

## Online Training

VirtualLab Fusion Applications, Technology and Workflows

# Grating Modeling and Design

### Date and Time:

04 – 07 October 2021 | 08:30 – 12:00 (CEST)

### Duration and Intended audience:

- 3 hours per day | 4 days in sum
- Additional 30 minutes technical check on first training day
- Optical designers and engineers in the field of diffractive grating applications.

### Technical environment:

- The online training will be implemented with the platform “WebEx”.
- Detailed technical instructions will be provided to participants in time before training.

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Gratings are the most widely applied diffractive optics elements in various optical systems. VirtualLab Fusion software provides the Fourier modal method (FMM a.k.a. RCWA) and the thin element approximation (TEA) for grating simulations. This interactive online training shows how to use the corresponding technologies from VirtualLab Fusion to solve practical grating modeling and design tasks for modern optics applications.

In the training, we will of course work together with our latest released version, 2021.1!

## Learning Outcomes

- Learn how to construct the grating geometry and materials; understand the basic theory of the modeling technologies and their differences; use the software tools for grating analysis and design.
- Practice hands-on with selected rigorous modeling examples, including blazed grating, rectangular grating, slanted grating, holographic volume grating, and metagrating.
- Design workflow discussed along examples, like moth-eye anti-reflection grating, waveguide coupling grating, polarization-insensitive pulse compressor grating, and beam-splitting metagrating.

## Agenda

04 – 07 OCTOBER 2021

| DAY I                                                                                                                                                                                                                                      | DAY II                                                                                                                                                                                              |
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| <ul style="list-style-type: none"> <li>08:30 – 09:00 Welcome and technical check</li> <li>09:00 – 10:30 Grating Construction and Modeling</li> <li>10:30 – 10:40 Break</li> <li>10:40 – 12:00 Rigorous Modeling Examples Part I</li> </ul> | <ul style="list-style-type: none"> <li>08:30 – 10:00 Rigorous Modeling Examples Part II</li> <li>10:00 – 10:10 Break</li> <li>10:10 – 11:30 Grating within Optical System</li> </ul>                |
| DAY III                                                                                                                                                                                                                                    | DAY IV                                                                                                                                                                                              |
| <ul style="list-style-type: none"> <li>08:30 – 10:00 Grating Design/Optimization Part I</li> <li>10:00 – 10:10 Break</li> <li>10:10 – 11:30 Grating Design/Optimization Part II</li> </ul>                                                 | <ul style="list-style-type: none"> <li>08:30 – 10:00 Metagratings Part I</li> <li>10:00 – 10:10 Break</li> <li>10:10 – 11:00 Metagratings Part II</li> <li>11:00 – 11:30 General Q&amp;A</li> </ul> |

Please note that this timetable is intended to serve as orientation only. The organization of the time slots during the actual training may be adjusted on the spot and will depend on the dynamics of the group on the day.

