(The program is subject to change)

The International Council of Electrical Engineering Conference 2024

June 30th (Sun.)

17:30	Registration Desk Open
17:30 – 19:30	Welcome Reception (Event Hall)

DAY1 July 1st (Mon.)

	Main Hall
9:30 - 10:00	**Opening Ceremony**
10:00 - 10:30	<u>Keynote Speech 1</u> Prof. Masayuki Watanabe Professor, Department of Electrical and Electronic Engineering, Kyushu Institute of Technology, Japan Chairman of the Organizing Committee, The ICEE Conference 2024 Power System Inertia and Stability Monitoring Using Synchrophasor Measurements
10:30 – 11:00	**Coffee Break**
11:00 - 11:25	<u>Keynote Speech 2</u> Dr. Hideki Motoyama Central Research Institute of Electric Power Industry, Japan President of Power and Energy Society, IEEJ Decarbonized Society : Challenges and Solutions for the Future – IEEJ PES R&D Strategic Plan –
11:25 - 11:50	<u>Keynote Speech 3</u> Prof. Rae-Young Kim Professor, Dept. of Electrical and Biomedical Engineering, Hanyang University, Korea Advanced e-Grid Technologies towards 100% Renewable Electrical Energy System for future Society
11:50 - 12:15	<u>Keynote Speech 4</u> Dr. Feng Xue Chief Expert, State Grid Corporation of China (SGCC), China Development and prospect on the adaptive fault defense technology in China's new power system
12:15 - 12:40	<u>Keynote Speech 5</u> Prof. C. C. Chan Past President, Hong Kong Institution of Engineers, Hong Kong Academician, Chinese Academy of Engineering Fellow, Royal Academy of Engineering, U.K. New Journey of Energy Revolution and Automotive Revolution

12:40 - 14:00	Lunch					

	Main Hall	Room A	Room B	Room C	Room D	Event Hall
14:00 - 15:40	SS: Future Power and Energy System Toward Carbon Neutrality		B1: Power System Planning (5) 14:00-15:40	C1: DC Microgrid (5) 14:00-15:40	D1: Power System Apparatus (5) 14:00-15:40	PO1: Poster Session – 1 14:00-15:40
15:40 - 16:10	Coffee Break					
16:10 - 17:50		A2: Engineering Education (4) 16:10-17:30	B2: Electric Vehicles and Power Systems (4) 16:10-17:30	C2: Circuit and Nonlinear Systems (4) 16:10-17:30	D2: Distribution System - 1 (4) 16:10-17:30	

DAY2　July 2nd (Tue.)

	Main Hall	Room A	Room B	Room C	Room D	Event Hall
9:00 - 11:20		Tutorial Session*	B3: Renewable Energy - 1 (6) 9:20-11:20	C3: Design and Energy Management in Smart City / Microgrid (7) 9:00-11:20	D3: Power System Dynamics & Stability (6) 9:20-11:20	PO2: Poster Session – 2 9:20-11:20
11:20 - 13:00	Lunch					
13:00 - 15:00	PN1: Advanced Control and Simulation Techniques for Power Systems	A4: Advanced Energy Conversion (6) 13:00-15:00	B4: Renewable Energy - 2 (6) 13:00-15:00	C4: Transportation and Power Electronics (6) 13:00-15:00	D4: Operation and Control in AC Microgrid (5) 13:00-14:40	PO3: Poster Session – 3 13:00-15:00
15:00 - 15:30	Coffee Break					
15:30 - 17:30	PN2: Advanced Distribution System with Transformative Power Electronics Technologies	A5: Electro-magnetic Theory and Semiconductor (5) 15:30-17:10	B5: Energy Storage System – 1 (6) 15:30-17:30	C5: Medical Application and Human Support (6) 15:30-17:30	D5: Power System Operation and Control – 1 (6) 15:30-17:30	

*09:00 – 11:20　Tutorial Session:

Electromagnetic Standpoints of Power Transfer through Materials of Electric Power Cables.

