PRESM 2023 Program

Focus Session

[A] Smart Technology for Machine Tools & Manufacturing Systems-1

Introduction Machine tools and manufacturing systems are very important fields that form the basis of the manufacturing industry, which is currently undergoing innovation such as the 4th industrial revolution. This focus session discusses recent technological advances in machine tools and manufacturing systems, from substractive manufacturing to additive manufacturing.

Organizer Drs. Dong Yoon Lee (Korea Institute of Industrial Technology, Korea)
Jeong Seok Oh (Korea Institute of Machinery & Materials, Korea)

PT Date, Time July 17(Monday), 2023 / 14:30-15:30 (JST, UTC +09:00)

Details Session Chairs : Prof. Chien-Sheng Liu (National Cheng Kung University, Taiwan)
Dr. Dong Yoon Lee (Korea Institute of Industrial Technology, Korea)

Paper No.	Time	Title / Presenter & Authors
M1-FA1	14:30-14:45 (15')	New Measures of Interfacial Energy and Entropy on Improving Geometry Deviation and Mechanical Properties when Selective Laser Melting of ANSI 316L Powders ***Chunliang Kuo** (National Taiwan University of Science & Technology, Taiwan), Xuancheng Lin (National Taiwan University of Science & Technology), Tzuyou Liu (National Taiwan University of Science & Technology)
M1-FA2	14:45-15:00 (15')	Sound Monitoring and Applications for Smart Manufacturing Using MTConnect Framework and Artificial Intelligence ***Huitaek Yun** (KAIST, Korea), Eunseob Kim (Purdue University), Junyi Yuan (Purdue University), Martin B.-G. Jun (Purdue University)
M1-FA3	15:00-15:15 (15')	Development of Integrated Automatic Milling Process Planning System Using Convolutional Neural Network for 2.5D Parts ***Chunhui Chung** (National Cheng Kung University, Taiwan), Hong-Ming Chang (National Cheng Kung University), Po-Sung Huang (National Cheng Kung University)
M1-FA4	15:15-15:30 (15')	Parallel Expansion of Projection-based 3D Printer through Optical Expansion ***Brian Lee** (Sungkyunkwan University, Korea), Minsung Kim (Sungkyunkwan University)

[B] Smart Technology for Machine Tools & Manufacturing Systems-2

PT Date, Time July 17(Monday), 2023 / 16:40-18:00 (JST, UTC +09:00)

Details Session Chairs : Dr. Changju Kim (Korea Institute of Machinery & Materials, Korea)
Prof. Chunhui Chung (National Cheng Kung University, Taiwan)

Paper No.	Time	Title / Presenter & Authors
M2-FB1 Keynote	16:40-17:05 (25')	Measurement of Geometric Errors in Rotary Axes on Five-axis Machine Tools ***Chien-Sheng Liu** (National Cheng Kung University, Taiwan), **Yu-Ta Chen** (National Formosa University), **Keng-Min Lin** (National Cheng Kung University)
M2-FB2 Keynote	17:05-17:30 (25')	Digital Twins of Machines and Processes for Smart Manufacturing ***Matej Sulitka** (Czech Technical University in Prague, Czech Republic), **Petr Kolar** (Czech Technical University in Prague), **Jiri Falta** (Czech Technical University in Prague), **Jiri Sveda** (Czech Technical University in Prague), **Martin Mares** (Czech Technical University in Prague)
M2-FB3	17:30-17:45 (15')	Scalable and Expeditious Additive Manufacturing (SEAM) Process and its Optimization for High Temperature Applications ***Haseung Chung** (Michigan State University, USA), **Hoa Nguyen** (Michigan State University), **Patrick Kwon** (Michigan State University)
M2-FB4	17:45-18:00 (15')	Influence of the Hot Isostatic Pressing (HIP) on the Different Crack Modes of Additively Manufactured CM247LC ***Namhun Kim** (UNIST, Korea), **Jageon Koo** (UNIST), **Eunju Park** (UNIST), **Sungwon Park** (UNIST)

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[C] Advanced Material and Manufacturing

Introduction Advanced materials and manufacturing have been the main factors to determine the performance of the products. The researches on these fields have been including the emerging areas such as the machining learning, surface functionalization, surface treatment, and laser writing.

