4M/ICOMM2015
Schedule

Monday March 30 2015	
18:15–21:00	**Welcome Party and Guided Tour (all welcome)** **Castello Sforzesco, Piazza Castello**

Tuesday March 31 2015 Assolombarda Congress Centre						
08:30–09:00	**Registration**					
09:00–09:20	**Opening plenary session** | Chair: Massimiliano Annoni, *Politecnico di Milano*					
09:20–10:20	**Key Note** Professor Christian Hopmann, *RWTH Aachen University* **Process development for the production of plastic parts with micro features**					
10:20–10:50	Coffee break					
10:50–12:50	**Track 1 (Sala A)** **Micro EDM Process Performance I**		**Track 2 (Sala B)** **Micro Machining Process Performance**		**Track 3 (Sala C)** **Metal Forming I**	
	Chair	G Maccarini, *University of Bergamo*	Chair	Simon Park, *University of Calgary*	Chair	Jian Cao, *Northwesern University*
	004	**Comparison EDM / Dry-EDM in microdrilling process** Cristina Merla, Giancarlo Maccarini, Gianluca D'Urso and Chiara Ravasio, *University of Bergamo* Anthony Surleraux, *Cardiff University*	**033**	**Test for evaluating the performance of micro milling processes** Aldo Attanasio, Alessandro Garbellini and Elisabetta Ceretti, *University of Brescia* Claudio Giardini, *University of Bergamo*	**052**	**Dynamic Model of One-Dimensional Piezoelectric Actuators in Micro-forming** Peng Hu, Tegoeh Tjahjowidodo, Sylvie Castagne, *Nanyang Technological University*
	005	**Micro-EDM-milling and –sinking combined approach for the fabrication of micro-components** Francesco Modica, Valeria Marrocco, Vito Basile and Irene Fassi, *ITIA CNR*	**034**	**Analysing machining errors resulting from a micromilling process using CT measurement and process simulation** Petra Kersting, Sven Odendah, Tobias Siebrecht, Eugen Krebs, *TU Dortmund University* Simone Carmignato, Filippo Zanini, *University of Padova*	**053**	**Effect of tribological condition on forming minute parts by micro-meso extrusion of A6063 alloy** N. Takatsuji and T. Funazuka, *University of Toyama* K. Dohda, *Northwestern University*
	006	**Influence on Pulse Width on Micro Electrical Discharge Machining of Non-Conductive Silicon Carbide** Florian Zeller, Nirdesh Ojha, Claas Müller, Holger Reinecke, *University of Freiburg*	**035**	**Machining Error in Micro Dimple Milling** Takashi Matsumura, Yuji Musha, *Mechanical Engineering, Tokyo Denki University*	**054**	**Replication of prismatic microstructures by electromagnetic embossing** Lasse Langstädtler, Arne Bloem, Christian Schenck, Bernd Kuhfuss, *Universtity of Bremen* Lars Schönemann, *Universtity of Bremen*
	007	**Evaluation of the Mechanical Properties of Non-Conductive Ceramics Machined with EDM using AE** Nirdesh Ojha, Florian Zeller, Claas Müller, Holger Reinecke, *University of Freiburg*	**041**	**Machinability on Micro-End Milling Process of Ti-6Al-4V with Nanofluid Minimum Quantity Lubrication Using Hexagonal Boron Nitride Particle** Dae Hoon Kim, Pil-Ho Lee, Jung Sub Kim and Sang Won Lee, *Sungkyunkwan University*	**055**	**Influence of lubricant viscosity on punch force in strip drawing test** Hendrik Tetzel Annika Bohlen, *BIAS–Bremer Institut für angewandte Strahltechnik* Frank Vollertsen, *BIAS–Bremer Institut für angewandte Strahltechnik and University of Bremen*

10:50–12:50	**008**	**Experimental Investigation of the Effect of Dielectric Conductivity on Characteristics of Micro-EDM Process** Soham S. Mujumdar, Shiv G. Kapoor, Davide Curreli, *University of Illinois at Urbana Champaign*	**043**	**An Experimental Study on Micro Milling of PZT deposited Si wafer** Yao-Yang Tsai, Kuan-Ming Li, *National Taiwan University* Ken-Han Chen, Ming-Chyuan Lu and Chia-Che Wu, *National Chung Hsing University*	**056**	**Experimental Study of a Microforging Process of Parallel Ribs from Metal Strip** Tommaso Stellin, Marion Merklein and Ulf Engel, *Institute of Manufacturing Technology, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)*
