The 3rd

Emerging Technologies in Mechanical Engineering

ETME 2025

Organized by

The Korean Society of Mechanical Engineers

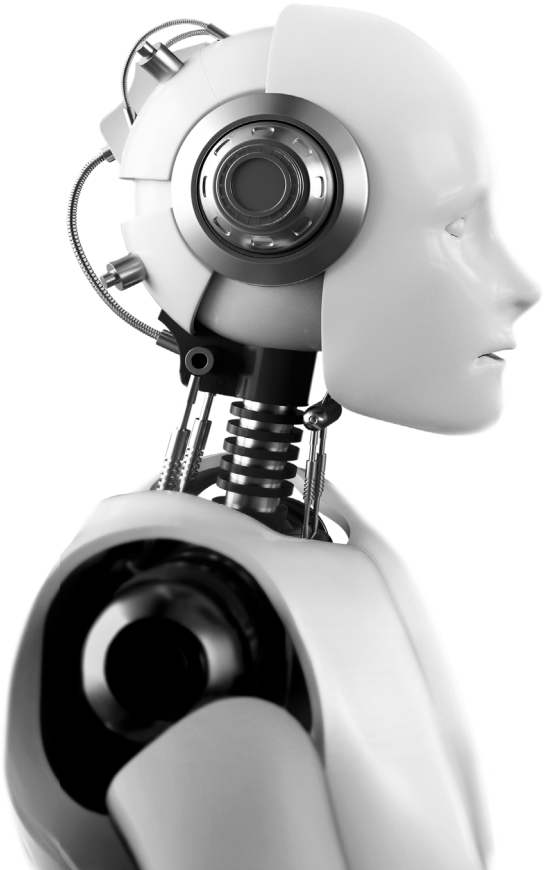
Co-organized by

The Chinese Mechanical Engineering Society

The Japan Society of Mechanical Engineers

December 10-12

High1 Grand Hotel Convention Tower,
Jeongseon, Korea



The 3rd
Emerging Technologies in Mechanical Engineering
ETME 2025

CONTENTS

The 3rd

Emerging Technologies in Mechanical Engineering

ETME 2025

Organized by

The Korean Society of Mechanical Engineers

Co-organized by

The Chinese Mechanical Engineering Society

The Japan Society of Mechanical Engineers

Welcome Message

The 3rd International Conference on Emerging Technologies in Mechanical Engineering (ETME2025) will be held at the High1 Grand Hotel Convention Tower (Kangwonland), Jeongseon, Korea, from December 10 to 12, 2025. ETME, held biennially, is jointly hosted by the Korean Society of Mechanical Engineers (KSME), the Chinese Mechanical Engineering Society (CMES), and the Japan Society of Mechanical Engineers (JSME). While organized by these societies, ETME is a truly international academic conference that brings together mechanical engineers from around the world. In today's rapidly evolving technological landscape, mechanical engineering must take a new leap forward by embracing emerging technologies–not only those within the field but also from outside disciplines–such as artificial intelligence, smart materials, and sustainable technologies.

ETME2025 seeks to foster international collaboration and interdisciplinary dialogue, offering a platform for sharing breakthroughs and exploring future directions in mechanical engineering. The conference program will feature plenary talks, oral sessions, and technical discussions across a wide range of thematic areas.

We warmly invite you to participate in shaping the future of mechanical engineering through the lens of emerging technologies.

Sungsoo Rhim

General Chair of ETME2025
Kyung Hee University, Korea

Wang Guobiao

General Chair of ETME2025
Tianjin University, China

Shu Takagi

General Chair of ETME2025
University of Tokyo, Japan

Organizing Committee

General Chairs

Sungsoo Rhim, Kyung Hee University, Korea
Wang Guobiao, Tianjin University, China
Shu Takagi, University of Tokyo, Japan

Secretary General

Byung Chul Kim, KOREATECH, Korea

Program Chairs

Daeil Kwon, Sungkyunkwan University, Korea
Ding Han, Huazhong University of Science and Technology, China
Hirotsugu Inoue, Institute of Science Tokyo, Japan

Publication Chairs

Seungbum Koo, KAIST, Korea
Tao Fei, Beihang University, China
Kazunari Shinagawa, Kyushu University, Japan

Local Organizing Committee Members

Nak-Kyun Cho, SEOULTECH, Korea
Heung Soo Kim, Dongguk University, Korea
Honghyun Cho, Chosun University, Korea
Yoojeong Noh, Pusan National University, Korea
Jaehyo Kim, Handong Global University, Korea

Program Information

Session Topic

General Session

- Engineering Materials and Technology
- Robotics and Control
- Production Engineering
- Dynamics, Vibration and Sounds
- Micro/Nano Engineering and Technology
- Bioengineering
- Solid Mechanics and Design
- Thermal and Power Engineering
- Fluids Engineering
- Applications of AI and ML
- Innovation in Mechanical Engineering Education
- Other Emerging Technologies in Mechanical Engineering

Special Session

Structural to Functional Conformality Transition: Mechanisms of Conformal Sensing and Flexible Fabrication Approaches

Session Chair: Dr. Nan Li (Xidian University, China)

Plenary/Keynote Lecturers

Plenary Lecturers

Bubble Clustering and Turbulent Modulation in Upward Bubbly Channel Flow

Prof. Shu Takagi
University of Tokyo, Japan

Wednesday, December 10 / 13:30~14:00 (Diamond I, 6F)

Bionic High-Performance Perception Theory and Technology

Prof. Zhiwu Han
Jilin University, China

Wednesday, December 10 / 14:00~14:30 (Diamond I, 6F)

Enhancement of Natural Gas Combustion Characteristics on Axial Burner Assisted by Plasma Discharges

Prof. Amornrat Kaewpradap
King Mongkut's University of Technology Thonburi, Thailand

Thursday, December 11 / 13:00~13:30 (Diamond I, 6F)

Women in Mechanical Engineering and Entrepreneurship

Engr. Archelle B. Baculi
Philippine Society of Mechanical Engineers Inc., Philippines

Thursday, December 11 / 13:30~14:00 (Diamond I, 6F)

Safe Human-Robot Collaboration

Prof. Sungsoo Rhim
Kyung Hee University, Korea

Friday, December 12 / 13:00~13:30 (Diamond I, 6F)

Keynote Lecturers

CraftsRobot: One Solution for Manufacturing of Large-Scale Complex Structures

Prof. Xinjun Liu
Tsinghua University, China

Thursday, December 11 / 14:10~14:34 (Diamond I, 6F)

Design of a Continuous Atmospheric Cooker and Cooler for Flexible Packaging for High Acid Fruits

Atty. Rodolfo M. Seredrica
Philippine Society of Mechanical Engineers Inc., Philippines

Friday, December 12 / 09:50~10:14 (Diamond I, 6F)

Advance Process Control

Engr. Jose Ronaldo E. Rosello
Philippine Society of Mechanical Engineers Inc., Philippines

Friday, December 12 / 11:00~11:24 (Diamond I, 6F)

One-Component Gas-Liquid Two-Phase Flows in Mini-Channel

Prof. Hitoshi Asano
Kobe University, Japan

Friday, December 12 / 15:20~15:44 (Diamond I, 6F)

Exploring Microfluidic Impedance Spectroscopy to Improve Health Care

Prof. Alongkorn Pimpin
Chulalongkorn University, Thailand

Thursday, December 11 / 11:00~11:24 (Diamond II, 6F)

Key Technologies for Intelligent Extraction of Assembly Boundaries in Thin-Walled Structures Driven by 3D Measurement

Prof. Jun Wang
Nanjing University of Aeronautics and Astronautics, China

Friday, December 12 / 14:10~14:34 (Diamond II, 6F)

Five-Dimensional Digital Twin Model: From Theory to Practice

Prof. Fei Tao
Beihang University, China

Friday, December 12 / 14:34~14:58 (Diamond II, 6F)

Energy Absorption Analysis of Natural Structures

Prof. Petch Jearanaisilawong
King Mongkut's University of Technology North Bangkok, Thailand

Friday, December 12 / 14:10~14:34 (Heart III, 6F)

Influence of Root Canal Curvature on the Torsional Resistance of Rotary Endodontic Files: A Finite Element and Experimental Study

Prof. Pairod Singhatanadgid
Chulalongkorn University, Thailand

Friday, December 12 / 16:30~16:54 (Heart III, 6F)