Organizer Prof. Hyung Wook Park (UNIST, Korea)

PT Date, Time July 18(Tuesday), 2023 / 08:30-09:45 (JST, UTC +09:00)

Details Session Chairs : Profs. Young-Jin Kim (KAIST, Korea)
Namjung Kim (Gachon University, Korea)

Paper No.	Time	Title / Presenter & Authors
T1-FC1	08:30-08:45 (15')	Deep Generative Model with Multidimensional Discrete Latent Representation for High-fidelity Digital Materials ***Namjung Kim** (Gachon University, Korea), **Dongseok Lee** (Sungkyunkwan University), **Youngjoon Hong** (Sungkyunkwan University)
T1-FC2	08:45-09:00 (15')	Maskless Micropatterning of Polydopamine for Versatile Surface Functionalization ***Ievgeniia Topolniak** (Federal Institute for Materials Research & Testing (BAM), Germany), **Xenia Knigge** (Federal Institute for Materials Research & Testing (BAM)), **Jörg Radnik** (Federal Institute for Materials Research & Testing (BAM)), **Heinz Sturm** (Federal Institute for Materials Research & Testing (BAM))
T1-FC3	09:00-09:15 (15')	Machine-learning-based Estimation for Compressive Anisotropy of Caliber-rolled Mg Rod ***Taekyung Lee** (Pusan National University, Korea), **Sujeong Byun** (Pusan National University), **Jinyeong Yu** (Pusan National University), **Seho Cheon** (Pusan National University), **Seong Ho Lee** (Pusan National University)
T1-FC4	09:15-09:30 (15')	Duplex Process of Atmospheric Pressure Plasma Nitriding and Post-oxidation on JIS SKD11 Die Steel for Improved its Corrosion and Wear Resistance ***Yu-Lin Kuo** (National Taiwan University of Science & Technology, Taiwan), **Ming-Chun Tsai** (National Taiwan University of Science & Technology), **Jhao-Yu Guo** (National Taiwan University of Science & Technology)
T1-FC5	09:30-09:45 (15')	Direct Laser Writing of Laser-induced-graphene (LIG) Electro-optics ***Young-Jin Kim** (KAIST, Korea), **Seung-Woo Kim** (KAIST)

[D] Future Mobility and its Smart Manufacturing

Introduction In this focused session, recent efforts to address the issues for the future mobility industries including autonomous vehicles, battery electric vehicles, and fuel cell electric vehicles will be presented. Especially, two keynote speeches will be devoted to the smart/advanced manufacturing technology applicable to future mobility. Also, two general speeches will be more directly related to the current technical and strategical issues of future mobility. Finally, a recent effort to provide engineers specialized in future mobility technologies to automotive industries will be presented.

Organizer Prof. Sung-Tae Hong (University of Ulsan, Korea)

PT Date, Time July 18(Tuesday), 2023 / 10:00-11:50 (JST, UTC +09:00)

Details Session Chairs : Profs. Sung-Tae Hong (University of Ulsan, Korea)
Seung Ki Moon (Nanyang Technological University, Singapore)

Paper No.	Time	Title / Presenter & Authors
T2-FD1 Keynote	10:00-10:25 (25')	Real-time Inferencing and Anomaly Detection in Manual Assembly Operation Using Deep Learning ***Sangkee Min** (University of Wisconsin-Madison, USA), Vignesh Selvaraj (University of Wisconsin-Madison), Sung-Hoon Ahn (Seoul National University)
T2-FD2 Keynote	10:25-10:50 (25')	Key Enabling Technologies Digital Manufacturing in Smart Factory ***Seung Ki Moon** (Nanyang Technological University, Singapore)
T2-FD3	10:50-11:05 (15')	Nano-fabricated Solid Oxide Fuel Cells for Future Mobility Applications ***Yoon Ho Lee** (University of Ulsan, Korea)
T2-FD4	11:05-11:20 (15')	Life Cycle Analysis. Does Electrification Reduce CO_2? ***Shin Hyuk Joo** (Southwest Research Institute, USA), Longyu Zhang (Southwest Research Institute), Graham Conway (Southwest Research Institute), Daniel Christopher Bitsis (Southwest Research Institute), Ian Smith (Southwest Research Institute), Paul Chambon (Southwest Research Institute)
T2-FD5	11:20-11:35 (15')	Design of Vaporizing Foil Actuator Welded Joints for Automotive Applications ***Taeseon Lee** (Incheon National University, Korea)
T2-FD6	11:35-11:50 (15')	Future Mobility and its Smart Manufacturing: Education Program for the Transition of Automotive Industries at Ulsan ***Sung-Tae Hong** (University of Ulsan, Korea)

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[E] Autonomous Robotic System and Applications

Introduction Recently, artificial intelligence algorithms are being applied in various robot and automation fields. We would like to present application examples in AGV (Autonomous Guided Vehicle), AMR (Autonomous Mobile Robot), automatic process planning, and robot diagnosis. Through this, we would like to suggest a new research direction for collaborative robots.

