SLT Program: Tuesday, 21 June 2022

ROOM C1.2.2: Plenary Session

09:00 SLT 2022 OPENING AND INFORMATION
Heidi-Maria Götz, IFSW, University of Stuttgart, Germany

09:10 WELCOME TO THE SLT 2022
Thomas Graf, IFSW, University of Stuttgart, Germany

09:30 TOWARDS AUTOMATED SELF-LEARNING PROCESS OPTIMIZATION
Andreas Michalowski, Bosch Research, Renningen, Germany

10:00 INDUSTRIAL LASER PROCESSING: WHAT’S NEXT?
Christian Schmitz, TRUMPF SE + Co. KG, Ditzingen, Germany

10:30 COFFEE BREAK

ROOM C1.2.1, SLT Topic 1:
FUNDAMENTALS AND APPLICATIONS OF CW LASER PROCESSING

11:15 Latest Technology Leaps due to Beam Shaping in Laser Materials Processing
T. Hesse, TRUMPF Laser- und Systemtechnik GmbH, Ditzingen, Germany

11:40 Laser Processing with Arbitrary Beam Patterns
J. Wagner, IFSW, University of Stuttgart, Germany

12:05 Fast Beam Oscillations Improve Laser Cutting of Thick Materials
A. Wetzig, Fraunhofer IWS, Dresden, Germany

12:30 LUNCH AND LASYS VISIT

ROOM C1.2.2, SLT Topic 2:
ULTRAFAST LASER SOURCES AND OPTICS

11:15 Industrial High Power Lasers Covering ns to fs Regime
A. Killi, TRUMPF Laser GmbH, Schramberg, Germany

11:40 Generation of Visible and UV Ultra-Short Laser Pulses at High Average Power
C. Röcker, IFSW, University of Stuttgart, Germany

12:05 High Beam Quality Thin-Disk PERLA Platform for Multibeam Micromachining
M. Smrž, HiLASE Centre, Dolní Břežany, Czech Republic

12:30 COFFEE BREAK

ROOM C1.2.1, SLT Topic 1:
PROCESS CONTROL FOR ADDITIVE MANUFACTURING AND WELDING, Chair C. Hagenlocher

14:15 OCT in Additive Manufacturing – New Approaches in System and Sensor Technology for DED with Powder and Wire
M. Kogel-Hollacher, Precitec GmbH & Co. KG, Gaggenau, Germany

14:40 Advanced Process Monitoring Approaches for Additive Manufacturing of Metals
T. Seefeld, BIAS GmbH, Bremerhaven, Germany

15:05 Process Monitoring of Laser Welding Processes with a Multi-Sensoric Approach
C. Franz, 4D Photonics GmbH, Isernhagen, Germany

15:30 COFFEE BREAK

ROOM C1.2.2, SLT Topic 2:
NOVEL LASER AND BEAM DELIVERY CONCEPTS, Chair M. Abdou Ahmed

14:15 Innovative Lasers and Beam Transportation with Microstructured Optical Fibers
E. Audouard, Amplitude, Pessac, France

14:40 Design, Production, and Characterization of Specialty Optical Fibers at the IFSW
C. Röhrer, IFSW, University of Stuttgart, Germany

15:05 Thulium-Based, Ultrafast Fiber Lasers: From a Laboratory Curiosity to a Top-Performer
M. Kumkar, TRUMPF Laser GmbH, Schramberg, Germany

15:30 INDIVIDUAL TRANSFER TO THE IFSW

18:30 SLT 2022 EVENING WELCOME
Thomas Graf, Director of the IFSW

18:45 PRESENTATION OF LASER APPLICATION BASICS LIVE
Staff of the IFSW

19:30 NETWORKING AND DINNER IN THE INNER COURTYARD
Swabian Evening at the IFSW

as of 30 May 2022
# SLT Program: Wednesday, 22 June 2022

## ROOM C1.2.2: Plenary Session

<table>
<thead>
<tr>
<th>Time</th>
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<th>Speaker, Institution</th>
</tr>
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<tbody>
<tr>
<td>09:00</td>
<td>SLT 2022 OPENING AND INFORMATION</td>
<td>Heidi-Maria Götz, IFSW, University of Stuttgart, Germany</td>
</tr>
<tr>
<td>09:05</td>
<td>ADDITIVE MANUFACTURING UNDER SPACE CONDITIONS USING THE EINSTEIN-ELEVATOR</td>
<td>Ludger Overmeyer, Leibniz University Hannover, Germany</td>
</tr>
<tr>
<td>09:30</td>
<td>THE (R)EVOLUTION OF LITHOGRAPHY OPTICS: EUV ENABLES THE CONTINUATION OF MOORE’S LAW</td>
<td>Thomas Stammelr, Carl Zeiss SMT GmbH, Oberkochen, Germany</td>
</tr>
<tr>
<td>10:00</td>
<td>ON THE WAY TO THE UNIVERSAL LASER MACHINE</td>
<td>Thomas Graf, IFSW, University of Stuttgart, Germany</td>
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## ROOM C1.2.1, SLT Topic 3: FUNDAMENTALS AND APPLICATIONS OF ULTRAFAST LASER PROCESSING

