

World Congress on Micro and Nano Manufacturing

Congress Chair

Joško Valentinčič, *University of Ljubljana, Slovenia*

Congress Co-Chairs

Stefan Dimov, *University of Birmingham, UK*

Martin Byung-Guk Jun, *Purdue University, USA*

Kuniaki Dohda, *Northwestern University, USA*

Congress Programme

Remisens Hotel Metropol, Portorož, Slovenia

18th – 20th September 2018

Tuesday 18th September 2018

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| Time 8:00-9:00 | | |
| Registration | | |
| Time 9:00-9:30 | | |
| Opening & Welcome Speeches <ul style="list-style-type: none"> WCMNM 2018 Chair, Professor Joško Valentinčič, <i>University of Ljubljana, Slovenia</i> University of Ljubljana Mechanical Engineering Dean, Prof. Kalin Mitjan, <i>Slovenia</i> WCMNM 2018 Co-Chair, Professor Martin Byung-Guk Jun, <i>Purdue University, USA</i> WCMNM 2018 Co-Chair, Professor Kuniaki Dohda, <i>Northwestern University, USA</i> | | |
| Time 9:30-10:30 | | |
| Plenary Session I | | |
| Chair: Joško Valentinčič | | |
| Invited talk: "3D Printing of Complex Micro- and Nano-Optics", Professor Harald Giessen, University of Stuttgart | | |
| Time 10:30-11:30 | | |
| Session 1: μMilling I Chair: Shiv Kapoor Room: Tartini 24. Wear Mechanism of Tungsten Carbide Tool in Flood Cooling for Titanium Alloy and Cryogenic with Nano-Enhanced MQL Machining <i>Gi-Dong Yang</i> <i>Dong Yoon Lee</i> <i>Seok-Woo Lee</i> <i>Patrick Kwon</i> <i>Kyung-Hee Park</i> 59. Micro Inclined Hole Machining on Thin Wire <i>Takashi Matsumura</i> <i>Masaki Serizawa</i> | Session 2: μInjection Molding Chair: Giuliano Bissacco Room: Largo 5. Challenges in the Fabrication of Microstructured Polymer Optics <i>Marcel Roeder</i> <i>Peter Schilling</i> <i>Karl-Peter Fritz</i> <i>Thomas Guenther</i> <i>Andre Zimmermann</i> 26. Effect and Modeling of Ultrasound-Assisted Ejection in Micro Injection Molding <i>Giovanni Lucchetta</i> <i>Davide Masato</i> <i>Marco Sorgato</i> <i>Nicola Milan</i> | Session 3: Nanotech Chair: Simon Park Room: Allegro 20. Study on Structure and Optimization of Hybrid Silica Particles on Chemical Mechanical Polishing of Sapphire <i>Natthaphon Bun-Athuek</i> <i>Hiroko Takazaki</i> <i>Takuo Yasunaga</i> <i>Yutaka Yoshimoto</i> <i>Panart Khajornrungruang</i> <i>Keisuke Suzuki</i> 55. Pulsed Light Sintering of Silver Nanowires on Polycarbonate for Transparent Conductive Electrodes <i>Michael Dexter</i> |

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| <p>91. Micromachinability of Biodissolvable Carboxymethyl Cellulose (CMC)</p> <p><i>Toygun Cetinkaya Ant Yucesoy Burak Ozdoganlar</i></p> | <p>46. Effect of Laser-Induced Periodic Surface Structures on Wall Slip of Polypropylene in Thin-Wall Injection Molding</p> <p><i>Davide Masato Marco Sorgato Afif Batal Stefan Dimov Giovanni Lucchetta</i></p> | <p><i>Zhongwei Gao Chih-hung Chang Rajiv Malhotra</i></p> <p>86. Long-term hydrophilicity of TiO₂ nanotubes induced by oxygen plasma treatment</p> <p><i>Metka Benčina Ita Junkar Tomaž Lampe Matic Resnik Matjaž Valant Veronika Kralj Iglič Miran Mozetič Aleš Iglič</i></p> |
| Time 11:30-12:00 | | |
| Coffee Break | | |
| Time 12:00-13:00 | | |
| <p>Session 4: μManufacturing I Chair: Lawrence Kulinsky Room: Tartini</p> <p>3. Influence of the Planetary Movement of Tool on the Aspect Ratio of Micro Holes Machined by Micro-USM</p> <p><i>Senwang Lei Zuyuan Yu Kai Zhou Jianzhong Li Renke Kang</i></p> | <p>Session 5: Surface Functionalization I (UKIERI) Chair: Suhas Joshi Room: Largo</p> <p>16. Combined Surface Hardening and Laser Patterning for Producing Wear Resistant Hydrophobic Surfaces</p> <p><i>Antonio Garcia-Giron J.M. Romano Y. Liang B. Dashtbozorg H. Dong P. Penchev S. Dimov</i></p> | |

