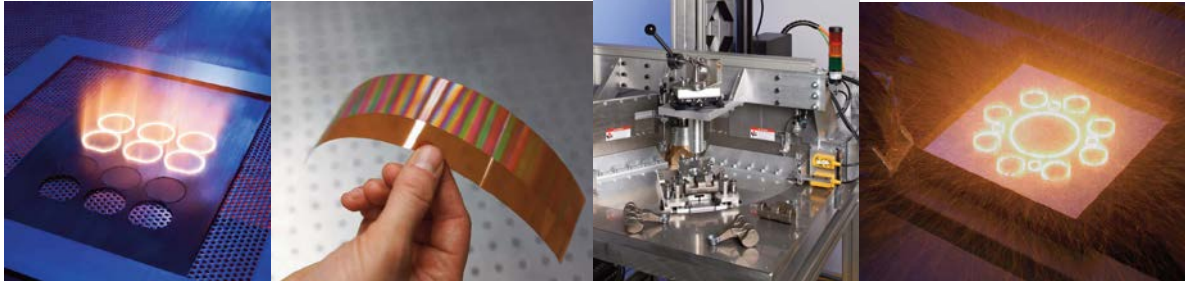


## Trends and new developments in Laser Technology

August 26 - 30, 2013

Technische Universität Dresden, Fraunhofer IWS, Dresden, Germany



### Summer School Program

#### Monday 26

12:00 – 12:45

#### Registration

12:45 – 13:00

**Opening**, Prof. A. Lasagni, Prof. Beyer (IWS Director)

13:00 – 14:30

Dr. Steffen Bonß, “Recent advances on laser based surface hardening technologies”, Fraunhofer Institute for Material and Beam Technology IWS, Germany

14:30 – 14:50

#### Break

14:30 – 16:00

Dr. Jens Standfuß, “Advances on Laser welding”, Fraunhofer Institute for Material and Beam Technology IWS, Germany

#### Tuesday 27

9:00 – 10:30

Dr. Juan Isaza: “Fabrication of 3D parts using Rapid Prototyping methods”, Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM, Germany

10:30 – 10:50

#### Break

10:50 – 12:20

Dr. Andreas Wetzig, “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

13:30

André Heckert: “Joining of material mixes within the electrical energy storage systems”, Technische Universität München, Germany

13:45

Anna Unt: “Autogeneous laser and hybrid laser arc welding of fillet joint in low alloy steel with fiber laser”, Lappeenranta University of Technology, Finland

14:00

Mikko Vänskä: “Effects of welding parameters onto keyhole geometry and behaviour with different joint geometries”, Lappeenranta University of Technology, Finland

14:15

Dominik Hauf: “Laser welding of chopper with different laser beam sources”, Technische Universität München, Germany

14:30

Philipp Heinze: “Hardfacing of turbine blade contact faces using pulsed laser hand welding”, Alstom Power Switzerland

14:45 – 15:15

#### Break

15:15 – 16:45

#### Participant Presentations II, Laser development/monitoring

15:15

Jan Brajer: “HiLASE project: New laboratory for laser development and their applications”, Institute of Physics ASCR, Czech Republic

- 15:30 Álvaro Abel Otón Martín: "Laser wear: long-term usage", Universidad Politécnica de Madrid, Spain
- 15:45 Müller Svenja: "The Power of Choice - Fiber, Disk, and Diode Lasers", TRUMPF Laser GmbH, Germany
- 16:00 David Diego-Vallejo: "Processing of CIS solar cells monitored by laser-induced breakdown spectroscopy and classification methods", Technische Universität Berlin, Germany
- 16:15 Tesa Fiona Eunike Kaban: "Diffractive Optical Element (DOE) to measure the thickness of the float glass online", University of Eastern Finland, Finland
- 16:30 Uroš Orthaber: "Comparison of different techniques of pumping solid state lasers", Optotek d.o.o., Slovenia
- 16:45 Aleksander Iwaniak: Laser cladding process in surface engineering – microstructure of chosen layers and examples of the application in the industry. Silesian University, Poland

