

The 7th International Conference on  
Manufacturing Process & Technology

# ICMPT 2026

February **2**(Mon) - **5**(Thu), 2026

Le Meridien Hotel - Kota Kinabalu, Malaysia



Organized by



한국기계공학회  
THE KOREAN SOCIETY OF MANUFACTURING PROCESS ENGINEERS

The Korean Society of Manufacturing  
Process Engineers (KSMPE), Korea

Co-Organized by



福耀科技大学  
FUYAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

Fuyao University of Science and  
Technology, China

Sponsored by



Kookmin University  
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The Korean Federation of  
Science and Technology



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Manufacturing Process & Technology

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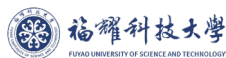
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Science and Technology

## Welcome Message

On behalf of the ICMPT 2026 Committee, I would like to extend my warm invitation to all participants of the 7th International Conference on Manufacturing Process & Technology (ICMPT 2026), jointly organized by the Korean Society of Manufacturing Process Engineers (KSMPE) and Fuyao University of Science and Technology (FUST).

The conference will be held from February 2 to 5, 2026, at the Le Meridien Hotel in Kota Kinabalu, Malaysia. Following the success of ICMPT 2025 in Bali, this year's conference will once again bring together researchers, engineers, and professionals from around the world to exchange ideas and share their latest work. The technical program will feature keynote speeches, oral presentations, and poster sessions, providing valuable opportunities for academic and professional engagement.

We believe ICMPT 2026 will serve as a meaningful platform to promote international collaboration and foster strong networks across disciplines. In addition to the academic program, the scenic beauty and cultural richness of Kota Kinabalu will offer participants a memorable and enjoyable experience. Social events and informal gatherings will also be arranged to encourage deeper interaction and friendship among attendees.

We look forward to welcoming you to Kota Kinabalu for an inspiring and fruitful conference.

**Chair of ICMPT 2026**

**Duhwan Mun**

Korea University, Korea



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Yansong Zhu	Anhui University of Science and Technology, China

ICMPT 2026 Program

February 2(Mon)

Time	Program
16:00-17:00	Registration (3F)
17:00-19:00	Welcome Reception (Invited Only)

February 3(Tue)

Time	Program	
08:00-	Registration (3F)	
08:30-09:45	Technical Session 1	Technical Session 2
	Additive Manufacturing 1	Machining, Machine Tools 1
09:45-10:00	Break	
10:00-10:15	Opening Ceremony	
10:15-10:55	Plenary Speech 1	
	Ultra-Precision Flexible Polishing *Prof. Min Li (Hefei University of Technology, China)	
10:55-11:20	Keynote Speech 1	
	Algorithm of Sustainability: Engineering Additive Manufacturing with Printing Materials and Artificial Intelligence *Prof. Bih Lii Chua (Universiti Malaysia Sabah, Malaysia)	
11:20-11:45	Keynote Speech 2	
	Ultrafast Photonics for Precision Manufacturing of Semiconductors and Secondary Batteries *Prof. Young-Jin Kim (KAIST, Korea)	
11:45-12:00	Flash Presentation	
12:00-13:00	Lunch Break (Latest Recipe, 1F)	
13:00-14:00	Poster Session 1	
14:00-15:15	Technical Session 3	Technical Session 4
	Micro and Nano Manufacturing 1	CAD/CAM/CAE, Optimization & Polymer Processing
15:15-15:30	Break	
15:30-16:45	Technical Session 5	Technical Session 6
	Design and AI for Manufacturing & Others in Mechanical Engineering and Manufacturing Technology 1	Welding, Joining & Additive Manufacturing 2
16:45-17:00	Break	
17:00-18:00	Poster Session 2	
18:00-18:30	Break	
18:30-20:00	Banquet (Hall 1, Sayat-Sayat & Laban Rata)	



## February 4(Wed)

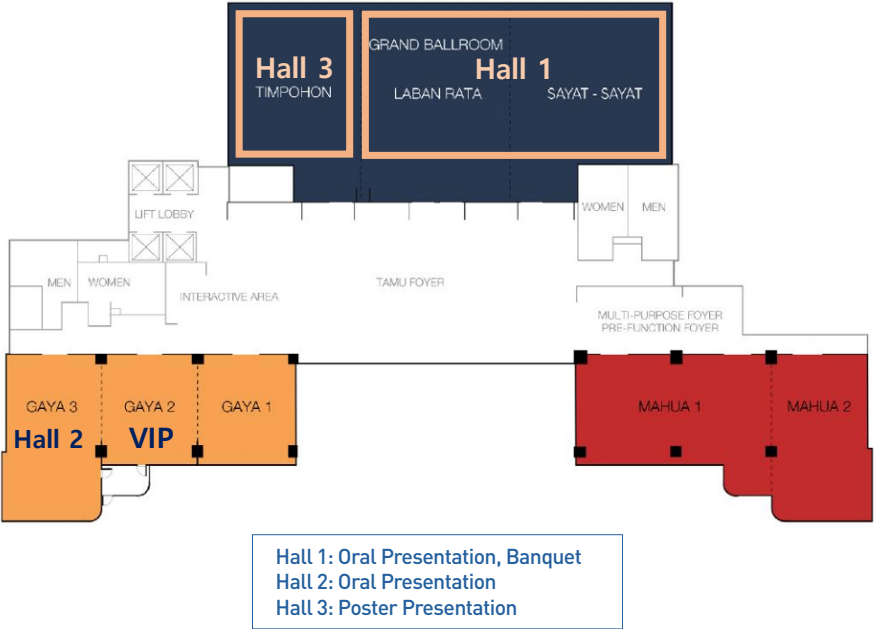
Time	Program	
08:00-	Registration (3F)	
08:30-10:00	<b>Technical Session 7</b>	<b>Technical Session 8</b>
	Tribology, Surface Engineering & Machining, Machine Tools 2 & Others in Mechanical Engineering and Manufacturing Technology 2	Advanced Materials, Composites & Micro and Nano Manufacturing 2 & Others in Mechanical Engineering and Manufacturing Technology 3
10:00-10:15	Break	
10:15-10:55	<b>Plenary Speech 2</b>	
	3D Printing for Advanced Manufacturing: Multi-Functional and Multi-Materials Voxels <b>*Prof. Yeong Wai Yee</b> (Nanyang Technological University, Singapore)	
10:55-11:20	<b>Keynote Speech 3</b>	
	Experimental Investigation of the Mechanical and Magnetic Properties of Metal 3D-Printed Parts <b>*Prof. Quoc-Hung Nguyen</b> (HUTECH University, Vietnam)	
11:20-11:45	<b>Keynote Speech 4</b>	
	Skin-Conformable Sensors and Displays by Soft Electronic Materials <b>*Prof. Naoji Matsuhisa</b> (The University of Tokyo, Japan)	
11:45-12:00	<b>Flash Presentation</b>	
12:00-13:00	Lunch Break (Latest Recipe, 1F)	
13:00-14:00	<b>Poster Session 3</b>	
14:00-15:15	<b>Technical Session 9</b>	<b>Technical Session 10</b>
	Thermal and Fluid Engineering	Robot and Intelligent Manufacturing & Others in Mechanical Engineering and Manufacturing Technology 4
15:15-15:30	Break	
15:30-16:30	<b>Poster Session 4</b>	
16:30-17:10	<b>Plenary Speech 3</b>	
	Additive Manufacturing of Functional Metamaterials with Three-Dimensionally Repeating Internal Architecture <b>*Prof. Dong Gyu Ahn</b> (Chosun University, Korea)	
17:00-17:15	Break	
17:15-17:30	Closing Ceremony	

## February 5(Thu)

Time	Program
09:00-11:45	Panel Discussion
14:00-17:00	<b>Technical Tour</b> <b>Universiti Malaysia Sabah</b>

ICMPT 2026 Place & Registration

Level 3



Registration

Category	Early registration	Regular / On-site registration
Date	- Jan. 5, 2026	Jan. 6, 2026 -
Regular (w/ Banquet)	KRW 800,000 / USD 600	KRW 900,000 / USD 700
Student (w/o Banquet)	KRW 400,000 / USD 300	KRW 500,000 / USD 400

※ On-site registration is not available for cash payment. Therefore, we kindly request payment in advance via bank transfer(USD/KRW) or credit card (USD/KRW).

## Oral: Technical Session

1. Presentation time: Total 15 mins (Presentation 12 mins / Q&A 3 mins)
  - 1st timer alert: 2 mins remaining (10 mins after start)
  - 2nd timer alert: 12 mins after start (end of time)
2. Presentation materials: Please bring your PPT material on a USB memory stick.
  - There is no specific format and template required.
  - Please upload your presentation material on the laptop in the conference room at least 10 mins before the session.
  - Please wear your name tag and follow the instructions of the session chair.
  - You can ask for help from our staff in the conference room.

## Poster Presentation

1. Poster size: The panel size is 1000 mm (W) × 1800 mm (H). A0 (portrait, 841 mm × 1189 mm) format is recommended.
2. All presenters should print and bring their posters and no specific format required.
3. The paper number for each poster is attached on the top of the board.
4. Items needed to attach the posters will be provided by the ICMPT secretariat.
5. Please be prepared to give a 3-5 minute speech and answer questions from the poster session chair while wearing your name tag.
6. Please make sure that your poster is presented properly to avoid being listed as a no-show poster.

Category	Presentation Time	Date & Location
Poster Session 1	13:00-14:00	<b>February 3(Tue)</b> Hall 3 (Timpohon)
Poster Session 2	17:00-18:00	<b>February 3(Tue)</b> Hall 3 (Timpohon)
Poster Session 3	13:00-14:00	<b>February 4(Wed)</b> Hall 3 (Timpohon)
Poster Session 4	15:30-16:30	<b>February 4(Wed)</b> Hall 3 (Timpohon)

## Flash Presentation

Flash presentations have been incorporated into ICMPT 2026 to increase interactivity between poster authors and delegates. Flash presentations are scheduled right before lunch.

A flash presentation is a short oral presentation in which you have an opportunity to draw delegates' attention to your poster and briefly showcase your research.

Each presenter will have 2 minutes to highlight their poster on the stage with a few PowerPoint slides. Do not forget to mention your poster number in your presentation and invite delegates to view your poster in the area.

## Plenary Speech 1

Hall 1 (Sayat-Sayat & Laban Rata)

Min Li (Hefei University of Technology, China)

**Title** Ultra-Precision Flexible Polishing  
**Date/Time** February 3(Tue), 10:15-10:55  
**Session Chair** Se-Jin Yook (Hanyang University, Korea)

### Abstract

The work proposes a novel ultraprecision flexible shear-thickening polishing method to meet the stringent requirements of hard and brittle materials for high-precision surface integrity and subsurface damage (SSD). By precisely regulating the non-Newtonian rheological behavior of the polishing slurry, shear thickening (ST) or gradient/chain thickening (GT/CT) effects are induced under shear fields, leading to the formation of a dynamic quasi-solid flexible abrasive tool. This enables a fundamental transition of the material removal mechanism from purely mechanical wear to a flexible physicochemical synergistic process. Parameter optimization demonstrates that, through control of the critical shear rate, abrasive characteristics, and chemical medium activity, sub-nanometer surface roughness, nanoscale SSD ( $< 5$  nm), and sub-micrometer form accuracy can be simultaneously achieved on various difficult-to-machine materials, including lithium niobate (LN), KDP crystals, silicon carbide (SiC), and 9Cr18 bearing steel. It reveals a new pathway for efficient, low-damage material removal through the coupling of rheological control and interfacial reactions, providing an innovative technological approach and theoretical foundation for ultraprecision or atomic-scale manufacturing in optical, semiconductor, and precision device applications.

## Plenary Speech 2

Hall 1 (Sayat-Sayat & Laban Rata)

Yeong Wai Yee (Nanyang Technological University, Singapore)

**Title** 3D Printing for Advanced Manufacturing: Multi-Functional and Multi-Materials Voxels  
**Date/Time** February 4(Wed), 10:15-10:55  
**Session Chair** Yongho Jeon (Ajou University, Korea)

### Abstract

3D Printing or additive manufacturing has already been applied in various advanced manufacturing processes, enabling new product design and new workflow in a spectrum of industrial and research applications. In this talk, we would like to discuss further the potential of 3D printing as a new design paradigm for the fabrication of multi-materials and multi-functional parts. From metal printing to microstructure alignment of nanoparticles, we will share examples of different 3D printing techniques in enabling new design and materials for innovations in manufacturing.