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| <p>7. Fine Micro-Fabrication of Stainless Steel Nozzle Array by Plasma Printing</p> <p><i>Tatsuhiko Aizawa</i> <i>Kenji Wasa</i></p> <p>19. Deburring of the Holes on CFRP Using the Electron Beam Irradiation</p> <p><i>Jisoo Kim</i> <i>Hyung Wook Park</i></p> | <p>22. A Preliminary Investigation of the Chip Formation Mechanism and Cutting Force Signatures in Orthogonal Micromachining of Bulk Metallic Glass (BMG)</p> <p><i>Nilanjan Banerjee</i> <i>Karuna Dhale</i> <i>Rinku Mittal</i> <i>Ramesh Singh</i></p> <p>89. Response of Saos-2 Osteoblast-Like Cells to Nanosecond, Femtosecond Pulsed Laser Surface Texturing and Hydroxyapatite Coating on CoCrMo Alloy Surfaces</p> <p><i>Afif Batal</i> <i>Rachel Sammons</i> <i>Stefan Dimov</i></p> |  |
| Time 13:00-14:15 | | |
| Lunch | | |
| Time 14:15-15-15 | | |
| <p>Session 6: Surface Functionalization II Chair: Tatsuhiko Aizawa Room: Tartini</p> <p>64. Surface Micro Texturing through Wire Mask-Assisted Rolling for Anti-Friction Applications</p> <p><i>Ashwin Prabhakaran</i> <i>Anvesh Gaddam</i> <i>Amit Agrawal</i> <i>Suhas Joshi</i></p> | <p>Session 7: Laser Processing I Chair: Sylvie Castagne Room: Largo</p> <p>9. Triangular self-organized surface textures produced by femtosecond laser irradiation on stainless steel and titanium alloy</p> <p><i>Jean-Michel Romano</i> <i>Antonio Garcia-Giron</i> <i>Pavel Penchev</i> <i>Stefan Dimov</i></p> | <p>Session 8: Microman I Chair: Massimiliano Annoni Room: Allegro</p> <p>17. Evaluation of an Improved Micro Milling Strategy for the Generation of Tool Steel Micro Features with Optical Functionality</p> <p><i>Dongya Li</i> <i>Ali Davoudinejad</i> <i>Yang Zhang</i> <i>Guido Tosello</i></p> |

