DAY 1 – Hotel Mercure
Wednesday 17th November 2010

Time 08:00h - 09:00h

Registration

Time 09:00h to 09:30h

Opening

- Conference Opening by……..
- Response/welcome by Bertrand Fillon

Time 09:30h to 10:45h

Invited Talks

Chair: B. Fillon

"Thin Film Organic Devices as a platform for Roll to Roll Production of Sensor Systems"

H. Schoo

"Origination of complex masters for injection molding and hot embossing"

A. Stuck

Time 10:45h to 11:15h

Coffee Break

Time 11:15h to 12:30h

Session 1

Systems Design

Chair: T. Velten, Fraunhofer IBMT, Germany

135. Manufacturing routes costs comparison for emerging micro and nano technologies

S. Bigot, P. Dorrington, S. Dimov, Cardiff University, UK.

139. Development of a nanoscale strain sensor with electron beam induced deposition

T. Luttermann, S. Fatikow, University of Oldenburg, Germany

156. Design and investigation of CD-based injection-moulded micro-patterned polymer substrates for cell immobilization

D. Trifonov, K. Kostadinov, V. Kotev, T. Petrov, Bulgarian Academy of Sciences, Bulgaria.

M. Al-Wahab, University Otto-von-Guericke, Germany.

169. A novel approach for high-precision blanking of thin metal foils using monocrystalline silicon as tool material

S. Hildering, U. Engel, University of Erlangen-Nuremberg, Germany

Session 2

Components Fabrication

Chair: Pieter BOLT, TNO, Netherlands

130. Variothermal injection moulding of superhydrophobic surfaces

W. Michaeli, M. Schoengart, F. Klaiber, IKV Institute of Plastics Processing, RWTH Aachen University, Germany

S. Beckemper, Fraunhofer Institute for Laser Technology (ILT), Aachen, Germany.

131. 2-component-micro injection moulding processes for a diaphragm pump

W. Michaeli, T. Kamps, IKV Institute of Plastics Processing, RWTH Aachen University, Germany.

149. Demoulding force prediction for micro polymer replication: a review of relevant literature

K. Delaney, D. Kennedy, Dublin Institute of Technology, Ireland,

G. Bissacco, University of Padova, Italy.

171. Micro-injection moulding using an exchangeable microstructured Si mould insert

A. Singh, G. Michel, S. Queste, L. Robert, B. Gautier-Manuel, FEMTO-ST Institute, France.

Time 12:30h to 14:00h

Lunch

Time 14:00h to 15:30h

FlexPAET Session

Chair: Christoph BAUM

189. FlexPAET: Flexible Patterning of Complex Micro Structures using Adaptive Embossing Technology

C. Brecher, C. Baum, C. Wenzel, Fraunhofer Institute for Production Technology IPT, Aachen, Germany.

168. Fabrication of 3D micro and nanostructures for photonic applications

D. Cristea, P. Obreja, A. Dinescu, R. Rebigan, National Institute for R&D in Microtechnologies (IMT-Bucharest), Romania.
G. Konstantinidis, FORTH IESL Heraklion, Greece.

190. Electroforming: from Rocket Engines to Nanotweezers

P. Tang, IPU Technology Development, Denmark.

191. Diamond machining of nano structures using an automated work piece referencing and alignment procedure

C. Brecher, M. Weinzierl, C. Wenzel, Fraunhofer Institute for Production Technology IPT, Aachen, Germany.

MultiLayer Session

Chair: Luc FEDERZONI

165. New trends in room temperature embossing process: from conception to potential industrial applications

S. Bredeau, L. Federzoni, J. Bancillon, I. Karweta, Commissariat à l'Energie Atomique et aux Energies Alternatives, France.

172. Variants of Micro Multi-Component Powder Injection Moulding

E. Vorster, V. Piotter, M. Kruchem, K. Plewa, H-J. Ritzhaupt-Kleissl, Karlsruhe Institute of Technology, Institute for Materials Research III, Germany.

