



# DAY 1

## Tuesday 8<sup>th</sup> November 2011

Time 08:00h - 09:00h

Registration

Time 09:00h to 09:50h

**Opening & Welcome Speeches** (Bertha-Benz-Saal)

- MinDirig G. Leßnerkraus, Ministerium für Finanzen und Wirtschaft of the State of Baden-Württemberg
- Uwe Remer, 2E mechatronic GmbH, and also head of Hahn-Schickard-Gesellschaft
- Prof. H. Kück, HSG-IMAT and University of Stuttgart and Chairman of 4M2011
- Dr C. Neuy, „Spitzencluster“ MicroTEC Südwest, mstbw

Time 09:50h to 10:10h

**Invited Talk** (Bertha-Benz-Saal)

**Chair:** H. Kück

**"Horizon 2020 - the future Framework Programme for Research and Innovation"**

K. Peters, EC, Directorate for Industrial Technologies , unit for "New forms of production"

Time 10:10h to 10:35h

Coffee Break (Foyer Bertha-Benz-Saal)

Time 10:35h to 11:10 h

**Invited Talk**

**"Femto- and pico second laser micro-nano processing for patterning surfaces by removal and deposition of material"**

Prof. A.J. (Bert) Huis in't Veld, Universite Twente/TNO, Netherlands

Time 11:15h to 12:30h

**Session 1** (Bertha-Benz-Saal)

**Systems Design**

**Chair:** T. Velten, Fraunhofer IBMT, Germany

**196. Combination of channel- and droplet- based microfluidics for complex PoC-Devices**

Authors names

**204. Microthermoforming and sealing of COP films to form thin walled lab-on-a-chip cartridges**

Authors names

**209. High-precision blanking of thin copper foils using uncoated and coated monocrystalline silicon punches**

Authors names

**233. Optimization of a bottom grooved micromixer design**

Authors names

**Session 2** (Konferenzraum Karlsruhe)

**Components Fabrication**

**Chair:** Pieter BOLT, TNO, Netherlands

**203. RFID fabrication by Ultrasonic Hot Embossing of devices molded interconnection technology**

Authors names

**208. Solvent bonding of a drug delivery device by using Hansen Solubility Parameters**

Authors names

**210. Fabrication of microstructured 3D plastics parts by injection moulding**

Authors names

**214. Liquid dispensing system with optimized design for mass production**

Authors names

Time 12:30h to 14:00h

## Lunch (Kepler-Saal)

**Time 14:00h to 15:30h**

### **COTECH Session** (Bertha-Benz-Saal)

**Chair:** Humbert NOLL,  
University of Applied Sciences  
Wiener Neustadt, Austria



#### **237. Surface nano structures manufacture using batch chemical processing methods for tooling applications**

Authors names

#### **252. Local plasma deposition on polymer components**

Authors names

#### **262. Realising nano-scale structured surfaces in micromoulding**

Authors names

#### **257. Air flow and gassing potential in micro-injection moulding**

Authors names

#### **263. Effect of design on the replication of micro/nano scale features in the micro injection moulding process**

Authors names

### **MultiLayer Session** (Konferenzraum Karlsruhe)

**Chair:** Stephane BREDEAU



#### **220. Environmental and quality analysis of aqueous tape casting**

Authors names

#### **224. Opportunities and challenges in room temperature embossing/punching for ceramic green tapes**

Authors names

#### **234. Ink optimization for an alternative way to print on ceramic substrates**

Authors names

#### **253. Ceramic green tape structuring for the fabrication of microsystems based on multilayer technology**

Authors names

#### **258. Laser drilling of green ceramic tapes: Pulse duration/shape effects**

Authors names

#### **201. High volume production of ceramic thick sheet materials**

Authors names

**Time 15:30h to 16:00h**

## Coffee Break (Foyer Bertha-Benz-Saal)

**Time 16:00h to 17:30h**

### **Session 3** (Bertha-Benz-Saal)

#### **Process Characterisation**

**Chair:** Andreas SCHOTH, IMTEK, Uni. of Freiburg, Germany

#### **202. Manufacturing and replication of structured metallic mould inserts by injection moulding process**

Authors names

#### **211. Electrical discharge machining of micro holes on titanium sheets: effect of process parameters and electrode shape**

Authors names.

