



DAY 1

Tuesday 8th 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 ZrO₂

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

Ceramics with Diamond Coated End Mills

Authors names

218. Effect of process parameters on the quality of micro injection moulded parts

Authors names

228. Suitability of electroformed nickel moulds for wafer based precision glass moulding

Authors names

surfaces of laser-machined alumina ceramic

Authors names.

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

Authors names

212. Monitoring method for carbon nanotubes (CNT): Personal sampler and corresponding reading device

Authors names.

Time 19:30h to 22:30h

Conference Banquet at Stuttgart Castle sponsored by RONDOL



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DAY 2

Wednesday 9th 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>206. A study of cutting parameters influence on micromilling of hardened steels Authors names</p> <p>216. Novel adaptive fixturing for precise micro-positioning of thin walled parts Authors names</p> <p>242. Comparison of micro-milling and micro-EDM operations Authors names</p> <p>243. Road Map Design, Realisation and Validation of Multifunctional Materials in UHP machining Authors names</p>	<p>261. The Development of Biomimetic Proton Conductive Membranes in the Frame of the European FP7 Project MultiPlat (Werner Brenner, TUWien)</p> <p><u>Followed by poster session, presentations (as below) & Open Discussion</u></p> <p>TUW: Novel asymmetric membranes with functional interpenetrating structure (Philip Radovanovic, 15min.)</p> <p>EPFL: Advanced Nanofilaments/Nafion Composites for Proton Exchange Membrane Fuel Cell Applications (Arnaud Magrez, 8 min.)</p> <p>EPFL: Local deposition of material at micro and nanoscale: stenciling and inkjet printing (Juergen Brugger, 8 min.)</p> <p>CEA: Deposition of Pt on CNTs and fabrication of new electrodes (Luc Federzoni, 8 min.)</p> <p>Uni Leipzig: Mesoscale characterization of soft films and membranes (Albert Kamanyi, 8 min.)</p> <p>Nanocyl: CNT-enhanced nanomembrane systems for novel fuel cells (Matthieu Houllé, 8 min.)</p> <p>Paxitech: From nanomaterials to portable fuel cells (Renaut Mosdale, 8 min.)</p> <p>Exploitation Manager: Constitution of the end-user group of MultiPlat (Luc Federzoni, 10min)</p> <p>Rhenovia: presentation of the project FP7-SELFMEMS (Michel Faupel, 5 min.)</p>
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Time 15:30h - 16:00h

Coffee Break (Foyer Bertha-Benz-Saal)

Time 16:00h - 17:30h

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

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Time 18:00h - 22.00h

A visit to Weingut Seeger, Abstatt



DAY 3

Thursday 10th 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