178. Environmentally sound production of thin alumina sheets by aqueous tape casting

J. Stiernstedt, M. Cristea, E. Carlström, Swerea IVF, Sweden
G. Rossiquet, Saint-Gobain CREE, France.

184. Development and implementation of technology for laser micro structuring of rollers

P. Petkov, Cardiff University, UK

187. Depth profiling in alumina ceramic by optical coherence tomography

R. Su, L. Mattsson, Department of Production Engineering, KTH - the Royal Institute of Technology, Stockholm, Sweden

Time 15:30h to 16:00h

Coffee Break

Time 16:00h to 17:30h

Session 3

Process Characterisation

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

142. The Study of Thin Glass Cutting Using Ultrafast Pico-second Laser

Yu-Ting Lyu, Chao-Yung Yeh, Fu-Chuan Hsu, Chung-Li Tsai, Antony H. C. Lee, Metal Industries Research & Development Centre (MIRDC), Taiwan.

145. Low cost master fabrication for roll-to-roll hot embossing based on epoxy resin

T. Velten, F. Bauerfeld, H. Schuck, T. Knoll, Fraunhofer Institute for Biomedical Engineering (IBMT), Germany.

Session 4

Metrology and Inspection

Chair: L. Mattson, KTH, Sweden

124. FT-IR spectroscopic investigations of nanocomposites on the basis of Co nanoparticles and micronized AlN-powder for Getters

I. Markova-Deneva, University of Chemical Technology and Metallurgy, Bulgaria
Galia Ivanova, Iovka Dragieva, Bulgarian Academy of Sciences, Bulgaria.

129. Determination and comparison of process- and quality-characteristics of injection-compression moulded polymer optics

161. End of life environmental assessment of microtechnology: the need for sticks or carrots?
A. de Grave, E.C.Gentil, H.N.Hansen, Technical University of Denmark.

183. Assessment of electrode wear measurement in micro EDM milling
J. Valentinčič, University of Ljubljana, Slovenia.
G. Bissacco, G. Tristo, University of Padova, Italy.

W. Michaeli, S. Hessner, P. Walach, IKV Institute of Plastics Processing, RWTH Aachen University, Germany.

148. Observation of specific polymer morphologies in a microinjection moulded part
J. Giboz, P. Mélé, University of Savoie, France,
A.B. Spoelstra, H. E. H. Meijer, Eindhoven University of Technology (TUE), the Netherlands,
Thierry Copponnex, Cendres & Métaux SA, Switzerland.

180. Comparison of the local mechanical properties of a microinjection moulded part with a classical one through nanoindentation tests
J. Giboz, P. Mélé, M. Vite, University of Savoie, France,
Sandrine BEC, Jean-Luc LOUBET, Ecole Centrale de Lyon, Ecully, France,
Thierry Copponnex, Cendres & Métaux SA, Switzerland.

Time 19:00h to 22:30h

Conference Banquet at XXXX XXXXXX sponsored by RONDOL

DAY 2 – PEP, Oyonnax
Thursday 18th November 2010

Time 09:00h - 10:15h

Invited Talks

Chair: Chantal Khan-Malek, FEMTO-ST Institute, CNRS, France.

"**Process structuring of polymers and polymer composites in micromoulding"**

P. Coates

"Development of a new micro machining technique and its eco-efficiency evaluation."

N. Mishima

Time 10:15h - 11:15h

Coffee Break and Sponsors Exhibition

Time 11:15h - 12:45h

Session 5

Ceramics Processing in Microtechnology

Chair: P. Johander, SWEREA – IVF, Sweden

128. Development of polymer-high-k-ceramic-functional composites for applications as embedded capacitors

T. Hanemann, B. Schumacher, Karlsruhe Institute of Technology, Institute for Materials Research III, Germany

132. Sintered Reaction Bonded Silicon Nitride for Micro Mechanical Components

J. Roegner, K-H. Lang, V. Schulze, Karlsruhe Institute of Technology, Institute of Materials Science & Engineering I, Germany.

M Mueller, Karlsruhe Institute of Technology, Institute for Materials Research III, Germany.

143. Application of Design Patterns for the Development of Primary Shaped Microsystems: a Case Study

A. Albers, P. Boersting, T. Turki, Karlsruhe Institute of Technology, Institute of Product Engineering IPEK, Germany.

163. Influence of load and surface condition on the tribological performance of zirconia for applications in high-performance microsystems

J. Schneider, Karlsruhe Institute of Technology, Institute for Reliability of Components and Systems, Germany,

Thomas Polzer, K-H. Zum Gahr, Karlsruhe Institute of Technology, Institute Materials Science and Engineering II, Germany