Session Timetable

Wednesday, December 10, 2025

Time/Room	Room 16 (Diamond I, 6F)	Room 17 (Diamond II, 6F)	Room 19 (Heart III, 6F)
A	Plenary Lectures I, II		
Session Chair	Prof. Sungsoo Rhim (Kyung Hee Univ.)		
13:30~14:00	Prof. Shu Takagi (University of Tokyo) (Online)		
14:00~14:30	Prof. Zhiwu Han (Jilin University)		
B	Engineering Materials and Technology I	Applications of AI and ML I	Bioengineering II
Session Chair	Prof. Nak-Kyun Cho (SEOULTECH)	Prof. Eun-Ho Lee (Sungkyunkwan Univ.)	Prof. Juyeol Bae (Chonnam National Univ.)
14:40~14:52	P00025 Xin Xu (Online)	P00141 SungGwan Park	P00137 Batbayar Khuyagbaatar (Online)
14:52~15:04	P00023 Faridah Wahab (Online)	P00139 Younghoon Cha	P00136 Batbayar Khuyagbaatar (Online)
15:04~15:16	P00118 Si-Wan Nam	P00138 Jun Hur	P00134 Junseo Kim
15:16~15:28	P00117 Dong Hyeok Choi	P00124 Muhammad Yawar Abbas	P00113 Adelle Ria Persad
15:28~15:40	P00104 Han Thi Thu	P00119 Hyunjun Jeon	P00112 Junki Hong
C	Engineering Materials and Technology II	Applications of AI and ML II	Micro/Nano Engineering and Technology I
Session Chair	Prof. Seong Su Kim (KAIST)	Dr. Dong-Cheon Baek (KIMM)	Prof. Jiho Kim (Hongik Univ.)
15:50~16:02	P00013 S. Pichumani (Online)	P00103 Xianglin Huang	P00014 Cagri Yilmaz (Online)
16:02~16:14	P00012 S. Pichumani (Online)	P00096 Hyun Woo Jang	P00079 Liangbin Guo (Online)
16:14~16:26	P00091 Jinwoo Lee	P00095 Eunho Heo	P00100 Shakeelur Raheman
16:26~16:38	P00099 Anindya Sundar Patra	P00090 HanYi Jang	P00143 Duc Thanh Chu
16:38~16:50	P00097 Delgermurun B	P00086 Jaeha Lee	P00052 Aung Ko Ko
D	Fluids Engineering I	Applications of AI and ML III	Special Session
Session Chair	Prof. Jonghyun Ha (Ajou Univ.)	Prof. Dongwon Lim (The Univ. of Suwon)	Prof. Nan Li (Xidian Univ.)
17:00~17:12	P00084 Jeonghyeon Nam	P00075 Collins Masimba (Online)	P00108 YongAn Huang P00076 Xueyong Wei P00072 Shifeng Guo
17:12~17:24	P00071 Zhenhua Dou	P00074 Raymundo R. Alvarado (Online)	
17:24~17:36	P00061 Mahmoud Rasti	P00065 Gineesh Gopi	
17:36~17:48	P00059 Amirreza Shahsavari	P00047 Jinwoo Song	
17:48~18:00	P00066 Jakir Hossain Imran	P00041 Jiale Liao	
18:10~	Welcome Reception (Grand Ballroom, 4F)		

Thursday, December 11, 2025

Time/Room	Room 16 (Diamond I, 6F)	Room 17 (Diamond II, 6F)	Room 19 (Heart III, 6F)
B	Fluids Engineering II	Applications of AI and ML IV	Dynamics, Vibration and Sounds I
Session Chair	Prof. Jinyul Hwang (Pusan National Univ.)	Dr. Jong Won Park (KIMM)	Prof. Myounggyu Noh (Chungnam National Univ.)
09:50~10:02	P00045 Yechan Seo	P00022 D. Bermagambet (Online)	P00140 Siti Norbaya Sahadan (Online)
10:02~10:14	P00044 Yechan Seo	P00018 Sri Harsh Chimmani (Online)	P00063 S. Suppakarnpanich (Online)
10:14~10:26	P00037 Zafar Abbas	P00040 Weifei Hu	P00114 Myounggyu Noh
10:26~10:38	P00036 Khoa Nguyen	P00016 Wonjun Yi	P00060 Beomgeun Park
10:38~10:50	P00034 Patel Spandana	P00165 Rismaya Kumar Mishra	P00058 Yanshuai Zhu
C	Fluids Engineering III	Keynote Lecture V & Applications of AI and ML V	Dynamics, Vibration and Sounds II
Session Chair	Prof. Rhokyun Kwak (Hanyang Univ.)	Prof. Dongwon Yun (DGIST)	Prof. Seunghun Baek (Pusan National Univ.)
11:00~11:12	P00033 Kumaresh Selvakumar	Prof. Alongkorn Pimpin (Chulalongkorn University)	P00032 Heap Yee Nean (Online)
11:12~11:24	P00031 Reza Alidoost Dafsari		P00051 Seunghyun Hwang
11:24~11:36	P00030 Youssef Gamal Nasr Ahmed	P00146 Changsheng Li	P00049 Sungjun Lee
11:36~11:48	P00029 Youssef Gamal Nasr Ahmed	P00144 Xuan Bang Nguyen	P00026 Jaeho Cho
11:48~12:00	P00028 Mehrzad Ansaripour	P00094 Daeho Jang	P00145 Sathishkumar Palanisamy
12:00~13:00	Lunch		
D	Plenary Lectures III, IV		
Session Chair	Prof. Sungsoo Rhim (Kyung Hee Univ.)		
13:00~13:30	Prof. Amornrat Kaewpradap (King Mongkut's University of Technology Thonburi)		
13:30~14:00	Engr. Archelle B. Baculi (Philippine Society of Mechanical Engineers Inc.)		

Time/Room	Room 16 (Diamond I, 6F)	Room 17 (Diamond II, 6F)	Room 19 (Heart III, 6F)
E	Keynote Lecture I & Fluids Engineering IV	Solid Mechanics and Design I	Thermal and Power Engineering IV
Session Chair	Prof. Hyoungsoo Kim (KAIST)	Prof. Jung-Hoon Yun (Kongju National Univ.)	Prof. Jeong-Heon Shin (Hongik Univ.)
14:10~14:22	Prof. Xinjun Liu (Tsinghua University)	P00133 Xuan Quang Pham	P00135 Taekhyun Kang
14:22~14:34		P00128 Fedor Pitsukov	P00132 Cuong Duc Nguyen
14:34~14:46	P00027 Mehrzad Ansaripour	P00127 Munyaneza Olivier	P00130 Eunsoo Kim
14:46~14:58	P00021 Quoc-Viet Le	P00116 Jeongguk Kim	P00129 Hwihwan Han
14:58~15:10		P00115 Raj Kumar Pandey	P00126 Hyochang Cho
16:30~17:50	Opening Ceremony & KSME General Assembly (Grand Ballroom, 4F)		
18:00~18:20	Lottery I (Grand Ballroom, 4F)		
18:30~	Banquet (Convention Hall, 5F)		

Friday, December 12, 2025

Time/Room	Room 16 (Diamond I, 6F)	Room 17 (Diamond II, 6F)	Room 19 (Heart III, 6F)
B	Keynote Lecture II & Production Engineering I	Robotics and Control II	Solid Mechanics and Design II
Session Chair	Prof. Byung Chul Kim (KOREATECH)	Prof. Sanghyun Kim (Kyung Hee Univ.)	Dr. Muhammad Muzammil Azad (Dongguk Univ.)
09:50~10:02	Atty. Rodolfo M. Seredrica (Philippine Society of Mechanical Engineers Inc.)	P00042 B. Dosymzhan (Online)	P00107 Seung-Yeon Im
10:02~10:14		P00125 Ashhad Kamal Taseer	P00106 Min-Beom Kim
10:14~10:26	P00111 Ji Won Kim	P00122 Doyeon Han	P00098 Hikmat Yar
10:26~10:38	P00110 Jin Hun Lee	P00121 Pil Geun Jang	P00093 Taeyang Kim
10:38~10:50	P00057 Kwang-Kyu Lee		P00092 Jinwook Park
C	Keynote Lecture III & Production Engineering II	Robotics and Control III	Solid Mechanics and Design III
Session Chair	Prof. Dong Gyu Ahn (Chosun Univ.)	Prof. Dongwon Yun (DGIST)	Dr. Sohail Muhammad (Dongguk Univ.)
11:00~11:12	Engr. Jose Ronaldo E. Rosello (Philippine Society of Mechanical Engineers Inc.)	P00101 Ngoc Vu Vo	P00062 Suppasin Ngamlikitlert (Online)
11:12~11:24		P00020 Bohyeong Park	P00088 Sunghyun Kim
11:24~11:36	P00054 Gideon Simon Mduma	P00019 Jubong Lee	P00085 Sang Min Lee
11:36~11:48	P00043 Sri Harsh Chimmani (Online)	P00120 Junhong Im	P00070 Neha Pandey
11:48~12:00	P00024 Jing-Fung Lin (Online)		P00069 Neha Pandey
12:00~13:00	Lunch		
D	Plenary Lecture V & Robotics and Control I		
Session Chair	Prof. TaeWon Seo (Hanyang Univ.)		
13:00~13:30	Prof. Sungsoo Rhim (Kyung Hee University)		
13:30~13:42	P00082 Baktiyar Brekeshev (Online)		
13:42~13:54	P00068 Gulam Dastagir Khan (Online)		
13:54~14:06			
E	Thermal and Power Engineering I	Keynote Lecture VI, VII	Keynote Lecture VIII & Solid Mechanics and Design IV
Session Chair	Prof. Junho Oh (Hanyang Univ.)	Prof. Yong-Hwa Park (KAIST)	Dr. Jinwoo Song (Dongguk Univ.)
14:10~14:22	P00087 Pheerutchai Krajangsod (Online)	Prof. Jun Wang (Nanjing University of Aeronautics and Astronautics)	Prof. Petch Jearanaisilawong (King Mongkut's University of Technology North Bangkok)
14:22~14:34	P00083 Narong Na Puengbun (Online)		
14:34~14:46	P00123 Jyh-Chen Chen	Prof. Fei Tao (Beihang University)	P00056 Muhammad Haris Yazdani
14:46~14:58	P00102 Muhammad Danyal Qasim		P00055 Muhammad Umar Elahi
14:58~15:10	P00089 Tsogtbilegt Boldoo		P00017 Mathias Wallin
F	Keynote Lecture IV & Thermal and Power Engineering II	Bioengineering I	Solid Mechanics and Design V
Session Chair	Prof. Taeyong Kim (Seoul National Univ.)	Prof. Jungsil Kim (Kyungpook National Univ.)	Dr. Hikmat Yar (Dongguk Univ.)
15:20~15:32	Prof. Hitoshi Asano (Kobe University) (Online)	P00080 D. Subramaniam (Online)	P00053 Yunn-Lin Hwang
15:32~15:44		P00148 Badrul I. B. Hisham (Online)	P00038 Rana Talal Ahmad Khan
15:44~15:56	P00048 Benrico Fredi Simamora	P00149 Nurin Tihani Nazemi	P00035 Muhammad Muzammil Azad
15:56~16:08	P00039 Thanyalak Sudjan	P00150 Siti Adawiyah Zulkefli	
16:08~16:20	P00147 Zafar Usman	P00105 Na Jin Seo	
G	Thermal and Power Engineering III		Keynote Lecture IX & Solid Mechanics and Design VI
Session Chair	Prof. Joon Sang Kang (KAIST)		Dr. Xianglin Huang (Dongguk Univ.)
16:30~16:42	P00081 Bing Yi		Prof. Pairod Singhatanadgid (Chulalongkorn University) (Online)
16:42~16:54	P00077 Mi Fan		
16:54~17:06	P00067 Jinu Sudhakaran		P00015 Fei Wu
17:06~17:18	P00064 Xuan Quang Duong		
17:18~17:30	P00050 Joohan Bae		
17:40~18:00	Lottery II (Lobby, 5F)		