## Plenary Speech 3

Hall 1 (Sayat-Sayat & Laban Rata)

Dong Gyu Ahn (Chosun University, Korea)

**Title** Additive Manufacturing of Functional Metamaterials with Three-Dimensionally Repeating Internal Architecture  
**Date/Time** February 4(Wed), 16:30-17:10  
**Session Chair** Duhwan Mun (Korea University, Korea)

### Abstract

Additive manufacturing (AM) processes enable the facile fabrication of products with complex internal geometries that are difficult to produce using conventional manufacturing processes. As a result, the advent of AM process has led to a significant increase in research on the design and fabrication of metamaterials featuring three-dimensionally repeating internal architectures for enhanced and controllable functionalities. The functionalities intended in the design of the metamaterial can be effectively improved by the application of a functional material coating to the additively manufactured metamaterial frame. The objective of this study is to propose design and fabrication methods for functional metamaterials with three-dimensionally repeating internal architectures through the application of functional coating and micro-nano processing to additively manufactured frames. The influence of frame design and coating material on the functionality of the metamaterial is investigated using computer-aided design (CAD) and computer-aided engineering (CAE) softwares. In addition, novel experimental methods are discussed to evaluate the performance and characteristics of the functional metamaterial. Finally, the applicability of the metamaterial is examined through several case studies.

Keynote Speech 1

Hall 1 (Sayat-Sayat & Laban Rata)

Bih Lii Chua (Universiti Malaysia Sabah, Malaysia)	
Title	Algorithm of Sustainability: Engineering Additive Manufacturing with Printing Materials and Artificial Intelligence
Date/Time	February 3(Tue), 10:55-11:20
Session Chair	Young Tae Cho (Changwon National University, Korea)

Keynote Speech 2

Hall 1 (Sayat-Sayat & Laban Rata)

Young-Jin Kim (KAIST, Korea)	
Title	Ultrafast Photonics for Precision Manufacturing of Semiconductors and Secondary Batteries
Date/Time	February 3(Tue), 11:20-11:45
Session Chair	Young Tae Cho (Changwon National University, Korea)

Keynote Speech 3

Hall 1 (Sayat-Sayat & Laban Rata)

Quoc-Hung Nguyen (HUTECH University, Vietnam)	
Title	Experimental Investigation of the Mechanical and Magnetic Properties of Metal 3D-Printed Parts
Date/Time	February 4(Wed), 10:55-11:20
Session Chair	Bong-Kee Lee (Chonnam National University, Korea)

Keynote Speech 4

Hall 1 (Sayat-Sayat & Laban Rata)

Naoji Matsuhisa (The University of Tokyo, Japan)	
Title	Skin-Conformable Sensors and Displays by Soft Electronic Materials
Date/Time	February 4(Wed), 11:20-11:45
Session Chair	Bong-Kee Lee (Chonnam National University, Korea)

# Technical Session 1

## Hall 1 (Sayat-Sayat & Laban Rata)

### Additive Manufacturing 1

**Date/Time** February 3(Tue), 08:30-09:45  
**Organizer** Chiyen Kim (Korea Polytechnics, Korea)

Session No.	Paper No.	Time	Presenter & Authors
TS1-1	P00235	08:30-08:45	An Experimental Analysis of Surface Quality and Dimensional Shrinkage in Bound Metal Deposition Additive Manufacturing <b>*Tran Huu Anh Huy</b> (Vietnamese German University, Vietnam), Do Qui Duyen (Vietnamese German University), Do Huu Minh Hieu (Vietnamese German University), Nguyen Quoc Hung (HUTECH University)
TS1-2	P00188	08:45-09:00	A Data-Driven Digital-Physical Hybrid Framework for Predicting Surface Deformation in Metal Binder Jetting <b>*Seungyon Cho</b> (Nanyang Technological University, Singapore), Jungyeon Kim (Nanyang Technological University), Seong Je Park (Gyeongsang National University), Seung Ki Moon (Nanyang Technological University)
TS1-3	P00161	09:00-09:15	Material Property Prediction in L-DED: A Physics-Based Hardness Prediction Framework Using In-Situ Thermal Data <b>*Hong Seok Kim</b> (Pusan National University, Korea), Sang Hu Park (Pusan National University)
TS1-4	P00126	09:15-09:30	Adaptive AI for Bioprinting <b>*Xi Huang</b> (Nanyang Technological University, Singapore), Wai Yee Yeong (Nanyang Technological University)
TS1-5	P00137	09:30-09:45	Experimental Study on Surface Interaction for Multi-Process Additive Manufacturing <b>*Bipendra Basnet</b> (University of Akron, USA), Vikram GC (University of Akron), Daewoong Park (University of Akron), Jae-Won Choi (University of Akron)

Technical Session 2

Hall 2 (Gaya 3)

Machining, Machine Tools 1

Date/Time February 3(Tue), 08:30-09:45  
Organizer Sangjin Maeng (Hongik University, Korea)

Session No.	Paper No.	Time	Presenter & Authors
TS2-1	P00105	08:30-08:45	Ultra-Precision Mechanical Machining Approach for Efficient Manufacturing Approach of Shaping Piezoelectric Single Crystal  *Jun Sae Han (Korea Institute of Machinery and Materials, Korea), Dong-Hyun Seo (Korea Institute of Machinery and Materials), Eun-Ji Gwak (Korea Institute of Machinery and Materials), Doo-Sun Choi (Korea Institute of Machinery and Materials)
TS2-2	P00067	08:45-09:00	Atomic-Scale Laser-Assisted Polishing of Gallium Oxide  *Yunlong Li (Hefei University of Technology, China), Min Li (Hefei University of Technology), Jiazheng Sun (Hefei University of Technology), Ting Dong (Hefei University of Technology)
TS2-3	P00064	09:00-09:15	Study on Temperature and Vibration Integrated Sensor Based on Fiber Bragg Grating  *Xiaolong Leng (Hubei Engineering University, China), Gang Xu (Hubei Engineering University), Tae Jo Ko (Yeungnam University)
TS2-4	P00057	09:15-09:30	Study on the Influence of Green Dielectric and Process Feasibility in Electrical Discharge-Assisted Milling of Nickel-Based Alloy 718  *Jiajun Wu (Hunan University of Science and Technology, China), Changping Li (Hunan University of Science and Technology), Jumeng Xu (Hunan University of Science and Technology), Wanbao Wang (Hunan University of Science and Technology), Leyi Tian (Hunan University of Science and Technology), Changhong Li (Hunan University of Science and Technology), Tae Jo Ko (Yeungnam University)
TS2-5	P00052	09:30-09:45	An Inverse Modeling Algorithm for Form Grinding of Spiral Grooves in Tap Production Lines  *Jielin Chen (Shanghai Jiao Tong University, China), Gui Tao (Tiangong International Co., Ltd.), Qinglong An (Shanghai Jiao Tong University), Jinming Zhou (Tiangong International Co., Ltd.), Ming Chen (Shanghai Jiao Tong University)



# Technical Session 3

## Hall 1 (Sayat-Sayat & Laban Rata)

### Micro and Nano Manufacturing 1

Date/Time February 3(Tue), 14:00-15:15  
 Organizer Hoon Eui Jeong (UNIST, Korea)

Session No.	Paper No.	Time	Presenter & Authors
TS3-1	P00228	14:00-14:15	<p>Optically Engineered Materials for High-Efficiency Dielectric Metasurface</p> <p><b>*Younghwan Yang</b> (Changwon National University, Korea),            Junsuk Rho (Pohang University of Science and Technology)</p>
TS3-2	P00180	14:15-14:30	<p>Bioinspired Tubular Porous Polylactic Acid Microneedle Array Patch with Enhanced Mechanical Strength and Interstitial Fluid Extraction</p> <p><b>*Jiahao Li</b> (The University of Tokyo, Japan),            Jongho Park (The University of Tokyo),            Beomjoon Kim (The University of Tokyo)</p>
TS3-3	P00157	14:30-14:45	<p>Programmable Stiffness and Shape Control in Soft Magnetic Muscles Using a Hybrid Cross-Linked Matrix</p> <p><b>*Sang-Woo Lee</b> (UNIST, Korea),            Somi Kim (UNIST),            Hyukjoo Kwon (UNIST),            Soyun Hong (UNIST),            Gwonmin Kim (UNIST),            Hoon Eui Jeong (UNIST)</p>
TS3-4	P00068	14:45-15:00	<p>Liquid-Borne Particle Measurement with Aerosolization and Data Processing Algorithm</p> <p><b>*Seongmin Cho</b> (Seoul National University of Science and Technology, Korea),            Andrea J. Tiwari (TSI Incorporated),            Daniel R. Troolin (TSI Incorporated),            Hyeon Gi Lee (TSI Instruments Singapore Pte Ltd.),            Dong-Bin Kwak (Seoul National University of Science and Technology)</p>
TS3-5	P00025	15:00-15:15	<p>Scalable In Situ Synthesis of Cu<sub>2</sub>O/ZnO Heterojunction UV Photodetectors through Joule-Heated Nanofiber Templates</p> <p><b>*Na Kyoung Kim</b> (Chungbuk National University, Korea),            Mun Jeong Choi (Chungbuk National University),            Geon Hwee Kim (Chungbuk National University)</p>

Technical Session 4

Hall 2 (Gaya 3)

CAD/CAM/CAE, Optimization & Polymer Processing

Date/Time February 3(Tue), 14:00-15:00  
Organizer Sang-in Park (Incheon National University, Korea)

Session No.	Paper No.	Time	Presenter & Authors
TS4-1	P00211	14:00-14:15	Thickness Optimization and Energy Absorption Performance Comparison of Extruded Aluminum Beams  *HyungJun Kim (Yeungnam University, Korea), Jong Won Kim (Yeungnam University), Jung Sik Lim (Gyeongbuk Technopark), Jinho Kim (Yeungnam University)
TS4-2	P00199	14:15-14:30	Fixed-Grid-Based Optimization of a Vibration Test Fixture for Automotive Headlamps to Increase Natural Frequency  *Jun Won Choi (Keimyung University, Korea), Jong Hyuk Back (Keimyung University), Jung Jin Kim (Keimyung University)
TS4-3	P00102	14:30-14:45	A Dual-Axis Rotational Molding Machine: Design, Fabrication, and Experimental Testing  *Trieu Khoa Nguyen (Industrial University of Ho Chi Minh City, Vietnam), Van-Chinh Truong (Industrial University of Ho Chi Minh City), Thi-Nien Nguyen (Industrial University of Ho Chi Minh City), Bach-Phuong Ho Thi (Industrial University of Ho Chi Minh City), Ngoc Yen Phuong Vo (Industrial University of Ho Chi Minh City)
TS4-4	P00026	14:45-15:00	Molecular Dynamics Study on PEGDE-Modified Electrochemically Debondable Epoxy Systems Containing EMIM-TFSI Ionic Liquid  *Yujin Park (Changwon National University, Korea), Taeyoung Yoon (Changwon National University)

# Technical Session 5

## Hall 1 (Sayat-Sayat & Laban Rata)

### Design and AI for Manufacturing & Others in Mechanical Engineering and Manufacturing Technology 1

**Date/Time** February 3(Tue), 15:30-16:45  
**Organizer** Youkeun Oh (Hongik University, Korea)

Session No.	Paper No.	Time	Presenter & Authors
TS5-1	P00177	15:30-15:45	Automated CAD-to-Manufacturability Analysis: A Relational GNN Framework for Metal Powder Bed Fusion <b>*Jungyeon Kim</b> (Nanyang Technological University, Singapore), Seung Ki Moon (Nanyang Technological University)
TS5-2	P00160	15:45-16:00	Physics-Aware Reinforcement Learning for Design of Mechanical Interlocking Interfaces in Additively Manufactured Metal-Polymer Parts <b>*Ju-Chan Yuk</b> (Pusan National University, Korea), Suk-Hee Park (Pusan National University)
TS5-3	P00138	16:00-16:15	Vision-Based Semantic Segmentation System for Real-Time Monitoring and PID Control of Coaxial Electrospinning <b>*Yeong-Seo Kim</b> (Pusan National University, Korea), Myung-Kyu Jin (Pusan National University), Kyung-Lim Oh (Pusan National University), Suk-Hee Park (Pusan National University)
TS5-4	P00108	16:15-16:30	Integrated Data-Driven and Experimental Assessment of Long-Term Durability in Electric and Conventional Passenger Vehicles: Evidence from Vietnam <b>*Dam Hoang Phuc</b> (Hanoi University of Science and Technology, Vietnam), Tran Trong Dat (Hanoi University of Science and Technology), Le Van Nghia (Hanoi University of Science and Technology)
TS5-5	P00034	16:30-16:45	Artificial Intelligence for the Design of Next-Generation Mechanical Metamaterials <b>*Namjung Kim</b> (Gachon University, Korea)

