

Date/Time	Session Topic	Paper No.	Title	Authors
Tuesday				
March 26 Tuesday 9:00 - 10:00	Keynote Speech Pender Island		Virtual High Performance Machining	Prof. Yusuf Altintas, University of British Columbia
Break Vancouver Island				
March 26 Tuesday 10:20 - Noon	Session 1: Micro Cutting Pender Island South	Session Chair: Norikazu Suzuki		Co-Chair: Kuan-Ming Li
		42	Estimation of Transient Cutting Temperature by Remote Thermocouple Sensing Technique	Chia Wang, Wei-Ying Chu, Kuan-Ming Li (Taiwan)
		16	Characterization and Micro End Milling of Graphene Nano Platelet (GNP) and Carbon Nanotube (CNT) Filled Nanocomposites	Mehdi Mahmoodi, Majid TabkhPaz, Simon Park (Canada)
		29	Development of Elliptical Vibration System for Vibration Assisted Micro Machining	Chaneel Park, Shane Oh, Simon Park (Canada)
		80	Surface Finish of Ball-End Milled Microchannels	Wayne Hung, Dmytro Berestovskiy (USA)
	Session 2: Injection Molding and Micro Features Pender Island North	Session Chair: Burak Ozdoganlar		Co-Chair: John Coulter
		106	Elastomer Molding of Micro- and Nano-Scale Features	Recep Onler, Bulent Arda Gozen, Burak Ozdoganlar (USA)
		127	The Sandwich Method for Fabrication of Thin-Film Polymers with through Features	Rakesh Khilwani, Peter Gilgunn, Burak Ozdoganlar (USA)
		9	Micro Injection Molded Microtopographic Polymer Plates used to Mechanically Direct Stem Cell Activity	John Rodgers, Meghan Casey, Sabrina Jedlicka, John Coulter (USA)
		59	The Application of Commercial Injection Molding Software to Micro-Component Design and Process Development	Sina Khalilian, Simon Park, Theodor Freiheit (Canada)
	Session 3: Micro Grinding Galiano Rom 233	Session Chair: Rhett Mayor		Co-Chair: Sang Won Lee
		120	Stochastic Scale Effects in Microgrinding Wheel Static Topography using Machine Vision	Jacob Kunz, J.Rhett Mayor (USA)
		41	A Study on Micro-Grinding Tool Condition Diagnosis Using Wavelet Packet Decomposition and Back Propagation Neural Network Methods	Chengjun Li, Pil-Ho Lee, Dae Seong Baek, Sang Won Lee (Korea, South)
		11	Material Removal During Abrasive Impregnated Brush Deburring of Micromilled Grooves in NiTi Foils	George Mathai, Shreyes Melkote, David Rosen (USA)
		116	Observation of Tool Life of Micro End Mills	Blair Martin, Justin Morrow, Frank E. Pfefferkorn (USA)
	Session 4: Micro EDM Gabriola Room 237	Session Chair: Yin Chuang		Co-Chair: Kalipada Maity
		86	A New Combined Process on Micro-EDM and Surface Polishing	Yao-Yang Tsai (Taiwan)
		26	Optimisation of Micro-EDM operation for fabrication of micro-holes in Inconel-718 using GA and PCA Hybrid approach	Kalipada Maity (India)
		7	Optimization of Planetary Movement Parameters for Micro Hole Drilling by Micro EDM	Xuejie Guo, Zuyuan Yu, Zhongwei Lv, Jianzhong Li, Wataru Natsu (China)
		38	The Development of Hybrid EDM apparatus	Yin Chuang, Hai-Qing Zou, Yen-Xian Chen, Jack C.Y. Lin, Chuen-Fuu Wu, Kun-Min Huang (Taiwan)
Lunch Vancouver Island				
March 26 Tuesday 1:00 2:40	Session 5: Micro Forming Pender Island South	Session Chair: Deug Woo Lee		Co-Chair: Dong Sung Kim
		72	Fabrication of Spinnerets for Melt-Spun Shaped Microfibers Based on LIGA Process	Sung Jea Park, Moon-Hee Na, Dong Sung Kim (Korea, South)