Technical Program

Room 16 (Diamond I)

Wednesday, December 10

13:30~14:30	**Plenary Lectures I, II** Session Chair: Prof. Sungsoo Rhim (Kyung Hee Univ.)
We16A001	**[Plenary] (Online)** Bubble Clustering and Turbulent Modulation in Upward Bubbly Channel Flow / Shu Takagi* (Univ. of Tokyo)
We16A002	**[Plenary]** Bionic High-Performance Perception Theory and Technology / Zhiwu Han* (Jilin Univ.)
14:40~15:40	**Engineering Materials and Technology I** Session Chair: Prof. Nak-Kyun Cho (Seoul Nat'l Univ. of Sci. and Tech.)
We16B001	**(Online)** The Influence of Induction Block Topology Structure on Force Distribution in Coil-Less Electromagnetic Forming Process / Xin Xu* and Fenqiang Li (Xiamen Univ. of Tech.), Liang Huang (Huazhong Univ. of Sci. and Tech.), Zhisong Huang and Qianting Wang (Xiamen Univ. of Tech.)
We16B002	**(Online)** Sound Absorption Characteristics of Waste Natural Fiber Composites for Sustainable Noise Absorption Materials / Faridah Wahab*, Tan Wei Hong, Ragunathan Santiagoo, and Nur Zahirah Zainuddin (Universiti Malaysia Perlis)
We16B003	A Study on Pretreatment Processes for Stabilizing the Mechanical Properties of Natural Fiber / Si-Wan Nam*, Hyeon-Min Jeong, Dong Hyeok Choi, Jin-Hun Kim, and Hui-Yun Hwang (Gyeongkuk Nat'l Univ.)
We16B004	Analysis of Mechanical Properties of Meta-Structure Reinforced Adhesive / Dong Hyeok Choi* and Hui Yun Hwang (Gyeongkuk Nat'l Univ.)
We16B005	Hydrothermal Synthesis of SnS_2/Graphene Composite as High-Performance Electrode for Supercapacitor Applications / Han Thi Thu*, Hyunwoong Kim, Hyemin Kim, and Honghyun Cho (Chosun Univ.)
15:50~16:50	**Engineering Materials and Technology II** Session Chair: Prof. Seong Su Kim (KAIST)
We16C001	**(Online)** Experimental Analysis on the Mechanical Properties of Dissimilar Material Joint During Various Types of Current During TIG Welding / Sivachidambaram Pichumani* (ESCP Business School), Raghuraman Srinivasan and Venkatraman Ramamoorthi (SASTRA Deemed Univ.)
We16C002	**(Online)** Influence of Flux Coating During Dissimilar Welding of Copper with Brass Using ATIG Welding Process / Sivachidambaram Pichumani* (ESCP Business School), Raghuraman Srinivasan and Venkatraman Ramamoorthi (SASTRA Deemed Univ.)

We16C003 Development of Large Language Model Alloy Design System for Titanium / Jinwoo Lee* (Sungkyunkwan Univ.), Ki-Wan Seo and Eun-Soo Park (Seoul Nat'l Univ.), Dongwoo Lee (Sungkyunkwan Univ.)

We16C004 A Hydrogel-Based Seawater Evaporator for a High Rate of Clean Water Production via Photothermal and Electrothermal Joule Heating Effect / Anindya Sundar Patra* and Sang Joon Lee (POSTECH)

We16C005 Design and Additive Manufacturing of TPMS-Based Metamaterials for Robotic Locomotion Systems / Delgermurun B*, Seoyoon Kim, Kang-Hee Lee, and Jung-Yup Kim (Seoul Nat'l Univ. of Sci. and Tech.)

17:00~18:00 Fluids Engineering I
Session Chair: Prof. Jonghyun Ha (Ajou Univ.)

We16D001 Drag Reduction by Ventilated Two-Dimensional Supercavitation / Jeonghyeon Nam* and Yeunwoo Cho (KAIST)

We16D002 Research on Load Disturbance Suppression in Electro-Hydrostatic Servo Systems Based on Adaptive ADRC / Zhenhua Dou*, Kai Guo, and Jie Sun (Shandong Univ.), Xiaoming Huang (Shandong Univ. of Aeronautics)

We16D003 3D Velocity Field and Wake Topology of Freely Descending Plates / Mahmoud Rasti*, Jinho Oh, Se Chul Oh, and Kyung Chun Kim (Pusan Nat'l Univ.)

We16D004 Enhanced Performance of Bladeless Wind Energy Harvesters Through Downstream Bluff Body Integration Under Atmospheric Boundary Layer Conditions / Amirreza Shahsavari*, Aref Afsharfard, and Kyung Chun Kim (Pusan Nat'l Univ.)

We16D005 NIR Imaging of Fluid–Tissue Dynamics and Predictive Analysis of Rheology-Driven Needle-Free Jet Injection in Ex Vivo Porcine Skin / Jakir Hossain Imran*, Myung Gyun Joung, and Jung Kyung Kim (Kookmin Univ.)

18:10~19:00 Welcome Reception (Grand Ballroom, 4F)

Thursday, December 11

09:50~10:50 Fluids Engineering II
Session Chair: Prof. Jinyul Hwang (Pusan Nat'l Univ.)

Th16B001 Effect of Venturi Contraction Ratio on Swirling Flow Characteristics / Yechan Seo* and Jeekeun Lee (Jeonbuk Nat'l Univ.)

Th16B002 Improvement of Fuel Distribution in Slinger-Type Nozzles for Gas Turbine Engines / Yechan Seo* and Jeekeun Lee (Jeonbuk Nat'l Univ.)

Th16B003 Experimental Investigation of Spray Atomization Characteristics of Liquid Jet in Crossflow Using Spray Bar / Zafar Abbas*, Reza Alidoost Dafsari, and Jeekeun Lee (Jeonbuk Nat'l Univ.)

Th16B004 Numerical Modeling of Fiber Orientation Within Deposition Flow in Fused Filament Fabrication / Khoa Nguyen* and Dong-Wook Oh (Chosun Univ.)

Th16B005 Numerical Analysis of V-Gutter Wake Dynamics Under Various Turbulence Models / Patel Spandana*, Kumaresh Selvakumar, and Jeekeun Lee (Jeonbuk Nat'l Univ.)

