POSTERS W 4:35 PM – 5:45 PM, TH 4:30 PM – 6:00 PM, F 10:30 AM – 12:00 PM

	TITLE	AUTHORS	SESSION TOPIC
P-1-1	Laws Flaws And Cause	Jimmie Miller, Nicholas Smith	Determinism
P-1-2	Control Over The Surface Shape Of A Large Solid Plate By Active Deformation	Kolja Zoller, Henrik Gropp, Jonas Reiser, Mathias Winter	Precision Design
P-1-3	Application For Applying Correctors With Coupled Error To Tolerance Analysis And Error Budgets	Tyler Seawright	Precision Design
P-1-4	Elastic Averaging Couplings	Amber Velez, Mariia Smyk, Alexander Slocum	Precision Design
P-1-5	Establishing A Customizable Error Budget For Precision Optical Metrology Tools	McCain Pratt, Michel Pharand, Tyler Seawright	Precision Design
P-1-6	Investigation Of Friction Load Of A Grease-Lubricated Roller Bearing Linear Motion Guide	Young Hun Jeong, Cheol Woo Park, Seung-Han Yang, and Tae Jo Ko	Precision Design
P-1-NAA	Dynamic, Modular Metrology Platform For Short-Range Flexure Stages	Samuel Parsons, Thuy Nguyen, Gabriel McAnuff, Ashton Williams, Matthew Redash, Stuart Smith	Precision Design
P-2-1	Internal Stresses In Elastic Elements	Nico Tan	Precision Design
P-2-2	Meso-Scale, Thermally-Actuated Architecture For Mechanical Neural Networks	Pietro Sainaghi, Andrew Gray, Zhidi Yang, Michael Cullinan, Jonathan Hopkins	Micro-Nano Technologies
P-2-3	Micro- And Nanoscale Patterning Of Ito Films By Solid-State Electrochemical Reduction Using Polymer Electrolyte Membrane	Shimpei Hayakawa, Daishi Hakozaki, Atsuki Tsuji, Junji Murata	Micro-Nano Technologies
P-2-4	Maskless Soft Lithography For Fabricating Micro- And Nanoscale Ag Structures Via Solid-State Electrochemical Etching Using A Polymer Electrolyte Membrane	Tatsuya Fujii, Daishi Hakozaki, Atsuki Tsuji, Masaru Takizawa, Junji Murata	Micro-Nano Technologies

P-2-5	Measuring Accumulation Effects Of Atomic Force Microscopy	Sofia Frey, Alessandra Grady, Darrin Nguyen, Barbara Groh, Michael Cullinan	Micro-Nano Technologies
P-2-6	Determining Young'S Modulus For Bending Dominated Microstructures	Ryan Lee, Nikhil Patel, Robert Panas	Micro-Nano Technologies
P-2-7	Moving Substrate Metrology Using Flexure-Mounted Mems-Based Atomic Force Microscopy	Barbara Groh, , Luis Arturo Aguirre, Liam G. Connolly, Xiangyu Gao, James Garcia, Michael Cullinan	Micro-Nano Technologies
P-2-NAA	High-Speed, Nano-Meter Sensitive Contact Area Measurement	John Kolinski	Micro-Nano Technologies
P-2-NAA	Integrating Transduction Within Fabricated Micro-Sized Mechanical Logic Gates	Melika Ahmadi, Ivan Biggs, Jonathan Hopkins	Micro-Nano Technologies
P-3-1	Additive Manufacturing Of Precision Glass Micro-Optics	Rongguang Liang	Micro-Nano Technologies
P-3-2	Development Of Technical Cleanliness Levels And Cleaning Routines For Line Manufacturing Of Bipolar Plates From Half Plates	Eckart Uhlmann, Julian Polte, Tobias Neuwald, Philipp Burgdorf	Precision Manufacturing
P-3-3	Double Face Grinding With Planetary Kinematics Of A Ni-Mn-Ga Alloy With Magnetic Shape Memory Effect	Eckart Uhlmann, Julian Polte, Tobias Neuwald, Benjamin Hein	Precision Manufacturing
P-3-4	Rock Sample Grinder For Explorations Of Lunar Vertical Holes	Katsushi Furutani, Ryuichi Hattori	Precision Manufacturing
P-3-5	Precision Alignment Of Orthogonal Holographic Metasurfaces For Volumetric Lithography	Gavin Stafford, Michael Cullinan	Precision Manufacturing
P-3-6	All-Laser Precision Fabrication Of Silica Glass Microfluidic Chips	Kai Liao, Chi Fai Cheung	Precision Manufacturing
P-3-7	Fundamental Investigation Of Manufacturing And Application Of Ball Nose End Mills Made Of Binderless Carbide For Machining Almgsi1	Eckart Uhlmann, Mitchel Polte, Toni Hocke, Niklas Maschke	Precision Manufacturing

