

Technical Symposium

Technical Symposium Group

Technical Group A-1	Physics (PHY)	Chair: Harold D. Kim (Georgia Institute of Technology) Co-Chairs: Yoonseok Lee (University of Florida), Soonwon Choi (Massachusetts Institute of Technology)
Technical Group A-2	Chemistry (CHM)	Chair: Jiwoong Park (University of Chicago), Co-chairs: Dong Hee Son (Texas A&M University), Hoi Sung Chung (National Institutes of Health)
Technical Group A-3	Math/Applied Math/Statistics (MAS)	Chair: Young-Ju Lee (Texas State University), Co-Chairs: Seungil Kim (Kyung Hee University), Jangwoon Lee (University of Mary Washington)
Technical Group B-1	Medical and Pharmaceutical Science (MPS)	Chair: Tae-Hyung Kim (University of New Mexico) Co-Chairs: Jiyoung Lee (George Washington University), Hungoo Lee (Massachusetts General Hospital/Harvard Medical School)
Technical Group B-2	Food, Agriculture, Ecology and Nutrition (FAN)	Chair: Yoo Kim (Oklahoma State University) Co-Chairs: Sungeun Cho (Auburn University), Kee Hong Kim (Purdue University)
Technical Group B-3/ C-1	Biological and Biomedical Sciences (Biology, Molecular Biology, Cognitive Science, Botany, Zoology, Biomechanics, etc.)/Bioengineering and Biomedical Engineering (BME)	Chair: Hyunjoon Kong (University of Illinois at Urbana-Champaign) Co-Chairs: Deok Ho Kim (Johns Hopkins University), Young Bin Choy (Seoul National University)
Technical Group C-2	Chemical, Textile, Energy, and Nuclear Engineering (CHE)	Chair: Hyun-Tae Hwang (University of Kentucky) Co-Chair: Jaewon Lee (University of Missouri)
Technical Group C-3	Mechanical, Aerospace and Naval Engineering (MAN)	Chair: Eon Soo Lee (New Jersey Institute of Technology) Co-Chairs: Martin Byung-Guk Jun (Purdue University), W. Jong Yoon (University of Washington, Bothell)
Technical Group C-4	Materials Science and Engineering, Nanotechnology (MSE)	Chair: Jiyoung Kim (University of Texas at Dallas) Co-Chairs: Chang-Yong Nam (Brookhaven National Laboratory), Jang-Sik Lee (POSTECH)
Technical Group C-5	Civil and Environmental Engineering, Architecture (CEA)	Chair: Youngguk Seo (Kennesaw State University) Co-Chair: Jung Heum Yeon (Texas State University)
Technical Group C-6	Electrical and Computer Engineering (ECE)	Chairs: Jin W Choi (Michigan Technological University) Co-Chairs: Wookyung Sun (Seoul National University), Jeongwon Park (University of Nevada at Reno), Jungkwun Kim (University of North Texas)
Technical Group C-7	Computer and Information Sciences (CIT)	Chair: Ohbong J. Kwon (New York City College of Technology) Co-Chairs: Hoyoung Hwang (Hansung University), Donghoon Kim (Arkansas State University)
Technical Group C-8	Industrial, Manufacturing, and Systems Engineering, Management Sciences, Operations Research (IMS)	Chair: Jeong Hoon Choi (Youngstown State University) Co-Chairs: Tai-Woo Chang (Kyonggi University), Hyesung Park (Georgia Gwinnett College)
Technical Group D-1	Social Sciences (Anthropology, Economics, Political Science, Sociology, Public Policy, etc.), Psychology, Digital Arts, STEM Education, and Other Sciences (SSP)	Chair: Jongpil Cheon (Texas Tech University) Co-Chairs: Nicholas D. Hartlep (Berea College), Kyunbin Kwon (Indiana University - Bloomington), Gilbert Park (Ball state University)

Innovation and Entrepreneurship Symposium (IES) Group

Chair: IL Minn (Johns Hopkins University)

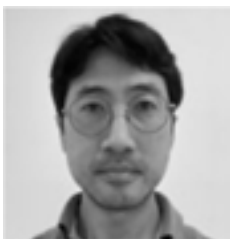
FIRE (Fostering Innovation in Rising Experts) Symposium

Chair: TJ (Tae Joong) Park (MIT)

**Physics (PHY)
Technical Group A-1**

Quantum science is rapidly gaining popularity in physics as well as among the general public. To address the rising interest in the subject, the Physics Symposium will feature special focus sessions on topics such as the history of quantum mechanics, its foundations, and the latest developments in the experimental and theoretical study of quantum systems. The symposium will also include a session devoted to promoting the work of junior physicists who have made significant contributions to their fields.

Chair



Harold D. Kim

Georgia Institute of
Technology

Co-chairs



Chueng Ji

North Carolina State
University



Soonwon Choi

Massachusetts
Institute of
Technology

Tech Group A-1
PHY

@ Carter

Aug 3 _ Thursday _ 4:00 – 6:00pm

PHY Session I: Quantum Mechanics and Beyond

Chair: Harold Kim (Georgia Tech), Soonwon Choi (MIT)

Time	Title and Speaker
4:00	Spin Correlations and Bell's Inequality // Chueng Ji (North Carolina State University)
4:24	From Quantum Physics to Quantum Computing // Alexander Kemper (North Carolina State University)
4:48	DAMSA: A Novel Experiment Concept to Probe Dark Sector Particles // Wooyoung Jang (University of Texas at Arlington)
5:12	Investigation of Self-Assembled Water Chains in Biomolecular Interactions // Byung Kim (Boise State University)

Tech Group A-1
PHY

@ Carter

Aug 4 _ Friday _ 4:00 – 6:00pm

PHY Session II: Quantum Materials

Chair: Chueng Ji (North Carolina State University), Harold Kim (Georgia Tech)

Time	Title and Speaker
4:00	Manipulation of Quantum Materials // Na Hyun Jo (University of Michigan)

Time	Title and Speaker
4:24	Tunneling Andreev Reflection: Direct Access to the Superconductivity in the Atomic Resolution // Wonhee Ko (University of Tennessee, Knoxville)
4:48	Quantum Geometry for the Optical Properties of Crystals Invited // Junyeong Ahn (Harvard University)
5:12	Quantum Phases and Transitions under Decoherence: Many Body Physics of Information // Jong Yeon Lee (Kavli Institute of Theoretical Physics)
5:36	Toolbox for Analog Quantum Simulations // Soonwon Choi (MIT)

Tech Group A-1
PHY

@ Aviator A

Aug 4 _ Friday _ 6:00 – 9:00pm

PHY Poster Session

Chair: Harold Kim (Georgia Tech), Chueng Ji (North Carolina State University), Soonwon Choi (MIT)

PHY P1	Launching Multiple Modes in Hyperbolic vdW Heterostructures // Byung-II Noh (Auburn University)
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Tech Group A-1
PHY

@ Carter

Aug 5 _ Saturday _ 8:00 – 10:00am

PHY Session III: Frontiers of Quantum Information Science and Technology

Chair: Soonwon Choi (MIT), Chueng Ji (North Carolina State University)

Time	Title and Speaker
8:00	Research and Development of the Multi-qubit Superconducting Quantum Processor in SKKU // Yonuk Chong (SungKyunKwan University)
8:20	Magnetic-field-resilient Niobium Cavity Electromechanical System and its Optomechanical Frequency Comb Generation // Junho Suh (Pohang University of Science and Technology)
8:40	Deterministic Generation of Multidimensional Photonic Cluster States with a Single Quantum Emitter Invited // Gihwan Kim (California Institute of Technology)
9:00	Towards a Practical Quantum Advantage with a High-fidelity Rydberg Quantum Simulator // Joonhee Choi (Stanford University)
9:20	Scalable Fault-tolerant Quantum Error Correction with Linear Array of Emitters // Isaac Kim (UC Davis)
9:40	Fault-tolerant Quantum Computing with Bosonic Qubits // Kyungjoo Noh (Amazon Web Services)

Chemistry (CHM) Technical Group A-2

Chemistry has been crucial to understanding material's properties on the molecular level, and its impacts have been broadened to various applications of energy, new materials, biology, healthcare, and engineering. Thus, interdisciplinary research is becoming increasingly critical in addressing complex problems. This year's Chemistry Technical Group will organize symposia focused on the following research areas: (1) design and characterization of new materials and energy, and (2) molecular approaches for biology and healthcare. Leading researchers working at the forefront of these topics will be invited to discuss the structures and functions of molecular systems and noble experimental, theoretical, and computational techniques. Researchers, postdocs, and students working in academia, industry, and government laboratories are strongly encouraged to participate in scientific discussions and network building.

Chair



Jiwoong Park

University of Chicago

Co-chairs



Dong Hee Son

Texas A&M University



Hoi Sung Chung

National Institutes
of Health

Tech Group A-2
CHM

@ Glasscock

Aug 3 _ Thursday _ 4:00 – 6:00pm

CHM Session I: Chemical Approaches for Biomedicine

Chair: Hoi Sung Chung (NIH), Dong Hee Son (Texas A&M University)

Time	Title and Speaker
4:00	Towards Single Virus Genomics <i>Invited</i> // Hee-Sun Han (University of Illinois, Urbana-Champaign)
4:20	Nanotechnology Approaches for Real-time Neurotransmitter Detection in Stem Cell-Derived Neural Interfaces <i>Invited</i> // Kibum Lee (Rutgers, The State University of New Jersey)
4:40	Precision tumor cell death through targeting cancer-specific InDel mutations with CRISPR-Cas9 <i>Invited</i> // Taejoon Kwon (Ulsan National Institute of Science and Technology)
5:00	Structure and mechanisms of DNA damage recognition and initiation in Nucleotide Excision Repair <i>Invited</i> // Jung-Hyun Min (Baylor University)
5:20	Transcription-Induced Active Forces Suppress Chromatin Motion by Inducing a Transient Disorder-To-Order Transition <i>Invited</i> // Sucheol Shin (University of Texas at Austin)
5:40	Single-molecule characterization of the early phase of amyloid-beta aggregation <i>Invited</i> // Hoi Sung Chung (NIH)

