FRAUNHOFER INSTITUTE FOR LASER TECHNOLOGY ILT

APRIL 10–11, 2019

5TH UKP-WORKSHOP:
ULTRAFAST LASER TECHNOLOGY

PROGRAM
Exhibitors and Sponsors at the 5th UKP-Workshop (Status: January 2019)

The 5th 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!

Prof. Reinhart Poprawe
UKP-WORKSHOP PROGRAM
DAY 1

WEDNESDAY, APRIL 10, 2019

8.00  Check-In

9.00  Welcome  Dr. Arnold Gillner, Fraunhofer ILT, Aachen (D)

KEYNOTE

9.15  High Througput Processing with Ultrafast Lasers – What's New for Applications and Technology?  
Eric Mottay, Amplitude Systèmes, Pessac (F)

ULTRAFAST LASERS – BASICS

10.00  Leveraging of Transparent Materials Processing by Beam Shaping and In Situ Diagnostics  
Dr. Malte Kumkar, TRUMPF Laser- und Systemtechnik GmbH, Ditzingen (D)

10.30  Coffee Break / Tabletop-Exhibiton

11.00  Hollow-Core PCF: An Enabling and Transformative Technology for Ultrashort Pulse Laser Applications  
Prof. Fetah Benabd, Xlim – Institute de Recherche, Limoges (F)

11.30  Multiscale Modeling for USP Structuring  
Dr. Markus Niessen, Fraunhofer ILT, Aachen (D)

12.00  Laser-Induced Forward Transfer (LIFT) of 3D Free Standing Microstructures – Fundamentals and Potential Applications  
Prof. Gert-Willem Römer, University of Twente, Enschede (NL)

12.30  Lunch / Tabletop-Exhibiton

WEDNESDAY, APRIL 10, 2019

APPLICATIONS 1

13.30  Efficient Production of Large-Area Design Surfaces on 3D Moulding Tools  
Dr. Benedikt Nohn, Volkswagen AG, Braunschweig (D)

14.00  Microstructures near the Diffraction Limit-Fabrication and Applications  
Dr. Johannes-Thomas Finger, Fraunhofer ILT, Aachen (D)

14.30  Highly Accurate 3D Laser Processing of Customer-Specific Tools  
Dr. Claus Alexander Dold, EWAG AG, Etziken (CH)

15.00  Coffee Break / Tabletop-Exhibiton

15.30  High-Throughput Micro Machining with (Ultrashort Pulsed Lasers and) Multiple Spots  
Dr. Stephan Brüning, Schepers GmbH & Co. KG, Vreden (D)

PANEL DISCUSSION

16.00  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.

www.ultrafast-laser.com
UKP-WORKSHOP PROGRAM
DAY 2

THURSDAY, APRIL 11, 2019

LASER SOURCES AND OPTICS

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<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker / Institute</th>
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<tbody>
<tr>
<td>9.00</td>
<td>Advanced Photon Sources – Multi-kW Femtosecond Lasers for Disruptive Applications</td>
<td>Hans-Dieter Hoffmann, Fraunhofer ILT, Aachen (D)</td>
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<tr>
<td>9.30</td>
<td>Enhancements of Ultrashort Pulse Laser Performances and Application Examples in Industry</td>
<td>Dr. Keming Du, EdgeWave GmbH, Würselen (D)</td>
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<td>10.00</td>
<td>Operating Principle of Opto Parametric Amplifiers and their Potential for Industrial Applications</td>
<td>Ulrich Höchner, Light Conversion Ltd., Vilnius (LT)</td>
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<th>Time</th>
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<tr>
<th>Time</th>
<th>Design of Multibeam Optics for High Throughput Parallel Processing</th>
<th>Oskar Hofmann, RWTH Aachen University – TOS, Aachen (D)</th>
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<tr>
<td>11.00</td>
<td>Optimized Laser Material Processing with Tailored Focal Intensity Distributions</td>
<td>Dr. Ulrike Fuchs, asphericon GmbH, Jena (D)</td>
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<td>11.30</td>
<td>XL SCAN – A Solution for Extra-Large Scan Fields</td>
<td>Dr. Holger Schlüter, SCANLAB GmbH, Puchheim (D)</td>
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<td>12.00</td>
<td>Lunch / Tabletop-Exhibiton</td>
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<th>Time</th>
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<tr>
<td>13.30</td>
<td>Additive Manufacturing by Means of Ultrashort Pulsed Laser Radiation</td>
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<td>14.00</td>
<td>Smart Ultrafast Laser Processing with Rotating Beam – Laser Micro Drilling, Cutting and Turning</td>
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<td>14.30</td>
<td>X-Ray Emission during Laser Processing with Ultrashort Laser Pulses</td>
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<th>Time</th>
<th>Are Galvo Scanners Flexible Enough for Processing on Moving 3D Objects?</th>
<th>Dr. Oliver Suttmann, LZH - Laser Zentrum Hannover e. V., Hannover (D)</th>
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<tr>
<td>15.30</td>
<td>Advanced Beam Management: Combination of Beam Shaping and Splitting for High-Power fs Laser Cutting and Drilling Applications</td>
<td>Dr. Jose Antonio Ramos de Campos, LASEA S.A., Angleur (B)</td>
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<td>16.00</td>
<td>Perspectives and Challenges for High Power Ultrafast Laser Processing</td>
<td>Dr. Arnold Gillner, Fraunhofer ILT, Aachen (D)</td>
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Lectures are presented in English and German with simultaneous interpreting.
Venues
- Workshop: TIVOLI Stadium
  Krefelder Straße 205, 52070 Aachen, Germany
  www.tivoli.eurogress-aachen.de
- Networking Event: "Ballroom Altes Kurhaus"
  Komphausbadstraße 19, 52062 Aachen, Germany
  www.altes-kurhaus-aachen.de

Conference Language
All lectures are 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 5th UKP-Workshop. We strongly suggest to make your reservation early in one of the following hotels:
- Aquis Grana Cityhotel ****
- INNSIDE by Melia Aachen****
- Mercure Hotel am Dom ****
- Novotel Aachen City ****
- Hampton by Hilton – Aachen Tivoli ***
- Ibis Styles Aachen City ***

Early Bird Registration
Those booking by January 31, 2019 will be able to take advantage of a 10 percent Early Bird Discount on conference fees.

Registration Fee
The registration fee for the 5th UKP-Workshop 2019 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 TIVOLI Stadium Aachen.

UKP-Workshop – April 10 to 11, 2019
- € 650 / € 585 (Early Bird Registration)

Networking Event with Dinner – April 10, 2019
at "Ballroom Altes Kurhaus", Aachen
- € 80 (plus 19 % VAT).

Please note that the workshop participation cannot be booked without the Networking Event.
With more than 500 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 72 institutes, more than 25,000 employees and an annual research budget of 2.3 billion euros.

**Registration**
To register please use the form provided online at [www.ultrafast-laser.com](http://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 either by Credit Card (VISA, MasterCard) or by bank transfer.

**Registration Deadline:** March 20, 2019.

At 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 [ukp@ilt.fraunhofer.de](mailto:ukp@ilt.fraunhofer.de). Those who cancel by March 6, 2019 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 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](http://www.ultrafast-laser.com)
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