracePro 2020 20.3

## ➤ TracePro

- New arguments for geometry:baffle-vane Scheme command
- New Scheme command modify:baffle-vane

# TracePro 2020 20.3

## ➤ TracePro

- New arguments for the geometry:baffle-vane Scheme command have been added. The user can now enter values for the angles in degrees and apply a name to the baffle.

### geometry:baffle-vane

Action: Creates a TracePro **baffle** vane.

Syntax: (geometry:baffle-vane app-radius tube-radius [conical-angle=45]  
[grnd-angle=30] [thickness=0.1] [knife-radius=0.01] [center=(0,0,0)]  
[rot-x=0] [rot-y=0] [rot-z=0] [degrees=#f] [name=""])

Arg Types: app\_radius real  
tube\_radius real  
conical\_angle real  
grnd\_angle real  
thickness real  
knife\_radius real  
center position  
rot\_x real  
rot\_y real  
rot\_z real  
degrees boolean  
name string

Returns: entity

Errors: None

Description: The **baffle** vane is created based on the definitions in TracePro. The app\_radius (Aperture Radius) and tube\_radius (Tube Radius) are required. The conical-angle default to 45 degrees and the relative Ground Angle (grnd-angle) defaults to 30 degrees. The thickness default in .1 mm and the knife-radius has a default of .01 mm. The **baffle** vane will be placed at the global origin without any rotation.

Note that all the angles must be entered in Radians unless degrees is set to true.

Limitations: Not applicable

Example:



# TracePro 2020 20.3

## ➤ TracePro

- A new Scheme command `modify:baffle-vane` has been added

### `modify:baffle-vane`

**Action:** Modifies a TracePro `baffle` vane.

**Syntax:** `(modify:baffle-vane body app-radius [tube-radius] [conical-angle] [grnd-angle] [thickness] [knife-radius] [center] [rot-x] [rot-y] [rot-z] [degrees=#f] [name])`

**Arg Types:** `body` entity  
`app_radius` real  
`tube_radius` real  
`conical_angle` real  
`grnd_angle` real  
`thickness` real  
`knife_radius` real  
`center` position  
`rot_x` real  
`rot_y` real  
`rot_z` real  
`degrees` boolean  
`name` string

**Returns:** entity

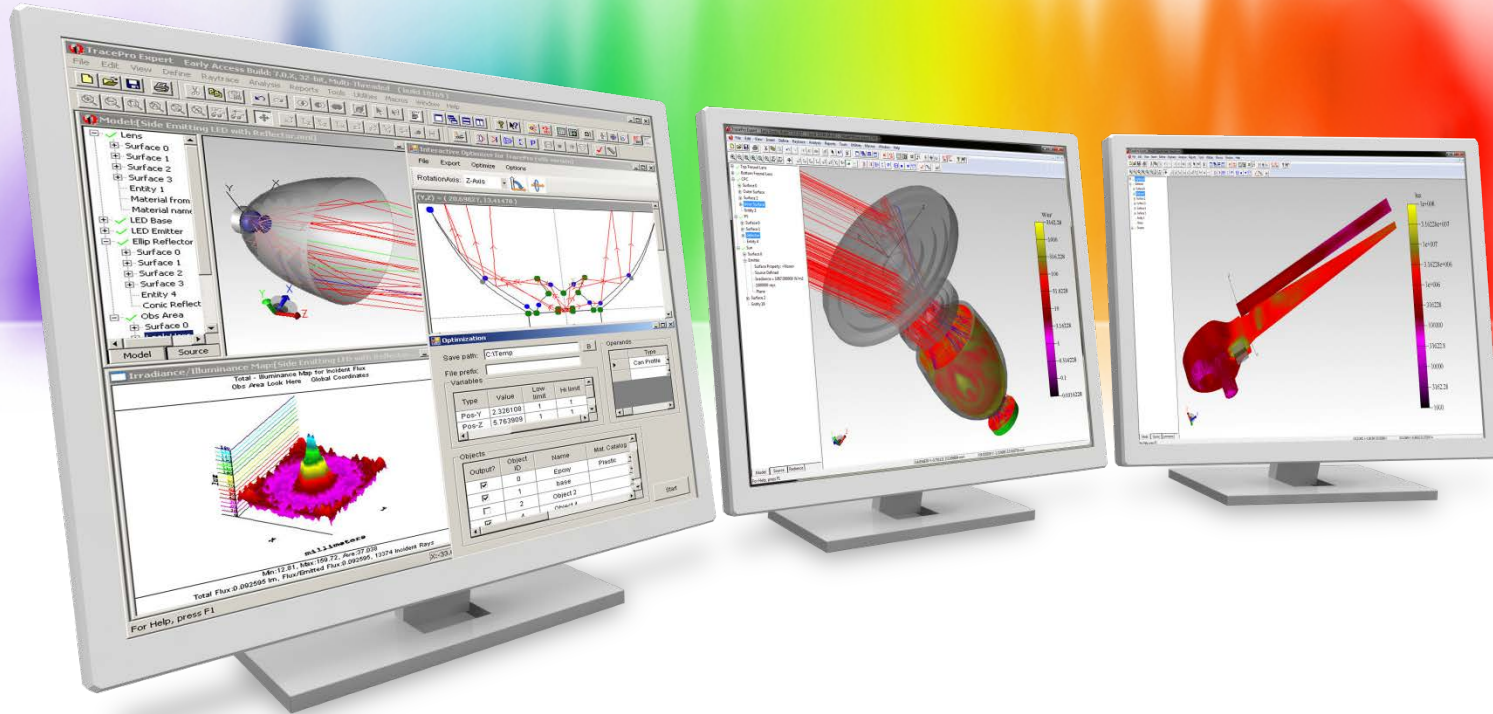
**Errors:** None

**Description:** The arguments are based on the `baffle` vane parameters in TracePro. The parameters default to the current values for the body. Only the `app_radius` (Aperture Radius) is required. All properties will be preserved provided that the modified body has the same number of faces as the original.

