DAY 1 (San Sebastián)
Tuesday 8th Oct 2013

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 Manger of SPRI, Basque Business Development Agency
- "Horizon 2020 & 4M2020", Dr. Erastos Filos, DG Research & Innovation, EC

Time 09:45h to 11:00h

Invited Talks

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

- "Innovative manufacturing processes for plastics parts with micro features", Professor Christian Hopmann, Institut für Kunststoffverarbeitung, Germany
- "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 Afzaal Ahmed, Syafiq Abdul Rahman, Mustafizur Rahman and A. Senthil Kumar

357. Characterization and modeling of electrical discharges in air for micro EDM machining M. Cabrera, Y. Layouni, G. Girardin, R. Dahmani and V. Semet

414. Micro-EDM numerical simulation and experimental validation Samuel Bigot, Jean-Philippe Pernot, Anthony Surleraux and Ahmed Elkaseer

415. Energetic modeling of a micro-EDM machine V. Marrocco, G. Anzalone, F. Modica, I. Fassi and G. Bianchi

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, C. A. Griffiths, S. S. Dimov, S. G. Scholz, A. Rees, B. Whiteside and H. N. Hansen

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

419. In-line coating of channels in polymer micro-fluidic devices P. J. Bolt, M. Theelen, M. Simor, L. van de Peppel, L. Staemmler and H. Loibl

426. Advancements on the simulation of the micro injection molding process D. M. Marhöfer, G. Tosello, H. N. Hansen and A. Islam

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 S. Hildering, U. Engel and M. Merklein

337. New Technologies Applications Of Microelectronics Devices Processing By Laser Locally Structural Modifications Dumitru Ulieru, Florian Pistritu, Elena Ulieru and Adrian Tantau

363. Adaptively Tuned Micromanipulator Paul M. Moore

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 Pierre C. Vella, Stefan S. Dimov, Ben R. Whiteside, Emmanuel Brousseau, Cristina L. Tuinea-Bobe, Colin Gant, Ekaterin Minev and Petko Petkov

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

and Gloria J. Wiens **423. Surface Roughness Prediction in AFM Probe-based Machining** A. M. Elkaseer and E. B. Brousseau	**355 - Performance Evaluation of Laser Micro-Machining Installations** B. Daemi and L. Mattsson **416. Tooling and microinjection moulding of bottom grooved micromixers** J. Valentinčič, I. Sabotin, G. Tristo, G. Bissacco and S. Bigot
Time 15:30h to 16:00h	
Coffee Break	
Time 16:00h to 17:45	
Session 5: Novel Material Processing **Chair:** Dr. Luc Federzoni, CEA, France **336. Nano texturing of micro injection moulding tools with diamond like carbon** C. A. Griffiths, S. S. Dimov, A. Rees, O. Dellea, J. Gavillet, F. Lacan and H. Hirshy **338. Precise Micro-Texturing onto DLC Coating via High-Density Oxygen Plasma Etching** Tatsuhiko Aizawa, Nereus Tugur Redationo and Kento Mizushima **340. Nano-Laminated Diamond-like Carbon Coating for Hydrogen Gas Permeability Control** Hiroshi Morita and Tatsuhiko Aizawa **332. Electrochemical behavior of porous nanocomposites based on carbon foam and intermetallic Cu-Sn nanoparticles** T. Petrov, V. Milanova, I. Denev and I. Markova **370. Manufacturing of Solid Oxide Fuel Cells by Aqueous Tape Casting** J. Stiernstedt, E. Carlström and B.-E. Mellander	**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, P. Petkov and A. Kolew **404. Single Pulse Nanosecond Laser Processing of Zirconium-based Bulk Metallic Glass** E. Williams and E. B. Brousseau **413. New Laser based Patterning Processes for 3D Devices** H. Mueller, S. Weser, E. Ermantraut, W. Eberhardt and H. Kück **420. Imaging of copper ejection in pico- and nanosecond Laser Induced Forward Transfer** A. J. Huis in 't Veld, M. B. Hoppenbrouwers, M. Giesbers, R. Pohl, G. R. B. E. Römer, C. W. Visser, C. Sun and D. Lohse **349. Laser material removal: Surface integrity** P. V. Petkov
Time 19:00h to 22:30h	
Visit by bus to IRETZA SAGARDOTEGIA and the Conference Dinner. **http://www.iretza.com/**	

DAY 2 (IK4-Tekniker, Eibar)
Wednesday 9th Oct 2013

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

Time 09:00h to 09:30h

Opening & Welcome Speeches

- Dr. Alejandro Bengoa, General Manager of IK4-Tekniker, Spain
- "ONR Global - Programs and Opportunities", Dr. Shawn Thorne, Office of Naval Research Global - London

Time 09:30h - 11:15h

Invited Talks

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

- "Fabrication of Nano/Micro devices of metallic glasses", Professor Yasunori Saotome, Tohoku University, Japan
- "Microrolling-based Surface Texturing", Professor Jian Cao, Northwestern University, US
- "Laser Shock Micro-Forming as an Emerging Technique for Microsystems Shaping and Adjustment", Prof. Dr. Ing. José L. Ocaña, Centro Láser UPM, Spain

