

Time 08:00h - 09:00h

Registration, Barceló Costa Vasca Hotel, San Sebastián

Time 09:00h to 09:45h

Opening & Welcome Speeches

- 4M2013 Chairman, Dr. Sabino Azcárate, IK4-Tekniker, Spain
- Mr Alexander Arriola, General Manager of SPRI, Basque Business Development Agency
- "Horizon 2020 & 4M2020", Dr. Erastos Filas, DG Research & Innovation, EC

Time 09:45h to 11:00h

Invited Talks

Chair: Dr. Sabino Azcárate, IK4-Tekniker, Spain

- "Microrolling-based Surface Texturing", Professor Jian Cao, Northwestern University, US
- "Metrology challenges for highly parallel micro-manufacture", Professor Richard Leach, National Physical Laboratory, UK

Time 11:00h to 11:15h

Coffee Break

Time 11:15h to 12:30h

Session 1 : μ Electro Discharge Machining I

Chair Professor Eleonora Ferraris, KU Leuven, Belgium

342. Enhanced surface integrity and dimensional accuracy in micro-EDM drilling using D-shaped electrodes

A. Ahmed, S. Rahman, M. Rahman and A. Kumar, National University of Singapore

357. Characterization and modeling of electrical discharges in air for micro EDM machining

M. Cabrera, Y. Layouni, G. Girardin, R. Dahmani and V. Semet, Institut des Nanotechnologies de Lyon

414. Micro-EDM numerical simulation and experimental validation

S. Bigot, A. Surleraux, Cardiff University, UK,
J. Pernot, Arts et Métiers ParisTech
A. Elkaseer, Cardiff University, UK and Port Said University

415. Energetic modeling of a micro-EDM machine

V. Marrocco, G. Anzalone, F. Modica, I. Fassi and G. Bianchi, ITIA-CNR

Session 2: μ Injection Moulding (COTECH)

Chair: Helmut Loibl, FOTEC, Austria

353. Analysis of demoulding in micro injection moulding of cyclic-olefin-copolymer microfluidic systems

G. Tosello, H. N. Hansen, Technical University of Denmark
C. A. Griffiths, University of Manchester, UK
S. S. Dimov, Birmingham University, UK
S. G. Scholz, Karlsruhe Institute of Technology (KIT), Germany
A. Rees, University of Glamorgan
B. Whiteside, University of Bradford, UK

375. The Usage of Thermal Imaging for Temperature Measurements During Microinjection Moulding

M. Babenko, B. R. Whiteside, K. Norris, G. Gonzalez Castro, J. Sweeney and P. D. Coates, University of Bradford, UK

419. In-line coating of channels in polymer microfluidic devices

P. J. Bolt, M. Theelen, M. Simor, L. van de Peppel, TNO
L. Staemmler, Greiner Bio-One GmbH
H. Loibl, Fotec

426. Advancements on the simulation of the micro injection molding process

D. M. Marhöfer, G. Tosello, H. N. Hansen and A. Islam, DTU

Time 12:30h to 14:00h

Lunch

Time 14:00h to 15:30h

Session 3: Micro Manufacturing

Chair: Dr. Iban Quintana, IK4-Tekniker, Spain

333. Influence of the Cutting Edge Geometry on the Tool Stress Distribution in Monocrystalline Silicon Punches for Microblanking of Thin Metal Foils

Session 4: Process Chains (EUMINAFab)

Chair: Dr. Susan Anson, KIT, Germany

341. Validation of a New Process Chain for Producing Bulk Metallic Glass Replication Masters with Micro and Nano-scale Features

S. Hildering, U. Engel and M. Merklein, Friedrich-Alexander-Universität

337. New Technologies Applications Of Microelectronics Devices Processing By Laser Locally Structural Modifications

D. Ulieru, E. Ulieru and A. Tantau, SITEX 45 SRL
F. Pistritu, National Institute for Research and Development in Microtechnologies

363. Adaptively Tuned Micromanipulator

P. M. Moore and G.J. Wiens, University of Florida

423. Surface Roughness Prediction in AFM Probe-based Machining

A. M. Elkaseer, Cardiff University (UK), Port Said University
E. B. Brousseau, Cardiff University (UK)

S.S. Dimov, University of Birmingham
P.C. Vella, University of Birmingham, University of Malta
B.R. Whiteside, C.L. Tuinea-Bobe, C. Gant, University of Bradford

