

# ICEF 2024

The 3<sup>rd</sup> International Conference on Electrical  
Facilities and information technologies 2024

“New Intelligence Technology :  
Past, Present and Future”

August 20(TUE) – 23(FRI), 2024  
Mongolian University of Science and Technology,  
Ulaanbaatar, Mongolia

Hosted by



THE KOREAN INSTITUTE OF  
ELECTRICAL ENGINEERS

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ТЕХНОЛОГИЙН ИХ СУРГУУЛЬ  
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## Oral Session 1

*KOICA session (MUST-SMU Co-research) (1)*

14:00~15:40

Wed, August 21, 2024

**Room : Building block 8, Conference Hall, 12<sup>th</sup> floor**

Chair: Prof. Erdenebaatar Altangerel (SICT-MUST, Mongolia)

### OS1-1 A study of diabetes diagnosis using deep learning algorithms

14:00~14:20 Anar Batkhuu<sup>1</sup>, Sungju Lee<sup>2</sup>, and Dolgorsuren Batjargal<sup>1,†</sup>  
<sup>1</sup>School of Information and Communication Technology, MUST, Mongolia, <sup>2</sup>Sangmyung University, Korea

### OS1-2 Identifying the Stages of Cystic Echinococcosis Using Machine Learning Algorithms

14:20~14:40 Dolgorsuren Suren Batjargal<sup>1,†</sup>, Tuvshinsaikhan Tuvshree Tegshee<sup>1</sup>, and Sungju Lee<sup>2</sup>  
<sup>1</sup>School of Information and Communication Technology, MUST, Mongolia, <sup>2</sup>Sangmyung University, Korea

### OS1-3 Generative AI for Real Estate Valuation: Leveraging Geographical Area Profiles and Spatial Data

14:40~15:00 Doljin Tsogtbayar, Enkhsuren A, Zolzaya Dashdorj<sup>†</sup>, and Enkhtuya Bavuudorj  
School of Information and Communication Technology, MUST, Mongolia

### OS1-4 Learning Disease Predictability Using ChatGPT and Generative AI Techniques

15:00~15:20 Erkhbilguun Tugjargal<sup>1</sup>, Zolzaya Dashdorj<sup>1,†</sup>, Tae-Koo Kang<sup>2</sup>, Kyoung-Geun Cho<sup>2</sup>, Taekgwon Nam<sup>2</sup>, and Erdenebaatar Altangerel<sup>1</sup>  
<sup>1</sup>School of Information and Communication Technology, MUST, Mongolia, <sup>2</sup>Sangmyung University, Korea

### OS1-5 Efficient Route Planning in Mongolia: GNN-Based k-Shortest Paths through Key Geographical POIs

15:20~15:40 Tsetsentsengel Munkhbayar, Zolzaya Dashdorj<sup>†</sup>, Tae-Koo Kang, Orgil Jargalsaikhan, and Erdenebaatar Altangerel  
School of Information and Communication Technology, MUST, Mongolia



## Oral Session 2

*KOICA session (MUST-SMU Co-research) (2)*

14:00~15:20

Wed, August 21, 2024

**Room : Building block 8, 804, 8<sup>th</sup> floor**

Chair: Tuyatsetseg Badarch (SICT-MUST, Mongolia)

### OS2-1 Resource Allocation for D2D Communications Underlay Cellular Networks Based on Deep Reinforcement Learning

14:00~14:20

Buyankhishig Ulziinyam<sup>1</sup>, Otgonbayar Bataa<sup>1,†</sup>, and Dae-Ki Hong<sup>2,†</sup>

<sup>1</sup>School of Information and Communication Technology, MUST, Mongolia, <sup>2</sup>Sangmyung University, Korea

### OS2-2 Determining Sex Through EEG Analysis in Video Tasks

14:20~14:40

Tengis Tserendondog<sup>†</sup> and Dongsung Bae<sup>2</sup>

<sup>1</sup>School of Information and Communication Technology, MUST, Mongolia, <sup>2</sup>Sangmyung University, Korea

### OS2-3 Efficient Euclidean Distance Computation for Smart Vehicle ADAS

14:40~15:00

Gordon Cichon<sup>1</sup>, Tseren-Onolt Ishdorj<sup>1,†</sup>, Choisuren Ragchaabazar<sup>1</sup>, Hyun-chul Kim<sup>2</sup>, and Seonuck Paeck<sup>2</sup>

<sup>1</sup>School of Information and Communication Technology, MUST, Mongolia, <sup>2</sup>Sangmyung University, South Korea

### OS2-4 A Study on Efficient Methods for Normalizing Transliterated Social Media Text

15:00~15:20

Ulziibayar Sonom-Ochir<sup>1,†</sup>, Zolzaya Byambadorj<sup>1,†</sup>, Altangerel Ayush<sup>1</sup>, Munkhsukh Enkhbayar<sup>1</sup>, and Hyun-chul Kim<sup>2</sup>

<sup>1</sup>School of Information and Communication Technology, MUST, Mongolia, <sup>2</sup>Sangmyung University, Korea



### Oral Session 3

#### Future Electric Facility Planning and Operations (1)

14:00~15:20

Wed, August 21, 2024

Room : Building block 8, 805, 8<sup>th</sup> floor

Chair: Bat-Erdene Byambasuren (PES-MUST, Mongolia)

#### OS3-1 Fault Detection and Classification in Hybrid AC/DC Microgrid Using Discrete Wavelet Transform

14:00~14:20

Ahmed Abdelmaksoud, Shehzad Alamgir, Gwang-su Shin, and Chul-Hwan Kim<sup>†</sup>  
*Sungkyunkwan University, Korea*

#### OS3-2 A Machine Learning Based Fault Detection and Classification Technique for Hybrid AC/DC Network

14:20~14:40

Shehzad Alamgir, Chul-Hwan Kim<sup>†</sup>, Ahmed Abdelmaksoud, Arif Mehdi, and Ho-Young Kim  
*Sungkyunkwan University, Korea*

#### OS3-3 Analysis of Surge Current Distribution of Low-voltage Circuit Inside Wind Turbine Due to a Lightning Strike

14:40~15:00

Tserensambuu Chinges Chinges<sup>†</sup>  
*Mongolian University of Science and Technology, Mongolia*

#### OS3-4 Developing Methodology For Assessing With Parameters In The Normal And Emergency Modes For The State Of Electrical Equipment

