

# Master Laser Light

## From Beam Shaping to Ultrafast Optics

**Book  
now**

**LASER WORLD OF  
PHOTONICS 2025**

MUNICH

**WORKSHOPS**

JUNE 24<sup>th</sup> & 25<sup>th</sup>

Discover how to unlock the full potential of your laser system.  
Get practical guidance on choosing optics and mastering  
key parameters – from shaping beams to controlling laser pulses.

# AGENDA



## WHAT IS IT ABOUT?

- = Hands-on workshops on BeamShaping and the impact of optics on laser beams and ultrashort pulses
- = Key principles, techniques and applications to enhance performance
- = Explore advanced optical elements like aspheric and freeform lenses, axicons and diffractive optical elements (DOEs)
- = Learn how lenses, mirrors and optical systems affect laser beam quality, especially for ultrashort pulses
- = Understand how aberrations and phase distortions impact focusing and collimation



## WHAT CAN YOU EXPECT?

- = Clear insights into BeamShaping and the effects on laser applications
- = Comparison of refractive, diffractive and reflective optics to find the best solution
- = Practical examples from material processing, microscopy and imaging
- = Strategies to reduce optical distortions and optimize laser beam quality
- = Explore how optics can alter pulse fronts and affect spatio-temporal intensity distribution
- = Learn strategies to reduce optical distortions in high-precision laser applications



## WHO SHOULD PARTICIPATE?

- = Professionals in laser application-based industries
- = Optical engineers for laser material processing
- = Engineers with a laser manufacturing background
- = Laser scientists/physicists
- = Laser users seeking deeper knowledge and better decision-making in optical component selection



## WHY SHOULD YOU ATTEND?

- = Gain expert knowledge to make informed decisions on optical components
- = Improve laser performance by understanding and controlling BeamShaping effects
- = Benefit from real-world case studies and innovative solutions for high-precision applications

The workshops are structured in such a way that they can be booked independently of each other. We offer package prices for booking both workshops. More information on the back page.

TUESDAY  
June 24<sup>th</sup>  
10–12 am

**BeamShaping**

WEDNESDAY  
June 25<sup>th</sup>  
10–12 am

**Optimizing Optics for  
Ultrafast Laser**

### WORKSHOP #1: BEAMSHAPING – UNLOCKING THE FULL POTENTIAL OF LIGHT

- = BeamShaping vs. splitting: Understand key differences and their impact on laser applications
- = Choosing the right optics: Compare refractive, diffractive and reflective optics for optimal performance
- = Enhancing laser output: Optimize intensity distribution, focal shapes and beam profiles
- = Practical applications: Explore use cases in material processing, manufacturing, microscopy and imaging
- = Overcoming challenges: Control speckle effects, wavefront shaping and intensity uniformity
- = Advanced optical technologies: Learn about aspheric lenses, axicons, SLMs, and DOEs
- = Smart decision-making: Identify key factors for selecting the best BeamShaping technique
- = Challenges and opportunities in high-end finishing approaches

### WORKSHOP #2: OPTIMIZING OPTICS FOR ULTRAFAST LASERS – FROM SELECTION TO SYSTEM EXCELLENCE

- = Impact of real optics: Learn how lenses, mirrors and optical systems affect laser beam quality, especially for ultrashort pulses
- = Aberrations and distortions: Understand how aberrations and phase distortions impact focusing and collimation
- = Spatio-temporal effects: Explore how optics can alter the pulse fronts and affect spatio-temporal intensity distribution
- = Nonlinear interactions: See how pulse front distortions influence laser-material interactions
- = Choosing the right optics: Find the best components to preserve beam and pulse integrity and optimize performance
- = Advanced solutions: Learn strategies to reduce optical distortions in high-precision laser applications

*Please feel free to send us your questions or current challenges in advance, which we should address in the workshop!*

# YOUR ASPHERE & FREEFORM EXPERT

## DR. ULRIKE FUCHS

Dr. Fuchs joined asphericon in 2010, focusing early on the connection between aspheric manufacturing, metrology and optical design. With her team, she develops concepts to improve the prediction of system performance in optical design and tolerancing, now extending these methods to freeform optics. As Vice President Strategy & Innovation, she oversees all R&D activities and strategic product development at asphericon.

She holds six patent families and received the inaugural Kevin P. Thompson Optical Design Innovator Award in 2018. From 2018 to 2024, she served as an Associate Editor for Optics Express and has authored over 70 publications. In recognition of her contributions, she was named an Optica Fellow in 2020. Since 2023, she has been a member of the Board of Directors of Optica (2023–2025), actively shaping the future of the optics community.

Dr. Fuchs earned her PhD in physics from the Friedrich Schiller University Jena, where she worked in the field of ultrashort laser pulses, both experimentally and through simulations.



## PRICES:

### SINGLE PACKAGE

**Choose between workshops:**

#1 BeamShaping and

#2 Optimizing Optics for Ultrafast Lasers

195 €\*

### PREMIUM PACKAGE

**Both workshops 350 €\***

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\*Your Advantage: Free admission to Laser World of Photonics (save 59 € / day ticket)  
Limited space available. Hurry, while first comes first served!

For further information  
please contact:

[event@asphericon.com](mailto:event@asphericon.com)

[www.asphericon.com](http://www.asphericon.com)

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