18:30 – 20:30　Conference Dinner

DAY3   July 3rd (Wed.)

	Main Hall	Room A	Room B	Room C	Room D	Event Hall
9:20 - 11:20	PN3: AI in Power and Energy Systems	A6: Energy System Toward Carbon Neutrality (5) 9:40-11:20	B6: Energy Storage System – 2 (5) 9:40-11:20	C6: Power System Operation and Control – 2 (5) 9:40-11:20	D6: Advanced Protection and Maintenance for Power Systems (6) 9:20-11:20	PO4: Poster Session – 4 9:20-11:20
11:20 - 13:00	Lunch					
13:00 - 15:00	PN4: Emerging Technologies for Microgrid	A7: Market and Policy (5) 13:00-14:40	B7: AI and Intelligent System Application (5) 13:00-14:40	C7: Electrical Machines & Smart Appliances (5) 13:00-14:40	D7: Distribution System - 2 (4) 13:00-14:20	PO5: Poster Session – 5 13:00-15:00

B1 Power System Planning

Chairperson: Hirohisa Aki, University of Tsukuba

Co-chairperson: Jae Woong Shim, Sangmyung University

O-001   Optimizing Transmission Network Expansion: A study of Locational Marginal Prices and Incentivizing Wind Power Integration

Ba Djibeyrou, Yokohama National University

O-002   Transmission System Expansion Planning Considering Wind Turbine Generators

Choi Jaeseok, Gyeongsang National University

O-003   Research on Machine Learning-Based Offshore Wind Power Topology Optimization

Cho Dong-Il, Soongsil Univ.

O-004   Optimal Decision-Making for Planning High-Renewable Energy Systems Considering Forecast Uncertainties

Adewuyi Bode Oludamilare, University of Tsukuba

O-005   An Outage Planning Work Managemant System with Applying Novel Optimization Algorithms

Toyoshima Ichiro, Toshiba Energy Systems & Solutions Corporation

C1 DC Microgrid

Chairperson: Naomitsu Urasaki, University of Ryukyus

Co-chairperson: Henry Chung, HKIE

O-006   An Implementation of Intelligent Fault Isolation Device for LVDC Distribution System Considering Slope Characteristics of Fault Current

Kim Kyung-Hwa, Korea University of Technology and Education

O-007   Examination of Autonomous Distributed Control Method Based on Predicted Solar Power in DC Microgrid

Oya Ryoto, Kanazawa Institute of Technology

O-008   Comparison of autonomous decentralized and centralized voltage control in DC microgrids

Hirano Ibuki, Yokohama National University

O-009   A Study on Economic Evaluation Modeling of MVDC Distribution System for Hosting Capacity of PV System

Lee Haeng Min, Korea University of Technology and Education

O-010   Modeling of Intelligent Fault Isolation Device in Radial-type ±35kV MVDC Distribution System

Han Byeong-Gill, Korea University of Technology and Education

D1 Power System Apparatus

Chairperson: Yoshinobu Ueda, MEIDENSHA CORPORATION

O-011   A Study on Application of Arc Model for Analysis of DC-Interruption Process

Tsusaka Akihiro, Aichi Institute of Technology

O-012   Numerical Analysis of SF6 Rotary Arcs Considering Radiative Heat Transfer

Nobuki Makoto, The University of Shiga Prefecture

O-013   Numerical Study on Carbon Dioxide Gas-blasted Arc Behavior in Supersonic Nozzle with a Hollow Electrode

Miyagi Hiroya, University of Tsukuba

O-014   Creep and Fatigue Assessment of Alloy 625 Tube in Molten Salt Solar Receiver

Shi Qianyu, Harbin Boiler Company Limited

O-015   Development of Transformer Bushing Defect Diagnosis Device Utilizing Surface Current Sensor

Sasaki Masahiro, Tokyo Electric Power Company Holdings, Inc.

