

SLT 2024 Advance Program, Tuesday, 04.06.2024
08:00 - 09:00 Registration and Coffee
Room 3: Plenary Session

<i>Plenary Session - Quantum Technology</i>		<i>Chair T. Graf</i>	
09:00 - 09:15	H. Götz	SLT Opening and Information	SLT Organization
09:15 - 09:30	T. Graf & A. Michalowski	Welcome to the SLT 2024	University of Stuttgart, IFSW, Stuttgart, Germany
09:30 - 10:15	J. Anders	Miniaturization and industrialization of quantum sensors	University of Stuttgart, Institute of Smart Sensors, Stuttgart, Germany
10:15 - 11:00	M. Förtsch	Quantum technology supported by photonics	Q.ANT GmbH, Ulm, Germany

 11:00 - 11:30 **Coffee and Cookies**
Room 3:

<i>Laser Processing for e-Mobility</i>		<i>Chair P. O'Toole</i>	
11:30 - 12:00	O. Bocksrocker	Unlocking Opportunities for EV Industry with Beam Shaping of High-Power Laser	TRUMPF, Ditzingen, Germany
12:00 - 12:15	G. Pallier	Advancing Electric Vehicle Manufacturing: High-Precision Laser Welding Solutions with MPLC Technology	Cailabs, Rennes, France
12:15 - 12:30	P. Herwig	Laser goes Hydrogen	Fraunhofer IWS, Dresden, Germany
12:30 - 13:00	A. Demir	Laser hairpin welding across different wavelength and beam shaping capabilities	Politecnico di Milano, Milano, Italy

 13:00 - 14:30 **Lunch and Exhibition**

<i>Dynamic Laser Beam Shaping and its Application I</i>		<i>Chair C. Hagenlocher</i>	
14:30 - 15:00	E. Shekel	Dynamic beam shaping with Coherent beam combining	Civan, Jerusalem, Israel
15:00 - 15:30	P. Franciosa	Is laser beam shaping a game changer to improve weld quality of e-mobility parts?	University of Warwick, Laser Beam Welding Group, Warwick, United Kingdom
15:30 - 16:00	D. Bartels	Dynamic beam shaping with Coherent beam combining during additive manufacturing	University of Erlangen, Erlangen, Germany

 16:00 - 16:30 **Coffee and Cookies**

<i>Dynamic Laser Beam Shaping and its Application II</i>		<i>Chair M. Sawanna</i>	
16:30 - 17:00	D. Dittrich	Coherent Beam Combining - novel process solutions for laser welding	Fraunhofer IWS, Dresden, Germany
17:00 - 17:30	S. Olschok	Dynamic Beam Shaping "Foil" Welding	RWTH Aachen University, Aachen, Germany
17:30 - 18:00	J. Wagner	Laser welding with adjustable beam profiles	Robert Bosch, Renningen, Germany

 18:00 - 19:00 *Gottlieb-Daimler Memorial (optional)*

 19:00 - 22:00 *Conference Dinner at "Kleiner Kursaal"*

Program subject to change without notice

11:00 - 11:30

Coffee and Cookies
Room 1:

<i>Spectral, Temporal and Spatial Shaping of Laser Beams</i>		<i>Chair M. Abdou Ahmed</i>	
11:30 - 12:00	O. Pronin	Making ultrashort pulses shorter with multipass cells	Helmut Schmidt University of the Federal Armed Forces Hamburg, Hamburg, Germany
12:00 - 12:15	A. Boukbraoui	Spectral beam shaping for dual-wavelength lasers	University of Stuttgart, IFSW, Stuttgart, Germany
12:15 - 12:30	D. Dung	Innovative All-Reflective Laser Beam Shaping for Material Processing based on Microstructured Mirrors	Midel Photonics GmbH, Bonn, Germany
12:30 - 13:00	C. Schmittner	Versatile laser platform - from ultrafast to cw	University of Stuttgart, IFSW, Stuttgart, Germany

13:00 - 14:30

Lunch and Exhibition

<i>Laser Processing for Quantum Technologies</i>		<i>Chair T. Menold</i>	
14:30 - 15:00	R. Osellame	Femtosecond laser micromachining: an enabling tool for quantum technologies	Istituto di Fotonica e Nanotecnologie (IFN) - CNR, Milano, Italy
15:00 - 15:30	S. Nolte	Laser Processing for Quantum Technologies	Friedrich-Schiller-Universität Jena, Jena, Germany
15:30 - 16:00	M. Gräfe	Quantum walks in laser-written photonic structures	TU Darmstadt, Institute for Applied Physics, Darmstadt, Germany