Note that all the angles must be entered in Radians unless `degrees` is set to true.

**Limitations:** Not applicable

**Example:**



# New Features in TracePro 2020 20.2

# TracePro 2020 20.2

## ➤ TracePro

- New Material Property catalog for Dow Silastic moldable silicone materials

## ➤ Texture Optimizer II

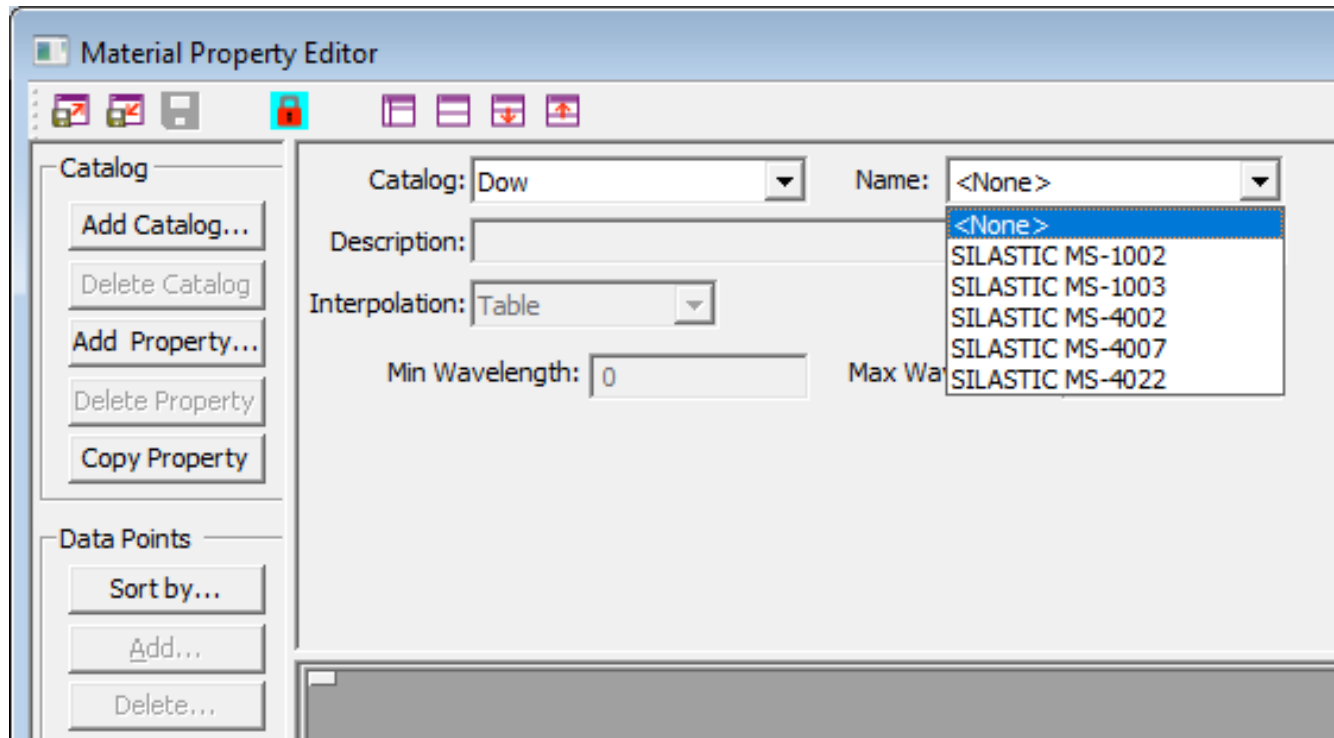
- New capability for a random dot distribution
- New capability for smoothing the dot distribution
- New tool to measure Dot spacing

## ➤ Interactive Optimizer

- Added ability for viewing the TracePro model in the Interactive Optimizer
- New capability to locate the position, normal, and uv coordinates of an existing model
- New simplified capability the marked trajectory information above in an After-scheme macro

# TracePro 2020 20.2

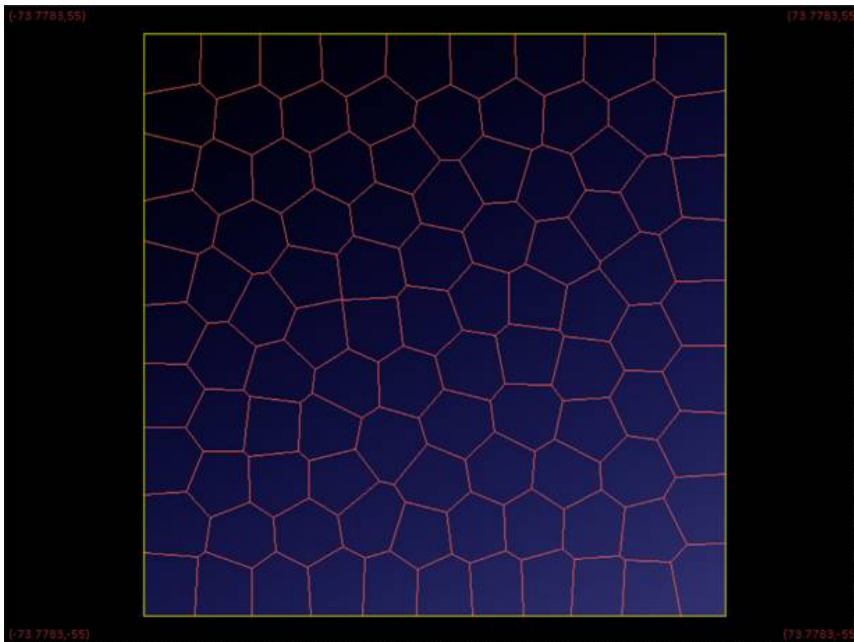
**TracePro – A new catalog of Dow Silastic moldable silicone has been added. User's can updated their catalogs in TracePro by going to: Help->Update Property Data**