		23	Study on Micro/nano Hierarchical Pattern Applied to Thin Film by Using Micro-Forming Process	Sang Min Lee, Deug Woo Lee, Seung Jun Lee, Soochang Choi (Korea, South)
		98	Meso- and Micro-scaled Progressive Forming of Bulk Parts via Directly Using of Sheet Metals	Ming Wang Fu, Wai Lun Chan (China)
		125	Electropolymerization Based Micromanufacturing of Three-Dimensional High Surface Area Electrodes	Vinh Ho, Victor Perez-Gonzalez, Lawrence Kulinsky, Marc Madou (USA)
	Session 6: Texture and Patterns Pender Island North	Session Chair: Seung-Kook Ro		Co-Chair: Gap Yong Kim
		101	Manufacturing Smart Surface Texture for the Reduction of Friction Using Micro Abrasive Air Jet Machining	Soochang Choi, Seung-Kook Ro, Jong Kweon Park (Korea, South)
		13	Texture Transfer Method by Using Image Processing for Bio-Inspired Surface Fabrication	Hendra P. Syahputra, Tae Jo Ko (Korea, South)
		25	Novel Machining Technique for Surface Patterning by Diamond Turning	Wee Keong Neo, Rui Huang, A. Senthil Kumar, Mustafizur Rahman (Singapore)
		17	Generation of Parallel Micro-channels on Cylindrical Surfaces using Elliptical Vibration Texturing	Ping Guo, Kornel Ehmann (USA)
	Session 7: Thin Films and Metals Galiano Room 233	Session Chair: Sathyan Subbiah		Co-Chair: Johnson Samuel
		35	Sol-Gel Synthesis of ZrO2 Coatings for Micro End Milling	Justin Morrow, Isabel Tejedor-Anderson, Marc Anderson, Frank E. Pfefferkorn (USA)
		100	Indentation of Highly Oriented Pyrolytic Graphite Parallel to Basal Plane	Jayasena Buddhika, Sathyan Subbiah (Singapore)
		58	Magnetic Pulse Cutting of Micro Metal Foils	Bernd Kuhfuss, Christian Schenck, Philipp Wilhelm, Lasse Langstaedtler (Germany)
		47	Investigation on a Microextrusion Process of Parallel Protrusions from Metal Strip	Tommaso Stellin, Ulf Engel, Marion Merklein (Germany)
	Session 8: Laser Processing Gabriola Room 237	Session Chair: Michael Chen		Co-Chair: Evgueni Bordatchev
		32	Fabrication of Long Period Gratings in Pure Silica Fiber and Their Application in Refractive Index Sensing	Farid Ahmed, Seungwon Jun, Peter Wild, Martin Byung-Guk Jun (Canada)
		43	Design and Fabrication of Stent with Negative Poisson's Ratio	Sukhwinder Bhullar, Farid Ahmed, Junghyuk Ko, Martin Byung-Guk Jun (Canada)
		129	Fabrication of Micro-Structures on Stainless Steel using Femto-second Laser Direct Writing Technology	Jenq Shyong Micahel Chen, Xian-Zhe Tsai, Chung-Wei Cheng, Chih-Wei Chien (Taiwan)
		99	An Analytical Model for Calculating the Temperature Distribution and Determining the Laser Forming Mechanism	Morgan Lok, Hideki Aoyama (Japan)
Break Vancouver Island				
		Session Chair: Gap-Yong Kim		Co-Chair: Simon Park

March 26 Tuesday 3:00 4:15	Session 9: Micro Machines and Systems Pender Island South	123	Design of Magnetically Suspended Micro Spindle for 5-DOF Oscillation Micro Milling	Seung-Kook Ro, Soochang Choi, Gyungho Khim, Jong Kweon Park (Korea, South)	
		24	Design and Characterization of Flexensional Stage Based on Terfenol-D Actuator	Adam Wittthauer, Gap-Yong Kim, LeAnn Faidley, Qingze Zou, Zhihua Wang (USA)	
		126	Process Chain for the Manufacture of Polymeric Tubular Micro-Components and "POLYTUBES Micro-Factory" Concept	Yi Qin, Erik Perzon, Ioannis Chronakis, Ivan Calderon, Konstantin Konrad (United Kingdom)	