E. Brousseau, E. Minev and P. Petkov, Cardiff University

346. Prototyping parts with micro scale features using Additive Layer Manufacturing: Using microneedles as a case study

F. Lacan, S. A. Coulman, A. Hotston, P. Petkov and J. C. Birchall, Cardiff University

355 - Performance Evaluation of Laser Micro-Machining Installations

B. Daemi and L. Mattsson, KTH Royal Institute of Technology

416. Tooling and microinjection moulding of bottom grooved micromixers

J. Valentinčič, I. Sabotin, University of Ljubljana
G. Tristo, University of Padua
G. Bissacco, Cardiff University, UK
S. Bigot, Technical University of Denmark

Time 15:30h to 16:00h

Coffee Break

Time 16:00h to 17:45

Session 5: Novel Material Processing

Chair: Professor Lars Mattsson, KTH, Sweden

336. Nano texturing of micro injection moulding tools with diamond like carbon

C. A. Griffiths, University of Manchester, UK
S. S. Dimov, University of Birmingham, UK
A. Rees, University of Glamorgan
O. Dellea and J. Gavillet, CEA, France
F. Lacan and H. Hirshy, Cardiff University, UK

338. Precise Micro-Texturing onto DLC Coating via High-Density Oxygen Plasma Etching

T. Aizawa and K. Mizushima, Shibaura Institute of Technology, Tokyo
N. T. Redatono, Brawijaya University, Indonesia

340. Nano-Laminated Diamond-like Carbon Coating for Hydrogen Gas Permeability Control

H. Morita, Nano Film and Coat Laboratory, Tokyo
T. Aizawa, Shibaura Institute of Technology, Tokyo

332. Electrochemical behavior of porous nanocomposites based on carbon foam and intermetallic Cu-Sn nanoparticles

T. Petrov, V. Milanova, I. Denev and I. Markova, University of Chemical Technology and Metallurgy, Sofia, Bulgaria

370. Manufacturing of Solid Oxide Fuel Cells by Aqueous Tape Casting

J. Stiernstedt, Swerea IVF, Sweden and Chalmers University of Technology, Sweden
E. Carlström, Swerea IVF, Sweden
B. E. Mellander, Chalmers University of Technology, Sweden

Session 6: Laser Micro Processing

Chair: Dr. Petko Petkov, Cardiff University, UK

366. Laser machining of a Zr-based bulk metallic glass with nano-second laser

J. Pavey, P. Penchev, S. Dimov, I. Chang, University of Birmingham, UK
P. Petkov, Cardiff University, UK
A. Kolew, Karlsruhe Institute of Technology (KIT), Germany

404. Single Pulse Nanosecond Laser Processing of Zirconium-based Bulk Metallic Glass

E. Williams and E. B. Brousseau, Cardiff University, UK

413. New Laser based Patterning Processes for 3D Devices

H. Mueller, S. Weser, W. Eberhardt, HSG-IMAT, Germany
H. Kück, HSG-IMAT, Germany and University of Stuttgart, Germany
E. Ermantraut, University of Stuttgart, Germany

420. Imaging of copper ejection in pico- and nanosecond Laser Induced Forward Transfer

R. Pohl, G. R. B. E. Römer, D. Lohse, C. W. Visser, and C. Sun, University of Twente, Netherlands
A. J. Huis in 't Veld, University of Twente, and TNO, Netherlands
M. B. Hoppenbrouwers, TNO, Netherlands
M. Giesbers, TNO and Holst Centre, Netherlands

349. Laser material removal: Surface integrity

P. V. Petkov, Cardiff University, UK

Time 19:00h to 22:30h

Visit by bus to IRETZA SAGAROTEGIA and the Conference Dinner.

<http://www.iretza.com/>

Time 8:00-9:00, Bus transfers from Barceló Costa Vasca Hotel, San Sebastián to IK4-Tekniker, Eibar.