Technical Session 6

Hall 2 (Gaya 3)

Welding, Joining & Additive Manufacturing 2

Date/Time February 3(Tue), 15:30-16:45  
Organizer Yongho Jeon (Ajou University, Korea)

Session No.	Paper No.	Time	Presenter & Authors
TS6-1	P00183	15:30-15:45 Invited	Exceptional Properties of Materials Additively Manufactured with Novel Laser Sheet Fusion Technique  *Chang Quan Lai (School of Mechanical & Aerospace Engineering, Singapore), Dominic Lim (School of Mechanical & Aerospace Engineering), Thiri Zaw Hsu (School of Mechanical & Aerospace Engineering), Chenhui Cai (School of Mechanical & Aerospace Engineering)
TS6-2	P00229	15:45-16:00	Improving Cyclic Fatigue Performance of Stainless Steel-Welded Joint through Pulsed Electric Current Treatment: Application to Landing Gear  *Sungmin Yoon (Changwon National University, Korea), Sungwoo Shin (Changwon National University), Hongman Moon (Pride Co., Ltd.), Chaesil Kim (Changwon National University)
TS6-3	P00113	16:00-16:15	Damage-Tolerant Structural Materials for Energy Transition through Additive Manufacturing  *Punit Kumar (Nanyang Technological University, Singapore), Wang Pei (Agency for Science, Technology and Research), Robert O. Ritchie (University of California)
TS6-4	P00060	16:15-16:30	Morphology Study and Printability of Recycled HDPE/PTFE Filament for Material Extrusion Process  *Syazwie Adam Sapihi (Universiti Malaysia Sabah, Malaysia), Bih-Lii Chua (Universiti Malaysia Sabah)
TS6-5	P00011	16:30-16:45	Accelerated Field Enhancement by Laser Beam Irradiation in Extreme Gap  *Yoo Seok Seo (Keimyung University, Korea), Jonghyun Kim (Keimyung University), Hae Woon Choi (Keimyung University)

# Technical Session 7

## Hall 1 (Sayat-Sayat & Laban Rata)

### Tribology, Surface Engineering & Machining, Machine Tools 2 & Others in Mechanical Engineering and Manufacturing Technology 2

Date/Time February 4(Wed), 08:30-10:00  
Organizer Hyun-Joon Kim (Kyungpook National University, Korea)

Session No.	Paper No.	Time	Presenter & Authors
TS7-1	P00167	08:30-08:45	Design and Experimental Validation of a Rotary Seal Based on Magnetorheological Grease  *Do Quy Duyen (Vietnamese-German University, Vietnam), Tran Minh Nhat (Industrial University of Ho Chi Minh City), Vo Van Cuong (Industrial University of Ho Chi Minh City), Le Hai Zy Zy (Industrial University of Ho Chi Minh City), Nguyen Duc Nam (Industrial University of Ho Chi Minh City), Nguyen Quoc Hung (HUTECH University)
TS7-2	P00159	08:45-09:00	Tribology Behaviour of Mild Steel Carburized Using Na <sub>2</sub> CO <sub>3</sub> -NaCl under Lubrication  *Willey Y.H. Liew (Universiti Malaysia Sabah, Malaysia), R. Protasius (Kyushu University), J.L.J. Ling (Jeonbuk National University), N.J. Siambun (Universiti Malaysia Sabah), Melvin J.H. Gan (Universiti Malaysia Sabah), B.L. Chua (Universiti Malaysia Sabah), Z-T Jiang (Murdoch University)
TS7-3	P00020	09:00-09:15	Study on Electrochemistry Assisted Magnetorheological Polishing of Cemented Carbide Based on Halbach Magnetic Array and Textured Surface  *Yonghe Jin (Wenzhou University, China), Huilong Zhang (Wenzhou University), Min Li (Hefei University of Technology), Ming Feng (Wenzhou University)
TS7-4	P00048	09:15-09:30	Effects of h-BN on the Microstructure, Mechanical Properties and Tribological Performance of WC-Ni3Al Cemented Carbides  *Xinpeng Chong (Hunan University of Science and Technology, China), Siwen Tang (Hunan University of Science and Technology), Yi Fu (Hunan University of Science and Technology), Zhenzhen Wu (Hunan University of Science and Technology), Xinyi Jiang (Hunan University of Science and Technology), Yanchen Zhu (Hunan University of Science and Technology), Jianlong Yuan (Hunan University of Science and Technology), Xiaohui He (Jiangnan Industrial Group Co., Ltd.)

Session No.	Paper No.	Time	Presenter & Authors
TS7-5	P00014	09:30-09:45	Digitized Experimental Data Extracted from Hardcoded Graphical Data for Verification of Cutting Force Predictions in Endmilling Pratyush Dwivedi (Mahindra University), Scott Payne (Repeat Precision), Palash Roy Choudhury (Mahindra University), <b>*Abhijit Bhattacharyya</b> (Mahindra University, India)
TS7-6	P00234	09:45-10:00	Ultrasonic Non-Destructive Evaluation for Quality Assessment of TRISO-Based Pebble Nuclear Fuels <b>*Do-Kyung Pyun</b> (Changwon National University, Korea), Sangmin Lee (Los Alamos National Laboratory), Rajendra P. Palanisamy (Los Alamos National Laboratory), Alp T. Findikoglu (Los Alamos National Laboratory)

# Technical Session 8

Hall 2 (Gaya 3)

## Advanced Materials, Composites & Micro and Nano Manufacturing 2 & Others in Mechanical Engineering and Manufacturing Technology 3

Date/Time February 4(Wed), 08:30-10:00  
Organizer Hyoungsoo Kim (KAIST, Korea)

Session No.	Paper No.	Time	Presenter & Authors
TS8-1	P00166	08:30-08:45	Cooling Paint for Glass with Solar Selectivity and High Emissivity <b>*Yuheng Gu</b> (Nanyang Technological University, Singapore), Jipeng Fei (Nanyang Technological University), Hong Li (Nanyang Technological University)
TS8-2	P00242	08:45-09:00	Solar-Driven Integrated Device for Simultaneous Atmospheric Water Harvesting and Direct Air Capture <b>*Hyungseop Ahn</b> (Korea University, Korea), Yong Tae Kang (Korea University)
TS8-3	P00120	09:00-09:15	Engineering the Interphase for Lithium Metal Batteries <b>*Mun Sek Kim</b> (Nanyang Technological University, Singapore)
TS8-4	P00024	09:15-09:30	Ultrafast LIG-on-CPI Electro-Thermal Actuators for High-Resolution Active Optics <b>*Younggeun Lee</b> (Korea Advanced Institute of Science and Technology, Korea), Byunggi Kim (Institute of Science Tokyo), Dongwook Yang (Korea Advanced Institute of Science and Technology), Kazuyoshi Fushinobu (The University of Tokyo), Masahiro Nomura (The University of Tokyo), Young-Jin Kim (Korea Advanced Institute of Science and Technology)
TS8-5	P00023	09:30-09:45	Femtosecond Laser Pulses Enable Graphene-Based Smart Textile Applications <b>*Dongwook Yang</b> (Korea Advanced Institute of Science and Technology, Korea), Younggeun Lee (Korea Advanced Institute of Science and Technology), Hyeonwoo Kim (Korea Advanced Institute of Science and Technology), Jinwoo Jeon (Korea Advanced Institute of Science and Technology), Young-Jin Kim (Korea Advanced Institute of Science and Technology)
TS8-6	P00121	09:45-10:00	Microwave-Assisted Hydrothermally Carbonized Waste Sawdust as Photothermal Conversion Material for Solar Vapor Generation Jimru Clarence (Universiti Malaysia Sabah), Siti Nurfadilah Binti Jaini (Universiti Malaysia Sabah), Wong Min Jin Karen (Jeonbuk National University), <b>*G.J.H. Melvin</b> (Universiti Malaysia Sabah, Malaysia)

Technical Session 9

Hall 1 (Sayat-Sayat & Laban Rata)

Thermal and Fluid Engineering

Date/Time      February 4(Wed), 14:00-15:15  
Organizer      Jungchul Lee (KAIST, Korea)

Session No.	Paper No.	Time	Presenter & Authors
TS9-1	P00165	14:00-14:15	Design and CFD Evaluation of a Water-Based Single-Phase Natural Circulation Loop  *Seoyeon Park (Gyeongsang National University, Korea), Mijin Jeong (Gyeongsang National University), Hyungmo Kim (Gyeongsang National University)
TS9-2	P00144	14:15-14:30	Evaporative Pre-Cooling in Hot-Humid Climates  *Jaemarn Tze Eu Mu (Universiti Malaysia Sabah, Malaysia), Mohd Suffian Misaran (Universiti Malaysia Sabah), Farm Yan Yan (Universiti Malaysia Sabah), Bih Lii Chua (Universiti Malaysia Sabah)
TS9-3	P00128	14:30-14:45	Performance Evaluation of a Passive Chimney-Ventilated Solar Dryer under Varying Loading Density and Outlet Geometry  *Abdul Rahman (Universiti Malaysia Sabah, Malaysia), Mohd Suffian Misaran (Universiti Malaysia Sabah), Chu Chi Ming (Universiti Malaysia Sabah), Rachel Fran Mansa (Universiti Malaysia Sabah), Tham Heng Jin (Universiti Malaysia Sabah), Mohd Adzrie Radzali (Universiti Malaysia Sabah), Mohd Kamel Wan Ibrahim (Universiti Malaysia Sabah)
TS9-4	P00124	14:45-15:00	Effect of Porous Transport Layer Thickness in Proton Exchange Membrane Water Electrolysis  *Seong Kuen Kim (Chosun University, Korea), Min Seo Shin (Chosun University), Sung Yong Jung (Chosun University)
TS9-5	P00056	15:00-15:15	Development of Capacitive Sensor for Measuring Adsorption Capacity  *Juheon Kim (Gyeongsang National University, Korea), Duckjong Kim (Gyeongsang National University), Hyungmo Kim (Gyeongsang National University)



# Technical Session 10

Hall 2 (Gaya 3)

## Robot and Intelligent Manufacturing & Others in Mechanical Engineering and Manufacturing Technology 4

Date/Time February 4(Wed), 14:00-15:15  
Organizer Sang Min Park (Pusan National University, Korea)

Paper No.	Time	Session No.	Presenter & Authors
TS10-1	P00196	14:00-14:15	Zynthesis: Zero-Shot Synthetic-to-Real Assembly Inspection Vineeth Parashivamurthy (Lam Research Corporation), Jeonghwan Park (Korea University), Youssef Elkady (University of Cincinnati), <b>*Dahyun D. Lim</b> (Korea University, Korea)
TS10-2	P00143	14:15-14:30	Reinforcement Learning Based on Digital Twin with Data Augmentation for Autonomous Robotic Assembly <b>*Kyungwan Choi</b> (Kyung Hee University, Korea), Murdivien Shokhikha Amalana (Kyung Hee University), Jumyung Um (Kyung Hee University)
TS10-3	P00184	14:30-14:45	Integration of Advanced Materials with MEMS Fabrication Technology for a Miniaturized Portable VOC Analysis Platform <b>*Yeongseok Lee</b> (Kookmin University, Korea), Sangkyun Lee (Kookmin University), Si-Hyung Lim (Kookmin University)
TS10-4	P00164	14:45-15:00	Design, Optimization and Experimental Validation of a Magnetorheological Impact Damper with an Annular-Radial Valve <b>*Le Hai Zy Zy</b> (Industrial University of Ho Chi Minh City, Vietnam), Hoang Long Vuong (Industrial University of Ho Chi Minh City), Bui Quoc Duy (Industrial University of Ho Chi Minh City), Lam Thanh Danh (Industrial University of Ho Chi Minh City), Do Qui Duyen (Vietnamese-German University), Nguyen Huu Quan (Industrial University of Ho Chi Minh City), Nguyen Quoc Hung (HUTECH University)
TS10-5	P00021	15:00-15:15	The Forklift Logistics Design Considering Both Operational Efficiency and Environmental Sustainability from a Textile Manufacturing System <b>*Taho Yang</b> (National Cheng Kung University, China), Tsung-Yi Chen (National Cheng Kung University), Chih-Yuan Chu (Tunghai University)

