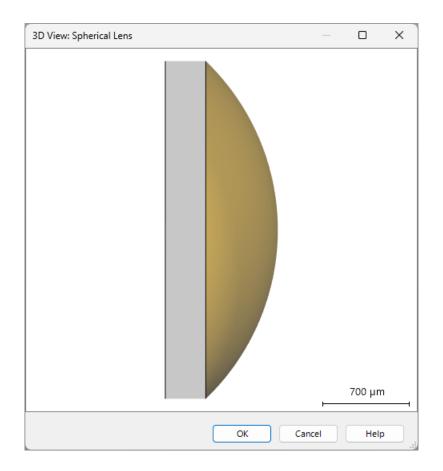
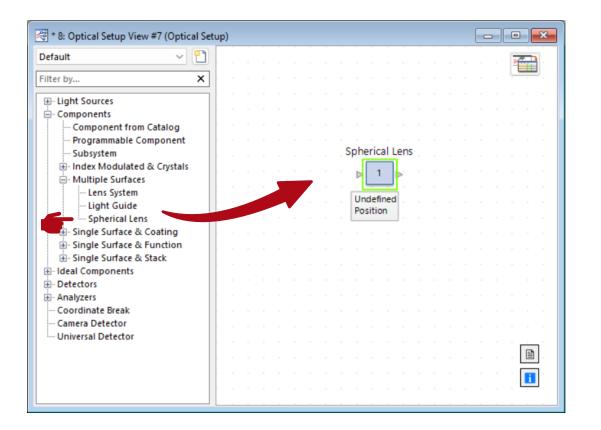


#### **Spherical Lens Component**



Spherical lenses are essential tools for any optical designer. This Use Case demonstrates a component that facilitates their inclusion and specification in VirtualLab Fusion.

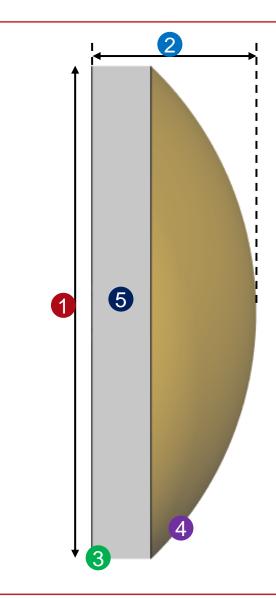
### Where to find the Components?



The *Spherical Lens* component can be found under *Components > Multiple Surfaces*.

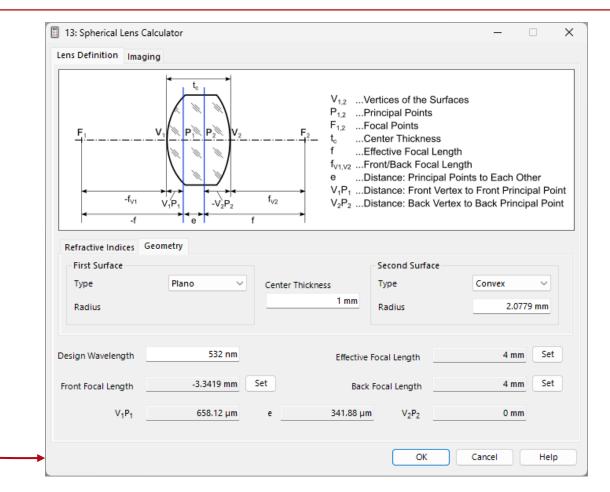
### **Basic Parameters**

| Edit Spherical Lens                          | Component                          |         |                   | X                    |  |
|--|------------------------------------|---------|-------------------|----------------------|--|
|  | Lens Specification                 |         |                   |                      |  |
|  | Diameter                           | 3 mm    |                   |                      |  |
| Coordinate<br>Systems                        | Center Thickness                   | 1 mm 2  |                   | 4                    |  |
| <u>+</u> .                                   | - Front Surface                    |         | Back Surface      | 4                    |  |
|  | Type F                             | Plano 🗸 | Туре              | Convex ~             |  |
| Position /<br>Orientation                    | 3                                  |         | Radius            | 2.0779 mm            |  |
|  | Medium of Lens Material            |         |                   |                      |  |
|  | N-BK7_Schott in Homogeneous Medium |         |                   |                      |  |
| Structure                                    | E Load                             | / E     | dit               | Q View               |  |
| X  | Coating<br>Name No Coating         |         |                   |                      |  |
| Solver                                       | 2                                  | 2       | ٩,                | ×                    |  |
|  | Test Furtheritan                   |         |                   |                      |  |
| Channel<br>Configuration                     | Test Evaluation i                  | 532 nm  |                   |                      |  |
| $\mathcal{F} \xrightarrow{\mathcal{F}^{-1}}$ | Focal Length (in Air)              | 4 mm    | Definition Effect | ive Focal Length 🛛 🗸 |  |
| Free Space<br>Propagation                    | From Calculator                    |         |                   |                      |  |
| Validi                                       | ty: 🕑                              |         | ОК Са             | ancel Help           |  |