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<td>11:15</td>
<td>System Technology for Processing with High-Power Ultrafast Lasers</td>
<td>B. Neuenenschwander, Bern University of Applied Sciences, Bungdorf, Switzerland</td>
</tr>
<tr>
<td>11:40</td>
<td>Optimized Airy-Beams for Round Glass Edge Cutting</td>
<td>J. U. Thomas, SCHÖTT AG, Mainz, Germany</td>
</tr>
<tr>
<td>12:05</td>
<td>Latest Progress in Precise and Efficient Materials Processing with Ultrashort Laser Pulses</td>
<td>A. Gillner, Fraunhofer ILT, Aachen, Germany</td>
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## ROOM C1.2.2, SLT Topic 4: HIGH AVERAGE POWER CW LASER SOURCES AND OPTICS

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<td>11:15</td>
<td>Iterative Path Planning for Laser Metal Deposition with Online Control</td>
<td>M. Wolf, IFSW, University of Stuttgart, Germany</td>
</tr>
<tr>
<td>11:40</td>
<td>Toolpath Generation in Laser Metal Deposition for Complex 3D Geometries</td>
<td>R. Beccard, LUNOVU GmbH, Herzogenrath, Germany</td>
</tr>
<tr>
<td>12:05</td>
<td>Closed-Loop Control of Ultrafast Laser Ablation</td>
<td>M. Buser, IFSW, University of Stuttgart, Germany</td>
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## 10:30 COFFEE BREAK

## ROOM C1.2.1, SLT Topic 3: FUNDAMENTALS AND APPLICATIONS OF ULTRAFAST LASER PROCESSING

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<td>14:15</td>
<td>High-Speed Rotary Optics for Ultra-Short Pulse Lasers with High Average Powers and Short Laser Pulses</td>
<td>R. Holtz, University of Applied Sciences and Arts Northwestern Switzerland, Windisch, Switzerland</td>
</tr>
<tr>
<td>14:40</td>
<td>5-Axis Scan Head for High Precision Drilling</td>
<td>H. Schlöter, SCANLAB GmbH, Puchheim, Germany</td>
</tr>
<tr>
<td>15:05</td>
<td>Optic Concept for High Power Helical Drilling</td>
<td>D. Brinkmeier, IFSW, University of Stuttgart, Germany</td>
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<td>Nonlinear Optics in Multipass Cells</td>
<td>M. Hanna, Laboratoire Charles Fabry, Université Paris-Saclay, Palaiseau, France</td>
</tr>
<tr>
<td>14:40</td>
<td>MPLC Systems for High-Power CW and fs Laser Beams</td>
<td>G. Pallier, Cailabs, Rennes, France</td>
</tr>
<tr>
<td>15:05</td>
<td>Latest Results on Grating Waveguide Structures for Pulsed Laser Systems</td>
<td>M. Rumpel, MarTec Photonics, Stuttgart, Germany</td>
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## 12:30 LUNCH AND LASYIS VISIT

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<td>16:00</td>
<td>Lasers that Learn</td>
<td>B. Mills, Optoelectronics Research Centre, University of Southampton, United Kingdom</td>
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<td>16:25</td>
<td>Optimization of the Laser Beam Welding Process using Combination of Physical Based and Data Driven AI Models</td>
<td>A. Ilie, Robert Bosch GmbH, Renningen, Germany</td>
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<tr>
<td>16:50</td>
<td>Application of Machine Learning for Quality Assessment of Laser Powder Bed Fusion Process</td>
<td>A. Molotnikov, RMIT University, Melbourne, Australia</td>
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## 15:30 COFFEE BREAK

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<td>Introduction to the USP-X-Ray Session</td>
<td>R. Weber, IFSW, University of Stuttgart, Germany</td>
</tr>
<tr>
<td>16:10</td>
<td>The Current Legal Situation for Operating Ultrashort-Pulsed Laser Material Processing Stations</td>
<td>M. Rothmund, Regierungsräsidium Stuttgart, Referent S4.6, Heilbronn, Germany</td>
</tr>
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<td>16:25</td>
<td>X-Ray Protection in an Industrial Production Environment</td>
<td>C. Freitag, LightPulse LASER PRECISION, Stuttgart, Germany</td>
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<tr>
<td>16:40</td>
<td>X-Ray Emissions during Laser Turning with Ultra-Short Laser Pulses</td>
<td>R. Giedl-Wagner, GFH GmbH, Deggendorf, Germany</td>
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<tr>
<td>16:55</td>
<td>X-Ray Emission from Industrial Applications with Ultra-Short Laser Pulses</td>
<td>G. Kunz, Robert Bosch GmbH, Renningen, Germany</td>
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## 16:40 X-Ray Emissions during Laser Turning with Ultra-Short Laser Pulses

## 16:55 X-Ray Emission from Industrial Applications with Ultra-Short Laser Pulses

## 16:25 Optimization of the Laser Beam Welding Process using Combination of Physical Based and Data Driven AI Models

## 16:50 Application of Machine Learning for Quality Assessment of Laser Powder Bed Fusion Process

## 17:15 SLT 2022 CLOSING NOTE

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*as of 30 May 2022*