15:00~15:20

Adarsuren Adaraa Sukhbaatar<sup>†</sup>  
*Mongolian University of Science and Technology, Mongolia*



## Oral Session 4

### Artificial Intelligence (1)

14:00~15:40

Wed, August 21, 2024

Room : Building block 8, 801, 8<sup>th</sup> floor

Chair: Zolzaya Dashdorj (SICT-MUST, Mongolia)

#### OS4-1 Predicting Student Graduation Using Classification Algorithms on a Mongolian University Dataset

14:00~14:20

Bilguun Soninbayar<sup>†</sup> and Min-young Ra  
*Mongolia International University, Mongolia*

#### OS4-2 Development of Pediatric Pneumonia Screening System Using Respiration Sound by Digital Stethoscope

14:20~14:40

Sumiyakhand Dagdanpurev<sup>†,1</sup>, Burenzaya Makhbal<sup>1</sup>, Amartuvshin Renchin-Ochir<sup>1,†</sup>,  
Gerelmaa Byambatsog<sup>1</sup>, and Munkhzaya Dagdanpurev<sup>2</sup>  
<sup>1</sup>*School of Information Technology and Electronics, National University, Mongolia,* <sup>2</sup>*Mongolian National University of Medical Sciences, Mongolia*

#### OS4-3 DEEP LEARNING BASED ENGLISH MONGOLIAN NEURAL MACHINE TRANSLATION

14:40~15:00

Chuluuntsetseg Damiran<sup>†,1</sup>, Tuyatsetseg Badarch<sup>2</sup>  
<sup>1</sup>*Railway Institute of Mongolia, Mongolian University of Science and Technology, Mongolia,*  
<sup>2</sup>*Mongolian University of Science and Technology, Mongolia*

#### OS4-4 Time-Mixing and Self-Attention Techniques for Enhanced Partial Discharge Data Analysis

15:00~15:20

Changjoon Park, Namjung Kim, Junhwi Park, Jeong Won Kang, and Jeonghwan<sup>†</sup>  
*Korea National University of Transportation, Korea*

#### OS4-5 Enhancing Partial Discharge Classification through Multimodal Feature Ensemble Mechanism

15:20~15:40

Namjung Kim, Changjoon Park, Junhwi Park, Jeong Won Kang, and Jeonghwan Gwak<sup>†</sup>  
*Korea National University of Transportation, Korea*



## Oral Session 5

### Smart Electric Facility & Material Science and Technology

16:20~18:00

Wed, August 21, 2024

Room : Building block 8, 804, 8<sup>th</sup> floor

Chair: Batgerel Tumurbaatar (PES-MUST, Mongolia)

#### OS5-1 Demand side management adaptation of power deficit system

16:20~16:40 Munkhlhtuya Erdenebat<sup>1</sup>, Zagdkhorol Bayasgalan<sup>†,1</sup>, Munkh-Erdene Oyundelger<sup>2</sup>, and Tsetsgee Bayasgalan<sup>†,1</sup>  
<sup>1</sup>Mongolian University of Science and Technology, Mongolia, <sup>2</sup>National Dispatching Center, Mongolia

#### OS5-2 Comparative study of embedded system for energy efficient office using image processing

16:40~17:00 Oyun-Erdene Mandakh<sup>†</sup> and Byambasuren Bat-Erdene<sup>†</sup>  
Power Engineering School, MUST, Mongolia

#### OS5-3 Optimization of Uncertainties Through a Mathematical Programming Model of Virtual Power Plant

17:00~17:20 Tugsbus Gankhuyag<sup>1</sup>, Gankhuleg Majig<sup>†,2</sup>, and Mungunshagai Gansukh<sup>2</sup>  
<sup>1</sup>Seoul National University, Korea, <sup>2</sup>Mongolian University of Science and Technology, Mongolia

#### OS5-4 DEFECT ANALYSIS OF BORIDE COATINGS AND DEVELOPMENT OF ON THEIR BASIS EFFECTIVE WAYS TO REDUCE BRITTLENESS

17:20~17:40 Ivan Polyansky<sup>†</sup> and Igor Sizov  
East Siberia State University of Technology and Management, Russian Federation

#### OS5-5 CONVOLUTIONAL NEURAL NETWORK IN METALLOGRAPHIC ANALYSIS OF CARBON STEELS

17:40~18:00 Konstantin Korobkov<sup>†,1</sup>, Mosorov Vladimir<sup>1</sup>, and Omoontsoo Galaa<sup>2</sup>  
<sup>1</sup>East Siberia State University of Technology and Management, Russian Federation, <sup>2</sup>Mongolian University of Science and Technology, Mongolia



## Oral Session 6

### Future Electric Facility Planning and Operations (2)

16:20~18:00

Wed, August 21, 2024

Room : Building block 8, 805, 8<sup>th</sup> floor

Chair: Nyambayar Baatar (PES-MUST, Mongolia)

#### OS6-1 Study on Ancillary Services for HVDC's Dispatching Control of Transit Flow

16:20~16:40 Zagdkhorol Bayasgalan<sup>1,†</sup>, Tsetsgee Bayasgalan<sup>1,†</sup>, Munkh-Ulzii Bayar<sup>2</sup>, and Batzaya Bat-Ochir<sup>1</sup>  
<sup>1</sup>Mongolian University of Science and Technology, Mongolia, <sup>2</sup>National Energy Center, Mongolia

#### OS6-2 A way of solving the problem of heat supply to Centralized rural areas considering to climate zones of Mongolia

16:40~17:00

Mangaljalav Chimed<sup>†</sup>, Munkhtuya Erdenebat, and Chimed Orshuu<sup>†</sup>  
Mongolian University of Science and Technology, Mongolia

#### OS6-3 Assessment of wind energy resources for selecting sites for large scale wind power plant

17:00~17:20

Munkhtuya Erdenebat<sup>†</sup>, Mangaljalav Chimed<sup>†</sup>, and Chimed Orshuu  
Mongolian University of Science and Technology, Mongolia

#### OS6-4 A methodology for maximizing the benefits of solar landfills on closed sites

17:20~17:40

Munkhtuya Erdenebat<sup>†</sup> and Sarangerel Khayankhyarvaa<sup>†</sup>  
Mongolian University of Science and Technology, Mongolia

#### OS6-5 Novel control technique for automatic used for distributed energy resources connected to MiniGrid with synchronous generators

17:40~18:00

Erdenebat Enkhsaikhan<sup>†</sup>  
Mongolian University of Science and Technology, Mongolia