Organizer Prof. Jay-I. Jeong (Kookmin University, Korea)

PT Date, Time July 18(Tuesday), 2023 / 13:50-15:15 (JST, UTC +09:00)

Details Session Chairs : Prof. Jay-I. Jeong (Kookmin University, Korea)
Dr. Sang C. Lee (Daegu Gyeongbuk Institute of Science & Technology, Korea)

Paper No.	Time	Title / Presenter & Authors
T3-FE1 Keynote	13:50-14:15 (25')	Paradigm Shift of Collaborative Robot Era from Simple following to Complex Human Robot Interaction ***Sang C. Lee** (Daegu Gyeongbuk Institute of Science & Technology, Korea)
T3-FE2	14:15-14:30 (15')	Learning-based Localization Using UWB for the Applications to Human-following Robot ***Doo Seok Lee** (Daegu Gyeongbuk Institute of Science & Technology, Korea), **Heungju Ahn** (Daegu Gyeongbuk Institute of Science & Technology), **Sang C. Lee** (Daegu Gyeongbuk Institute of Science & Technology), **Chien Van Dang** (Daegu Gyeongbuk Institute of Science & Technology)
T3-FE3	14:30-14:45 (15')	A Mobile Robot with Magnetic Force Control for Inclined Pipes ***Young-Woo Park** (Chungnam National University, Korea), **Sang Uk Nam** (Chungnam National University), **Myounggyu Noh** (Chungnam National University)
T3-FE4	14:45-15:00 (15')	Augmented Reality Assisted Human-robot Collaboration in Smart Manufacturing ***Chih-Hsing Chu** (National Tsing Hua University, Taiwan), **Yu-Lun Liu** (National Tsing Hua University)
T3-FE5	15:00-15:15 (15')	Localization and Transformation for Indoor Navigation ***Heung-Ju Ahn** (Daegu Gyeongbuk Institute of Science & Technology, Korea), **Doo Seok Lee** (Daegu Gyeongbuk Institute of Science & Technology), **Sang C. Lee** (Daegu Gyeongbuk Institute of Science & Technology)

[F] Green Process in Energy Conversion Systems

Introduction In this session, we discuss two critical aspects of energy conversion systems – green production and operation. Especially, we focus on discussions of innovative manufacturing process and energy management/monitoring of batteries, fuel cells and renewable energy systems.

Organizer Prof. Suk Won Cha (Seoul National University, Korea)

PT Date, Time July 18(Tuesday), 2023 / 16:25-18:00 (JST, UTC +09:00)

Details Session Chairs : Profs. Gu Young Cho (Dankook University, Korea)
Taehyun Park (Soongsil Universtiy, Korea)

Paper No.	Time	Title / Presenter & Authors
T4-FF1 Keynote	16:25-16:50 (25')	Advanced Manufacturing Solutions for Sustainable Energy Storage ***Jonghyun Park** (Missouri University of Science & Technology, USA)
T4-FF2 Keynote	16:50-17:15 (25')	Management Strategies of New Energy Vehicles based on Machine Learning ***Chunhua Zheng** (Chinese Academy of Sciences, China)
T4-FF3	17:15-17:30 (15')	Vehicle-to-grid and its Optimal Dispatch Control for Grid Load Balancing ***Jongwoo Choi** (Electronics & Telecommunications Research Institute, Korea), Wan-Ki Park (Electronics & Telecommunications Research Institute)
T4-FF4	17:30-17:45 (15')	An Early Prediction Model for Remaining Useful Life of Lithium Batteries based on Signal Decomposition ***Kun Xu** (Chinese Academy of Sciences, China), Yuxiang Cai (Chinese Academy of Sciences), Chunhua Zheng (Chinese Academy of Sciences)
T4-FF5	17:45-18:00 (15')	Structural Evaluation of Transferred Ultra-thin Pt Nanomesh for Direct Application of Sputtered Electrolyte on Metal Substrate ***Wonjong Yu** (Kyung Hee University, Korea), Seonguk Oh (Kyung Hee University), Suk Won Cha (Seoul National University)

PRESM 2023 Program

[G] Emerging Biofabrication Technology for Medical Applications

Introduction Biofabrication is recognized as an emerging technology creating multiscale 3D architectures composed of various living cells and biomaterials to produce functional tissues and organs expected to be translational in the clinic. To promote scientific exchange, closer networks, and collaborative ties among multidisciplinary researchers, we have invited two keynotes and three distinguished speakers. This session will cover cutting-edge research and future perspectives on biofabrication-assisted medical innovation.

