STUTTGART LASER TECHNOLOGY FORUM 2014

TUESDAY, 24 JUNE 2014

Plenary Session — **Room C 1.2.2**

Chair T. Graf

SLT Opening	9:00	**T. Graf** IFSW, University of Stuttgart, Germany
Welcome	9:15	**S. Schwanitz** Ministerium für Wissenschaft, Forschung und Kunst Baden-Württemberg, Germany
The Industrial Laser as a Commodity – Prerequisites and Consequences	9:30	**P. Leibinger** TRUMPF GmbH & Co. KG, Ditzingen, Germany
Measuring the Size of the Proton	10:00	**R. Pohl** Max-Planck-Institut für Quantenoptik, München, Germany
Coffee Break	10:30	Coffee Break

Room C 1.2.1		Room C 1.2.2
Macro Laser Applications, Diagnostics & Modeling		**Ultrafast Laser Sources**
Laser Processing of Dissimilar Materials Chair R. Weber		**High Peak Power Lasers** Chair M. Abdou Ahmed
Advantages and Challenges of Dissimilar Materials in Automotive Lightweight Construction J. Weberpals, Audi AG, Neckarsulm, Germany	11:15	**Ultrafast Thin Disk Amplifiers** D. Sutter, TRUMPF Laser GmbH + Co. KG, Schramberg, Germany
Remote Laser Welding of Multi-Alloy Aluminium Sheets C. Bezençon, Novelis AG, Sierre, Switzerland	11:40	**Power Scaling of Ultrashort-Pulse Lasers with InnoSlab Technology** C. Schnitzler, Amphos, Aachen, Germany
Mixing of the Melt by Eddies in the Weldpool P. Berger, IFSW, University of Stuttgart, Germany	12:05	**Thin-Disk Multipass Amplifier for Picosecond Laser Pulses Exceeding 1 kW Average Output Power with Multi-mJ Pulse Energies** J. Negel, IFSW, University of Stuttgart, Germany
Lunch	12:30	Lunch
Controlled Laser Welding Chair P. Stritt		**Novel Yb-based Lasers** Chair M. Eckerle
Remote Laser Welding of Fillet Joints in Car Body Production at BMW F. Oefele, BMW Group, München, Germany	14:15	**Single Crystal Fibers for Short Pulse Laser Amplifiers** F. Balembois, Laboratoire Charles Fabry (LCF), Institut d'Optique, Palaiseau, France
Opportunities and Challenges of e-Beam Welding Compared to Laser Welding K. Mueller-Sybrichs, pro-beam, Ditzingen, Germany	14:40	**Towards High-Power and High-Energy Femtosecond Yb:$CaGdO_4$ Regenerative Amplifiers** J. Aus-der-Au, High-Q, Rankweil, Austria
Real Time Measurement of the Keyhole Depth M. Kogel-Hollacher, Precitec KG, Gaggenau, Germany	15:05	**Ceramic Thin-Disk Lasers** A. Shirakawa, Institute for Laser Science, Tokyo, Japan
Coffee Break	15:30	Coffee Break
Fundamentals of Macro Materials Processing Chair A. Heider		**Energy Scaling of Ultrafast Lasers** Chair M. Abdou Ahmed
Controlling Laser Weld Quality Using Vacuum S. Olschok, RWTH Aachen, Germany	16:10	**The HiLASE Project** M. Smrz, HiLASE, Praha, Czech Republic
Laser Polishing of Steel and Aluminium Surfaces H. Riegel, FH Aalen, Germany	16:35	**300fs, 300µJ Yb:YAG Thin Disk Amplifier for High Power Micromachining** M. Delaigue, Amplitude Systemes, Pessac, France
Temperature and Stress Behavior during Close-Edge Laser Welding of High-Strength Aluminum P. Stritt, IFSW, University of Stuttgart, Germany	17:00	**New Developments in Pulse Compression Gratings** M. Rumpel, IFSW, University of Stuttgart, Germany
Transfer to IFSW Insitut für Strahlwerkzeuge, Pfaffenwaldring 43, 70569 Stuttgart	18:00	**Transfer to IFSW** Insitut für Strahlwerkzeuge, Pfaffenwaldring 43, 70569 Stuttgart
IFSW: Reception and labs visit	19:00	**IFSW: Reception and labs visit**
Official End of Evening	22:00	Official End of Evening