11:00~12:00	**Fluids Engineering III** Session Chair: Prof. Rhokyun Kwak (Hanyang Univ.)
Th16C001	Investigation of Flow Field Responses Under Fuel Excitation Frequencies in a Swirling Gas Turbine Combustor / Kumaresh Selvakumar* and Jeekeun Lee (Jeonbuk Nat'l Univ.)
Th16C002	Experimental Analysis of Single Droplet Impact on Solid Surface: Spreading and Dynamics / Reza Alidoost Dafsari*, Hojun Park, Mehrzad Ansaripour, and Jeekeun Lee (Jeonbuk Nat'l Univ.)
Th16C003	Hot-Wire Investigation of Turbulent Flow Characteristics in a Geometrically Modified Rectangular Nozzle / Youssef Gamal Nasr Ahmed*, Reza Alidoost Dafsari, Mehrzad Ansaripour, and Jeekeun Lee (Jeonbuk Nat'l Univ.)
Th16C004	Effect of Rectangular Nozzle Lower Plate Extension on the Flow Structure / Youssef Gamal Nasr Ahmed*, Reza Alidoost Dafsari, Mehrzad Ansaripour, and Jeekeun Lee (Jeonbuk Nat'l Univ.)
Th16C005	Characterization of Airborne Drift Spatial Droplet Distribution: Experimental Mapping and Modeling Approach / Mehrzad Ansaripour* and Reza Alidoost Dafsari (Jeonbuk Nat'l Univ.), Seung-Hwa Yu (Rural Development Administration), Jeekeun Lee (Jeonbuk Nat'l Univ.)
12:00~13:00	**Lunch**
13:00~14:00	**Plenary Lectures III, IV** Session Chair: Prof. Sungsoo Rhim (Kyung Hee Univ.)
Th16D001	**[Plenary]** Enhancement of Natural Gas Combustion Characteristics on Axial Burner Assisted by Plasma Discharges / Amornrat Kaewpradap* (King Mongkut's Univ. of Tech. Thonburi)
Th16D002	**[Plenary]** Women in Mechanical Engineering and Entrepreneurship / Archelle B. Baculi* (Philippine Society of Mechanical Engineers Inc.)
14:10~14:58	**Keynote Lecture I & Fluids Engineering IV** Session Chair: Prof. Hyoungsoo Kim (KAIST)
Th16E001	**[Keynote]** CraftsRobot: One Solution for Manufacturing of Large-Scale Complex Structures / Xinjun Liu*, Fugui Xie, and Zenghui Xie (Tsinghua Univ.)
Th16E002	Wind Tunnel-Based Nozzle Classification: Airborne Drift Performance / Mehrzad Ansaripour* and Reza Alidoost Dafsari (Jeonbuk Nat'l Univ.), Chun Gu Lee and Seung-Hwa Yu (Rural Development Administration), Jeekeun Lee (Jeonbuk Nat'l Univ.)
Th16E003	A Variable Orifice Nozzle for Enhanced Perpendicular Alignment in Fused Filament Fabrication / Quoc-Viet Le* and Dong-Wook Oh (Chosun Univ.)
16:30~17:50	**Opening Ceremony & KSME General Assembly (Grand Ballroom, 4F)**
18:00~18:20	**Lottery I (Grand Ballroom, 4F)**
18:30~20:00	**Banquet (Convention Hall, 5F)**

Friday, December 12

09:50~10:50	**Keynote Lecture II & Production Engineering I** Session Chair: Prof. Byung Chul Kim (Korea Univ. of Tech. and Education)
Fr16B001	**[Keynote]** Design of a Continuous Atmospheric Cooker and Cooler for Flexible Packaging for High Acid Fruits / Rodolfo M. Seredrica* (Philippine Society of Mechanical Engineers Inc.)
Fr16B002	Searching Detailed Design Shapes from a Conceptual Design Shape Using Contrastive Learning on Multi-View Images / Ji Won Kim* and Byung Chul Kim (Korea Univ. of Tech. and Education)
Fr16B003	A Genetic Algorithm-Based Viewpoint Optimization Method for Terrestrial Laser Scanning of Ship Blocks / Jin Hun Lee* (Korea Univ. of Tech. and Education), Yeo Un Yoon (Samsung Heavy Industries Co., Ltd.), Byung Chul Kim (Korea Univ. of Tech. and Education)
Fr16B004	Investigation of the Effect of Lattice and TPMS Geometries on CO_2 Adsorption Performance of Activated Carbon-Coated Structures / Kwang-Kyu Lee* and Dong-Gyu Ahn (Chosun Univ.)
11:00~12:00	**Keynote Lecture III & Production Engineering II** Session Chair: Prof. Dong Gyu Ahn (Chosun Univ.)
Fr16C001	**[Keynote]** Advanced Process Control / Jose Ronaldo E. Rosello* (Philippine Society of Mechanical Engineers Inc.)
Fr16C002	Optimization of Lattice Structure for Enhanced Carbon Dioxide Capture Using a Pareto Analysis / Gideon Simon Mduma*, Dong-Gyu Ahn, and Young Dal Jeong (Chosun Univ.)
Fr16C003	**(Online)** Implementing an Operator-Led Root Cause Analysis Framework: A Visual Methodology for Sustainable Production Floor Problem-Solving / Sri Harsh Chimmani* (Univ. at Buffalo/Lactalis US Yogurt)
Fr16C004	**(Online)** Study of the Strength of Nylon with Different Glass Fiber Ratios / Jing-Fung Lin* and Huang-Tien Kuo (CTBC Univ. of Tech.)
12:00~13:00	**Lunch**
13:00~13:54	**Plenary Lecture V & Robotics and Control I** Session Chair: Prof. TaeWon Seo (Hanyang Univ.)
Fr16D001	**[Plenary]** Safe Human-Robot Collaboration / Sungsoo Rhim* (Kyung Hee Univ.)
Fr16D002	**(Online)** Attitude Estimation of an All-Rotating Symmetric Rotorcraft / Baktiyar Brekeshev* (Kazakh-British Technical Univ.), Christos Spitas (Univ. of Nottingham), Muhammad Ilyas (Kazakh-British Technical Univ.)
Fr16D003	**(Online)** AI-Driven Inspection: Transforming Building Safety with Autonomous Robot / Gulam Dastagir Khan* (Sultan Qaboos Univ.), Gholibjon Qasobov, Rasul Tolengutov, Arlan Baikurazov, and Muhammad Ilyas (Kazakh-British Technical Univ.)

14:10~15:10	**Thermal and Power Engineering I** Session Chair: Prof. Junho Oh (Hanyang Univ.)
Fr16E001	**(Online)** Heat Transfer Enhancement in a Tube Mounted with Helical Tape / Pheerutchai Krajangsod* and Smith Eiamsa-ard (Mahanakorn Univ. of Tech.)
Fr16E002	**(Online)** Thermal-Hydraulic Performance of Heat Exchanger Tubes with Coupled Twisted Tape Inserts / Narong Na Puengbun*, Khwanchit Wongcharee, and Smith Eiamsa-ard (Mahanakorn Univ. of Tech.)
Fr16E003	Effects of Different Internal Radiation Models on the Heat Transfer During the Czochralski β-Ga_2O_3 Crystal Growth / Jyh-Chen Chen* and Hai-Dang Nguyen (Nat'l Central Univ.)
Fr16E004	Integrating Heat Transfer Physics and Melt Logistics for Energy-Efficient Operations of a Die-Casting Facility / Muhammad Danyal Qasim*, Younghwan Joo, and Sung-il Kim (Korea Inst. of Energy Reserach)
Fr16E005	Experimental Investigation of Thermal Performance and Enhancement Mechanisms in MWCNT-Modified LiBr/H_2O Single-Stage Absorption Cooling Systems / Tsogtbilegt Boldoo*, Nayoung You, Minjung Lee, and Honghyun Cho (Chosun Univ.)
15:20~16:20	**Keynote Lecture IV & Thermal and Power Engineering II** Session Chair: Prof. Taeyong Kim (Seoul Nat'l Univ.)
Fr16F001	**[Keynote] (Online)** One-Component Gas-Liquid Two-Phase Flows in Mini-Channel / Hitoshi Asano* (Kobe Univ.)
Fr16F002	CFD Investigation of Diameter-Induced Turbulence in Molten Salt Natural Circulation Loops / Benrico Fredi Simamora*, Jiyong Kim, and Jae Young Lee (Handong Global Univ.)
Fr16F003	Parametric Numerical Study of a Windproof Cooking Gas Burner: Effects of Horn Geometry and Distance of Windproof on Thermal Performance and Emissions / Thanyalak Sudjan*, Amornrat Kaewpradap, and Sumrerng Jugjai (King Mongkut's Univ. of Tech. Thonburi)
Fr16F004	Structural and Thermal Design of a Plastic Road Divider with Improved Heat Aging Resistance and Wind Pressure Durability / Zafar Usman*, Hossain Md Biplab, Hyo Joon Kim, Naj muddin, and Suresh Alapati (Kyungsung Univeristy)
16:30~17:30	**Thermal and Power Engineering III** Session Chair: Prof. Joon Sang Kang (KAIST)
Fr16G001	A Topology Optimization Framework for Enhancing the Energy Efficiency of Porous Electrodes / Qiqi Zhang and Bing Yi* (Central South Univ.), Rui Liu (Nanjing Univ. of Sci. and Tech.), Xiang Peng (Zhejiang Univ. of Tech.)
Fr16G002	Finite Element Modeling and Stress Analysis of Zero-Backlash Roller Enveloping Precision Reducer Considering the Effect of Temperature Rise / Mi Fan*, Deng Xingqiao, and Wang Shisong (Chengdu Univ. of Tech.)
Fr16G003	Burn Risk Assessment of Radiant Heaters in Electric Vehicles Considering Skin Contact Pressure / Jinu Sudhakaran* and Jung Kyung Kim (Kookmin Univ.)
Fr16G004	Enhancing Adsorption Chiller System Performance by Using Topology Optimization Method / The Nam Tran (Vietnam Maritime Univ.), Jea Dong Chung (Sejong Univ.), Xuan Quang Duong* (Vietnam Maritime Univ.)

Fr16G005	Experimental Validation of a Piezoelectric Bladeless Wind Energy Harvester Under Resonance Conditions / Joohan Bae*, Gun Woo Lee, and Jae Young Lee (Handong Global Univ.)