Tech Group A-2
CHM

@ Glasscock

Aug 4 _ Friday _ 4:00 – 6:00pm

CHM Session II: Chemical Approached for Designed Materials

Chair: Jiwoong Park (U. Chicago), Young Jong Lee (NIST)

Time	Title and Speaker
4:00	Silver Chalcogenide Infrared Colloidal Quantum Dots Invited // Kwang Seob Jeong (Korea University)
4:20	Nature-inspired synthetic polymers for customized biomedical applications Invited // Soon Mi Lim (Texas A&M University)
4:40	Photoemission of Upconverted Hot electrons from Doped Quantum Dots Effect of Charge and Ligand Invited // Dong Hee Son (Texas A&M University)
4:55	Infrared Sees Proteins in Water, Sensitive Invited // Young Jong Lee (NIST)
5:10	Introduction advanced environmental risk assessment for pesticide residues in environmental and AISS // Hyosub Lee (Residual Agrochemical Assessment Division)
5:25	New 2D with atomically thin crystals Invited // Jiwoong Park (University of Chicago)
5:40	Short oral presentations (each 7 min) <ul style="list-style-type: none">Vapor-Phase Anisotropic Polymer Particle Synthesis through Condensed Droplet Polymerization // Kwang-Won Park (Cornell University)Iron-Gold Contacts: An Effective Linker for Ferrocene-Based Single-Molecule Electronics // Woojung Lee (Columbia University)Generalized understanding of double layer for concentrated aqueous electrolytes and ionic liquids // Suehyun Park (Georgia Institute of Technology)

Tech Group A-2
CHM

@ Aviator A

Aug 4 _ Friday _ 6:00 – 9:00pm

CHM Poster Session

Chair: Jiwoong Park (U. Chicago), Dong Hee Son (Texas A&M University), Hoi Sung Chung (NIH)

Time	Title and Speaker
CHM P1	Vapor-Phase Anisotropic Polymer Particle Synthesis through Condensed Droplet Polymerization // Kwang-Won Park (Cornell University)
CHM P2	Iron-Gold Contacts: An Effective Linker for Ferrocene-Based Single-Molecule Electronics // Woojung Lee (Columbia University)
CHM P3	Generalized understanding of double layer for concentrated aqueous electrolytes and ionic liquids // Suehyun Park (Georgia Institute of Technology)

**Mathematics, Applied Math and Statistics (MAS)
Technical Group A-3**

The MAS (mathematics, applied math, and statistics) symposium invites enthusiastic researchers, scientists, and engineers to discuss the latest scientific and technical approaches. The symposium covers various aspects of all areas in mathematics, applied math and statistics including, but not limited to, classical theories in mathematics and statistics and practical applications inspired by real-world situations. The UKC 2023 MAS provides an opportunity for scientists and engineers to share their experiences and ideas on how different challenges we face can be turned into opportunities.

Chair



Young- Ju Lee
Texas State University

Co-chairs



Seungil Kim
Kyung Hee University



Jangwoon Lee
University of Mary
Washington

Tech Group A-3
MAS

@ Hobby

Aug 3 _ Thursday _ 4:00 – 6:00pm

MAS Session I: Mathematical Theory and its Applications I

Chair: Seungil Kim (Kyunghee University)

Time	Title and Speaker
4:00	GMsHDG method for nonlinear porous media <i>Invited</i> // Minam Moon (Korea Military Academy)
4:20	An efficient K-way constrained normalized cut and its connection to algebraic multigrid method // Youngju Lee (Texas State University)
4:40	The moduli space of holomorphic chains of rank one over a compact Riemann surface // JingHyung To (Indiana University at Bloomington)
5:00	Inference about differences in predictive skill between infectious disease forecasting models // Dongah Kim (University of Massachusetts at Amherst)
5:20	The effect of NK cells on oncolytic virotherapy // Dongwook Kim (Texas A&M University at Kingsville)
5:40	Exploring dynamics of HIV infections: an analysis of the Susceptible-Infected-Virus model in deterministic and stochastic forms // Jangwoon Lee (University of Mary Washington)

Aug 4 _ Friday _ 4:00 – 6:00pm

MAS Session II: Mathematical Theory and its Applications II

Chair: Youngju Lee (Texas State University), Jangwoon Lee (University of Mary Washington)

Time	Title and Speaker
4:00	Rigidity of steady solutions to the Navier-Stokes equations in high dimensions Invited // Jeaheang Bang (University of Texas at San Antonio)
4:20	Photoacoustic tomography with direction dependent data // Sunghwan Moon (Kyungpook National University)
4:40	Reconstruction of the shape and boundary condition in inverse scattering for an obstacle with partial generalized impedance boundary // Heejin Lee (Purdue University)
5:00	Recent development of Bayesian joint modeling for medical sciences // Seongho Song (University of Cincinnati)
5:20	Bayesian clustering factor models // Hwasoo Shin (Virginia Tech)
5:40	Optimal rational approximation for the fractional diffusion problem // Seungil Kim (Kyunghee University)

Medical Science, Pharmaceutical Science, Veterinary Medicine, Physical Education (MPS) Technical Group B-1

This year, B-1 (previously MPS) will bring together life sciences and healthcare, and academic professionals on one stage to deliberate on cross-cutting-edge science. The world is changing to have a smart decision among the increased complexities of knowledge. We will deep dive into major three therapeutic areas such as oncology, immunology (including immuno-oncology), and neurology to focus on research and development. All speakers and poster presenters are from across the U.S. and Korea that can share their innovative research and solutions to each therapeutic issue.

Chair



Tae-Hyung Kim

University of New Mexico

Co-chairs



Jiyoung Lee

George Washington University



Hun-Goo Lee

Massachusetts General Hospital
Harvard Medical School

Tech Group B-1
MPS

@ Dallas

Aug 3 _ Thursday _ 4:00 – 6:00pm

MPS Session I: Cancer and Metabolism

Chair: Jiyoung Lee (George Washington University)

Time	Title and Speaker
4:00	Herbal Extracts from Lycii Radicis Cortex and Achyranthes Japonica Prevent Multiple Myeloma Progression // Donghoon Yoon (University of Arkansas for Medical Sciences)
4:25	High extracellular glucose promotes cell motility by modulating cell deformability and contractility via cAMP-RhoA-ROCK axis in human breast cancer cells // Tae-Hyung Kim (University of New Mexico)
4:50	Dysregulated 24-dehydrocholesterol reductase (DHCR24) in Head and Neck Squamous Cell Carcinoma // Jiyoung Lee (George Washington University)
5:15	Metabolic Vulnerabilities of Squamous Cell Carcinomas Invited // Jungwhan Kim (University of Oklahoma Health Science Center)
5:45	Poster Presentation Flash Talks (3 min each) <ul style="list-style-type: none"> Expression and Characterization of MYO7A Isoforms Localized to the Stereocilia Upper Tip-link Density // Jinho Park (University of Florida) Slow Myosin Binding Protein-C and Congenital Muscle Disease // Taejeong Song (University of Cincinnati Medical School)

Tech Group B-1
MPS

@ Dallas

Aug 4 _ Friday _ 4:00 – 6:00pm

MPS Session II: Neurobiology, Immunology, and Beyond

Chair: Hungoo Lee (MGH/Harvard)

Time	Title and Speaker
4:00	Poster Presentation Flash Talks (3 min each) <ul style="list-style-type: none">• Augmented Reality Glasses for Enhancing Coaching Abilities of Exercise Instructors // Jeeyoung Hong (Kongju National University)• Associations between Binge Eating Severity and Factors from Social Comparison among Korean American women // Bo Ra Kim (University of Texas at Austin)• Sigma Anti-Bonding Calcium Carbonate (SAC) cream enhances the wound-healing process in C57/BL6 mouse // Yeonju Kang (University of Arkansas)• Sigma Anti-Bonding Calcium Carbonate (SAC) and Biofilm Promote Wound Healing in B6.Cg-Lepob/J (ob/ob) Mouse // Hyejeong Jeong (University of Arkansas)
4:30	Sex difference in the profile of extracellular bioactive lipids of conjunctival epithelial cells during allergic inflammation // Changrim Lee (Harvard Medical School)
5:00	Modulating the Host's Immune Response for Preventing Peri-implantitis in Mice // Yejin Ki (University of Pittsburgh School of Dental Medicine)
5:30	Ets-1 as a Negative Regulator of Peripherally Induced Regulatory T Cells and its implications in autoimmune diseases // Choong-Gu Lee (Korea Institute of Science and Technology (KIST))
6:00	Removing the root cause of Fragile X syndrome by inducing the contraction of CGG repeats and FMR1 restoration // Hungoo Lee (MGH/Harvard)

Tech Group B-1
MPS

@ Aviator A

Aug 4 _ Friday _ 6:00 – 9:00pm

MPS Poster Session

Chair: Tae-Hyung Kim (University of New Mexico)

Time	Title and Speaker
MPS P1	Augmented Reality Glasses for Enhancing Coaching Abilities of Exercise Instructors // Jeeyoung Hong (Kongju National University)
MPS P2	Associations between Binge Eating Severity and Factors from Social Comparison among Korean American women // Bo Ra Kim (The University of Texas at Austin School of Nursing)
MPS P3	Slow Myosin Binding Protein-C and Congenital Muscle Disease // Taejeong Song (University of Cincinnati Medical School)

Tech Group B-1
MPS

@ Aviator A

Aug 4 _ Friday _ 6:00 – 9:00pm

MPS Poster Session

Chair: Tae-Hyung Kim (University of New Mexico)

Time	Title and Speaker
MPS P4	Expression and Characterization of MYO7A Isoforms Localized to the Stereocilia Upper Tip-link Density // Jinho Park (University of Florida)
MPS P5	Sex Differences in Amino Acid Kinetics in Older Adults with Chronic Morbidities // Chloe Kang (Texas A&M University Center for Translational Research in Aging & Longevity)
MPS P6	Sigma Anti-Bonding Calcium Carbonate (SAC) cream enhances the wound-healing process in C57/BL6 mouse // Yeonju Kang (University of Arkansas for Medical Sciences)
MPS P7	Sigma Anti-Bonding Calcium Carbonate (SAC) and Biofilm Promote Wound Healing in B6.Cg-Lepob/J (ob/ob) Mouse // Hyejeong Jeong (University of Arkansas for Medical Sciences)
MPS P8	Multiple Sclerosis Research Across the African Continent: A Systematic Review // Soonmyung Hwang (Icahn School of Medicine at Mount Sinai)

