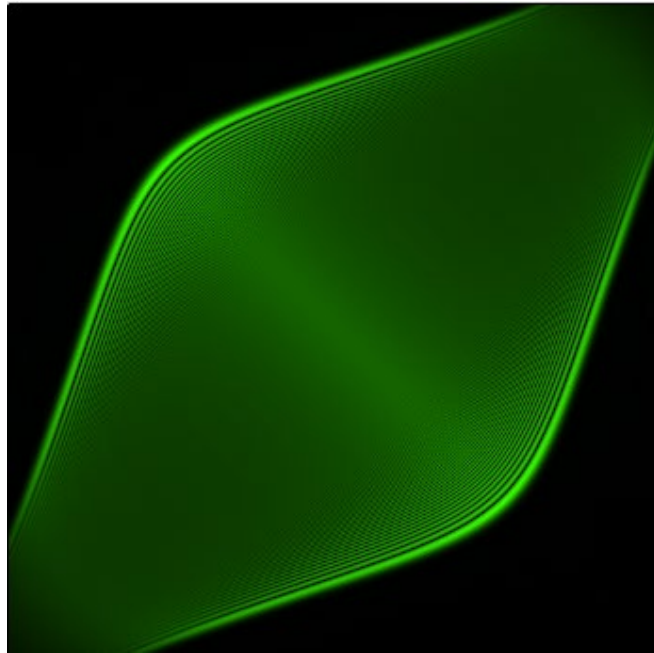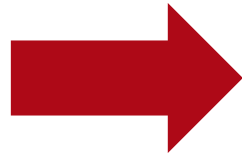# Lens with Modulated Refractive Index

# Abstract



In this Demo we modeled the light propagation through lenses with a modulated refractive index. The desired distributions of the refractive index can be either imported from measurement data or configured manually. Physical optics enables the access to any kind of light information in the desired image plane.
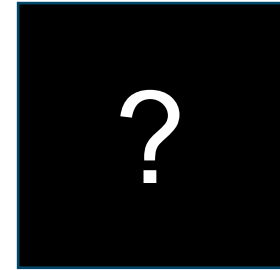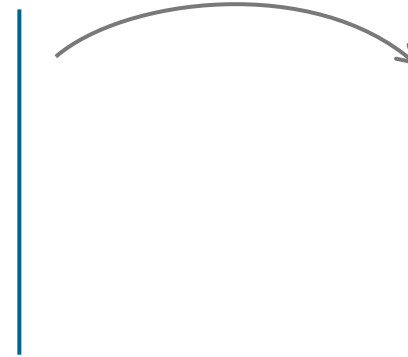
# Task: Simulation of Light Propagation though a modulated Lens
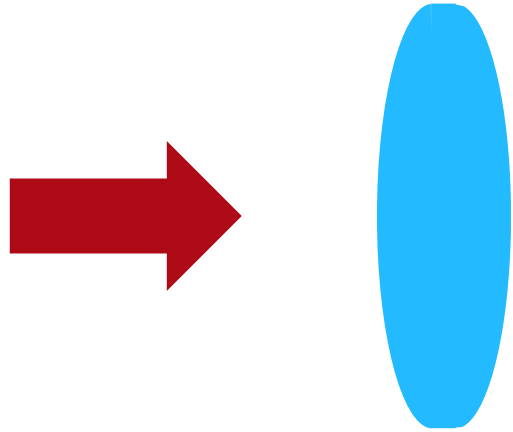
plane wave