17:40~18:00	**Lottery II (Lobby, 5F)**

Room 17 (Diamond II)

Wednesday, December 10

14:40~15:40	**Applications of AI and ML I** Session Chair: Prof. Eun-Ho Lee (Sungkyunkwan Univ.)
We17B001	Implementing Natural Multi-Gait Locomotion for Humanoid Robots Without Reference / SungGwan Park* (Kyung Hee Univ.), Gunwoo Kim (Safetics), Sungsoo Rhim (Kyung Hee Univ.)
We17B002	Method for Improving Collision Force/Pressure Prediction Performance Between Human and Robot Colliders Using an Arbitrary Shape Point Cloud-Based Transformer / Younghoon Cha* and Sungsoo Rhim (Kyung Hee Univ.)
We17B003	Remaining Useful Life Estimation of Lithium-Ion Batteries Based on Degradation Indicators / Jun Hur* and Chang-wan Kim (Konkuk Univ.)
We17B004	PHM for Pneumatic Cylinders: AutoML Predictions with Reliability-Aware SLM Reporting / Muhammad Yawar Abbas*, Hansom Kim, Choongsung Lee, and Jongwon Park (Korea Inst. of Machinery and Materials)
We17B005	Image Inpainting-Based Point Cloud Restoration for Enhancing Classification of Unmanned Surface Vehicles / Hyunjun Jeon* (Kongju Nat'l Univ.), Eon-ho Lee (Hanwha Systems), Sejin Lee (Kongju Nat'l Univ.)

15:50~16:50	**Applications of AI and ML II** Session Chair: Dr. Dong-Cheon Baek (Korea Inst. of Machinery and Materials)
We17C001	Physics-Informed Probabilistic Machine Learning for Battery Degradation Diagnostics Under Dynamic Mechanical and Electrochemical Conditions / Xianglin Huang* and Heung Soo Kim (Dongguk Univ.)
We17C002	Application and Evaluation of a Reinforcement Learning-Based Adaptive Counterpulsation Control Using Pulsatile ECMO / Hyun Woo Jang*, Seong-Min Kang, and Seong-Wook Choi (Kangwon Nat'l Univ.)
We17C003	Spline Dimensional Decomposition via Gradient-Enhanced l_1-Minimization for High-Dimensional Uncertainty Quantification With Sparse Datasets / Eunho Heo* and Dongjin Lee (Hanyang Univ.)
We17C004	Uncertainty Quantification and Sampling Strategies for Efficient Design of Experiments / HanYi Jang*, Yoojeong Noh, and YoungJin Kang (Pusan Nat'l Univ.), Han Kim, SeongHyeon Yun, and DaHye Yoo (LG Electronics)

We17C005	Impact of Sampling Rate on Current Signal-Based Fault Detection and Diagnosis of PMSMs / Jaeha Lee*, Yoojeong Noh, Cheewoo Lee, and Hyeonmyeong Woo (Pusan Nat'l Univ.), Heetae Jin and Gyungdae Min (Hanhwa Aerospace)
17:00~18:00	**Applications of AI and ML III** Session Chair: Prof. Dongwon Lim (The Univ. of Suwon)
We17D001	**(Online)** Hybrid EKF-DQN Model for Real-Time Stabilization and Drift Reduction of a Quadcopter UAV / Collins Masimba*, Kuanysh Yessenzhanov, Duisek Bermagambet, and Muhammad Ilyas (Kazakh-British Technical Univ.)
We17D002	**(Online)** Convolutional Neural Networks for Classification of Breast Mass Lesions / Raymundo Ramos Alvarado*, Brenda Guadalupe Tapia Campuzano, Óscar Mario Zárate Moreno, Fabiola Hernández Hernández, and Madeleine Medina Castillo (Universidad Politécnica de Querétaro)
We17D003	Near-Infrared Image-Based Thermal Comfort Prediction for Occupant-Centric Climate Control in Electric Vehicles / Gineesh Gopi*, Jakir Hossain Imran, and Jung Kyung Kim (Kookmin Univ.)
We17D004	Mitigating Data Drift for Robust Anomaly Detection in In-Line Quality Control of Harness Manufacturing / Jinwoo Song* and Heung Soo Kim (Dongguk Univ.)
We17D005	A Physics-Informed Parametric Dynamic Mode Deposition Reduced-Order Method for Wind Turbine Drivetrain Digital Twins / Jiale Liao*, Weifei Hu, Jianhao Fang, Jiquan Yan, Feng Zhao, and Jianrong Tan (Zhejiang Univ.)
18:10~19:00	**Welcome Reception (Grand Ballroom, 4F)**

Thursday, December 11

09:50~10:50	**Applications of AI and ML IV** Session Chair: Dr. Jong Won Park (Korea Inst. of Machinery and Materials)
Th17B001	**(Online)** RL-Based Path Optimization for GPS-Navigated Drones Using Human-in-Loop Deep Deterministic Policy Gradient Technique / Duisek Bermagambet*, Kuanyshbek Abdurazak, Al-Adi Zhunus, Olzhas Kenzhaliyev, and Muhammad Ilyas (Kazakh-British Technical Univ.)
Th17B002	**(Online)** Conversational AI Framework for Democratized Capacity Modeling in Smart Manufacturing Systems / Sri Harsh Chimmani* (Univ. at Buffalo/Lactalis US Yogurt)
Th17B003	Spatiotemporal-Dependent Reliability Analysis with Adaptive Sampling Physics-Informed Neural Networks / Weifei Hu*, Jiale Liao, Jiaquan Yan, and Jianhao Fang (Zhejiang Univ.), Ikjin Lee (KAIST), Jianrong Tan (Zhejiang Univ.)
Th17B004	Low Frequency Vibration Signal Based Anomaly Detection Algorithm for C-GIS Switchgear Operator / Wonjun Yi*, Yong-Hwa Park, Hyunjun Kim, and Kangmin Jang (KAIST), Jeonghong Park (HD Hyundai Electric)
Th17B005	A Comprehensive Review on Multi-Fault Diagnosis of Rotating Machines in Industrial Applications / Rismaya Kumar Mishra* and Yong-Hwa Park (KAIST)

11:00~12:00	**Keynote Lecture V & Applications of AI and ML V** Session Chair: Prof. Dongwon Yun (DGIST)
Th17C001	**[Keynote]** Exploring Microfluidic Impedance Spectroscopy to Improve Health Care / Alongkorn Pimpin* (Chulalongkorn Univ.), Thammawit Suwannaphan (King Mongkut's Univ. of Tech. North Bangkok), Nattapol Damrongplasit, Werayut Srituravanich, Boonchai Techaumnat, and Pakpum Somboon (Chulalongkorn Univ.)
Th17C002	Hybrid Modeling and Prediction Expert System of Resistance Spot Welding Quality Based on Mechanism and Data Dual-loop Fusion / Changsheng Li* and Lishu Lv (Hunan Univ. of Sci. and Tech.)
Th17C003	Two-Stage Deep Learning Framework for Classification and Segmentation of Cracks in Semiconductor EMC Packages / Xuan Bang Nguyen*, Doyun Kim, and Taek Gyun Kim (Hanbat Nat'l Univ.), Joong Bae Kim (Kongju Nat'l Univ.), Jinsung Rho (Hanbat Nat'l Univ.)
Th17C004	Uncertainty Quantification of Random Field Models Using Non-Intrusive Reduced Order Model / Daeho Jang* and Dongjin Lee (Hanyang Univ.)
12:00~13:00	**Lunch**
14:10~15:10	**Solid Mechanics and Design I** Session Chair: Prof. Jung-Hoon Yun (Kongju Nat'l Univ.)
Th17E001	Rapid Yet Accurate Homogenization of Periodic Unidirectional Composites Using Reduced Basis Analysis / Xuan Quang Pham* and Kyunghoon Lee (Pusan Nat'l Univ.)
Th17E002	Nonlinear Higher-Order Beam Elements for Car Body Design: An Initial Study on Geometric Nonlinearity / Fedor Pitsukov* and Gang-Won Jang (Sejong Univ.)
Th17E003	Multitask Damage Detection and Localization Using Gramian Angular Field (GAF)- Based Transfer Learning / Munyaneza Olivier* and Jung Woo Sohn (Kumoh Nat'l Inst. of Tech.)
Th17E004	Temperature Monitoring of Axlebox Bearing in Railway Vehicles / Jeongguk Kim* (Korea Railroad Research Inst.)
Th17E005	Tribodynamic Behaviours of a Ball Bearing in Presence of Closed Loop Lubrication Path / Raj Kumar Pandey*, Ashish Kamalakar Darpe, and Sonit Bopche (IIT Delhi)
16:30~17:50	**Opening Ceremony & KSME General Assembly (Grand Ballroom, 4F)**
18:00~18:20	**Lottery I (Grand Ballroom, 4F)**
18:30~20:00	**Banquet (Convention Hall, 5F)**

Friday, December 12

09:50~10:38	**Robotics and Control II** Session Chair: Prof. Sanghyun Kim (Kyung Hee Univ.)
Fr17B001	**(Online)** A Vision-Based Safety System for Human–Robot Collaboration Using a Real-Time Digital Twin in RoboDK / Birzhanuly Dosymzhan*, Akniyazov Esimzhan, Azamatkyzy Ainur, Gholibjon Qasobov, Olzhas Kenzhaliyev, and Muhammad Ilyas (Kazakh-British Technical Univ.)