Tech Group B-1
MPS

@ Dallas

Aug 5 _ Saturday _ 8:00 – 10:00am

MPS Session III: Public Health and Technology

Chair: Soojin Yoo (University of Texas Rio Grande Valley), Co-Chair: Jiyoung Lee (George Washington University)

Time	Title and Speaker
8:00	Multi-Omics Profiling for Evaluating Carcinogenic Exposure and Health Effects in Firefighters during Emergency Fires Invited // Jooyeon Hwang (University of Texas Health Sciences Center at Houston)
8:25	Bridging the Gap: A Community Approach to Addressing Health Disparities in North Nashville through Food Access Community Mapping // Wansoo Im (Meharry Medical College)
8:50	Differential Moderating Roles of the Salience Network and Central Executive Network in Internalizing Psychopathology and Fluctuating Negative Affect // Ha Jeong Park (Texas A&M University Department of Psychological and Brain Sciences)
9:15	Clinical and Environmental Effects of Healthy Home Interventions // Insung Kang (Illinois Institute of Technology)
9:40	Mutations in the UBIAD1 gene, the vitamin K2 synthesizing enzyme, cause Schnyder Corneal Dystrophy (SCD) by inhibiting ER-associated degradation of HMG CoA reductase // Dong-Jae Jun (UT Southwestern Medical Center)

Agriculture, Ecology, Food, Nutrition (FAN) Technical Group B-2

Agriculture, Ecology, Food, and Nutrition Symposium will provide professional opportunities for leading and rising scientists and engineers to learn latest scientific, technical advances in various fields of agriculture, ecology, food and nutrition in US and Korea. The symposium covers all areas related to the UKC 2023's topic, '*Discovery, Innovation and dissemination for transformative impact*'. Areas include:

1. Agricultures including agronomy, entomology, crop, soil science, & environmental science, horticulture, plant science, plant pathology, animal sciences, agricultural biotechnology & engineering, agricultural economics & agribusiness, and other agricultural areas
2. Ecology including physiological ecology & behavioral ecology, population ecology, community ecology, ecosystem, landscape, human ecology, and other ecological areas
3. Food science including functional food, food processing, food quality, safety and regulation, food nanotechnology, food microbiology, food chemistry, food engineering, sensory science, and other emerging food technologies
4. Nutrition including dietetics, nutrient metabolism and physiology, precision nutrition, nutritional management in human diseases including obesity, diabetes, cancer, and stroke, muscle and protein metabolism, gene and diet interactions, international nutrition, nutrition and intestinal microbiome.

Chair



Yoo Kim

Oklahoma State University

Co-chairs



Sungeun Cho

Auburn University



Kee Hong Kim

Purdue University

Tech Group B-2
FAN

@ Jonsson

Aug 3 _ Thursday _ 4:00 – 6:00pm

FAN Session I: Food Science and Technology

Chair: Sungeun Cho (Auburn University), Yoo Kim (Oklahoma State University)

Time	Title and Speaker
4:00	Metabolomics in food and agricultural science Invited // Joonhyuk Suh (University of Georgia)
4:20	New antioxidants for frying oil developed in NCAUR, ARS, USDA // Hong-sik Hwang (USDA, ARS, NCAUR)
4:40	R&D Direction for Plant-based Meat and Cultivated Meat: Critical Variables for Consumer's Sensory Acceptance // Jung Han (Eat Just)
5:00	Comparative Study of the Susceptibility to Blue Light Inactivation of Foodborne Pathogens and Spoilage Bacteria // Minji Hur (University of Georgia)

Tech Group B-2
FAN

@ Jonsson

Aug 3 _ Thursday _ 4:00 – 6:00pm

FAN Session I: Food Science and Technology

Chair: Sungeun Cho (Auburn University), Yoo Kim (Oklahoma State University)

Time	Title and Speaker
5:20	Pathway-based metabolomics reveals the biosynthesis of key flavor compounds in apple // Min Jeong Kang (University of Georgia)
5:40	Influence of stunning methods on sensory characteristics of chicken breast meat using electronic senses // Sungeun Cho (Auburn University)

Tech Group B-2
FAN

@ Jonsson

Aug 4 _ Friday _ 4:00 – 6:00pm

FAN Session II: Nutrigenomics

Chair: Kee Hong Kim (Purdue University), Yoo Kim (Oklahoma State University)

Time	Title and Speaker
4:00	Advancing Sustainable Food Production Through Synthetic Biology // Eun Joong Oh (Purdue University)
4:30	Dietary Curcumin Attenuates Hepatic Cellular Senescence by Suppressing MAPK/NF-κB Signaling Pathway in Aged Mice // Da-Yeon Lee (Oklahoma State University)
4:50	Systems Genetic Analysis of Atherosclerosis and Gut Microbiota in a Diet-induced Hyperlipidemic Diversity Outbred F1 Mouse Population // Myungsuk Kim (Korea Institute of Science and Technology)
5:15	New insights into the role of piceatannol in cancer-associated cachexia // Kee-Hong Kim (Purdue University)
5:40	Protective Effects of Dietary Curcumin on Type 3 Diabetes // Yoo Kim (Oklahoma State University)

Tech Group B-2
FAN

@ Aviator A

Aug 4 _ Friday _ 6:00 – 9:00pm

FAN Poster Session

Chair: Keehong Kim (Purdue University), Yoo Kim (Oklahoma State University)

Time	Title and Speaker
FAN P1	Development of a method for risk assessment of organic pollutant exposure using monitoring data in the agricultural sector // Sangik Suh (Geongsang National University)
FAN P2	Autonomous Stand Counting in Field Pea using Aerial Imagery // Jeong-Hwa Kim (North Dakota State University)
FAN P3	Effects of Berry Volatile Extracts on LPS-induced Intestinal Inflammation in a Caco-2/RAW264.7 Co-culture Model // Sun-Ok Lee (University of Arkansas)
FAN P4	System Dynamics Model for Autonomous and Controlled Environment Potato Production System // Jae Hyeon Ryu (University of Idaho)

**Biological and Biomedical Sciences (Biology, Molecular Biology, Cognitive Science, Botany, Zoology, Biomechanics, etc.) / Bioengineering and Biomedical Engineering (BME)
 Technical Group B-3 / C-1**

As in any other major industry, problem solving in modern medicine increasingly requires a true convergence of many scientific and engineering fields. While some of the last frontiers of biomedicine, such as neuroscience and regenerative medicine, critically demands new ideas and tools from other disciplines, paradigm-shifting technological innovations in information science, nanotechnology, and robotics could open new opportunities in healthcare. At the same time, a new generation of engineers, "fluent" in many different languages of science, are creating entirely new fields to view the old questions with a fresh look. In the BME symposium, we strive to provide a stimulating forum for all researchers willing to go beyond the "comfort zone" to explore new opportunities in biomedical engineering.

Chair



Hyunjoon Kong

University of Illinois at Urbana-Champaign

Co-chairs



Deok Ho Kim

Johns Hopkins University



Young Bin Choy

Seoul National University

**Tech Group
 B-3/C-1 BME**

@ Maverick

Aug 3 _ Thursday _ 4:00 – 6:00pm

BME Session I: AI & Big Data Applications in Biomedicine

Chair: YoungBin Choy (Seoul National University), Co-Chair: Juhun Lee (University of Pittsburgh)

Time	Title and Speaker
4:00	Progress and Trends in Artificial Intelligence for Colonoscopy Invited // Dongheon Lee (Chungnam National University)
4:17	Multimodal Interfaces for Immersive Virtual Reality // Jinryong Kim (University of Texas at Dallas)
4:34	Image-based Deep Survival Learning Model for Risk Stratification of Cardiovascular Disease using Retinal Fundus Image // Jooyoung Chang (R&D, XAIMED)
4:51	Machine Learning of Colors for mHealth Applications // Young L. Kim (Purdue University)
5:08	Assessing the generalization of graph neural networks // Kijung Yoon (Hanyang University)

Tech Group
B-3/C-1 BME

@ Maverick

Aug 3 _ Thursday _ 4:00 – 6:00pm

BME Session I: AI & Big Data Applications in Biomedicine

Chair: YoungBin Choy (Seoul National University), Co-Chair: Juhun Lee (University of Pittsburgh)

Time	Title and Speaker
5:25	Isotropic cellular resolution across centimeter field of view using subvoxel axially sweeping light sheet microscopy (SV-ASLSM) // Juhyun lee (University of Texas at Arlington)
5:43	Analysis of GAN Artifacts in Breast Screening Mammogram Simulation // Juhun Lee (University of Pittsburgh)

Tech Group
B-3/C-1 BME

@ Maverick

Aug 4 _ Friday _ 4:00 – 6:00pm

BME Session II: Biomedical Devices and Materials for Biosensing, Diagnostics, and Therapeutics

Chair: Youngjae Chun (University of Pittsburgh), Co-Chair: Jaeseok Yu (DGIST)

Time	Title and Speaker
4:00	Ultra-sensitive Silicon Photonic Opto-mechanical Ultrasound Sensor for Biomedical Photoacoustic Imaging: Proof-of-concept study Invited // Jaeseok Yu (DGIST)
4:20	Smart Contact Lenses for Glaucoma Care // Chi Hwan Lee (Purdue University)
4:40	Microbead-based Biomaterials for Cellular Immunotherapy // Kyung-Ho Roh (University of Alabama, Huntsville)
5:00	In vivo evaluation of fractal microelectrodes for Vagus nerve stimulation // Hugh Lee (Purdue University)
5:20	Advanced Cell and Gene Therapies For Effective CNS Repair Using Bionanomaterials // Ki-Bum Lee (Rutgers University)
5:40	Development of Novel Ultra-low Profile Coronary Stents to Treat Potential In-Stent Restenosis // Youngjae Chun (University of Pittsburgh)

Tech Group
B-3/C-1 BME

@ Aviator A

Aug 4 _ Friday _ 6:00 – 9:00pm

BME Session III: Biomedical Engineering Poster Session

Chair: Chi Hwan Lee (Purdue University), Co-Chair: Kyung Ho Roh (University of Alabama, Huntsville)