16:00 - 16:30

Coffee and Cookies

<i>Fibre-Optic Beam Delivery</i>		<i>Chair M. Abdou Ahmed</i>	
16:30 - 17:00	T. Kühltau	Development of hollow-core fibers at the IFSW	University of Stuttgart, IFSW, Stuttgart, Germany
17:00 - 17:30	V. Zuba	Application of hollow-core fibres for laser delivery and microparticle guidance	University of Southampton, Southampton, UK
17:30 - 18:00	B. Chen	Dual-wavelength fibers for USP lasers	University of Stuttgart, IFSW, Stuttgart, Germany

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SLT 2024 Advance Program, Wednesday, 05.06.2024
08:00 - 09:00 Registration and Coffee
Room 3: Plenary Session

<i>Plenary Session - Laser Sources</i>			<i>Chair T. Graf</i>					
08:45 - 09:00	H. Götz	SLT Opening and Information	SLT Organization					
09:00 - 09:45	B. Willke	Highly stabilized lasers for the search for gravitational waves and dark matter	Leibniz University of Hannover and MPI for Gravitational Physics, Hannover, Germany					
09:45 - 10:30	E. Mottay	KiloWatt class femtosecond lasers for large area processing	Amplitude Systemes, Pessac, France					

10:30 - 11:00 **Coffee and Cookies**10:30 - 11:00 **Coffee and Cookies**
Room 3:

<i>Additive Manufacturing of Metals</i>			<i>Chair M. Henn</i>
11:00 - 11:30	T. Schopphoven	Unlocking the full potential of Laser Material Deposition for coating, repair and additive manufacturing	Fraunhofer ILT, Aachen, Germany
11:30 - 11:45	M. Hofele	Increased productivity in laser based post processing of AM parts using combined laser processes	Hochschule Aalen, Aalen, Germany
11:45 - 12:00	T. Molitor	New paths for industrial plain bearing manufacturing	Laserline GmbH, Mülheim-Kärlich, Germany
12:00 - 12:30	F. Zanger	Additive Manufacturing PBF-LB/M	Karlsruhe Institute of Technology - Institute of Production Science, Karlsruhe, Germany

12:30 - 14:00 **Lunch and Exhibition**

<i>Additive Micro- and Nanoprocessing</i>			<i>Chair T. Menold</i>
14:00 - 14:30	H. Giessen	Femtosecond 3D printing of complex micro-optics	University of Stuttgart, 4. PI, Stuttgart, Germany
14:30 - 14:45	L. Kroth	Highly efficient welding of additively manufactured thermoplastic components	Evosys Laser GmbH, Erlangen, Germany
14:45 - 15:15	J. Zimmer	Two-Photon Polymerization (2PP) for Micro and Nano Additive Manufacturing	Nanoscribe, Karlsruhe, Germany

15:15 - 15:45 **Coffee and Cookies**

<i>Laser Beam Shaping for Micromachining</i>			<i>Chair D. Holder</i>
15:45 - 16:15	D. Flamm	Photonic Shaping Tools for Micro machining at Large Scales	TRUMPF, Schramberg, Germany
16:15 - 16:30	G. Pallier	Enhancing Ultra-Short Pulse Laser Machining with MPLC Technology: A Leap in Micro-Processing Efficiency	Cailabs, Rennes, France
16:30 - 17:00	A. Peter	Upscaling of Direct Laser Interference Patterning	University of Stuttgart, IFSW, Stuttgart, Germany

17:00 - 17:15 **Apéro**

<i>Room 3: Stuttgart Laser Technology Forum</i>			<i>Chair T. Graf</i>
17:15 - 18:00	R. Weber	Stuttgart Laser Technology - From Process Development to Fundamental Research	University of Stuttgart, IFSW, Stuttgart, Germany
18:00 - 19:00		Transfer to IFSW	
19:00 - 21:00		Lab tour @ IFSW	

Room 1:

