

Online Training

VirtualLab Fusion Applications, Technology and Workflows

Optical Modeling and Design for Augmented and Mixed Reality

Date and Time:

10 – 11 July 2023 | 15:30 – 20:00 (CEST)

12 – 13 July 2023 | 08:30 – 13:00 (CEST)

Note: This Training will be held twice to adapt to different time zones worldwide

Duration and Intended audience:

- 4 hours per day | 2 days in sum
- Additional 30 minutes technical check on first training day

Technical environment:

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

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The design of optical devices for augmented and mixed reality (AR & MR) epitomizes the most important challenges in the modeling and design of complex optical systems for modern applications: striking a delicate balance between accuracy and speed, while retaining the flexibility as a user to adjust said balance as necessary.

Complex physical effects (interference, coherence, polarization, diffraction...) all couple together in AR/MR waveguides to influence the final performance of the device. Being able to include all these effects if needed, while ensuring the simulation is as fast as possible, is precisely what the software VirtualLab Fusion offers through its flexible combination of interoperable modeling techniques on a single platform, always with the user retaining full control of the simulation parameters.

Take part in our upcoming online training course to learn the ropes and get the most out of your modeling and design of waveguides for AR & MR applications!

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

DAY I	DAY II
<ul style="list-style-type: none">■ Reminder of basic notions in VirtualLab Fusion software■ Constructing a waveguide with grating couplers from scratch■ Modeling important effects in waveguides for AR /MR (interference, coherence, polarization, diffraction)	<ul style="list-style-type: none">■ Modeling existing layouts (1D-1D pupil expansion, butterfly, 2D-periodic gratings...)■ Grating analysis & optimization■ Systematic design approaches of waveguides for AR/MR

Please note: Halfway through each day there will be a short break. The organization of the time during the training will be adjusted on the spot, as it depends on the dynamics of the group on the day.