Time	Title and Speaker
BME P1	A Homozygous IER3IP1 Mutation Causes Secretory Protein Trafficking Defects in Neural Progenitor Cells // Lucie Yeongran Ahn (Case Western Reserve University)

Aug 4 _ Friday _ 6:00 – 9:00pm

BME Session III: Biomedical Engineering Poster Session

Chair: Chi Hwan Lee (Purdue University), Co-Chair: Kyung Ho Roh (University of Alabama, Huntsville)

Time	Title and Speaker
BME P2	Osteoporosis Drug Testing on Demineralized Bone Paper // Yongkuk Park (University of Massachusetts Amherst)
BME P3	Spatial Phenotyping of the Glioblastoma Tumor Microenvironment // Jungmin Nam (Yale University)
BME P4	Production of animal stealth red cells by cell surface modulation // Hyung Kyu Kim (Kyungpook National University)
BME P5	A Pillar and Perfusion Plate Platform for Robust Human Organoid Culture and Analysis // Soo-Yeon Kang (University of North Texas)
BME P6	Studying depressive disorders with a 3D neurosphere model on a micropillar chip // NaYoung Choi (Inje University)
BME P7	Estimation of Musculotendon Stiffness and Slack Length Using an Optimization Algorithm // Hwan Choi (University of Central Florida)
BME P8	Frequency Analysis on Tissue Perfusion using a Laser Speckle Contrast Imaging in vivo // Yungjun Yoo (Optosurgical, LLC)
BME P9	Fundamental Issues in Cognitive Workload Classification // Junho Park (Texas A&M University)
BME P10	Integrated Edge-AI Based Closed-loop Stimulation System for Gait Rehabilitation after Spinal Cord Injury // Ahnsei Shon (Texas A&M University)
BME P11	Characterization of Decellularized Plant Leaf Biomaterials for Tissue Engineering // Chanul Kim (University of Wisconsin–Madison)
BME P12	Development of Nanoparticle Inducing Device Through ML // Gawon Lim (University of Illinois, Urbana-Champaign)
BME P13	Modulating the corticospinal excitability using various non-invasive brain stimulation techniques // Hakjoo Kim (Texas A&M University)
BME P14	Organic Synthesis Reactions on Digital Microfluidic Device // Hyejin Moon (University of Texas at Arlington)
BME P15	Trans-Golgi protein TVP23B regulates host-microbe interactions via Paneth cell homeostasis and Goblet cell glycosylation // Ran Song (University of Texas Southwestern Medical Center)
BME P16	Effects of collagen fiber alignments in regulating osteoblasts and mineralization // Hyejin Yoon (University of Massachusetts, Amherst)

Aug 4 _ Friday _ 6:00 – 9:00pm

BME Session III: Biomedical Engineering Poster Session

Chair: Chi Hwan Lee (Purdue University), Co-Chair: Kyung Ho Roh (University of Alabama, Huntsville)

Time	Title and Speaker
BME P17	Blood compatibility assessment of biomaterial surface chemistries to mitigate intrinsic coagulation pathway activation // Kyung-Hoon Kim (University of Washington)
BME P18	[SEED2023] Ectopic high endothelial venule-targeted nanodelivery for type 1 diabetes // Sungwook Jung (Harvard Medical School)
BME P19	[SEED2023] A Microengineered Organoid-on-a-Chip Model of Alveolar Development in the Human Lung Sunghee // Estelle Park (University of Pennsylvania)
BME P20	Injectable Lignin Composites to Improve Neovascularization and Healing of Diabetic Wounds // Jangwook P. Jung (Louisiana State University)
BME P21	Sex difference in the profile of extracellular bioactive lipids of conjunctival epithelial cells during allergic inflammation // Changrim Lee (Harvard Medical School)
BME P22	Creating a Therapeutic Application Plan through Research on Rare Genetic Disorders // Bokyeong Song (Sookmyung Women's University)
BME P23	The Intervention of the Beta Amyloid Protein Dysfunction by Carbon Nanodots in Alzheimer's Disease // John Bang (North Carolina Central University)
BME P24	Particulate Matter (PM) induced Beta Amyloid (BA) Protein Aggregation // Kevin Omar (North Carolina Central University)
BME P25	Polystyrene Microplastics and their GI Transmembrane Passage Capacity in Zebrafish Embryos // Majemite Iyangbe (North Carolina Central University)
BME P26	Analysis of Clock-Controlled Genes (CCGs) in Human Intestinal Enteroids // Suengwon Lee (University of Cincinnati)
BME P27	Toward Hyperplexed Immunohistochemistry using Hydrogel Staining, Chiral Nanoparticles, and Nanobodies // Kyung-Hak Choi (Noul Co., Ltd)
BME P28	An AI-embedded and Fully Automated Device for Malaria Detection at Remote Setting // Kyung-Hak Choi (Noul Co., Ltd.)
BME P29	Structural and biochemical characterization of the thiolmethyltransferase 1A and 1B // Taeyoon Jung (University of Washington)
BME P30	Numerical and Computational Analysis of Vascular Phantom Model for Sensor Design Validation // Youngjae Chun (University of Pittsburgh)

Aug 4 _ Friday _ 6:00 – 9:00pm

BME Session III: Biomedical Engineering Poster Session

Chair: Chi Hwan Lee (Purdue University), Co-Chair: Kyung Ho Roh (University of Alabama, Huntsville)

Time	Title and Speaker
BME P31	Scalable manufacturing of skin-conformal, stretchable electrodes via screen-printing // Jong-Hoon Kim (Washington State University)
BME P32	Multi-responsive injectable ECM-based embolic delivering therapeutic agents for treating cerebral saccular aneurysms // Seungil Kim (University of Pittsburgh)
BME P33	Co-transcriptional folding of nascent RNA in the presence of RNA-binding // Sunghyun Cho (Johns Hopkins University)
BME P34	Towards Robotic Knee Prosthesis Personalization: Impedance Control With PCA-Based Tuning Methodology // Woolim Hong (North Carolina State University)
BME P35	Skin-interfaced wireless device for fetal and maternal monitoring to minimize unnecessary C-section // Hyoyoung Jeong (University of California Davis)
BME P36	Genome-wide epigenetic editing of human microsatellite repeats using engineered zinc finger transcription factors // Y. Esther Tak (Harvard Medical School)
BME P37	Intelligent Upper-limb Exoskeleton using Deep Learning to predict Human Intention for Sensory-Feedback Augmentation // Kangkyu Kwon (Georgia Institute of Technology)
BME P38	[SEED2023] Engineered Helicase Replaces Thermocycler in DNA Amplification While Retaining Desired PCR Characteristics // Jimin Kang (Johns Hopkins University)
BME P39	Noninvasive estimation of intracranial pressure via diffuse correlation spectroscopy // John Sunwoo (Massachusetts General Hospital, Harvard Medical School)

Chemical, Textile, Energy, and Nuclear Engineering (CHE) Technical Group C-2

This symposium provides a forum for leading experts and young researchers to present and discuss cutting-edge research advances in the broad areas of chemical engineering and related fields. Topics of interest include various aspects of such areas including (but not limited to) advanced nanomaterials/biomaterials, nanoscience/nanotechnology, and complex processes for energy, health, and environmental problems. Both experimental and computational approaches as well as synergistic methods to address grand challenges in aforementioned topics are welcome.

Chair



Hyun-Tae Hwang
University of Kentucky

Co-chair



Jaewon Lee
University of Missouri

Tech Group C-2
CHE

@ McKee

Aug 3 _ Thursday _ 4:00 – 6:00pm

CHE Session I: Chemical, Textile, Energy, and Nuclear Engineering

Chair: Hyun-Tae Hwang (University of Kentucky), Jaewon Lee (University of Missouri-Columbia)

Time	Title and Speaker
4:00	Next-Generation Hybrid Models: Combining Attention Mechanisms and LSTM for Improved Predictions and Process Control in the Chemical Industry <i>Invited</i> // Joseph Kwon (Texas A&M University)
4:30	CO₂ EOR and Carbon Capture Utilization and Storage (CCUS): Field-Scale Application of Mobility-Control CO₂ Foams // Seung Ihl Kam (Louisiana State University)
5:00	Valorization of Nutrients in Surface Waters Through the Sustainable Biomass Production of the Attached Algae Flow-way for Biofuels // Sungwhan Kim (Sandia National Laboratories)
5:30	Solid-State Hydrolysis of Sodium Borohydride for Hydrogen Generation // Hyun-Tae Hwang (University of Kentucky)

Tech Group C-2
CHE

@ McKee

Aug 4 _ Friday _ 4:00 – 6:00pm

CHE Session II: Chemical, Textile, Energy, and Nuclear Engineering

Chair: Hyun-Tae Hwang (University of Kentucky), Jaewon Lee (University of Missouri-Columbia)

Time	Title and Speaker
4:00	Facile Soft-lithographic Micromolding Approaches for Controlled Fabrication of Micropatterned Opal Hydrogel Materials Invited // Hyunmin Yi (Tufts University)
4:30	Real-time investigation of Nanoparticle Self-assembly mechanisms and its controlling factors // Jaewon Lee (University of Missouri-Columbia)
5:00	Disordered Cathode Materials for High-Energy Lithium-Ion Batteries // Juhyeon Ahn (Lawrence Berkeley National Laboratory)

Tech Group C-2
CHE

@ Aviator A

Aug 4 _ Friday _ 6:00 – 9:00pm

CHEPoster Session

Chair: Hyun-Tae Hwang (University of Kentucky), Jaewon Lee (University of Missouri-Columbia)

Time	Title and Speaker
CHE P1	Spreading and wetting of transiently-crosslinked polymer spheres // Kyujin Ko (University of Cincinnati)

Mechanical, Aerospace, and Naval Engineering (MAN) Technical Group C-3

The Mechanical, Aerospace, and Naval Engineering (MAN) Symposium covers a wide variety of related areas including energy, manufacturing, mechanics, control, robotics, materials and so on. Experimental, theoretical, and computational studies are all welcome to the MAN symposium. The MAN symposium facilitates communication and collaboration on cutting-edge research in mechanical, aerospace, and naval engineering.