	009	**Improvements in debris flushing in micro-electric discharge machining using atomized dielectric spray** Arvind Pattabhiraman, Deepak Marla and Shiv Kapoor, *University of Illinois at Urbana-Champaign, Urbana*	**038**	**Rapid and Autonomous Optical Characterization of Tool Diameter and Cutting Edge Radius on Micro End Mills** William Jen, Frank E. Pfefferkorn and Justin D. Morrow, *University of Wisconsin* Nicola J. Ferrier, *University of Chicago*	**057**	**Dimensional accuracy and deformation behaviors in meso-scaled progressive forming of two-level flanged parts** M.W. Fu B. Meng C.M. Fu, *Hong Kong Polytechnic University*
12:50–14:00	Lunch					
14:00–15:40	**Track 5 (Sala A)** **Laser Micro Processing I**		**Track 2 (Sala B)** **Micro Machining Modelling and Simulation**		**Track 3 (Sala C)** **Metal forming II**	
	Chair	Iban Quintana, *IK4–TEKNIKER*	Chair	Shiv Kapoor, *University of Illinois*	Chair	Yannis Korkolis, *University of New Hampshire*
	083	**Analysis of Shape Geometry of Micro-Channels Fabricated by Laser Milling** Sabina Campanelli, Nicola Contuzzi, Fulvio Lavecchia, Gianluca Percoco, *Politecnico di Bari*	**022**	**Force Modelling in micro-milling of hardened tool steel** R. Piquard, A. Gilbin, S. Thibaud, M. Fontaine, *FEMTO-ST*	**058**	**Microstructure change by micro metal forming of sheet iron** Motoki Terano, Yuji Hirosawa, Masahiko Yoshino, *Tokyo Institute of Technology* Shiro Torizuka, *Department of Materials Science and Chemistry, University of Hyogo*
	084	**Manufacture of Micro-Hole Array for Planar Porous Aerostatic Bearing with Dual Restrictive Layer Using Picosecond Laser** Yu-Ting Lyu, Kuo-Yu Chien, Fu-Chuan Hsu, Hsin-Chung Li, *Metal Industries Research & Development Centre (MIRDC)* Tien-Ching Chen, *GeniRay Technology Corporation*	**023**	**A Predictive Model for Thin Plate Deformation in Surface Milling** Jiunn-Jyh J. Wang and Chieh-Cheng Lin, *National Cheng Kung University*	**059**	**Elastic-plastic damage behavior identification in micro scale length from instrumented micro-single point incremental forming** Ramzi Ben Hmida, *FEMTO-ST Institute, Besançon, France.* Fabrice Richard, *Université de Franche-Comté*, Sébastien Thibaud, Pierrick Malécot, *ENSMM*
	085	**Single step generation of microstructured hydrophobic Aluminium surface by ns laser** R. Jagdheesh, J.J. García-Ballesteros and J.L. Ocaña, *Politécnica de Madrid*	**024**	**Cutting force prediction in micro orthogonal cutting by an analytical-numerical coupled model** A. Afsharhanaei, L. Rebaioli, P. Parenti, M. Annoni, *Politecnico di Milano*	**060**	**Scalability of Conventional Tube Hydroforming Processes from Macro to Micro/Meso** James Lowrie and Gracious Ngaile, *North Carolina State University*
	086	**Improving the flexibility of micro injection moulding by exploiting fs-laser micro milling to realize mould inserts with complex 3D microfeatures** G.Trotta I. Fassi ITIA CNR, *Institute of Industrial Technology and Automation* A. Ancona FN CNR, *Institute for Photonics and Nanotechnologies* A.Volpe & F.Di Niso, *IFN CNR, Institute for Photonics and Nanotechnologies, National Research Council, Bari; & University of Bari*	**025**	**Performance of micro end milling force prediction on Aluminum 6061-T6 with 3D FE simulation** A. Davoudinejad, P. Parenti, L. Rebaioli, M. Annoni, *Politecnico di Milano, Italy*	**061**	**Improved Tool Performance in Microblanking of Thin Metal Foils Through Defined Cutting Edge Modification of Silicon Punches** Sven Hildering, Ulf Engel and Marion Merklein, *Institute of Manufacturing Technology, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)*
	087	**Improving laser microcutting quality of AZ31 Mg alloy by submerged cutting for manufacturing of biodegradable stents** Ali Gökhan Demir Barbara Previtali, *Politecnico di Milano*	**026**	**Multiscale Analysis of Nano-Scale Elliptical Vibration Cutting via Molecular Dynamics Simulations** Lin Zhang, Li Zhang, and Ping Guo, *The Chinese University of Hong Kong*	**062**	**Investigation of Inhomogeneous Deformation Behavior of Pure Copper Foils in Micro Deep Drawing** Dong Xianghuai, Zhou Xionghui, *National Shanghai Jiao Tong University* Zhang Haiming, *Max-Planck-Institut für Eisenforschung*
15:40–16:00	Coffee break					

	Track 5 (Sala A) Laser Micro Processing II		Track 7 (Sala B) Additive Manufacturing		Track 10 (Sala C) Materials Testing	