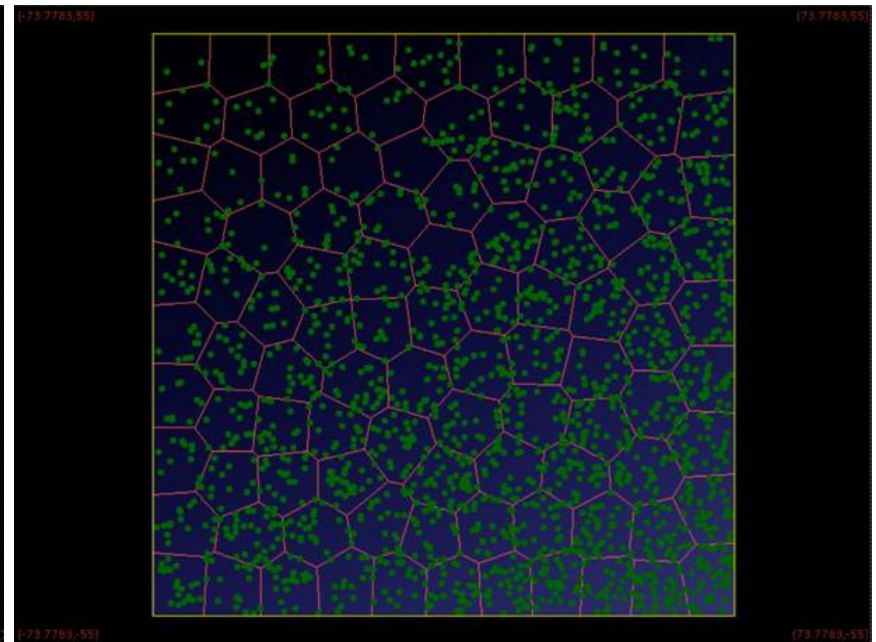


# TracePro 2020 20.2

**Texture Optimizer II – Two methods of adding a random dot pattern have been added: using cell densities and using a density map**



