Industrial application and commercial perspective by interferometric inline metrology for the control of laser processes

Dr. Ing. Markus Kogel-Hollacher, Precitec Optronik GmbH, Neu-Isenburg

11:45  MNT-MMP
MicroMasterPrinter – process, applications and prospects
Dr. Thomas Velen, Fraunhofer-Institute for Biomedical Engineering, St. Ingbert

Production equipment for roll to roll printing of proteins
Dr. Gerald Jenke, Saueressig GmbH & Co. KG, Vreden

Potential biological applications of printed microstructures and first experimental results
Dr. Erwin Gorjup, Fraunhofer-Institute for Biomedical Engineering, St. Ingbert

12:30  Lunch
13:30  MNT-BIOREEL
Process for roll to roll printing of proteins
Dr. Gerald Jenke, Saueressig GmbH & Co. KG, Vreden

Production equipment for roll to roll printing of proteins
Dr. Gerald Jenke, Saueressig GmbH & Co. KG, Vreden

Potential biological applications of printed microstructures and first experimental results
Dr. Erwin Gorjup, Fraunhofer-Institute for Biomedical Engineering, St. Ingbert

14:15  Final discussion
14:30  Guided lab tours to ILT and IPT
MANUNET-LASERDAPT: Laser robot system with integrated camera and scanning devices
MANUNET-ALPINE: Machine tool for laser polishing and laser polished parts
MANUNET-SCALAB: Desktop Station for high precision assembly of micro optics
MNT-scan4surf: High precision inline metrology for laser surface structuring systems

16:00  End

Organisation
Partner countries
Austria, Belgium, Czech Republic, Switzerland, Spain

Language
Lectures in German or English, slides in English

Organizers
Federal Ministry of Education and Research (BMBF), Bonn

In cooperation with
Fraunhofer Institute for Laser Technology, ILT, Aachen

SPECTARIS – German High Tech Industry Association, Berlin

Contact for event
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E-mail: stefan.scherr@kit.edu

Costs
There will be a registration fee of 140 Euro.

Registration
Please use the attached form until 13th January 2013 for registration. The number of participants is limited. Registrations are processed in the received order.

Direction to event
www.ilt.fraunhofer.de/en/contact.html

Funding
The German partners of the research and development projects are funded by the German Federal Ministry of Education and Research (BMBF) within the Framework Concept “Research for Tomorrow’s Production” and managed by the Project Management Agency Karlsruhe (PTKA).

The cooperation of the National and Regional Funding Agencies within ERA-NET is funded by the European Commission within the Seventh Framework Programme.

For more information about the event and the funded projects see: www.produktionsforschung.de

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The increasing international demand to integrate design and manufacturing of products plays an essential role for future production research. For this reason, ERA-NET networks have been established to coordinate the research activities of relevant European regions and countries. In MANUNET there are joint investigations for solutions to pressing challenges in the development of production systems, which adapt automatically to changes in business and production objectives and to new market requirements and technologies. Special focus points are flexible, fast adaptable devices and machinery.

In MNT-ERA-Net the performance and efficiency of production systems to manufacture innovative micro and nano components of complex mechatronic products are improved for example in mechanical engineering, optics, energy, and in medical technology. Through participation in ERA-NET the companies obtain access to know-how of European partners. Specific requirements for the development of international markets for the research results can be gained. This is in accordance with the high-tech strategy of the Federal German Government to strengthen the international position of German industry in research and development.

Event
The results of transnational projects in MANUNET and MNT-ERA-Net will be presented. The partners of the collaborative projects, launched in spring of 2010 will demonstrate in short talks and in an exhibition the results of their research contributions. Future possibilities for crossborder collaborative research will be discussed. The use of the latest technologies in manufacturing plays an important role. The public event is dedicated to experts and managers of product development and production in research institutions and industry.

Program

**Theme:** Research for Tomorrow’s Production

**Innovation in manufacturing by transnational networking in ERA-NET**

**Registration:** at 12:00

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**22nd January 2013**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>13:00</td>
<td>Welcome &lt;br&gt; Prof. Dr. Reinhart Poprawe, Fraunhofer Institute for Laser Technology, ILT, Aachen</td>
</tr>
<tr>
<td>13:30</td>
<td>Research for Tomorrow’s Production&lt;br&gt; Federal Ministry of Education and Research (BMBF), Bonn &lt;br&gt; Innovation in manufacturing for future markets&lt;br&gt; Dr. Markus Saurer, SPECARTIS – German Hightech Industry Association</td>
</tr>
<tr>
<td>14:45</td>
<td>MANUNET-LASERDAPT&lt;br&gt; Flexible production for varying parts and lot sizes&lt;br&gt; Dipl.-Ing. Paul Heinen, Fraunhofer Institute for Laser Technology, Aachen</td>
</tr>
<tr>
<td>15:30</td>
<td>Aspects of image processing in combination with laser scanners&lt;br&gt; Herbert Schulz, Schulz Systemtechnik GmbH, Oberschöningen</td>
</tr>
<tr>
<td>16:00</td>
<td>Use of Laserdapt manufacturing technology at HF Lasertechnik, Dipl.-Ing. Ralf Risters, HF Lasertechnik GmbH, Ulbach-Palenberg</td>
</tr>
<tr>
<td>16:45</td>
<td>Exhibition and coffee break&lt;br&gt; MANUNET-ALPINE&lt;br&gt; Laser polishing in tool and mould making&lt;br&gt; Dr. Edgar Willenborg, Fraunhofer Institute for Laser Technology, Aachen</td>
</tr>
<tr>
<td>17:30</td>
<td>Machine tool for laser polishing&lt;br&gt; Thomas Arnold, Karl H. Arnold Maschinenfabrik GmbH &amp; Co. KG, Ravensburg</td>
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<tr>
<td>18:00</td>
<td>NC-functions for 8-axes simultaneous processes with mechanical and optical axes&lt;br&gt; Dr. Oliver Steifens, Steifens und Fohn&lt;br&gt; NC-Systemtechnik GmbH, Herzogenrath</td>
</tr>
<tr>
<td>18:30</td>
<td>MANUNET-QuaMiNet&lt;br&gt; Design of micro injection molding processes, data acquisition and characterisation&lt;br&gt; Dr.-Ing. Philipp Imgrund, Fraunhofer Institute for Manufacturing Technology and Advanced Materials, Bremen</td>
</tr>
<tr>
<td>19:00</td>
<td>Mathematical models and software tools&lt;br&gt; Dr. Patrick Bangerter, algorithmica technologies GmbH, Bremen</td>
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<tr>
<td>19:30</td>
<td>Test results and evaluation of moulded parts&lt;br&gt; Dipl.-Ing. Björn Djorrma, Kloeckner Desma GmbH, Bremen</td>
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**Adaptive manufacturing**