Organizer Prof. Jinah Jang (POSTECH, Korea)

PT Date, Time July 19(Wednesday), 2023 / 08:30-10:05 (JST, UTC +09:00)

Details Session Chairs : Profs. Yun Jung Heo (Kyunghee University, Korea)
Yuta Kurashina (Tokyo University of Agriculture & Technology, Japan)

Paper No.	Time	Title / Presenter & Authors
W1-FG1 Keynote	08:30-08:55 (25')	Biohybrid System Powered by Cultured Tissue Formed with Biofabrication Technology ***Yuya Morimoto** (Waseda University, Japan)
W1-FG2 Keynote	08:55-09:20 (25')	Heart Regeneration with iPS Cell-derived Cardiomyocytes Contributed by Using Ultrasound and Hydrogel ***Yuta Kurashina** (Tokyo University of Agriculture & Technology, Japan)
W1-FG3	09:20-09:35 (15')	Nanofiber Membranes for Reconstruction of Tissue Barriers and Generation of Uniform Organoids ***Dong Sung Kim** (POSTECH, Korea), Jaeseung Youn (POSTECH), Dohui Kim (POSTECH)
W1-FG4	09:35-09:50 (15')	Development and Characterization of the Electroactive Microwell Array Device to Detect Various Types and Forms of Circulating Tumor Cells ***Yoshinobu Sugitani** (The University of Tokyo, Japan), Teruo Fujii (The University of Tokyo), Kazunori Nagasaka (Teikyo University), Soo Hyeon Kim (The University of Tokyo)
W1-FG5	09:50-10:05 (15')	Development of in vitro Multiorgan Model by Focusing on the Gut-kidney Axis in Secondary Hyperoxaluria Disease ***Jungbin Yoon** (POSTECH, Korea), Jinah Jang (POSTECH), Dong-Woo Cho (POSTECH)

[H] Micro/Nano Systems

Introduction Micro/nano material research is being performed in a variety of domains, ranging from simple structure creation to the methodologies for imbuing materials with functionality. Various applications of micro/nano materials and the accompanying process technologies will be covered in this session. These technologies have enormous potential for use in a variety of industries and will give useful insights for extended investigation

Organizer Prof. Dong-Weon Lee (Chonnam National University, Korea)

PT Date, Time July 19(Wednesday), 2023 / 10:15-11:55 (JST, UTC +09:00)

Details Session Chairs : Prof. Dong-Weon Lee (Chonnam National University, Korea)
Dr. Won Seok Chang (Korea Institute of Machinery & Materials, Korea)

Paper No.	Time	Title / Presenter & Authors
W2-FH1 Keynote	10:15-10:40 (25')	Advanced Biomedical Microsystems for Precise Liquid Biopsy Assay ***Soo Hyeon Kim** (The University of Tokyo, Japan)
W2-FH2	10:40-10:55 (15')	Management of Temperature Coefficient of Resistance of Carbon Composite by Controlling Filler Alignment ***Sung-Hoon Park** (Soongsil University, Korea), Hyunwoo Kim (Soongsil University), Ji-Hwan Ha (Soongsil University)
W2-FH3	10:55-11:10 (15')	Study on Droplet Trapping Using an EHD Micropump ***Joon-wan Kim** (Tokyo Institute of Technology, Japan), Yuya Kondo (Tokyo Institute of Technology), Taiki Otomo (Tokyo Institute of Technology), Akihiro Yasuda (Tokyo Institute of Technology), Tatsuya Matsubara (Tokyo Institute of Technology), Kazuhiro Yoshida (Tokyo Institute of Technology)
W2-FH4	11:10-11:25 (15')	Texture Morphing of Flexible Fin Structures by Dynamic Capillarity ***Jonghyun Ha** (Ajou University, Korea)
W2-FH5	11:25-11:40 (15')	Piezoelectric Stretchable Sensor with a Vertical-wavy Structure Fabricated by Combining Dip Coating and Micro-corrugation Process ***Michitaka Yamamoto** (The University of Tokyo, Japan), Naoto Tomita (The University of Tokyo), Seiichi Takamatsu (The University of Tokyo), Toshihiro Itoh (The University of Tokyo)
W2-FH6	11:40-11:55 (15')	Conformal Coating of Nanotube Arrays for Energy Applications ***Hyung Gyu Park** (POSTECH, Korea)