	Chair	José L. Ocaña, *Technical University of Madrid*	Chair	Lawrence Kulinsky, *University of California-Irvine*	Chair	Kuniaki Dohda, *Northwestern University*
16:00–17:40	**088**	**Microstructure of S7 Tool Steel after Pulsed Laser Micro Polishing** Qinghua Wang, Justin D. Morrow, Frank E. Pfefferkorn, *University of Wisconsin*	**104**	**An Electrokinetically-Driven Microfabrication Process for Additive Manufacturing Applications** Victor Perez-Gonzalez, Matias Vazquez-Piñon, Sergio Martinez-Chapa, *Tecnologico de Monterrey* Vinh Ho, Lawrence Kulinsky, *University of California Irvine*	**130**	**Characterization analysis according to the filler metal types and the diffusion bonding copula shape conditions on the cemented carbide** Bawi Jeong and Jeongwoo Park, *Chosun University*
	089	**Laser Polishing of Metallic Freeform Surfaces** Judith Kumstel, John Flemmer, *Fraunhofer Institute for Laser Technology* André Temmler, *RWTH Aachen University*	**105**	**Aerosol Jet printed PEDOT:PSS strain gauges on FDM Printed substrates** Frederik Vogeler, Joren De Cuyper, Eleonora Ferraris, *KU Leuven*	**131**	**Microstructure Characterization of Ductile Cast Iron and its Phase Properties Detection** Surendra Sujakhu and Sylvie Castagne, *Nanyang Technological University* Muhammad Taureza, *Singapore Institute of Manufacturing Technology*
	090	**Effects of Initial Surface Texture on Pulsed Laser Micro Polishing of S7 Tool Steel** Qinghua Wang, Justin D. Morrow; Neil A. Duffie, Frank E. Pfefferkorn, *University of Wisconsin-Madison*	**106**	**Study on Plasma of Micro-forming Fields Activated Sintering Technology** Gang Yang, Yi Yang, Deqiang Yin, Mingxia Wu, Kunlan Huang, *Sichuan University* Yi Qin, *University of Strathclyde*	**132**	**Quantitative measurements of plasticity in confined Cu thin films with a micro-pillar protocol** Yang Mu and Wen Jin Meng, *Louisiana State University*
	091	**The Modern Concept Of Microsensors/ Microsystems Integration At Wafer Level By High Accuracy Micromanufacturing Processes** D. Ulieru, Oana Maria Ulieru, Xavi Vila, A.Topor, *SITEX 45 SRL*	**107**	**Numerical Simulation of 3D Additive Manufacturing Process** Kentaro Taki, *Kanazawa University* Hiroshi Ito, *Yamagata University*	**133**	**Custom testing machine for biaxial loading of microtubes** Peter Ripley and Yannis Korkolis, *University of New Hampshire*
	092	**Design of Terahertz Waveguide Filters For Hybrid Manufacturing Based On CNC Milling and Laser Micro-Machining** Xiaobang Shang, Michael J. Lancaster, Pavel Penchev, Stefan Dimov, *University of Birmingham*	**108**	**Analysis of Balling Phenomenon in Micro Direct Laser Metal Deposition** Federico Mazzucato, Paolo F. Bariani, *University of Padova*	**081**	**Effect of Manufacturing Conditions on the Mechanical and Corrosion Behavior of Micro-textured AZ91D Prepared by Powder Metallurgy** Aydin Tahmasebifar, Said Kayhan and Zafer Evis, *Middle East Tech Univ* Muammer Koc, *HBKU / Ist Sehir Univ*
19:30–23:00	**Gala Dinner** Palazzo delle Stelline					

Wednesday April 1st 2015 Politecnico di Milano	
8:30–9:00	**Registration**
9:00–9:20	**Plenary session** | Chair: Gloria Wiens, *University of Florida*
9:20–10:20	**Key Note** Professor Fengzhou Fang, *Tianjian University* **Nanomanufacturing: perspectives and applications**
10:20–10:50	Coffee break

	Track 1 (Sala A) **Micro EDM process performance II**		Track 2 (Sala B) **Micro Machining Dynamics**		Track 4 (Sala C) **Micro Injection Moulding I**		Track 9 (Sala D) **Surface Treatment and Texturing I**	
10:50–12:50	Chair	Kamlakar Rajurkar, *University of Nebraska-Lincoln*	Chair	Kornel Ehmann, *Northwestern University*	Chair	Hiroshi Ito, *Yamagata University*	Chair	Ping Guo, *Chinese University of Hong Kong*
	010	**Batch mode die-sinking micro-electro-discharge machining of stainless steel using DRIE bulk tungsten electrode** Xian Chen, Lu Song and Jing Chen, *Peking University*	**027**	**Chatter Stability Improvement in Micro Milling with Axial Vibrations** Chaneel I. Park and Simon S. Park, *University of Calgary* Paolo Parenti and Massimiliano Annoni, *Politecnico di Milano*	**063**	**Prototyping polymer microfluidics using a flexible injection mould: case studies of using various microstructured tools** Nan Zhang, Richard Byrne and Michael Gilchrist, *University College Dublin*	**113**	**Distributed Plasma Nitriding Systems for Surface Treatment of Miniature Functional Products** Tatsuhiko Aizawa, *Shibaura Institute of Technology* Yoshio Sugita, *YS-Eletric Industry, Co. Ltd.*