Chair



Eon Soo Lee

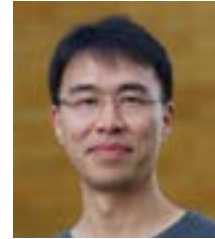
New Jersey Institute of
Technology

Co-chairs



Martin Byung-Guk Jun

Purdue University



W. Jong Yoon

University of Washington
Bothell

Tech Group C-3
MAN

@ Houston

Aug 3 _ Thursday _ 4:00 – 6:00pm

MAN Session I: MAKER-Manufacturing Alliance of Korean Engineers and Researchers

Chair: Martin Jun (Purdue University), Eon Soo Lee (New Jersey Institute of Technology)

Time	Title and Speaker
4:00	Practical and Economical Additive Manufacturing for High Temperature Applications <i>Invited</i> // Haseung Chung (Michigan State University)
4:20	Via Metrology and Inspection for Advanced Electronics Packaging // Chabum Lee (Texas A&M University)
4:35	Advanced Manufacturing Techniques for Flexible and Wearable Devices // Chi Hwan Lee (Purdue University)
4:50	A Novel Approach of Mold-free Manufacturing for Highly Sensitive Pressure and Tactile Sensors // Sunghwan Lee (Purdue University)
5:05	Additive Manufacturing of Rubber // Jae-Won Choi (University of Akron)
5:20	Cutting Mechanisms of Cross-ply Carbon Fabrics using a Drag Cutter // Dae-Wook (Dave) Kim (Washington State University)
5:35	3D Printed Microchannel-based Blood Plasma Self-separation for Biomedical Applications // Eon Soo Lee (New Jersey Institute of Technology)
5:50	Sound Recognition Using MT Connect Framework for Real-time Cutting Condition Monitoring of CNC Milling Machine // Martin Byung-Guk Jun (Purdue University)

Tech Group C-3
MAN

@ Houston

Aug 4 _ Friday _ 4:00 – 6:00pm

MAN Session II: Future Technologies in Materials and Engineering

Chair: Woon Jong Yoon (University of Washington Bothell), Eon Soo Lee (New Jersey Institute of Technology)

Time	Title and Speaker
4:00	A Study on the Development of Terrain Following Simulator using Digital Terrain Elevation Data (DTED) Invited // Sangchul Lee (Korea Aerospace University)
4:20	Decarbonization Effort in Non-Road Heavy-Duty Equipment // Youngjin Son (Caterpillar Inc.)
4:35	High Performance Green Composites Made with Cellulose Long Filament and Vanillin Epoxy // Jaehwan Kim (Inha University)
4:50	Morphology Control of Inkjet-Printed Micro-Patterns for Printed Electronics // Jun Young Hwang (Korea Institute of Industrial Technology)
5:05	Multifunctional Mechano-Luminescence-Optoelectronic Composites for Non-Invasive and Self-Learning Health Monitoring Wearables // Donghyeon Ryu (New Mexico Tech)
5:20	Cells Function as Ternary Logic Gates to Decide Their Migration Direction Under Combined Chemical and Fluidic Cues // Bumsoo Han (Purdue University)
5:35	Development of Gamifying Robots for Improving Stroke Recovery and Cross-disciplinary Undergraduate Research Experience // Woon Jong Yoon (University of Washington Bothell)

Tech Group C-3
MAN

@ Aviator A

Aug 4 _ Friday _ 6:00 – 9:00pm

MAN Poster Session

Chair: Martin Jun (Purdue University), Woon Jong Yoon (University of Washington Bothell)

Time	Title and Speaker
MAN P1	CNN-based Vibration Signal Classification through Image Conversion of Feature Matrix // Tae Hong Min (Gyeongsang National University)
MAN P2	Optimal Design Process of Variable Geometry Turbocharger Turbine Impeller // Jeong-Eui Yun (Kangwon National University)
MAN P3	Thermal Control in Metal Additive Manufacturing // Jihoon Jeong (Northwestern University)
MAN P4	Development of Rule-based Automatic Diagnosis Technology for Motor Pump System Diagnosis // DeokYeong Cheong (Gyeongsang National University)

Aug 4 _ Friday _ 6:00 – 9:00pm

MAN Poster Session

Chair: Martin Jun (Purdue University), Woon Jong Yoon (University of Washington Bothell)

Time	Title and Speaker
MAN P5	Electrified Personal Tracked Vehicle for Automation // Santiago Ricoy (University of Nevada, Las Vegas)
MAN P6	Optimization of Direct Energy Deposition Additive Manufacturing Process for Al-Mg-Si Alloy and H13 Steel // Jeki Jung (Stevens Institute of Technology)
MAN P7	Towards Embodiment of Miniature Humanoid through Virtual Reality // Akshay Dave (University of Nevada, Las Vegas)
MAN P8	Trajectory Planning for a Cable Driven Parallel Robot // Zahir Castrejon (University of Nevada, Las Vegas)
MAN P9	Crack Morphologies during Ultra-Precision Machining of Single Crystal 8 %mol Yttria-stabilized Zirconia // Dae Nyoungh Kim (University of Wisconsin - Madison)
MAN P10	Method for Real-Time Joint Trajectory in Telepresence Avatar Robotics // Baekseok Kim (University of Nevada, Las Vegas)
MAN P11	Contact Guidance of Hs27 Fibroblasts // Chunghwan Kim (Arizona State University)
MAN P12	Animated Graphene-filled Glass Fiber Composites for Enhanced Mechanical Properties // Ning Bian (University of Texas at Dallas)
MAN P13	Path planning problem for Self-Rechargeable Unmanned Aerial-Ground Vehicle Group // Jackie Lee (Texas A&M University)
MAN P14	Waveguided-based Darkfield Microscopy for Wafer Edge Inspection // Heebum Chun (Texas A&M University)
MAN P15	Parametric Machine Learning Model for Laser Powder Bed Fusion // Jong Kim (University of Central Florida)
MAN P16	Static Analysis of a Carbon Fiber Rotor in an Axial Flux motor // Joon Jo (Texas A&M University)
MAN P17	CNN-based Condition Classification of Vibration Signal Considering Fault Location // Jeongjun Lee (Gyeongsang National University)
MAN P18	A Novel Approach to Mosquito Trap: Utilizing 3D Flight Tracking Technology // Soohwan Kim (Georgia Institute of Technology)

Materials Science and Engineering, Nanotechnology (MSE) Technical Group C-4

Materials innovation is at the heart of addressing critical societal challenges related with energy, environment, and sustainability. Materials Science and Engineering (MSE) symposium will bring together scientists and engineers working at the forefront of materials science and technologies, providing opportunities for gaining new perspectives and networking for future collaborations. The topics to be covered by the symposium include but are not limited to: Electronic materials; functional materials; and nanomaterials towards advanced applications such as micro/nanoelectronics, energy conversion/storage, and additive manufacturing to name a few. Also to be discussed are novel materials design, synthesis, processing, and characterization.

Chair



Jiyoung Kim

University of Texas
at Dallas

Co-chairs



Chang-Yong Nam

Brookhaven
National Laboratory



Jang-Sik Lee

Pohang University
of Science and
Technology(POSTECH)

Tech Group C-4
MSE

@ Fort Worth

Aug 3 _ Thursday _ 4:00 – 6:00pm

MSE Session I: Material Synthesis—Electrochemistry and Microelectronics Applications

Chair: Jiyoung Kim (University of Texas at Dallas), Chang-Yong Nam (Brookhaven National Laboratory)

Time	Title and Speaker
4:00	Electrochemistry of Metals with High Oxidation Potential Invited // Choong-Un Kim (University of Texas at Arlington)
4:20	Fabrication of Fe-Ni Invar Alloy using Electrodeposition Technology for FMM Application Invited // Jae-Ho Lee (Hongik University)
4:40	3-Dimensional Integration with High Interconnection Density Invited // Rino Choi (Inha University)
5:00	Electrochemical Stability of Real-Scale Metallic Nanoparticles explored by Machine Learning Invited // Hyuck Mo Lee (Korea Advanced Institute of Science and Technology)
5:20	Electrochemical synthesis of single crystalline nanomaterials and applications to interconnect of electronic packaging Invited // Jae Yong Song (Pohang University of Science and Technology)
5:40	Phase-field Simulation of Microstructure Formation in Thin Films Invited // Yongwoo Kwon (Hongik University)
6:00	The Role of Nanofillers in Tire Rubber on Noise Reduction under Low-Frequency Vibration Invited // Hongbing Lu (University of Texas at Dallas)

Tech Group C-4
MSE

@ Fort Worth

Aug 4 _ Friday _ 4:00 – 6:00pm

MSE Session II: Next-Generation Electronic Devices and Materials

Chair: Jang-Sik Lee (Pohang University of Science and Technology), Chang-Yong Nam (Brookhaven National Laboratory)

Time	Title and Speaker
4:00	Technology Trends of 3D NAND Flash Memory and Pathfinding Opportunities Invited // Tae Kyung Kim (Samsung Electronics)
4:20	Highly-Scaled 3D Ferroelectric Transistor Array for Compute-in-Memory Invited // Jang-Sik Lee (Pohang University of Science and Technology)
4:40	Half-Cycle Interrogation of HfO₂ Atomic Layer Deposition Mechanism Using in-situ Reflectance Absorbance Infra-Red Spectroscopy Invited // Jiyoung Kim (University of Texas at Dallas)
5:00	Dopant Control of Ultra-short Channel Gate-All-Around FET for Reliable Threshold Voltage Invited // Rock Hyun Baek (Pohang University of Science and Technology)
5:20	New Device Applications of III-Nitride Wide-Bandgap Semiconductors: Beyond Power Electronics and Visible/UV Photonics Invited // Jae-Hyun Ryou (University of Houston)
5:40	High Resolution Photolithography for OLED Frontplane Invited // Jeong-Hwan Lee (Inha University)
6:00	Vapor-Phase Infiltration for Microelectronics Applications Invited // Chang-Yong Nam (Brookhaven National Laboratory)

Tech Group C-4
MSE

@ Aviator A

Aug 4 _ Friday _ 6:00 – 9:00pm

MSE Poster Session

Chair: Jiyoung Kim (University of Texas at Dallas), Chang-Yong Nam (Brookhaven National Laboratory), Jang-Sik Lee (Pohang University of Science and Technology)