PRESM 2023 Program

[I] Bioelectronics and Wearable Devices

Introduction Wearable sensors provide an alternative pathway to clinical diagnostics by exploiting various physical, chemical, and biological sensors to mine physiological information in real time and in a non-invasive or minimally invasive manner with mobile connectivity in autonomously operating. Here, new transdermal drug delivery system by using micro needles patch will be introduced. Moreover, novel fabrication methods to achieve the user-friendliest, low-cost, and safest way for various microneedles devices with vaccine delivery, several medical treatments, and even Bio-sensors' applications.

Organizer Prof. Beomjoon Kim (The University of Tokyo, Japan)

PT Date, Time July 19(Wednesday), 2023 / 13:50-15:10 (JST, UTC +09:00)

Details Session Chairs : Profs. Beomjoon Kim (The University of Tokyo, Japan)
Gyu Man Kim (Kyungpook National University, Korea)

Paper No.	Time	Title / Presenter & Authors
W3-FI1 Keynote	13:50-14:15 (25')	Sustainable Soft Electronic and Robotic Systems ***Martin Kaltenbrunner** (Johannes Kepler University Linz, Austria)
W3-FI2 Keynote	14:15-14:40 (25')	Skin-conformable Sensors and Displays for Future Wearable Technology ***Naoji Matsuhisa** (The University of Tokyo, Japan), Taizo Tominaga (The University of Tokyo), Tokihiko Shimura (The University of Tokyo)
W3-FI3	14:40-14:55 (15')	Design and Development of Miniaturized Microfluidic pH Sensors based on Sb/Sb_2O_3 for Biomedical Applications ***Jyoti Jaiswal** (Tokai University, Japan), Ganesh Kumar Mani (KAIST), Kazuyoshi Tsuchiya (Tokai University)
W3-FI4	14:55-15:10 (15')	Microneedle Array Patch (MAP): The Promising Biomedical Device for Total Personal Healthcare ***Jongho Park** (The University of Tokyo, Japan), Beomjoon Kim (The University of Tokyo)

PRESM 2023 Program

[J] Cellular Mechanobiology: From Fundamental Science to Translational Applications in Precision Medicine

Introduction Cellular mechanobiology, which studies how cells respond to mechanical cues, can help us develop new treatment strategies for many diseases. This focus session aims to provide an up-to-date overview of the latest advances in cellular mechanobiology research and to promote multidisciplinary approaches to understanding, diagnosing, and treating disease.

Organizer Prof. Toshiro Ohashi (Hokkaido University, Japan)

PT Date, Time July 19(Wednesday), 2023 / 16:20-17:55 (JST, UTC +09:00)

Details Session Chairs : Profs. Jennifer H. Shin (KAIST, Korea)
Toshiro Ohashi (Hokkaido University, Japan)

Paper No.	Time	Title / Presenter & Authors
W4-FJ1 Keynote	16:20-16:45 (25')	Mechanobiological Design of a Postoperative-placing Matrix for Selective Capture and Elimination of Residual Cancer Cells ***Satoru Kidoaki** (Kyushu University, Japan)
W4-FJ2 Keynote	16:45-17:10 (25')	Mechanical Properties of Cellular Primary Cilia and Mechanosensing Mechanism ***Toshiro Ohashi** (Hokkaido University, Japan)
W4-FJ3	17:10-17:25 (15')	Biomechanical Analysis of Osteocytic Spheroids for Bone Tissue Engineering Applications ***Jeonghyun Kim** (Nagoya University, Japan), Takashi Inagaki (Nagoya University), Eijiro Maeda (Nagoya University), Taiji Adachi (Kyoto University), Takeo Matsumoto (Nagoya University)
W4-FJ4	17:25-17:40 (15')	Classification of Cancer-associated Fibroblasts with Morphodynamic and Motile Feature-based AI Platform ***Jennifer H. Shin** (KAIST, Korea), Minwoo Kang (KAIST), Somayadineshraj D. (KAIST), Chanhong Min (KAIST)
W4-FJ5	17:40-17:55 (15')	Assembled Trachea Epithelium and Blood Vessel Endothelium Modular Study for Asthma ***Hyoryung Nam** (POSTECH, Korea), Yoo-mi Choi (POSTECH), Sungkeon Cho (POSTECH), Ge Gao (POSTECH), Donghwan Kim (POSTECH), Jongmin Kim (POSTECH), Hwanyong Choi (POSTECH), Se-Hwan Lee (POSTECH), Jinah Jang (POSTECH)