	Session 10: Laser Machining and Polishing Pender Island North	Session Chair: Frank Pfefferkorn		Co-Chair: Evgueni Bordatchev	
		62	Micro-polishing of Inconel 718 by Picosecond Laser	Abdullah M. Hafiz, Evgueni Bordatchev, Remus O. Tutunea-Fatan (Canada)	
		33	Irregular, Adaptive Scan Trajectories for Pulsed Laser Micro Polishing	Madhu Vadali, Chao Ma, Xiaochun Li, Frank E. Pfefferkorn, Neil Duffie(USA)	
		36	Effect of Thermocapillary Flow on the Surface Profile in Pulsed Laser Micro Polishing	Chao Ma, Madhu Vadali, Neil Duffie, Frank E. Pfefferkorn, Xiaochun Li (USA)	
	Session 11: Laser Forming and Machining Galiano Room 233	Session Chair: Sylvie Castagne		Co-Chair: Martin Jun	
		48	Influence of Process Parameters on the Deformation of Copper Foils in Flexible-Pad Laser Shock Forming	Balasubramanian Nagarajan, Sylvie Castagne, Zhongke Wang (Singapore)	
		44	Numerical Modeling of Excimer Laser Curved Surface Ablation	Vivek Garg, Deepak Marla, Suhas Joshi (India)	
	Session 12: Micro Forming Modeling Gabriola Room 237	Session Chair: Ming Wang Fu		Co-Chair: Jean-Claude Gelin	
		128	Development of a Micro-Tube Hydroforming Die System	Gracious Ngale (USA)	
		93	A Hybrid Fracture Prediction Model of Multi-Phase Metals in Micro-Crossed Forming Processes	Jiaqi Ran, Ming Wang Fu (China)	
	87	Characterization of Rheological Behavior and Numerical Results of the Mixing for Polymers and Loaded Polymers	H. Djoudi, Jean-Claude Gelin, Thierry. Barriere (France)		
Wednesday					
March 27 Wednesday 8:20 - 10:00	Session 13: Micro Forming Pender Island South	Session Chair: Eric Mouri		Co-Chair: Yannis Korkolis	
		39	Study of Residual Stress in Silicon Steel under Rivet Forming Process by Using the Numerical Simulation	Rong-Shean Lee, Yu-Yi Chu, Hwa-Teng Lee, Hung-Sheng Chen, Kuo-Yin Tu Hsin-Te Wang, Jiang-Ming Wey, Kun-Min Huang (Taiwan)	
		52	Influence of the Number of Impacts During Incremental Forming on the Mechanical Properties of Copper Wires	Eric Mouri, Bernd Kuhfuss, Hubert Bomas, Bernd Koehler (Germany)	
		71	Investigation of Strain Gradients and Temperatures During Electrically-Assisted Microbending	Brad Kinsey, Yannis Korkolis, Adam Jordan (USA)	
	Session 14: Injection Molding Pender Island North	Session Chair: Hiroshi Ito		Co-Chair: Thierry Barriere	
		60	Replication of Micronic and Submicronic Structured Surfaces Using Micro-Injection and Micro-Injection Compression Molding	K. Metwally, B. Gauthier-Manuel, Thierry Barriere, C. Khan-Malek (France)	
		37	Injection Molded Nano Petri Dishes: A New Platform for Studying Cell-Nanoengineered Surface Interaction	Kyoung Je Cha, Moon-Hee Na, Dong Sung Kim (Korea, South)	
		45	Surface Replication of Microneedle Features in Micro Injection Molding	Hiroshi Ito, Akihiko Nemoto, Tetsuo Takayama (Japan)	
	Session 15: Micro EDM & ECM Galiano Room 233	Session Chair: K. P. Rajurkar		Co-Chair: JeongWoo Park	
		20	Micro-EDM Pulse Energy Distribution Ratio Determination	Bai Shao, K.P Rajurkar (USA)	
		88	Electrochemical Polishing of Microcomponents	Wayne Hung, Dmytro Berestovskyi (USA)	
		114	Vibration Electrochemical Polishing for Minimizing Surface Defects	UkSu Kim, JeongWoo Park (Korea, South)	