179. Micro-EDM machining behaviour of ZrO2-TiN

Session 6

Process Modelling

Chair: U. Engel, University of Erlangen-Nuremberg, Germany

134. Factors affecting the force variability in micro-end-milling

M. Annoni, Q. Semeraro, Politecnico di Milano, Italy

151. A numerical analysis of dimensional tolerance effects on the failure of micro end-mills

D. Zdebski, D. Allen, D. Stephenson, Cranfield University, UK.

186. Material Microstructure Effect-Based Experimental Analysis of Tool Wear Development in Micro-endmilling of Multi-phase Material

A. Elkaseer, K. Popov, S. Dimov, Cardiff University, UK.

159. FE modelling of size-effect in micro-machining using the strain gradient plasticity theory

S.Afazov, S. Ratchev, J. Segal, University of Nottingham, UK.

160. On the interaction of a micro object with the working arm of a gripper immersed in a nonpolar fluid

D. Dantchev, G. Valchev, K. Kostadinov, Bulgarian Academy of Sciences.

ceramic composites
E. Ferraris, D. Reynaerts, Mechanical Department, Katholieke Universiteit Leuven, Belgium
M. Galbiati, Sarix SA, Switzerland
F. Modica, Institute of Industrial Technology and Automation, CNR, Italy.

Time 12:45h - 14:15h

Lunch sponsored by PEP, Oyonnax, and sponsors Exhibition

Time 14:15h - 15:30h

Project Session

EUMINA*fab*
Chair: S. Anson, Karlsruhe Institute of Technology, Germany.

141. Methodology for Capability Maturity Assessment of MNT chains
R. Minev, E. Brousseau, S. Dimov, Cardiff University, UK
P. Vella, University of Malta.

150. Capability Maturity Study of the Horizontal and Vertical Integration of Structuring, Patterning and Characterization MNTs
R. Minev, E. Brousseau, S. Dimov, S. Scholz, Cardiff University, UK.
P. Vella, University of Malta.

154. Utilizing a grid method for accuracy study of micro SLA parts
E. Minev, K. Popov, R. Minev, M. Packianather, Cardiff University, UK.
V. Gagov, Rousse University, Bulgaria.

182. Repeatability and limitations of water jet based micro-tooling process chain
I. Sabotin, J. Valentinčič, M. Cvjetičanin, M. Junkar, University of Ljubljana, Slovenia

Project Session

CoTech
Chair: H. Noll, University of Applied Sciences Wiener Neustadt, Austria

136. Process condition monitoring of micro moulding using a two-plunger micro injection moulding machine
G. Tosello, H.N. Hansen, P. Guerrier, Technical University of Denmark

138. Tolerance verification of micro and nano structures on polycarbonate substrates
S. Gasparin, G. Tosello, H.N. Hansen, Technical University of Denmark

164. Cavity Pressure behaviour in micro-injection moulding
C. Griffiths, S. Dimov, S. Scholz, H. Hirshy, E. Williams, Cardiff University, UK,
G. Tosello, H.N. Hansen, Technical University of Denmark

177. In-mould plating and plasma treatment of polymer components
P. Bolt, H. Winands, M. Theelen, A. Hovestad, TNO Science and Industry, The Netherlands.

158. Optimization of the Rheological Properties of a PA66 – LCP Blend for Micro Injection Moulding
M. Berton, G. Lucchetta, University of Padova, Italy

Time 15:30h - 16:45h

Coffee Break and Sponsors Exhibition

Time 16:45h - 18:00h

Session 7

Novel Processes

Chair: S. Azcarate, TEKNIKER, Spain.

140. The European Project MultiPlat: "Biomimetic Ultrathin Structures as a Multipurpose Platform for Nanotechnology-Based Products"