Poster Session 1

February 3(Tue), 13:00-14:00  
Hall 3 (Timpohon)

Organizer     Jung Jin Kim (Keimyung University, Korea)  
                  Seungho Han (Dong-A University, Korea),  
                  Sungmin Yoon (Changwon National University, Korea)

CAD/CAM/CAE, Optimization

Session No.	Paper No.	Presenter & Authors
PP 1-1	P00217	Optimization of Vibration Test Fixture Design Using a Variable Grid-Based Approach  Jong Hyuk Back (Keimyung University), Jun Won Choi (Keimyung University), Jung Jin Kim (Keimyung University)
PP 1-2	P00193	Leveraging Large Language Model for Sustainable Manufacturing Process Recommendation  Ye-Seong Jeon (Kumoh National Institute of Technology), Tae-Gil Kim (Kumoh National Institute of Technology), Cho-Bin Lee (Kumoh National Institute of Technology), Kun-Chan Kim (Kumoh National Institute of Technology), Soon-Jo Kwon (Kumoh National Institute of Technology)
PP 1-3	P00192	Semantic-Aware Part Decomposition for Additive Manufacturing via Reinforcement Learning  Hyeon-Seok Park (Kumoh National Institute of Technology), Soon-Jo Kwon (Kumoh National Institute of Technology)
PP 1-4	P00190	3D Printed Partial Reinforcement CF Composite Co-Analysis  Yeong Hun Seol (Kumoh National Institute of Technology), Geung Hyeon Lee (Kumoh National Institute of Technology), Jeong Min Kim (Kumoh National Institute of Technology), Min Ho Yoon (University of Seoul), Jang Woo Han (Kumoh National Institute of Technology)
PP 1-5	P00189	Injection-Structural Coupled 2D Analysis Model Considering Characteristics of 3D Fiber Orientation  Jeong Min Kim (Kumoh National Institute of Technology), Yeong Hun Seol (Kumoh National Institute of Technology), Jeong Uk Choe (Kumoh National Institute of Technology), Jang Woo Han (Kumoh National Institute of Technology)

# Poster Session 1

February 3(Tue), 13:00-14:00  
Hall 3 (Timpohon)

## CAD/CAM/CAE, Optimization

Session No.	Paper No.	Presenter & Authors
PP 1-6	P00139	Numerical Analysis of Flow and Heat Transfer Characteristics in a CO <sub>2</sub> -Water Based Chiller Heat Exchanger  In-Pyo Cha (DYETEC Institute), Jee-Hyun Sim (DYETEC Institute)
PP 1-7	P00119	Contact Behavior and Durability Assessment of a Hydrogen Pneumatic Valve under Full-Pressure Operation Cycling Conditions  Su-Jung Kang (Dong-A University), Ju-Hwan Kwak (SGT Inc.), Seungho Han (Dong-A University)
PP 1-8	P00118	Estimation of Boil-Off Gas Generation in Liquid Hydrogen Storage Vessels Using Phase Change Model Based on Intermolecular Interaction  Haeseong Hwang (Dong-A University), Hyunseop Lee (Dong-A University), Seungho Han (Dong-A University)
PP 1-9	P00106	Size Optimization of Metal Disc for Leak Prevention in Cryogenic Pilot-Operated Safety Relief Valve  Eun-Jin Jo (Dong-A University), Su-Jung Kang (Dong-A University), Seungho Han (Dong-A University), Kyung-Beom Min (SUNPRECISION Co., Ltd.)
PP 1-10	P00093	A Method for Reconstructing Triangular Elements from Large-Scale 3D Point Cloud  Sang Woo Kim (Kumoh National Institute of Technology), Dae Jin Jung (Kumoh National Institute of Technology), Eun Jin Han (Kumoh National Institute of Technology), Se Yeon Gong (Kumoh National Institute of Technology), Ki Youn Kwon (Kumoh National Institute of Technology)
PP 1-11	P00078	A Study on Casting Analysis for the Development of Optimized Process Technology for Base Cartridges  Seokbae Lee (KTR), Dong-Yeol Wi (KTR), Jin-Wook Hyun (SONGMA DMC), Hye-In Jung (SONGMA DMC)

# Poster Session 1

February 3(Tue), 13:00-14:00  
Hall 3 (Timpohon)

## CAD/CAM/CAE, Optimization

Session No.	Paper No.	Presenter & Authors
PP 1-12	P00076	Comparison of Noise Removal Methods for Scanned Ship Block Data Using CAD Models  Seung Jae Lee (Korea University of Technology and Education), Yeo Un Yoon (Samsung Heavy Industries Co., Ltd.), Byung Chul Kim (Korea University of Technology and Education)
PP 1-13	P00075	Dual-Invariance Self-Supervised Learning for Conceptual to Detailed Design Retrieval  Ji Won Kim (Korea University of Technology and Education), Byung Chul Kim (Korea University of Technology and Education)
PP 1-14	P00061	Shape-Based Viewpoint Optimization for Bottom-Side Measurement of Ship Blocks  Jin Hun Lee (Korea University of Technology and Education), Yeo Un Yoon (Samsung Heavy Industries Co., Ltd.), Byung Chul Kim (Korea University of Technology and Education)
PP 1-15	P00055	Detailing 3D Shapes Using a Generative Model  Gyeong Hun Lee (Korea University of Technology and Education), Byung Chul Kim (Korea University of Technology and Education)
PP 1-16	P00054	Automated Generation of CAD Models from Text Input for Circular and Intelligent Industry 4.0/5.0 Systems  Peter Gabštur (Technical University of Košice), Marek Kočíško (Technical University of Košice), Martin Pollák (Technical University of Košice)
PP 1-17	P00027	CAE-Based Degradation Mapping and Constitutive Model Selection for NBR Seals under Thermal Aging  Na-Yeon Choi (Dong-Eui University), Sung-Uk Zhang (Dong-Eui University)
PP 1-18	P00019	Definition of Functional Requirements for the Development of a Design Parameter Calculation System  Seungeun Lim (Korea University), Jun Hwan Park (Korea University), Duhwan Mun (Korea University)

# Poster Session 1

February 3(Tue), 13:00-14:00  
Hall 3 (Timpohon)

## CAD/CAM/CAE, Optimization

Session No.	Paper No.	Presenter & Authors
PP 1-19	P00018	Point Cloud-Based Automatic Detection of Welding Lines for Mechanical Structures  Se-Yeon Gong (Kumoh National Institute of Technology), Sang-woo Kim (Kumoh National Institute of Technology), Eun-Jin Han (Kumoh National Institute of Technology), Dae-Jin Jeong (Kumoh National Institute of Technology), Ki-Youn Kwon (Kumoh National Institute of Technology)
PP 1-20	P00010	Design Feature Recognition in Mechanical Parts Based on Graph Neural Network  Jun Hwan Park (Korea University), Seungeun Lim (Korea University), Duhwan Mun (Korea University)
PP 1-21	P00009	GUI for CAD Detailed Design Modeling Using XML-Defined Features  Seungbeen Hyun (Korea University), Duhwan Mun (Korea University)
PP 1-22	P00008	User-Friendly GUI for Realistic Rendering of Industrial CAD Models  Jong-Guk Park (Korea University), Duhwan Mun (Korea University)

## Design and AI for Manufacturing

Session No.	Paper No.	Presenter & Authors
PP 1-23	P00239	Development of Laboratory Data Lifecycle Management System for Proton-Based Ceramic Electrolysis Cells  Youkeun Oh (Hongik University), Jin-Ha Hwang (Hongik University)
PP 1-24	P00225	Manufacturability- and Performance-Aware Generative Design for Additive Manufacturing  Wei Quan (Nanyang Technological University), Binyang Song (Nanyang Technological University)

Poster Session 1

February 3(Tue), 13:00-14:00  
Hall 3 (Timpohon)

Design and AI for Manufacturing

Session No.	Paper No.	Presenter & Authors
PP 1-25	P00181	Hybrid CFD-ML Surrogate Modeling and Multi-Objective Optimization for PEMFC Performance and Operating Strategy Design Cam Tu Ngo (Kongju National University), Shantharaja Daniel (Kongju National University), Hyun-Chul Kim (Kongju National University)
PP 1-26	P00172	A Study on the Definition and Cases of Manufacturability Conflicts in Design-Manufacturing Processes Sung Ho Choi (Gangneung-Wonju National University), Sehee Lee (Korea Institute of Industrial Technology), Changsoo Lee (Gangneung-Wonju National University), Donguk Kim (Gangneung-Wonju National University), Jinwon Lee (Gangneung-Wonju National University)
PP 1-27	P00162	Multi-Sensor Based In-situ Warping Detection and Feedback Control for Super Engineering Plastic 3D Printing Using a Conditional LSTM-VAE Model Seung-Mun Lee (Pusan National University), Suk-Hee Park (Pusan National University)
PP 1-28	P00135	Optimization of Laser-Assisted Wafer-Level Carrier Debonding Based on Physics-informed Neural Network for Advanced Semiconductor Packaging Yong Tae Kim (Seoul National University of Science and Technology), Jun Seok Lee (Seoul National University of Science and Technology), Minwook Kim (Seoul National University of Science and Technology), Kwangjun Kim (Seoul National University of Science and Technology), Jong G. Ok (Seoul National University of Science and Technology)
PP 1-29	P00116	Emotion Recognition and HRV-Based Multimodal Mental Health Assessment Integrated with an AI Chatbot Young Hyun Ko (Kangwon National University), Jong Hyeok Han (Kangwon National University), Gook Hwan Yeom (Kangwon National University), Hee-Jae Jeon (Kangwon National University), Hyeon-Ki Jang (Kangwon National University), Byeong Hee Kim (Kangwon National University), Yong-Jai Park (Kangwon National University)

# Poster Session 1

February 3(Tue), 13:00-14:00  
Hall 3 (Timpohon)

## Design and AI for Manufacturing

Session No.	Paper No.	Presenter & Authors
PP 1-30	P00095	<p>Fourier Transform-Based Mark-Free Alignment via Deep Learning for Heterogeneous Pattern</p> <p>Seo Na Yoon (Changwon National University), Seong Min Yoon (Changwon National University), Chae Hyeok Yoon (Changwon National University), Woo Young Kim (The Ohio State University), Young Tae Cho (Changwon National University)</p>
PP 1-31	P00071	<p>A Study on Injection Molding Conditions for Producing Target-Quality Products Using ANN</p> <p>Jong Sun Kim (Korean Institute of Industrial Technology), Gil-Sang Yoon (Korean Institute of Industrial Technology)</p>
PP 1-32	P00063	<p>Real-Time On-Device Vision on Embedded NPUs: Lightweight Deployment of Object Detection and Semantic Segmentation Model</p> <p>Dong-uk Lee (Korea Electronic Technology Institute), Pil-kyo Kim (Korea Electronic Technology Institute), Gi-won Ku (Korea Electronic Technology Institute), Taek-eon Jung (Korea Electronic Technology Institute), Choel-jun Choi (Korea Electronic Technology Institute)</p>
PP 1-33	P00062	<p>On-Device Sleep Stage Classification on the RK3588 NPU Using Quantized EfficientNet for Edge AI Applications</p> <p>Pil-kyo Kim (Korea Electronic Technology Institute), Ji-seong Jeong (Korea Electronic Technology Institute), Dong-uk Lee (Korea Electronic Technology Institute), Gi-won Ku (Korea Electronic Technology Institute), Taek-eon Jung (Korea Electronic Technology Institute), Choel-jun Choi (Korea Electronic Technology Institute)</p>
PP 1-34	P00007	<p>Digitization and Content Refinement of Engineering Documents</p> <p>Sangwook Park (Korea University), Junho Kim (Korea University), Duhwan Mun (Korea University)</p>

Poster Session 1

February 3(Tue), 13:00-14:00  
Hall 3 (Timpohon)

Design and AI for Manufacturing

Session No.	Paper No.	Presenter & Authors
PP 1-35	P00006	Detection of Unrecognized Objects in Engineering Drawings Ji-Beob Kim (Korea University), Duhwan Mun (Korea University)

