



Fraunhofer
ILT

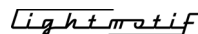
Fraunhofer Institute for Laser
Technology ILT

April 8–9, 2025 | Program

8th UKP Workshop Ultrafast Laser Technology

www.ultrafast-laser.com

We thank all the exhibitors of the 8th UKP Workshop Ultrafast Laser Technology 2025 for their support!



WELCOME

8th UKP Workshop Ultrafast Laser Technology

Every two years, Fraunhofer ILT organises the UKP Workshop on Ultrashort Pulse Laser Technology in Aachen. The 8th UKP Workshop will focus on processes and systems that can help companies exploit the full power spectrum of ultrafast laser performance capabilities that rest on wavelength choice, power-scaling, high-speed scanning or suitable beam shaping. Our presentations will provide valuable insights and know-how on how to select the right laser source or how to modify a laser beam profile in time and space to achieve optimal process conditions. In addition, experts will discuss how to push the limits of today's ultrashort pulse laser process technology.

Your benefit

- Benefit from the exchange with international specialists from laser development, process engineering and industry
- Discover more about the latest trends in ultrafast laser technology and get new ideas for promising
- Take the opportunity to discuss specific problems with well-known companies at the accompanying tabletop exhibition

New event modules in 2025

- Lab Tour at Fraunhofer ILT
- Marketplace with scientific exchange and snacks

We look forward to welcoming you in Aachen!

8th UKP WORKSHOP – PROGRAM

DAY 1 – TUESDAY, APRIL 8, 2025

8:00 Check-In

9:00 Welcome

Dr. Dennis Haasler, Fraunhofer ILT, Aachen (D)

Beam Sources

9:15 Industrial 1 kW 10 mJ ultrafast laser for novel applications

Dr. Dominik Bauer, TRUMPF Laser SE, Schramberg (D)

9:45 Ultrafast lasers and applications from 1.3 μm to deep UV

Dr. Ralf Knappe, Coherent Kaiserslautern GmbH, Kaiserslautern (D)

10:15 Versatile Laser Source: from femtoseconds to nanoseconds

Deividas Andriukaitis, EKSPLA, Vilnius (LT)

10:45 Coffee Break and Exhibition

Beam Shaping

11:15 Industrial laser beam shaping by a single element

Anna Stadlbauer, HOLO/OR Ltd., Ness Ziona (IL) / SCANLAB GmbH, Puchheim (D)

11:45 Innovate and excel: new high-power LCOS spatial light modulator pushing boundaries in laser material processing

Thomas Niedereichholz, Hamamatsu Photonics Deutschland GmbH, Herrsching (D)

12:15 High-speed MEMS SLMs: phase modulation for beam forming and high-resolution patterned line-beams

Dr. Stephen Hamann, Silicon Light Machines, San Jose (USA)

12:45 Lunch Break and Exhibition

Applications 1

13:45 Concepts for scaling and automating USP laser material processing for the production of medical components

Martin Reininghaus, Pulsar Photonics GmbH, Aachen (D)

14:15 Smart processing for industrial laser machining

Florian Lendner, GFH GmbH, Deggendorf (D)

14:45 3D Laser beam shaping with diffractive neural networks: theory and practice

Paul Buske, RWTH Aachen University – TOS, Aachen (D)

15:05 Innovative applications involving optical stamping with shaped beams

Martin Osbild, Fraunhofer ILT, Aachen (D)

15:25 Tailored intensity distributions to increase precision and productivity of selective laser-induced etching

Martin Kratz, Fraunhofer ILT, Aachen (D)

15:45 Coffee Break and Exhibition

16:05 Shuttle Transfer to Fraunhofer ILT

Marketplace – Ultrafast Lasers at Fraunhofer ILT

16:25 Lab Tour at Fraunhofer ILT

19:00 Shuttle service from Fraunhofer ILT to "DAS LIEBIG"

19:30 Future trends of ultrafast laser technology between research and industry

Prof. Arnold Gillner, RWTH Aachen University – LLT, Aachen (D)

19:45 Scientific exchange with Snacks

"DAS LIEBIG", Liebigstraße 19, 52070 Aachen

22:00 End of day 1

Shuttle service from "DAS LIEBIG" to Aachen Center

8th UKP WORKSHOP – PROGRAM

DAY 2 – WEDNESDAY, APRIL 9, 2025

8:00 **Check-In**

9:00 **Welcome**

Dr. Dennis Haasler, Fraunhofer ILT, Aachen (D)

Fundamentals

9:05 **Generation and characterization of anisotropic nanostructures using ultrashort pulsed lasers**

Dr. Jörn Bonse, Bundesanstalt für Materialforschung und -prüfung (BAM), Berlin (D)

9:35 **Fundamentals & applications of sub 100 fs pulse materials processing**

Prof. Oleg Pronin, n2-Photonics GmbH, Hamburg (D)

10:05 **Reliable FEMTOSECOND UV and DUV solid-state lasers for industry applications**

Lukas Rimkus, Light Conversion Ltd., Vilnius (LT)

10:35 **Coffee Break and Exhibition**

Process Scaling

11:00 **Process scaling with cascaded scan systems**

Dr. Holger Schlüter, SCANLAB GmbH, Puchheim (D)

11:30 **Advancements in high precision beam steering mechanics and control methods**

Bryan Germann, Aerotech, Inc., Pittsburgh (USA)

12:00 **Ultrafast and precise micro texturing of two and three-dimensional surfaces**

Dr. Florian Rößler, MOEWE Optical Solutions GmbH, Mittweida (D)

12:30 **Lunch Break and Exhibition**

Applications 2

13:30 **Ultrashort pulse welding of glass: from lab to application**

Dr. Jens Ulrich Thomas, SCHOTT AG, Mainz (D)

14:00 **USP laser processing in liquids for semiconductor manufacturing**

Alexander Kanitz, Lidrotec GmbH, Bochum (D)

14:30 **Enhancing the thermal emissivity of metal surfaces by USP laser processing for efficient heat transfer in space**

Prof. Eike Hübner, Fraunhofer HHI, Berlin (D)

15:00 **USP laser-based manufacturing of optical components**

Astrid Saßmannshausen, Fraunhofer ILT, Aachen (D)

15:30 **Short- and ultrashort pulse lasers for Li-ion battery and power electronics materials processing**

Markus Rütering, MKS Instruments, Inc., Darmstadt (D)

15:30 **Outlook**

Dr. Dennis Haasler, Fraunhofer ILT, Aachen (D)

16:15 **End of Workshop**

Program subject to changes.