July 1st, 16:10 – 17:30, Conference Room A

A2 Engineering Education

Chairperson: Kenji Iba, Meisei University

O-016   Trials of Experimental Classes on Electronics Circuits for High School Students

Hasegawa Makoto, Chitose Institute of Science and Technology

O-017   Preparation of a Musical Scale Reproduction Set for K-12 Experimental Demonstrations with LED Light Modulation Realized in Outreach Project Activities of Undergraduate Students

Yagi Seina, Chitose Institute of Science and Tecnology

O-018   Identifying Emerging Technologies Based on Text Mining in the Field of Insulation Material Tracking Tests

Kim Shinyoung, Electrical Industry Research Institute of Korea

O-019   Proposal of training curriculum for young engineers of embedded software using a measuring device, and evaluation method and its evaluation

Yamazaki Sadahiko, Japan Microsystems inc.

July 1st, 16:10 – 17:50, Conference Room B

B2 Electric Vehicles and Power Systems

Chairperson: Shigeru Tamura, Meiji University

Co-chairperson: LIU Wei, Hong Kong Polytechnic University

O-020   A Study on an Evaluation Method for Electric Vehicle Charging Demand

Inoue Haruna, Kanagawa University

O-021   Intraday Modification of Day-ahead V2G Scheduling for EV Aggregators

Hiura Shota, Meiji University

O-022   Optimal Operation of Convenience Store with Electric Vehicle

Yamamoto Shinya, University of the Ryukyus

O-023　Proposal for a Regional Microgrid Model using Reused Batteries and Virtual Power Lines with EVs

Hayashida Atsushi, Hokkaido research organization

O-024　Enhancing Electric Vehicle Power Management with Dynamic Power Allocation

Chintala Gnanasekar Hariharan , University of the Ryukyus

C2 Circuit and Nonlinear Systems

Chairperson: Tomohiro Hachino, Kagoshima University

Co-chairperson: Takuhei Hashiguchi, Kyushu Sangyo University

O-025　On-line Identification of Time-varying Nonlinear Systems Based on Gaussian Process Model Using k-means Method

Yamasaki Daijiro, Kagoshima University

O-026　Two-stage Identification of Discrete-time Hammerstein Systems Using Gaussian Process Models

Hachino Tomohiro, Kagoshima University

O-027　Low-temperature Cooking and Heating Characteristics using Dielectric Heating without Resonance Inductors

Imai Kei, Tokyo University of Science

O-028　A Study on the Optimal Operation of an Ultrasonic Driving System for Algae Removal Considering Underwater Environment Load

Joo Chang-Dae, Changwon National University

D2 Distribution System – 1

Chairperson: Mutsumi Aoki, Nagoya Institute of Technology

Co-chairperson: Sang-Yun Yun, Chonnam National University

O-029　A Study of Network Configuration Method for Exact Daily Loss Minimization in PV-Installed Distribution Systems

Sato Erina, Waseda University

O-030　Determination Method of Volt-Var Control Curve in Smart Inverters based on Optimal Power Flow combined with Tap Control by LRT considering Power System Condition

Shimoyama Naoto, University of Toyama

O-031　μ PMU-based State Estimation and Network Reconfiguration Method in Distribution

Hanashiro Riki, Yokohama National University

O-032　State Estimation Method using Voltage Correction with AMR

Yun Sang-Yun, Chonnam National University

Poster Session - 1

July 2nd, 9:00 – 11:20, Conference Room A

Tutorial Session

Lecturer: Sungtek Kahng, Incheon National University and ITRC Director

Title: Electromagnetic Standpoints of Power Transfer through Materials of Electric Power Cables

July 2nd, 9:20 – 11:20, Conference Room B

B3 Renewable Energy – 1

Chairperson: Masahide Hojo, Tokushima University

Co-chairperson: Sam Lam, HKIE

O-033   Comparison between Doubly-Fed Induction and Fixed-Speed Generator for Wind Turbine Generators in Self-excitation Phenomenon of Transmission System with Long Cable