#### **217. Surface Quality in Meso Scale Milling of ZrO<sub>2</sub>**

### **Session 4** (Konferenzraum Karlsruhe)

#### **Metrology, Inspection & Characterisation**

**Chair:** L. Mattson, KTH, Sweden

#### **195. Physico-chemical and spectroscopic study of AlN powder as a high-tech material for microelectronics dielectric**

Authors names.

#### **197. Wear effects induced by powder injection molding of zirconia feedstocks**

Author names

#### **247. Optical coherence tomography – a potential tool for roughness assessment of free and embedded**

<p><b>Ceramics with Diamond Coated End Mills</b></p> <p>Authors names</p>	<p><b>surfaces of laser-machined alumina ceramic</b></p> <p>Authors names.</p>
<p><b>218. Effect of process parameters on the quality of micro injection moulded parts</b></p> <p>Authors names</p>	<p><b>260. Micro-stamping of PEMFC bipolar plates- investigations on the effect of friction, coating and surface quality interactions on the corrosion resistance characteristics of micro-channeled metallic surface areas</b></p> <p>Authors names</p>
<p><b>228. Suitability of electroformed nickel moulds for wafer based precision glass moulding</b></p> <p>Authors names</p>	<p><b>212. Monitoring method for carbon nanotubes (CNT): Personal sampler and corresponding reading device</b></p> <p>Authors names.</p>
<p>Time 19:30h to 22:30h</p>	
<p><b>Conference Banquet at Stuttgart Castle</b></p>	



# DAY 2

## Wednesday 9<sup>th</sup> November 2011

**Time 09:00h - 10:15h**

**Invited Talks** (Bertha-Benz-Saal)

**Chair:** Holger Reinecke, HSG-IMIT, Stuttgart and IMTEK, University of Freiburg, Germany.

**"An open foundry concept for microsystem small series production – concept and examples"**

J. Burghartz, Institut für Mikroelektronik, Stuttgart, Germany

**" Microforming with metallic glasses: High strength metals that form like plastics"**

J. Schroers, Yale University, USA

**Time 10:15h – 11:15h**

**Coffee Break and Sponsors Exhibition (Kepler-Saal)**

**Time 11:15h - 12:30h**

**Session 5** (Bertha-Benz-Saal)

**Novel Materials**

**Chair:** P. Johander, SWEREA – IVF, Sweden

**221. Hot Melt Ink Printing Technology for Customized Protective Layers**

**231. Structuring of UV-curable ceramic green tapes**

**259. Effects of sintering temperature on the porosity and microhardness of the micro-scale 3-D porous gradient surfaces**

**255. Orientation and immobilisation of Diatoms**

**Project Session**

(Konferenzraum Karlsruhe)

**Polaric**

**Chair:** Kimmo Solehmainen, VTT, Finland.



**215. Master tool fabrication for the replication of micro and nano features**

**230. High Volume Nanoimprint Lithography: application area organic electronics**

**239. Towards roll-to-roll manufacturing: Organic thin film transistors based on nanoimprint lithography technique**

**205. Process chain development for the realization of embedded capacitors using polymer-based nanocomposites filled with bimodal barium titanate**

**Time 12:30h - 14:00h**

**Lunch and sponsors Exhibition (Kepler-Saal)**

**Time 14:00h - 15:30h**

**Project Session**

(Bertha-Benz-Saal)

**IntegMicro**

**Chair:** Chairman from SSSUP. Italy.



**Project Session**

**MultiPLat**

(Konferenzraum Karlsruhe)

**Chair:** Nadja ADAMOVIC, TUWien, Austria



<p><b>206. A study of cutting parameters influence on micromilling of hardened steels</b></p> <p>Authors names</p>	<p><b>261. The Development of Biomimetic Proton Conductive Membranes in the Frame of the European FP7 Project MultiPlat (Werner Brenner, TUWien)</b></p> <p><u><b>Followed by poster session, presentations (as below) &amp; Open Discussion</b></u></p> <p><b>TUW: Novel asymmetric membranes with functional interpenetrating structure (Philip Radovanovic, 15min.)</b></p> <p><b>EPFL: Advanced Nanofilaments/Nafion Composites for Proton Exchange Membrane Fuel Cell Applications (Arnaud Magrez, 8 min.)</b></p> <p><b>EPFL: Local deposition of material at micro and nanoscale: stenciling and inkjet printing (Juergen Brugger, 8 min.)</b></p> <p><b>CEA: Deposition of Pt on CNTs and fabrication of new electrodes (Luc Federzoni, 8 min.)</b></p> <p><b>Uni Leipzig: Mesoscale characterization of soft films and membranes (Albert Kamanyi, 8 min.)</b></p> <p><b>Nanocyl: CNT-enhanced nanomembrane systems for novel fuel cells (Matthieu Houllé, 8 min.)</b></p> <p><b>Paxitech: From nanomaterials to portable fuel cells (Renaut Mosdale, 8 min.)</b></p> <p><b>Exploitation Manager: Constitution of the end-user group of MultiPlat (Luc Federzoni, 10min)</b></p> <p><b>Rhenovia: presentation of the project FP7-SELFMEMS (Michel Faupel, 5 min.)</b></p>
--	---