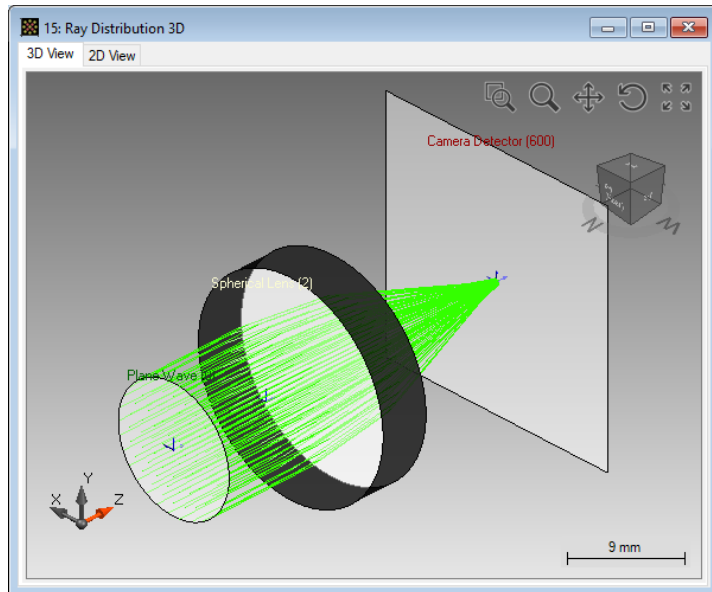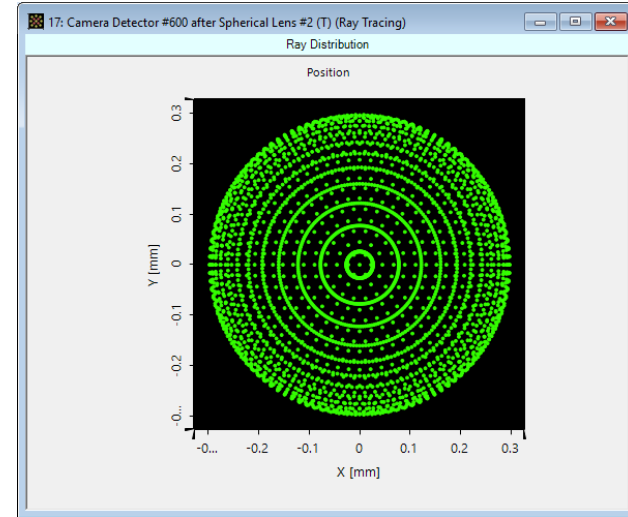wavelength: 532 nm

lens
with modulated refractive index
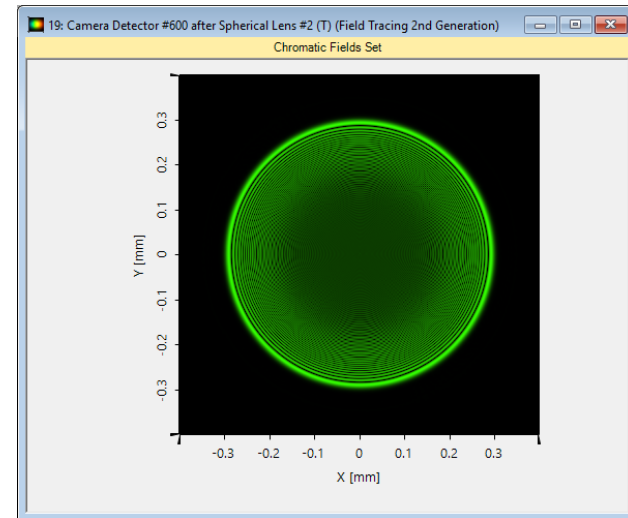
possible shapes of lenses:
- spherical
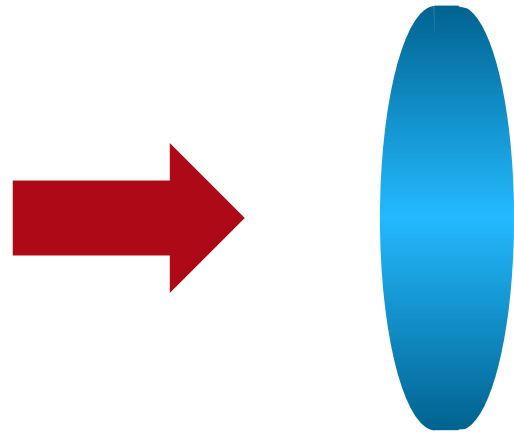- aspherical
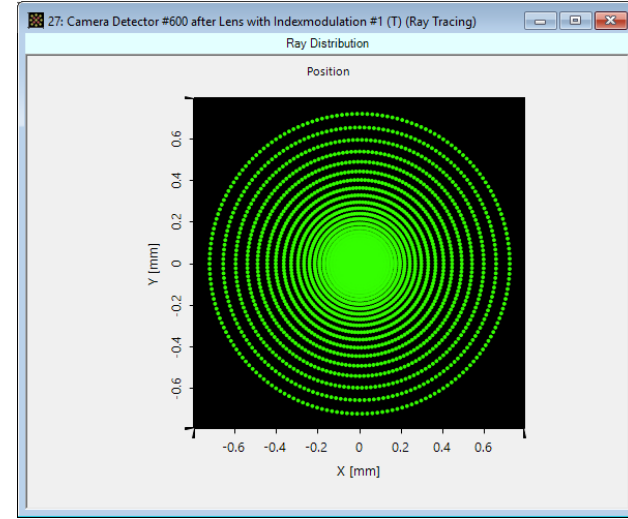- plano
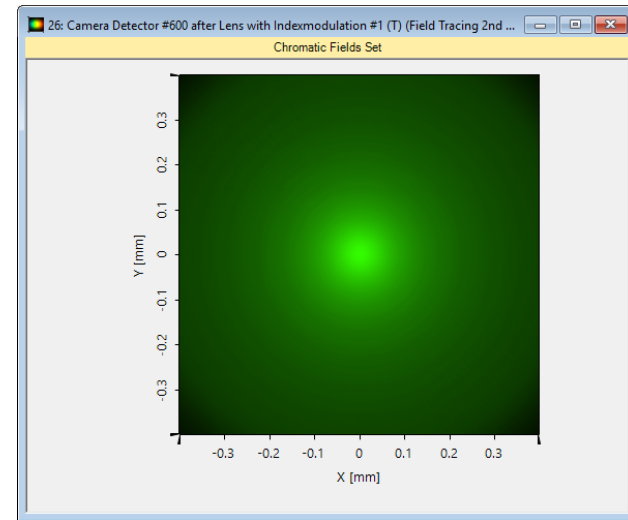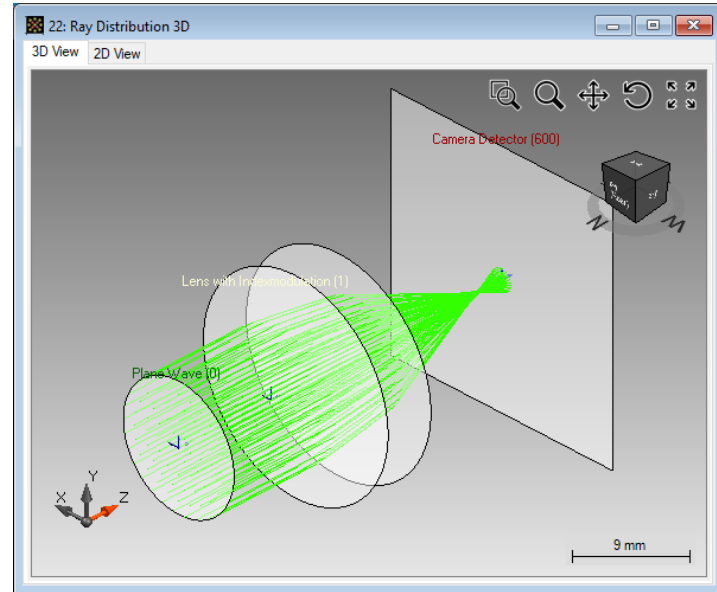- freeform