Time	Title and Speaker
MSE P1	Charge Transfer Across the Interfaces in Organic Field-Effect Transistors // Hyun Ho Choi (Gyeongsang National University)
MSE P2	Free-Standing Li₄Ti₅O₁₂/Carbon Nanotube Electrodes for Flexible Lithium-Ion Batteries // Jun seok Lee (Gyeongsang National University)
MSE P3	The Effects of in-situ Atomic Layer Annealing on Thermal Atomic Layer Deposited Silicon Nitride // Siun Song (The University of Texas at Dallas)
MSE P4	Analysis of Separation Behavior of Polyamide Structure-Based RO membrane Using Multi-scale Simulation // Kwangseop Im (Gyeongsang National University)

Aug 4 _ Friday _ 6:00 – 9:00pm

MSE Poster Session

Chair: Jiyoung Kim (University of Texas at Dallas), Chang-Yong Nam (Brookhaven National Laboratory), Jang-Sik Lee (Pohang University of Science and Technology)

Time	Title and Speaker
MSE P5	Optimal Print Parameter Prediction By Neural Networks For Laser Powder Bed Fusion Additive Manufacturing // Kevin Graydon (University of Central Florida)
MSE P6	Enhanced ferroelectric polarization of $\text{Hf}_{0.5}\text{Zr}_{0.5}\text{O}_2$ thin films through fast ramp-up annealing process // Seongbin Park (Kangwon National University)
MSE P7	Forming Voltage-Free Memristive Hafnium Oxide Devices for Non-Polar Switching Applications // Yeeun Hong (University of Texas at Dallas)
MSE P8	Characterizing the High Temperature Mechanical Performance and Microstructure of Additively Manufactured Tantalum // Sharon Park (Johns Hopkins University)
MSE P9	Determining Printability of Soft Magnetic Alloys Via Single Track Study // Nicolas Ayers (University of Central Florida)
MSE P10	Development and evaluation of diaphragm membrane for alkaline water electrolysis // Sang Yong Nam (Gyeongsang National University)
MSE P11	Manufacturing of Inconel 718 with Enhanced Boron Composition via Selective Laser Melting // Jeongwoo Lee (University of Texas Rio Grande Valley)
MSE P12	Evaluation of Interfacial Property and Damage Sensing of Structural Composites Using Electrical Resistance Method // Dong-Jun Kwon (Gyeongsang National University)
MSE P13	Fabrication and Electrical Properties of Organic Ferroelectric Gate Transistors // Byung Eun Park (University of Seoul)
MSE P14	Electrochemical Removal of Nitrate for Ammonia Synthesis and Water // Jeonghoon Lim (Lawrence Berkeley National Laboratory)
MSE P15	The Effect of H-bonding Strength on the Water-responsiveness of Bacillus subtilis Cell Walls using Hofmeister Salts // Seungri Kim (City College of New York)
MSE P16	[SEED2023] Solvent-Free Synthesis and Modification of Membranes for Industrially Relevant Gas Separations // Dennis Lee (Johns Hopkins University)
MSE P17	Compositional Redistribution, Phase Transformation, Microstructural Development in SS316L/IN625 Bimetallic Structure Fabricated by Laser Powder Bed Fusion // Asif Mahmud (University of Central Florida)

Aug 4 _ Friday _ 6:00 – 9:00pm

MSE Poster Session

Chair: Jiyoung Kim (University of Texas at Dallas), Chang-Yong Nam (Brookhaven National Laboratory), Jang-Sik Lee (Pohang University of Science and Technology)

Time	Title and Speaker
MSE P18	Enhancing the performance of tungsten-based alloys through additive manufacturing // Hyeji Im (Northwestern university)
MSE P19	Cross-Point Array of Metal-Ferroelectric-Metal HfZrO₂ Capacitors for Compute-in-Memory Applications // Minjong Lee (University of Texas at Dallas)
MSE P20	High endurance of back-end-of-line compatible ferroelectric Hf_{0.5}Zr_{0.5}O₂ thin films through low temperature annealing // Jong Mook Kang (Kangwon National University)
MSE P21	Computational Design and Analysis of Metal Halide Perovskites: Toward Eco-friendly and Highly Stable Solar Cells // Ki-Ha Hong (Hanbat National University)
MSE P22	Effect of Carbon on The Microstructure and Mechanical Properties of Carbon-bearing Steels in Laser Powder Bed Fusion // Tinh Huynh (University of Central Florida)
MSE P23	Electronic Transport in Pd-PdHx_(0 ≤ x < 0.7) Film in Ambient Temperature // Jong-Hee Park (DePaul University)

Civil and Environmental Engineering, Architecture (CEA) Technical Group C-5

The Civil, Environmental, and Architecture (CEA) Engineering Symposium covers diverse engineering and scientific themes every year. At the 36th annual UKC conference, the CEA symposium presents recent advancements in assessing and promoting the resilience of buildings, transportation infrastructure, and the environment. All participants will share and learn new paradigms and perspectives brought by the unprecedented events and many short-lived trends via three technical sessions: toward the sustainable environment; more resiliency for the built infrastructure; and into the future materials and field practices.

Chair



Youngguk Seo

Kennesaw State University

Co-chair



Jung Heum Yeon

Texas State University

Tech Group C-5
CEA

@ Lone Star1

Aug 3 _ Thursday _ 4:00 – 6:00pm

Transport Institute (KOTI) Session: Korea Highway Management Technology and Policy
Chair: Brian Park (University of Virginia)

Time	Title and Speaker
4:00	Vice President's Welcome Remarks // Jeehyung Park (KOTI)
4:05	Scenario Development Methodology for Automated Vehicle Evaluation Invited // Ilsoo Yun (Ajou University)
4:25	Digital Transformation of Road Management in Korea // Chandle Chae (Road Transport Policy of Korea Transport Institute)
4:50	Introduction of Panelists // Jeehyung Park (KOTI), Mihyeon Jeon (Atkins), Hanseon Cho (KOTI)
5:10	Panel Discussion and Q&A
5:50	Wrap-up and Group Photo

Tech Group C-5
CEA

@ Lone Star2

Aug 3 _ Thursday _ 4:00 – 6:00pm

CEA Session I: Innovative Ideas in Construction

Chair: John McFadden (FHWA), Co-Chair: Namho Cho (University of Iowa)

Time	Title and Speaker
4:00	Facility Management Practice for Public University: A case study on the University of Iowa // Namho Cho (University of Iowa)
4:20	Towards Portable and Accurate Ergonomic Assessment in Construction // Ju Hyeong Ryu (West Virginia University)
4:40	Automated Estimation Model for Liquidated Damages in General Provisions of Equipment Purchasing Orders // Sea-eun Park (POSTECH)
5:00	[SEED2023] Virtual Reality Educational Simulation for Construction Management // Suryeon Kim (Texas A&M University)
5:20	AI-driven contract risk extraction model // Jeehee Lee (University of Nevada, Las Vegas)
5:40	Using Data to Integrate Equity in Infrastructure Project Selection Process // John McFadden (FHWA)

Tech Group C-5
CEA

@ Lone Star1

Aug 4 _ Friday _ 4:00 – 6:00pm

CEA Session II: Natural Disasters: Predictions and Post-damage Assessments

Chair: Min Jae Suh (Sam Houston State University)

Time	Title and Speaker
4:00	Green Infrastructure Design and Runoff Reduction Evaluation for Metro City Level: The Case Study of Suwon City // Junsuk Kang (Seoul National University)
4:20	Assessing Vulnerability of South Korea to Typhoon Damage Considering Sea Level Rise: A Case Study of Typhoon Maesak Simulation // Jin young Kim (University of Texas at Arlington)
4:40	Multivariate Frequency Analysis Framework for Hurricane Events and Its Application on Hurricane Ian // Eunsam Cho (Florida State University)
5:00	Event coincidence of dryness, conflict, and forced migration in Somalia // Woi Sok Oh (Princeton University)

Tech Group C-5
CEA

@ Lone Star2

Aug 4 _ Friday _ 4:00 – 6:00pm

CEA Session III: Towards Sustainable and Smart Buildings

Chair: Eul-Bum Lee (GIFT)

Time	Title and Speaker
4:00	Investigating the Relationship between Human Physiological Responses and Indoor Environmental Quality in Commercial Buildings // Joon-Ho Choi (University of Southern California)
4:20	Evaluation of V-COP model for real-time monitoring of EHP performance // Jihyun Seo (Korea Institute of Energy Research)
4:40	Fast Load Prediction Model of Chiller using Bayesian Optimization // Juwan Ha (NC State University)
5:00	An Empirical Analysis of Korean Household Appliance Use Patterns: using a national Time Use Survey dataset // Seungmin Lee (NC State University)
5:20	In-situ evaluation of non-destructive insulation performance measurement method of building envelope // Daehwan Shin (Korea Institute of Energy Research, KIER)

Tech Group C-5
CEA

@ Wildcatters

Aug 4 _ Friday _ 4:00 – 6:00pm

CEA Session IV: Future Mobility

Chair: Mihyeon Jeon (Atkins), Co-Chair: Brian Park (University of Virginia)

Time	Title and Speaker
4:00	Physics-Informed Neural Network-based Computational Solid Mechanics Model for Problems with Material Heterogeneity // Hyeun Kong (Penn State University)
4:30	Field Evaluation Plan of Connected Vehicle Identification System // Byungkyu Brian Park (University of Virginia)
5:00	Common Data Requirements for Digital Twin Data Interoperability in Capital Projects // John Oh (Texas A&M University)

CEA Poster Session

Chair: Jun Kim (Florida Polytechnic University)

Time	Title and Speaker
CEA P1	Heat Stress Conditions and Awareness of Roofers in South Texas // Min Jae Suh (Sam Houston State University)
CEA P2	Fenton-like catalytic ceramic membrane hybrid system for the advanced water treatment // Youngkun Chung (Rice University)
CEA P3	Development of Smart Harmful Algal Bloom (HAB) Detection System Using Unmanned Aerial Vehicle (UAV) and Hyperspectral Sensor // Da Yun Kwon (Korea University)
CEA P4	Multiple heavy metal detection in greywater using a novel MoS₂-chitosan-based electrochemical sensor // Woo Hyoung Lee (University of Central Florida)
CEA P5	Purification of Phosphoric Acid Manufacturing Process Water with Recovery of Critical Materials using MCDI // Jun Kim (Florida Polytechnic University)
CEA P6	An Electrical Heating Technique for Environmentally Friendly Winter Maintenance of Transportation Infrastructure // Jung Heum Yeon (Texas State University)
CEA P7	Pathway to a Just Transition: Bridging Regional Inequality of Clean Energy Through Hydrogen // Gina Park (Cornell University)
CEA P8	[SEED2023] Development of On-site Quality Management System for Asphalt Pavement Using IoT // Dong Hyuk Kim (University of Georgia)
CEA P9	[SEED2023] Multifunctional Flexible Sensor for Temperature and Strain Detection // Bo Mi Lee (University of Central Florida)
CEA P10	Assessment of Thermal Comfort in Response to Urban Spatial Changes // Seoyoung Lee (Seoul National University)

Electrical and Computer Engineering (ECE) Technical Group C-6

The Electrical and Computer Engineering Symposium is designed to provide emerging technologies and diverse developments in a wide range of disciplines of Electrical and Computer Engineering. With the global success of smart devices and the increasing importance of intelligent systems, this symposium provides a platform to introduce the latest innovations as well as showcase applications enabled by these technologies. This symposium brings together scientists and engineers from the US and Korea, promoting the opportunity for technical information exchange and research collaboration between these two vibrant communities.

