

## **SAOT Summer Academy**

# Waischenfeld, July 21st-25th, 2025

#### **Course A: Femtosecond Laser Micromachining: From fundamentals to applications**

#### Course leader: Dr. Rose Mary

#### **Topic: Photonics in Production and Process Technology**

This course provides a comprehensive exploration of femtosecond laser microprocessing, from basic principles to cutting-edge applications. The course begins with an overview of the unique advantages of femtosecond lasers, then delves into the fundamental mechanisms of laser–matter interaction at ultrafast timescales. We will examine how these interactions lead to physical and chemical modifications in a variety of materials, with a particular focus on transparent media. The course then transitions into the diverse microfabrication techniques enabled by femtosecond lasers, including waveguide writing, selective etching, and nanoscale structuring. Finally, we explore real-world applications across integrated optical platforms, microfluidics, lab-on-chip systems, and other emerging technologies.

#### **Course B: Light creates Future**

### Course leader: Dagny Müller, Dipl.-Biol. Topic: Science Communication in the Field of Exhibitions and Future Technologies

Science communication is becoming increasingly important because a broad understanding of science and research can help to strengthen a society's resilience, future viability and willingness to innovate. This applies in particular to research in so-called future technologies, such as photonics. Today's research influences how people will live in the future.

In this course, we learn the basics of science communication and use the example of an exhibition on the topic of "Light creates the Future" to work out what science communication can look like in practice.

- I. Why and how? Basics of science communication
- II. How to make an exhibition
- III. Introduction "Light creates the Future"
- IV. Make an exhibition