P-3-8	Realization Of High-Precision Dual Bifilar Coil Assembly With High Fill Factor	Gerard Breukelman, Stefan R. Slot, Ivan A.M. van der Kroon	Precision Manufacturing
P-3-9	Defeating Diamond-Tool Cutting Edge Wear Due To Graphitization	James Austin	Precision Manufacturing
P-3-NAA	Constructing Capsule Fill Tube Assemblies For Fusion Research	M. Aggleton, D. Barker, J. Nguyen, N. Farmer, C. Heinbockel, C. Henning, S. Bhandarkar	Precision Manufacturing
P-3-NAA	Two Photon Lithography Of Ceramic Micro-Flexural Stages	Cameron Crook, John Cortes	Precision Manufacturing
P-4-01	Precision Mounting Of Angular Encoder Components For Sub-10 Nanometer Measurement Of Roll-To-Roll Webline Position	Xiangyu Gao, James Garcia, Samiksh Medudula, Luis Arturo Aguirre, Barbara Groh, Michael Cullinan	Precision Manufacturing
P-4-02	Extending Measurement Range With Reference-Frame Feedback Registration Integrating A Mobile Robot-3D Laser Tracker System	Pilgong Choi, Jeng-O Kim, Myeong Jun Kim, Kyunghan Kim	Metrology Systems and Surface Characterization
P-4-03	Micro-Feature Enhancement Using Q-Plate Imaging	Sevda Mamaghani , Konstantinos Falaggis	Metrology Systems and Surface Characterization
P-4-04	A New Mems-Based Interfacial Force Microscope	Joshua Cielo, Michael Cullinan	Metrology Systems and Surface Characterization
P-4-05	Vibrometer-Based Measurement Of Turned Diameters	Aaron Cornelius, Osian Leahy, Burak Sencer, Gregory Vogl	Metrology Systems and Surface Characterization
P-4-06	Integrated Inspection System For Micro Pin Characterization	Yoonah Park, Hak-Jun Lee	Metrology Systems and Surface Characterization
P-4-07	Revisiting Least-Squares Association For Precision Engineering: Contributiors To Algorithmic Error	Andrew Thompson, Jaime Berez	Metrology Systems and Surface Characterization
P-4-08	Low-Cost Surface Scanning For Wire-Arc Additive Manufacturing	Bradley Jared, Zachary Koller, Anukkah Burleson, Tommy Tucker, Morris Satin, Badri Narayanan	Metrology Systems and Surface Characterization

P-4-09	A Tool For Geometric Elements Extraction & Construction From Mesh-Based Data	Rehab Khattab, Edward P. Morse	Metrology Systems and Surface Characterization
P-4-10	On-Machiine Metrology For Tool Characterization	Daodang Wang, Yihan Wang, John Chan, Hongzhang Ma, Rongguang Liang	Metrology Systems and Surface Characterization
P-4-11	Ball Roundness And Surface Topography Obtained By Interferometric Testing	Robert Parks	Metrology Systems and Surface Characterization
P-4-12	Diverging Laser Beam Displacement Measuring Interferometer For Enlarged Angle Acceptance	Lowe Blom, Kevin Looman, Lennino Cacace	Metrology Systems and Surface Characterization
P-4-13	High-Speed Single-Beam 3-Dof Homodyne Interferometer	Tim Geel, Kevin Looman, Lennino Cacace, Kevin Looman	Metrology Systems and Surface Characterization
P-4-14	Large Area High-Speed Afm With Arbitrary Scan Path Playback	Edward Heaps, Graham Bartlett, , Jayesh Patel, Craig Goodman, , Alison Raby, Andrew Yacoot, Petr Klapetek	Metrology Systems and Surface Characterization
P-4-15	Scancloudt – A New Project To Improve Traceability For Industrial 3D Digitalization By Advanced Scanning Systems	Florian Pollinger, Nabil Anwer, Aelio Aristides Arce Criado, , Bidane Asua, Sten Bergstrand, Jan Böhm , José Luis Rubio Guivernau, Björn Hemming, , Sebastian Heinzel, Daniel eißelmann, Christoph Holst, Heikki Hyyti, Ulla Kallio, Frank Keller, , Paul Köchert, Hannu Koivula, , Virpi Korpelainen, , Antero Kukko, Louis-Ferdinand Lafon, Matthias Langer, , Sławomir Łapiński, Daniel Mählich, Maria del Mar Pérez Hernández, , Jakub Markiewicz, Charyar Mehdi-	Metrology Systems and Surface Characterization