Time 11:15h – 11:30h

Coffee Break

Time 11:30h - 12:45h

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 Nirdesh Ojha, Tim Hösel, Florian Zeller, Claas Müller and Holger Reinecke

411. Combined Pulse Characterization and Discrimination for Micro-EDM Milling Tool Wear Study J. Wang, E. Ferraris, M. Galbiati, J. Qian and D. Reynaerts

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

344. Fabrication of High-aspect-ratio Cylindrical Sub-micrometre Tool Using ECM Hansong Li, Yufeng Wang, Yongbin Zeng and Ningsong Qu

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

367. Manufacturing of nanostructured plastic components combining nanosphere lithography and replication techniques N. Blondiaux, H. Irschy, M. Giazzon and R. Pugin

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, E. Pletscher, S. Dessors and M. Moguedet

368. Structuring of mold insert by colloidal lithography for antireflective properties Dellea Olivier, Lostys Juliette, Desage Simon, Szambolics Elga, Diss Camille, Fugier Pascal and Becker Jean-Marie

Time 12:45h - 14:00h

Lunch and sponsors

Time 14:00h - 15:30h

Session 9: µ Machining

Chair: Professor Massimiliano Annoni, Politecnico di Milano, Italy

339. Offset diamond turning technique for machining of Fresnel lens arrays Wee Keong Neo, A. Senthil Kumar and Mustafizur Rahman

354. Performance Evaluation of Micro Milling Installations B. Daemi, P. Ekberg and L. Mattsson

358. Cutting force prediction performance of a microcutting slip-line field model in brass machining M.

Session 10: Process Design & Characterisation

Chair: Dr Guido Tosello, DTU, Denmark

335. Thermoplastic PMMA/PEG binder system for micro ceramic injection moulding Thomas Hanemann and Oxana Weber

359. A novel approach to additive manufacturing, screw extrusion 3D-printing H. Valkenaers, F. Vogeler, E. Ferraris, A. Voet and J.-P. Kruth

365. Analysis of the process chain for the production of optical functional micro structures by injection

Annoni, G. Biella, J. R. Mayor, L. Rebaioli and Q. Semeraro **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 **418. Compensating the cutting edge displacement during micro milling – a mechatronic approach** V. Schulze, F. Zanger, M. Deuchert and P. Hoppen	**moulding** Christian Hopmann, Maximilian Schöngart, Kirsten Bobzin, Nazlim Bagcivan, Tobias Brögelmann, Sebastian Theiß, Tobias Münstermann and Michael Steger **412. Investigation of dimensional accuracy in powder injection molding** T. Mueller, K. Plewa and V. Piotter
Time 15:30h - 15:45h	
Coffee Break	
Time 15:45h - 17:15h	
Session 11: Manufacturing Platforms **Chair:** Professor Werner Brenner, TU-Wien, Austria **350. Rapid Prototyping of Polymeric Micro-Fluidic Systems Using a Roll-to-Roll Micro-Replication Process** Jie. Zhang, Mohamed. Sahli, Jean-Claude. Gelin and Chantal. Khan-Malek **428. Application of the infrared thermography in the automated spot soldering process** A. V. Andonova, N. M. Kafadarova and H. D. Lukarski **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, N. Schlaefli, H. Bohlmann, R. Götzen, M. Burgard, W. Zapka, R. Willmann, N. Li Pira, J. Gourlay and G. C. Jalva **345. Microsystems wire bonding technology navigation towards economic packaging solutions** Dumitru Ulieru, Elena Ulieru, Adrian Tantau and Florian Pistritu	**Session 12: Product & Process Design (SMART-FRAME)** **Chair:** Dr. Steffen Scholz, KIT, Germany **343. A Combination of Iron Oxide Nanoparticles and Inkjet Inks to Obtain New Functional Inks** Barbara Unterauer, Michael Rohn, C. Wögerer, Dieter Holzinger and Michael Mühlberger **347. Development of Multiscale, Multicriteria Optimization of SiP Design Methods** Janczyk Grzegorz, Bieniek Tomasz, Dumania Piotr and Wymysłowski Artur **348. SMART FRAME - Empowering Business in Central Europe** Anton Freudensprung, Sandra Wutschitz, Christian Wögerer and Steffen Scholz **351. Efficient Scenarios, Methodology and Tools for MEMS/NEMS Product Development** Bieniek Tomasz, Janczyk Grzegorz, Janus Paweł, Ekwińska Magdalena, Szmigiel Dariusz, Domański Krzysztof, Grabiec Piotr and Dumania Piotr **407. An additive manufacturing and e-printing based approach for flexible scalable manufacturing of Microsystems** Markus Dickerhof, Daniel Kimmig, Steffen Scholz, Christian Woegerer, Raphael Adamietz and Wilhelm Pfleging
Time 17:15h – 18:00	
Tour of IK4-Tekniker	
Time 18:00h – 19:30	
Tapas Cocktail Reception	
Time 19:30 : Buses leave for San Sebastián	

DAY 3
Thursday 10th Oct 2013

Time 10:00h - 12:005h

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