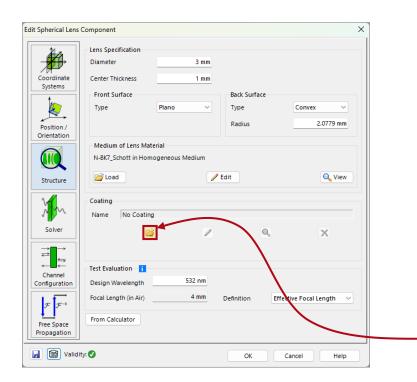
# **Creating Spherical Lens through Calculator**

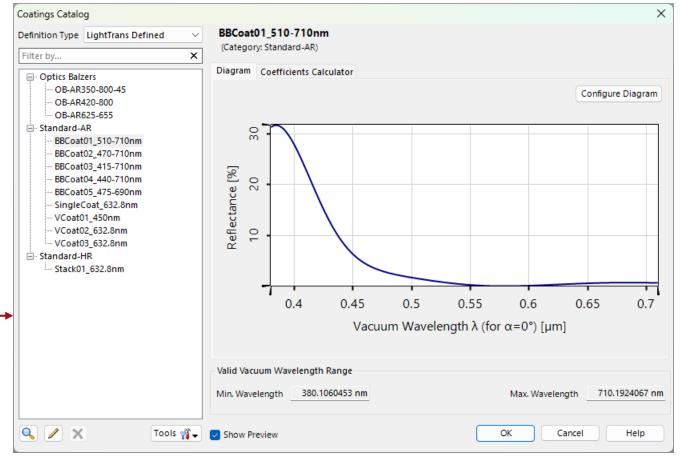
| herical Lens (     | Component                             | ×                          |
|--------------------|---------------------------------------|----------------------------|
| 10                 | Lens Specification                    |                            |
|                    | Diameter 3 mm                         |                            |
| ordinate           | Center Thickness 1 mm                 |                            |
| ystems             | Front Surface Back Surface            |                            |
|                    | Type Plano V Type                     | Convex ~                   |
| ≝→                 | Radius                                | 2.0779 mm                  |
| ition /<br>ntation | Kadius                                | 2.0779 1111                |
|                    | Medium of Lens Material               |                            |
|                    | N-BK7_Schott in Homogeneous Medium    |                            |
|                    | Fdit                                  | Q View                     |
| cture              |                                       |                            |
|                    | Coating                               |                            |
| n                  | Name No Coating                       |                            |
| lver               |                                       | ×                          |
|                    |                                       | ~                          |
|                    |                                       |                            |
| annel              | Test Evaluation i                     |                            |
| uration            | Design Wavelength 532 nm              |                            |
| t_                 | Focal Length (in Air) 4 mm Definition | Effective Focal Length 🗸 🗸 |
| $\mathcal{F}^{-1}$ |                                       |                            |
| Space              | From Calculator  Create New           |                            |
| gation             | Create New                            |                            |
| 👔 Validit          |                                       | Cancel Help                |
| _                  |                                       |                            |
|                    |                                       | \                          |
| ,                  | 1 1 1 1 1 1                           |                            |
| 'ou                | can load an existi                    | na I 🔪                     |
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| alcı               | ulator or create a n                  | lew I                      |
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|                    | window.                               |                            |



Through the *Spherical Lens* calculator, one can automatically determine lens parameters by specifying the effective, front or back focal length.

# **Inclusion of Coatings**





User- or pre-defined coatings (such as anti-reflection coatings) can be applied to the surface of the spherical lens. Find more information under: <u>Stratified Media</u> <u>Component</u>

| title             | Spherical Lens Component   |
|-------------------|--|
| document code     | SWF.0055   |
| document version  | 1.0  |
| required packages | -  |
| software version  | 2024.1 (Build 1.132)   |
| category          | Feature Use Case   |
| further reading   | <ul> <li>Focus Investigation behind Aspherical Lens</li> <li>Stratified Media Component</li> </ul> |