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| <p>66. Autonomously Generating Nano-Micro Textured Ultra Flat Smooth Surfaces by Applying Molecular Beam Epitaxy with Helicon Sputtering Molecular Beam Source for Nanoimprint Die</p> <p><i>Akira Kakuta</i> <i>Maruta Shuhei</i></p> <p>90. Surface Nanostructuring of TiN Coated Microstructured Mold, Application to a Biodiagnostic Platform</p> <p><i>Nicolas Blondiaux</i> <i>Raphaël Pugin</i></p> | <p>15. Effects of Focusing Lenses and Laser Fluence in Drilling High Aspect Ratio Micro Holes</p> <p><i>Vahid Nasrollahi</i> <i>Pavel Penchev</i> <i>Stefan Dimov</i> <i>kyunghan kim</i></p> <p>85. Finishing of Titanium ALM parts by laser ablation</p> <p><i>Petko Petkov</i> <i>Pavel Penchev</i> <i>Franck Lacan</i> <i>Samuel Bigot</i></p> | <p>71. Near Real Time Milling Stability Indicator</p> <p><i>Shashwat Kushwaha</i> <i>Benjamin Gorissen</i> <i>Jun Qian</i> <i>Dominiek Reynaerts</i></p> <p>92. Micromilling of Metallic Feedstock Produced by Extrusion Additive Manufacturing</p> <p><i>Sandeep Kuriakose</i> <i>Paolo Parenti</i> <i>Salvatore Cataldo</i> <i>Massimiliano Annoni</i></p> |
| Time 15:15-15:45 | | |
| Coffee Break | | |
| Time 15:45-17:30 | | |
| <p>Session 9: μMachining I Chair: Takashi Matsumura Room: Tartini</p> <p>13. Improving the Surface Quality of Additive Manufactured Metal Parts by Ultrasonic Vibration-Assisted Burnishing</p> <p><i>Akinori Teramachi</i> <i>Jiawang Yan</i></p> <p>29. Experimental Study on Hole Quality of Carbon Fiber Reinforced Plastics During Micro-Hole Drilling Process</p> | <p>Session 10: Modeling & Simulation I Chair: Roussi Minev Room: Largo</p> <p>4. The Cutting Force Simulation in Laser Assisted Milling of Inconel 718</p> <p><i>Tsungpin Hung</i> <i>Yu-Ting Lu</i> <i>Zhipeng Pan</i> <i>Yixuan Feng</i> <i>Steven Y. Liang</i></p> <p>48. Investigation on Staggered Herringbone Micromixer Design Suitable for μEDM Milling</p> | <p>Session 11: Microman II Chair: Matteo Calaon Room: Allegro</p> <p>8. Prediction of shrinkage and warpage effects of a micro component via injection molding process simulation</p> <p><i>Antonio Luca</i> <i>Henrik Siesenis</i> <i>Oltmann Riemer</i></p> <p>18. On the Applicability of Micro-Injection Moulding Simulations to Multivariate Integrated Process/product Optimization</p> |

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| <p>Jaewoo Seo Hyung Wook Park</p> <p>44. AFM Tip-Based Cutting of Grooves on Permalloy Nanowires for Controlling the Motion of Magnetic Domain Walls</p> <p>Josh Jones Emmanuel Brousseau Dan Read</p> <p>76. Experimental Investigation of Bubble-Mixed Cutting Fluid Delivery for Micro-Deep-Hole Drilling</p> <p>Chi-Ting Lee Soham Sanjeev Mujumdar Shiv G. Kapoor</p> | <p>Izidor Sabotin Gianluca Tristo Andrej Lebar Marko Jerman Miha Prijatelj Josko Valentincic</p> <p>72. The Geometrical Predictions of the 3D Milling Process for Carbon Fiber Reinforced Polymer (CFRP) Machining</p> <p>Kyeongeun Song Xingyu Fu Dong Min Kim Gyuho Kim Jung Soo Nam Tae-Gon Kim Hyo-young Kim Seok-Woo Lee Byung-Kwon Min Martin Byung-Guk Jun</p> <p>80. Radial Throw in Micromilling: The Effects on Surface Location Error, Sidewall Surface Roughness and Uncut Chip Thickness</p> <p>Sudhanshu Nahata Recep Onler Burak Ozdoganlar</p> | <p>Federico Baruffi Matteo Calaan Guido Tosello René Elsborg</p> <p>31. Characterisation of Zirconia-Based Ceramics after Micro-Grinding</p> <p>Pablo Fook Oltmann Riemer</p> <p>94. Simulation Study of Dynamic Behaviour of Water Droplet on Laser Machined Surface</p> <p>Yukui Cai Xichun Luo</p> |
| <p>End of Day I</p> | | |