Fr17B002	Integrating MOF-Derived Materials Into Soft Microrobots: Towards Functional Biomedical Devices / Ashhad Kamal Taseer*, Manmatha Mahato, and Il-kwon Oh (KAIST)
Fr17B003	A Study on Human Biomechanical Responses Applicable to Safety Verification of Human-Robot Collisions / Doyeon Han* and Sungsoo Rhim (Kyung Hee Univ.)
Fr17B004	A Vision Based Object Tracking for Robotic Manipulators / Ki Hong Im and Pil Geun Jang* (KAERI)

11:00~11:48	**Robotics and Control III** Session Chair: Prof. Dongwon Yun (DGIST)
Fr17C001	Cross-Talk Compensation in Self-Sensing Magnetic Bearings with Separate Bias and Control Windings Using Neural Network / Ngoc Vu Vo* and Hyeong-Joon Ahn (Soongsil Univ.)
Fr17C002	Tool-Aware Task and Motion Planning with Dynamic Tool Changing for Automated Chemistry / Hyunho Cho, Bohyeong Park*, and Sanghyun Kim (Kyung Hee Univ.)
Fr17C003	Distance Resolution Enhancement of FMCW LiDAR Using Coarse-to-Fine Frequency Measurement / Jubong Lee*, Hee Chan Kim, Geummin Kim, and Kyihwan Park (GIST)
Fr17C004	Exploiting Depth Distortions in AMCW LiDAR for Optical Property Retrieval / Junhong Im*, Seokjun Ahn, Yoonseop Lim, and Yong-Hwa Park (KAIST)

12:00~13:00	**Lunch**

14:10~14:58	**Keynote Lecture VI, VII** Session Chair: Prof. Yong-Hwa Park (KAIST)
Fr17E001	**[Keynote]** Key Technologies for Intelligent Extraction of Assembly Boundaries in Thin-Walled Structures Driven by 3D Measurement / Jun Wang* (Nanjing Univ. of Aeronautics and Astronautics)
Fr17E002	**[Keynote]** Five-Dimensional Digital Twin Model: From Theory to Practice / Fei Tao* (Beihang Univ.)

15:20~16:20	**Bioengineering I** Session Chair: Prof. Jungsil Kim (Kyungpook Nat'l Univ.)
Fr17F001	**(Online)** Configuration Optimization of Three-Cannulated Screw Fixation in Pauwels Type III Femoral Neck Fractures: Finite Element Analysis / Darmahssilan Subramaniam*, Fauziah Mat, Tan Wei Hong, and Muhamad Safwan Bin Muhamad Azmi (Universiti Malaysia Perlis), Muhammad Hanif Ramlee (Universiti Teknologi Malaysia)
Fr17F002	**(Online)** Topology Optimization for Lightweight Hip Implant Design: Generated Algorithm and Finite Element Analysis / Badrul Irfan Badrul Hisham* (Universiti Teknologi Malaysia), Mohammed Rafiq Abdul Kadir (Universiti Malaya), Muhammad Hanif Ramlee (Universiti Teknologi Malaysia)
Fr17F003	Microstructural and Mechanical Analysis of Different Percentages of Carbon Nanofiber in Mg-Zn Alloys for Biomedical Applications / Nurin Tihani Nazemi* and Herman Tuminoh (Universiti Teknologi Malaysia), Mohammed Rafiq Abdul Kadir (Universiti Malaya), Muhammad Hanif Ramlee (Universiti Teknologi Malaysia)

Fr17F004 Static Degradation and Mechanical Analysis of Different Parameters of ZnO-Coated Mg-Zn/CNF Composite Prepared by Radio Frequency Magnetron Sputtering / Siti Adawiyah Zulkefli* and Nordayana Saffiyah Mohd Nazri (Universiti Teknologi Malaysia), Mohammed Rafiq Abdul Kadir (Universiti Malaya), Muhammad Hanif Ramlee (Universiti Teknologi Malaysia)

Fr17F005 Biofeedback Training for Finger Force Direction Control Improves Upper Limb Function Post Stroke: A Randomized Controlled Trial / Na Jin Seo* (Medical Univ. of South Carolina), Christian Schranz (Univ. of Innsbruck), Kristen Coupland, Jenna Blaschke, Gabrielle Scronce, Christian Finetto, Adam Baker, Ja'Quann Gallant, Arianna Alston, Keith Howard, Devin Thompson, Viswanathan Ramakrishnan, Christine Holmstedt, and Robert J Adams (Medical Univ. of South Carolina), Derek G Kamper (North Carolina State Univ.)

17:40~18:00 Lottery II (Lobby, 5F)

Room 19 (Heart III)

Wednesday, December 10

14:40~15:40 Bioengineering II
Session Chair: Prof. Juyeol Bae (Chonnam Nat'l Univ.)

We19B001 **(Online)** Ground Reaction Forces and Kinematics During Sprinting Using Inertial and Insole Sensors / Batbayar Khuyagbaatar* (Mongolian Univ. of Sci. and Tech.), Munkh-Erdene Bayartai (Mongolian Nat'l Univ. of Medical Sciences), Boldbaatar Chuluunbaatar and Battsengel Banzragch (Sports Medicine and Research Center), Batlkham Dambadarjaa (Mongolian Nat'l Univ. of Medical Sciences), Munkhbat Tumurbaatar (Mongolian Univ. of Sci. and Tech.), Ganzorig Battumur and Erdenevaanchig Batbaatar (Sports Medicine and Research Center)

We19B002 **(Online)** Assessment of Rhythmic Gymnastics Performance Using Statistical Parametric Mapping / Batbayar Khuyagbaatar* (Mongolian Univ. of Sci. and Tech.), Bat-otgon Batsuren and Enkhsaikhan Gombojav (Mongolian Nat'l Univ. of Education), Bayarjargal Ulziikhutag (Mongolian Univ. of Sci. and Tech.)

We19B003 Balanced Medial Collateral Ligament (MCL) Length, Not Intrinsic Laxity, Governs Load Sharing and Kinematics in Mechanically Aligned Posterior-Stabilized TKA / Junseo Kim* (Sejong Univ.), In Jun Koh (St. Mary's Hospital), Dohyung Lim (Sejong Univ.)

We19B004 System Identification Approach to PPG-CBP Signal Conversion: Parameter-Specific Modeling Requirements / Adelle Ria Persad*, Bomi Lee, Junki Hong, Hyunwoo Song, and Yuri Song (KAIST), Jae-Hak Jeong (Korea Nat'l Univ. of Transportation), Yong-Hwa Park (KAIST)

We19B005 Analysis of Physiological Parameters Influencing Arterial Wave Propagation / Junki Hong*, Bomi Lee, Adelle Ria Persad, Hyunwoo Song, and Yuri Song (KAIST), Jae-Hak Jeong (Korea Nat'l Univ. of Transportation), Yong-Hwa Park (KAIST)

15:50~16:50	**Micro/Nano Engineering and Technology I** Session Chair: Prof. Jiho Kim (Hongik Univ.)
We19C001	**(Online)** Examining Sensitivity to Tip-Sample Interaction Forces in Biharmonic and Bimodal AFM Under Acoustic Emissions in Air and Liquids / Cagri Yilmaz* (Akdeniz Univ.)
We19C002	**(Online)** Steady-State Thermal Characteristics of a High-Pressure Aerostatic Thrust Bearing Under Adiabatic and Conjugate Heat Transfer Conditions / Liangbin Guo* (Wuhan Univ. of Sci. and Tech.), Hewen Guo (Wuhan Hongshan High School), Hongliang Song, Linfeng Zhan, and Shuai Yan (Wuhan Univ. of Sci. and Tech.)
We19C003	Oxidative Unzipping of MWCNT Nanofiltration Membranes for Selective Lithium-Ion Extraction from Brine / Shakeelur Raheman* and Sang Joon Lee (POSTECH)
We19C004	Effective Refractive Index of CNT Forests from Maxwell–Garnett and Mie Solution Approaches for Explaining Black Coating Reflectance / Duc Thanh Chu* and Thuy Kieu Truong (Hanbat Nat'l Univ.), Joong Bae Kim (Kongju Nat'l Univ.), Jinsung Rho (Hanbat Nat'l Univ.)
We19C005	Salt-Water Desalination: Design and Charging-Phase Optimization of an Asymmetric Four-Chamber Redox Flow Cell / Aung Ko Ko*, Joohan Bae, and Jaeyoung Lee (Handong Global Univ.)
17:00~18:00	**Special Session** Session Chair: Prof. Nan Li (Xidian Univ.)
We19D001	**[Invited]** AI-Enabled iFlexSense for Aerodynamic Measurement, Reconstruction and Perception / YongAn Huang*, Fan Zhang, Jingjing Ji, and Wuxing Lai (Huazhong Univ. of Sci. and Tech.)
We19D002	**[Invited]** Flexible Pressure Sensors for Human and Machinery Health Monitoring / Xueyong Wei*, Jingxiao Wang, Xiaoke Lu, Hongcheng Xu, and Zhuangde Jiang (Xi'an Jiaotong Univ.)
We19D003	**[Invited]** Direct-Write Flexible Ultrasonic Transducer Arrays for Multi-Scale Damages Imaging and Detection / Shifeng Guo* (Shenzhen Institutes of Advanced Tech., Chinese Academy of Sciences)
18:10~19:00	**Welcome Reception (Grand Ballroom, 4F)**

Thursday, December 11

09:50~10:50	**Dynamics, Vibration and Sounds I** Session Chair: Prof. Myounggyu Noh (Chungnam Nat'l Univ.)
Th19B001	**(Online)** Feature Extraction and Statistical Validation of Vibration Signals for Predictive Maintenance of Bearings / Siti Norbaya Sahadan* and Muhammad Amar Hussaini Mohd Rashidi (Universiti Teknikal Malaysia Melaka)
Th19B002	**(Online)** Comparative Study of Four-Bar Linkage Path Generation Problems and a Path Repairing Technique / Supadej Suppakarnpanich*, Chareef Own-on, and Suwin Sleesongsom (Int'l Academy of Aviation Industry, King Mongkut's Inst. of Tech. Ladkrabang)

Th19B003	Unbalance Force Rejection Control of Active Magnetic Bearings Supporting Rotors Operating Around Rigid-Body Modes / Myounggyu Noh* and Bui Thien Vuong (Chungnam Nat'l Univ.)
Th19B004	Envelope-Based Fault Diagnosis of Piston/Cylinder Wear in Axial Piston Pumps Using Discharge Pressure / Beomgeun Park*, Dabo Sim, and Jingyu Noh (Konkuk Univ.), Jaeyoung Lee (Hyundai Rotem), Namsu Kim (Konkuk Univ.)
Th19B005	Comparison of DEM Simulation of a Vertical-Axis Mixer and Experiment / Yanshuai Zhu*, Jeong-Jin Park, and Jeong-Hyun Sohn (Pukyong Nat'l Univ.)