		Souzani, Alberto Mendikute, Unai Mutilba, Michał Nawotka, Hichem Nouira, Grégory Pandraud, , Katherine Pexman, Javier Prado, , Anita Przyklenk, Stuart Robson, Martin Sanfridson, Radek Slesinger, Łukasz Ślusarski, Jörgen Spetz, Mariusz Wiśniewski,	
P-4-16	Dependence Between Hybrid Parameters Of Areal Surface Texture	Rafal Reizer, Pawel Pawlus	Metrology Systems and Surface Characterization
P-4-17	Accurate Measurement Of Ball Volumetric Wear	Pawel Pawlus, Rafal Reizer	Metrology Systems and Surface Characterization
P-4-NAA	Harmonic Response of Base Table and its impact on Experiments	Apoorv Garg, Ian Dunn, Hassan Khan, Sudhanshu Nahata, Hari Alluri	Metrology Systems and Surface Characterization
P-5-01	Coating Edge Distortion Measurement For Slot Die Roll To Roll Process During Manufacturing	Hussam Muhamedsalih, Liam Blunt, Xiangqian Jiang	Metrology Systems and Surface Characterization
P-5-02	Singular Value Decomposition In Decoupled Control For Nanometer Level Positioning With Coupled Dynamics	Ruben N. Buitenhuis, Michal Gajdušek, Dennis van de Ketterij, Martijn Krijnen, and Michel Dansberg	Controls and Mechatronics
P-5-03	Low-Order Shape Control In A Deformable Wafer Table	Bas Huisman, Micha Steur, Johannes Vermeulen	Controls and Mechatronics
P-5-04	Design Of Maglev Stage Control System With Vibration Cancellation	Takanori Kato, Motohiro Takahashi	Controls and Mechatronics
P-5-05	Magnetically Levitated 6 Dof Controlled Sample Manipulator For Tomography	T.A.M. Ruijl , M.C.F. Princen , B.C.M. van Aert , R.M. Schneider Y-M Abiven , J. Pérez , S. Ducourtieux and L. E. Muñoz	Controls and Mechatronics
P-5-06	Reinforcement Learning Based Controller For High-Precision Dual-	Seung Woo Seo, Yong Ho Jeon, Moon Gu Lee	Controls and Mechatronics

	Servo Stages For Semiconductor Manufacturing		
P-5-07	Control Design For Precision Control Of A Ferrofluid And Electromagnetic Liquid Mirror Telescope	Abhishek Patkar, , Vikas Chandan, , Denis Brousseau, , Gabriel Tayama, Sudharsan Kalidoss, , Ram Mohan Telikicherla, , Zhiyong Wang, David Aikens, Sreekar Karnati, Xiaopeng Li, Baokai Cheng, , Catherine Croson, Ben Walleshauser, , Greg Radighieri,, Dhanushkodi Mariappan , Simon Thibault,	Controls and Mechatronics
P-5-08	Attenuation Of Dc Offset In Vibration Isolation System By Applying Kalman Filter	Gunho Kim, Hyoyoung Kim, Kihyun Kim, Jaehyun Park	Controls and Mechatronics
P-5-09	Design For Dynamic Testing	Tariq Abuhamdia	Controls and Mechatronics
P-5-10	Development Of A Workpiece Holder To Reduce Vibration In The Robot Processing Of Workpiece	Jeawook Mun, Hak-Jun Lee	Controls and Mechatronics
P-5-11	Magnetic-Spring-Based Hybrid Drive Mechanism For Robotic Applications	Dong-Youn Kuk, Hyun-Ho Lee, Kyung-Taek Yoon, Min-Ho Seo, Byeong-Hoon Bang, Young Man Choi	Controls and Mechatronics
P-5-12	Bumpless Transfer Control Of A Piezoelectric Wafer Stage With Variable Stiffness Device	Thijs Romberg, Ron de Bruijn, Sebastiaan van den Eijnden, Jeroen van de Wijdeven, Marcel Heertjes, Johannes Vermeulen	Controls and Mechatronics
P-5-4	Dynamic Error Budgeting-Based Bandwidth Optimal Control For Over-Actuated Lightweight Motion Systems	Jingjie Wu, Lei Zhou	Controls and Mechatronics