		61	Effect of Material Microstructure on the Micro-EDM Process	Ahmed Elkaseer, Samuel Bigot, Anthony Surteraux (United Kingdom)	
Break Vancouver Island					
March 27 Wednesday 10:20 - Noon	Session 16: Micro Milling Processes Pender Island South	Session Chair: Gloria Wiens		Co-Chair: Alexandre Gilbin	
		90	Calculation and Simulation of Chip Ploughing Volumes in Micro Ball-End Mill Machining	Shan Luo, Abdolreza Bayesteh, Martin Byung-Guk Jun, Zuomin Dong (Canada)	
		69	Influence of Feed Rate in Micro-Milling Studied from Experiments and Micro-Cutting Laws Identification	Alexandre Gilbin, Michael Fontaine, Sébastien Thibaud, Gerard Michel, Philippe Picart (France)	
		92	Demonstration of Advanced Capabilities of 5-axis Micromilling: Geometries with High-Aspect Ratio and/or Optical Surface Quality	Evgueni Bordatchev, Mohammed Tauhiduzzaman, Till Kugler, Alexander Katz, Roland Bohr (Canada)	
	Session 17: Micro Cutting Pender Island North	Session Chair: Shiv G. Kapoor		Co-Chair: Ming-Chyuan Lu	
		94	Performance Evaluation of Meso-Scale CBN Flexible Cutting Tool when Machining Micro-Grooves in Steel	Hari Raghavendra, Shiv G. Kapoor (USA)	
		54	Fundamental Study on Tool Damage in High-speed Ceramic Milling of Inconel 718	Risa Enmei, Norikazu Suzuki, Eiji Shamoto, Hasegawa Yu, Ryota Shibata, Yuki Hatano, Kazuhisa Itakura (Japan)	
		27	Analysis of Cutting Path Effect on Spindle Vibration Based Tool Wear Monitoring System in Micro Milling	Ci-Rong Huang, Ming-Chyuan Lu (Taiwan)	
	Session 18: Micro-scale Processes and Systems Galiano Room 233	Session Chair: Johnson Samuel		Co-Chair: Martin Jun	
		30	Hydrophobic Hierarchical Structure Manufacturing by Femtosecond Laser Ablation	Maxym Rukosuyev, Jason Lee, Martin Byung-Guk Jun (Canada)	
		103	Manufacturing Process of Narrow Distribution Micro Alloy Powder	Takafumi Komatsu (Japan)	
		22	A Fundamental Study and Modeling of the Micro-droplet Formation in Near-field Electro-hydrodynamic Jet Printing	William Carter, G. Colin Popell, Johnson Samuel, Sandipan Mishra (USA)	
		50	Conductive Thin Film Assisted Focused Ion Beam Fabrication of Nanofeatures on Insulating Materials	Hang-Eun Joe, Jaehyeung Park, Seonghyun Kim, Sang Jo Lee, Byung-Kwor Min (Korea, South)	

Lunch Vancouver Island					
March 27 Wednesday 1:00 - 2:00	Keynote Speech Pender Island	Solid Freeform Fabrication and Its Application to Tissue Engineering	Prof. Dong Woo Cho, Pohang University of Science and Technology		
March 27 Wednesday 2:20 - 3:35	Session 19: Tissue Engineering Pender Island South	Session Chair: Stephanie Willerth		Co-Chair: Jong Young Kim	
		73	Development of Solid Freeform Fabrication-Based Multi-Head Tissue/organ Building System for Osteochondral Tissue Regeneration	Jin-Hyung Shim, Jung-Seob Lee, Jong Young Kim, Dong-Woo Cho (Korea, South)	
		78	Fabrication of Complex Shaped Scaffold using Sacrificial Layer Process for Auricular Regeneration	Jung-Seob Lee, Jin Woo Jung, Jung Min Hong, Jin-Hyung Shim, Jeong-Hoon Oh, Dong-Woo Cho (Korea, South)	
		3	Nanofabrication of Electrospun Fibers for Controlled Release of Retinoic Acid	Nima Mohtaram, Junghyuk Ko, Michael Carlson, Martin Byung-Guk Jun, Stephanie Willerth (Canada)	
	Session 20: Additive Manufacturing Pender Island North	Session Chair: Yong Chen		Co-Chair: Tommaso Baldacchini	
