

# LASER World of Photonics 2017 in Munich, Germany

## Press Release

The European commission, Photonics 21 and LASHARE invite to a forum at Laser World of Photonics in Munich on June 29<sup>th</sup> from 10:00 to 14:00 in Hall B3.360. Under the headline “Digitisation of laser-based manufacturing in Europe” the program intends to identify topics and activities that support digitisation in the photonics sector. After an overview about research agendas and work programmes by the Commission and Photonics 21, the two I4MS projects APPOLO and LASHARE provide an overview about their innovation scheme. A workshop from 11:20 to 12:00 will involve the audience to discuss issues that are connected to digitisation and to collect ideas for future research and innovation programmes. From 12:00 onwards, laser research and innovation projects that receive funding from the European commission will complement the overview with reports about their achievements.

## Program

### Digitisation of laser-based manufacturing in Europe

Ulrich Thombansen, Fraunhofer Institute for Lasertechnology ILT

Laser-based manufacturing plays a vital role in European production. From drilling of micro-holes in filters and sieves to melting of metal powder in additive manufacturing or 3D printing, lasers enable an increasing variety of manufacturing processes. The ability of lasers to deliver energy precisely when it is needed and precisely where it is needed makes them an ideal choice for individualized and on demand production. In this context, research aims at the creation of new solutions to support industry in the uptake of new tools and devices.

The challenge for laser-based manufacturing lies in the digitisation of the production chain, end to end. To fully exploit the potential, laser-based tools need to be fully integrated into manufacturing systems. This enables processing to be controlled from the design stage through maintenance to quality assurance and delivery.

Digitisation of production is a key part of Europe’s digital agenda. The European Commission has supported several projects with funding to bring SMEs, industry and innovation closer together. LASHARE is one project under the umbrella of I4MS (innovation for manufacturing SMEs) that directly targets the acceleration of technology uptake. The partners developed an assessment framework which conducts a laser-based equipment assessment (LEA). Within these LEAs, a team from research, equipment supplier and industrial user join forces to address challenges in manufacturing.

Location: Photonics Forum „Lasers and Optics“; Hall B3 / Stand B3.360

Date: June 29<sup>th</sup> 2017 10:00 – 14:00

## **10:00 Introduction**

### **10:00 – 10:10 Challenges in a digital Digitisation of laser-based manufacturing in Europe (Ulrich Thombansen, Fraunhofer ILT)**

Laser-based manufacturing sees a robust growth year over year. New materials and new applications drive the performance and functionality of equipment that sees innovation cycles at yearly intervals while existing systems remain in operation for a long time. Digitisation for laser-based manufacturing thus sees two challenges, to adopt new IT solutions in parallel to machine technology evolution and to retrofit existing systems to the digital world. A challenge at owner and at operator side.

### **10:10 – 10:25 Digitisation in photonics for industrial applications (Photonics21)**

Photonics21 is the European representation of the industrial sector in the H2020 research and innovation program. It represents members from several photonic technology areas such as industrial manufacturing and quality, optical components and systems, life science and health, lighting and displays, security and sensing, components, education and training. The platform supports the public private partnership in developing strategies for digitisation in all areas where photonics contributes as a key enabling technology.

[www.photonics21.org](http://www.photonics21.org)

### **10:25 – 10:40 Digitisation in photonics for excellence in Europe – the actual work programme towards 2020 (European Commission)**

The actual work programme within Horizon 2020 reinforces the link between photonic technologies and ICT integration to provide fully digital solutions. The lines of action range from sensing applications for agriculture through innovation in display technology and photonic integrated circuits to high power lasers. As a high impact support scheme for SMEs, actions in the I4MS format of digital innovation hubs will be called in the near future of this program.

## **10:45 Innovation for Manufacturing SMEs Initiative (I4MS)**

### **10:45 – 11:00 LASHARE (Ulrich Thombansen, Fraunhofer ILT)**

LASHARE establishes Laser-based Equipment Assessment (LEA) as a tool for accelerated technology transfer. After the successful finish of 14 LEAs, 14 new laser-based equipment assessments focus on an increase in Technology Readiness Level of manufacturing equipment. The new LEAs focus on the connection of laser-based equipment to other ICT based technologies. As such, the LEAs approach the integration of 3D scanners with robot based laser-cutting through automated tool path generation algorithms, or enhanced resolution in micro structuring through sensor-based automated enhancement of beam energy distribution. Today, LASHARE supports more than 70 partners from SME and industry across Europe to create a network of innovation hubs under the umbrella of LASHARE COMPETENCE CENTER at [www.lcc.lashare.eu](http://www.lcc.lashare.eu).

[www.lashare.eu](http://www.lashare.eu)

### **11:00 – 11:20 APPOLO (Gediminas Račiukaitis, Center for Physical Sciences and Technology)**

The APPOLO project focuses on emerging innovative laser technologies and processes, which need to be customised, tested and validated before being able to compete in the market. The project brings together the demand of end-users and the knowledge of application laboratories with equipment manufacturers to facilitate faster validation of the process feasibility and adaptation of the laser

technology and equipment. All activities are arranged in assessment value chains that include testing, integration, validation and the assessment of the processes at end-user's facilities.