	011	**A Study to Improve Shape Accuracy of the Hole Drilled by Micro EDM** Yunn-Shiuan Liao and Chang-Sheng Lin, *National Taiwan University*	**028**	**Effect of Lubrication on Dynamic Instability in High-Speed Micromilling of Ti-6Al-4V** Rinku Mittal, Kundan Singh and Ramesh Kumar Singh, *Indian Institute of Technology, Mumbai*	**064**	**Effect of vacuum venting process on replication of nano/micro-features in microinjection molding: Quantitative and qualitative analysis** Seong Ying Choi, Nan Zhang,Garreth Dunne, J.P. Toner and Michael Gilchrist, *University College Dublin*	**114**	**Plasma Nitriding Assisted Micro-Texturing into Martensitic Stainless Steel Molds for Injection Molding** Tatsuhiko Aizawa, *Shibaura Institute of Technology* Testuya Yamaguchi, *Sanko-Light Industry, Co. Ltd.*
	012	**Fabrication of an Insulated Micro Spherical Tool by Using Electrophoretic Deposition and Electrical Discharge Machining** Jung-Chou Hung and Jia-Jin Li, *Feng Chia University* Zhi-Wen Fan and Yao-Guang Yang, *Metal Industries Research & Development Centre*	**029**	**Modeling three-dimensional dynamics of rotating micro-endmills including attachment errors** Bekir Bediz and O. Burak Ozdoganlar, *Carnegie Mellon University*	**065**	**Investigation of air entrapment and weld line defects in micro injection moulded thermoplastic elastomer micro rings** Frederik Boris Hasnaes, Guido Tosello, Matteo Calaon, René Elsborg and Hans Nørgaard Hansen, *Technical University of Denmark*	**115**	**High Density Oxygen Plasma Micro-Texturing into CVD-Diamond Coated Dies for Micro-Embossing** Tatsuhiko Aizawa and Edo-Ercy Yunata, *Shibaura Institute of Technology* Hiroshi Morita, *Nano-Coat, LLC.*
	013	**Study on the forming of the cone-shaped electrode in Micro-EDM milling with fix-length compensation method** Jingyu Pei, Zhaowei Zhou, Xiaoshun Zhuang, Lenan Zhang and Zhiliang Wang, *Shanghai Jiao Tong University*	**030**	**Parametric and non-parametric identification of micromilling dynamics** Marco Leonesio, *CNR–ITIA* Andreas Archenti, *KTH–Royal Institute of Technology* Paolo Parenti, *Politecnico di Milano*	**066**	**Mould Design and Material selection for Film Insert Moulding of Direct Methanol Fuel Cell Packaging** Timo Wöhner, Hans Nørgaard Hansen and Aminul Islam, *Technical University of Denmark* Silja Senkbeil and Torsten Lund-Olesen, *Danish Technological Institute*	**116**	**Autonomously Generating Micro-Textured Surfaces with Regular Alignment Shapes by using Molecular Beam Epitaxy for Nanoimprint Die** Naoki Taira and Akira Kakuta, *Tokyo National Collage of Technology*
	014	**Micro EDM milling with low energy discharges and thin microtool** Rabah Dahmani, Yasmina Layouni, Vincent Semet and Michel Cabrera, *Institut des Nanotechnologies de Lyon*	**031**	**Modeling Of Micro Drill Dynamics Based On 2-D Finite Element Method** Xiaoliang Jin and Narahara Koya, *Oklahoma State University*	**067**	**Injection moulding simulation of a microreactor baseplate** Joško Valentinčič and Izidor Sabotin, *University of Ljubljana* Andrej Glojek, *Tecos*	**117**	**Development of Superhydrophobic Surfaces Using Ultrasonic Imprint Lithography** Keun Park, Young-Hak Cho and Jun-Hyung Lee, *Seoul National University of Science and Technology* Bo-Hyun Kim, *Soogsil University*
	015	**Pulse monitoring and discrimination in micro-EDM milling of Si3N4-TiN micro-channels** Valeria Marrocco, Francesco Modica, Vincenzo Bellantone and Irene Fassi, *ITIA CNR*	**032**	**The Effect of Dynamometer Dynamics on the Measurement Accuracy of Micromachining Forces** Emrullah Korkmaz, Y. Efe Bayiz and O. Burak Ozdoganlar, *Carnegie Mellon University*	**068**	**Design and fabrication of a polymeric micro-filter** Rossella Surace, Vincenzo Bellantone, Gianluca Trotta, Vito Basile and Francesco Modica, *Institute of Industrial Technology and Automation–National Research Council*	**118**	**Application of Functional Nano-Patterning to Polymer Medical Micro Implants** Giuliano Bissacco, Francesco Biondani, Michael Mischkot and Hans N. Hansen, *Technical University of Denmark* Peter Torben, *Tang IPU*