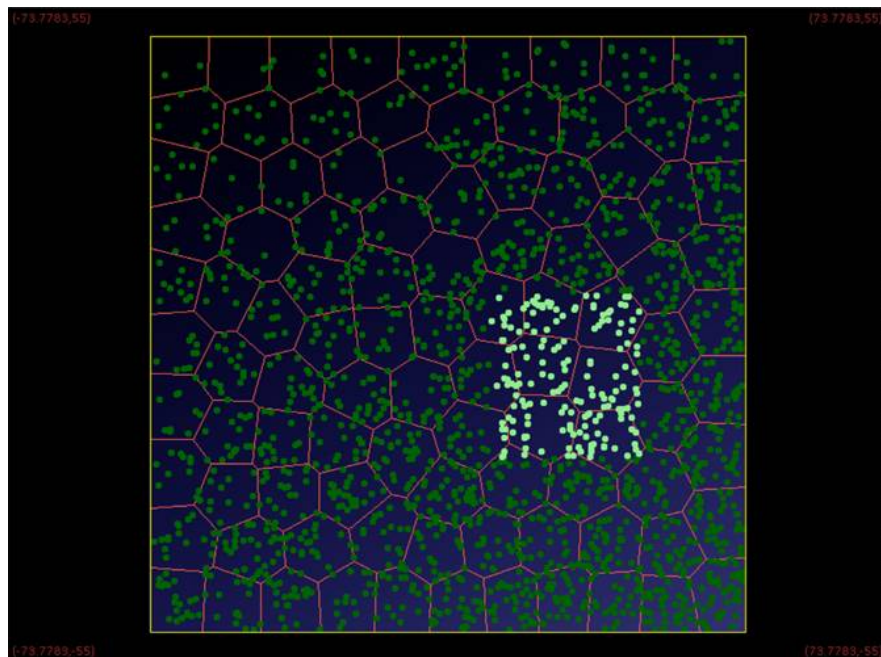
Varying density map



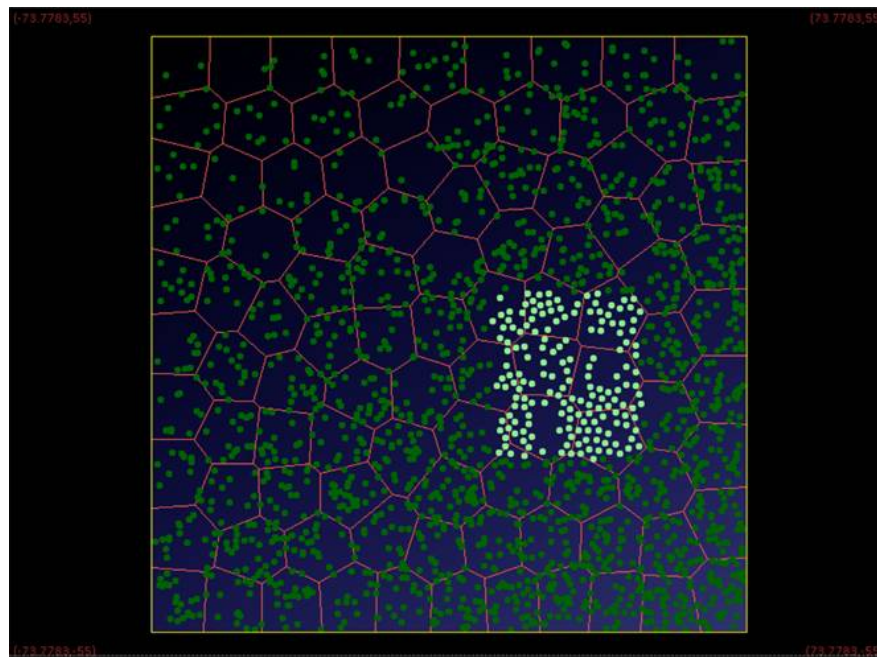
Random dots using density map

# TracePro 2020 20.2

**Texture Optimizer II – The distribution of the dots can be smoothed using the Molecular Dynamics Simulation approach**



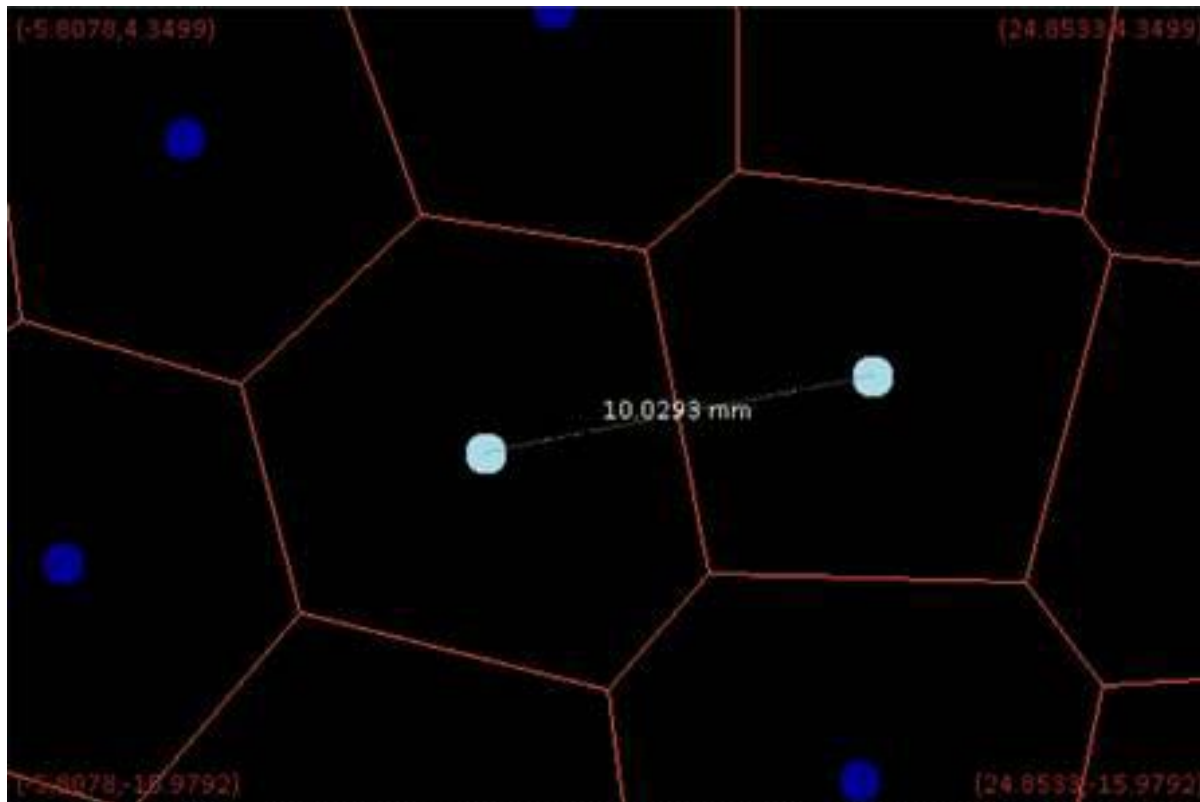
A group of dots selected for smoothing,  
some dots are overlapping



The smoothing function adjusts the dot  
positions so they are no longer overlapping

