

## Training Course

# VirtualLab Fusion Technology and Applications: Gratings and Diffractive Optics

**Date:** 27 – 29 March 2019

**Time:** 09:00 – 17:00

**Location:** Jena, Germany

**Intended audience:** Users with elementary knowledge of VirtualLab Fusion

**Technical equipment:** Will be provided

**Registration:** [sales@lighttrans.com](mailto:sales@lighttrans.com)

Gratings, diffractive lenses, diffractive optical elements and diffusers are increasingly gaining importance in modern optics for various purposes. Subwavelength structures including metalenses extend the potential of micro- and nanostructured flat optical components. Naturally, modeling and design of such components and their inclusion in optical systems require physical-optics techniques. We show how VirtualLab Fusion provides you with the techniques and tools you need.

### Learning Outcomes

- Overview of different applications of diffractive optics including: gratings for spectrum separation, lightguide coupling and polarization manipulation, diffractive lenses and metalenses in imaging, diffractive point-cloud generation, diffusers for light shaping, and more.
- Understand the theory and usage of modeling techniques for micro- and nanostructures in VirtualLab Fusion: diffraction integrals and their fast implementation, the Thin Element Approximation (TEA), the Local Plane Interface Approximation (LPPIA), split-step techniques, and the rigorous Fourier Modal Method (FMM), also known as RCWA.
- Hands-on workflows on the modeling and design in VirtualLab Fusion of various types of gratings and diffractive optical elements (DOEs) for different applications. Analysis of complete optical systems which include gratings and diffractive optics elements.