Wednesday 19th September 2018

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| Time 9:00-10:00 | | |
| Plenary Session II Chair: Martin Byung-Guk Jun Invited talk: "3D Printed Graphene-based Structures for Sensor Applications", Professor Ehsan Toyserkani, University of Waterloo | | |
| Time 10:00-11:00 | | |
| Session 12: Modeling & Simulation II Chair: Kuniaki Dohda Room: Allegro 2. Verification of the Accuracy of FE-Models in Bulk-Forming of Micropins from Sheet Metal <i>Martin Kraus</i> <i>Thomas Hufnagel</i> <i>Marion Merklein</i> 14. Predictive Cutting Force Modeling for Cryogenic Machining Process Considering Micro-Structural Analysis of Ti-6Al-4V Alloy <i>Do Young Kim</i> <i>Dong Min Kim</i> <i>Hyung Wook Park</i> 40. FEM Modeling of Micro-Extrusion of Square Section from Al 6063 round Bar Using Cosine Die Profile <i>Kalipada Maity</i> | Session 13: Surface Engineering Chair: Ramesh Singh Room: Largo 11. Large-Area Electron Beam Melting: Frequency Analysis and Critical Frequency Prediction <i>Brodan Richter</i> <i>Frank Pfefferkorn</i> 12. Stress Relaxation Behavior of Cavitation Processed Low Alloy Steel <i>Kumiko Tanaka</i> <i>Bin Shinohara</i> <i>Yudai Kitano</i> <i>Daichi Shimonishi</i> <i>Daisuke Nakagawa</i> <i>Masataka Ijiri</i> <i>Toshihiko Yoshimura</i> 47. Low Temperature Plasma Nitriding of Mini-/micro-Tools and Parts <i>Tatsuhiko Aizawa</i> <i>Hiroshi Morita</i> | Session 14: Sensors & Systems Chair: Steffen Scholz Room: Allegro 6. Development of Hydraulic-Driven Devices Using Metal Bellows Structure <i>Tohru Sasaki</i> <i>Naotoshi Matsumoto</i> <i>Yudai Fujiwara</i> <i>Masao Hebisawa</i> <i>Kenji Terabayashi</i> <i>Kuniaki Dohda</i> 53. Rapid Micro-Patterning of Hybrid Copper Nano-Inks Using Selective IPL <i>Zachary Kockerbeck</i> <i>Allen Sandwell</i> <i>Simon Park</i> 74. Development of a 3D Digital Image Correlation Setup for a Multiaxial Miniature Testing System <i>Farhan Rahman</i> <i>Tasnim Hassan</i> |