<i>Visible and Ultraviolet Lasers</i>			<i>Chair S. Esser</i>
11:00 - 11:30	G. Mennerat	high-performance nonlinear frequency conversion	CEA - French Atomic Energy and Alternative Energies Commission, Gif-sur-Yvette, France
11:30 - 11:45	D. Horain	High-throughput high-quality processing of CFRP by high power nanosecond UV pulses	BLOOM LASERS, Pessac, France
11:45 - 12:00	P. Bliškevičius	Ultrashort pulse processing with atypical wavelengths	LightConversion, Vilnius, Lithuania
12:00 - 12:30	C. Stolzenburg	High power UV nanosecond lasers	TRUMPF Laser GmbH + Co. KG, Schramberg, Germany

12:30 - 14:00 **Lunch and Exhibition**

<i>Novel Laser Crystals and Optics</i>			<i>Chair A. Loescher</i>
14:00 - 14:30	S. Esser	First thin-disk laser operation of Alexandrite crystal	University of Stuttgart, IFSW, Stuttgart, Germany
14:30 - 15:00	F. Balembos	LED-pumped alexandrite multipass amplifiers	Laboratoire Charles Fabry (LCF), Institut d'Optique, Palaiseau, France
15:00 - 15:15	D. Didychenko	Grating waveguide structures for the generation of radially polarized beams in ceramic Yb:Lu2O3 thin-disk laser	University of Stuttgart, IFSW, Stuttgart, Germany

15:15 - 15:45 **Coffee and Cookies**

<i>Laser Process Monitoring</i>			<i>Chair M. Sawannia</i>
15:45 - 16:15	M. Kogel-Hollacher	Successful determination of the physical properties of a weld seam - how much information is buried in the sensor signals of a laser welding process?	Precitec Optronik GmbH, Neu-Isenburg, Germany
16:15 - 16:30	J. Stollhof	Laser processes with process monitoring for small batch sizes - Requirements for process sensors from the perspective of a contract manufacturer	BLS Lasertechnology GmbH, Grafenau, Germany
16:30 - 16:45	M. Palalic	Vision-based Process Monitoring in Additive Manufacturing	University of Stuttgart, Institute for Machine Tools, Stuttgart, Germany
16:45 - 17:00	C. Franz	Advanced fault classification by using a multi-spectral sensor	4D GmbH, Isernhagen, Germany

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SLT 2024 Advance Program, Thursday, 06.06.2024
08:15 - 09:00 Registration and Coffee
Room 3: Plenary Session

<i>Plenary Session - Artificial Intelligence in Production</i>		<i>Chair A. Michalowski</i>	
08:30 - 08:45			
08:45 - 09:00	H. Götz	<i>SLT Opening and Information</i>	SLT Organization
09:00 - 09:45	B. Mills	<i>Intelligent Light: The Fusion of AI and Lasers</i>	Optoelectronics Research Centre University of Southampton , Southampton, United Kingdom
09:45 - 10:30	C. Daniel	<i>Generative AI at Bosch</i>	Robert Bosch GmbH , Renningen, Germany

10:30 - 11:00

Coffee and Cookies
Room 3:

<i>Machine Learning in Manufacturing</i>		<i>Chair A. Michalowski</i>	
11:00 - 11:30	V. Rominger	<i>Artificial Intelligence in Laser Processing</i>	TRUMPF, Ditzingen, Germany
11:30 - 11:45	T. Weiss	<i>Modelling of the ablation behavior in the laser structuring of 1.4310 stainless steel using multiple artificial neural networks</i>	Institute for Machine Tools and Industrial Management (Iwb), Munich, Germany
11:45 - 12:00	N. Bär	<i>AI-Driven Optimization of Laser Cutting Parameters: Automating Experimentation for Enhanced Precision</i>	University of Stuttgart, IFSW, Stuttgart, Germany
12:00 - 12:30	D. Förster	<i>Application of machine learning in ultrafast laser processing</i>	LightPulse LASER PRECISION, Weil der Stadt, Germany

12:30 - 14:00

Lunch and Exhibition

<i>Laser Materials Processing of Semiconductors and Transparent Materials</i>		<i>Chair T. Menold</i>	
14:00 - 14:30	M. Ametowobla	<i>Silicon Processing</i>	Robert Bosch GmbH, Reutlingen, Germany
14:30 - 14:45	B. Stepak	<i>The edge quality of ultra-thin glass and polymers cleaved by ultrafast laser</i>	Fluence, Warsaw, Poland
14:45 - 15:00	T. Schmidt	<i>Energy-efficient process strategies for the production of glass components using CO₂-laser technology</i>	Günter-Köhler-Institut für Fügetechnik und Werkstoffprüfung GmbH, Jena, Germany
15:00 - 15:30	M. Saliba	<i>Laser Processing of Perovskite a Game Changer in Solar Cell Fabrication</i>	University of Stuttgart, Institute for Photovoltaics, Stuttgart, Germany