# Results: Homogeneous Lens



ray tracing:

field tracing:

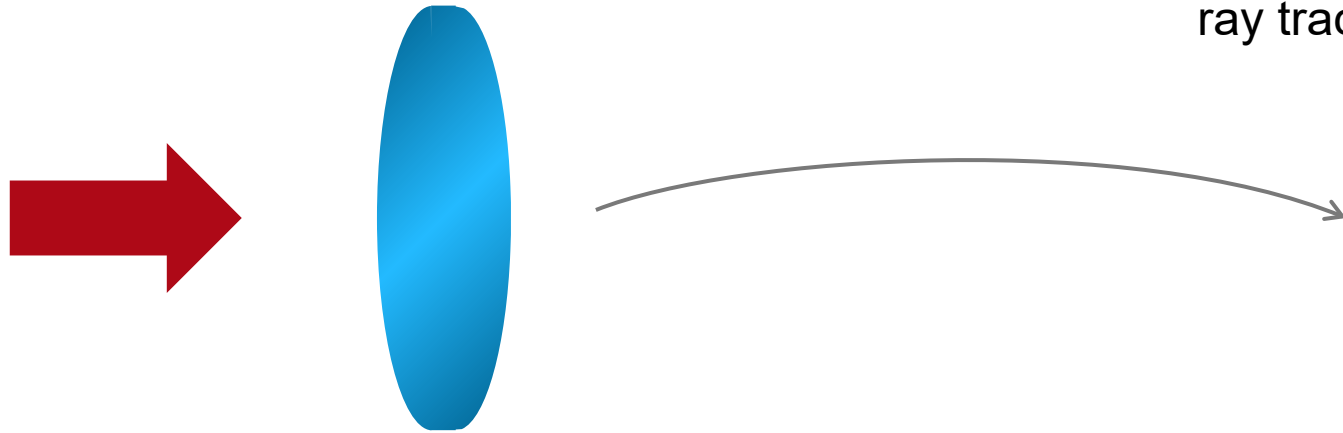# Results: Modulated Lens (Rotation Symmetric Modulation)
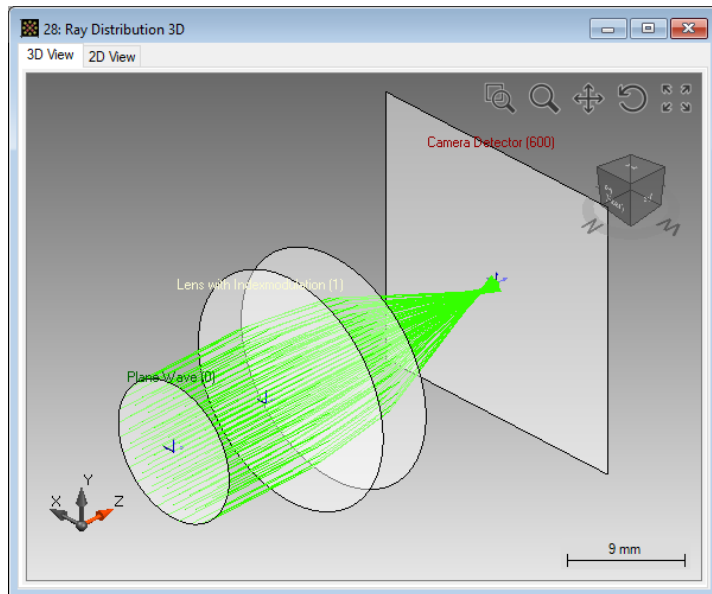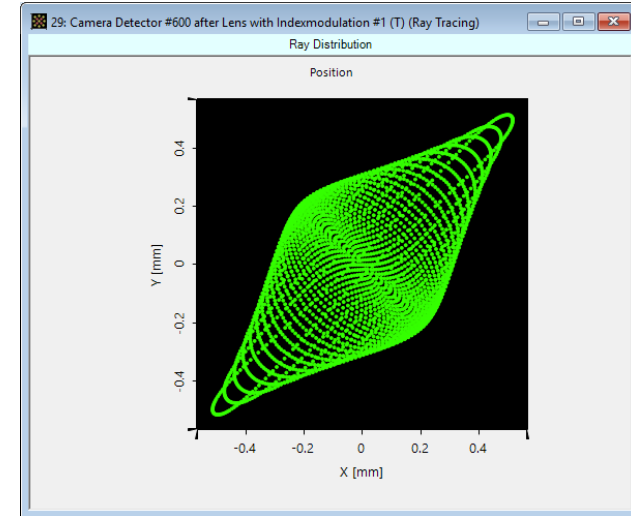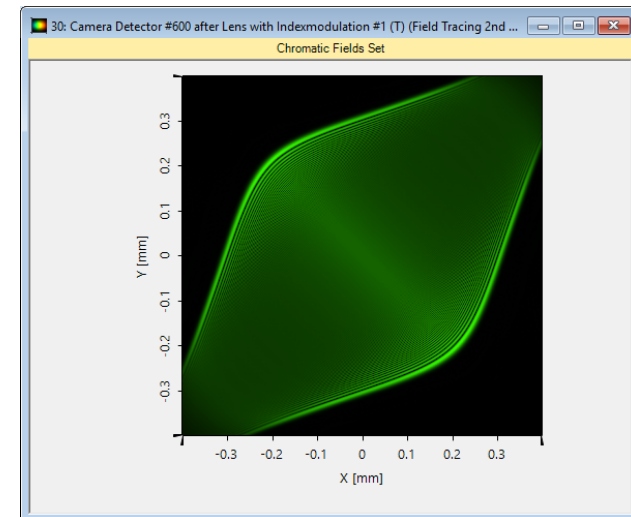
ray tracing:

field tracing:

# Results: Modulated Lens (Cylindrical Modulation)

ray tracing:

field tracing:

# Summary

- Modeling of light propagation through lenses with modulated refractive index

- Desired distributions of the refractive index can be either imported from measurement data or configured manually

- Physical optics and ray propagation techniques available for detailed investigations

- Physical optics enables the access to any kind of light information in the desired image plane

# Document Information

| | |
|---|---|
| title | Lens with Modulated Refractive Index |
| document code | Demo.0003 |
| version | 1.0 |
| VL version used for simulations | VirtualLab Fusion Summer Release 2019 (7.6.1.18) |
| category | Demo |
| further reading | - How to Work with the Programmable Medium and Example (Thermal Lens) |