Nakamura Yuta, Nagoya Institute of Technology

O-034   Power Stabilization of Wind and Pumped Storage Power Generation Systems by Wind Speed Prediction using LSTM and EMD

Li Yuancheng, Niigata University

O-035   Simulation on the impact of wind power plant output recovery characteristics in accordance with the grid code after a fault on the lifespan of wind turbines

Kim Kisu, Department of electrical engineering, Myoungji University

O-036   A New Control Method for a DFIG based Wind Turbine Generator in a Small Island to Improve Grid Frequency Support using Reactive Power

Sakurai Satoshi, Sophia University

O-037   A Comparative Study of Different Power Collection Methods Applied to Multi-terminal HVDC Transmission Circuit for Offshore Wind Power System

Chonan Hideki, Tohoku Gakuin University

O-038   Analysis of offshow power generation and prediction using data-driven approaches: A case study

Yuan Bowen, China Three Gorges Renewables Co.,Ltd. Liaoning Branch

July 2nd, 9:00 – 11:20, Conference Room C

C3 Design and Energy Management in Smart City / Microgrid

Chairperson: Noboru Katayama, Tokyo University of Science

Co-chairperson: Sung-Yong Son, Gachon University

O-039   Study on Multi-objective Optimal Control Method in Microgrid EMS Considering Power Quality and Consumer Load Control

Saito Ryuhei, Waseda University

O-040   Flexibility Evaluation of Off-Grid Deployment under the Electric Demand Growth Uncertainty

Takada Tomoya, Hokkaido University

O-041   Multi-Objective Optimization of Aquaculture Facility with On-Off Load Control

Ueda Soichiro, University of the Ryukyus

O-042   Optimal Operation of Smart City considering Heat Storage

Ishibashi Takuma, University of the Ryukyus

O-043   Smart Meter Remote Monitoring Centre: The Crux for a Successful Data Driven AMI Operation Model

Leung Keith, CLP Power Hong Kong Limited

O-044   Design and Comparison on Reward Functions of Deep Reinforcement Learning for Home Energy Management Systems

Nakao Hibiki, Tokyo University of Science

O-045   Energy Management of Multi-Car Linear Motor Elevators

Alfarra Bilal, Kobe Institute of Computing

July 2nd, 9:20 – 11:20, Conference Room D

D3 Power System Dynamics & Stability

Chairperson: Jumpei Baba, The University of Tokyo

Co-chairperson: Seungmin Jung, Hanbat National University

O-046   Improvement of Estimation Accuracy of Power System Inertia of Eastern Japan Using Maximum Entropy Methods

Ichino Keita, Kyushu Institute of Technology

O-047   Enhancement of Power System Transient Stability by Utilizing Controllability of Kinetic Energy of Adjustable Speed Synchronous Condensers

Yanagisawa Kazuki, Tohoku University

O-048   Estimation of Power Angle Curve for Stability Evaluation with Phasor and Power Flow Information

Kawano Tomoya, Kyushu Institute of Technology

O-049   Analysis of Subsynchronous Control Interaction of a Grid Forming Inverter by the Generalized Nyquist Criterion

Mitsugi Yasuaki, The university of Tokyo

O-050   A Study on Voltage Stability Estimation Method for Responding to Changes in the Number of Synchronous Generators in Operation

Miyazaki Masato, Nagoya Institute of Technology

O-051   A Voltage Stability Analysis in Regional Power System with Synchronous Condenser Considering Fault Induced Delayed Voltage Restoration

Toyama Reon, Yokohama National University

July 2nd, 9:20 – 11:20, Event Hall

Poster Session - 2

P-028   Critical Current Characteristics of REBa?Cu?Oy Thin Films Deposited on a Zr-patterned Substrate

Sekito Shinya, Fukuoka Institute of Technology

Song Geonho, Korea Institute of Energy Technology (KENTECH)

P-043　Proposal of Parallel Cells Cluster to Reduce Hot-Spot Heating Power in Si Monocrystalline Photovoltaic Modules