PRESM 2023 Program

[K] Korea-Germany Intelligent Manufacturing System

Introduction The goal of the Korea-German Intelligent Manufacturing Systems Lab (IMSL) is to create an intelligent manufacturing system that can monitor and analyze information related to the manufacturing system (such as equipment health, product quality, energy efficiency, safety.). The lab is a collaboration between Seoul National University in Korea and Fraunhofer IPT/ RWTH Aachen University in Germany. They are developing smart sensors, IoT, digital twins that can collect and analyze data on the condition of materials and equipment in various processes of the manufacturing system, such as machining, 3DP, laser and robotics.

Organizer Prof. Sung-Hoon Ahn (Seoul National University, Korea)

PT Date, Time July 20(Thursday), 2023 / 08:30-09:55 (JST, UTC +09:00)

Details Session Chairs : Profs. Sung-Hoon Ahn (Seoul National Univesity, Korea)
Sangkee Min (University of Wisconsin-Madison, USA)

Paper No.	Time	Title / Presenter & Authors
H1-FK1 Keynote	08:30-08:55 (25')	Additive Manufacturing of Silicon Carbide ***Steven Schmid** (The University of North Carolina at Charlotte, USA), Taylor Barrett-Crvich (The University of North Carolina at Charlotte), Tien Herd (The University of North Carolina at Charlotte), Brigid Mullany (The University of North Carolina at Charlotte), Corson Cramer (Oak Ridge National Laboratory), Scott Smith (Oak Ridge National Laboratory)
H1-FK2	08:55-09:10 (15')	Production Opportunities for Future Energy Storage Systems ***Daniel Zontar** (Fraunhofer Institute for Production Technology IPT, RWTH Aachen University, Germany), Toni Voebel (Fraunhofer Institute for Production Technology IPT, RWTH Aachen University), Christian Brecher (Fraunhofer Institute for Production Technology IPT, RWTH Aachen University)
H1-FK3	09:10-09:25 (15')	Structural Color Sensor Detecting via Image Processing Algorithm with RGB to Hue Transformation ***Yingjun Quan** (Seoul National University, Korea), Sung-Hoon Ahn (Seoul National University)
H1-FK4	09:25-09:40 (15')	From Discrete to Continuous Production in Hydrogen Technology ***Toni Voebel** (Fraunhofer Institute for Production Technology IPT, Germany), Daniel Zontar (Fraunhofer Institute for Production Technology IPT), Christian Brecher (Fraunhofer Institute for Production Technology IPT)
H1-FK5	09:40-09:55 (15')	Efficient Net Shape Forming of High-strength Sheet Metal Parts by Transversal Compression Drawing ***David Briesenick** (University of Stuttgart, Germany), Mathias Liewald (University of Stuttgart)

PRESM 2023 Program

[L] Precision Measurement for Precision Engineering

Introduction The importance of precision measurement in the field of precision engineering is gradually increasing. In this focus session will cover several topics widely used in advanced precision engineering, such as precision evaluation of a scale grating, thin film measurement for semiconductor and display devices, and refractive index measurement of a glass lens material.