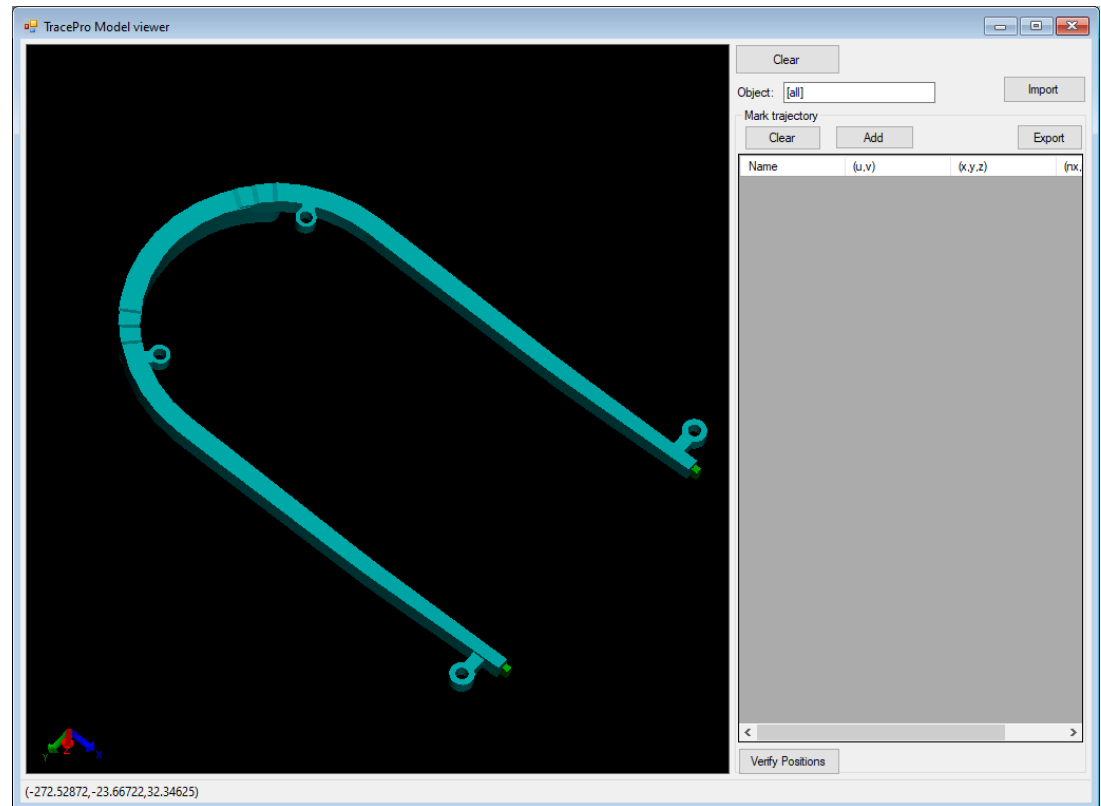
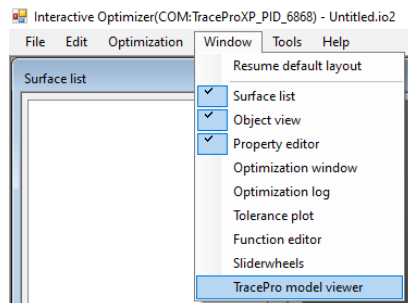
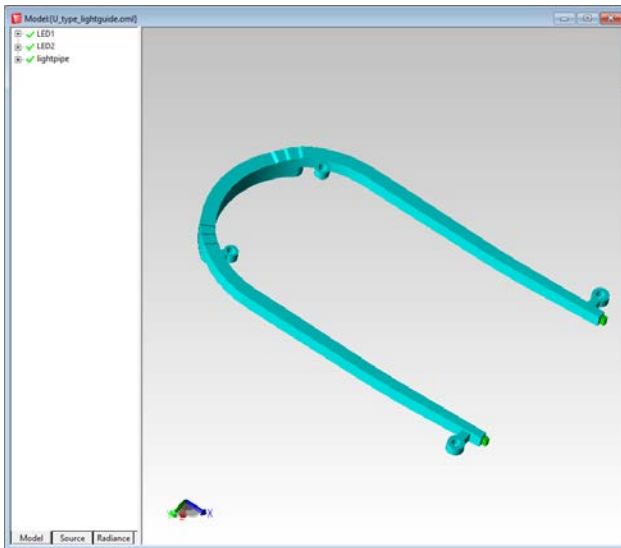
# TracePro 2020 20.2