15:30 - 16:00

Coffee and Cookies

<i>Laser Processing with Short and Ultrashort Pulsed Lasers</i>		<i>Chair C. Hagenlocher</i>	
16:00 - 16:30	A. Otto	<i>Shedding light on ultra-fast processes: Multiphysical simulation of laser micro-processing</i>	TU Wien, Research Unit of Photonic Technologies, Wien, Austria
16:30 - 16:45	L. Pabst	<i>High rate laser polishing using a polygon scanner</i>	Hochschule Mittweida, Mittweida , Germany
16:45 - 17:00	K. Cirakoglu	<i>Simultaneous micromachining with beam splitting of ultrashort laser pulses at high average power for the productive fabrication of microchannels</i>	University of Stuttgart, IFSW, Stuttgart, Germany
17:00 - 17:30	A. Fehrenbacher	<i>High-speed cutting of thin foil materials using pulsed lasers</i>	TRUMPF, Schramberg, Germany
17:30 - 17:45	.	<i>SLT 2024 Closing Note</i>	University of Stuttgart, IFSW, Stuttgart, Germany

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10:30 - 11:00

Coffee and Cookies
Room 1:

<i>Laser Processing with High Average Power</i>		<i>Chair F. Zaiß</i>	
11:00 - 11:30	M. Rethmeier	<i>Laser and Hybrid Welding with Ultra High Power Lasers</i>	BAM Federal Institute for Materials Research and Testing, Berlin, Germany
11:30 - 11:45	A. Laskin	<i>Crystal quartz – ideal material for multi-kW optics</i>	AdOptica Optical Systems GmbH, Berlin, Germany
11:45 - 12:00	A. Rudolf	<i>Close-to-zero focus shift via closed-loop stabilization enabled by head-integrated metrology for high power laser material processing</i>	PRIMES GmbH, Pfungstadt, Germany
12:00 - 12:30	S. Reich	<i>Effects of a 120 kW cw laser with focus on metal perforation and steel hardening</i>	Fraunhofer EMI, Freiburg, Germany

12:30 - 14:00

Lunch and Exhibition

<i>X-Ray Imaging of Laser Processes</i>		<i>Chair P. O'Toole</i>	
14:00 - 14:30	K. Schricker	<i>Observing keyhole behavior by means of high-speed X-ray imaging</i>	TU Ilmenau, Ilmenau, Germany
14:30 - 14:45	M. Henn	<i>High Speed X-Ray Imaging of Laser Percussion Drilling with Ultrashort Laser Pulses</i>	University of Stuttgart, IFSW, Stuttgart, Germany
14:45 - 15:00	G. Karras	<i>Pump-probe experiments in Diamond Light Source using PORTO laser system.</i>	Diamond Light Source, Didcot, United Kingdom
15:00 - 15:30	C. Leung	<i>Seeing inside additive manufacturing with the extremely brilliant source</i>	University College London, London, Great Britain

15:30 - 16:00

Coffee and Cookies

<i>Novel Laser Concepts</i>		<i>Chair M. Abdou Ahmed</i>	
16:00 - 16:30	J. Speiser	<i>Wedged Thin-Disk Laser – a versatile concept for amplification of (ps)-laser pulses</i>	Deutsches Zentrum für Luft- und Raumfahrt (DLR), Stuttgart, Germany
16:30 - 16:45	D. Philippovskiy	<i>Recent Advancements in High Power Single-Oscillator Thulium-Doped Fiber Laser Emitting in 2 µm Region</i>	Technology Innovation Institute, DERC, Abu-Dhabi, UAE
16:45 - 17:00	H. Fathi	<i>450 W picoseconds compact laser system based on a Yb-doped Panda tapered double-clad fiber</i>	Tampere University, Advanced Coherent Sources, Tampere, Finland
17:00 - 17:30	A. Loescher	<i>kW-Flexiburst - high power versatile ultrafast laser</i>	University of Stuttgart, IFSW, Stuttgart, Germany
17:30 - 17:45	.	<i>SLT 2024 Closing Note</i>	University of Stuttgart, IFSW, Stuttgart, Germany

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