- ECE symposium will cover
 - i) electronic and photonic devices
 - ii) integrated circuits, intelligent systems, control, and networks
 - iii) emerging applications in healthcare, artificial intelligence, and robotics
 - iv) energy, power, and other areas of smart devices and systems

Chair



Jin W Choi

Michigan Technological University

Co-chairs



Wookyung Sun

Seoul National University



Jeongwon Park

University of Nevada at Reno



Jungkwun Kim

University of North Texas

Tech Group C-6
ECE

@ San Antonio

Aug 3 _ Thursday _ 4:00 – 6:00pm

ECE Session I: Advancements in Emerging Technologies

Chairs: Jin W Choi(Michigan Technological University), Wookyung Sun(Seoul National University), Jeongwon Park(University of Nevada at Reno), Jungkwun Kim (University of North Texas)

Time	Title and Speaker
4:00	Fabrication of OLED Lighting Auxiliary Electrode by Self-aligned Inkjet Printing Process // Sang-Ho Lee (Korea Institute of Industrial Technology)
4:20	Fully Portable Wireless Soft Stethoscope and Machine Learning for Continuous Real-Time Auscultation and Automated Disease Detection Invited // W. Hong Yeo (Georgia Tech)
4:40	Printed Hybrid Electronics // Donghun Park (3DFlexible Inc.)
5:00	Self-Rotating Discharge using a Pattered Dielectric Area in Ambient Air and Potential Application in Materials Surface Modification Invited // Choonsang Park (Milligan University)

Tech Group C-6
ECE

@ San Antonio

Aug 3 _ Thursday _ 4:00 – 6:00pm

ECE Session I: Advancements in Emerging Technologies

Chairs: Jin W Choi(Michigan Technological University), Wookyung Sun(Seoul National University), Jeongwon Park(University of Nevada at Reno), Jungkwun Kim (University of North Texas)

Time	Title and Speaker
5:20	Lab on a Smartphone (LOS): a smartphone-integrated optoelectrowetting platform as a portable environmental sensor for on-site water quality monitoring // Sean Park (San Diego State University)
5:40	Microfabrication of Hollowed Microneedle Array by Diffraction Lithography // Jungkwun Kim (University of North Texas)

Tech Group C-6
ECE

@ San Antonio

Aug 4 _ Friday _ 4:00 – 6:00pm

ECE Session II: Innovations in Semiconductor and Wireless Technologies

Chairs: Jin W Choi(Michigan Technological University), Wookyung Sun(Seoul National University), Jeongwon Park(University of Nevada at Reno), Jungkwun Kim (University of North Texas)

Time	Title and Speaker
4:00	Automatic Array Calibration System for Wireless Microwave Power Transmitter Invited // Sang-Hwa Yi (Korea Electrotechnology Research Institute)
4:20	5.8 GHz High-power Rectifier using GaN-HEMT diode for wireless Power Transmission Application Invited // Wonseob Lim (Korea Electrotechnology Research Institute)
4:40	Energy harvesting power management circuits for dual-battery configuration Invited // Kyoungho Lee (Korea Electrotechnology Research Institute)
5:00	An overview of DRAM cell architecture post-Moore law era // Wookyung Sun (Seoul National University)
5:20	Plasmon FET for Tailored Photodetection and Bio Sensing // Sung Jin Kim (University of Louisville)
5:40	Innovations in Nanoelectronics: Exploring the Possibilities of 2D Materials // Jeongwon Park (University of Nevada Reno)

Aug 4 _ Friday _ 6:00 – 9:00pm

ECE Poster Session

Chairs: Jin W Choi(Michigan Technological University), Wookyung Sun(Seoul National University), Jeongwon Park(University of Nevada at Reno), Jungkwun Kim (University of North Texas)

Time	Title and Speaker
ECE P1	Region-based conversion of neural activity across sessions // Woohyun Eum (University of Florida)
ECE P2	Effective fetal ECG extraction for non-invasive ambulatory monitoring // Yongkuk Lee (Wichita State University)
ECE P3	LED Evaluations for Photovoltaic Impedance Spectroscopy // Sung Yeul Park (University of Connecticut)
ECE P4	Evaluation of transient and small-signal stability of Korean power system along the penetration of renewable energy // Jongoh Baek (Texas A&M University)
ECE P5	Artificial Neural Network(ANN) Based Maximum Power Point Tracking(MPPT) Algorithm for a Photovoltaic Application // Woonki Na (California State University, Fresno)
ECE P6	Fast Recognition of Crop Parts Using 3D Point Clouds and Semantic Segmentation Neural Network // Young Jae Ryoo (Mokpo National University)

Computer and Information Sciences (CIT) Technical Group C-7

The Computer Sciences and Information Technologies (CIT) symposium encompasses diverse areas of research and development in CS/IT fields as well as the arts and social sciences. The symposium also provides variety of opportunities to emerge entertainment and other technology related areas such as connected vehicles, smart city and bio-medical. The symposium also provided a unique venue for CS/IT researchers and engineers from both academia and industry in the US and Korea. The topics include artificial intelligent, machine learning, data science, connected vehicles, augmented reality/virtual reality, art technology, software engineering, human computer interaction, big data and data analytics, Internet of Things (IoT), cybersecurity, robotics and computer educations. The CIT Symposium consists of regular sessions and poster session.

Chair



Ohbong J. Kwon

New York City College
of Technology

Co-chairs



Hoyoung Hwang

Hansung University



Donghoon Kim

Arkansas State
University

Tech Group C-7
CIT

@ Grapevine

Aug 3 _ Thursday _ 4:00 – 6:00pm

CIT Session I: Artificial Intelligence (AI) and Machine Learning (ML)

Chair: Ohbong Kwon(New York City College of Technology), Co-Chair: Hoyoung Hwang (Hansung University)

Time	Title and Speaker
4:00	Gated Transformer Networks for Drug Classification using MultiDimensional Time-Series Animal Behavioral Data Invited // Sung-Cheol Kim (PsychoGenics)
4:20	Cloud-based Integrated Development Environment to Improve Hands-on Activities in a Mobile App Course // Sam Chung (City University of Seattle)
4:40	Skyscraper Games for Kids: Lessons Learned from a STEM Contest for Kids // Frank Lee (Drexel University)
5:00	Disadvantaged Business Enterprise (DBE) Program Fraud Detection using Natural Language Processing // Jay Jaeshik Shin (Seoul National University)
5:20	Enhanced Deep Learning Model for Structural Damage Identification via Random Vibration // Jongyeop Kim (Georgia Southern University)
5:40	A Comparative Study of PWAs and React Native Mobile Apps // Sam Chung (City University of Seattle)

Tech Group C-7
CIT

@ Grapevine

Aug 4 _ Friday _ 4:00 – 6:00pm

CIT Session II: Security

Chair: Ohbong Kwon (New York City College of Technology), Co-Chair: Donghoon Kim (Arkansas State University)

Time	Title and Speaker
4:00	Integrating Geographic Information Systems and Automatic Identification Systems for Maritime Logistics Invited // EunSu Lee (New Jersey City University)
4:20	A Case Study of Next.js's Hybrid Rendering vs. React.js' Client-Side Rendering // Shingo Kise (City University of Seattle)
4:40	Enhanced Real-Time Fingerprinting Attacks on Tor Networks // Donghoon Kim (Arkansas State University)
5:00	Hierarchical Reinforcement Learning Architecture to Deal With Multi-Horizon Complex Systems // Prasad Nethala (Texas A&M University-Corpus Christi)
5:20	Hippocampus Inspired Cognitive Architecture (HICA) for Few-shot Learning // Deokgun Park (University of Texas at Arlington)
5:40	Machine Learning Algorithm: Predicting the Price of Soybean // Soon-Ok Park (Governors State University)

Tech Group C-7
CIT

@ Aviator A

Aug 4 _ Friday _ 6:00 – 9:00pm

CIT Poster Session

Chair: Ohbong Kwon (New York City College of Technology), Co-Chair: Jeongkyu Lee (Northeastern University)

Time	Title and Speaker
CIT P1	Science and Engineering Education using Drone // Jounsup Park (California Baptist University)
CIT P2	Analysis of Community Connectivity in Spatial Transcriptomics Data // Kyeong Joo Jung (The Ohio State University)
CIT P3	Potential Transformative Impact of Flood Service Drones // Jae Hyeon Ryu (University of Idaho)
CIT P4	Conceptualizing Information Drone to Benefit Underserved People // Jae Hyeon Ryu (University of Idaho)
CIT P5	Resource-Efficient Parameter Tuning in Text-to-Speech Models // Chan Gi Hong (Gwangju Institute of Science and Technology)
CIT P6	Investigating the cause of selection by using an evolutionary model that incorporates amino acid physicochemical properties // Hannah Kim (Temple University)
CIT P7	Evaluating Autoencoder Structures for Testing Location Integrity // Jinpyo Kim (Texas A&M University-Commerce)

Industrial, Manufacturing, and Systems Engineering, Management Sciences, Operations Research (IMS)
Technical Group C-8

The Industrial Engineering and Management Science (IMS) Symposium aims to discuss recent theoretical advancements and practical developments in the areas of industrial and systems engineering, management science, and supply chain management. The symposium would disseminate, to all branches of academy and industry across the U.S. and Korea, the most relevant theoretical research as well as applications. Topics include, but are not limited to: Intelligent Systems, Internet of Things (IoT), Supply Chain Risk Management, Service Science, Revenue Management, Finance Technology, Artificial Intelligence and Big Data Analytics, Optimization, Network Science, Transportation Science & Logistics, System Simulation, Modeling & Decision Analysis, Quality & Reliability Engineering, Engineering Economic Analysis, and Ergonomics & Human Factors.