Time 09:00h to 09:15h

Opening & Welcome Speeches

- Dr. Alejandro Bengoa, General Manager of IK4-Tekniker, Spain

Time 09:15h - 10:45h

Invited Talks

Chair: Professor Stefan Dimov, 4M2013 Co-Chair, University of Birmingham, UK

- "Fabrication of Nano/Micro devices of metallic glasses", Professor Yasunori Saitome, Tohoku University, Japan
- "Laser Shock Micro-Forming as an Emerging Technique for Microsystems Shaping and Adjustment", Prof. Dr. Ing. José Luis Ocaña Moreno, Centro Láser UPM, Spain

Time 10:45h - 11:15h

Coffee Break

Time 11:15h - 12:30h

Session 7: μ Electro Discharge Machining II

Chair: Dr. Samuel Bigot, Cardiff University, UK

356. Major parameters affecting the electric discharge machining of non-conductive SiC

N. Ojha, T. Hösel, F. Zeller, C. Müller and H. Reinecke, University of Freiburg, Germany

411. Combined Pulse Characterization and Discrimination for Micro-EDM Milling Tool Wear Study

J. Wang, E. Ferraris, J. Qian and D. Reynaerts, KU Leuven, Belgium
M. Galbiati, Sarix SA, Losone, Switzerland

417. Highly irregular surface roughness replicated onto microfluidic part using micro injection molding for cell biological research purposes

S. Y. Choi, O. Habimana, P. Flood, S. O. Gargan, B. Murphy, S. Marl, L. Williams, M. Redmond and M. D. Gilchrist, University College Dublin, Ireland

Session 8: IMPRESS Manufacturing Platforms

Chair: Dr. Stéphane Dessors, PEP, France

424. IMPRESS System Expert Tool: a collaborative engineering software for specification of micro / nano features products and processes

I. Cisse, R. Gantois, D. Garcia, S. Dessors and M. Moguedet, PEP, France

367. Manufacturing of nanostructured plastic components combining nanosphere lithography and replication techniques

N. Blondiaux, M. Giazzon and R. Pugin, CSEM SA, Switzerland
H. Irschy, Cardiff University, UK

371. Impact of melt viscosity on replication quality of plastic parts with micro and nano sized features demonstrated on the IMPRESS platform

H. Eigenbrod, D. Streng, Fraunhofer Institute IPA, Germany
E. Pletscher, Kistler Instruments AG, Switzerland
S. Dessors and M. Moguedet, PEP, France

368. Structuring of mold insert by colloidal lithography for antireflective properties

O. Dellea, J. Lostys, S. Desage, E. Szambolics, C. Diss, P. Fugier, CEA-LITEN, Grenoble
J.M Becker, Université de Lyon, France

