

Tuesday 13th September 2016

Time 8:00-9:00	
Registration , Technical University of Denmark, Kongens Lyngby	
Time 9:00-9:30	
Opening & Welcome Speeches <ul style="list-style-type: none"> 4M/IWMF2016 Chair, Dr. Guido Tosello, Technical University of Denmark, Denmark 4M/IWMF2016 Co-Chair, Prof. Stefan Dimov, University of Birmingham, UK DTU Mechanical Engineering, Prof. Hans Hansen, Technical University of Denmark, Denmark 	
Time 9:30-10:15	
Invited Speaker "Topology optimization for micro- and nano-systems design", Prof. Ole Sigmund, Technical University of Denmark, Denmark	
Time 10:15-11:15	
Session 1: HINMICO 688. Injection moulding and selective metallisation technologies for polymer Microsystems S. Dessors, L. Tenchine, S. Gout, IPC S. Azcarate, Tekniker G. Tosello, M. Calaon, Technical University of Denmark N. Miller, B. Brown, Flann Microwave Ltd C. Edouard, Flowdit T. Müller, KIT W. Wittner, Ernst Wittner GmbH M. Prantl, Alicona Imaging GmbH X. Shang, A. Batal, University of Birmingham 730. High accuracy and precision micro injection moulding of thermoplastic elastomers micro ring production M. Calaon, G. Tosello, H.N. Hansen, Technical University of Denmark R. Elsborg, Ortofon 742. Combining Metal Injection Moulding and Polymer Over Moulding for the Production of Orthopaedic Implants T. Müller, L.S. Machado, S. Scholz, KIT M. Philipp-Pichler, RHP Technology GmbH T. Wilfinger, Wittmann Battenfeld GmbH W. Wittner, Ernst Wittner GmbH M. Prantl, Alicona Imaging GmbH	Session 2: Micro Manufacturing I 676. High-resolution gravure printing of graphene biosensors T. Knoll, A. Brenner, E. Gorjup, A. Schultz, T. Velten, Fraunhofer-Institut für Biomedizinische Technik R. Warmers, G. Jenke, Saueressig GmbH C. Spacie, Haydale Ltd 679. Fabrication of functional plastic parts using nanostructured stainless steel mould inserts N. Blondiaux, R. Pugin, G. Andreatta, CSEM L. Tenchine, S. Dessors, IPC P.F. Chauvy, M. Diserens, Micropat SA P. Vuillermoz, Vuillermoz SAS 694. Ejection force analysis of sintered aluminium micro gears using a shrink-fit die principle E. Cannella, University of Padova E.K. Nielsen, M. Arentoft, IPU
Time 11:15-11:30	
Coffee Break	
Time 11:30-12:30	
Session 3: Micro Injection Moulding I	Session 4: Manufacture of Microwave Devices