[www.appolo-fp7.eu](http://www.appolo-fp7.eu)

### **11:20 – 12:00 Workshop on Challenges in Digitisation of laser-based equipment (Ulrich Thombansen, Martin Schellenberger)**

The workshop aims at identifying gaps in the development and integration of laser-based equipment into an increasingly digitised manufacturing environment. Several lines of action are themed today from standardised interfaces through faster automation down to enhanced skills to meet the challenges of changing markets and workplace environments. With the next European framework program ahead, laser technology needs an agenda that covers the future at a 10 year perspective.

This workshop is a starting point to gather thoughts and ideas from people interested in a prosperous future of laser-based equipment.

### **12:00 – 14:00 FP7 and H2020 Projects**

#### **ADALAM**

The goal of the project is to develop an adaptive laser micromachining system, based on ultrashort pulsed laser ablation and a novel depth measurement sensor, together with advanced data analysis software and automated system calibration routines. This technology will be tested in three different application scenarios: micromachining, defect removal on wafer carriers and texturing of complex tool features.

[www.adalam.eu](http://www.adalam.eu)

#### **COMBILASER**

Combilaser has the vision to create a solution that minimizes human expert intervention in setup and operation of laser based manufacturing systems by integrating the industrial laser process with a seamless set up and a self-learning module. In doing so, it aims to reduce process optimisation loop for new applications addressing flexibility and ever more demanding standards in industry.

[www.combilaser.eu](http://www.combilaser.eu)

#### **ENCOMPASS**

Encompass aims to improve additive manufacturing by introducing a user support interface within the CAD environment. Designers are guided through the product creation process by an Integrated Design Decision Support system (IDDS) which is fully aware of downstream implications. From simple indications to full simulation, the IDDS provides feedback to achieve a first time right additive product.

[www.encompass-am.eu](http://www.encompass-am.eu)

#### **HIPERDIAS**

Industries such as watch manufacturers and medical component providers start adopting ultrashort pulse laser processes for their products. Hiperdias addresses precision and productivity issues for 3D structuring of silicon, the precision processing of diamond materials as well as the fine cutting of metal. The final goal is a 10 times increase of ablation rate in 3d structuring, of speed in fine cutting metals as well as an increase of processing speed for diamond machining.

[www.hiperdias.eu](http://www.hiperdias.eu)

### **HIPERLAM**

HiperLAM wants to replace the current subtractive top-down process of high resolution printed conductive metallic lines by additive manufacturing. The project is currently focused on laser printed RFID Antennas and fingerprint sensors. Goals are a 10 times increased processing speed of RFID Antennas and a 5 times decrease of lead-time.

[www.hiperlam.eu](http://www.hiperlam.eu)

### **HYPROCELL**

HyProCell aims at a close integration of available laser-based additive manufacturing machines and ICT innovations. Based on a combination of additive and subtractive manufacturing in one machine, ICT is used as an enabler for the creation of a fully finished product directly from raw materials. A multi process production cell at industrial level is expected to demonstrate the benefits of combined one stop manufacturing.

[www.hyprocell-project.eu](http://www.hyprocell-project.eu)

### **MASHES**

MASHES aims to develop a breakthrough compact imaging system for RT closed-loop control of laser processing. It will be built on a novel multispectral optics and multisensor arrangement in the VIS-MWIR spectrum. Absolute temperature, geometry, and speed, will be imaged accurately and reliably. RT process control, and cognitive readjustment and process quality diagnosis will be embedded.

[www.mashesproject.eu](http://www.mashesproject.eu)

### **MODULASE**

Modulase develops and validates a rapidly re-configurable laser processing head. For several use cases in one head, the system targets at a hybrid processing scenario with functionalities of welding, cladding and cutting. It will include an ICT based adaptive process control unit for quality assurance and will enable semi-automated process parameter configuration.

[www.modulase.eu](http://www.modulase.eu)

### **PARADDISE**

The overall objective of PARADDISE project is to boost and spread the use of Laser Metal Deposition technology along the life cycle of value-adding metal components, by providing to stakeholders of manufacturing value chain a productive and reliable solution for combining LMD and subtractive processes in the same hybrid machine in a cost-effective way, with a structured knowledge about LMD processes together with CAx technologies, smart components and monitoring and control systems that will be developed ad-hoc for this hybrid solution.

[www.paraddise.eu](http://www.paraddise.eu)

### **TRESCLEAN**

Tresclan develops high-throughput laser-based texturing for fluid-repellent and antibacterial metal surfaces. It uses a high-average power ultrashort-pulsed laser and targets especially the food industry and home appliances because of the high need for functional surfaces.

[www.tresclean.eu](http://www.tresclean.eu)

**Further information:**

[www.lashare.eu/en/events](http://www.lashare.eu/en/events)

**LASHARE Logo**

1025x342 pixel, RGB, PNG Format