Time 12:30h - 14:00h

Lunch and sponsors

Time 14:00h - 15:30h

Session 9: μ Machining

Chair: Dr. Massimiliano Annoni, Politecnico di Milano, Italy

339. Offset diamond turning technique for machining of Fresnel lens arrays

W.K. Neo, A. S. Kumar and M. Rahman, National University of Singapore, Singapore

Session 10: Process Design & Characterisation

Chair: Dr Guido Tosello, DTU, Denmark

335. Thermoplastic PMMA/PEG binder system for micro ceramic injection moulding

T. Hanemann and O. Weber, Karlsruhe Institute of Technology (KIT), Germany and University of Freiburg, Germany

<p>354. Performance Evaluation of Micro Milling Installations B. Daemi, P. Ekberg and L. Mattsson, KTH Royal Institute of Technology, Sweden</p> <p>358. Cutting force prediction performance of a microcutting slip-line field model in brass machining M. Annoni, G. Biella, L. Rebaioli and Q. Semeraro, Politecnico di Milano, Italy J. R. Mayor, Georgia Institute of Technology, USA</p> <p>364. Reducing waviness in diamond turning by analysis of surface profile J. T. Chien, H. P. Lin, Y. T. Jeng, F. C. Hsu, Antony H. C. Lee and K. M. Huang, Metal Industries Research and Development Centre (MIRDC), Taiwan</p> <p>418. Compensating the cutting edge displacement during micro milling – a mechatronic approach V. Schulze, F. Zanger, M. Deuchert, P. Hoppen, Karlsruhe Institute of Technology (KIT), Germany</p>	<p>359. A novel approach to additive manufacturing, screw extrusion 3D-printing H. Valkenaers, F. Vogeler, E. Ferraris, A. Voet and J.P. Kruth, KU Leuven, Belgium</p> <p>365. Analysis of the process chain for the production of optical functional micro structures by injection moulding C. Hopmann, M. Schöngart, Institute of Plastics Processing (IKV), Germany K. Bobzin, N. Bagcivan, T. Brögelmann, S. Theiß, T. Münstermann, RWTH Aachen University, Germany M. Steger, Fraunhofer Institute for Laser Technology (ILT), Germany</p> <p>412. Investigation of dimensional accuracy in powder injection molding K. Plewa and V. Piotter, Institute for Applied Materials, KIT, Germany T. Mueller, Institute for Applied Materials, KIT, Germany and University of Freiburg, Germany</p>
Time 15:30h - 15:45h	
Coffee Break	
Time 15:45h - 17:15h	
<p>Session 11: Manufacturing Platforms</p> <p>Chair: Professor Werner Brenner, TU-Wien, Austria</p> <p>350. Rapid Prototyping of Polymeric Micro-Fluidic Systems Using a Roll-to-Roll Micro-Replication Process J. Zhang, M. Sahli, J.C. Gelin, C. K. Malek, Femto-ST Institute, France</p> <p>428. Application of the infrared thermography in the automated spot soldering process A. V. Andonova, Technical University of Sofia, Bulgaria N. M. Kafadarova, Plovdiv University, Bulgaria H. D. Lukarski, Space Research Institute, Bulgaria</p> <p>422. Development of a high-throughput roll-to-roll production platform for the micro-manufacturing and assembly of lighting devices D. González, P. Queipo, F. Berenguer, P. Sánchez-Friera, Fundación PRODINTEC, Spain N. Schlaefli, Norbert Schläfli Maschinen, Switzerland H. Bohlmann, R. Götzen, MicroTEC Gesellschaft für Mikrotechnologie mbH, Germany M. Burgard, Fraunhofer Institut Produktionstechnik und Automatisierung (IPA), Germany W. Zapka, XaarJet AB, Sweden R. Willmann, ACP-IT GmbH, Austria N. Li Pira, Centro Ricerche FIAT, Italy J. Gourlay, Design LED Products Ltd, UK G. C. Jalva, Microelectronica SA, Romania</p> <p>345. Microsystems wire bonding technology navigation towards economic packaging solutions D. Ulieru, E. Ulieru, A. Tatau, SITEX 45 SRL, Romania F. Pistritu, National Institute for Research and Development in Microtechnologies, Romania</p>	<p>Session 12: Product & Process Design (SMART-FRAME)</p> <p>Chair: Dr. Steffen Scholz, KIT, Germany</p> <p>348. SMART FRAME - Empowering Business in Central Europe A. Freudensprung, S. Wutschitz, ecoplus, Austria C. Wögerer, Profactor GmbH, Austria S. Scholz, Karlsruhe Institute of Technology (KIT), Germany</p> <p>343. A Combination of Iron Oxide Nanoparticles and Inkjet Inks to Obtain New Functional Inks B. Unterauer, M. Rohn, C. Wögerer, and M. Mühlberger, Profactor GmbH, Austria D. Holzinger, Tiger Coatings GmbH & CoKG, Austria</p> <p>347. Development of Multiscale, Multicriteria Optimization of SiP Design Methods G. Janczyk, T. Bieniek, P. Dumania, Instytut Technologii Elektronowej, Poland A. Wymysłowski, Wroclaw University of Technology, Poland</p> <p>351. Efficient Scenarios, Methodology and Tools for MEMS/NEMS Product Development T. Bieniek, G. Janczyk, P. Janus, M. Ekwńska, D. Szmigiel, K. Domański, P. Grabiec, P. Dumania, Instytut Technologii Elektronowej, Poland</p> <p>407. An additive manufacturing and e-printing based approach for flexible scalable manufacturing of Microsystems M. Dickerhof, D. Kimmig, S. Scholz, W. Pfleging, Karlsruhe Institute of Technology (KIT), Germany C. Woegerer, Profactor GmbH, Austria R. Adamietz, Fraunhofer Institut Produktionstechnik und Automatisierung (IPA), Germany</p>
Time 17:15h – 18:00	
Tour of IK4-Tekniker	
Time 18:00h – 19:30	
<p>Tapas Cocktail Reception Elena Ulieru Innovation Award Presentation by Dumitru Ulieru, Sitex</p>	
Time 19:30 : Buses leave for San Sebastián	

Time 10:00h - 12:00h



Visit to CIC nanoGUNE Consolider, San Sebastián

Website: <http://www.nanogune.eu/en/>

Please book a place for the visit with Natalie Withenshaw
(natalie.withenshaw@ctechinnovation.com) by 1st October 2013

Time 12:00h: End of the 4M2013 Conference