## Oral Session 7

### Intelligent Transportation Technology

16:20~17:40

Wed, August 21, 2024

Room : Building block 8, 801, 8<sup>th</sup> floor

Chair: Seungkwon Shin (Korea Railroad Research Institute, Korea)

**OS7-1** Affordable Automation: Design and Implementation of a Low-Cost Motorized Roller Ball Picking Mechanism for Robotic and Industrial Applications

16:20~16:40

Munkh-Erdene Ayurzana, Erkhembayar Gankhuyag, Altanshagai Batsaikhan, Erkhembayar Ochir, Naranbaatar Erdenesuren, and Dondogjamts Batbaatar<sup>†</sup>  
*Mongolian University of Science and Technology, Mongolia*

**OS7-2** Benchmarking Real-Time Object and Color Detection Methods for ABU Robocon Automatic Robot: Featuring Huskylens, Edge Impulse, and YOLO

16:40~17:00

Erkhembayar Gankhuyag, Munkh-Erdene Ayurzana, Dulguun Gerel, Adil Khuan, Naranbaatar Erdenesuren, and Dondogjamts Batbaatar<sup>†</sup>  
*Mongolian University of Science and Technology, Mongolia*

**OS7-3** Augmented reality-based mobile education service research

17:00~17:20

KeonDong Kim, Jaemin Bae, Jonghye Sim, and Juhee Choi<sup>†</sup>  
*Sangmyung University, Korea*

**OS7-4** A Study on Illegal Parking of Shared Electric Scooters Using Silhouette Data-Based Clustering: Application of DBSCAN and K-Means

17:00~17:40

Young Rae Noh and Juhee Choi<sup>†</sup>  
*Sangmyung University, Korea*





## Oral Session 8

### Artificial Intelligence (2)

14:00~15:40

Thu, August 22, 2024

Room : Building block 8, Conference Hall, 12<sup>th</sup> floor

Chair: Prof. Juhee Choi (Sangmyung University, Korea)

#### OS8-1 Automatic player detection and classification using YOLOv8 and Computer Vision Techniques

14:00~14:20

Munkhbat Gantumur<sup>†,1</sup>, Stephen Karungaru<sup>1</sup>, Kenji Terada<sup>1</sup>, and Altangerel Ayush<sup>2</sup>

<sup>1</sup>The University of Tokushima, Japan, <sup>2</sup>School of Information and Communication Technology, MUST, Mongolia

#### OS8-2 DATA MINING IN UNIVERISTY REPUTATION: A CASE STUDY OF MONGOLIAN UNIVERSITIES

14:20~14:40

Altanzul Altangerel<sup>1</sup>, Nyamsuren Purevsuren<sup>2</sup>, Erdenekhuu Norinpel<sup>2</sup>, Chantsaldulam Ravidansuren<sup>3,†</sup>, Purevtsoigt Nugjgar<sup>4</sup>, Myadagmaa Bazargur<sup>5</sup>, Togtokhbuyan Lkhagvasuren<sup>3</sup>, Tamir Khujuu<sup>6</sup>, and Orgil Jargalsaikhan<sup>2</sup>

<sup>1</sup>Monglian University of Life Sciences, <sup>2</sup>School of Information and Communication Technology, MUST, Mongolia, <sup>3</sup>Monglian University of Life Sciences, <sup>4</sup>National University of Mongolia, <sup>5</sup>Mongolian National Council for Education Accreditation, <sup>6</sup>Mongolian National University of Education, Mongolia

#### OS8-3 Detection of Players on a Soccer Team using YOLOv8 and Unsupervised methods

14:40~15:00

Namjildorj Batbaatar<sup>1</sup>, Stephen Karungaru<sup>1</sup>, Kenji Terada<sup>1</sup>, and Altangerel Ayush<sup>2</sup>

<sup>1</sup>The University of Tokushima, Japan, <sup>2</sup>School of Information and Communication Technology, MUST, Mongolia

#### OS8-4 Comparative Analysis of Classification Algorithms using WEKA on Cardiovascular Disease Dataset

15:00~15:20

Otgonchuluu Bayarsaikhan<sup>†</sup> and Minyoung Ra  
Mongolia International University, Mongolia

#### OS8-5 Digital transformation and artificial intelligence

15:20~15:40

Ariunaa Tsogbadrakh<sup>†</sup>

School of Information and Communication Technology, MUST, Mongolia



## Oral Session 9

### Artificial Intelligence (3)

14:00~15:40

Thu, August 22, 2024

Room : Building block 8, 804, 8<sup>th</sup> floor

Chair: Prof. Jeonghwan Gwak (Korea National University of Transportation, Korea)

**OS9-1 Enhanced Object Detection for Railway Component Safety Using the YOLO-World Model**

14:00~14:20

Junhwi Park, Changjoon Park, Namjung Kim, Jeong Won Kang, and Jeonghwan Gwak<sup>†</sup>  
*Korea National University of Transportation, Korea*

**OS9-2 Condition-Based Diffusion Model for Detecting Anomalies in Railway Components**

14:20~14:40

Jeonghwan Gwak<sup>†</sup>  
*Korea National University of Transportation, Korea*

**OS9-3 Distillation-Based Approach for Efficient Machine Unlearning in Anomaly Detection**

14:40~15:00

Sharjeel Masood and Jeonghwan Gwak<sup>†</sup>  
*Korea National University of Transportation, Korea*

**OS9-4 Enhanced Analysis of Phase Resolved Partial Discharge Data Using DeepViT with Kolmogorov-Arnold Networks**

15:00~15:20

Xufeng Hu, Sharjeel Masood, and Jeonghwan Gwak<sup>†</sup>  
*Korea National University of Transportation, Korea*

**OS9-5 Optimized Hybrid TransUNet for Enhanced Brain Tumor Segmentation**

15:20~15:40

Saeed Ahmad and Jeonghwan Gwak<sup>†</sup>  
*Korea National University of Transportation, Korea*



## Oral Session 10

### Information Communication Technology (1)

14:00~15:00

Thu, August 22, 2024

**Room :** Building block 8, 805, 8<sup>th</sup> floor

Chair: Ganbold Shagdar (SICT-MUST, Mongolia)

#### OS10-1 URL malware detection

14:00~14:20 DAVAADORJ Natsagdorj<sup>1</sup>, MUNKHBAYAR Bat-Erdene<sup>1,†</sup>, DENSMAA Batbayar<sup>1</sup>,  
BYAMBADORJ Dondogmejd<sup>1</sup>, and Juhee Choi<sup>2</sup>  
<sup>1</sup>School of Information and Communication Technology, MUST, Mongolia, <sup>2</sup>Sangmyung University,  
Korea

