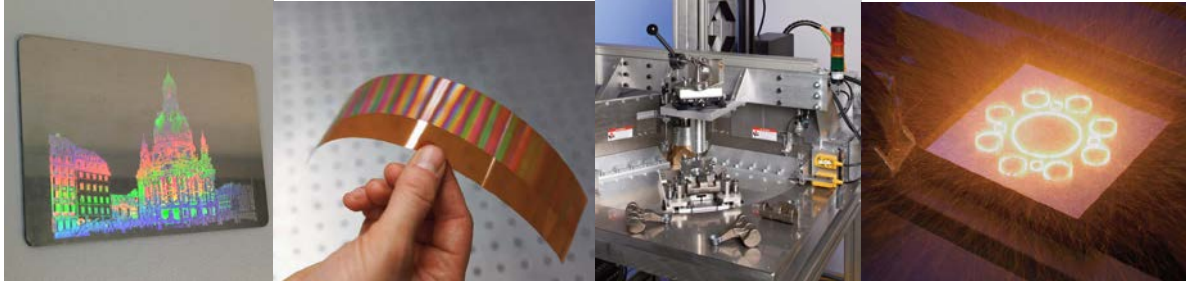


Trends and new developments in Laser Technology

25 - 29 August 2014

Technische Universität Dresden, Fraunhofer IWS, Dresden, Germany



Summer School Program

Monday 25

- 12:00 – 12:45 **Registration**
 12:45 – 13:00 **Opening**, Prof. A. Lasagni, Prof. Beyer (Fraunhofer IWS Director)
 13:00 – 14:30 Dr. Jens Standfuß, “Advances on Laser welding“, Fraunhofer Institute for Material and Beam Technology IWS, Germany
 14:30 – 14:50 **Break**
 14:50 – 16:20 Dr. Steffen Bonß, “Recent advances on laser based surface hardening technologies“, Fraunhofer Institute for Material and Beam Technology, Germany

Tuesday 26

- 09:00 – 10:30 Dr. Frank Brückner, “Fabrication of 3D parts using Rapid Prototyping methods“, Fraunhofer Institute for Material and Beam Technology IWS, Germany
 10:30 – 10:50 Break
 10:50 – 12:20 Patrick Herwig, “High speed 2D laser cutting and new applications“, Fraunhofer Institute for Material and Beam Technology IWS, Germany
 12:20 – 13:30 **Lunch**
 13:30 – 14:45 **Participant Presentations I: “Laser Welding, Cutting and Hardening”**
 13:30 Libor Dvořák and Vit Kirschner, “Laser hardening“, VÚTS, a.s., Czech Republic
 13:45 Patrick Schmitz, “Laser cutting of electrode foils“, Institut für Werkzeugmaschinen und Betriebswissenschaften, Technische Universität München, Germany
 14:00 Andreas Ganser, “Method to determine the reflection of laser radiation during laser welding“, Institut für Werkzeugmaschinen und Betriebswissenschaften, Technische Universität München, Germany

- 14:15 Annalisa Volpe, “Femtosecond fibre laser welding of PMMA”,
Universita degli Sutdi di Bari, Italy
- 14:30 Madlen Borkmann, “Simulation of gas dynamics in laser material
processing”, Fraunhofer IWS, Germany
- 14:45 – 15:15 **Break**
- 15:15 – 16:15 **Participant Presentations II, Laser Structuring I**
- 15:15 Tina Hoffmann, “Laser structuring of ceramics for microfluidic
applications”, Hochschule Mittweida, Germany
- 15:30 Moises Ortega Delgado, “Laser Material Micromachining with
scanners, Variabilization of the ablation width using MEMS
mirrors”, Fraunhofer IWS, Germany
- 15:45 Christopher Taudt, “Cross-linking characterization of polymers in
semiconductor production using laser-based white-light
interferometry”, Westsächsische Hochschule Zwickau, Germany
- 16:00 Jana Berger, “Laser Interference Patterning of transparent
conducting oxides”, Fraunhofer Institute for Material and Beam
Technology, Germany, Germany
- 16:15 Sandra Höhm, Dynamics of femtosecond laser-induced periodic
surface structures, Max-Born-Institut für Nichtlineare Optik und
Kurzzeitspektroskopie, Berlin, Germany