Organizer Dr. Jonghan Jin (Korea Research Institute of Standards & Science, Korea)

PT Date, Time July 20(Thursday), 2023 / 10:10-12:00 (JST, UTC +09:00)

Details Session Chairs : Dr. Jonghan Jin (Korea Research Institute of Standards & Science, Korea)
Prof. Daewook Kim (University of Arizona, USA)

Paper No.	Time	Title / Presenter & Authors
H2-FL1 Keynote	10:10-10:35 (25')	Precise Evaluation of a Scale Grating for Precision Metrology ***Yuki Shimizu** (Hokkaido University, Japan)
H2-FL2 Keynote	10:35-11:00 (25')	MEMS Vibration Sensors for Smart Manufacturing ***Sheng-Shian Li** (National Tsing Hua University, Taiwan)
H2-FL3	11:00-11:15 (15')	Performance Evaluation of Multi-layer Thin-film Thickness Measurement Using Spectral Reflectometry ***Jungjae Park** (Korea Research Institute of Standards & Science, Korea), Jaeseok Bae (Meterlab Co., Ltd.), Jonghan Jin (Korea Research Institute of Standards & Science)
H2-FL4	11:15-11:30 (15')	Measurement of the Refractive Index of a Glass Lens Materials under Controlled Molding Conditions ***June Park** (Korea Photonics Technology Institute, Korea), Minwoo Seo (Korea Photonics Technology Institute), Eui-Sam Lee (Korea Photonics Technology Institute), Young Bok Kim (Korea Photonics Technology Institute), Seung Heon Han (Korea Photonics Technology Institute)
H2-FL5	11:30-11:45 (15')	Hexapod for Mirror Pose Adjustment in Nanoscale ***Sang Heon Lee** (Andong National University, Korea), Sang Moon Kim (Andong National University), Hagyong Kihm (Korea Research Institute of Standards & Science)
H2-FL6	11:45-12:00 (15')	Analysis on Thickness and Refractive Index of Thin-films Using Deep-learning Algorithm ***Jonghan Jin** (Korea Research Institute of Standards & Science, Korea), Joonyoung Lee (University of Science and Technology)

PRESM 2023 Program

[M] Ultra Precision Machining & Fabrication

Introduction "Ultra Precision Machining & Fabrication" is a key technology in the advanced manufacturing industry. In this session, we will introduce the ultra-precision manufacturing process technology and its applications in the advanced optics industry

Organizer Prof. Geon Hee Kim (Hanbat National University, Korea)

PT Date, Time July 20(Thursday), 2023 / 13:50-16:05 (JST, UTC +09:00)

Details Session Chairs : Profs. Hyunseop Lee (Dong-A University, Korea)
Daewook Kim (University of Arizona, USA)

Paper No.	Time	Title / Presenter & Authors
H3-FM1 Keynote	13:50-14:15 (25')	Enhancement of Tribological Properties by Surface Texturing Using Vibration-assisted Cutting ***Jun Shimizu** (Ibaraki University, Japan)
H3-FM2 Keynote	14:15-14:40 (25')	Advances in Augmented Ultraprecision Machining Technology ***Hao Wang** (National University of Singapore, Singapore)
H3-FM3 Keynote	14:40-15:05 (25')	Catalyst Referred Etching Method for High Precision Optical Elements ***Kazuto Yamauchi** (Osaka University, Japan)
H3-FM4	15:05-15:20 (15')	Infrared Deflectometry for Rapid Freeform Optics Manufacturing Process ***Daewook Kim** (The University of Arizona, Large Binocular Telescope Observatory, USA)
H3-FM5	15:20-15:35 (15')	Effect of Surface and Alignment Errors of a Mirror in X-ray Beamline in Synchrotron Radiation Facility Estimated by Ray Tracing with Oasys ***Hyun-Joon Shin** (Chungbuk National University, Korea), **Eun Chong Kim** (Chungbuk National University), **Hansol Jang** (Chungbuk National University), **Donggeun Kim** (Green Optics), **Minho Seo** (Green Optics), **Eunbyeong Chae** (Green Optics)
H3-FM6	15:35-15:50 (15')	Electromagnet Solenoid Density and Spool Diameter Effect on Aim Accuracy of Magnetically Assisted Deep Hole Drilling ***Denni Kurniawan** (Universiti Teknologi Brunei, Brunei), **Farhad Najarian** (Universiti Teknologi Malaysia), **M. Y. Noordin** (Universiti Teknologi Malaysia), **Fethma M. Nor** (Universiti Teknologi Brunei)
H3-FM7	15:50-16:05 (15')	Multiphysics Modelling of Induction Motor and its Vibration Analysis for Bearing Fault Diagnostics ***Ki-Yong Oh** (Hanyang University, Korea), **DaYeon Jeong** (Hanyang University), **Seho Son** (Hanyang University), **Hyunseung Lee** (Hanyang University), **Kyung Ho Sun** (Korea Institute of Machinery & Materials)