11:00~12:00	**Dynamics, Vibration and Sounds II** Session Chair: Prof. Seunghun Baek (Pusan Nat'l Univ.)
Th19C001	**(Online)** Experimental Investigation on Sound Transmission Performance of Kenaf, Jute and Pineapple Natural Fibers / Heap Yee Nean*, Tan Wei Hong, and Thava neshwaran Devanthiran (Universiti Malaysia Perlis)
Th19C002	Fault Diagnosis and Experimental Validation of Planetary Gearboxes for In-Wheel Systems / Seunghyun Hwang*, Sangjun Park, Jeonghun Kang, and Namsu Kim (Konkuk Univ.)
Th19C003	Blade Mass Imbalance Fault Detection and Classification for Urban Air Mobility via Vibration and Stator Current Signal Analysis / Sungjun Lee*, Seunghwan Lee, Jingyu Noh, and Namsu Kim (Konkuk Univ.)
Th19C004	Optimization of Added Mass Distribution in Plate-Type Acoustic Metamaterials for Broadband Lightweight Sound Insulation / Jaeho Cho* and Felix Langfeldt (Univ. of Southampton)
Th19C005	A Novel Variable Suspension Force Approach for Vehicle Roll Resistant Applications / Vigneshwaran Palanirasan and Sathishkumar Palanisamy* (Nat'l Inst. of Tech., Puducherry)

12:00~13:00	**Lunch**

14:10~15:10	**Thermal and Power Engineering IV** Session Chair: Prof. Jeong-Heon Shin (Hongik Univ.)
Th19E001	Reliability-Based Design Optimization of Battery Thermal Management System to Minimize Cell Temperature Difference / Taekhyun Kang* and Chang-wan Kim (Konkuk Univ.)
Th19E002	Numerical Investigation on Thermal Rectification in 2D Anisotropic Polymer Composites / Cuong Duc Nguyen* and Dong-Wook Oh (Chosun Univ.)
Th19E003	Optimal Design of Guide Vane in the IPMSM Serpentine Cooling Channel / Eunsoo Kim*, Hwihwan Han, and Chang-wan Kim (Konkuk Univ.)
Th19E004	Optimization of Integrated Stator Cooling Channels in IPMSMs for Electric Vehicle Applications / Hwihwan Han*, Eunsoo Kim, and Chang-wan Kim (Konkuk Univ.)
Th19E005	Advanced Embedded Array Techniques for Mapping Heat Flux During Water Jet Cooling / Hyochang Cho*, Seung Min Lee, and Jeung Sang Go (Pusan Nat'l Univ.)

16:30~17:50	**Opening Ceremony & KSME General Assembly (Grand Ballroom, 4F)**

18:00~18:20	**Lottery I (Grand Ballroom, 4F)**

18:30~20:00	**Banquet (Convention Hall, 5F)**

Friday, December 12

09:50~10:50	**Solid Mechanics and Design II** Session Chair: Dr. Muhammad Muzammil Azad (Dongguk Univ.)
Fr19B001	Optimal Design Methodology for U-Shaped Bellows Expansion Joints Through Comprehensive Structural Evaluation of Elastic and Plastic Limit Load / Seung-Yeon Im*, Heungsoo Park, Dongwon Lee, Junbeom Kim, Dongha Shim, and Nak-Kyun Cho (Seoul Nat'l Univ. of Sci. and Tech.), Do Kyun Kim (Seoul Nat'l Univ.)
Fr19B002	Probabilistic Structural Analysis and Reliability-Based Design Optimization for 90° Back-to-Back Pipe Using Active Kriging Model-Based Direct Numerical Analysis Framework / Min-Beom Kim*, Joohyeong Park, Jinmyeong Heo, Dongha Shim, and Nak-Kyun Cho (Seoul Nat'l Univ. of Sci. and Tech.), Do Kyun Kim (Seoul Nat'l Univ.)
Fr19B003	Feature Importance and Dimensionality Reduction of Biomarkers for Improved Model Learning / Hikmat Yar* and Heung Soo Kim (Dongguk Univ.)
Fr19B004	Two-Step Surrogate-Based Reliability-Based Design Optimization of Mechanical Structures in an Axial Flux Motor / Taeyang Kim*, Wonseok Cha, and Dongjin Lee (Hanyang Univ.)
Fr19B005	Finite Element Analysis of Burst Behavior for a Composite Hydrogen Fuel Tank / Jinwook Park*, Taehoon Lee, Cheolhwan Kim, and Bosung Shin (Pusan Nat'l Univ.)
11:00~12:00	**Solid Mechanics and Design III** Session Chair: Dr. Sohail Muhammad (Dongguk Univ.)
Fr19C001	**(Online)** Aircraft Wing Designs to Withstand Bird Collisions Using Honeycomb Material / Suppasin Ngamlikitlert*, Minsung Kim, and Suwin Sleesongsom (Int'l Academy of Aviation Industry, King Mongkut's Inst. of Tech. Ladkrabang)
Fr19C002	Ball Bearing Design Automation Using CAD API Assisted by LLM with Prompt-Learning / Sunghyun Kim*, Choong Sung Lee, and Jongwon Park (Korea Inst. of Machinery and Materials)
Fr19C003	Observation of Slow Crack Growth of Short Glass Fiber-Reinforced Polypropylene Under Static and Cyclic Loading Conditions / Sang Min Lee*, Ilhyun Kim, Pyeongan Lee, and Byoung-Ho Choi (Korea Univ.)
Fr19C004	An Investigation for the Tribo-Dynamic Performance Improvement of a Gas Foil Bearing Using a Novel Bump Design and Bionic Texture / Neha Pandey* (IIT Delhi)
Fr19C005	Numerical Simulation of Tandem V-Combined Seal Performance Under Varying Operating Conditions / Neha Pandey* and Badri Prasad Patel (IIT Delhi)
12:00~13:00	**Lunch**
14:10~15:10	**Keynote Lecture VIII & Solid Mechanics and Design IV** Session Chair: Dr. Jinwoo Song (Dongguk Univ.)
Fr19E001	**[Keynote]** Energy Absorption Analysis of Natural Structures / Petch Jearanaisilawong*, Nadda Jongpairojcosit, and Bundit Phungsara (King Mongkut's Univ. of Tech. North Bangkok)

Fr19E002	Unsupervised Learning-Based Anomaly Detection of Time-Series Data for 6-Axis Industrial Robots / Muhammad Haris Yazdani*, Muhammad Muzammil Azad, and Heung Soo Kim (Dongguk Univ.)
Fr19E003	Dual-Temporal Convolutional Network-Based Anomaly Detection in Industrial Robots / Muhammad Umar Elahi*, Muhammad Muzammil Azad, and Heung Soo Kim* (Dongguk Univ.)
Fr19E004	Computational Driven Design of Elasto-Plastic Structures / Mathias Wallin* (Lund Univ.)

15:20~15:56	**Solid Mechanics and Design V** Session Chair: Dr. Hikmat Yar (Dongguk Univ.)
Fr19F001	The Application of Virtual Computer Aided Engineering Analysis Technology on Large Door-Type CNC Machine Tools / Yunn-Lin Hwang*, Kolusu Eswar Venkat, Arslan Munir, and Nabeel Ahmad (Nat'l Formosa Univ.)
Fr19F002	Physics-Informed Neural Network Approach for Lipid Membrane Morphology Analysis / Rana Talal Ahmad Khan* and Muhammad Muzammil Azad (Dongguk Univ.), Chun Il Kim (Univ. of Alberta), Heung Soo Kim (Dongguk Univ.)
Fr19F003	Damage Detection of Composite Structures Using Probabilistic Deep Learning / Muhammad Muzammil Azad* and Heung Soo Kim (Dongguk Univ.)