**Texture Optimizer II – The distance between two dots selected for smoothing can be displayed**



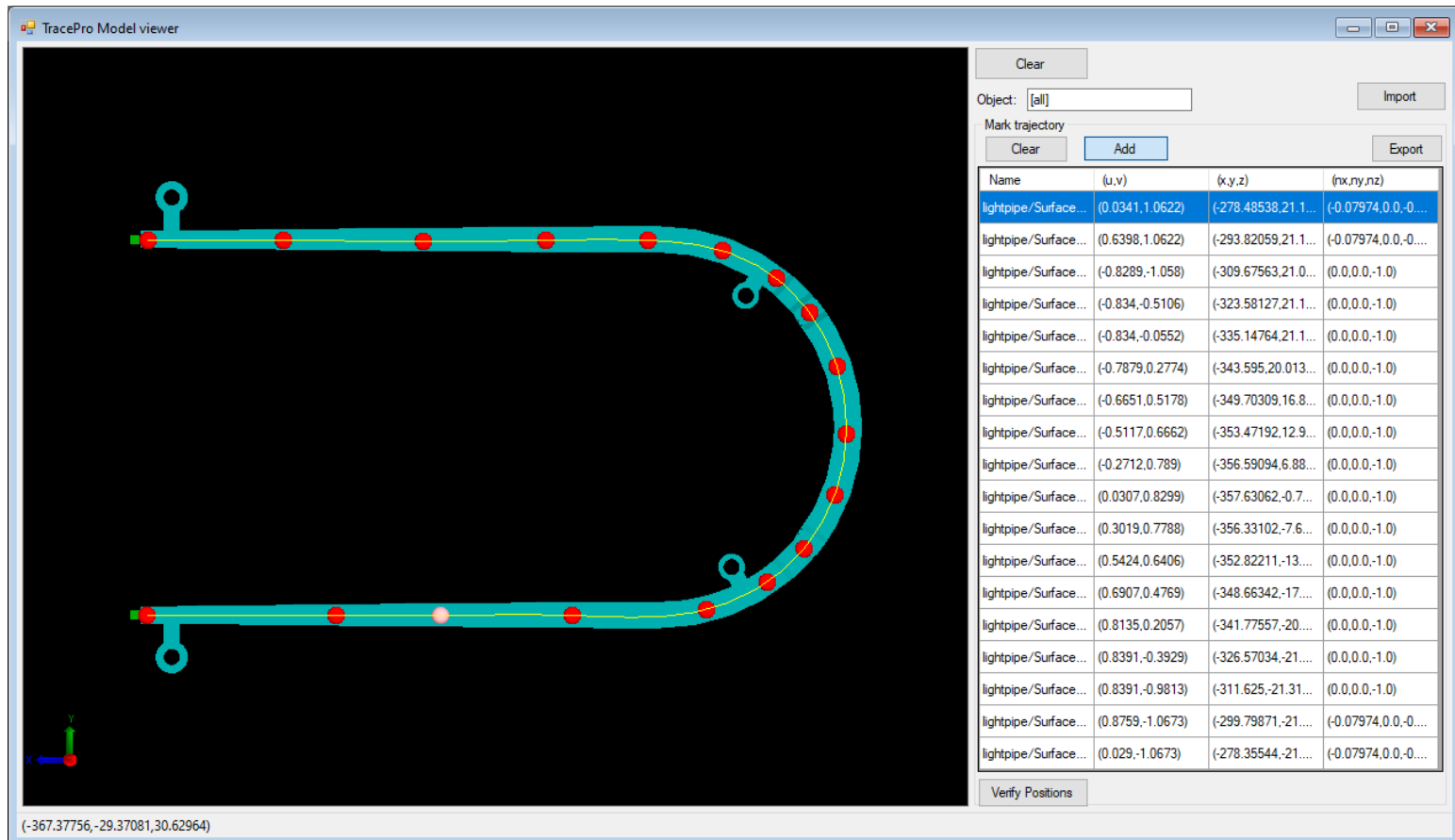
# TracePro 2020 20.2

**Interactive Optimizer – The current TracePro model can now be viewed in the optimizer. Either all objects or selected objects can be viewed.**