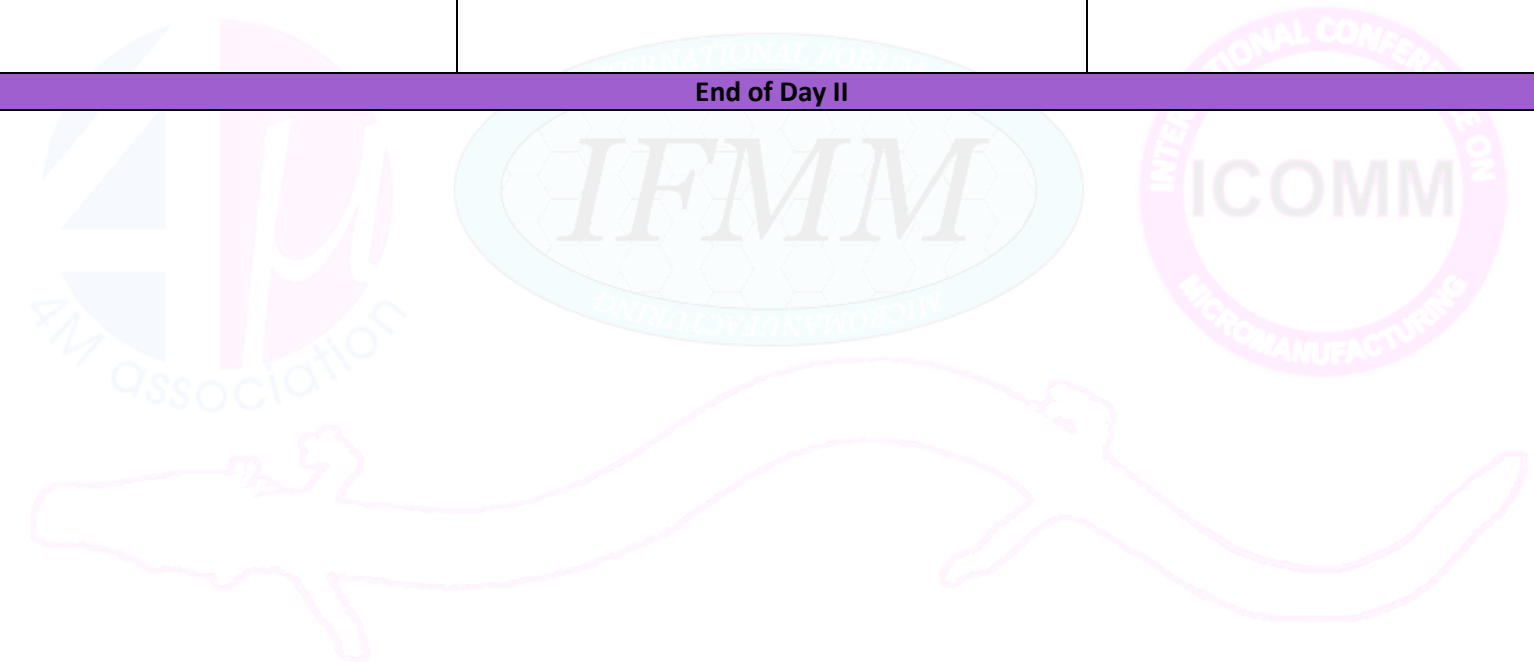
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| | <i>Kenji Wasa</i> | <i>Gracious Ngaile</i> |
| Time 11:00-11:30 | | |
| Coffee Break | | |
| Time 11:30-13:00 | | |
| Session 15: μEDM Chair: Samuel Bigot Room: Tartini 30. Study on Zirconium Boride Machined by Micro-EDM <i>Mariangela Quarto</i> <i>Giuliano Bissacco</i> <i>Gianluca D'Urso</i> <i>Claudio Giardini</i> 49. A Study on Improving Accuracy of Micro Probes Using Wire Electric Discharge Grinding <i>Krishnaraj Vijayan</i> <i>Mouleeswaran Senthilkumar</i> <i>Sindhumathi Ramalingam</i> <i>Josko Valentincic</i> 50. Effects of Electrode and Workpiece Materials on the Sustainability of Micro-EDM Drilling Process <i>Gianluca D'Urso</i> <i>Giancarlo Maccarini</i> <i>Mariangela Quarto</i> <i>Chiara Ravasio</i> | Session 16: μMilling II Chair: Paolo Parenti Room: Largo 23. Methodologies for Characterization of Smearing Micro Geometry on Ball End Milled Tool Steel Surfaces <i>Francesco Giuseppe Biondani</i> <i>Giuliano Bissacco</i> <i>Hans Noergaard Hansen</i> 36. Experimental Comparison of Micromilling Pure Titanium and Ti-6Al-4V <i>Fabio Oliveira Campos</i> <i>Anna Carla Araujo</i> <i>Shiv G. Kapoor</i> 70. Drag Reduction in Lubricant-Infused Textured Microchannels Fabricated by Micro Milling <i>Reshma Yasmin Siddiquie</i> <i>Anvesh Gaddam</i> <i>Amit Agrawal</i> <i>Suhas Joshi</i> | Session 17: μFabrication Chair: André Zimmermann Room: Allegro 21. Influence of Micro Structure on Metal Flow of Micro Forward-Backward Extrusion of 6063 Aluminum Alloy <i>Tatsuya Funazuka</i> <i>Norio Takatsuji</i> <i>Kuniaki Dohda</i> 51. Effect of Carbon Microposts Integrated Onto Asymmetric Electrodes for AC Electroosmotic Pumping <i>Matias Vazquez-Pinon</i> <i>Lawrence Kulinsky</i> <i>Marc Madou</i> <i>Sergio Martinez-Chapa</i> 77. Mechanics of Oxide Skin During Micro-Extrusion-Based 3D-Printing of Liquid Metals and Alloys <i>Abhishek Gannarapu</i> <i>Bulent Arda Gozen</i> |