Robot and Intelligent Manufacturing 1

Session No.	Paper No.	Presenter & Authors
PP 1-36	P00208	Robot Pushing and Grasping Learning in Dense Environments Using Harris Corner Detection-Based Corner Masks Da-Ryeong Woo (Pukyong National University), Jung-Ho Kang (Pukyong National University), Kyung-Chang Lee (Pukyong National University)
PP 1-37	P00182	A Study on the Automation Model of Food Service Facilities Using Digital Twin-Based Cooking Simulation Haeyong Yun (Korea Institute of Robotics & Technology Convergence), Hyunggil Hong (Korea Institute of Robotics & Technology Convergence), Kwan Hyung Park (Korea Institute of Robotics & Technology Convergence), Yongjun Choe (Korea Institute of Robotics & Technology Convergence)
PP 1-38	P00153	Robot-Based Preprocessing Framework for Automated Inspection and Repair of CFRP Structures Yun Seok Kang (UNIST), Jaewoo Seo (Gyeongsang University), Dong Chan Kim (Tech University of Korea), Hyung Wook Park (UNIST)
PP 1-39	P00151	AI-Based Intelligent Digital Machining System for Titanium Alloy Using Smartphone Sensor Sang Min Yang (UNIST), Jaewoo Seo (Gyeongsan National University), Do Young Kim (Chungnam National University), Hyung Wook Park (UNIST)



# Poster Session 1

February 3(Tue), 13:00-14:00  
Hall 3 (Timpohon)

## Robot and Intelligent Manufacturing 1

Session No.	Paper No.	Presenter & Authors
PP 1-40	P00131	Physical AI-Driven Smart Gripper System for Adaptive Bin-Picking of Irregular Objects in Autonomous Manufacturing Tae Hyong Kim (Korea Food Research Institute), Ah-Na Kim (Korea Food Research Institute)
PP 1-41	P00130	Digital Twin-Based Robotic Automation and Performance Evaluation for Meal-Kit Packaging Processes Ah-Na Kim (Korea Food Research Institute), Tae Hyong Kim (Korea Food Research Institute), Ki Hyun Kwon (Korea Food Research Institute)
PP 1-42	P00112	A Study on the Application of a Multivariate Data-Based LSTM-Attention-VAE Model for Anomaly Detection in Ion Piston Hydrogen Compressors Jae-Hun Jang (Pukyong National University), Ji-Hyun Jung (Pukyong National University), Kyung-Chang Lee (Pukyong National University)
PP 1-43	P00156	Thermal Anomaly Detection for Hydraulic Components Using Image Motion Compensation and One-Class SVM Cha-Yeop Kim (Kangwon National University), Soon-Hwan Kwon (Kangwon National University), Han-Byeol Kim (Ustasion Inc.), Jun-Ho Baek (Ustasion Inc.), Byeong-Hee Kim (Kangwon National University)

Poster Session 2

February 3(Tue), 17:00-18:00  
Hall 3 (Timpohon)

**Organizer**      Sung-Uk Zhang (Dong-Eui University, Korea),  
Younghwan Yang (Changwon National University, Korea),  
Dong-Bin Kwak (Seoul National University of Science and Technology, Korea)

Additive Manufacturing

Session No.	Paper No.	Presenter & Authors
PP2-1	P00232	Real-Time Multi-Robot WAAM of Dissimilar Metal Via a Virtual Environment Platform  Geon Hu Han (Changwon National University), In Soo Jo (Changwon National University), Sung Been Han (Changwon National University), Young Tae Cho (Changwon National University)
PP2-2	P00230	A Basic Study on CNN-Based Anomaly Detection Using Infrared Thermography in Directed Energy Deposition  Yoo Ri Lee (Korea Institute of Industrial Technology), Ho Jin Lee (Korea Institute of Industrial Technology)
PP2-3	P00226	High-Pressure, High-Density Powder Spreading Method for Refractory Metal Additive Manufacturing  Chiyen Kim (Korea Polytechnics), Jihyun Sung (KITECH), Jongkyung Kim (Hanhwa Qcells), Saemyung Kim (Hanhwa Qcells)
PP2-4	P00171	Study on Breakaway Support for Polyetheretherketone in High-Temperature Material Extrusion  Han Bae (Gyeongsang National University), Seungyun Lee (Gyeongsang National University), Yong Son (Korea Institute of Industrial Technology), Seong Je Park (Gyeongsang National University)
PP2-5	P00155	In-situ Control of Melt Pool Temperature for Material Properties Characterization in Customized DED System  Mohammad Rezazadeh (Pusan National University, Korea), Jiwon Lim (Pusan National University), Hongseok Kim (Pusan National University), Geonju Kim (Pusan National University), Do-Sik Sim (Korea Maritime & Ocean University), Sang Hu Park (Pusan National University)

# Poster Session 2

February 3(Tue), 17:00-18:00  
Hall 3 (Timpohon)

## Additive Manufacturing

Session No.	Paper No.	Presenter & Authors
PP2-6	P00147	Simulation of HDPE Particle in a Single-Screw Extrusion Process Xiaoguang Tian (Universiti Malaysia Sabah), Xiaoyang Li (Huanghe Jiaotong University), Jiameng Yang (Huanghe Jiaotong University), Syazwie Adam Sapihi (Universiti Malaysia Sabah), Gan Jet Hong Melvin (Universiti Malaysia Sabah), Bih Lii Chua (Universiti Malaysia Sabah)
PP2-7	P00146	A Study on the Effects of Manufacture of CNT Coated TPMS Filters on EMI Shielding Performance Using Electromagnetic Analysis Seung-Heon Han (Chosun University), Jong-Chan Beom (Chosun University), Dong-Gyu Ahn (Chosun University)
PP2-8	P00145	Effect of Warm Isostatic Press Process on Additive-Manufactured Parts in Binder Jetting and Powder Bed Fusion Jungwon Lee (Gyeongsang National University), Jeongmin Kim (Gyeongsang National University), Yong Son (Korea Institute of Industrial Technology), Seong Je Park (Gyeongsang National University)
PP2-9	P00142	Development of a Lightweight Lattice Structure via Material Extrusion Haeseong Jun (Gyeongsang National University), Seungli Bae (Gyeongsang National University), Yong Son (Korea Institute of Industrial Technology), Seong Je Park (Gyeongsang National University)
PP2-10	P00141	Characterization for Anisotropy of the Developed Polymers in Material Extrusion Seongjun Kim (Gyeongsang National University), Jaemin Han (Gyeongsang National University), Yong Son (Korea Institute of Industrial Technology), Seong Je Park (Gyeongsang National University)
PP2-11	P00140	Evaluation for Environmental Reliability of Material-Extruded Parts in Additive Manufacturing Seungli Bae (Gyeongsang National University), Haeseong Jun (Gyeongsang National University), Yong Son (Korea Institute of Industrial Technology), Seong Je Park (Gyeongsang National University)

# Poster Session 2

February 3(Tue), 17:00-18:00  
Hall 3 (Timpohon)

## Additive Manufacturing

Session No.	Paper No.	Presenter & Authors
PP2-12	P00129	Thermoresponsive 4D Printing of Stretchable Wrist Guard with Re-Entrant Cellular Structures Minsung Kim (Seoul National University of Science and Technology), Eui-Hyun Kim (Seoul National University of Science and Technology), Keun Park (Seoul National University of Science and Technology)
PP2-13	P00115	Fabrication and Heat-Transfer Characteristics of Cu-H13 Hybrid Cooling Channel Fabricated by Using DED Process Hyuntae Park (Korea Maritime and Ocean University), Dosik Shim (Korea Maritime and Ocean University)
PP2-14	P00107	Development of a Robotic-Arm-Based Additive Manufacturing System for Cooperative 3D Printing Hwijae Park (Incheon National University), Seungjin Kim (Incheon National University), Wooyong Kim (Incheon National University), Sang-in Park (Incheon National University)
PP2-15	P00098	Study on a Wire Arc DED Hybrid Additive Manufacturing Technique Using Sand-Printed Supports for Freeform Fabrication Chang Young Choi (Changwon National University), Hwi Jun Son (Changwon National University), Yeong Jae Kim (Changwon National University), Kuk-Hyun Han (Samyoung), Young Tae Cho (Changwon National University)
PP2-16	P00096	Friction Stir Process for Thermoplastic Polyurethane Parts Fabricated by Additive Manufacturing Hochan Kim (GyeongKuk National University), Selim Ahamed Shah (GyeongKuk National University), In Hwan Lee (Chungbuk National University)
PP2-17	P00090	Fabrication of Hierarchical Microstructures via FPP-Imprint Integration and Wettability Characterization by Array Geometry Sun Hye Yoon (Changwon National University), Seo Rim Park (Changwon National University), Na ye Jang (Changwon National University), Kwang Min Lee (Carimatecl), Young Tae Cho (Changwon National University)

## Poster Session 2

February 3(Tue), 17:00-18:00  
Hall 3 (Timpohon)

### Additive Manufacturing

Session No.	Paper No.	Presenter & Authors
PP2-18	P00088	Emission Reduction in Diesel Generators Using CuO-Coated Ceramic and Polymer Micro-Lattice Filters  Seo Rim Park (Changwon National University), Chang Young Choi (Changwon National University), Myung Seo Kim (Changwon National University), Neunggyo Ha (Energen Co., Ltd.), Young Tae Cho (Changwon National University)
PP2-19	P00082	Algorithmic Prediction of Contact Tip to Work Distance (CTWD) Considering Interlayer Temperature, Current, and Voltage in Wire Arc-DED (Directed Energy Deposition)  Yeong Jae Kim (Changwon National University), Hwi Jun Son (Changwon National University), Young Tae Cho (Changwon National University)
PP2-20	P00079	Light-Induced Slippery Interface for Rapid Resin Infiltration in Large-Area and High-Speed Continuous DLP 3D Printing  Chae Hyeok Yoon (Changwon National University), Seong Min Yoon (Changwon National University), Woo Young Kim (The Ohio State University), Young Tae Cho (Changwon National University)
PP2-21	P00050	A Study on the Effects of Layer Height and Thickness of Unit Cell for TPMS on Manufacture Characteristics Using FDM Process  Jong-Chan Beom (Chosun University), Dong-Gyu Ahn (Chosun University)
PP2-22	P00033	Multi-Layered Esophageal Scaffold via 3D Dragging Printing Technique and Peristalsis-Mimicking Bioreactor Culture  Jae-Seok Kim (Wonkwang University), Jun-Kyu Kang (Wonkwang University), Hun-Jin Jeong (University of Maryland Eastern Shore), Jinah Jang (POSTECH), So-Jung Gwa (Wonkwang University), Kyoung Duck Seo (Wonkwang University), Hyoryung Nam (Daegu Catholic University), Seung-Jae Lee (Wonkwang University)

Poster Session 2

February 3(Tue), 17:00-18:00  
Hall 3 (Timpohon)

Additive Manufacturing

Session No.	Paper No.	Presenter & Authors
PP2-23	P00028	Development of a Novel Hybrid Composite Structure and Bioreactor to Promote Bone Regeneration in Dental Implants  Eun Chae Kim (Wonkwang University), Jun-Kyu Kang (Wonkwang University), Hun-Jin Jeong (University of Maryland Eastern Shore), So-Jung Gwak (Wonkwang University), Seung-Jae Lee (Wonkwang University)
PP2-24	P00022	Bending Strength Evaluation of Powder Bed Fusion Based High Refractory and Stainless Steel Dissimilar Joint  Moon G. Lee (Ajou University), Young M. Choi (Ajou University), Hyunseok Song (Korea Automotive Technology Institute), Yongho Jeon (Ajou University)

Robot and Intelligent Manufacturing 2

Session No.	Paper No.	Presenter & Authors
PP2-25	P00111	A Study on Deep Learning-Based Remaining Flight Time Prediction for Autonomous Flying Drones  Sung-Jun Byun (Pukyong National University), Jae-Hun Jang (Pukyong National University), Kyung-Chang Lee (Pukyong National University)
PP2-26	P00110	A Study on Stacked-GRU Transformer Model Based Hydrogen Compressor Anomaly Detection Considering Multi-Sensor Correlation  Myoung-Won Kim (Pukyong National University), Ji-Hyun Jung (Pukyong National University), Jae-Hun Jang (Pukyong National University), Kyung-Chang Lee (Pukyong National University)
PP2-27	P00109	Weighted-Loss-Based Segmentation for Detecting Damage in Fish Farm Nets  Jung-Ho Kang (Pukyong National University), Kyung-Chang Lee (Pukyong National University)

## Poster Session 2

February 3(Tue), 17:00-18:00  
Hall 3 (Timpohon)