<p>680. Injection moulding of microstructured 3D plastic parts using standard stainless steel inserts L. Tenchine, S. Dessors, IPC N. Blondiaux, R. Pugin, G. Andreatta, CSEM P.F. Chauvy, M. Diserens, Micropat SA P. Vuillermoz, Vuillermoz SAS</p> <p>715. Influence of Process Temperatures on Blister Creation in Micro Film Insert Moulding of a Dual Layer Membrane T. Wöhner, G. Tosello, H.N. Hansen, A. Islam, Technical University of Denmark B.R. Whiteside, University of Bradford</p> <p>728. Effects of Different Mould Coatings on Polymer Filling Flow in Thin-Wall Injection Moulding M. Sorgato, D. Masato, G. Lucchetta, University of Padova</p>	<p>701. Additive manufacturing of Ka-band antennas for wireless communications U. Armendariz, S. Rommel, S. Rodriguez, I.T. Monroy, J.J Vegas Olmos, C.B. Olsen, Technical University of Denmark</p> <p>735. Rapid Prototyping by 3D Printing for Advanced Radio Communications at 80GHz and Above A. Salazar, S. Rommel, E. Anufriyev, I.T. Monroy, J.J Vegas Olmos, Technical University of Denmark</p> <p>743. Process Optimization for Injection Moulding of Passive Microwave Components S. Scholz, T. Müller, L.S. Machado, KIT M. Calaon, G. Tosello, Technical University of Denmark S. Dessors, IPC M. Prantl, Alicona Imaging GmbH N. Miller, Flann Microwave Ltd</p>
Time 12:30-14:00	
Lunch	
Time 14:00-15:00	
<p>Session 5: Hearing Aid</p> <p>672. A conceptual framework for designing micro electrical connectors for hearing aid instruments S. Doagou-Rad, A. Islam, Technical University of Denmark M. Fuglsang-Philip, Oticon</p> <p>677. Feasibility study of injection mouldable conductive plastic for the hearing aid applications T.D. Merca, A. Islam, Technical University of Denmark T. Lindberg, GN Store Nord Lautrupbjerg 7</p> <p>732. Investigation of Bandgap Microstructure for Miniaturized Acoustic-Mechanical Devices: Application to BTE Hearing Aid Design J. Kook, J.S. Jensen, Technical University of Denmark</p>	<p>Session 6: Machining I</p> <p>693. Efficiency and quality of cutting polymer materials with cooled water jet M. Jerman, A. Lebar, P. Drešar, I. Sabotin, J. Valentinčič, University of Ljubljana</p> <p>712. Analysis of the reproducibility of Jet-ECM point removals on defined shape deviations A. Martin, H. Zeidler, M. Hackert-Oschätzchen, A. Schubert, Technische Universität Chemnitz</p> <p>725. Advantages of using a non-rigid cutting mechanism for the machining of glass G. Herrera-Granados, N. Morita, H. Hidai, S. Matsusaka, A. Chiba, Chiba University K. Ashida, I. Ogura, AIST</p>
Time 15:00-15:30	
Coffee Break	
Time 15:30-17:00	
<p>Session 7: Laser Processing I</p> <p>668. Micro-Dimple Texturing for Semi-Dry</p>	<p>Session 8: Simulation/Modelling</p> <p>685. Experimental verification of drop impact</p>