12:50–14:30	Lunch							

	Track 6 (Sala A) **Nano Manufacturing I**		Track 8 (Sala B) **Abrasive Waterjet and Abrasive Flow Machining**		Track 12 (Sala C) **Hyproline**		Track 10 (Sala D) **Metrology, Monitoring and Assembly**	
	Chair	Martin Byung-Guk Jun, *University of Victoria*	Chair	Joško Valentinčič, *University of Ljubljana*	Chair	Ola Lyckfeldt, *Swerea*	Chair	Shih Ming Wang, *Chung Yuan Christian University*
14:30–16:10	**093**	**Joule Heating Based Sublimation Thinning of Suspended Nanofibers** Giulia Canton, Marc Madou and Lawrence Kulinsky, *Mechanical and Aerospace Engineering, UCI, Irvine* Christian Mendoza-Buenrostro, *Electrical and Computational Engineering, ITESM*	**109**	**Abrasive Waterjet micro machining of Non-conventional Materials for Industrial Applications** Massimiliano Annoni, Francesco Arleo, Francesco Viganò, Luca Villa, and Stefano Volpi, *Politecnico di Milano*	**140**	**Improving the Surface Integrity of 3D Printed Stainless Steel Parts by Laser Polishing** Debajyoti Bhaduri, Pavel Penchev, Stefan Dimov and Sein Leung Soo, *University of Birmingham*	**125**	**Design for micromanufacturing: A scaling study on tolerance analysis** Nishant Srinivasan and J. Rhett Mayor, *Georgia Institute of Technology*
	094	**Manufacturing and Characterization of Coaxial Microfibers with Different Molecular Weights Using Melt Electrospinning Technique** Junghyuk Ko, Jason Keonhag Lee and Martin Byung-Guk Jun, *University of Victoria* Patrick C. Lee, *University of Vermont*	**110**	**Micro-machining of channels using a high pressure abrasive slurry jet machine (HASJM)** Naser Haghbin, Farbod Ahmadzadeh, Marcello Papini, Jan K. Speltm *University of Toronto*	**141**	**On Comparative Evaluation of Accuracy, Repeatability and Reproducibility of Laser Micromachining Systems** Debajyoti Bhaduri, Pavel Penchev, Stefan Dimov and Sein Leung Soo, *University of Birmingham*	**126**	**Evaluation of the capabilities and damage risk of cleaning methods for micro-CMM stylus tips** Xiaobing Feng and Simon Lawes, *The University of Nottingham* Peter Kinnell, *Loughborough University*
	095	**The effect of distribution of UV light on elastic modulus of UV cured film in Roll-to-Roll UV nanoimprint process** Hiroshi Ito. Shunsuke Kondo and Takehiro Taguchi, *Yamagata University* Kentaro Taki, *Kanazawa University*	**111**	**Modelling and Optimization of Abrasive Flow Machining of Al Alloy** Kalipada Maity and Kanhu Charan Tripathi, *National Institute of Technology, Rourkela*	**142**	**Metal powder characterization for 3D printing** Ola Lyckfeldt, *Swerea IVF AB*	**127**	**Uncertainty in 3D Micro Measurement with Focus Variation Microscopy** Giovanni Moroni, Wahyudin P. Syam and Stefano Stefano Petrò, *Politecnico di Milano*
	096	**Analysis of the bubble defects in R2R UV micro-imprinting process** Hao Wu, Peiyun Yi, Linfa Peng and Xinmin Lai, *Shanghai Jiao Tong University*	**112**	**A Combined Numerical-analytical Methodology for Surface Profile Prediction of Abrasive Slurry Jet Micro-machined Holes** Hooman Nouraei, Kavin Kowsari and Jan K. Spelt, *University of Toronto* Babak Samareh, *Simulent Inc.* Marcello Papini, *Ryerson University*	**143**	**Novel manufacturing route for scale up production of Terahertz technology devices** Pavel Penchev, Xiaobang Shang, Stefan Dimov and Michael Lancaster, *University of Birmingham*	**128**	**2D position sensor based on speckle correlation** Arne Bloem, Christian Schenck and Bernd Kuhfuss, *BIME–University Bremen*