Kubota Sho, Kanagawa Institute of Technology

P-044　A Study on Optimizing the Number of Equipment in Net Zero Energy Town Considering Cost-effectiveness and Impact on Utility Grid

Yamazaki Shogo, The Institute of Electrical Engineers of Japan

P-045　Off-grid targeting small-scale demand in a mountainous region

Akagi Satoru , TEPCO HD

P-046　Nozzle Cracking Analysis of Water wall Upper Headers of Deep Peak-Regulating Coal-fire Boiler

Zhang Lei, Harbin Boiler Co., Ltd., Harbin 150046, China

P-047　Electronic properties of gate-all-around structure junction field-effect transisotr MoSe2/WSe2/MoSe2 van der waals heterosturcture

Woo Changrim, Chosun University

P-048　Changing in Resonance Point of the High-frequency Transformer Using in the LLC Converter

Nakata Atsushi, Shizuoka Institute of Science and Technology

P-049　Attractive Magnetic Levitation System for Thin Steel Plates Supported from The Horizontal Direction: Fundamental Consideration on Stable Non-contact Gripping

Kawashima Kazuma, Fukuoka Institute of Technology

P-050　Optimal Design for Reducing Cogging Torque of Permanent Magnet Synchronous Motor

Koo Heewon, Department of Electrical Engineering, Hanyang University

P-051　Positioning Control of a Non-contact Magnetic Levitation System for Flexible Steel Plates: Experimental Study Using a Two-degree-of-freedom Model

Onitsuka Seita, Fukuoka Institute of Technology

P-052　Evaluation of Transmitter/Receiver Coil Size Ratio and Transmission Efficiency of Underwater Wireless Power Transfer Using Cone Spiral Coil

Mototani Suguru, Aichi Institute of Technology

P-053　Condition monitoring for a DC-link capacitor in V2X bidirectional EV charger

Nagano Tomoyuki, GS Yuasa International Ltd.

P-054　Power Deposition Characteristics of Electrically Exploding Microscale Metallic Bridges with High-Voltage Pulse-Forming Circuit

Kim Kyoungjin, Kumoh National Institute of Technology

July 2nd, 13:00 – 15:00, Conference Room A

A4 Advanced Energy Conversion

Chairperson: Daisuke Tashima, Fukuoka Institute of Technology

O-052　　A Mathematical Modeling of Thermal Runaway in Li-ion Battery According to Operation Conditions of ESS

You Hyun-Sang, Korea University of Technology and Education

O-053　　A Study on the Safety Evaluation Method According to Leakage and Unbalanced Current in ESS

Kim Ji Myung, Korea University of Technology and Education, Korea

O-054　　Durable Battery with Rapid Charging Capability

Chng Cheng Jie, Akita University

O-055　　Power Generation Characteristics of a Co-axial MHD Energy Conversion Device by Three-dimensional Numerical Simulation

Hasebe Takahiro, University of Tsukuba

O-056　　Temperature Deviation Estimation of Proton Exchange Membrane Water Electrolyzer Stack Using Electrochemical Impedance Spectroscopy and Neural Networks

Katayama Noboru, Tokyo University of Science

O-057　　Development of a Fuel Cell Power System with Metal Hydride for Electric-Assist Bikes

Honda Koya, Tokyo Univercity of Science

July 2nd, 13:00 – 15:00, Conference Room B

B4 Renewable Energy – 2

Chairperson: Tetsuhiko Maeda, AIST

O-058　　Study on Estimation Method of Available Power Generation at Low Voltage Operating Point of Photovoltaic Power Generation under Output Suppression Using Clustering Technique

Suzuki Yuichi, The University of Tokyo

O-059　　Environmental impact and Environmental safety of Floating PhotoVoltaic

Lee Min Ji, Korea Water Resources Corporation

O-060　　Stabilization of Electricity by Mesh Method and Combination of Renewable Energy System

