

## SLT Program: Tuesday, 31 May 2016

## → ROOM C1.2.2: Plenary Session

09:00	WELCOME TO THE SLT 2016	Thomas Graf, IFSW, University of Stuttgart, Germany
09:15	INFORMATION	Heidi-Maria Götz, SLT Organization IFSW, University of Stuttgart, Germany
09:30	THE FUTURE OF INDUSTRIAL LASER APPLICATIONS	Godehard Schmitz Robert Bosch GmbH, Renningen, Germany
10:00	METROLOGY USING LASER INDUCED ULTRASONIC WAVES	Thomas Dekorsy University of Konstanz, Germany

## 10:30 COFFEE BREAK

## → ROOM C1.2.1, SLT Topic 1:

## LATEST ADVANCES IN LASER WELDING AND ADDITIVE MANUFACTURING

1.1 LASER SOLUTIONS FOR LIGHTWEIGHT PRODUCTION  
Chair A. Heider

11:15	Laser Applications for Flexible Production of Electric Vehicles G. Bergweiler, RWTH Aachen University, Germany
11:40	Efficient and Reliable Joining of Lightweight Materials S. Kaierle, Laser Zentrum Hannover e.V., Germany
12:05	Controlled Laser Joining of Dissimilar Materials P. Stritt, IFSW, University of Stuttgart, Germany

## → ROOM C1.2.2, SLT Topic 2:

## HIGH AVERAGE POWER ULTRAFAST LASERS AND BEAM DELIVERY

2.1 HIGH-POWER AND HIGH-ENERGY ULTRAFAST LASERS  
Chair M. Abdou Ahmed

11:15	Introduction of TruMicro 2000 Fibre Laser Platform F. Kanal, TRUMPF GmbH, Ditzingen, Germany
11:40	Divided Pulse Amplification for Ultrashort Pulses P. Georges, Laboratoire Charles Fabry, Palaiseau Cedex, France
12:05	PEneLOPE – a High Energy 150 fs Hybrid Thin Disk and Gas-Cooled Multi-Slab Laser System M. Siebold, Helmholtz-Zentrum Dresden-Rossendorf, Germany

## 12:30 LUNCH AND LASYS VISIT

## 1.2 OPTIMIZING HIGH AVERAGE POWER LASER PROCESSES, Chair P. Stritt

14:15	Optimized Laser-Based Material Processing and Manufacturing – The Role of Sensor Technology and Smart Functions T. Hesse, TRUMPF GmbH, Ditzingen, Germany
14:40	Potentials of Numerical Simulations for Laser Materials Processing A. Otto, University of Vienna, Austria
15:05	Latest Results of Laser Beam Welding under Vacuum of Copper with 16 kW S. Olschok, RWTH Aachen University, Germany

## 2.2 BEAM SHAPING AND BEAM DELIVERY OF ULTRASHORT LASER PULSES, Chair M. Rumpel

14:15	Innovative Low-Absorption Faraday Crystal – an Alternative to TGG in High Power Lasers Applications K. Stevens, Northrop Grumman Corporation, SYNOPTICS, Charlotte, USA
14:40	Fibre Beam Delivery Systems for Industrial Ultrafast Lasers B. Wedel, PT Photonic Tools GmbH, Berlin, Germany
15:05	Amplification of Cylindrically Polarized Ultrafast Laser Beams A. Loeschner, IFSW, University of Stuttgart, Germany

## 15:30 COFFEE BREAK

1.3 ADDITIVE MANUFACTURING  
Chair P. Berger

16:10	Next Step in Laser-Based Powder Bed Fusion – Multi Material Processing C. Seidel, Fraunhofer IWU, Augsburg, Germany
16:35	Industrial Laser Deposition Welding R. Wahl, Pforzheim University of Applied Sciences, Germany
17:00	Trends in Additive Manufacturing C. Thiel, SLM Solutions GmbH, Lübeck, Germany

2.3 NOVEL LASER SOURCES AND MATERIALS  
Chair M. Eckerle

16:10	Engineered Crystal Layers Grown by Pulsed Laser Deposition – Making Bespoke Planar Gain-Media Devices J. Mackenzie, University of Southampton, UK
16:35	0.5 kW Picosecond Yb:YAG Regenerative Amplifier for Deep UV to Mid-IR Frequency Conversion M. Smrž, HiLASE Centrum, Dolní Břežany, Czech Republic
17:00	Yb:CaF <sub>2</sub> Mode-Locked Thin Disk Oscillator B. Dannecker, IFSW, University of Stuttgart, Germany

## 18:00 INDIVIDUAL TRANSFER TO THE IFSW

19:00	WELCOME TO 30 YEARS IFSW THE IFSW THROUGH THE AGES	Prof. Dr. Wolfram Ressel (Rector of the University of Stuttgart) Prof. Dr. Thomas Graf (Director of the IFSW)
19:30	LASER APPLICATIONS LIVE	Staff of the IFSW
20:00	NETWORKING AND DINNER IN THE INNER COURTYARD	Swabian Evening at the IFSW