### Robot and Intelligent Manufacturing 2

Session No.	Paper No.	Presenter & Authors
PP2-28	P00092	Digital Transformation and AI-Driven Anomaly Detection for WA-DED Sung Been Han (Changwon National University), Geon Hu Han (Changwon National University), Chang Young Choi (Changwon National University), Junghoon Cha (Sungwon), Young Tae Cho (Changwon National University)
PP2-29	P00059	MM-Manipulator: A Mobile Heavy-Duty Robot for Autonomous Process Automation Tae Hyun Park (Pusan National University), Sang Min Park (Pusan National University)
PP2-30	P00049	Robotic 3D Printing of Components on a Shape Mold Martin Pollák (Technical University of Kosice), Marek Kočíško (Technical University of Kosice), Peter Gabštur (Technical University of Kosice)
PP2-31	P00013	Development of an ISPH-MBD Coupled Solver for Hydrodynamic Analysis of Underwater Robots Yeong-Jin Jang (Pukyong National University), Jeong-Hyun Sohn (Pukyong National University)
PP2-32	P00012	Full Car Dynamics Simulation Based on KIMM-Motion Jeong-Hyun Sohn (Pukyong National University), Yeong-Jin Jang (Pukyong National University)

## Poster Session 2

February 3(Tue), 17:00-18:00  
Hall 3 (Timpohon)

### Others in Mechanical Engineering and Manufacturing Technology

Session No.	Paper No.	Presenter & Authors
PP2-33	P00213	Speed Control for a Rotary Loaded Shaft Driven by Electric Motors via a Magneto-Rheological Clutch and Feedforward-Feedback Controller Hoang Long Vuong (Industrial University of Ho Chi Minh City), Bui Quoc Duy (Industrial University of Ho Chi Minh City), Le Hai Zy Zy (Industrial University of Ho Chi Minh City), Vo Van Bien (Industrial University of Ho Chi Minh City), Do Pham Hoang (HUTECH University), Nguyen Quoc Hung (HUTECH University)
PP2-34	P00201	Microfabricated MOF-Integrated Hybrid Preconcentration–Separation Chip for Low-Cost Portable Gas Analysis Systems with Manufacturing Advantages Sangkyun Lee (Kookmin University), Yeongseok Lee (Kookmin University), Si-Hyung Lim (Kookmin University)
PP2-35	P00197	Application of Vision-Based Joint Motion Analysis Using Public Fall Data for Industrial Safety Monitoring: A Pilot Study Kyeong-Jun Seo (Korea University), Duhwan Mun (Korea University)
PP2-36	P00174	Experimental Investigation of Continuously Variable Transmission (CVT) Based on Differential Gear System Nguyen Van Ban (HUTECH University), Do Pham Hoang (HUTECH University), Nguyen Thanh Trung (HUTECH University), Nguyen Van Bo (Industrial University of Ho Chi Minh City), Le Hai Zy Zy (Industrial University of Ho Chi Minh City), Nguyen Quoc Hung (HUTECH University)
PP2-37	P00154	Flexible and Cost-Effective Maskless Fabrication of PEDOT:PSS-Based Bioelectronics and Its Application Tae Hyun Kim (Seoul National University), Seung Hwan Ko (Seoul National University)
PP2-38	P00150	Modeling and Analysis of Powder Rolling Dynamics in Dry Electrode Manufacturing Using DEM Seungwoo Lee (Kumoh National Institute of Technology), Sungbin Jeon (Kumoh National Institute of Technology), Junyoung Park (Kumoh National Institute of Technology)



# Poster Session 2

February 3(Tue), 17:00-18:00  
Hall 3 (Timpohon)

## Others in Mechanical Engineering and Manufacturing Technology

Session No.	Paper No.	Presenter & Authors
PP2-39	P00149	Integrating Quality Control Circles with the Cheaper-Better-Faster Framework in an Automotive Manufacturing Industry Sulaeman (Universiti Malaysia Sabah), Mohd Suffian Misaran (Universiti Malaysia Sabah), Yan Yan Farm (Universiti Malaysia Sabah), Bih-Lii Chua (Universiti Malaysia Sabah)
PP2-40	P00148	Monolithic Liquid Metal Multilayer Routing without VIAs for Ultra-Stretchable Electronics Gyu Ho Choi (Seoul National University), Seung Hwan Ko (Seoul National University)
PP2-41	P00117	Development of Flatfoot Diagnostic Equipment through Image Processing Su Yeon Lim (Kangwon National University), Gyeongsu Seo (Kangwon National University), Byeong Hee Kim (Kangwon National University), Hyun-Ouk Kim (Kangwon National University), Kwang Suk Lim (Kangwon National University)
PP2-42	P00074	Finite Element Analysis and Reduced Order Model of Residual Stress Behavior in Thermal Barrier Coatings Je Min Lee (Changwon National University), In Soo Jo (Changwon National University), Dong Ju Kim (Changwon National University), Taewan Kim (BEST F.A Co., Ltd.), Young Tae Cho (Changwon National University)
PP2-43	P00039	Metamodel Based Simulation of Immersion Phased Array Ultrasonic Testing (PAUT) Data for Premium Quality Inconel 718 (PQ IN718) Alloy Ilhyun Yoo (SeoulTech), Ik-Keun Park (SeoulTech), Dongchan Kang (SeoulTech)
PP2-44	P00005	Analysis of Deformation Characteristics According to the Back Heating Condition of Steel for Hull Flat Blocks Eulyong Ha (Korea Institute of Industrial Technology), Younghyun Kim (Korea Institute of Industrial Technology), Hyunjeong Jeong (Korea Institute of Industrial Technology), Yujin Kim (TAEJIN Inc), Juyeon Jo (TAEJIN Inc), Taegon Yeo (TAEJIN Inc), Jaewoong Kim (Korea Institute of Industrial Technology)

Poster Session 3

February 4(Wed), 13:00-14:00  
Hall 3 (Timpohon)

**Organizer**     Jun Sae Han (KIMM, Korea),  
Hae Woon Choi (Keimyung University, Korea),  
Hyunseop Lee (Dong-A University, Korea)

Machining, Machine Tools

Session No.	Paper No.	Presenter & Authors
PP 3-1	P00202	Data-Driven AI Model for ISO Workpiece Grade Classification and Mechanical Property Prediction in Metal Cutting Processes Jisun Kim (Korea Institute of Industrial Technology), Suseong Woo (Korea Institute of Industrial Technology)
PP 3-2	P00191	A Study on Chattering Detection in Vertical Turning Center through Accelerometer and Current Sensor Signals Based on Transfer Learning Kangseok Kim (Pusan National University), Deugwoo Lee (Pusan National University)
PP 3-3	P00187	Improved Milling Force Prediction of Inconel 718 via Dynamic Recrystallization-Coupled Modeling Baorui Zhang (Yeungnam University), Tae Jo Ko (Yeungnam University)
PP 3-4	P00175	Dimensional Accuracy Improvement of Combustion Chamber Throat Fabricated by Metal PBF through Dimensional Deformation Compensation Design Based on Inconel 718 Inherent Strain Kwon-Il Lee (Gyeongsang National University), Myung-Hwi Jung (Gyeongsang National University), Jeong-Ri Kong (Robot campus of Korea Polytechnic), Hae-Ji Kim (Gyeongsang National University)
PP 3-5	P00173	Experimental Investigation of Polishing a Steel Shaft Using Magnetorheological Grease Do Quy Duyen (Vietnamese-German University), Tran Minh Nhat (Vietnamese-German University), Diep Bao Tri (Industrial University of Ho Chi Minh City), Phan Quoc Minh (Industrial University of Ho Chi Minh City), Le Thanh Danh (Industrial University of Ho Chi Minh City), Nguyen Van Bien (Industrial University of Ho Chi Minh City), Nguyen Quoc Hung (HUTECH University)

# Poster Session 3

February 4(Wed), 13:00-14:00  
Hall 3 (Timpohon)

## Machining, Machine Tools

Session No.	Paper No.	Presenter & Authors
PP 3-6	P00163	In-situ Observation of Brittle Behavior in Machining of Ti-6Al-4V Yun Sang Chi (Hongik University), Sangjin Maeng (Hongik University)
PP 3-7	P00152	Microstructural Origins of Machinability in Refractory Metal Alloy: The Role of Strain Rate-Dependent Crystallographic Heterogeneity Sinwon Kim (UNIST), Sang Min Yang (UNIST), Chang Hyeon Mun (UNIST), Jonghyeon Park (UNIST), Do Young Kim (Chungnam National University), Dong Min Kim (Tech University of Korea), Hyung Wook Park (UNIST)
PP 3-8	P00123	Experimental and Simulation-Based Optimization of Planarity in Rectangular Substrate CMP Jaewook Lee (Dong-A University), Hyunseop Lee (Dong-A University)
PP 3-9	P00070	Correlation between Cutting Force and Surface Roughness in Ultra-Precision Machining of STAVAX Using a Micro CBN Ball End Mill Ji Woo Kim (Korea Institute of Industrial Technology), Jin soo Kim (Korea Institute of Industrial Technology), Jong Su Kim (Korea Institute of Industrial Technology)
PP 3-10	P00066	Ultra-Precision Flexible Polishing Method Jiazheng Sun (Hefei University of Technology), Min Li (Hefei University of Technology), JuLong Yuan (Zhejiang University of Technology), YunLong Li (Hefei University of Technology), Ting Dong (Hefei University of Technology)

Poster Session 3

February 4(Wed), 13:00-14:00  
Hall 3 (Timpohon)

Machining, Machine Tools

Session No.	Paper No.	Presenter & Authors
PP 3-11	P00058	Surface Damage in Glass Fiber-Reinforced Plastic/Copper Laminates: An Investigation Using a 3D Micro-Scale Oblique Cutting Model  Leyi Tian (Hunan University of Science and Technology), Changping Li (Fuyao University of Science and Technology), Jiajun Wu (Hunan University of Science and Technology), Changhong Li (Hunan University of Science and Technology), Wanbao Wang (Hunan University of Science and Technology), Jumeng Xu (Hunan University of Science and Technology), Tae Jo Ko (Yeungnam University)
PP 3-12	P00053	Experimental, Modeling, and Simulation Study on Ultrasonic-Assisted Micro-Drilling of Printed Circuit Boards  Moran Xu (Wuhan Textile University), Xunchen Chu (Wuhan Textile University), Xiaobo Yu (Wuhan Textile University), Yixiao Yang (Wuhan Textile University), Changping Li (Fuyao University of Science and Technology), Shuo Chen (Yeungnam University), Rendi Kurniawan (Universitas Indonesia), Tae Jo Ko (Yeungnam University)
PP 3-13	P00038	Robust Volumetric Error Compensation for 5-Axis Machine Tool Using Sensitivity-Based Weight Assignment Method  Hyeongjin Seo (Pusan National University), Sungtae Kim (DN Solutions), Heungki Jeon (DN Solutions), Changho Lee (DN Solutions), Yangjin Kim (Pusan National University)

# Poster Session 3

February 4(Wed), 13:00-14:00  
Hall 3 (Timpohon)

## Metal Forming

Session No.	Paper No.	Presenter & Authors
PP 3-14	P00222	Evaluation of Cold Forging Formability for High-Strength Micro-Alloyed Steel of Battery-Body Fastening Components  Seunghoon Cha (Gyeongbuk Technopark), Chanhee Lee (Gyeongbuk Technopark), Jaewook Park (DAEHAN METAL)
PP 3-15	P00219	DIC Based Determination of Stress-Strain Curves of Metal Sheets Considering Large Deformation  Minki Kim (Korea Institute of Industrial Technology), Yujin Chae (Korea Institute of Industrial Technology), Min-Ki Ji (Korea Institute of Industrial Technology)
PP 3-16	P00215	A Study on High-Accuracy Springback Analysis for Ultra-High-Strength Steel in Chassis Components  Sang-Oh Lee (Korea Institute of Industrial Technology), Chang-Hoon Lee (Hwashin Co., Ltd.), Sang-Hoon Kim (Hwashin Co., Ltd.), Young-Ho Seo (Korea Institute of Industrial Technology), Gun-woo Noh (Korea University), Gi-Hyun Bae (Korea Institute of Industrial Technology), Jung-Han Song (Korea Institute of Industrial Technology)
PP 3-17	P00207	Study on Tensile Test and FLD Evaluation of Ultra-Thin SUS 0.05 mm Stainless Steel Plates  Gyeong-Min Kim (Korea Institute of Industrial Technology), Sang-Oh Lee (Korea Institute of Industrial Technology), Jung-Han Song (Korea Institute of Industrial Technology), Ho-Jae Cho (LG Electronics Inc.), Segyero Shin (LG Electronics Inc.), Young-Ho Seo (Korea Institute of Industrial Technology), Gun-Woo Noh (Korea University), Gi-Hyun Bae (Korea Institute of Industrial Technology)
PP 3-18	P00205	A Study on Galling Behavior of Stainless Steel Sheet Metal Forming  Ji-Hwan Moon (Korea Institute of Industrial Technology), Jong-Gyun Lee (Korea Institute of Industrial Technology), Myoung-Gyu Lee (Seoul National University), Young-Ho Seo (Korea Institute of Industrial Technology), Jung-Han Song (Korea Institute of Industrial Technology), Gi-Hyun Bae (Korea Institute of Industrial Technology)

