

FRAUNHOFER INSTITUTE FOR LASER TECHNOLOGY ILT

APRIL 26 - 27, 2017

4[™] UKP-WORKSHOP: ULTRAFAST LASER TECHNOLOGY



PROGRAM

EXHIBITORS AND SPONSORS

WELCOME



UKP-WORKSHOP 2017

Exhibitors and Sponsors at the 4th UKP-Workshop (Status: February 2017)



UKP-WORKSHOP 2017

The 4th UKP-Workshop: Ultrafast Laser Technology will focus on processes and systems that can help companies capitalize on the full range of laser performance, such as high speed scanning or suitable beam shaping. Interesting presentations will provide valuable know-how about selecting the right laser source or individually modifying the laser beam profile in time and space in order to have optimal process conditions. Furthermore, experts will discuss how to push the boundaries of today's ultrafast laser process engineering.

Ultrafast lasers have an enormous potential for use in many different applications since a huge variety of parameters can be combined with different kinds of system technology. Available wavelengths range from UV up to NIR, pulse durations from a few femtoseconds to picoseconds and average powers from just a few watts up to several kilowatts – all of which theoretically enable users to machine almost any kind of material with excellent quality. However, industrial users are often not capable of handling the great number of parameters and do not know which parameters must be ideally chosen to provide best processing results. Furthermore, operating an ultrafast laser, especially for non-scientific staff, can still pose a big challenge. We look forward to seeing you there!

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Prof. Reinhart Poprawe

UKP-WORKSHOP PROGRAM DAY 1



WEDNESDAY, APRIL 26, 2017

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8.00 Check-In

9.00 Welcome Prof. Reinhart Poprawe, Fraunhofer ILT, Aachen (D)

KEYNOTE

9.15 Advanced Femtosecond Laser Processing for Electronic and Biological Applications Prof. Koji Sugioka, RIKEN – The Institute of Physical and Chemical Research, Saitama (JPN)

ULTRAFAST LASERS - BASICS

- 9.45 Heat Accumulation during Materials Processing with Ultrafast Lasers – The Consequences of Power Scaling Prof. Thomas Graf, Institut für Strahlwerkzeuge IFSW, Stuttgart (D)
- 10.15 Coffee Break / Tabletop-Exhibiton
- 10.45 Ultrafast Laser Tailoring of Precise Graphene Patterns and Smart Devices

Prof. Minlin Zhong, Tsinghua-University, Beijing (CHN)

- 11.15 Extending the Parameter Range of Ultrafast Lasers concerning Power, Wavelength and Pulse Duration Hans-Dieter Hoffmann, Fraunhofer ILT, Aachen (D)
- 11.45 Power-Scaling with USP: Opportunities and Limits Prof. Beat Neuenschwander, Berner Fachhochschule, Burgdorf (CH)
- 12.15 Lunch / Tabletop-Exhibiton

APPLICATIONS 1

13.15	Optimization of Processing Parameters of 3D Shape Structures in Ultrahard Materials with Picosecond Pulses Valdemar Stankevič, ELAS, Ltd., Vilnius (LT)
13.45	Ultrashort Pulse Laser Technologies for Industrial Use
	Frank Anlauf, SAUER GmbH LASERTEC, Pfronten (D)
14.15	USP Lasers meet Nitinol Medical Micro Implants
	Dr. Nils-Agne Feth, ADMEDES Schuessler GmbH, Pforzheim (D)
14.45	Coffee Break / Tabletop-Exhibiton
14.45 15.15	Coffee Break / Tabletop-Exhibiton Best in Laser Microprocessing – UKPL Innovation Network Jan Wieduwilt, TRUMPF Laser- und Systemtechnik GmbH, Ditzingen (D)

PANEL DISCUSSION

16.15	Chairman Dr. Arnold Gillner, Fraunhofer ILT, Aachen (D)

EVENING EVENT

19.00 Networking Event with Dinner "Ballroom Altes Kurhaus" in Aachen Doors open at 18.30, end at 23.00

Program subject to minor changes.

Lectures are presented in English and German with simultaneous interpreting.

UKP-WORKSHOP PROGRAM DAY 2



THURSDAY, APRIL 27, 2017

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LASER SOURCES AND OPTICS

9.00	Industrial Ultrafast Lasers with Pulse Duration < 100 fs Dr. Clemens Hönninger, Amplitude Systèmes, Pessac (F)
9.30	High Power Ultrafast Lasers
	Dr. Claus Schnitzler, AMPHOS GmbH, Herzogenrath (D)
10.00	Optical Systems for Ultrafast Lasers – Challenges
	and Solutions
	Dr. Tim Baldsiefen, JENOPTIK Optical Systems GmbH, Jena (D)
10.30	Coffee Break / Tabletop-Exhibiton
11.00	Real Time Measurement of the Ablation Rate
	during Ultrashort Pulsed Laser Processing
	Dr. Markus Kogel-Hollacher, Precitec Optropik GmbH
	Neu-Isenburg (D)
11.30	System Technology and Industrial Application
	of Ultrafast Fiber Beam Delivery
	Dr. Max Funck. PT Photonic Tools GmbH. Berlin (D)
12.00	Advanced Galvo Scanner Technology
	for USP Laser Processing
	Dr. Holaer Schlüter, SCANLAB GmbH, Puchheim (D)