N. Adamovic, J. Matovic, W. Brenner, Institute of Sensor and Actuator Systems (ISAS), T U Wien, Austria.

L. Federzoni, DRT/LITEN, CEA, France

174. Flexible Compression Injection Moulding Platform for Multi-Scale Surface Structures : the IMPRESS FP7 project

M. Mladenov, P. f Organic Chemistry, Bulgarian Academy of Sciences, Bulgaria.

181. Plasmon-induced enhancement of light absorption in metallically nano-scale surface-modified semiconductor

W. Jacak, L. Jacak, Wroclaw University of Technology, Poland

J. Krasnyj, International University of Odessa, Ukraine

185. New Technologies For Nanocomposite Preparation

G. Camino, Polytechnic of Turin, Italy

D. Tabuani, Proplast, Italy

A. Terenzi, ENCP, Italy

Session 8

Micro & Nano Structuring

Chair: TBA

147. Fabrication of 3D structures using Atomic Force Microscopy scratching

E. Brousseau, S. Scholz, A. Rees, Cardiff University, UK.

167. New Developments in Hot Embossing MID Technology

H. Richter, S. Lapper, Hahn-Schickard-Institute of Microassembly Technology, Germany

H. Kappl, K. Petrikowski, fem Research Institute for Precious Metals & Metals Chemistry, Germany

T. Booz, Schlenk Metallfolien GmbH Co. KG, Germany.

125. Large-area surface micro structuring with a linear coating device

Z. Tebby, J. Gavillet, P. Fugier, C. Ducros, T. Catelain, CEA, France.

166. Nanostructured electrode materials for hybrid Li battery-capacitor systems

M. Mladenov, P. Zlatilova, Institute of Electochemisty and Energy Systems, Bulgarian Academy of Sciences, Bulgaria

Time 18:00h - 20.00h

A cocktail reception sponsored by Plastipolis

Plastipolis
PÔLE DE COMPÉTITIVITÉ
PLASTURGIE

DAY 3 – Hotel Mercure
Friday 19th November 2010

Time 09:00h - 10:15h

Invited Talks (Aula)

Chair: Stefan Dimov, Cardiff University, UK

"Continuous Polymer Nanolayer Processing by Forced Assembly."

E. Baer

"Potential of Moulded Interconnect Devices for the Packaging of Miniature Multifunctional Systems"

H. Kück

10:15h – 10:20h

Announcement of dates and venue of 4M2011

Time 10:20h - 10:45h

Coffee Break

Time 11:00h to 12:30h

Session 9

Novel Machining Concepts

Chair: TBA

127. A Novel Concept of HDI Microvias Manufacturing: for RF microsystems by Laser Precision Technology

D. Ulieru, E. Ulieru, A. tantau, SITEX45, Bucharest, Romania,

F. Pistritu, IMT Bucharest, Romania.

152. Micro-structure Machining by Ultra-fast Laser on Titanium Thin Film

Yu-Ting Lyu, Chao-Yung Yeh, Fu-Chuan Hsu, Chung-Li Tsai, Antony H. C. Lee, Metal Industries Research & Development Centre (MIRDC), Taiwan.

157. Femtosecond non-diffracting Bessel beams for laser micro- and nanoprocessing

M. Bhuyan, F. Courvoisier, P-A. Lacourt, M. Jacquot, L. Furfaro, FEMTO-ST Department of Optics P.M. Duffieux, Universite de Franche-Comte, France.

175. Micro EDM milling with automated electrochemical fabrication of the cylindrical microtool

Y. Layouni, G. Girardin, A. Benilov, V. Semet, P. Morin, M. Cabrera, Institut des Nanotechnologies de Lyon, France.

173. Abrasive Water Jet Cutting for Micro Manufacturing

T. Åklint, P. Johander, K. Brinkfeldt, SWEREA IVF, Sweden

C. Öjmertz, T. Ryd, Finecut AB, Sweden

Session 10

Product Integration

Chair: TBA

176. Modelling and simulation of electrostatic self-assembly of dies and microparts

P. Lazarou, N. Aspragathos, Univeristy of Patras, Greece

J. Dalin, J. Wilde, IMTEK, University of Freiburg, Germany.

137. Assembly of a microfluidic system by means of ultrasonic welding

W. Michaeli, M. Weber, IKV Institute of Plastics Processing, RWTH Aachen University, Germany

153. Techniques for peripheral connections and assembly on 3D-MID

U. Kessler, P. Buckmueller, W. Eberhardt, H. Richter, H. Kück, Hahn-Schickard-Institute of Microassembly Technology HSG-IMAT, Stuttgart, Germany.

146. Impact Analysis on Auto Focusing Actuator of a Cellular Camera Phone

M. Yeon-wook Sung, Won Gi Lee, Moon G. Lee, Ajou University, South Korea.

Kyu Sub Park, Jaeyoung Solutec, South Korea.

188. MEMS mechanical charateristics determination using Virtual Prototyping

G. Todorov, K. Kamberov, L. Dimitrov, Technical University of Sofia, Bulgaria.

Y. Lai, Harbin University of Science & Technology, China.

Time 12:15h - 13:30h	
Lunch & finish	