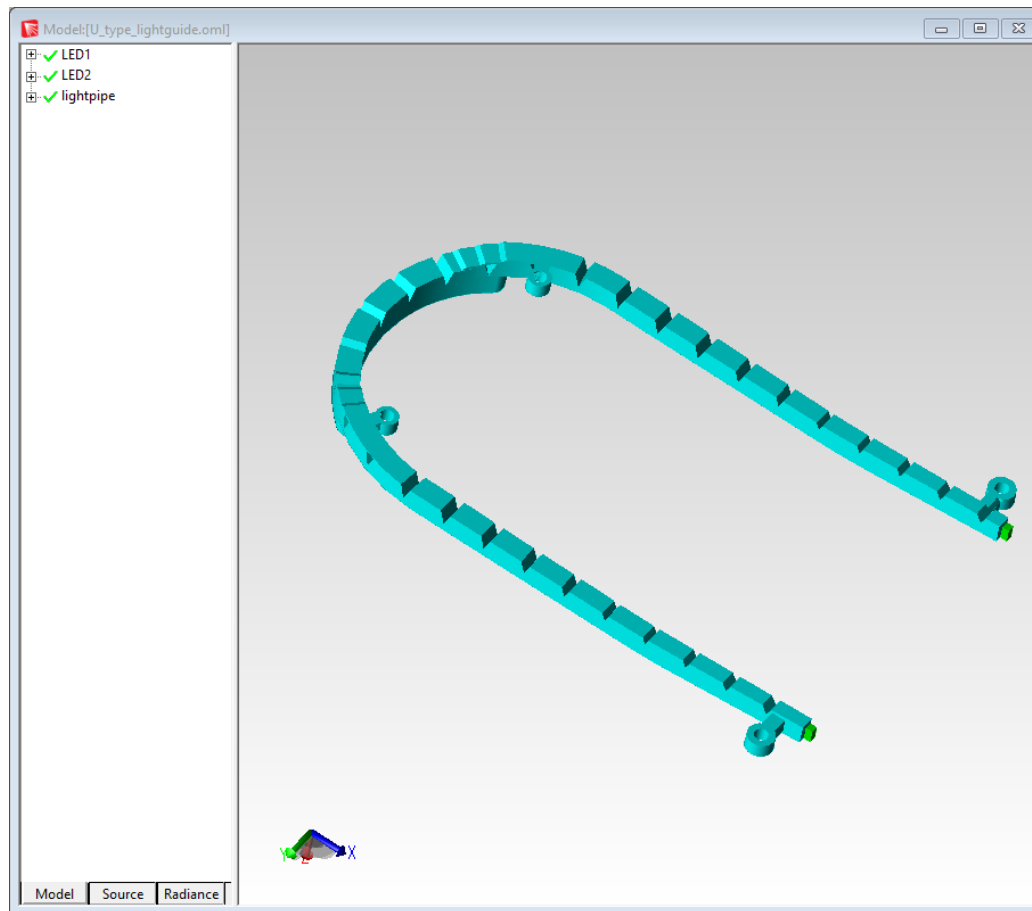
# TracePro 2020 20.2

**Interactive Optimizer – The trajectory of a path along a surface of the model from TracePro can be easily plotted**

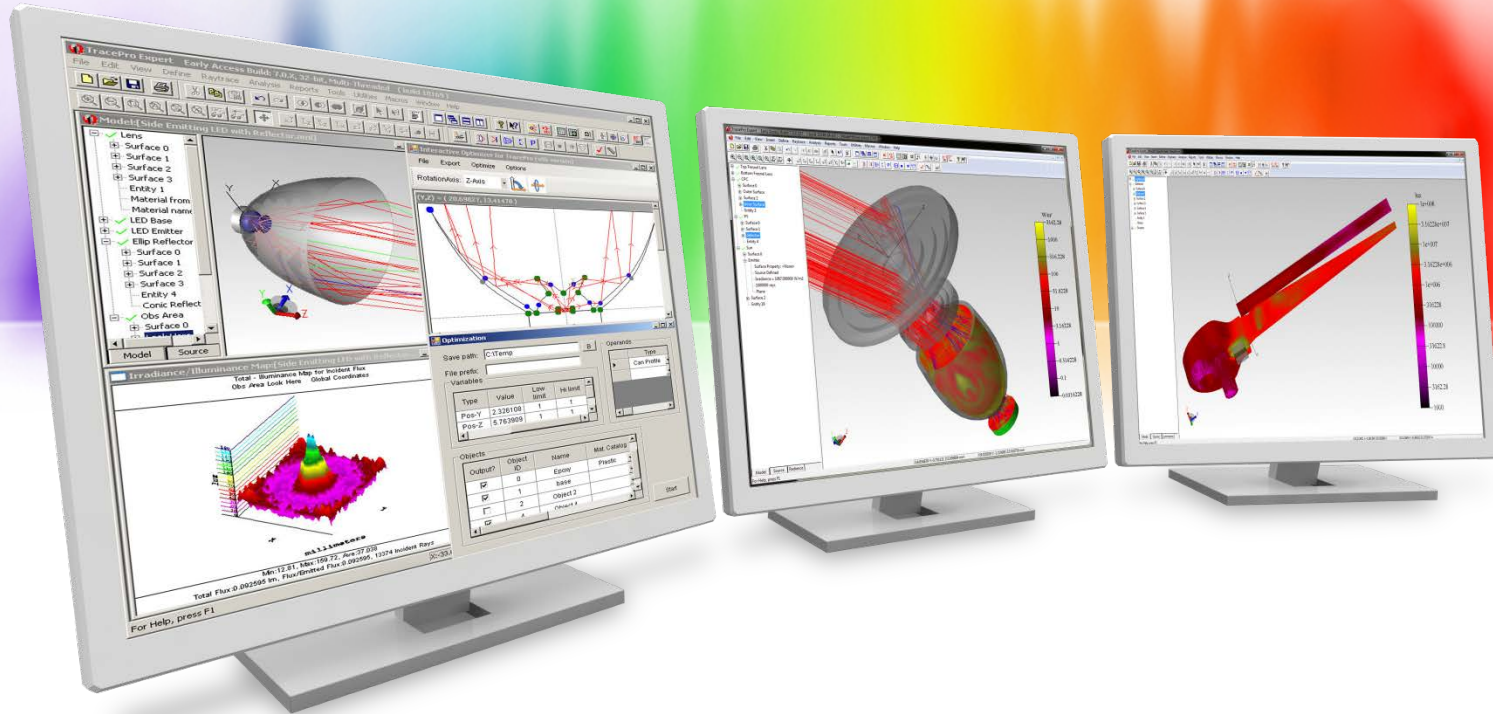


# TracePro 2020 20.2

**Interactive Optimizer – The trajectory of a path can be exported and used in an After-scheme macro to add periodic structures to a light guide surface**







# New Features in TracePro 20.1

# TracePro 2020 20.1

## ➤ **TracePro**

- Enhanced Thin Sheet capabilities including new shape options and the ability to modify existing Thin Sheet primitives

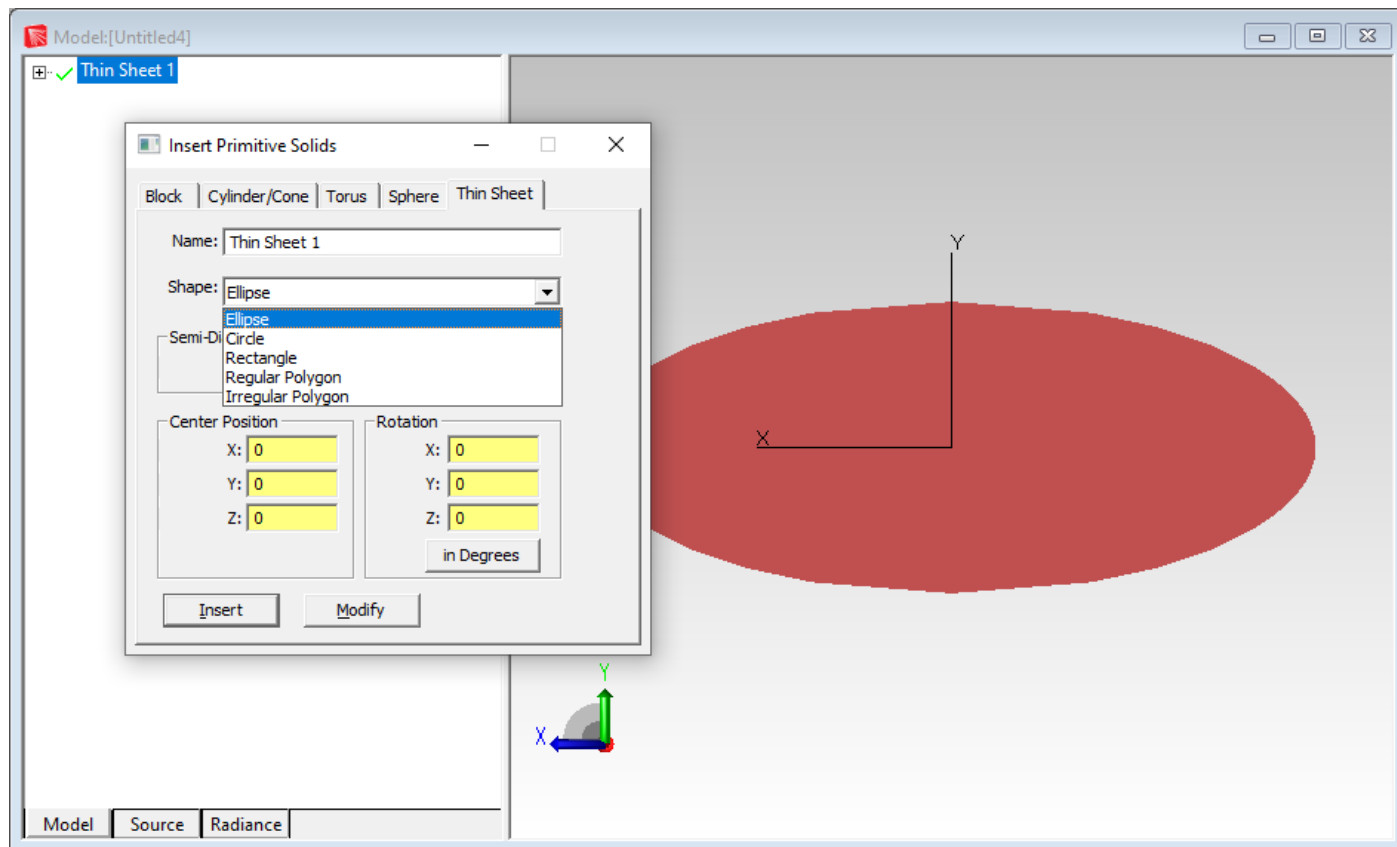
## ➤ **Surface Property Generator**

- Added capability to import scatter data files from Surface Optics Corp.