WEDNESDAY, 25 JUNE 2014

Plenary Session — **Room C1.2.2**

Chair R. Weber

Laser Technologies for the Manufacturing of Tomorrow — 9:00 — **T. Graf**, IFSW, University of Stuttgart, Germany

Beam-Combined, High-Power, High-Brightness Diode Laser Systems — 9:30 — **T. Y. Fan**, MIT Lincoln Laboratory, Lexington, USA

S-TEC – Stuttgart Technology and Innovation Centre — 10:00 — **T. Bauernhansl**, Fraunhofer IPA, Stuttgart, Germany

Coffee Break — 10:30 — Coffee Break

Room C1.2.1		Room C1.2.2
Processing of CFRP and Micro Laser Applications		**High-Power cw Laser Sources and Beam Delivery**
Laser Processing of CFRP Chair C. Freitag		**High Average Power Lasers** Chair M. Abdou Ahmed
Laser Nanoablation of Advanced Carbon Materials V. Konov, GPI Moscow, Russia	11:15	**Scalable High-Brightness Multi-kW Fiber Coupled Diode Lasers** B. Köhler, Dilas, Mainz, Germany
Nanosecond Pulse Laser Processing of CFRP U. Stute, 4JET Technologies GmbH, Alsdorf, Germany	11:40	**The Multi-kW Quasi-Three-Level Er^{3+}:YAG Heat-Capacity Laser** M. Eichhorn, ISL, Saint-Louis, France
Micromachining of Thin CFRP with Ultra-Short Pulse Lasers M. Fujita, Institute for Laser Technology, Osaka, Japan	12:05	**Fiber Coupled Diode Lasers with Highest Brilliance** E. Werner, JENOPTIK Laser GmbH, Jena, Germany
Lunch	12:30	Lunch
Laser Processing of Glass and Plastics Chair A. Feuer		**Ultrafast Scanners** Chair M. Rumpel
Simulation of Glass Cutting W. Schulz, Fraunhofer-Institut für Lasertechnik ILT, Aachen, Germany	14:15	**Polygon Laser Scanning: A Need for Speed in Laser Processing and Micromachining** L. Penning, NextScan technology, Silvode, Netherland
Analysing the Influence of Pulse Duration on the Glass Cutting Process L. Bauer, TRUMPF Laser GmbH, Schramberg, Germany	14:40	**Increasing Laser Processing Efficiency with Ultra-Short Pulsed Lasers using a Multi Beam Scanner** S. Eifel, Pulsar Photonics GmbH, Aachen, Germany
Sapphire Cutting with Pulsed Fiber Lasers C. Rüttimann, Rofin-Lasag AG, Thun, Switzerland	15:05	**High Speed Laser Scanner Based on KTN Crystals** T. Ledig, AMS Technologies AG, Martinsried, Germany
Coffee Break	15:30	Coffee Break
Fundamentals of Micro Materials Processing Chair V. Onuseit		**Beam Shaping** Chair J. P. Negel
Nanotexturation Inspired by Nature R. Kling, Alphanov, Bordeaux, France	16:10	**Modular High Brightness Direct Diode Laser** DirectPhotonics Industries GmbH, Berlin, Germany
Thermal Effects in Ultra-Short Pulsed Laser Ablation of Metals A. Michalowski, Robert Bosch GmbH, Stuttgart, Germany	16:35	**Near Fundamental Mode High-Power Thin-Disk Laser** T. Gottwald, TRUMPF Laser GmbH, Schramberg, Germany
High Throughput Laser Processing with Ultra-Short Pulses by High Speed Line-Scanning in Synchronized Mode B. Neuenschwander, Berner FH, Burgdorf, Switzerland	17:00	**Yb:YAG Single Crystal Fiber Amplifiers for Cylindrically Polarized Laser Beams** X. Delèn, IFSW, University of Stuttgart, Germany
SLT'14 Closing Note R. Weber, IFSW, University of Stuttgart, Germany	17:25	**SLT'14 Closing Note** M. Abdou Ahmed, IFSW, University of Stuttgart, Germany

05/14, subject to change without notice

STUTTGART LASER TECHNOLOGY FORUM 2014

ORGANIZER
Institut für Strahlwerkzeuge (IFSW) der Universität Stuttgart

SLT

Stuttgart Laser Technology Forum
24 – 25 June 2014

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VENUE
Trade Fair Centre Stuttgart (Airport)

Together with LASYS

International Trade Fair for Laser Material Processing
24 – 26 June 2014

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