P-6-01	Comparison Of Deep Learning Models For Solder Bump Defect Detection	ChanYoung Jeong, Yong Ho Jeon, Moon Gu Lee	Applications of Precision Engineering and Measurement Science
P-6-02	A Multistep Machine Learning Model For Process Parameter Optimization In Powder-Based Additive Manufacturing	Nicholas Satterlee, Xiaowei Zuo, Jason Chan, Runjian Jiang, Elisa Torresani, Eugene Olevsky, John S. Kang	Applications of Precision Engineering and Measurement Science
P-6-03	Real-Time Pipe Leak Detection And Localization Using Sensor Fusion And Machine Learning	Xiaowei Zuo, Nicholas Satterlee, Matthew Steel, Choon-Wook Park, John S. Kang	Applications of Precision Engineering and Measurement Science
P-6-04	Tactile Cmm Pointcloud Meshing And Volume Calculation	Zachary Sanchez Archulet, Andres Tiede, Mario Valdez, Joshua Montano, Lucas Valdez	Applications of Precision Engineering and Measurement Science
P-6-05	Analysis Of Errors Caused By Offset Positions In Ball-Bar Circular Test Of A 6-Axis Serial Robot	Sung Hwan KWEON, , Kwang Il LEE, Seung Han YANG	Applications of Precision Engineering and Measurement Science
P-6-06	Stability Uncertainty Reduction When Milling Flexible Workpieces Using A Sample Partitioning Approach	Junbeom Son, Jake Dvorak, Tony Schmitz	Applications of Precision Engineering and Measurement Science
P-6-07	Design And Characterization Of A Femtosecond Laser-Based Microtome For Continuous Tissue Slicing	Yasin Y. Hamed, Audrey Y. Cui, Martin L. Culpepper	Applications of Precision Engineering and Measurement Science
P-6-08	Flexure-Based Instruments For Characterizing Artificial Skeletal Muscle Performance	Ashley Margetts, Nicolas Castro, Will Doster, Ritu Raman, Martin Culpepper	Applications of Precision Engineering and Measurement Science
P-6-09	Design Insights For A High-Rate Fs Laser Fabrication System	Penelope B. Herrero-Marques, Martin L. Culpepper	Applications of Precision Engineering and Measurement Science
P-6-10	Continuous Helical Tissue Collection For Connectomics	Gillian J. Roeder, Martin L. Culpepper	Applications of Precision Engineering and Measurement Science

P-6-11	Insights For Design Of Sub-Beam Waist Femtosecond Laser Ablation Systems	Audrey Y. Cui, Yasin Y. Hamed, Martin L. Culpepper	Applications of Precision Engineering and Measurement Science
P-6-12	Advancing Education And Workforce Development In Geometric Dimensioning And Tolerancing Through Immersive Digital Twins	Necati Uçak, Jaime Berez, Jia Holt, Jose Outeiro	Applications of Precision Engineering and Measurement Science
P-6-13	Combined Cantilever Beam And Optical Lever System For Mass Measurement Of Individual Vials During Lyophilization	Liane Xu, Sebastian Ruiz-Lopera, Elijah Bell, Xavier Bell, Umesh Padia, Sebastian Ruiz Lopera, Rohan Kadambi, Steven Burcat, Alexander Slocum	Applications of Precision Engineering and Measurement Science
P-6-14	Design And Evaluation Of A Practical Magnetic Shield For An Xy Linear Motor Stage In Sem Applications	Byeong-Hoon Bang, Kyung-Taek Yoon, Dongmin Kim, Myunghyun Kim, Young Man Choi	Applications of Precision Engineering and Measurement Science
P-6-15	Alignment Of Precision Optical Tooling Using Cmm With Vision Probe	John-Luc Pec	Applications of Precision Engineering and Measurement Science
P-6-16	Eddy Current Film Thickness Measurement And Defect Detection	Musfirat Tabassum, Stuart Smith	Applications of Precision Engineering and Measurement Science
P-6-NAA	Temporal Measurements Of Force Development During Adhesive Bonding	Diptayan Dasgupta ddasgupt@charlotte.edu , Stuart Smith, Vivek Badami, Richard Boland	Applications of Precision Engineering and Measurement Science