**Time 15:30h - 16:00h**

**Coffee Break (Foyer Bertha-Benz-Saal)**

**Time 16:00h - 17:30h**

<p><b>Session 7 (Bertha-Benz-Saal)</b></p> <p><b>Novel Products &amp; Systems Design</b></p> <p><b>Chair: ?.</b></p> <p><b>236. Modelling and analysis of the temperature distribution of a micro-channel internally cooled smart cutting tool in machining AISi7</b></p> <p><b>240. A new micro quick-stop device for orthogonal microcutting</b></p> <p><b>245. Miniature Optical Encoder for Reflow Solder Mounting</b></p> <p><b>246. Automated cell-holding device for immobilization and microinjection of biological cells</b></p> <p><b>250. Injection moulded polymer package for silicon microsystems with self-alignment function</b></p>	<p><b>Session 8 (Konferenzraum Karlsruhe)</b></p> <p><b>Components: Fabrication &amp; Assembly</b></p> <p><b>Chair: ??.</b></p> <p><b>222. Micromachining of polyimide foils for the fabrication of embossing masters for rotary hot embossing processes</b></p> <p>UK.</p> <p><b>225. Localized surface activated bonding of nano scale objects</b></p> <p>H.</p> <p><b>244. Small Series Production of Moulded Interconnect Devices (MID)</b></p> <p>W..</p> <p><b>248. Injection moulded microneedle arrays as an interface to the human vascular system</b></p> <p>W..</p> <p><b>251. A study of demoulding force prediction for</b></p>
--	--

	<b>elastomeric components</b> M.
<b>Time 18:00h - 22.00h</b>	
<b>A visit to Weingut Seeger, Abstatt</b>	



# DAY 3

## Thursday 10<sup>th</sup> November 2011

**Time 09:00h - 10:15h** (Bertha-Benz-Saal)

**Invited Talks** Chair: Stefan Dimov, Cardiff University, UK

**"Major Achievements and Future Visions in the Finnish Micro and Desktop Factory Research"**

Reijo Tuokko, Tampere University of Technology, Finland

**"Highlights of the Grand challenge Project : 3D-MINTEGRATION"**

Marc Desmulliez, Heriot-Watt University, UK

**10:15h – 10:45h**

**Coffee Break (Foyer Bertha-Benz-Saal)**

**Time 10:45h to 12:15h**

**Session 9** (Bertha-Benz-Saal)

**Process Modelling & Simulation**

**Chair:** ??,

**198. Optical and acoustical process control in hybrid micromachining using a picosecond pulsed UV-laser and micro EDM-milling**

Authors names,

**199. Molecular dynamics simulation of the Influence of Cutting Edge Radius on the Size Effect in Micro Cutting**

Authors names

**227. Study on the Forming Process of Sheet Metal with High Aspect Ratio Holes**

Authors names

**229. Optimal micromolding of a Fresnel lens for Mobile Phone Flash Light**

Authors names

**232. Die-sinking micro EDM for complex 3D structuring – Research directions**

Authors names

**Project session** (Konferenzraum Karlsruhe)

**EUMINAFab & IMPRESS**

**Chair:** M. Moguelet

**219. Manufacturing of functional micro- and nano-structured plastic components and silicon devices**

Authors names

**249. Manufacturing of an array of microneedles in a steel insert for micro-injection moulding using laser milling**

**223. Length Scale Integration: Implementation of a New Process Chain for Producing Replication Masters with Micro and Nano Scale Feature**

**226. Towards a European Approach for Modelling of Multimaterial Micromanufacturing Technologies**

**Time 12:15h - 13:30h**

**Lunch (Kepler-Saal) & finish**