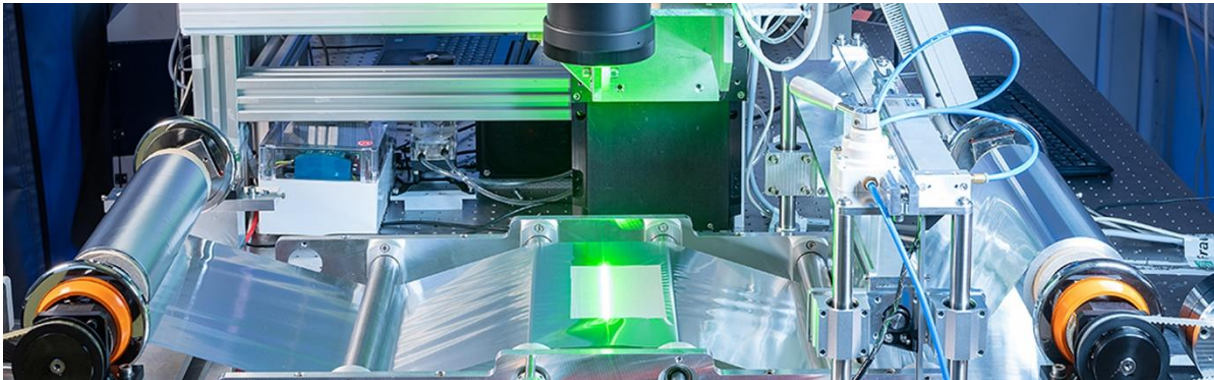


13th International Summer School on
**Trends and new developments in
Laser Technology**

26 – 30 August 2024

Technische Universität Dresden, Fraunhofer IWS, Dresden, Germany



Program

Monday 26/08

- 12:00 – 13:00 **Registration**
- 13:00 – 13:15 **Opening**, Prof. Andrés F. Lasagni, Technische Universität Dresden, Fraunhofer Institute for Material and Beam Technology IWS, Germany.
- 13:15 – 14:30 Prof. Andrés F. Lasagni, “Introduction to Laser Processing: The Laser Beam, a Tool for Multiple Applications”, Technische Universität Dresden, Fraunhofer Institute for Material and Beam Technology IWS, Germany.
- 14:30 – 14:50 **Break**
- 14:50 – 16:20 Dr. Axel Jahn, “Advances on laser based joining technologies”, Fraunhofer Institute for Material and Beam Technology IWS, Germany.
- 16:20 – 16:40 **Break**
- 16:40 – 17:55 **Participant presentations – Laser Micro-processing I**
- 16:40 – 16:55 Rida Ahmed, The Impact of MHz Burst Mode on Metal Foil Ablation Efficiency, University of Ljubljana, Ljubljana, Slovenia.

- 16:55 – 17:10 Lukas Olawsky, Advanced Flexibility in Direct Laser Interference Patterning through Industrial Robots, ALOtec, Dresden, Germany.
- 17:10 – 17:25 Narayan Sahoo, DLIP of Dental Grade Zirconia(3y-TZP) for Enhanced Adhesion with Resin-Matrix Cement, University of Minho, Guimarães, Portugal.
- 17:25 – 17:40 Francisco Udo Marins Almeida, DLIP Pattern Transfer for Biomedical Applications, Technische Universität Dresden, Dresden, Germany.
- 17:40 – 17:55 Mohammad Rezayat, Effect of Repetition Passes in The Laser Surface Texturing of AISI 301LN Steel for Improving the Anticorrosion Properties in Molten Carbonate Salts, Universitat Politècnica de Catalunya, Barcelona, Spain.

Tuesday 27/08

- 09:00 – 10:30 Marko Seifert, “Recent advances on laser based surface hardening technologies”, Fraunhofer Institute for Material and Beam Technology IWS, Germany.
- 10:30 – 10:50 **Break**
- 10:50 – 12:20 Prof. Frank Brückner, “Fabrication of 3D parts using Additive Manufacturing”, Fraunhofer Institute for Material and Beam Technology IWS, Germany.
- 12:20 – 13:30 **Lunch**
- 13:30 – 14:15 **Participant Presentations – Simulation and Monitoring in Laser Machining**
- 13:30 – 13:45 Sami Westman, Thermo-mechanical Simulation of Directed Energy Deposition Process, Lappeenranta-Lahti University of Technology (LUT), Lappeenranta, Finland.
- 13:45 – 14:00 Manuel Mazzonetto, FE Model to Predict Ablation Behaviour During Ps Laser Processing, University of Modena and Reggio Emilia, Reggio Emilia, Italy.
- 14:00 – 14:15 Li-Wei Hsu, Surface Topography Measurement Comparison Between Optical Coherence Tomography and Focus Variation Microscopy, University of Turku, Turku, Finland.
- 14:15 – 14:35 **Break**
- 14:35 – 15:20 **Participant Presentations – Laser Welding**
- 14:35 – 14:50 Atharv Agarwal, Effect of In-Source Beam Shaping and Laser Beam Oscillation on the Weldability of Al to Cu Joints for EV Battery Pack Applications, Lappeenranta-Lahti University of Technology (LUT), Lappeenranta, Finland.