Tchokomani Moukam Theodore Desire, Niigata University

O-061　　Cooperative Control Method among PV Power Plants and Water Electrolysis Hydrogen Production to Effectively Utilize PV Surplus Power

Sudo Hiryu, Nagoya university

O-062　　Driving Renewable Energy In Existing Buildings: A Paradigm Shift With Flexible Photovoltaic Panels And Intelligent Implementation

Ng Ivan, The Government of the Hong Kong Special Administrative Region

O-063　　Day-Ahead Area-PV-Output Prediction by Autoencoder with Normalized Image Data of Multiple Meteorological Elements

Soke Yu, Waseda University

July 2nd, 13:00 – 15:00, Conference Room C

C4 Transportation and Power Electronics

Chairperson: Atsushi Nakata, Shizuoka Institute of Science and Technology

O-064   Energy Optimal Train Control - Multiphase Dynamic Programming Technique

Muraka Reddy Nagarjuna, Sophia University

O-065   Multi-Phase Train Trajectory Optimization with Genetic Algorithm

Goyal Deepali, Sophia University

O-066   Study of "R1G" Assuming the Application of Large Type of Stationary Energy Storage System for Decarbonization

Konishi Takeshi, Railway Technical Research Institute

O-067   Enhancing the Efficiency of Dynamic Wireless Power Transfer System Utilizing LCC Topology.

Khamrokulov Bekhzodbek, Tokyo University of Technology

O-068   Harmonic Reduction by 2-pulse Switching Method for Single Phase 13 levels Inverter

Ogihara Taisei, University of Toyama

O-069   Optimized Multi-Phase Buck Converter with Dynamic Current-Balancing for Low-Voltage High-Current EV-CPU Applications

Mak Matt, The University of Hong Kong

July 2nd, 13:00 – 14:40, Conference Room D

D4 Operation and Control in AC Microgrid

Chairperson: Yuta Nakamura, Nagoya Institute of Technology

Co-chairperson: Il-Yop Chung, Kookmin University

O-070   ENHANCING FREQUENCY STABILITY OF JEJU ISLAND REGION DURING 3-RMR OPERATION USING FLYWHEEL-CONNECTED SYNCHRONOUS CONDENSERS (FSC) AND GRID-FORMING (GFM)

Kristianto Albert, National University of Science and Technology

O-071   Grid-Forming Converter Control System: A Robust Tuning Aproach

Rehimi Sharara, Nagoya University

O-072   Evaluation of Frequency Control with Disturbance Observer Applied to Wind Turbine in Remote Island Microgrid

Fukami Ryotaro, Yokohama National University

O-073   A Novel Load Frequency Control Method of Microgrids based on Model Predictive Control using Particle Filter

Yang Helin, Hiroshima university

O-074   Analysis of Photovoltaic Inverter by Real-Time Digital Simulation with Digital Twins Approach

Chow Man Hin, The University of Hong Kong

July 2nd, 13:00 – 15:00, Event Hall

Poster Session - 3

P-055   Electric Double-layer Capacitor Electrodes Using Kenaf Residue-derived Carbonaceous Conductive Agent

Naganuma Taiki, Nihon University

P-056   Evaluation of Thermal Stability of Kenaf-derived Lignin and Method for improving Thermal Stability

Hozumi Tatsuki, Nihon University

P-057   Improved Absolute Gain by Changing Dimensions of Lightning Protection Cage

Fujishima Tomoyuki, Nagasaki University

P-058   Metaheuristic-Based Study on Peak Load Reduction in Industrial Facilities with Integrated PV Power Generation

Qin Zhou, The University of Tokyo

P-059   Development of Hosting Capacity Planning Method in AC/DC Hybrid Distribution Networks

Son Yongju, Korea University

P-060   Actual driving test of a hybrid vehicle using a recycled battery unit

Karikita Chizuru, Fukuoka Institute of Technology

P-061   Consideration of Multi Evaluation Method of Power System Resilience from Adequacy Aspects