## SLT Program: Wednesday, 01 June 2016

## → ROOM C1.2.2: Plenary Session

09:00	THIN-DISK OR FIBRE LASER? IT IS A MATTER OF GEOMETRY	Thomas Graf, IFSW, University of Stuttgart, Germany
09:20	FRENCH-GERMAN COOPERATION	Thomas Graf / Eric Fogarassy Télécom Physique Strasbourg, France
09:30	KAGOME: FIBRE DELIVERY OF ULTRA-SHORT PULSED LASER RADIATION	Fetah Benabid XLIM Research Institute, University of Limoges, France
10:00	THE POTENTIAL OF HIGH AVERAGE POWER LASERS IN NUCLEAR DECOMMISSIONING	Paul Hilton TWI Ltd, Cambridge, UK

## 10:30 COFFEE BREAK

## → ROOM C1.2.1, SLT Topic 3:

## BASICS AND APPLICATIONS OF SHORT PULSE LASER PROCESSING

## 3.1 SYSTEM TECHNOLOGY FOR ULTRAFAST LASER APPLICATIONS, Chair V. Onuseit

11:15	Realtime Measurement of the Ablation Rate during Ultrashort Pulsed Laser Processing M. Kogel-Hollacher, Precitec GmbH & Co. KG, Gaggenau, Germany
11:40	Modelling and Layout of Exhaust Systems for Ultra-Short Pulse Laser Applications S. Hajek, Herding Filtertechnik GmbH, Amberg, Germany
12:05	Single Frame Laser Beam Characterization M. Boley, IFSW, University of Stuttgart, Germany

## → ROOM C1.2.2, SLT Topic 4:

## HIGH AVERAGE POWER CW LASER SOURCES AND NON-LINEAR CONVERSION

4.1 HIGH AVERAGE POWER CW LASER SOURCES  
Chair M. Abdou Ahmed

11:15	Power Scaling of Thin Disk Lasers J. Speiser, DLR, Institute of Technical Physics, Stuttgart, Germany
11:40	Opportunities and Challenges of Power Scaling of Single-Mode Fiber Lasers L. Dong, Clemson University, USA
12:05	High Beam-Quality High Average-Power Diode Lasers V. Krause, Laserline GmbH, Mülheim-Kärlich, Germany

## 12:30 LUNCH AND LASYS VISIT

## 3.2 PROCESSING OF DIELECTRIC MATERIALS WITH ULTRAFAST LASERS, Chair A. Feuer

14:15	Fused Silica for Laser Material Processing F. Nürnberg, Heraeus Quarzglas GmbH & Co. KG, Hanau, Germany
14:40	Ultrafast Laser Structuring of Glass and Sapphire Materials with Tailored Beams F. Courvoisier, FEMTO ST-Institute, Besançon, France
15:05	Welding of Fused Silica with Femtosecond Lasers Enables New Design Options E. Kaiser, TRUMPF Laser GmbH, Schramberg, Germany

4.2 HIGH AVERAGE POWER MIR LASER SOURCES  
Chair M. Rumpel

14:15	Recent Advances in High-Power Sources in the 2–5 $\mu$ m Range M. Eichhorn, French-German Research Institute of Saint-Louis, France
14:40	High Average Power CO-Laser A. Held, Coherent Inc., Bloomfield, USA
15:05	Mid-IR Lasers in 2–6 $\mu$ m Spectral Range Based on Transition Metal Doped II-VI Chalcogenides S. Vasilyev, IPG Photonics, Birmingham, USA

## 15:30 COFFEE BREAK

## 3.3 FUNDAMENTALS OF MATERIALS PROCESSING WITH ULTRAFAST LASERS, Chair R. Weber

16:00	Mechanisms of Ultrashort Pulse Laser Ablation Revealed by Time-Resolved Simulations and Experiments H. Huber, Munich University of Applied Sciences, Germany
16:25	Pulsed Laser Ablation Modeling with Molecular Dynamics J. Roth, FMQ, University of Stuttgart, Germany
16:50	Heat Accumulation Limits in Ultra-Short Pulsed Laser Processing C. Freitag, IFSW, University of Stuttgart, Germany

4.3 NON-LINEAR CONVERSION  
Chair S. Piehler

16:00	Industrial Production of Large Scale LBO and RTP Crystals for High-Efficient Lasers D. Balitsky, CRISTAL LASER S.A., Messein, France
16:25	Frequency Conversion of High-Average Power High-Energy ps-Laser Pulses to the Green and UV J.-P. Negel, IFSW, University of Stuttgart, Germany
16:50	Efficient Generation of Green Radiation Enabled by High Efficiency Grating Mirror M. Abdou Ahmed, IFSW, University of Stuttgart, Germany

## 17:15 SLT 2016 CLOSING NOTE

17:20	R. Weber, IFSW, University of Stuttgart, Germany	M. Abdou Ahmed, IFSW, University of Stuttgart, Germany
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