#### OS10-2 Analysis of Transient Overvoltage Level of Low-voltage Circuit Inside Wind Turbine Due to a Lightning Strike

14:20~14:40 Chinges Tserensambuu<sup>†</sup>  
Power Engineering School, MUST, Mongolia

#### OS10-3 RESEARCH ON BIO SIGNAL SIMULATOR

14:40~15:00 Otgonsaikan Yalalt<sup>†</sup> and Byambasuren Bat-Erdene<sup>†</sup>  
Power Engineering School, MUST, Mongolia



## Oral Session 11

### Information Communication Technology (2)

14:00~15:20

Thu, August 22, 2024

Room : Building block 8, 801, 8<sup>th</sup> floor

Chair: Dashdorj Yamkhin (SICT-MUST, Mongolia)

#### OS11-1 Some deployment issues for 5G network based on 4G LTE

14:00~14:20 Bayarmaa Ragcha<sup>1,†</sup> and Otgonbayar Bata<sup>1</sup>, and Daegi Hong<sup>2</sup>  
<sup>1</sup>School of Information and Communication Technology, MUST, Mongolia, <sup>2</sup>Sangmyung University, Korea

#### OS11-2 A Low-power LNA Design for Optical Communication Systems

14:20~14:40 Asyeli Khuanbyek<sup>1,†</sup>, and Ali Tangel<sup>2</sup>  
<sup>1</sup>Kocaeli University, Institute of Science and Technology, Türkiye, <sup>2</sup>Kocaeli University, Türkiye

#### OS11-3 Hybrid Free Space Optics(FSO) Communication Networks for 6G Connectivity and Backhauling

14:40~15:00 dolgorsuren dulamjav<sup>†</sup>  
School of Information and Communication Technology, MUST, Mongolia

#### OS11-4 Hybrid Network Architecture and Design of Terrestrial and Satellite Networks, Its Reliability for Mongolia

15:00~15:20 Otgonbaatar Yura<sup>1</sup>, Buyankhishig Zundui<sup>1,2</sup>, and Ganbold Shagdar<sup>1,2</sup>  
<sup>1</sup>Huree university of Information and Communication Technology, Mongolia, <sup>2</sup>School of Information and Communication Technology, MUST, Mongolia



## Oral Session 12

### Building Integrated Photovoltaic System

14:00~16:00

Thu, August 22, 2024

**Room : Building block 8, 404, 4<sup>th</sup> floor**

Chair: Prof. KIM SUNGJIN (Hanbat National University, Korea)  
Prof. KIM MINA (Hanbat National University, Korea)

- OS12-1** Impact of energy policies implemented in Mongolia on the economic efficiency of hybrid solar systems  
14:00~14:20  
Mungunshagai Gansukh<sup>†</sup> and Ganskhuleg Majig  
*Power Engineering School, MUST, Mongolia*
- OS12-2** A study on passive filter control to improve voltage stability in distribution network based on OpenDSS  
14:20~14:40  
Byungchan Yoo and Seungmin Jung<sup>†</sup>  
*Hanbat National University, Korea*
- OS12-3** Simple three-phase Nine-level Inverter for High Voltage Applications  
14:40~15:00  
Dohyeon Kim and Jungmin Kwon<sup>†</sup>  
*Hanbat National University, Korea*
- OS12-4** Transparent Solar Cells and Thermo-Electric Power Generation  
15:00~15:20  
Joondong Kim<sup>1,†</sup>, Malkeshkumar Patel<sup>1</sup>, and Donggun Lim<sup>2,†</sup>  
*<sup>1</sup>Incheon National University, Korea, <sup>2</sup>Korea National University of Transportation, Korea*
- OS12-5** Comprehensive review and generation analysis on rooftop-installed photovoltaics systems for residential buildings in South Korea  
15:20~15:40  
RUDA LEE, ONGHO YOON<sup>†</sup>, and DONGSU KIM  
*Hanbat National University, Korea*
- OS12-6** BIM Application Methods in the Panelization and Production Stages of Free-form Concrete Exterior  
15:40~16:00  
Kyeongtae Jeong, Hojeong Jeong, Sungjin Kim, and Donghoon Lee<sup>†</sup>  
*Hanbat National University, Korea*



## Poster Session 1

12:00~13:00

Thu, August 22, 2024

Room : Building block 8, Conference Hall Floor, 12<sup>th</sup> floor

Chair: Prof. CHANG SEUNG JIN (Hanbat National University, Korea)

- PS1-01**    **Uncertainty analysis of occupancy feature distribution in office building energy usage**  
Eunho Kang, Dongsu Kim, and Jongho Yoon<sup>†</sup>  
*Hanbat National University, Korea*
- PS1-02**    **Comprehensive investigation of building-integrated photovoltaic (BIPV) features for apartment applications based on practical architectural drawings and power generation**  
Minjoo Choi, Hyomun Lee, Dongsu Kim<sup>†</sup>, and Jongho Yoon  
*Hanbat National University, Korea*
- PS1-03**    **Online Monitoring for Power Cable Using Reflectometry**  
Hyun-Mo Seong, Chang Hyeon Hong, Jae-Hyun Ryu, and Seung Jin Chang<sup>†</sup>  
*Hanbat National University, Korea*
- PS1-04**    **Dual gas sensing platform based on TPU nanofiber substrate**  
Seokhun Kwon, Hunseo Lee, Young Park, and Hyunil Kang<sup>†</sup>  
*Hanbat National University, Korea*
- PS1-05**    **Characteristics Analysis of Color Glass for BIPV manufactured using R.F Magnetron Sputtering Method**  
Seungcheol Yoo and Wonseok Choi<sup>†</sup>  
*Hanbat National University, Korea*
- PS1-06**    **A Study on Coordinated Control for Voltage Stabilization in Distribution Systems**  
Wonna Choi and Seungmin Jung<sup>†</sup>  
*Hanbat National University, Korea*
- PS1-07**    **Assessing the effectiveness of implementing IoT-based double skin systems in improving thermal comfort**  
JUNYOUNG LEE<sup>1</sup>, HAYOUNG KIM<sup>1</sup>, CHAEYOUNG KIM<sup>1</sup>, MYUNGHWAN OH<sup>2</sup>,  
DUCJIN OH<sup>3</sup>, JONGHO YOON<sup>1</sup>, and DONGSU KIM<sup>1,†</sup>  
*<sup>1</sup>Hanbat National University, Korea, <sup>2</sup>Korea Conformity Laboratories, Korea, <sup>3</sup>Yujin System, Korea*

