

Thursday, 25.06.2015, Photonics Forum Hall B3, 09:45 – 12:05/13:30 – 15:35

Ultrakurzpuls laser für die hochpräzise Bearbeitung/

Ultrashort pulse lasers for high precision processing

Chairman: Prof. Dr. Stefan Nolte, Friedrich Schiller University Jena/Fraunhofer Institute for Applied Optics and Precision Engineering IOF

Ultrashort laser pulses with a duration of several femtoseconds up to a few picoseconds allow for processing with highest precision and minimal damage. This technology can thus act as an enabler for various novel applications impossible to realize by applying conventional tools or can significantly improve existing products. Examples include new medical therapy opportunities e.g. in the human eye as well as the structuring of e.g. carbon fiber reinforced plastics or wafers. In order to fully explore the potential of ultrashort pulses and to implement this technology in production processes several issues have to be addressed. This includes the development of innovative, inexpensive and powerful laser systems, long term stable optical components as well as highly dynamic beam control and shaping along with the laser-based processes adapted to the capabilities of the new laser sources and equipment. This approach has been followed within the research alliance „Ultrashort pulse lasers for high precision processing“, which has been supported with more than 20 Mio. Euro by the Federal Ministry of Education and Research (BMBF). The results of the 10 joint research projects are presented in this application panel.

Further information: www.ukp-laser.de

Laser Sources and Components

- 09:45 Opening Remarks**, Prof. Dr. Stefan Nolte (Friedrich-Schiller-Universität Jena/Fraunhofer Institute for Applied Optics and Precision Engineering IOF)

- 09:50 Welcoming Speech**, Dr. Hans Eggers, German Federal Ministry of Education and Research (BMBF)

- 10:00 Nexus – Next Generation of Ultrafast Sources**
Prof. Dr. Jens Limpert, Friedrich-Schiller-Universität Jena

- 10:25 FOKUS - Femtosecond Lasers of Highest Power**
Dr. Keming Du, EdgeWave GmbH

- 10:50 iPLASE - Innovative Picosecond Laser System for High-Precision Material Processing**
tbd

- 11:15 ScanLine - Scanner with Extreme Jitter-Free Synchronization for High Precision Beam Deflection for USPL Applications**
Daniel Schwab, ARGES GmbH

- 11:40 Ultra-LIFE - Optical Components and Devices with High Lifetimes for Ultrashort Pulse Laser Systems**
Dr. Michael Helgert, Carl Zeiss Jena GmbH

- 12:05 Speakers Corner**

System Technologies and Applications

- 13:30 T4nPV - Tailored for next PV: Ultrashort-Pulse Laser Structuring of Thin-Film Solar Modules**
Dr. Mawuli Ametowobla, Robert Bosch GmbH
- 13:55 ProCaV - Efficient and Damage-free Laser Machining of Carbon-Fiber Composite Materials**
Dr. Thomas Rettich, TRUMPF GmbH & Co. KG
- 14:20 Semilas - System and Process Technology for High-Precision Cutting of Semiconductors and Refractory Metals by Ultrashort Pulse Lasers**
Christian Fornaroli, Fraunhofer ILT
- 14:45 MaLDeAn - Materials Processing with Ultrashort Laser Pulses using a Machine Concept based on Fast Deflectors and Frequency Conversion**
Dr. Roman Ostholt, LPKF Laser & Electronics AG
- 15:10 Ikarus - Innovative Cataract, Presbyopia and Retinal Treatment using Ultrashort Laser Pulses**
Prof. Dr. Holger Lubatschowski, Rowiak GmbH
- 15:35 Speakers Corner**