Chair



Jeong Hoon Choi
 Youngstown State University

Co-chairs



Tai-Woo Chang
 Kyonggi University



Hyesung Park
 Georgia Gwinnett College

Tech Group C-8
 IMS

@ Austin

Aug 3 _ Thursday _ 4:00 – 6:00pm

IMS Session I: Health Care and Sustainability

Chair: Hyesung Park (Georgia Gwinnett College)

Time	Title and Speaker
4:00	The Impact of Misinformation on Health Interventions to Prevent the Spread of Covid-19 in Eastern and Southern Africa Invited // Sang-Heui Lee (Pittsburg State University)
4:20	Strategic Capacity Management for Deferred Surgeries // Eojin Han (Southern Methodist University)
4:40	Renewable-Battery Hybrid Power Plants in Congested Electricity Markets: Implications for Plant Configuration // Hyungkwan Kim (Lawrence Berkeley National Laboratory)
5:00	Challenges in Managing Workload and Anxiety in Gateway Programming Courses // Hyesung Park (Georgia Gwinnett College)
5:20	The Vulnerability of the Blood Supply Chain in the U.S. // Jeong Hoon Choi (Youngstown State University)
5:40	Proposal of a Parametric-based Generative Design Tool for Customized Mouse // Eui-Chul Jung (Seoul National University)

Tech Group C-8
IMS

@ Austin

Aug 4 _ Friday _ 4:00 – 6:00pm

IMS Session II: Industrial Engineering & Management Science Applications

Chair: Jeong Hoon Choi (Youngstown State University)

Time	Title and Speaker
4:00	Leveraging Smart Contracts for Secure and Asynchronous Group Key Exchange Without Trusted Third Party Invited // Junggab Son (University of Nevada, Las Vegas)
4:20	Safe Drilling Depth for Deep Hole Bone Drilling // JuEun Lee (University of the Pacific)
4:40	Inventory and firm performance analysis in the pharmaceutical industry // Sangdo Choi (o9 Solutions, Inc.)
5:00	Does corporate political advocacy harm your offline business? // Yeohong Yoon (Emory University)
5:20	Exploring the impact of the working capital in the U.S. aviation industry for profitability and shareholder value // Seock-Jin Hong (University of North Texas)
5:35	The Impact of Context and Environment on Driver's Situation Awareness // Sami Park (University of Washington)
5:50	A Drill-Down Demand Analysis of Beef and Hay Consumption in Korea // Eunsu Lee (New Jersey City University)

Tech Group C-8
IMS

@ Aviator A

Aug 4 _ Friday _ 6:00 – 9:00pm

IMS Poster Session

Chair: Tai-Woo Chang (Kyonggi University), Jeong Hoon Choi (Youngstown State University)

Time	Title and Speaker
IMS P1	Prediction and Integrated Control System for the Spread of Hazardous Materials in Industrial Areas // Minho Son (Podo Institute of Technology)
IMS P2	Analysis of the Relationship between Innovation Activities and Profitability in Banking Industry in Korea // Sooyeon Lim (Seoul National University)
IMS P3	Examining the transfer of ACC training to mental models after an OTA update of Advanced Driver Assistance Systems // Jimin Kim (University of Iowa)

**Social Sciences (Anthropology, Economics, Political Science, Sociology, Public Policy, etc.),
Psychology, Digital Arts, STEM Education, and Other Sciences (SSP)
Technical Group D-1**

The Education Research, STEM and Social Sciences Symposium is organized by KAERA (Korean-American Educational Researchers Association) to invite leading experts and young researchers in emerging technology and DEI (Diversity, Equity, and Inclusion) in Education.

The first session focuses on the integration of advanced technologies into education. These advances brought changes in the way we learn and teach thereby significantly transforming the educational landscape. With this in mind, it will cover a wide range of topics, including but not limited to the ethical implications of AI technology in education, immersive learning experiences through AR or VR, online or flipped learning, gamification, as well as various pedagogies and teaching models.

The second session explores the topic of Diversity, Equity, and Inclusion in STEM education with a focus on Belonging for Koreans and Korean Americans. This session will bring together a group of teacher educators who are doing innovative work in DEI + Belonging. The presentations will focus on issues of DEI+B within the field of STEM teacher education. Topics will include anti-racist pedagogy, cultivating a sense of belonging in the classroom, and unpacking the differences between equity and equality to promote safe learning and teaching environments.

Chair



Jongpil Cheon

Texas Tech
University

Co-chairs



Nicholas D. Hartlep

Berea College



Kyungbin Kwon

Indiana University
Bloomington



Gilbert Park

Ball state
University

Tech Group D-1
SSP

@ Vandergriff

Aug 3 _ Thursday _ 4:00 – 6:00pm

SSP Session I: Education and Social Science (Integration of Advanced Technology)

Chair: Jongpil Cheon (Texas Tech University), Kyungbin Kwon (Indiana University - Bloomington)

Time	Title and Speaker
4:00	Embodied Learning for Computational Thinking // Kyungbin Kwon (Indiana University – Bloomington)
4:15	Solar Tree for Science, Technology, Engineering, Art, and Math // Sung Yeul Park (University of Connecticut)
4:30	Developing AI Chatbot System for Self-Regulated Learning // Hyangeun Ji (Temple University), Insook Han (Korea University)
4:45	Unraveling the Effective Teaching and Learning Strategies for Korean College Students in STEM Majors in the COVID-19 Era // Seong Ji Jeong (The Ohio State University)
5:00	PROJECT ADAPT – Uncovering the Potential of Arts-Integrated Digital Literacy Professional Development Program in Preservice Teachers' Digital Literacy Development and Learning Engagement // Jewoong Moon, Kathryn O'Harra, Julianne Coleman, Kelley Schoger, Julie Bannerman (The University of Alabama)
5:15	Exploring Strategic Differences in Debugging Between Two Groups with Different Levels of Computational Thinking Competency: Implications for Teaching Strategies // Eunsung Park (Tennessee Tech University), Jongpil Cheon (Texas Tech University)
5:30	Utilizing Artificial Intelligence for Personalized Career Development // Boong Yeol Ryoo (Texas A&M University)
5:45	Enhancing Science Affinities through a Video Project in a Science, Technology, and Society (STS) Learning Approach // Jiyeon Yoon (University of Texas Arlington), Amanda Olsen (University of Missouri Columbia)

Tech Group D-1
SSP

@ Vandergriff

Aug 4 _ Friday _ 4:00 – 6:00pm

SSP Session II: Education and Social Science (Diversity, Equity, and Inclusion)

Chair: Nicholas D. Hartlep (Berea College), Gilbert Park (Ball State University)

Time	Title and Speaker
4:00	Virtual Cultural Science Night with Academic Coaching // Jiyeon Yoon (University of Texas Arlington)
4:20	Synchronous Online Culturally Responsive Academic Tellers and Educational Supporters (SOCRATES) for Online Academic Coaching // Jiyeon Yoon (University of Texas Arlington), Kate Koo (University of Georgia)
4:40	The Anti-Racism Conundrum: Measuring Campus Progress // Katherine S. Cho (Loyola University Chicago)

Tech Group D-1
SSP

@ Vandergriff

Aug 4 _ Friday _ 4:00 – 6:00pm

SSP Session II: Education and Social Science (Diversity, Equity, and Inclusion)

Chairs: Nicholas D. Hartlep (Berea College), Gilbert Park (Ball State University)

Time	Title and Speaker
5:00	Culturally Responsive Computer Science Learning: Fostering Equity and Engagement for Minoritized High School Students // Jung Won Hur (Auburn University), Jay Bhuyan (Tuskegee University)
5:20	What Barriers Are Preventing Asian/Americans from Leading Educator Preparation Programs (EPPs)? // Nicholas D. Hartlep (Berea College), Gilbert Park (Ball State University)

Tech Group D-1
SSP

@ Aviator A

Aug 4 _ Friday _ 6:00 – 9:00pm

SSP Poster Session

Chairs: Jongpil Cheon (Texas Tech University), Kyunbin Kwon (Indiana University - Bloomington), Nicholas D. Hartlep (Berea College), Gilbert Park (Ball State University)

Time	Title and Speaker
SSP P1	Designing Drone-based STEM Instruction for Formal Spaces // Hannah Ziegler (Vanderbilt University), Jae Ryu (University of Idaho)
SSP P2	Development and Dissemination of Instructional Modules for Engineering Lab Writing // Dave Kim (Washington State University)
SSP P3	Building Inclusive and Just Pathways to a Clean Energy Economy Through Youth Education of Clean Energy // Hyun Jin Kim, Hyunjung Ji, Sally Shettles, Mark Mueller (The University of Alabama), Amelia Salazar (Sam Houston State University), Laurel Holmes (Energy Alabama)
SSP P4	Thermofluid Sciences for Elementary School Students via Flow Visualization Using Smartphones and Tablets // Hyun Jin Kim, Shemai'ya Peak, Frances Buntain, Jale Ercan Dursun, Jee Suh, Celestia Morgan (The University of Alabama)
SSP P5	Utilizing the Medium of Virtual Reality to Teach How To Recycle // Nathan Kassai, Paul Y. Oh (University of Nevada, Las Vegas)
SSP P6	A Case Study of Recreation-based STEM Education that Improves Unplugged Coding Education Using Musical Activities for Kindergarten Children // Wonil Chung (Kyung Pook National University), Min Jae Park (Institute of STREAM Academy)