- PS1-08 Basic Study of Digital Twin-based Construction Mobile Robots Scan-to-Metaverse System Development**  
Hojeong Jeong and Sungjin Kim<sup>†</sup>  
*Hanbat National University, Korea*
- PS1-09 Analysis of Influencing Factors for Comprehensive BIM Adoption Using System Dynamics Method**  
Chaeyeon Yu and Sungjin Kim<sup>†</sup>  
*Hanbat National University, Korea*
- PS1-10 Development of Renewable Energy Microgrid-Based Smart Fish Farm and Data-Driven Operation Technology**  
Hunseo Lee, Seokhun Kwon, Hyun-Il Kang, and Young Park<sup>†</sup>  
*Hanbat National University, Korea*
- PS1-11 Synthesis and Electrochemical Properties of Carbon Nanowalls and Nanofibers for Lithium-Ion Batteries**  
Kangmin Kim, Seungcheol Yoo, Hunseo Lee, Wonseok Choi<sup>†</sup>, and Seokhun Kwon  
*Hanbat National University, Korea*
- PS1-12 High-Efficiency Mobile Robots Battery Charger**  
Dayeong Hyeon and Jungmin Kwon<sup>†</sup>  
*Hanbat National University, Korea*
- PS1-13 Torque ripple and exciting force analysis according to the permanent magnet magnetization direction of a 300W air conditioning BLAC motor**  
JANG HONGJAE and KIM KICHAN<sup>†</sup>  
*Hanbat National University, Korea*
- PS1-14 Establishment and visualization of a data-connected 3D high-dimensional analysis system based on a predictive model for BIPV power generation performance evaluate**  
Kwanghyun Song, Eunho Kang, Jongho Yoon, and Dongsu Kim<sup>†</sup>  
*Hanbat National University, Korea*
- PS1-15 Artificial Neural Network-Based Glare Prediction Control for Optimal Control of Electrochromic Windows (ECWs)**  
YoungHun Seo, EunHo Kang, SeongJu Lee, JongHo Yoon, and DongSu Kim<sup>†</sup>  
*Hanbat National University, Korea*
- PS1-16 Analysis and Performance Evaluation of Cooling Energy Efficiency with the Application of PMV Prediction-based Setpoint Control Strategy**  
Lee Seong ju<sup>1</sup>, Kang Eun ho<sup>1</sup>, Park Jae sung<sup>2</sup>, Jung Seong young<sup>2</sup>, Park Jae sung<sup>3</sup>, and Kim Dong su<sup>1,†</sup>  
<sup>1</sup>Hanbat National University, Korea, <sup>2</sup>Korea Conformity Laboratories(KCL), Korea, <sup>3</sup>NeoGS, Korea



## Poster Session 2

15:30~16:30

Thu, August 22, 2024

**Room : Building block 8, Conference Hall Floor, 12<sup>th</sup> floor**

Chair: Prof. Jae-Moon Kim (KNUT, Korea)

Dolgorsuren Batjargal (SICT-MUST, Mongolia)

- PS2-17 Research on the Current Inequality in the Circuit Breaker**  
Han Baek Chung, Kyu Ho Lee, Woo Jin Park, and Kil Young Ahn<sup>†</sup>  
*R&D Tech. Center, Korea*
- PS2-18 Analysis of electrochemical properties of NMC battery separator for ESS**  
KIM Ji-Yeon<sup>†</sup>, Choi Sang-Jae, Jeon Ju-Hyeon, Lee Geon-Ho, and Shong Kil-Mok  
*Korea Electrical Safety Corporation, Research Institute, Korea*
- PS2-19 A Study on the Impact of CMV on Photovoltaics-Linked ESS Facilities**  
Yong-Eun Choi, Jae-Moon Kim<sup>†</sup>, and Chin-Young Chang  
*Korea National University of Transportation, Korea*
- PS2-20 Improve Energy Storage System safety using Cell balancing**  
Su-Chul Bang<sup>1</sup>, Yong-Ho Yoon<sup>1,†</sup>, Jun-Ho Jeong<sup>2</sup>, Yoon-Seop So<sup>2</sup>, and Suk Chon<sup>3</sup>  
*<sup>1</sup>Gwangju University, Korea, <sup>2</sup>SM Electronics, Korea, <sup>3</sup>GRIDA ENERGY CO., LTD, Korea*
- PS2-21 A study on the conceptual framework of Digital Twin based safety diagnosis for Li-Battery Energy Storage System**  
YOUNA KIM<sup>†</sup>  
*Electrical Safety Research Institute, Korea*
- PS2-22 Modeling of the LTO(Lithium Titan Oxide) Battery for Energy Storage System**  
ILSONG KIM<sup>†</sup>  
*Korea National University of Transportation, Korea*
- PS2-23 Development Mathematical Models for Low Potential Water Heat Exchange**  
Chimed Orshuu<sup>†</sup>, Munkhtuya Erdenebat, and Mangaljalav Chimed<sup>†</sup>  
*Power Engineering School, MUST, Mongolia*
- PS2-24 A Way of Solving the Problem of Heat Supply to Centralized Rural Areas Considering to Climate Zones of Mongolia**  
Mangaljalav Chimed, Chimed Orshuu<sup>†</sup>, and Munkhtuya Erdenebat<sup>†</sup>  
*Power Engineering School, MUST, Mongolia*