Lectures are presented in English and German with simultaneous interpreting.

GENERAL INFORMATION

LOCATIONS AND HOTELS

Venue

- **Workshop and Marketplace:** "DAS LIEBIG",
Liebigstraße 19, 52070 Aachen, Germany,
www.dasliebig.de

Conference Language

All lectures are presented in English.

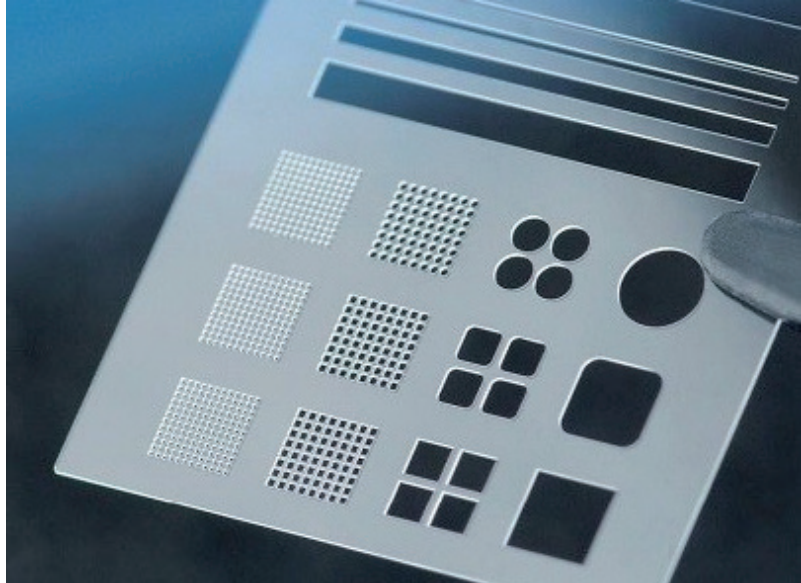
Shuttle Service

For the Lab Tour at Fraunhofer ILT on April 8, 2025, a free shuttle service will be available between the conference center "Das LIEBIG" and Melaten Campus. This service will transport participants to the venue and return them at the end of the Lab Tour. We encourage you to use this service.

Hotels

For the participants of the UKP Workshop 2025, we have compiled a list of hotels in different categories in Aachen for your convenience. Please note that we do not offer any special conditions or discounts for these hotels. Accommodation bookings must be made independently and directly via the respective hotels. Please be aware that spam e-mails or offers of accommodation may be received from third parties or agencies. We do not work with agencies.

Further information and all questions about booking will be answered directly by the respective hotels.



CONDITIONS OF PARTICIPATION

Registration Fee

The registration fee for the 8th UKP Workshop 2025 includes workshop proceedings, lunch, light refreshments, and coffee breaks on both conference days. It also covers the complimentary shuttle service between the hotels and the meeting site "DAS LIEBIG" in Aachen.

- **€ 845** – 8th UKP Workshop (April 8–9, 2025)
- **€ 80 (plus 19 % VAT)** – Marketplace – Scientific exchange with Snacks (April 8, 2025)

*Please note, that the workshop participation cannot be booked without the Marketplace.

GENERAL INFORMATION

CONDITIONS OF PARTICIPATION

Registration

To register please use the form provided online at www.ultrafast-laser.com. Once you have signed up, you will receive a confirmation of participation via e-mail as well as your invoice, which can be settled by bank transfer.

Registration Deadline: March 11, 2025.

At Check-In you will receive your name badge and the workshop proceedings. Please wear your badge during the whole conference and the evening event.

Cancellations

Cancellations of participation must be submitted in writing to ukp@ilt.fraunhofer.de. Those who cancel by March 11, 2025 will be reimbursed the attendance fee minus an administration charge of € 100. Cancellations after this date will incur the full attendance fee. Should this happen, you will be sent a summary of the conference proceedings. We also welcome a substitute participant. In this case please provide us the name of the substitute participant via e-mail.

For further information please visit: www.ultrafast-laser.com

FRAUNHOFER ILT

SHORT PROFILE

With more than 550 employees, more than 19,500 m² net floor space and more than 40 spin-offs, the Fraunhofer Institute for Laser Technology ILT is one of the world's most important contract research and development institutes in the fields of laser development and laser applications for 40 years. Our core competencies include the development of new laser beam sources and components, laser measurement and testing technology, and laser manufacturing technology. This includes cutting, ablation, drilling, welding and soldering as well as surface finishing, micro manufacturing and additive manufacturing, among others.

The areas of application for laser beam sources and processes include production and metrology, energy and mobility, medical and environmental technology, and quantum technology. Together with excellent partners from German and international research and industry, we develop, for example, satellite-based measurement systems for climate research or frequency converters for a fiber-based quantum internet. Cross-sectionally, Fraunhofer ILT addresses issues of digitalization in photonics and production technology, process monitoring and control, simulation and modeling, AI in laser technology, and the entire field of system technology.

Organization

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