- 14:50 – 15:05 Lukas Günther, High Strength Ultra Short Pulse Laser Glass to Metal Welding, SCHOTT AG, Mainz, Germany.
- 15:05 – 15:20 Felice Alberto Sfregola, Joining of Borosilicate Glass and PMMA by Femtosecond Laser Transmission Welding, Università Degli Studi di Bari, Bari, Italy.
- 15:20 – 15:40 **Break**
- 15:40 – 16:25 **Participant presentation – Laser Cutting and Drilling**
- 15:40 – 15:55 Priyanka Ghosh, High Power Laser Drilling of Alumina Ceramic, Tiles, The Manufacturing Technology Centre, Coventry, United Kingdom.
- 15:55 – 16:10 Miglė Mackevičiūtė, Bottom-Up Laser Glass Cutting Using GHz Bursts, Center for Physical Sciences and Technology, Vilnius, Lithuania.
- 16:10 – 16:25 Laimis Zubauskas, Top-Down Fused Silica Ablation with GHz Bursts, Center for Physical Sciences and Technology, Vilnius, Lithuania.
- 16:25 – 16:55 **Participant presentation – Laser Technology in Additive Manufacturing**
- 16:25 – 16:40 Dr. Svetlana Boshnakova, Customizable Wear-resistant Coatings Produced by Metal Additive Manufacturing, Bulgarian Welding Society, Sofia, Bulgaria.
- 16:40 – 16:55 Mojtaba Karamimoghadam, Advanced Laser Hybrid Welding of Additively Manufactured Parts: Stainless Steel and Low Alloy Steel, Polytechnic University of Bari, Bari, Italy.
- 19:00 – 22:00 **Summer School Dinner (Feldschloesschen-stamnhaus)**
- 19:30 – 20:00 **Dinner Speech:** “The future of laser processing: how new laser sources and processes will change the laser industry”, Prof. Andrés F. Lasagni, Technische Universität Dresden, Fraunhofer Institute for Material and Beam Technology IWS, Germany.

Wednesday 28/08

- 09:00 – 10:30 Dr. Patrick Herwig, “Laser cutting of thick sheet materials”, Fraunhofer Institute for Material and Beam Technology IWS, Germany.
- 10:30 – 10:50 **Break**
- 10:50 – 12:20 Prof. G.R.B.E. Römer, “Laser-induced Forward Transfer (LIFT) of metallic 3D micro-structures”, University of Twente, Netherlands.
- 12:20 – 13:30 **Lunch**

- 13:30 – 15:00 Dr. Joerg Schille, “High-throughput machining using high-average power ultrashort pulse lasers and high-speed polygon scanner”, University of Applied Science Mittweida, Germany.
- 15:00 – 15:20 **Break**
- 15:20 – 16:25 **Sponsors Presentations**
- 15:20 – 15:35 Dr. Florian Rößler, “Polygon Mirror Scanners For High-Speed Laser Processing”, MOEWE Optical Solutions GmbH, Germany.
- 15:35 – 15:50 Dr. Dariusz Świerad, “Current Trends for Industrial Microprocessing with Femtosecond Lasers”, Fluence, Poland.
- 15:50 – 16:10 Dr. Bogdan Voisiat, “xDLIP: Biomimetic surfaces using novel laser functionalization technique”, SurFunction, Germany.
- 16:10 – 16:25 Keming Du, “Slab-lasers, present and perspectives”, Edgewave, Germany.
- 16:25 – 17:30 **Break**
- 16:45 – 17:45 **Participant presentations – Laser Micro-processing II**
- 16:45 – 17:00 Andreas Reichel, Laser Surface Texturing of Ceramic Materials for Enhanced High-Performance Tribological Applications and Introduction of inspire AG as a Research Institute, inspire AG, Zurich, Switzerland.
- 17:00 – 17:15 Jian Feng, Optimizing Ceramic Sensor Sealing with Nanosecond Pulsed Laser Ablation, Technische Universität Dresden, Dresden, Germany.
- 17:15 – 17:30 Arman Hasani, Laser Processing of Liquid Feedstock Plasma Sprayed Lithium Titanium Oxide Solid-State-Battery Electrode, University of Turku, Turku, Finland.

Thursday 29/08

- 09:00 – 10:30 Dr. Felix Dreisow, “Recent developments and applications of ultrashort pulse-lasers”, Schott Technical Glass Solutions GmbH, Jena, Germany.
- 10:30 – 10:50 **Break**
- 10:50 – 12:20 Dr. Achim Mahrle, “Theoretical approaches towards process design and analysis with application examples from laser material processing”, Fraunhofer Institute for Material and Beam Technology IWS, Germany.
- 12:20 – 13:10 **Lunch**
- 13:10 – 14:30 Prof. Andrés F. Lasagni, “Introduction and applications of Laser interference patterning”, Technische Universität Dresden,

Fraunhofer Institute for Material and Beam Technology IWS,
Germany.

14:30 – 14:50 **Break**

14:50 – 15:50 Dr. Robert Baumann, “Laser Safety”, Technische Universität
Dresden, Fraunhofer Institute for Material and Beam Technology
IWS, Germany.

15:50 – 16:00 **Break**

16:00 – 17:00 **Lab tour at IWS**

17:00 – 17:20 Delivery of Summer School certificates

Friday 30/08

09:00 – 09:15 Organization of the lab groups

09:15 – 10:45 Laboratory 1

10:45 – 11:00 **Break**

11:00 – 12:30 Laboratory 2

12:30 – 13:30 **Lunch**

13:30 – 15:00 Laboratory 3

15:00 – 15:30 Prof. Andrés F. Lasagni, Closing Remarks