- PS2-25 Study on Test Methods for Performance Evaluation of DC Circuit Breakers**  
Hyunwoo Lee, Kyu-Ho Lee, Han-Baek Chung, Woo-Jin Park, and Kil-Young Ahn<sup>†</sup>  
*LS ELECTRIC Co.,Ltd., Korea*
- PS2-26 Comparative Performance Analysis of Hadoop and Spark for Real-time Big Data Platforms Using IoT in Electrical Facilities**  
Maratbek T. Gabdullin<sup>1</sup>, Yerulan Suinullayev<sup>2</sup>, Yelikbay Kabi<sup>2</sup>, HAESAN PARK<sup>3</sup>,  
Jeong Won KANG<sup>3,†</sup>, and Assel Mukasheva<sup>1,†</sup>  
<sup>1</sup>*Kazakh-British Technical University, Kazakhstan*, <sup>2</sup>*Almaty University of Power Engineering and Telecommunications, Kazakhstan*, <sup>3</sup>*Korea National University of Transportation, Korea*
- PS2-27 Smart factory control based on OPC-UA and VLC**  
JungHoon Lee<sup>†</sup>  
*DongSeoul University, Korea*
- PS2-28 Research on the construction of an intelligent safety shutoff platform for monitoring and blocking fault currents due to short circuits**  
MinUk Jeong<sup>1</sup>, SangBo Han<sup>2</sup>, SugHun Chang<sup>3</sup>, DonHa Hwang<sup>3</sup>, and TaeKue Kim<sup>1,†</sup>  
<sup>1</sup>*Changwon National University, Korea*, <sup>2</sup>*Kyunngnam University, Korea*, <sup>3</sup>*Korea Electrotechnology Research Institute, Korea*
- PS2-29 Power control method to mitigate Power coupling effect of Grid Forming Inverter**  
Hanju Cha<sup>†</sup> and Tharani Upeksha Gunawardane  
*Chungnam National University, Korea*
- PS2-30 Non-communication control algorithm between converter and inverter in solar power system**  
Hae-In Kim, Hag-Wone Kim<sup>†</sup>, Jeong-Seon Yu, and Kwan-Yhul Cho  
*Korea National University of Transportation, Korea*

15:30~16:30

Thu, August 22, 2024

**Room : Building block 8, Conference Hall Floor, 12<sup>th</sup> floor**Chair: Prof. Wonseok Choi (Hanbat National University, Korea)  
Prof. Batbayar Khuyagbaatar (SMET- MUST, Mongolia)

- PS2-31 Generative AI-Enhanced Motion Recognition for User-Customized Online Teaching Technology Based on GPT**  
Zahra Batool Jaffrey<sup>1</sup>, Kyoung-Geun Cho<sup>1</sup>, Teak-Gwon Nam<sup>1</sup>, Dong-Sung Pae<sup>1</sup>, Seo-Young Won<sup>2</sup>, Zolzaya Dashdorj<sup>3</sup>, Erdenebaatar Altangerel<sup>3</sup>, and Tae-Koo Kang<sup>1,†</sup>  
<sup>1</sup>*Sangmyung University, Korea*, <sup>2</sup>*TDI Co., Korea*, <sup>3</sup>*School of Information and Communication Technology, MUST, Mongolia*
- PS2-32 Deep Learning Model Comparison Study on Temperature Control in Electric Facilities**  
KYUNGSUK KIM<sup>1</sup>, Sanghun Lee<sup>2</sup>, and Jeong Won KANG<sup>1,†</sup>  
<sup>1</sup>*Korea National University of Transportation, Korea*, <sup>2</sup>*Central Research Institute, KCC, Korea*
- PS2-33 Development of Deep Learning Color Recognition Model for Color Measurement Processes**  
BO SUNG KIM<sup>1</sup>, Sanghun Lee<sup>2</sup>, Ki-Sub Kim Kim<sup>1</sup>, and Jeong Won KANG<sup>1,†</sup>  
<sup>1</sup>*Korea National University of Transportation, Korea*, <sup>2</sup>*Central Research Institute, KCC, Korea*
- PS2-34 Explainable Artificial Intelligence: Principles, Techniques, and Applications**  
Zayabaatar Dagvatur and Baigalimaa Delgerbat<sup>†</sup>  
*Erdenet Institute of Technology, Branch of Mongolian University of Science and Technology, Mongolia*
- PS2-35 Balancing The Rotary Inverted Pendulum using the Machine Learning**  
Tuvshinjargal Altanbat<sup>1,†</sup> and Ganbat Baasantseren<sup>2,†</sup>  
<sup>1</sup>*Erdenet Institute of Technology, Mongolia*, <sup>2</sup>*National University of Mongolia, Mongolia*
- PS2-36 Safety Surveillance in Urban Rail Cars Using 5GHz Wi-Fi Video Transmission Systems**  
HyunjoAhn and Jeong Won Kang<sup>†</sup>  
*Korea National University of Transportation, Korea*
- PS2-37 The white smoke information monitoring system using dual cameras and histogram back-projection**  
HongOk Kim<sup>1</sup>, JungJu Kim<sup>2,†</sup>, JaeHoon Choi<sup>2</sup>, and DoYoung Jung<sup>2</sup>  
<sup>1</sup>*Wondang Energy, Korea*, <sup>2</sup>*Hoseo University, Korea*
- PS2-38 QoS based Dynamic Wavelength and Bandwidth Allocation algorithm for EPONs**  
Tserenkhram Batdorj, Ganbold Shagdar<sup>†</sup>, and Buyankhishig Zundui<sup>†</sup>  
*School of Information and Communication Technology, MUST, Mongolia*
- PS2-39 Research on Protecting Personal Confidentiality of Healthcare Patients**  
Densmaa Densmaa Batbayar<sup>1,†</sup> and Javzandorj Javzandorj Byambatseven<sup>2,†</sup>  
<sup>1</sup>*School of Information and Communication Technology, MUST, Mongolia*, <sup>2</sup>*Mongolian National Defence University, Mongolia*