	097	**PCB-based multi-spinnerets for high-efficiency electrospinning piezoelectric nonwoven fiber fabrics** C.K. Yen, J.C. Huang, L. Lin and C.T. Pan, *National Sun Yat-Sen University* Z.H. Liu and F.C. Hsu, *Metal Industries Research and Development Centre Taiwan* L.W. Lin, *University of California*	**NSF Poster Competition** **Electrically-Assisted Roll Bonding of Ultra Thin Sheet Metals** Man-Kwan Ng (student), Kornel F. Ehmann, Lanyun Li, Jian Cao, Zhaoyan Fan, Robert X. Gao, and Edward F. Smith ***Correct Surface Profiles of Light Weight Optics by Adjustable Stress in Coating*** Xiaoli Wang (student), Youwei Yao, Melville P. Ulmer, Michael E. Graham, Semyon Vaynman, and Jian Cao **Wireless Data and Energy Transfer in a Small Sensor Network** Wako Tuni (student), William R. Eisenstadt **Experimental Investigation of Radial Throw in Miniature Spindles used for Micromachining** Subhanshu Mahata (student), Recep Onler, and O. Burak Ozdoganlar			**129**	**Electrostatic Force for Self-alignment of Microparts and Its Dependence on Geometrical and Electrical Parameters** Georgia Kritikou, Panagiotis Lazarou and Nikolaos Aspragathos, *University of Patras*
16:10–16:30	Coffee break (poster sessions)							

	Track 6 (Sala A) Nano Manufacturing II		Track 2 (Sala B) Micro Machining Applications		Track 4 (Sala C) Hot Embossing and Powder Injection Moulding		Track 11 (Sala D) Hi-Micro	
16:30–18:30	Chair	Jeong Woo Park, *Chosun University*	Chair	Burak Ozdoganlar, *Carnegie Mellon University*	Chair	Ben Whiteside, *University of Bradford*	Chair	Guido Tosello, *University of Denmark*
	098	**Study by a cycling voltammetry of carbon-based nanocomposites with Cu-Sn, Co-Sn, Ni-Sn nanoparticles for energy storage** Ivania Markova, Valentina Milanova, Tihomir Petrov and Ivan Denev, *University of Chemical Technology and Metallurgy-Sofia*	**046**	**Modeling and Manufacturing of Mechanically Machined Hologram Based on Repeated Arcs and End-milling** Eun-chae Jeon, Je-Ryung Lee, Hwan-Jin Choi and Tae-Jin Je, *Korea Institute of Machinery and Materials* Hwi Kim, *Korea University*	**076**	**Relationship of surfaces of micro mold and embossed plastic part** Hui Wang, Zuyuan Yu, Jianzhong Li and Desheng Xiang, *Dalian University of Technology* Wataru Natsu, *Tokyo University of Agriculture and Technology*	**134**	**A comparative study of metal and ceramic injection moulding for precision applications** A. Islam, N. Giannekas, D. M. Marhöfer, G. Tosello, H. N. Hansen, *Technical University of Denmark*
	099	**Efficient fabrication methods of various 3D nanodot array structures** Masahiko Yoshino, Zhenxing Li, Motoki Terano and Tadaaki Nagao, *National Institute for Materials Science*	**047**	**The Effect of Intermittent Grinding on Burrs and Force generated by Functional Textured Wheel** Liu Feng, C.H.L. Ian and S. Huang, *SIMTech* Asma Perveen Bursa, *Orhangazi University*	**077**	**A High Throughput Micro-Embossing Manufacturing Cell for Microfluidic Device Manufacture** David Hardt, Maia Bageant, Cailtin Reyda, Katharine Luginbuhl, *Massachusetts Institute of Technology*	**135**	**Increasing accuracy and machining speed in precise electrochemical machining of a micro injection molding cavity** Henning Zeidler, Danny Kuhn, André Martin and Andreas Schubert, *Technische Universität Chemnitz* Gunnar Meichsner, *Fraunhofer Institute for Machine Tools and Forming Technology IWU*
	100	**New fabrication method of metamaterial resonator by self-organization method** Takayuki Ueno, Motoki Terano and Masahiko Yoshino, *Tokyo Institute of Technology*	**048**	**Adaptive Control Optimization in Micro-Machining of Hardened Steels** Ricardo Coppel and Héctor R. Siller, *Tecnológico de Monterrey* José V. Abellan-Nebot, *Universitat Jaume I*	**078**	**Viscoelasitic characterisation, numerical simulation and experimental investigation of micro hot embossing process with amorphous thermoplastic polymers** Gang Cheng, Mohamed Sahli, Jean-Claude Gelin and Thierry Barriere, *FEMTO-ST Institute*	**136**	**Gate design in injection molding of microfluidic components using process simulations** D.M. Marhöfer, G. Tosello, A. Islam, H.N. Hansen, *Technical University of Denmark (DTU)*