Stamping Dies

T. Aizawa, Shibaura Institute of Technology
H. Morita, Nano Film and Coat Laboratory LLC
T. Inohara, LIPS-Works Co. Ltd

740. Laser Polishing of 3D Printed Miniaturised Titanium Parts

D. Bhaduri, P. Penchev, S.S. Dimov, University of Birmingham
U. Harrysson, Digital Metal

741. A new laser drilling method for producing high aspect ratio micro holes

V. Nasrollahi, P. Penchev, S.S. Dimov, University of Birmingham

744. On the development of a chip breaker in metal-matrix PCD insert

A. Elkaseer, J. Lambarri, J.A. Sarasua, Tekniker

test and analysis for mobile electronics

B. Choi, H. Yeom, Y. Jeon, M.G. Lee, Ajou University

698. Analytical Study on New Type of Porous Aerostatic Bearing

K. Huang, H. Li, Y. Chen, K. Chien, MIRDC
C. Liu, C. Yang, K. Huang, M. Chen, National Changhua University of Education

709. Product cost modelling for micro-EDM drilling

G. D'Urso, G. Maccarini, M. Quarto, C. Ravasio, Università degli Studi di Bergamo

736. Friction and Elasto-plastic Property Modelling for Finite Element Analysis of Micro Extrusion Process

H. Kitano, National Institute for Materials Science

K. Dohda, J. Cao, Northwestern University

4M / IWMMF
2016
DENMARK
13th-15th September 2016

Wednesday 14th September 2016

Time 9:00-9:45	
Invited Speaker	
“Solid-state electrochemical nanopatterning of silver and copper”, Prof. Placid Ferreira, University of Illinois, USA	
Time 9:45-10:45	
Session 9: Advanced Materials and Processes I 669. Plasma Nitriding of Inner Surfaces in the Mini- and Micro-Nozzles for Joining T. Aizawa, Shibaura Institute of Technology K. Wasa, TEC-DIA Co. Ltd 695. Estimate of power spectral density of discharge pulses in micro-EDM milling V. Marrocco, F. Modica, G. Guadagno, I. Fassi, ITIA CNR 706. Development of highly efficient combined polishing method for single-crystal silicon carbide T. Kurita, K. Miyake, K. Kawata, K. Ashida, T. Kato, AIST	Session 10: Injection Moulding II 689. Accurate validation of micro injection moulding process for manufacturing of a thin-wall micro part Q. Su, N. Zhang, M.D. Gilchrist, University College Dublin N. Symms, S4innovation Limited-Reseller for CoreTech System Co. Ltd 733. Design and fabrication of a mould with multiple inserts for a polymeric microfluidic device G.Trotta, F.Modica, I. Fassi, ITIA CNR A.Volpe, R.Martinez, A. Ancona, R.Osellame, IFN CNR 734. Impact of micro milling strategy on the demoulding forces in micro injection moulding D. Masato, M. Sorgato, G. Lucchetta, University of Padova P. Parenti, M. Annoni, Politecnico di Milano
Time 10:45-11:00	
Coffee Break	
Time 11:00-12:30	
Session 11: Micro Parts' Assembly and Manipulation 675. Towards Remote Telecontrol of a Desktop Microfactory via Internet Protocol with Virtual Reality T. Tiemerding, OFFIS M. Mikczinski, MiCROW GmbH S. Fatikow, University of Oldenburg 707. Diameter adaptive guides for wire based linked micro parts P. Wilhelmi, C. Schenck, B. Kuhfuss, University of Bremen 713. Programmable platform design and its electrodes activation algorithm for microparts motion G. Kritikou, N. Aspragathos, University of Patras	Session 12: Laser Processing II 667. Influence of the Pulse Repetition Rate on the Hierarchical Features of Micro-Channels Fabricated by ns Lasers in Different Materials R. Jagdheesh, A. Tur, J.L. Ocaña, UPM 690. A thinner technology from thick to thin films microprocessing of microelectronics hybrids circuitry by laser precision trimming D. Ulieru, O.M. Ulieru, A.Topor, X. Vila, SITEX 45 SRL 699. Nanosecond Laser Milling of the Amorphous Alloy Zr_{41.2}Ti_{13.8}Cu_{12.5}Ni₁₀Be_{22.5} E.R. Williams, E.B. Brousseau, V.L. Keast, C.E. Hughes, K.D.M. Harris, Cardiff University

731. Strategies for micro-handling of solder balls for the automated reballing of BGA packages G. Fontana, S. Ruggeri, I. Fassi, ITIA CNR G. Legnani, University of Brescia	N.P. Lavery, S. Mehraban, Swansea University 716. Laser-induced oxidation of titanium T. A. Jwad, S. Deng, H. Butt, S. Dimov, University of Birmingham
Time 12:30-14:00	
Lunch	
Time 14:00-15:00	
Session 13: Process Chains 682. Development of metal MEMS manufacturing technologies using pierced metal foil and diffusion bonding process at low temperature T. Shiratori, Y. Suzuki, T. Aihara, Komatsuseiki Kosakusho Co. Ltd S. Nakano, M. Katoh, National Institute of Advanced Industrial Science and Technology M. Yang, Tokyo Metropolitan University 691. Effect of Residual Stress on the Distortion of Microembossed Metal Inserts for Assembly Injection Moulding P. Frey, C. Höhler, M. Merklein, FAU 711. The post treatment process of additive manufacturing for intramedullary nail by ultrasonic vibration machining, abrasive flow machining, and electropolishing technology F. Hsu, T. Hung, Y. Lu, MIRDC Y. Liao, National Taiwan University S. Wang, Chung Yuan Christian University M. Lu, National Chung Hsing University H. Fu, National Kaohsiung University of Applied Sciences	Session 14: Micro Manufacturing II 697. Ultrasonic-Assisted Incremental Microforming of Thin Shell Pyramids of Aluminum Foil T. Obikawa, M. Hayashi, University of Tokyo 722. Xurography and lamination for manufacturing Point-of-Care (POC) micromixers J.I. Martínez-López, M. Mojica, H.A. Betancourt, C.A. Rodríguez, H.R. Siller, Tecnológico de Monterrey 723. Corner Deposition On Near-Field Electrospinning For Pin-To-Pin And Pin-To-Plate Electrode Configurations N. Martinez-Prieto, J. Cao, K. Ehmann, Northwestern University
Time 15:00-15:30	
Coffee Break	
Time 15:30-17:00	
Session 15: Machining II 700. Study on the fabrication of hierarchical structure using a micro pyramidal tip with revolving trajectory B. Xue, Y. Yan, X. Zhao, Harbin Institute of Technology 719. Single point diamond turning of injection moulding aluminium inserts for intraocular lens production X. Bazan, G. Cortazar, X. Mendibil, I. Quintana,	Session 16: Advanced Materials and Processes II 708. A study of fluid flow characteristics using micro structured surfaces produced by WEDM M. Al-Fahham, S. Bigot, A.V. Medina, Cardiff University 710. Development and characterization of functional polymer-ceramic composite structures using fused deposition modelling B. Khatrim K. Lappe, M. Habedank, C. Megnin, T. Hanemann, University of Freiburg