		83	Fast Micro-Stereolithography Process based on Bottom-up Projection for Complex Geometry	Yayue Pan, Yong Chen (USA)	
		96	Recent Development in Two-Photon Lithography	Tommaso Baldacchini (USA)	
	Session 21: MicroFabrication Galiano Room 233	Session Chair: Rustom Bhiladvala		Co-Chair: Simon Park	
		2	Micro-Imprinting onto DLC and CNT Coatings via High Density Oxygen Plasma Etching	Tatsuhiko Aizawa, Kento Mizushima, Tugur Redatiano, Ming YANG (Japan)	
		14	Manufacturing of Micro-Pyramid Patterns and Verification of Their Optical Effects	Eun-chaee Jeon, Je-Ryung Lee, Sangwon Woo, Eun-Sok Park, Hwi Kim, Tae-Jin Je, Yeong-Eun Yoo (Korea, South)	
		66	High-speed Fabrication of Microchannels using Line-based Laser Induced Plasma Micromachining (L-LIPMM)	Ishan Saxena, Rajiv Malhotra, Kornel Ehmann, Jian Cao (USA)	
	Break Vancouver Island				
March 27 Wednesday 4:00 - 5:15	Session 22: Micro Cutting Modeling Pender Island South	Session Chair: Anna Araujo		Co-Chair: Massimiliano Annoni	
		64	Micro Milling Cutting Forces on Machining Aluminium Alloy	Anna Carla Araujo, Adriane Lopes Mougou, Fabio Oliveira Campos (Brazil)	
		91	Effect of the Tool Locus on the Cutting Thickness in the Ball Endmill Process	Takenori Ono (Japan)	
		104	Experimental Verification of a Slip-Line Field Model of Orthogonal Cutting in the Microscale	Massimiliano Annoni, Gabriele Biella, J.Rhett Mayor, Lara Rebaioli, Quirico Semeraro (Italy)	
	Session 23: Nano Manufacturing Pender Island North	Session Chair: Jian Cao		Co-Chair: Emmanuel Brousseau	
		95	Towards CNC Automation in AFM Probe-Based Nano Machining	Emmanuel Brousseau, Benoit Arnal, Stephane Thierry, Eric Nyiri, Olivier Gibaru, J.Rhett Mayor (United Kingdom)	
		85	An Experimental Analysis of Diamond Tip Wear During Nanomilling of Single Crystal Silicon	Bulent Arda Gozen, Burak Ozdoganlar (USA)	
	Session 24: Electrospinning Galiano Room 233	Session Chair: Young Hun Jeong		Co-Chair: Lawrence Kulinsky	
		122	Fabrication of Nanofibrous Patterns Using Direct-Write Electrospinning	Young Hun Jeong, Jongwan Lee (Korea, South)	
		15	Parametric Studies of Melt Electrospinning Poly ε (caprolactone) Fibers for Tissue Engineering Applications	Junghyuk Ko, Nima Mohtaram, Patrick C.D. Lee, Stephanie Willerth, Martin Byung-Guk Jun (Canada)	
		124	Fabrication of Aligned and Suspended Carbon Fibers with Electro-Mechanical Spinning	Giulia Canton, Lawrence Kulinsky, Marc Madou (USA)	
	Thursday				
March 28 Thursday 8:20 - 10:00	Session 25: Micro Cutting Pender Island South	Session Chair: Burak Ozdoganlar		Co-Chair: Takashi Matsumura	
		1	Microstructural Analysis of Ultrasonic Vibration Assisted Turning of Ti alloy Ti-6Al-4V	Sandip Patil, Suhas Joshi, Asim Tewari (India)	
		18	Anisotropy in Micro Cutting of Sapphire	Takashi Matsumura, Tetsuya Yamaguchi, Yuki Endo (Japan)	
		28	2-Dimensional Ploughing Volume Simulation Model Development in Micro Flat End Milling	Abdolreza Bayesteh, Dan Gym, Martin Byung-Guk Jun (Canada)	
		55	Adiabatic Cutting of Wires with Submillimeter Diameters	Philipp Wilhelm, Bernd Kuhfuss, Christian Schenck (Germany)	
	Session 26: Micro Forming and Rolling Pender Island North	Session Chair: Gracious Ngaile		Co-Chair: Johnson Samuel	