- PS2-40**    **Detection of DNS Spoofing Attack Through Network Traffic Analysis**  
Densmaa Densmaa Batbayat<sup>†</sup>  
<sup>†</sup>*School of Information and Communication Technology, MUST, Mongolia*
- PS2-41**    **Detection of DNS Spoofing Attack Through Network Traffic Analysis**  
Munkhtsetseg Munkhtsetseg Erdenebulgan<sup>1,†</sup> and Densmaa Densmaa Batbayar<sup>2,†</sup>  
<sup>1</sup>*Mongolian National Defence University, Mongolia*, <sup>2</sup>*School of Information and Communication Technology, MUST, Mongolia*
- PS2-42**    **WEBSITE SECURITY ANALYSIS: A CASE STUDY OF A SCHOOL WEBSITE**  
Byambadorj Byambadorj Dondogmege<sup>1,†</sup> and Munkhjatal Munkhjargal Bayanjargal<sup>2,†</sup>  
<sup>1</sup>*School of Information and Communication Technology (SICT), Mongolian University of Science & Technology (MUST), Mongolia*, <sup>2</sup>*Mongolian National Defence University, Mongolia*
- PS2-43**    **Analyzing the survival effects of traditional paper tag vs. electronic triage tag sheets in emergency medical service**  
Dong Min Shin<sup>1,†</sup> and Kamoliddin Zukhriddinovich Salakhiddinov<sup>2</sup>  
<sup>1</sup>*Korea National University of Transportation, Korea*, <sup>2</sup>*Andijan State Medical Institute, Russia*
- PS2-44**    **Predicting Photovoltaic Power Generation Using Extraterrestrial Solar Irradiance and Historical Generation Data**  
HUI-SANG KIM, YUSEONG NOH, and HYUNGTAE HA<sup>†</sup>  
*Gachon University, Korea*
- PS2-45**    **The IoT-based plant cultivation blocks capable of multi-stage expansion and stacking**  
JongGil Baek<sup>1</sup>, JungJu Kim<sup>1,2</sup>, JaeHoon Choi<sup>2</sup>, and DoYoung Jung<sup>2</sup>  
<sup>1</sup>*Bethel Solar Farm Co.,Ltd., Korea*, <sup>2</sup>*Hoseo University, Korea*
- PS2-46**    **A Study on Instruction Sets for Large Language Model based on RISC-V**  
Juhee Choi<sup>1,†</sup> and Khurelbaatar Zagazusem<sup>2</sup>  
<sup>1</sup>*Sangmyung University, Korea*, <sup>2</sup>*School of Information and Communication Technology, MUST, Mongolia*



## Poster Session 3

16:30~17:30

Thu, August 22, 2024

**Room : Building block 8, Conference Hall Floor, 12<sup>th</sup> floor**

Chair: Prof. Sangyule Choi (Induk University, Korea)  
Odgerel Ulziibat (MUST, Mongolia)

- PS3-47 Control of train power consumption using raspberry pi - TPSpi**  
Hwanhee Cho<sup>†</sup> and Jaewon Kim  
*Korea Railroad Research Institute, Korea*
- PS3-48 A Study on the Development of Automatic Calibration System of CNC Machine**  
Don Ha Hwang<sup>1,†</sup> and Sang Bo Han<sup>2,†</sup>  
*<sup>1</sup>Korea Electrotechnology Research Institute, Korea, <sup>2</sup>Kyungnam University, Korea*
- PS3-49 Deep Reinforcement Learning for Indoor Autonomous Navigation of Mobile Robot**  
Seongjin Kong and Wonchang Lee<sup>†</sup>  
*Pukyong National University, Korea*
- PS3-50 Smart Construction Safety Management System Using Autonomous Mobile Robot based on Vision Sensor**  
JungJu Kim<sup>1,†</sup>, JaeHoon Choi<sup>1</sup>, DoYoung Jung<sup>1</sup>, and MiYoung Kim<sup>2</sup>  
*<sup>1</sup>Hoseo University, Korea, <sup>2</sup>Asan City Council, Korea*
- PS3-51 A Study on Urban Railway Operation using Train Performance Simulator**  
JONG NAM KIM<sup>†</sup>, Ho Hyun Han, and Jeong Won KANG<sup>†</sup>  
*Korea National University of Transportation, Korea*
- PS3-52 A Study on the Position Control Method Based on BLDC Hall Sensor according to the Operation of the Door of the Electric Vehicle**  
Seung-Pyo Jeon, Yong-Eun Choi, Hyo-Seok Oh, Chin-Young Chang, and Jae-Moon Kim<sup>†</sup>  
*Korea National University of Transportation, Korea*
- PS3-53 For driving EMU electrical components High-efficiency power supply research**  
Sang-Nyeong Park, Jong-Hee Kim, Jun-Bum Choi, and Jae-Moon Kim<sup>†</sup>  
*Korea National University of Transportation, Korea*
- PS3-54 A Study on the Development and Application of Gate Driver for Railway Vehicle IGBT**  
Chi-Won Sung, Jae-Moon Kim<sup>†</sup>, Jong-Hee Kim, and Jong-Seok Choi  
*Korea National University of Transportation, Korea*

- PS3-55 A Study on the the deviation of overhead contact wire in 2 intervals of 3 support points**  
Sang-Woong Lee, Yong-Eun Choi, Jeong-Won Kang<sup>†</sup>, and Jae-Moon Kim  
*Korea National University of Transportation, Korea*
- PS3-56 Residual Attention Guided PaDiM for Defects Segmentation in Railway Tracks**  
CHANHEE WON, Inki Kim, Younghoon Jeon, Jeonghwan Gwak, and JeongWon KANG<sup>†</sup>  
*Korea National University of Transportation, Korea*
- PS3-57 Multi-task Transfer Learning Facilitated by Segmentation and Denoising for Anomaly Detection of Rail Fasteners**  
MINGYU LEE, Beomjun Kim, Younghoon Jeon, Jeonghwan Gwak, and JeongWon KANG<sup>†</sup>  
*Korea National University of Transportation, Korea*
- PS3-58 A Study on Stabilization of Code Frequency Control Between Wayside and Onboard Signal System of AF Non-insulated Track**  
JUNOH KIM, Ho-Hyun Han, Seon-Kyo Kim, and Jeong Won KANG<sup>†</sup>  
*Korea National University of Transportation, Korea*
- PS3-59 A Study on Integrated Operation of VHF and Complex Communication Facilities for Railway**  
Jonghee Lee, Hyun Cho Ahn, Seon-Kyo Kim, Dong Hoon Park, and Jeong Won Kang<sup>†</sup>  
*Korea National University of Transportation, Korea*
- PS3-60 Optimization of regenerative power utilization in urban power substations**  
Seung-Kwon Shin<sup>1</sup>, Hyungchul Kim<sup>1</sup>, and Seon-mook Won<sup>2,†</sup>  
*<sup>1</sup>Korea Railroad Research Institute, Korea, <sup>2</sup>University of Science and Technology, Korea*
- PS3-61 A Study on the selection of representative models of subway stations using clustering analysis techniques for energy performance evaluation of subway stations**  
Seungkwon Shin<sup>1,†</sup>, Hosung Jung<sup>1</sup>, HyungChul Kim<sup>1</sup>, Seung-Ho Ahn<sup>2</sup>, and Sanryul Choi<sup>3</sup>  
*<sup>1</sup>Korea Railroad Research Institute, Korea, <sup>2</sup>Korea EAN TECHNOLOGY, Korea, <sup>3</sup>Induck University, Korea*

16:30~17:30

Thu, August 22, 2024

**Room : Building block 8, Conference Hall Floor, 12<sup>th</sup> floor**

Chair: Prof. Jeongju Kim (Hoseo University, Korea)