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| <p>75. Experimental Investigation of Atomized Dielectric-Based Electrical Discharge Machining (EDM)</p> <p><i>Asif Tanveer Soham Sanjeev Mujumdar Shiv G. Kapoor</i></p> | <p>79. Forces in Green Micromachining of Aluminum Nitride Ceramics</p> <p><i>Recep Onler Sundar V. Atre Burak Ozdoganlar</i></p> | <p>88. Fabrication of Nonplanar Microfluidics Using Sonication-Assisted Dissolution</p> <p><i>Pin-Chuan chen Ching-Chan Chou</i></p> |
| <p>Time 13:00-14:15</p> | | |
| <p>Lunch</p> | | |
| <p>Time 14:15-15-15</p> | | |
| <p>Session 18: μManufacturing II Chair: Zuyuan Yu Room: Tartini</p> <p>27. Development of Low-Temperature Diffusion Bonding Process Using Plasma Activation and High-Frequency Induction Heating</p> <p><i>Tomomi Shiratori Takuya Aihara Tomoaki Satoh Tatsuhiko Aizawa</i></p> <p>43. Experimental Study of Micro-Groove Surface Using Three Dimensional Elliptical Vibration Texturing</p> <p><i>Rendi Kurniawan Saood Ali Ki Moon Park Jung Sang Tae Tae Jo Ko</i></p> | <p>Session 19: μMachining II Chair: Ming-Chyuan Lu Room: Largo</p> <p>38. Effect of Tool Wear on Dynamic Stability in High Speed Micromilling of Ti-6Al-4V</p> <p><i>Chinmay Maheshwari Rinku Mittal Ramesh Singh</i></p> <p>63. Comparative Analysis of Machine Structures for High Speed Micromachining</p> <p><i>Rushikesh Ingle Rinku Mittal Ramesh Singh</i></p> <p>84. Experimental Study on Micro-Drilling of Carbon Fiber Reinforced Plastic (CFRP) Composite Using Nano-Solid Air Spray Lubrication</p> | <p>Session 20: HIMALAIA Chair: Pavel Penchev Room: Allegro</p> <p>10. Towards large area submicron surface texturing by femtosecond laser irradiation of microparticle arrays</p> <p><i>Jean-Michel Romano Rajib Ahmed Antonio Garcia-Giron Pavel Penchev Olivier Delléa Stefan Dimov</i></p> <p>33. New Ways to Nanotexture Model Polymer Surface</p> <p><i>Florence Dubelley Ali Nourdine Julien Giboz Sylvain Carrier Yannick Molm  ret</i></p> |

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| <p>67. Process Chain for Micro-Manufacturing: A Combination of Micro-AWJ and Micro-WEDM</p> <p>Francesco Modica Vito Basile Francesco Viganò Francesco Arleo Massimiliano Annoni Irene Fassi</p> | <p>Jinwoo Kim Byoung Joo Kang Sang Won Lee</p> | <p>Lionel Tenchine Bertrand Fillon Mele Mele</p> <p>41. Laser Induced Ripples' Gratings for Fabrication Periodic Pattern of Diffraction Holograms</p> <p>Tahseen Jwad Pavel Penchev Vahid Nasrollahi Stefan Dimov</p> |
| Time 15:15-15:45 | | |
| Coffee Break | | |
| Time 15:45-17:30 | | |
| <p>Session 21: Additive manufacturing I Chair: Kornel Ehmann Room: Tartini</p> <p>34. Rapid Multi-Material 3D Printing with Projection Micro-Stereolithography Using an Enclosed Printing Chamber</p> <p>Daehoon Han Jay Tobia Nicholas Fang Howon Lee</p> <p>57. Investigation into the influence of process parameters on surface roughness of down-facing surfaces in Selective Laser Melting</p> <p>Amal Charles</p> | <p>Session 22: μMachining III Chair: Burak Ozdoganlar Room: Largo</p> <p>32. Time Dependent Evolution of Metal Bonded Microgrinding Tool Topography Due to Wear</p> <p>S Anandita Rakesh Mote Ramesh Singh</p> <p>61. Effects of the Half Vertex Angle of Edge Serrations on the Brittle Fracture in the Glass Cutting</p> <p>Takenori Ono</p> | <p>Session 23: μHandling & Assembly Chair: Gracious Ngaile Room: Allegro</p> <p>28. Miniaturized Optical Encoder with Micro Structured Encoder Disk</p> <p>André Bülau Jonathan Seybold Karl-Peter Fritz Alexander Frank Cor Scherjon Joachim Burghartz Andre Zimmermann</p> <p>35. Clamping of Microspheres with Low Melting Metals</p> |