Takehara Arisa, Waseda University

P-062   Research on MV-class eco-friendly gas switch using arc chute

Cha Sang-Wook, LS ELECTRIC

P-063   Induced Voltage of Search Coil for Position Estimation of Submarine Power Cable

Naoe Nobuyuki, Kanazawa Institute of Technology

P-064   Impact of Type of Anode Material on the Charging and Discharging Performance of Lithium-ion Battery Using Ni-rich Densified Cathode

Abe Yusuke, Akita University

P-065   LSTM Based Load Forecasting with Various Sources of Power Generation

Kim Hongrae, Soonchunhyang University

P-066   ~~Modeling and Validation of Power Systems Using MATLAB/Simulink~~

~~Yong-Kyu Kim, *The Korea Electrotechnology Research Institute*~~

P-067   A Study on Stabilization Control by Combined Operation of Offshore Wind Power Generator and Storage Battery in HVDC System

Chen Ruiqi, Meiji University

P-068   A Stability Analysis Considering Characteristics of VPP Aggregation Models in Korean Distribution Power System

Hyun Seokwoo, Daegu Catholic University

P-069   Sensor System for Measuring CO2 Absorption in Plants

Mako Yusuke, Nishinippon Institute of Technology

P-070   PEM Hydrogen Production Model Improvement Considering Degradation

Son Sung-Yong, Gachon University

P-071   Dynamic Voltage Restorer for Multiple Microgrids Based on Intelligent Control Strategy

Chen Cheng-I, National Central University

P-072   A Study on Fluctuation Absorption of Electric Double Layer Capacitor in Remote Island Power System

Nonaka Manato, Fukuoka Institute of Technology

P-073   Small-scale power grid infrastructure projects aiming at precise control Research and Practice of Whole Process Cost Management Mode

Ning Li, Yinchuan Power Supply Comany

P-074   Feature-based Electrical Equipment Fault Detection System

Deng Wen Di, Shanghai University of Engineering Science

P-075   Classification of Time-Frequency Analysis Data for Motor Imagery EEG Using Convolutional Neural Network

Yamawaki Nobuyuki, Kindai University

P-076   Research on the Construction of Network Security Protection System for the New Power System

Yu Bin, inner mongolia power (group) co.,ltd

P-077   Proposal for a Variable Flux Motor with a Field Winding

Akiyoshi Yuki, The Institute of Electrical Engineers of Japan

P-078   Design and Control of Wireless Electric Vehicle Direct Charging for Multistorey Car Parks

Liu Wei, The Hong Kong Polytechnic University

P-079   Experimental Research of Transfer Distance Expansion Under Inserted Copper Resonators for Wireless Current Charging Units Via Strong Resonance Coupling Method in the Superconducting Hyperloop Train

Chung Yoon Do, Suwon Science College

P-080   High-Load Characterization of Porous Electrode (Positive Electrode) for Lithium-Ion Batteries by Three-Electrode Cell

Kono Akihiko, Kanazawa Institute of Technology

P-081   A Study on Optimal Estimating Model for Measurement and Verification (M&V) Baseline Load Using AutoML

Jeon Soi, HD HYUNDAI ELECTRIC

July 2nd, 15:30 – 17:10, Conference Room A

A5 Electro-magnetic Theory and Semiconductor

Chairperson: Yoshiyuki Seike, Aichi Institute of Technology

Co-chairperson: Sungtek Kahng, Incheon National University

O-075   Control of Static Electricity Generated by Two-fluid Spray of Pure Water

Seike Yoshiyuki, Aichi Institute of Technology

O-076   Transient Analysis of the Electrical Circuit that Separates Zero Energy into Positive and Negative Energy

Yoshida Yoshiaki, Hiroshima Institute of Technology

O-077   Condition Monitoring of Solder Bonding using the Autoencoder

Hino Yasunari, Mitsubishi Electric Corporation

O-078   Creepage Discharge Phenomena on Standard Lightning Impulse of Stained Wet Insulators by Equivalent Fog Method