Poster Session 3

February 4(Wed), 13:00-14:00  
Hall 3 (Timpohon)

Metal Forming

Session No.	Paper No.	Presenter & Authors
PP 3-19	P00195	Characterization of Springback in the Forming of Lightweight Aluminum Extruded Tubes  Jeongsik Lim (Gyeongbuk Technopark), Hoyoung Kang (Gyeongbuk Technopark), Seunghoon Cha (Gyeongbuk Technopark), Changhwan Seo (ALUS Co., Ltd.), Hyungjun Kim (Yeungnam University), Jinho Kim (Yeungnam University), Haeyong Yun (Korea Institute of Robotics & Technology Convergence)
PP 3-20	P00186	Coating Damage Tolerance Requirements for Insulation Performance in EV Motor Continuous Winding  Dong Kyu Lee (KITECH), Hyun Seok Choi (KITECH), You Jin Jo (KITECH), Myung Hyun Kim (KITECH), Seung Hyun Yeo (KITECH), Sang Kon Lee (KITECH), Myeong Sik Jeong (KITECH)
PP 3-21	P00168	Process Design Criteria for Insulation Integrity in Wire Forming of EV Motor Continuous Winding  You Jin Jo (KITECH), Ji Seob An (KITECH), Gi Ju Lee (BorgWarner DTC), Sun Kwang Hwang (KITECH), Sang Min Park (Pusan National University), Myeong Sik Jeong (KITECH)
PP 3-22	P00243	A Study on the Strain Localization Mechanism under High Strain Rates  Doyoon Lee (Seoul National University of Science and Technology), Jin Park (Seoul National University of Science and Technology), Semin Kim (Seoul National University of Science and Technology), Chang-Whan Lee (Seoul National University of Science and Technology), Jong-Bong Kim (Seoul National University of Science and Technology)

# Poster Session 3

February 4(Wed), 13:00-14:00  
Hall 3 (Timpohon)

## Welding, Joining

Session No.	Paper No.	Presenter & Authors
PP 3-23	P00206	Predicting Fracture Strength of Dissimilar FDS Connections under Combined Loading through Artificial Neural Network Dong-Gun Kim (Korea Institute of Industrial Technology), Oh-Suk Seo (Hwasin Co., Ltd.), Gi-Hyun Bae (Korea Institute of Industrial Technology), Young-Ho Seo (Korea Institute of Industrial Technology), Jung-Han Song (Korea Institute of Industrial Technology)
PP 3-24	P00203	Effect of Robotic Extrusion Welding Parameters on the Mechanical Performance of HDPE Butt Joints Suseong Woo (Korea Institute of Industrial Technology), Jisun Kim (Korea Institute of Industrial Technology)
PP 3-25	P00122	Effects of Cooling Techniques on Microstructure, Mechanical Properties and Thermal Distortion in Keyhole-Mode GTAW of 3mm SS316L Plates Ahmad Zabidi Md Taib (Muadzam Shah Vocational College), Mohd Suffian Misaran (University Malaysia Sabah), Abdullah Mohd Tahir (University Malaysia Sabah)
PP 3-26	P00101	Derivative-Based Bead Profile Analysis Method for Multi-Pass Welding of V-Groove Joints Kwan Woo Ko (Changwon National University), Hwi Jun Son (Changwon National University), Yeong Jae Kim (Changwon National University), Changjong Kim (Research Institute of Medium & Small Shipbuilding), Hee-Keun Lee (Research Institute of Medium & Small Shipbuilding), Dong-Young Kim (Hanwha Ocean), Ahruem Beck (Hanwha Ocean), Young Tae Cho (Changwon National University)
PP 3-27	P00097	Development of a Machine Learning-Based Prediction Algorithm for GMAW Bead Cross-Section Profiles Using a Laser Vision Sensor Hwi Jun Son (Changwon National University), Sung Been Han (Changwon National University), Yeong Jae Kim (Changwon National University), Jin Yong Han (Widin Co., Ltd.), Young Tae Cho (Changwon National University)

Poster Session 3

February 4(Wed), 13:00-14:00  
Hall 3 (Timpohon)

Polymer Processing

Session No.	Paper No.	Presenter & Authors
PP 3-28	P00209	<p>Theoretical and Experimental Analysis of the Area Increasing Rate of Stretchable Substrate Materials</p> <p>Taewon Park (University of Ulsan), Donggyu Kim (University of Ulsan), Seungbok Lee (KAIST), Jung-Yong Lee (KAIST), Eun-chae Jeon (University of Ulsan)</p>
PP 3-29	P00047	<p>Low Vapor Pressure Liquid-Based High Temperature-Stable Triboelectric Nanogenerators for Tactile Sensing</p> <p>Nebiyou Tadesse Debele (Myongji University), Teklebrahan Gebrekrstos Weldemhret (Dongguk University), Dong-Won Jang (Myongji University), Sang Kug Chung (Myongji University), Kang Park (Myongji University), Yong Tae Park (Myongji University)</p>
PP 3-30	P00037	<p>A Photo-Crosslinked GelMA Hydrogel System for Local Dexamethasone Delivery to Suppress Inflammation and Adhesion in Peripheral Nerve Injury</p> <p>Ji-Woo Park (Wonkwang University), Jae-Seok Kim (Wonkwang University), Kyoung Duck Seo (Wonkwang University), Seung-Jae Lee (Wonkwang University), So-Jung Gwak (Wonkwang University)</p>
PP 3-31	P00031	<p>A Novel Method for Measuring Areal Expansion in Highly Flexible Materials</p> <p>Taewon Park (University of Ulsan), Dong-gyu Kim (University of Ulsan), Eun-chae Jeon (University of Ulsan)</p>



# Poster Session 3

February 4(Wed), 13:00-14:00  
Hall 3 (Timpohon)

## Tribology, Surface Engineering

Session No.	Paper No.	Presenter & Authors
PP 3-32	P00198	Defect Passivation of PVD-Based Hard Coatings via ALD for Improved Corrosion and Mechanical Properties Myung-Jin Jung (Pusan National University), Soo Hyun Kim (Ulsan National Institute of Science and Technology), Se-Hun Kwon (Pusan National University)
PP 3-33	P00185	Micro/Nano Structure Replicated CNT/PDMS Composite Surface with Solar-Driven Photothermal Effect for Zero-Energy Anti-Icing Hyeonwoo Son (Kookmin University), Sumit Barthwal (Kookmin University), Si-Hyung Lim (Kookmin University)
PP 3-34	P00100	Extending Silicone Mold Durability through Resin Wetting Prevention Jae-Kang Kim (Kookmin University)
PP 3-35	P00081	Influence of Prepolymer Structure and Crosslink Density on the Mechanical Properties and CMP Behavior of Polyurethane Pads Yeongjeong Kang (Korea Institute of Industrial Technology), Jiyeon Oh (Korea Institute of Industrial Technology), Hanchul Cho (Korea Institute of Industrial Technology)
PP 3-36	P00080	Effect of Micropatterned Pad Design on Particle Removal Efficiency during Buffing Hokyoung Jung (Korea Institute of Industrial Technology), Doyeon Kim (Korea Institute of Industrial Technology)
PP 3-37	P00073	Influence of Micro-Patterned Pad Design on CMP Material Removal Rate Youngwook Park (Korea Institute of Industrial Technology), Taekyoung Lee (Korea Institute of Industrial Technology)
PP 3-38	P00051	Robust Microdroplet Dispensing Enabled by a Droplet Pusher Mechanism on Superhydrophobic Substrates Dong-Hyeon Lee (Chosun University), Jeong-Won Lee (Chosun University)

Poster Session 3

February 4(Wed), 13:00-14:00  
Hall 3 (Timpohon)

Tribology, Surface Engineering

Session No.	Paper No.	Presenter & Authors
PP 3-39	P00041	Atomic-Scale Simulation on Material Removal Mechanism according to Material Type in CMP Process  Dae-Jin Kim (Kyungpook National University), Hyun-Joon Kim (Kyungpook National University)
PP 3-40	P00040	Molecular Dynamics Study on the Tribological and Mechanical Characteristics of Doped DLC Nanocomposite Coatings  Sang-Hoon Lee (Kyungpook National University), Hyun-Joon Kim (Kyungpook National University)
PP 3-41	P00003	Copper-Based Surface Modification for Enhancing Corrosion Resistance of Magnetocaloric Materials  Dong-Hyeon Lee (Chosun University), Da Seul Shin (Korea Institute of Materials Science), Jeong-Won Lee (Chosun University)
PP 3-42	P00170	Micro-Hierarchical Structure Fabrication Method Using Water Vapor Condensation  Jeonghan Kang (Dong-A University), Hogeon Won (Dong-A University), Suyang Park (Dong-A University), Sungho Lee (Dong-A University)
PP 3-43	P00247	An Overview of Marine CO <sub>2</sub> Transport and Injection Technologies  Young Ju Kim (KIGAM), Nam Sub Woo (KIGAM), Sang Mok Han (KIGAM), Wang Do Lee (KIGAM), Hae Jin Jo (KIGAM)

## Poster Session 4

February 4(Wed), 15:30-16:30  
Hall 3 (Timpohon)

**Organizer**      Youngho Jeon (Ajou University, Korea),  
Jongkyeong Lim (Gachon University, Korea),  
Sung Yong Jung (Chosun University, Korea)

### Advanced Materials, Composites

Session No.	Paper No.	Presenter & Authors
PP 4-1	P00224	Feasibility Test for Mechanical Reinforcement of Aramid Paper Ji Hun Hong (Kumoh National Institute of Technology), Cheol ho Kim (KOLON INDUSTRIES), Hyun Chan Kim (Kumoh National Institute of Technology)
PP 4-2	P00114	Effect of Deep Cryogenic Treatment and Subsequent Aging on the Fatigue Performance and Microstructural Stability of Inconel 718 Alloy Dubin Lee (Korea Maritime and Ocean University), Dosik Shim (Korea Maritime and Ocean University)
PP 4-3	P00086	Geometry-Dependent Luminance of DLP 3D-Printed FAPbBr <sub>3</sub> /Polymer Lattice Structures Na Ye Jang (Changwon National University), Seo Rim Park (Changwon National University), Sun Hye Yoon (Changwon National University), Sung Tae Jung (IMEASURE Co., Ltd.), Young Tae Cho (Changwon National University)

### Micro and Nano Manufacturing

Session No.	Paper No.	Presenter & Authors
PP 4-4	P00233	Comparative Study of Silicon-on-Nothing (SON) Structures Fabricated via Metal-Assisted Chemical Etching and Deep Reactive Ion Etching Kibum Jung (Korea Advanced Institute of Science and Technology), Doohong Min (Korea Advanced Institute of Science and Technology), Taeyeong Kim (Korea Advanced Institute of Science and Technology), Jungchul Lee (Korea Advanced Institute of Science and Technology)
PP 4-5	P00227	Metamaterial Adhesive-Integrated Triboelectric Nanogenerators with Tunable and High-Performance Charge Generation and Adhesion Jinseo Kim (UNIST), Heejin Lee (UNIST), Dong Kwan Kang (UNIST), Junghwa Kang (UNIST), Hoon Eui Jeong (UNIST)

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Session No.	Paper No.	Presenter & Authors
PP 4-6	P00221	Growth and Optical Analysis of Carbon Nanofiber Black Coatings on Aluminum Alloys  Jinsung Rho (Hanbat National University)
PP 4-7	P00214	ZIF-67@Carbon Black In-situ Biomass Based Biodegradable Film with High Flexibility and Mechanical Properties for Ammonia Gas Sensing  Kalpana Pandey (Kookmin University), Deepak Poddar (KOREATECH), Hyeongmin Yoo (Kookmin University)
PP 4-8	P00204	Evaluation of the Potential of an Oil-Immersion-Based Drying Process for Nanocellulose Bulk Fabrication  Jeong Jin Choi (Kumoh National Institute of Technology), Jeong Bin Park (Kumoh National Institute of Technology), Wonhyung Lee (Kumoh National Institute of Technology), Hyun Chan Kim (Kumoh National Institute of Technology)
PP 4-9	P00179	Ultrafast Laser Processing for High-Resolution Side Electrodes for Large Area Display  Jeseong Lee (Kookmin University), Seung-Gab Kwon (Kookmin University), Bongchul Kang (Kookmin University)
PP 4-10	P00178	Laser-Induced Fabrication of Silicon Microstructures with Diverse Morphological Specification  Jongmoon Choi (Kookmin University), Sungjin Park (Kookmin University), Bongchul Kang (Kookmin University)
PP 4-11	P00245	Integrated Thrust-Temperature Prediction Model for Ultrasonic Vibration-Assisted Drilling of Unidirectional CFRP Laminates  Shuang Li (Yeungnam University), Yini Chen (Yeungnam University), Baorui Zhang (Yeungnam University), Tae Jo Ko (Yeungnam University)