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| <p>Ahmed Elkaseer Tobias Mueller Lore Thijs Veit Hagenmeyer Steffen Scholz</p> <p>62. Capability of Desktop 3D Printers to Produce Mezo-Micro Features for Bio Implantable Meshes</p> <p>Roussi Minev Dimitar Kamarinchev Ekaterin Minev Mariana Ilieva Emil Yankov</p> <p>81. Electrical Property Control of 3D Printed Stainless Steel 420 Structures Using Chemically Induced Sintering</p> <p>Truong Do Xiaolu Huang Hawke Suen Yaozhong Zhang Tyler Bauder Haseung Chung Patrick Kwon Junghoon Yeom</p> <p>93. Mechanical characterization of PLA/CNT composite scaffolds fabricated by Fused Deposition Modeling</p> | <p>65. A Comprehensive Study of Scratch Speed Effects on Ductile-Brittle Transition in Silicon</p> <p>Chirag Akreja Sathyan Subbiah</p> <p>87. Experimental Investigation of Cutting Force and AE Signals for Cutting Mode Transform in the Machining of Zirconium Oxide</p> <p>Li-Ting Yang Ming-Chyuan Lu Shih-Ming Wang</p> | <p>Finn Meiners</p> <p>52. The Study of Particle-Particle Interaction and Assembly under the Influence of Dielectrophoretic Force Experienced between Carbon Microelectrodes</p> <p>Chih-I Cheng Jennifer Cortez Iridian Chino Dorantes Edgar Rodriguez Sina Habibi Zad Lawrence Kulinsky</p> <p>83. A Product Development Approach in the Field of Micro Assembly with Emphasis on Conceptual Design</p> <p>Christoph Gielisch Karl-Peter Fritz Andre Zimmermann</p> |
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| Claudia Pagano Lara Rebaioli Irene Fassi | | |
| End of Day II | | |



WCMNM 2018
Portorož, Slovenia
18th - 20th September 2018

Thursday 20th September 2018

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| Time 9:00-10:00 | | |
| Plenary Session III Chair: Stefan Dimov Invited talk: "Surface finishing procedures for custom made medical implants", Dr. Ita Junkar, Josef Stefan Institute | | |
| Time 10:00-10:30 | | |
| Coffee Break | | |
| Time 10:30-12:15 | | |
| Session 24: Additive manufacturing II Chair: Irene Fassi Room: Tartini 37. A Preliminary Study of Robotic Restoration Using Micro-Scale Laser Cladding of CPM 9V on Carbon Steels <i>Sachin Alya</i> <i>Bhargavi Ankamreddy</i> <i>Ramesh Singh</i> 42. Surface Finish of AM parts using Plasma electrolytic Polishing <i>Henning Zeidler</i> <i>Falko Böttger-Hiller</i> 58. Digital Detection and Correction of Errors in As-built Parts: a Step Towards Automated Quality Control of Additive Manufacturing <i>Ahmed Elkaseer</i> <i>Tobias Mueller</i> <i>Steffen Scholz</i> | Session 25: Laser Processing II Chair: Sathyan Subbiah Room: Largo 45. Numerical and Experimental Analysis of Laser Surface Modification of Ti6Al4V for Biocompatible Applications <i>Nakul Ghatge</i> <i>Amber Shrivastava</i> 54. Microfabrication Techniques Using a Femtosecond Laser for Fabrication of High Precision Optical Components <i>Hang-Eun Joe</i> <i>Kaveh Nazari</i> <i>Yonghyun Cho</i> <i>Farid Ahmed</i> <i>Martin Byung-Guk Jun</i> 56. Impact on Cells Viability of Laser Surface Modification of Rare Earth Containing Magnesium Alloy through Simulated Body Fluid <i>Indira Khadka</i> | |

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| <p>69. Using 3D Metal Printing and Micro Milling Processes to Manufacture Structures with Pyramid Features</p> <p><i>Yin Chuang</i> <i>X. B. Wang</i> <i>Jack Y. C. Lin</i></p> <p>78. Effect of DC Voltage Polarity and AC Fields on Near-Field Electrospinning</p> <p><i>Nicolas Martinez-Prieto</i> <i>Jian Cao</i> <i>Kornel Ehmann</i></p> | <p><i>Zhongke Wang</i> <i>Hongyu Zheng</i> <i>Sylvie Castagne</i></p> <p>73. Enhancement of Tribological Properties of Stainless Steel 904L by Laser Surface Nano-Texturing</p> <p><i>Hasnaa Meliani</i> <i>Michael Fontaine</i> <i>Mohamed Assoul</i> <i>Guy Monteil</i> <i>Takashi Matsumura</i></p> |  |
| Time 12:15-14:00 | | |
| Lunch | | |
| End of WCMNM 2018 | | |

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