		131	Study of Tribological Conditions in the Micro Contact Interface between Tool and Workpiece with Micro Asperity-Valley	Tomohiro Nonaka, Yutaka Sakata, Yasuo Marumo, Liqun Ruan (Japan)	
		40	Effect of Grain Size on Mechanical Properties and Springback Behavior of Thin Metal Sheets With Varying Reduction Ratios	Cho-Pei Jiang, You-Min Huang, Chang-Cheng Chen (Taiwan)	
		8	Modeling of Size Effects by Dislocation Density Based Non-Local Crystalline Plasticity	Haiming Zhang, Xianghui Dong (China)	
	Session 27: Micro Drilling Galiano Room 233	Session Chair: Rolf Wuthrich		Co-Chair: Paul Mativenga	
		56	Improving the Performance of Sequential Mechanical Micro Drilling for Nickel Base Super Alloys	Paul Mativenga, Manu haridas Nair (United Kingdom)	
		109	Burr Formation Analysis in High Speed Micro Drilling of Ti6Al4V	Shubham Yadav, Vivek Bajpai, milind kashid, Ramesh Singh (India)	
		68	Towards Force Feedback Algorithms for SACE Glass Micro-drilling	Jana D. Abou Ziki, Rolf Wuthrich (Canada)	
		67	Micro-scale Drilling of Bulk Metallic Glass	James Zhu, Hyun J. Kim, Shiv G. Kapoor (USA)	
	Break Vancouver Island				
	Pender Island South	Session Chair: Simon Park		Co-Chair: Woo Soo Kim	
121		Hybridizing Micromachining and Microfabrication for Sensor Chips	N. Moghimian, E.A. Etrati, M. Sam, Rustom Bhiladvala (Canada)		
57		Carbon Nanotube (CNT) Nanocomposite Based Force Sensors	Kaushik Parmar, Majid TabkhPaz, Simon Park (Canada)		

March 28 Thursday 10:20 - Noon	Pender Island South	21	Directly Printed Flexible Accelerometer with Silver Nano Inks	Woo Soo Kim, Chupeng Lei (Canada)	
		130	Development of Defect Detection System for Sheet Products	Tomohiro Nanoka, Yutaka Sakata, Yasuo Marumo (Japan)	
	Session 29: Injection Molding System Pender Island North	Session Chair: Kuniaki Dohda		Co-Chair: Tatsuhiko Aizawa	
		51	Demoulding Forces in Hot Embossing: Model Development and Validation	Fuad Omar, Ahmed Elkaseer, Alexander Kolew, Emmanuel Brousseau, Polina Prokopovich, Stefan Dimov (United Kingdom)	
		5	Micro Mold-Stamping of Plastic Mini-Turbofans via Table-Top CNC-Pressing System	Tatsuhiko Aizawa, Mari Nakajima, Shu-Ichi Kurozumi, Shota Iwa, Kuniyoshi Itoh (Japan)	
		81	Manufacturing Guidelines for Micro Injection Molds	Gerardo Antonio Garcia, Hector R. Siller (Mexico)	
		84	Effect of Die Shape and Tribological Condition on Micro Extrusion of 6063 Aluminum Alloy	Nori Takatsuji, Kuniaki Dohda, Takahiro Makino, Tatsuya Funaduka (Japan)	
		53	Ultra-precision Grinding of Aspheric Cemented Carbide Lens Mold for Plastic Injection Molding	Akihiko Nemoto, Yasuhiko Murata, Hitoshi Ohomori, Hiroshi Ito (Japan)	
	Session 30: Micro-EDM and Micro-Milling Galiano Room 233	Session Chair: Irene Fassi		Co-Chair: Sathyan Subbiah	
		74	Field Induced Jet Micro-EDM	Wansheng Zhao, Xiaoming Kang, Kaixian Xu (China)	
		19	Investigation of Fill Factor and Tool Path Effects on Micro-EDM Milling of Micro-Cavities	Valeria Marrocco, Francesco Modica, Irene Fassi (Italy)	
		63	Evaluation Of Rotating Probes for Acoustic Emission Contact Sensing	Salah Elfurjani, Behzad Valinasab, Martin Byung-Guk Jun (Canada)	
		89	Feasibility of Lignin as Additive in Metalworking Fluids	Yanqiao Zhang, Martin Byung-Guk Jun (Canada)	
	Lunch Vancouver Island				