Erdenebat Tumur-Ochir (SMET-MUST, Mongolia)

- PS3-62 A study on the initial reduction of traffic signal timing for incident management**  
Oh Sang-Tae and Kim Jin-tae<sup>†</sup>  
*Korea National University of Transportation, Korea*
- PS3-63 Design of D2V Wireless Communication Message Datasets for IoT Traffic Control devices Information Provision in Autonomous Driving Environments**  
Yongbin Cho<sup>1</sup> and Jin-Tae Kim<sup>2,†</sup>  
*<sup>1</sup>Smart Transportation Research Laboratory, Korea, <sup>2</sup>Transportation System Engineering, Korea*

- PS3-64 BLE-based Location Recognition System of Autonomous Mobile Robots for Smart Livestock Farming**  
 JungJu Kim<sup>1,†</sup>, JaeHoon Choi<sup>1</sup>, KiHyun Kim<sup>2</sup>, and YongWoo Yang<sup>2</sup>  
<sup>1</sup>Hoseo University, Korea, <sup>2</sup>JECT Co.,Ltd., Korea
- PS3-65 A Study on Nanosensor Based on Graphene Nanoflake Transport on Graphene Nanoribbon Using Edge Vibration**  
 NAMHYEOP KIM, Ki-Sub Kim Kim, Hyun Cho Ahn, and Jeong Won KANG<sup>†</sup>  
 Korea National University of Transportation, Korea
- PS3-66 Self-assembly Synthesis of cadmium telluride nanoparticles and Nanowires**  
 KIM TAEHOON Kim, Yeung Chan Kim, Jeong Won KANG<sup>†</sup>, and Ki-Sub Kim Kim<sup>†</sup>  
 Korea National University of Transportation, Korea
- PS3-67 Adaptive Inter Reference Distance Scheme for Worn-out Cells in Non-Volatile Memories**  
 Juhee Choi<sup>1</sup>, Seonuck Paek<sup>1,†</sup>, Erdenebaatar Altangerel<sup>2</sup>, and Munkhnasan Choinzon<sup>2</sup>  
<sup>1</sup>Sangmyung University, Korea, <sup>2</sup>School of Information and Communication Technology, MUST, Mongolia
- PS3-68 Ultra-High Sensitivity Interdigitated Capacitor Device for Sensor Applications**  
 Nam Young Kim<sup>1,†</sup>, Enkhzaya Ganbold<sup>1</sup>, Eun Seong Kim<sup>1</sup>, Yu Mi Kim<sup>2</sup>, and Sang Tae Kim<sup>2</sup>  
<sup>1</sup>Kwangwoon University, Korea, <sup>2</sup>Neuroscience Research Institute, JnPharma Inc., Korea
- PS3-69 Modeling of LCL-Filter Active Damping Using MRAS Observer Without Additional Sensors**  
 Jeongseon Yu, HaeIn Kim, HagWone Kim<sup>†</sup>, and KwanYuhl Kwan  
 Korea National University of Transportation, Korea
- PS3-70 Study on Service Standards for Energy Management, Including Electric Vehicles**  
 Jaehyung Lee and Jin-Tae Kim<sup>†</sup>  
 Korea National University of Transportation, Korea
- PS3-71 Sales Predictions Using Data Mining: An Empirical Study in Mongolia**  
 Sarangerel Dorjgochoo<sup>1,†</sup>, Tumurbold Zolboo<sup>1</sup>, and Sungju Lee<sup>2</sup>  
<sup>1</sup>School of Information and Communication Technology, MUST, Mongolia, <sup>2</sup>Sangmyung University, Korea
- PS3-72 Activities for the Implementation of Machine-Readable Standards in the Field of Military and Space Activities Using Ontological Engineering Methods**  
 JEONG HYUNG KANG<sup>1</sup>, Anar Utegenova<sup>2</sup>, Gulnaz Yermoldina<sup>3</sup>, Zhanna Suimenbayeva<sup>2</sup>, Alisher Aden<sup>2</sup>, Vitaliy Naumenko<sup>4</sup>, and Jeong Won KANG<sup>1,†</sup>  
<sup>1</sup>Korea National University of Transportation, Korea, <sup>2</sup>Almaty University of Power Engineering and Telecommunications Named Gumarbek Daukeev, Almaty, Kazakhstan, <sup>3</sup>Institute of Information and Computational Technologies, Almaty, Kazakhstan, <sup>4</sup>INT-SAT Alatau LLP, Almaty, Kazakhstan  
 International University of Information Technology, Almaty, Kazakhstan

**PS3-73 Deep learning comparison study on automatic cancer nuclei segmentation on histological images**

Maratbek T. Gabdullin<sup>1</sup>, Assel Mukasheva<sup>1</sup>, Dina Koishiyeva<sup>1</sup>, Alibek Bissembayev<sup>1</sup>,  
Ki-Sub Kim<sup>2</sup>, and Jeong Won KANG<sup>2,†</sup>

<sup>1</sup>Kazakh-British Technical University, Kazakhstan, <sup>2</sup>Korea National University of Transportation,  
Korea

**PS3-74 Supporting Chemistry Students' Satisfaction through Physical and Virtual Labs**

Erdenebayar Eegii Lamjav<sup>1</sup>, Batshagai Baatar<sup>1,‡</sup>, Javzansuren Jigjidsuren<sup>1</sup>, Bayarmaa Ragchaa<sup>1</sup>,  
Ariunaa Tsogbadrah<sup>1</sup>, Munkhbat Altanbayar<sup>1</sup>, Jinyoung Lee<sup>2,†</sup>, Hyun-ju Kim<sup>2</sup>, and Hee-Hwa Lee<sup>2</sup>

<sup>1</sup>Mongolian University of Science and Technology, Mongolia, <sup>2</sup>Sangmyung University, Cheonan, Korea

**PS3-75 Assessment of Joint Mobility and Performance in Wrestlers Using Inertial Sensors**

Batbayar Khuyagbaatar<sup>†</sup>

Mongolian University of Science and Technology, Mongolia

**PS3-76 Transition Metal Dichalcogenids Synthesis in Mongolia**

Khurelbaatar Zagarzusem<sup>1,‡</sup> and Heemin Park<sup>2</sup>

<sup>1</sup>School of Information and Communication Technology, MUST, Mongolia, <sup>2</sup>Sangmyung University,  
Korea