Wednesday 27

- 09:00 – 10:30 Dr. Keming Du, “Industrial applications and developments of
pulsed solid state lasers”, Edgewave GmbH, Germany
- 10:30 – 10:50 **Break**
- 10:50 – 12:20 Dr. Felix Dreisow, “Recent developments and applications of
ultrashort pulse-lasers”, Institut für Angewandte Physik Jena,
Germany
- 12:20 – 13:30 **Lunch**
- 13:30 – 14:00 **Sponsor Invited lecture**
Dr. Wolfgang Pierer, Margitta Teschauer, “Laser Technologies for
the industries @ LASERline Teschauer GmbH - Laser Direct Part
Marking for identification & single part traceability”, LASERline
Teschauer GmbH, Germany
- 14:00 – 14:45 **Participant Presentations: “Fibre Lasers”**
- 14:00 Timothy Quincey, Christof Schöberl, “Measuring focus
geometries of multikilowatt single-mode lasers”, Primes GmbH,
Germany
- 14:15 Yu Liu, “Design and development of high power fiber laser
architectures and components for industrial applications”,
Politecnico di Torino, Italy
- 14:30 Tobias Baselt, “Nanosecond fiber amplifier with adjustable
repetition rate for use in all-fiber supercontinuum light sources”,
Westsächsische Hochschule Zwickau, Germany
- 14:45 – 15:15 **Break**

- 15:15 – 16:15 **Participant Presentations III, Laser processing**
15:15 Aleksander Iwaniak, “The Influence of Laser Treatment on the Structure and Properties of the Surfaces of Selected Coatings Deposited by Thermal Spraying”, Silesian University of Technology Institute of Materials Science, Poland
15:30 Florian Senn, “Laser based fabrication of bio-mimetic dental restorations”, University of Applied Sciences and Arts Northwestern Switzerland, Switzerland
15:45 Marta Botana Galvin, “Adhesive behaviour of CFRP panels manufactured by RTM, woven and unidirectional tape after UV laser processing superficial activation” University of Cádiz, Spain
16:00 Nuno Ferreira, “Magnetite fibres grown in vacuum by Laser floating zone method”, Aveiro University, Portugal

Thursday 28

- 09:00 – 10:30 Dr. Udo Klotzbach, “Laser microstructuring using ps and fs lasers”, Fraunhofer Institute for Material and Beam Technology IWS, Germany
10:30 – 10:50 Break
10:50 – 12:20 Prof. Andrés Lasagni, “Laser interference patterning, past, present and future for large area surface functionalization”, Fraunhofer Institute for Material and Beam Technology IWS, Germany
12:20 – 13:30 **Lunch**
13:30 – 15:00 **Participant Presentations IV, Laser Structuring II**
13:30 Mohamed Cherif, “Nanosecond laser interaction with silver exchanged glasses”, Université d'Orléans, France
13:45 Martin Stärk, “Thin Film Structuring by Direct Laser Interference Lithography”, University of Konstanz, Germany
14:00 Sebastian Eckhardt, “Light management in metallic thin film electrodes by laser-assisted surface functionalization”, Fraunhofer Institute for Material and Beam Technology, Germany
14:15 Cornelius Demuth, “Thermal simulation of pulsed direct laser interference patterning of metallic substrates using the smoothed particle hydrodynamics approach”, Technische Universität Bergakademie Freiberg, Germany
14:30 Valentin Lang, “Use of laser microstructuring processes in the fabrication of microfluidic devices”, Fraunhofer Institute for Material and Beam Technology, Germany, Germany
14:45 – 16:15 **Lab tour at IWS**
16:15 Delivery of Summer School certificates
19:00 – 22:00 **Evening Event**

Friday 29

Only for selected participants according to registration date

09:00 – 10:00 Laser safety, Prof. A. Lasagni

10:00 – 12:00 Laboratory (2 Modules)

12:00 – 13:00 **Lunch**

13:00 – 15:00 Laboratory (2 Modules)

15:00 – 15:15 Closing Remarks, Delivery of Summer School certificates