Tekniker

I. Martinez de la Pera, Aurrenak S. Coop

724. Profile Evaluation of Radial Fresnel Lenses directly machined on Roller Moulds by Rotating-tool Diamond Turning

R. Huang, X. Zhang, K. Liu, Singapore Institute of Manufacturing Technology

S. Kumar, M. Rahman, National University of Singapore

T. Müller, KIT

714. Fabrication of Micro DLC-Nozzles by Plasma Oxidation Printing

T. Aizawa, Shibaura Institute of Technology

K. Wasa, TEC-DIA Co. Ltd

H. Tamagaki, KOBELCO Co. Ltd



Thursday 15th September 2016

Time 9:00-9:45	
Invited Speaker	
“Nanoimprint lithography: the (planar) world is not enough”, Dr. Helmut Schiff, Paul Scherrer Institute, Switzerland	
Time 9:45-10:15	
Coffee Break	
Time 10:15-12:00	
Session 17: Characterisation/Metrology 681. Tolerance Verification of an Industrial Assembly using Computed Tomography A. Stolfi, L. De Chiffre, F. Regi, Technical University of Denmark 684. Comparison of scatterometry, imaging scatterometry, AFM and confocal microscopy M. H. Madsen, J. S. Madsen, P. E. Hansen, Danish Fundamental Metrology A/S P. Boher, Universitetsparken 5 J. Nygård, Center for Quantum Devices & Nano-Science Center D. Dwarakanath, J. F. Jørgensen, Image Metrology A/S 686. Real time effective dimensional verification of high throughput Nano-Embossing manufacturing M. Calaon, G. Tosello, H.N. Hansen, Technical University of Denmark P. Chamberlain, D. Hardt, MIT M.H. Madsen, Danish Fundamental Metrology A/S 726. Investigation on the micromilled surface characterization through replica technology F. Baruffi, P. Parenti, F. Cacciatore, M. Annoni, Politecnico di Milano G. Tosello, Technical University of Denmark 738. Correction of systematic behaviour in topographical surface analysis D. Qualiotti, F. Baruffi, G. Tosello, R. Sobiecki, H.N. Hansen, Technical University of Denmark S. Gasparin, LEGO M. Annoni, P. Parenti, Politecnico di Milano	Session 18: Systems 678. Investigations on Flexural Fatigue Strength of Conductor Paths Fabricated by LPKF-LDS® Technology H. Mueller, T. Groezinger, S. Weser, W. Eberhardt, A. Zimmermann, Hahn-Schikard M. Ketata, University of Stuttgart 720. Design and manufacture of a flexure-based XYZ-force sensor J. Correa, N. Kapur, S. Kapoor, P.M. Ferreira, University of Illinois 727. Development of a micro pump actuated by oxidative expansion of Fe powder H. Kan, T. Shimizu, M. Yang, Tokyo Metropolitan University 729. Micro-Scale Tensile Fatigue Test System using a Micro-Manipulator with Scanning Electron Microscope K. Tsuchiya, N. Hayakawa, K. Fujimura, University of Tokyo T. Kakiuchi, Y. Uematsu, Gifu University 737. Application of MEMS Microphone Array for Tool Wear Monitoring in Turning P. Wang, M. Lu, National Chung Hsing University S. Wang, Chung Yuan Christian University Y. Liao, Y. Tsai, National Taiwan University
Time 12:00-14:00	
Lunch	
Time 14:00 - End of the 4M/IWMF2016 Conference	