## ➤ **New Scheme Commands**

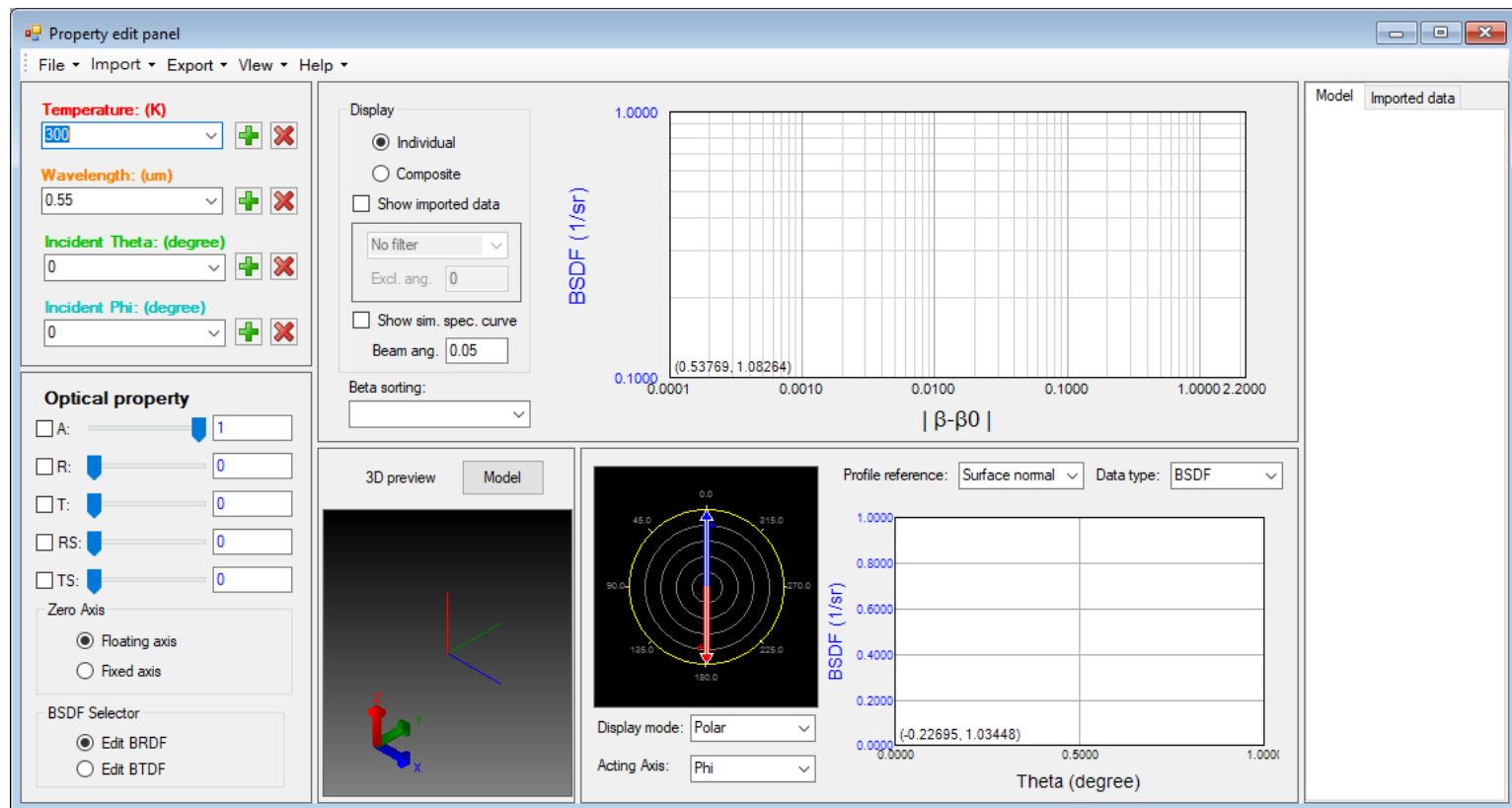
# TracePro 2020 20.1

**TracePro – The Thin Sheet Primitive Solid now has new options for shapes including: ellipse, circle, rectangle, regular polygon, and irregular polygon. Existing Thin Sheet primitives can now be modified after they are created.**



# TracePro 2020 20.1

**Surface Property Generator – BRDF files from Surface Optics Corporation can now be loaded in the Surface Property Generator to make new Surface Properties for use in TracePro**



# TracePro 2020 20.1

## **Scheme – New Scheme commands have been added**

Ten new Scheme commands are now available:

- (geometry:thin-sheet)
- (geometry:thin-sheet-circle)
- (geometry:thin-sheet-ellipse)
- (geometry:thin-sheet-rectangle)
- (geometry:thin-sheet-regular-polygon)
- (modify:thin-sheet)
- (modify:thin-sheet-circle)
- (modify:thin-sheet-ellipse)
- (modify:thin-sheet-rectangle)
- (modify:thin-sheet-regular-polygon)