Online-Seminar: Flat Optics – about Freeform, Fresnel, Diffractive and Meta Lenses

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Title	Online-Seminar: Flat Optics – about Freeform, Fresnel, Diffractive and Meta Lenses
When	Do, 28. Januar 2021

Description

Online-Seminar: Flat Optics – about Freeform, Fresnel, Diffractive and Meta Lenses

The steady interest in miniaturizing optical systems ultimately leads to flat optics, which includes any concept to reduce the thickness of components and systems by introducing surfaces with high functionality. In this online seminar we invite you to join us on a journey through the concepts, prospects, challenges, and myths of the different versions of flat components, with an emphasis on lenses.

The journey starts with discussing the most fundamental goal in optical design, that is, controlling and manipulating the wavefront of the light which enters an optical system. While in imaging optics spherical wavefronts are desired and aberrations should be minimized, in light shaping tailored aberrations should be introduced. The wavefront control and shaping are accompanied by the concept of domain matching, which aims to maximize the energy throughput in a system. It is related to filling the stop in lens design. In the seminar we discuss the determination of the required wavefront control dependent on the design goal and the role played by domain matching. We distinguish between single- and multi-channel systems, which can be understood as a generalized formulation to deal with the FOV of a lens system and polychromatic design tasks.

In the next stop on the journey we discuss ways to realize required wavefront phase manipulations by optical surfaces. We start with the design of freeform surfaces. Then, we turn to flat optics in the form of diffractive, Fresnel-type and meta surfaces. We look at pros and cons of the different approaches and emphasize the similarities from a design point of view. We use physical optics terminology in the seminar and do not rely on ray optics. This helps us to get a fresh view of optical design and to seamlessly include flat optics, with its characteristic micro- and nanoscale surfaces. The examples and illustrations are done with the fast physical optics software VirtualLab Fusion.

With a discussion and Q&A session the journey will be ended.

Learn more about this event by following Link:

https://photonicnet.de/veranstaltungen/veranstaltung/online-seminar-flat-optics-about-freeform-fresnel-diffractive-and-meta-lenses-1377/

Venue - ONLINE

Location	ONLINE
Country	DE