### Wednesday 28

- 9:00 – 10:30 Dr. Johannes Roth, Laser Ablation of Al and Si studied by Molecular Dynamics Simulations, Institute for Theoretical and Applied Physics, Stuttgart, Germany
- 10:30 – 10:50 **Break**
- 10:50 – 12:20 Dr. Achim Mahrle, "Simulation of laser processes: welding and cutting", Fraunhofer Institute for Material and Beam Technology IWS, Germany
- 12:20 – 13:30 **Lunch**
- 13:30 – 14:45 **Participant Presentations III, Laser Processing**
- 13:30 Cordula Hartmann: "Production of Transparent Ceramic Microspheres via Laser-fusing", Clausthal University of Technology, Germany
- 13:45 Julián Parra Barranco: "Tuning Dichroic Plasmon Resonance Modes of Gold Nanoparticles in Optical Thin Films", Instituto de Ciencia de Materiales de Sevilla, Spain
- 14:00 Manuel Oliva Ramírez: "Functionalization of porous thin films prepared by GLAD", Instituto de Ciencia de Materiales de Sevilla, Spain
- 14:15 Federico Lasserre: "Laser Induced Forward Transfer for the design of electronic noses based on conducting polymers", Saarland University, Germany
- 14:30 Alejandro Nicolás Filippin Emilio: "Nanosecond-laser control of the dichroism in supported silver nanoparticles deposited by evaporation at glancing angles", Instituto de Ciencia de Materiales de Sevilla, Spain
- 14:45 Marek Vostřák: "Laser re-melting of HVOF sprayed NiCrBSi coatings", University of West Bohemia, Czech Republic
- 15:00 – 15:30 **Break**
- 15:30 – 17:00 **Participant Presentations IV, Laser Structuring I**
- 15:30 Ganßloser Jlian: "Laser Application with Short- and Ultrashort Pulses", TRUMPF Laser GmbH, Germany
- 15:45 Lavieja Cristian: "UV-Marking project", BSH Electrodomésticos, Spain
- 16:00 Martin Kucera: "The influence of laser marking on the stainless steel corrosion resistance", University of West Bohemia, Czech Republic
- 16:15 David Urrutia, Manuel Gimeno: "Laser decoration in home appliances", BSH Electrodomésticos, Spain
- 16:30 Flimel Karol: "Laser and optics multicell", LAO – Industrial Systems, Czech Republic
- 16:45 Sebastian Eckhardt: "Light management in metallic thin film electrodes by laser-assisted surface functionalization", Fraunhofer Institute for Material and Beam Technology IWS, Germany

## Thursday 29

- 9:00 – 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 V, Laser Structuring II**
- 13:30 Moises Alberto Ortega Delgado, Remote laser scanning – Alternatives for increasing the working area in the material micromachining, Fraunhofer Institute for Material and Beam Technology IWS, Germany
- 13:45 Reza Ghadiri: “Optical manipulation and laser assembly of microstructures” Ruhr-Universität Bochum, Applied Laser Technology, Germany
- 14:00 María Alcaire Martín: “Laser patterning of transparent and luminescent films obtained by plasma assisted vacuum deposition”, Instituto de Ciencia de Materiales de Sevilla, Spain
- 14:15 Jana Berger: “Laser Interference Patterning of transparent conducting oxides”, Fraunhofer Institute for Material and Beam Technology IWS, Germany
- 14:45 Stella Maragkaki: “Sub- wavelength patterning of thin films via non-collinear optical parametric amplification”, Ruhr-Universität Bochum, Applied Laser Technology, Germany
- 15:00 – 16:00 **Lab tour at IWS**

## Friday 30

(only for selected participants)

- 9:00 – 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**