**Chair:** Dr.-Ing. Alexander Głowinski, Fraunhofer Institute for Laser Technology, ILT, Aachen

<table>
<thead>
<tr>
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<tr>
<td>13:30</td>
<td>MANUNET-AMADEUS&lt;br&gt; A robotic multipurpose solution for intralogistics&lt;br&gt; Dipl.-Ing. Lorenz Halt, Fraunhofer Institute for Manufacturing Engineering and Automation, Stuttgart</td>
</tr>
<tr>
<td>14:45</td>
<td>Integration of the robot arm in an automated guided vehicle&lt;br&gt; Dieter Faude, Faude Automatisierungstechnik GmbH, Gärtringen</td>
</tr>
<tr>
<td>15:30</td>
<td>Automated guided vehicle with a robotic manipulator and integration in manufacturing execution system&lt;br&gt; Dipl.-Ing. (FH) Wolfgang Rentner, advanced clean production Information Technology AG, Stuttgart</td>
</tr>
<tr>
<td>17:30</td>
<td>Test results and evaluation of moulded parts&lt;br&gt; Dipl.-Ing. Björn Dorrma, Kloeckner Desma Schuhmaschinen GmbH, Achim</td>
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<tr>
<td>18:00</td>
<td>Exhibition and coffee break&lt;br&gt; MANUNET-QLASAR&lt;br&gt; Modular gripping and handling components for micro assembly&lt;br&gt; Dipl.-Ing. Matthias Haag, SCHUNK GmbH &amp; Co. KG, Lauf am Neckar</td>
</tr>
<tr>
<td>18:30</td>
<td>Multi-agent approaches for highly modular control system architectures&lt;br&gt; Dipl.-Ing. Christian Schlette, Institute of Man-Machine Interaction, Aachen</td>
</tr>
<tr>
<td>19:00</td>
<td>Developments for the automated assembly of laser systems&lt;br&gt; Dipl.-Ing. Dipl.-Wirt. Ing. Nicolas Pyschyng, Fraunhofer Institute for Production Technology, Aachen</td>
</tr>
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**23rd January 2013**

**Efficient production equipment**

**Chair:** Dr.-Ing. Christian Wenzel, Fraunhofer Institute for Production Technology, IPT, Aachen

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>09:00</td>
<td>MNT-SCALAB&lt;br&gt; Modular gripping and handling components for micro assembly&lt;br&gt; Prof. Dr. Heinz Huber, University of Applied Sciences, Munich</td>
</tr>
<tr>
<td>09:45</td>
<td>Multi-agent approaches for highly modular control system architectures&lt;br&gt; Dipl.-Ing. Christian Schlette, Institute of Man-Machine Interaction, Aachen</td>
</tr>
<tr>
<td>10:30</td>
<td>Developments for the automated assembly of laser systems&lt;br&gt; Dipl.-Ing. Dipl.-Wirt. Ing. Nicolas Pyschyng, Fraunhofer Institute for Production Technology, Aachen</td>
</tr>
<tr>
<td>11:00</td>
<td>MNT-METASOLAR&lt;br&gt; Ultra-short pulse laser ablation for efficient solar cell manufacturing&lt;br&gt; Prof. Dr. Reinhart Poprawe, University Applied Sciences, Munich</td>
</tr>
<tr>
<td>11:45</td>
<td>Combined print and laser process machine for patterning of flexible substrates&lt;br&gt; Dipl.-Ing. (FH) Peter Lenk, LS Laser Systems Gesellschaft mbH, Munich</td>
</tr>
<tr>
<td>12:15</td>
<td>Design, manufacturing and integration of flexible photovoltaic modules&lt;br&gt; Andreas Zimmermann, Sunplugged GmbH, Wildermieming, Austria</td>
</tr>
<tr>
<td>13:00</td>
<td>Exhibition and coffee break&lt;br&gt; MNT-e-scan4surf&lt;br&gt; Inline process metrology system for the control of laser surface structuring processes&lt;br&gt; M. Sc. Guilherme Mallmann, Fraunhofer Institute for Production Technology, Aachen</td>
</tr>
<tr>
<td>13:30</td>
<td>Verification and testing of measuring systems&lt;br&gt; Dipl.-Ing. Stefan Hofmann, Werkzeugbau Siegfried Hofmann GmbH, Lichtenfels</td>
</tr>
</tbody>
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**Registration:** at 12:00