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Session No.	Paper No.	Presenter & Authors
PP 4-12	P00158	<p>Conformal Skin Bioelectronics with Leakage Resistance Using Self-Adhesive Tip-Structured Liquid Metal Channel Patch</p> <p>Hyeonseok Song (UNIST), Sang-Woo Lee (UNIST), Jinseo Kim (UNIST), Seongjin Park (UNIST), Hoon Eui Jeong (UNIST)</p>
PP 4-13	P00134	<p>High-Performance Piezoelectric Nanogenerator Realized by Multistackable CNT Scaffolds Hybridized with BTO-P(VDF-TrFE)</p> <p>Jong G. Ok (Seoul National University of Science and Technology), Kwangjun Kim (Seoul National University of Science and Technology), Jongwon Park (Seoul National University of Science and Technology), Minwook Kim (Seoul National University of Science and Technology), Jun Seok Lee (Seoul National University of Science and Technology), Yong Tae Kim (Seoul National University of Science and Technology)</p>
PP 4-14	P00133	<p>Reliable Manufacturing of Multidimensional CNT Structures Based on Catalyst Nanoparticle Analysis and Generative Adversarial Network-Based Prediction</p> <p>Kwangjun Kim (Seoul National University of Science and Technology), Yong Tae Kim (Seoul National University of Science and Technology), Jun Seok Lee (Seoul National University of Science and Technology), Minwook Kim (Seoul National University of Science and Technology), Jong G. Ok (Seoul National University of Science and Technology)</p>
PP 4-15	P00132	<p>High-Throughput Manufacturing of Flexible Transparent Heaters via Facile Soft-Contact Solution Printing of Ag Microgratings</p> <p>Minwook Kim (Seoul National University of Science and Technology), Kwangjun Kim (Seoul National University of Science and Technology), Yong Tae Kim (Seoul National University of Science and Technology), Jun Seok Lee (Seoul National University of Science and Technology), Jong G. Ok (Seoul National University of Science and Technology)</p>

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Session No.	Paper No.	Presenter & Authors
PP 4-16	P00094	Fabrication of Microlens Arrays with Nanopattern-Induced Light Scattering for Suppression of Optical Leakage  Myung Seo Kim (Changwon National University), Seo Rim Park (Changwon National University), Jun Ho Song (Changwon National University), Young Tae Cho (Changwon National University)
PP 4-17	P00091	Scalable Dual-Layer Silicon Anode Architecture Fabricated via UV Nanoimprint Lithography-Based Roll-to-Plate Process  Yu Ju Han (Changwon National University), Seong Min Yoon (Changwon National University), Seo Na Yoon (Changwon National University), Seo Rim Park (Changwon National University), Young Tae Cho (Changwon National University)
PP 4-18	P00087	A Micromagnetic Approach to Local Heating Mechanisms in Cu–Cu Direct Bonding  Younggun Park (UNIST), Myeonghwan Kang (UNIST), Hye-Jin Ok (UNIST), Su-Mi Lee (UNIST), Ki-Suk Lee (UNIST)
PP 4-19	P00085	Study on Multiple Radially Distributed High-Aspect-Ratio Structures Using One-Step Exposure Based on the SPPW Process  Jun Ho Song (Changwon National University), Myung Seo Kim (Changwon National University), Seo Rim Park (Changwon National University), Seungwoo Shin (Korea Institute of Machinery & Materials), Young Tae Cho (Changwon National University)
PP 4-20	P00084	Selective Photo-Exposure-Based Fabrication of Slippery Surfaces for Enhanced Particle Aggregation  Dong Ju Kim (Changwon National University), Chae Hyeok Yoon (Changwon National University), Seong Min Yoon (Changwon National University), Young Tae Cho (Changwon National University)

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Session No.	Paper No.	Presenter & Authors
PP 4-21	P00083	Noise-Reduced SERS Detection Enabled by Liquid-Infused Microcavity Patterns with Air-Lifted Analyte Membrane  Seong Min Yoon (Changwon National University), Chae Hyeok Yoon (Changwon National University), Woo Young Kim (The Ohio State University), Tae Wan Kim (GigaLane Co., Ltd), Young Tae Cho (Changwon National University)
PP 4-22	P00072	Effects of Coating Thickness on the Durability and Recovery of Hydrophobic Coatings in Electrowetting-on-Dielectric (EWOD) Applications  Youngdoo Son (Myongji University), Woochan Kim (Myongji University), Daeyoung Lee (Microsystems, Inc.), Kang Park (Myongji University), Yong Tae Park (Myongji University), Dong-Won Jang (Myongji University), Sang Kug Chung (Myongji University)
PP 4-23	P00065	4D-Printed Bistable Platform for Integrated TENG-Capacitive Multi-Sensing and Acoustic Energy Harvesting  Su Sung Heo (Pusan National University), BaekGyu Kim (Pusan National University), SeungJae Huh (Pusan National University), Sang Min Park (Pusan National University)
PP 4-24	P00030	Effect of Heat-Treatment on Gentamicin-Loaded Polyvinyl Alcohol/Chitosan/ Gelatin Freeze-Dried Porous Sponge for Biomedical Applications  Faizan E Mustafa (Chonnam National University), Bong-Kee Lee (Chonnam National University)
PP 4-25	P00029	Sustainable PVA/Bi <sub>2</sub> Te <sub>3</sub> /CD Nanocomposite Films with Enhanced Mechanical and Active Packaging Functions  Hafiz Ali Raza Rafique (Chonnam National University), Bong-Kee Lee (Chonnam National University)

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Session No.	Paper No.	Presenter & Authors
PP 4-26	P00241	Homogeneous and Transparent GNR-CNC Composite Films: Scalable Production and Flexible Photothermal Performance  Yoonhyeok Guk (Korea Advanced Institute of Science and Technology), Hyungsoo Kim (Korea Advanced Institute of Science and Technology)
PP 4-27	P00218	Optimization of Drying Performance of an Active Greenhouse Solar Dryer  Abdul Rahman (UMS), Mohd Suffian Misaran (UMS), Mohd Kamel Wan Ibrahim (UMS), Mohd Adzrie Radzali (UMS), Md Mizanur Rahman (WUB)
PP 4-28	P00216	Effect of Gas Pressure and Temperature on Particle Size Distribution in Gas Atomization of SUS316L  Joong Bae Kim (Kongju National Univ), Yongsik Ham (Kongju National Univ), Gyuhong Min (Kongju National Univ), Jiwoon Lee (Kongju National Univ), Kibong Park (MK Co., Ltd.), Sangmin Lee (MK Co., Ltd.)
PP 4-29	P00212	Thermal-Fluid Analysis for Geometry Optimization of Cooling Plates in Heavy-Duty Truck Battery Packs  Yuchang Won (Yeungnam Unviersity), Sun Di (Yeungnam Unviersity), HyungJun Kim (Yeungnam Unviersity), Sungmin Kwon (Sewon Precision Co., Ltd.), Jongyun Kim (Sewon Precision Co., Ltd.), Kyungjin Ryu (Yeungnam University College), Senugchul Han (Yeungnam University College), Jinho Kim (Yeungnam Unviersity)
PP 4-30	P00210	Flash-Boiling-Based Oil-Water Separation System  Geon-Chan An (Kyungnam University), Geun-Dong Bae (Kyungnam University), Tae-Hyun Park (Kyungnam University)



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Session No.	Paper No.	Presenter & Authors
PP 4-31	P00169	Phase Flow Rate Measurement Method Using Distributed Optical Fiber Sensor in Horizontal Stratified Flow  Hanna Kim (Gyeongsang National University), Hyungmo Kim (Gyeongsang National University)
PP 4-32	P00136	Thermo-Mechanical Optimization and Data-driven Prediction of TGV Geometries for 3D Semiconductor Packaging  Jun Seok Lee (Seoul National University of Science and Technology), Yong Tae Kim (Seoul National University of Science and Technology), Kwangjun Kim (Seoul National University of Science and Technology), Minwook Kim (Seoul National University of Science and Technology), Jong G. Ok (Seoul National University of Science and Technology)
PP 4-33	P00127	Streamlined Droplet-Inspired Channels in PEM Fuel Cell  Ji Yeon Kim (Chosun University), Si Hyeon Kang (Chosun University), Sung Yong Jung (Chosun University)
PP 4-34	P00077	Assessment of Pre-Osteoblastic Cell Line Behaviors under Low Shear Stress Conditions  Nae-Un Kang (Wonkwang University), Eun Chae Kim (Wonkwang University), Sang-Gi Yu (Wonkwang University), Hye Jin U (Wonkwang University), You Min Kim (Wonkwang University), Gwan Yong Baek (Wonkwang University), Young-Sam Cho (Wonkwang University), Hyung Woo Kim (Wonkwang University), Seung-Jae Lee (Wonkwang University)
PP 4-35	P00069	Experimental and Theoretical Analysis of Electrostatic Effect Degradation in Respiratory Masks under Environmental Exposure  Yusun Lee (Seoul National University of Science and Technology), Dong-Bin Kwak (Seoul National University of Science and Technology)

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Session No.	Paper No.	Presenter & Authors
PP 4-36	P00046	CFD Simulation of the Hydraulic Snubber Locking Phenomenon Seungwon Jeon (Gyeongsang National University), Hyewon Lim (Gyeongsang National University), Jaegu Lee (Seonghwa Industrial Co., Ltd.), Jihun Yun (Seonghwa Industrial Co., Ltd.), Youngmin Kim (Seonghwa Industrial Co., Ltd.), Hyungmo Kim (Gyeongsang National University)
PP 4-37	P00045	Development of a Method for Monodisperse Particle Classification and Dry Coating of Active Materials Ji-Soo Lee (Hanyang University), Su-Chang Mah (Hanyang University), Jae-Hee Cho (Hanyang University), Seung-Min Heo (Hanyang University), Se-Jin Yook (Hanyang University)
PP 4-38	P00044	Heat Pipe-Assisted Passive Cooling for LED Lighting Fixtures in Plant Factories Seung-Min Heo (Hanyang University), Hak-Ho Nam (Hanyang University), Jae-Hee Cho (Hanyang University), Ji-Soo Lee (Hanyang University), Se-Jin Yook (Hanyang University)
PP 4-39	P00043	Relative Humidity Effects on Electrostatic Precipitator Performance Jae-Hee Cho (Hanyang University), Seok-Ju Hwang (Hanyang University), Seung-Min Heo (Hanyang University), Ji-Soo Lee (Hanyang University), Se-Jin Yook (Hanyang University)
PP 4-40	P00042	Development of an Isokinetic Sampling Probe for UAV-Based Atmospheric Aerosol Measurement Ye-Jun Kim (Hanyang University), Jae-Hee Cho (Hanyang University), Seung-Min Heo (Hanyang University), Ji-Soo Lee (Hanyang University), Se-Jin Yook (Hanyang University)

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Session No.	Paper No.	Presenter & Authors
PP 4-41	P00035	Development and Validation of a Liquid Level Indicator Using Distributed Optical Fiber Sensor  Hyewon Lim (Gyeongsang National University), Dong Eok Kim (Chung-Ang University), Hyungmo Kim (Gyeongsang National University)
PP 4-42	P00032	Electrospun Fibrous Sphere Architectures for Personal Thermal Regulation  Dhandayuthapani Thiyagarajan (Chonnam National University), Bong-Kee Lee (Chonnam National University)
PP 4-43	P00248	Development and Verification of an Integrated Operation Control System for Offshore Drilling Equipment Using Hardware-in-the-Loop Simulation  Sang Mok Han (KIGAM), Young Ju Kim (KIGAM), Nam Sub Woo (KIGAM), Wang Do Lee (KIGAM), Hae Jin Jo (KIGAM)

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