	101	**Nanometer-Scale Machining of Gallium Arsenide** Noboru Takano, Keitarou Ooi and Shigeru Yamada, *University of Toyama* Noboru Morita, *Chiba University*	**049**	**Design of A Micro Machine Tool with Double-Toggle Mechanisms** Shih-Ming Wang and Zhe-Zhi Ye, *Chung Yuan Christian University* Chun-Chieh Wang, *Industrial Technology Research Institute* Yunn-Shiuan Liao, *National Taiwan University* Shean-juinn Chiou, *National Chung Hsing University*	**079**	**An Inconel based feedstock and its Identification of rheological constitutive model for powder injection moulding** Dmitri Claudel, Mohamed Sahli, Jean-Claude Gelin and Thierry Barriere, *FEMTO-ST Institute*	**137**	**Analysis of a PECM Electrode Concept for Micro Injection Moulds by Multiphysics Simulation** Henning Zeidler, André Martin, Michael Kowalick, Matthias Hackert-Oschätzchen, Andreas Schubert, *Technische Universität Chemnitz*
	102	**Micro Feature Fabrication by Biomachining along with Fine Tuning of Process Parameters for Increasing Metal Removal Rate** Muhammad Imran and Tae Jo Ko, *Yeungnam University*	**050**	**Overview the fundamental issues in PCB micro-drilling industry** Chao Wang, Mike Wellstead, Dave Goodwin and John Stratton, *Westwind Air Bearings Division* Kai Cheng, *Brunel University*	**080**	**Hybrid Processes for Manufacturing of Multi-material Micro Parts** Volker Piotter, Elvira Honza, Alexander Klein, Mueller Tobias and Plewa Klaus, *Karlsruhe Institute of Technology*	**138**	**A method for dimensional and surface optical measurements uncertainty assessment on micro structured surfaces manufactured by Jet-ECM** Henning Zeidler, *Chemnitz University of Technology* Danilo Quagliotti, Guido Tosello, Aminul Islam and Hans Hansen, *Technical University of Denmark*

16:30–18:30	**103**	**Tissue cutting with bio-inspired biopsy punches with serrated edges accompanied by vibrational motions** Marco Giovannini, Peidong Han, Kornel Ehmann and Jian Cao, *Northwestern University*	**051**	**High precision coupling system** Eike Foremny, Christian Schenck and Bernd Kuhfuss, *BIME University Bremen*	**082**	**Study for Injection Molding of the Intra-oral Scanner Lenses** Sheng Jhih Huang, *National Kaohsiung University of Applied Sciences* Yuan Hsun Tsai, Chung Chi Li and Ching Po Lin, *Metal Industries Research and Development Centre (MIRDC)* Min Wen Wang, *Institute of Mechanical Engineering, National Kaohsiung University*	**139**	**Manufacturing of µIM mould inserts with AMed cooling channels** Jun Qian, Karolien Kempen and Frank Welkenhuyzen, *KU Leuven* Wouter Vanderauwera, *3D SYSTEMS* Ad Kuijpers, *Formatec Technical Ceramics*
19:00–22:00	Lab Dinner @ POLIMI							

Thursday April 2nd 2015 Politecnico di Milano								
8:30–9:00	Registration							
9:00–9:10	**Closing plenary session |** Chair: Irene Fassi, *ITIA CNR*							
9:10–10:10	**Key Note** Professor Arianna Menciassi, *Scuola Superiore Sant'Anna* **Challenges and opportunities for actuation in microrobotics and medical applications**							
10:10 – 10:20	**4M 2016 Announcement**							
10:20–10:40	Coffee break							
10:40–13:00	**Track 1 (Sala A)** **Micro EDM modelling and simulation**		**Track 2 (Sala B)** **Micro Machining Process Characterisation**		**Track 4 (Sala C)** **Micro Injection Moulding II**		**Track 9 (Sala D)** **Surface Treatment and Texturing II**	
	Chair	Samuel Bigot, *Cardiff University*	Chair	Anna Araujo, *Federal University of Rio de Janeiro*	Chair	Giovanni Lucchetta, *Università di Padova*	Chair	Sathyan Subbiah, *Indian Institute of Technology Madras*
	016	**Modelling and Simulation of the Crater Formation Process in Micro-EDM** Bai Shao and Kamlakar Rajurkar *University of Nebraska-Lincoln*	**039**	**Size Effect in Micromilling of Superduplex Stainless Steel** Adriane Mougo, Fábio Campos and Anna Carla Araujo, *Federal University of Rio de Janeiro–COPPE/UFRJ*	**069**	**Influence of micro injection moulding process parameters on mechanical characteristics of POM and POM/CNT composites** Giancarlo Maccarini, Cristina Merla and Chiara Ravasio, *Università di Bergamo* Alessandro Bongiorno, Irene Fassi and Claudia Pagano, *Institute of Industrial Technologies and Automation*	**119**	**Analysis Of Micro-Debris In Vibratory Media Finishing** Pradeep K Prakasam, Abrol Tejaswi and Sylvie Castagne, *Nanyang Technological University* Sathyan Subbiah, *Indian Institute of Technology Madras*