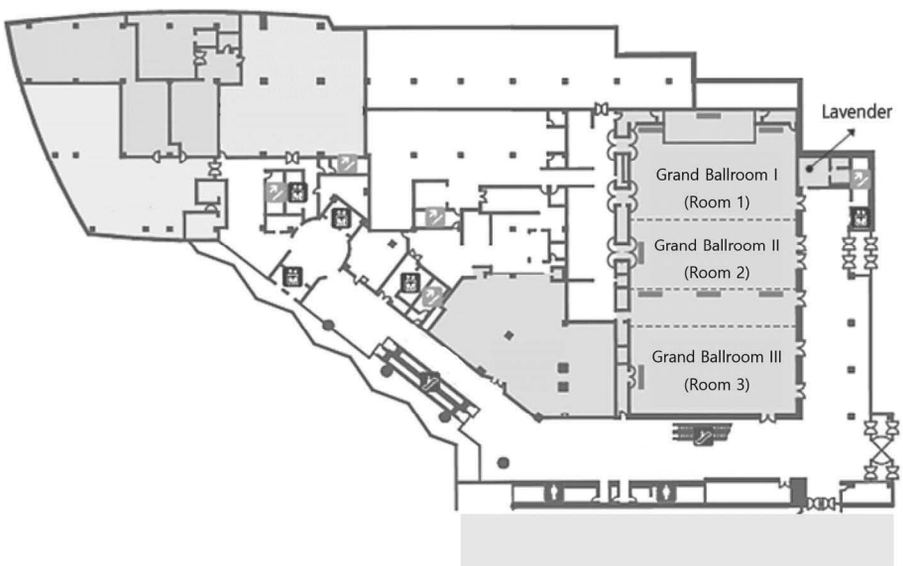
16:30~17:06	**Keynote Lecture IX & Solid Mechanics and Design VI** Session Chair: Dr. Xianglin Huang (Dongguk Univ.)
Fr19G001	**[Keynote] (Online)** Influence of Root Canal Curvature on the Torsional Resistance of Rotary Endodontic Files: A Finite Element and Experimental Study / Pairod Singhatanadgid*, Punyavud Tomeboon, and Sirawut Hiran-us (Chulalongkorn Univ.)
Fr19G002	A Two-Dimensional Parametric-Domain Mapping Approach for Eigenfrequency Topology Optimization of Hydroturbine Blades / Fei Wu* (Guangxi Univ.), Gil Ho Yoon (Hanyang Univ.), Ziyang Zeng, Yuqiang Liu, Kaijian Huang, and Jiang Ding (Guangxi Univ.)

17:40~18:00	**Lottery II (Lobby, 5F)**

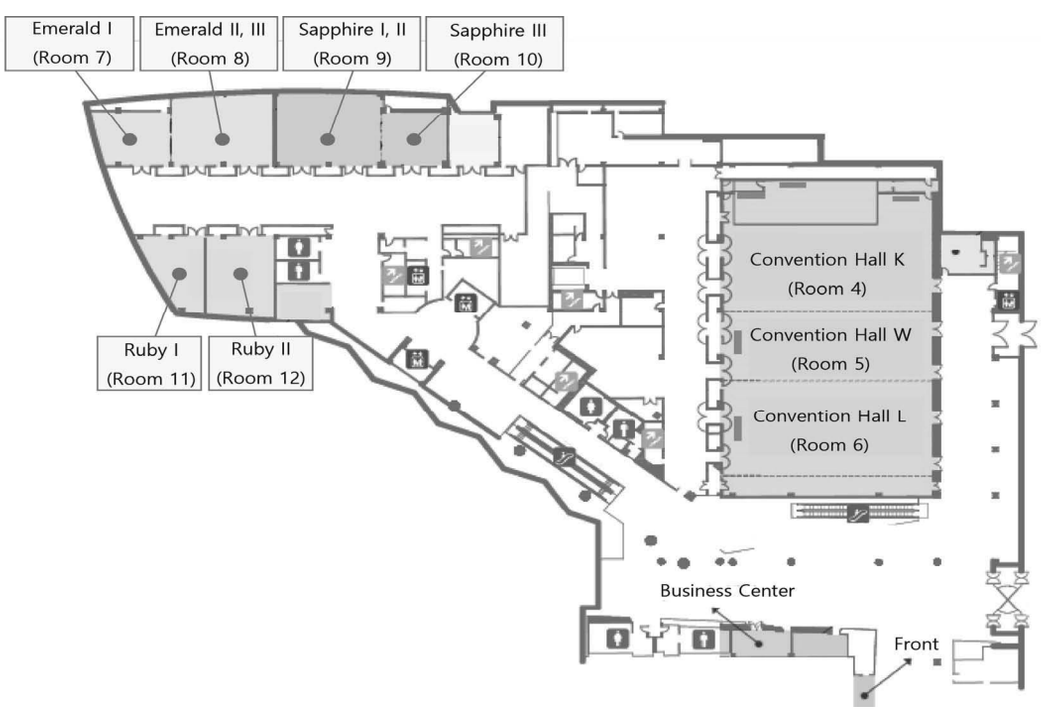
Conference Information

Conference Venue

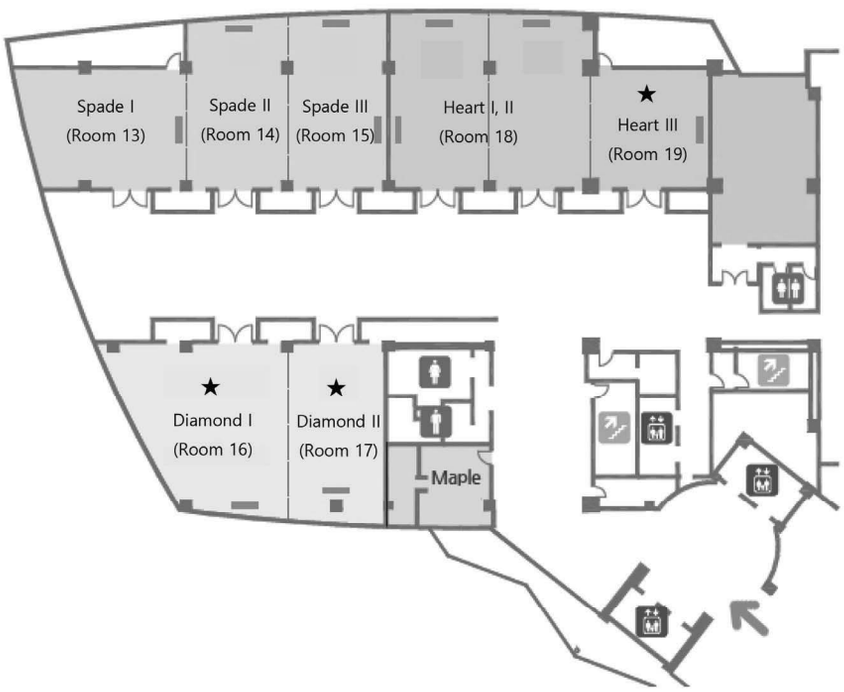
4th Floor



5th Floor



6th Floor


Spade I
(Room 13)
Spade II
(Room 14)
Spade III
(Room 15)
Heart I, II
(Room 18)
★
Heart III
(Room 19)
★
Diamond I
(Room 16)
★
Diamond II
(Room 17)
Maple

Social Events

Welcome Reception

· Date : Wednesday, December 10
· Time : 18:10 ~
· Venue : Grand Ballroom, 4F

Opening Ceremony

· Date : Thursday, December 11
· Time : 16:30 ~
· Venue : Grand Ballroom, 4F

Lottery I

· Date : Thursday, December 11
· Time : 18:00 ~
· Venue : Grand Ballroom, 4F

Banquet

· Date : Thursday, December 11
· Time : 18:30 ~
· Venue : Convention Hall, 5F

Lottery II

· Date : Friday, December 12
· Time : 17:40 ~
· Venue : Lobby, 5F

Author Index

* Author Index is sorted by the authors' last name.

Name	Presentation Code
V	
Venkat, Kolusu Eswar	Fr19F001
Vo, Ngoc Vu	Fr17C001
W	
Wahab, Faridah	We16B002
Wallin, Mathias	Fr19E004
Wang, Dakai	We16A002
Wang, Jingxiao	We19D002
Wang, Jun	Fr17E001
Wang, Qianting	We16B001
Wei, Xueyong	We19D002
Wongcharee, Khwanchit	Fr16E002
Woo, Hyeonmyeong	We17C005
Wu, Fei	Fr19G002
X	
Xie, Fugui	Th16E001
Xie, Zenghui	Th16E001
Xingqiao, Deng	Fr16G002
Xu, Hongcheng	We19D002
Xu, Xin	We16B001
Y	
Yan, Jiaquan	Th17B003
Yan, Jiquan	We17D005
Yan, Shuai	We19C002
Yar, Hikmat	Fr19B003
Yazdani, Muhammad Haris	Fr19E002
Yessenzhanov, Kuanysh	We17D001
Yi, Bing	Fr16G001
Yi, Wonjun	Th17B004
Yilmaz, Cagri	We19C001
Yoo, DaHye	We17C004
Yoon, Gil Ho	Fr19G002
Yoon, Yeo Un	Fr16B003
You, Nayoung	Fr16E005
Yu, Seung-Hwa	Th16C005, Th16E002
Yun Hwang, Hui	We16B004
Yun, SeongHyeon	We17C004
Z	
Zainuddin, Nur Zahirah	We16B002
Zárate Moreno, Óscar Mario	We17D002
Zeng, Ziyang	Fr19G002
Zhan, Linfeng	We19C002
Zhang, Fan	We19D001
Zhang, Qiqi	Fr16G001
Zhao, Feng	We17D005
Zhu, Yanshuai	Th19B005
Zhunus, Al-Adi	Th17B001

MEMO