12.30 Lunch / Tabletop-Exhibition

APPLICATIONS 2

13.30	Applications of Short and Ultrashort Pulsed Lasers in the Electronics and Display Industry
	Dr. Max Kahmann, TRUMPF Laser- und Systemtechnik GmbH, Ditzingen (D)
14.00	New Trends and Possibilities of Laser Texturing
	Lucia Dominguez Varela, GF Machining Solutions, Meyrin (CH)
14.30	Multibeam Laser Processing – Field of Applications,
	Limitations and Possibilities
	Patrick Gretzki, Fraunhofer ILT, Aachen (D)
15.00	Coffee Break / Tabletop-Exhibiton
15.30	FSLA™ – New Approach for Laser Processing
	of Transparent Materials
	René Liebers, 3D-Micromac AG, Chemnitz (D)
16.00	Surface Functionalization by Ultrafast
	Multi Beam Laser Processing
	Dr. Stephan Brüning, Schepers GmbH & Co. KG, Vreden (D)
16.30	Digital Photonic Production – High Power Ultrafast
	Lasers for Next Generation Production
	Dr. Arnold Gillner, Fraunhofer ILT, Aachen (D)

17.00 End

Program subject to minor changes.

Lectures are presented in English and German with simultaneous interpreting.

GENERAL INFORMATION LOCATIONS AND HOTELS

CONDITIONS OF PARTICIPATION



UKP-WORKSHOP 2017

Venues

- Workshop: TIVOLI Aachen Krefelder Straße 205, 52070 Aachen www.tivoli.eurogress-aachen.de
- Networking Event: "Ballroom Altes Kurhaus" Komphausbadstraße 19, 52062 Aachen www.altes-kurhaus-aachen.de

Conference Language

All lectures presented in English and German with simultaneous interpreting.

Shuttle Service

A complimentary shuttle service will be provided for workshop attendees between the hotels and the meeting site.

Hotels

A limited contingent of hotel rooms at specially negotiated rates has been reserved for the participants of the 4th UKP-Workshop. We strongly suggest that you make your reservation early in one of the following hotels:

- Aquis Grana Cityhotel ****
- INNSIDE Aachen****
- Leonardo Hotel ****
- Mercure Hotel am Dom ****
- Novotel Aachen City ****
- Ibis Styles Aachen City ***

UKP-WORKSHOP 2017

Early Bird Registration

Those booking by January 31, 2017 will be able to take advantage of a 10 % Early Bird Discount on conference fees.

Registration Fee

The registration fee for the 4th UKP-Workshop 2017 includes workshop proceedings, lunch, light refreshments and coffee breaks on both of the conference days. It also covers the complimentary shuttle service between the hotels and the meeting site TIVOLI Aachen.

UKP-Workshop – April 26 to 27, 2017

• € 650 / € 585 (Early Bird Registration)

Networking Event with Dinner – April 26, 2017 at "Ballroom Altes Kurhaus", Aachen

• € 80 (plus 19 % VAT).

Please note that the workshop participation cannot be booked without the Networking Event.

GENERAL INFORMATION CONDITIONS OF PARTICIPATION

FRAUNHOFER ILT PROFILE



UKP-WORKSHOP 2017

Registration

To register please use the form provided online at <u>www.ultrafast-laser.com</u>. Once you have signed up, you will receive a confirmation of participation as well as your invoice, which can be settled either by Credit Card (VISA, MasterCard) or by bank transfer.

Registration Deadline: April 1, 2017.

On-site Check-In you will receive your name badge, the workshop proceedings as well as the admission ticket for the booked evening event. Please wear your badge to all conference sessions and events.

Cancellations

Cancellations of participation must be submitted in writing to <u>ukp@ilt.fraunhofer.de</u>. Those who cancel by March 2, 2017 will be reimbursed the attendance fee minus an administration charge of \in 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 instead. In this case please provide us the name of the substitute participant via e-mail.

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

WWW.ILT.FRAUNHOFER.DE

With more than 415 employees and more than 19,500 m² net floor space the Fraunhofer Institute for Laser Technology ILT is worldwide one of the most important development and contract research institutes of its specific field. The activities cover a wide range of areas such as the development of new laser beam sources and components, precise laser based metrology, testing technology and industrial laser processes. This includes laser cutting, caving, drilling, welding and soldering as well as surface treatment, micro processing and rapid manufacturing.

Furthermore, the Fraunhofer ILT is engaged in laser plant technology, process control, modelling and simulation as well as in the entire system technology. We offer feasibility studies, process qualification and laser integration in customer specific manufacturing lines. The Fraunhofer ILT is part of the Fraunhofer-Gesellschaft, with 67 institutes, nearly 24,000 employees and an annual research budget of more than 2.1 billion euros.

CONTACT

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