	017	**Geometric-Based Modeling of Micro-EDM: Model Developme nt and Simulation Study** Mohamed Negm, *Becatronics Co.* Ahmed Elkaseer, *Port Said University*	**040**	**Characterization of Vibration Assisted High-speed Microdrilling of Ti6Al4V** Shubham Yadav, Ramesh K Singh and V. Kartik, *Indian Institute of Technology Bombay*	**070**	**Novel characterisation methods of microneedles manufactured by micro-injection moulding** Karthik Nair, Benjamin Whiteside, Cristina Tuinea-Bobe, Peter Twigg and Anant Paradkar, *University of Bradford*	**120**	**Fine Pitch Metal Deposition on LDS Materials** Hagen Mueller, Sascha Weser, Wolfgang Eberhardt and Heinz Kueck, *Hahn-Schickard-Gesellschaft–Institut für Mikroaufbautechnik*

10:40–13:00	**018**	**Approach to technological modeling of micro EDM milling** Izidor Sabotin and Joško Valentinčič, *University of Ljubljana* Gianluca Tristo, *University of Padua*	**036**	**Improvement of procedures for high accuracy micromilling of flat surfaces** A. Banfi, L. Colombo, F. Cacciatore, L. Rebaioli, M. Annoni, *Politecnico di Milano*	**071**	**Analysis of the influence of part thickness on the replication of microstructured surfaces by injection molding** Davide Masato, Marco Sorgato and Giovanni Lucchetta, *Università di Padova*	**121**	**Biprism Interference Micro-Patterning For Periodic Micro-Structure Generation** Ishan Saxena, Jintao Liu, Kornel Ehmann and Jian Cao, *Northwestern University*
	019	**Using voxels in the simulation of manufacturing processes** Anthony Surleraux and Samuel Bigot, *Cardiff University* Jean-Philippe Pernot, *Arts et Métiers ParisTech* D'Urso Gianluca and Cristina Merla, *Università degli studi di Bergamo*	**042**	**Process parameters optimization for micro-milling of EBM Ti6Al4V Titanium Alloy** Zdenka Rysava, Gianluca Tristo and Stefania Bruschi, *University of Padua*	**072**	**Injection molding of nano-structured polylactic acid surfaces for bone regeneration studies** Davide Masato, Marco Sorgato and Giovanni Lucchetta, *Università di Padova*	**122**	**Development of a Titanium (Ti) Ultrasonic Waveguide System for Nano-surface Treatment** Hyunse Kim, Euisu Lim and Jong-Kweon Park, *Korea Institute of Machinery and Materials*
	020	**Research on Pulse Power Supply and Electrode for Electrochemical Machining of Micro Holes** Yong Li, Guodong Liu and Hao Tong, *Tsinghua University* Quancun Kong, *Tsinghua University & Beijing Information Science and Technology University*	**037**	**Microtool wear measurement and assessment** Giovanni Moroni , Stefano Petrò, Wahyudin P. Syam, *Politecnico di Milano*	**073**	**A novel setup for cavity pressure and temperature measurements in micro-injection moulding** Gianluca Trotta, Vito Basile and Irene Fassi, *Institute of Industrial Technology and Automation of National Research Council*	**123**	**Machining effect of vibration electrochemical polishing (VECP)** Uksu Kim and Jeongwoo Park, *Chosun University* Sunho Kim, *KITECH*
	021	**Experimental investigation of the governing mechanism of the E-jet micro electric machining** Yao Zhang, Ning Han, Wansheng Zhao and Xiaoming Kang, *Shanghai Jiao Tong University*	**044**	**Influence of the micro-patterned Inserts on the characteristics of the hard turning process** Dong Min Kim, Ineon Lee and Hyung Wook Park, *Ulsan National Institute of Science and Technology* Sun Keel Kim and Bo Hyun Kim, *Soongsil University*	**074**	**An Experimental Report of the Force Required to Demould Parts Replicated by Injection Moulding** Kevin Delaney, *Dublin Institute of Technology* Franck Lacan, *Cardiff University*	**124**	**Improving the Tribological Performance of Poly-ether-ether-ketone (PEEK) in Boundary/mixed Lubrication Regimes by Laser Surface Texturing** Christopher Harris, Karl Dearn, Pavel Penchev and Stefan Dimov, *University of Birmingham*
			045	**Effects of the cutting edge serrations on the brittle fracture in the glass milling** Takenori Ono, *Teikyo University*	**075**	**Replication Fidelity Assessment in Nano Moulding** Matteo Calaon, Hans Nørgaard Hansen and Guido Tosello, *Technical University of Denmark* Jorgen Garnaes, *Danish Fundamental Metrology* Wei Li, *National Metrology Institute of China*		
13:00–14:00	**Lunch**							
14:15–16:00	**Last Supper visit** (only for the first 100 people to register)							