Kumaki Kengo, Kanazawa Institute of Technology

O-079   Effect of Radioactive-ray Irradiation in Nuclear Reactor on Integrated Charge in Polyethylene

Mitsumoto Shinichi, National Institute of Technology

July 2nd, 15:30 – 17:30, Conference Room B

B5 Energy Storage System – 1

Chairperson: Yutaka Sasaki, Hiroshima University

O-080   SOC Estimation Methodology by using Neural Network Considering Training Data Variation Trends

Jie Bo, The University of Tokyo

O-081   Development of Electro-Thermal Circuit Model of Lithium-ion Battery Through Electrochemical Impedance Spectroscopy and Distribution of Relaxation Times Method

Yoshida Kyosei, The University of Shiga Prefecture

O-082   A Study on the Implementation of Evaluation Test Device for Electrical Hazards in ESS

Kim Se-Jin, Korea University of Technology and Education

O-083   A Study on Safety Evaluation Considering Environments and Applications in ESS

Lee Ye-Bin, Korea University of Technology and Education

O-084   A Study on Deterioration Prediction Model based on the Internal Impedance in VRFB for ESS

Shen Jian, Korea University of Technology and Education

O-085   Machine Learning Based State Estimation for Lithium-Ion Batteries Using an Impedance Data Acquisition System.

Furugori Motoya, Tokyo University of Science

July 2nd, 15:30 – 17:30, Conference Room C

C5 Medical Application and Human Support

Chairperson: Takahiko Yamamoto, Tokyo University of Science

Co-chairperson: Takao Tsuji, Yokohama National University

O-086   Emotion Estimation Using Signal Processing and Neural Network by EEG

Torii Haruka, Tokyo Denki University

O-087   Forced Swimming Test of Mice Exposed to Magnetic Fields

Nakada Yuno, Tokyo University of Science

O-088   Structured Light and Photobiomodulation effect on α-synuclein expressing SHSY-5Y neuron cells

Kinugawa Hiro, Kitasato University

O-089　Somatosensory Area Signal Source Simulation for EEG High Spatial Resolution by Surface Laplacian
Matsuda Jo, Kitasato University

O-090　Investigation of Respiratory Input Interface Using Respiration Estimation Method Based on Electrocardiogram
Akai Ryota, Shizuoka University

O-091　Switched-capacitor DC-DC Converter with Improved Startup Performance for Wireless Biomedical Devices
Ramadhan Reyhan, Tokyo Institute of Technology

July 2nd, 15:30 – 17:30, Conference Room D

D5 Power System Operation and Control – 1

Chairperson: Takeyoshi Kato, Nagoya University

Co-chairperson: Andrew Yan, HKIE

O-092　Consumer Feedback-Based Allocation Methods for Air Conditioner Load Control to Support Frequency Fluctuation Suppression
Furuta Masahiro, Tohoku University

O-093　Power System Frequency Regulation from Inverter Air Conditioners
Kawahara Kento, Kyushu Institute of Technology

O-094　Basic Study on Method of Load Frequency Control in Consideration of BESS Utilization for Governor-free Control
Ise Takahiro, Nagoya University

O-095　Assessment of Linear and Non-Linear State-of-Charge Balancing Strategies for the Provision of Frequency Control Reserves
Buchinskiy Nikita, Tohoku University

O-096　Impacts of Sampling Time and Time Constant of Low-Pass Filter in Economic Load Dispatching Control on the Performance of Automatic Generation Control of a Power System
Yamaguchi Reo, Aichi Institute of Technology

O-137　Feature Selection-based Building load forecasting model considering feature interactions
Hong Young Min, Gachon University

A6 Energy System Toward Carbon Neutrality

Chairperson: Akira Sugawara, Niigata University

O-097   Energy Modeling and Analysis of Solar PV Integration in Nigeria towards a Decentralized Power System
Olawumi Ebenezer Abayomi, Yokohama National University

O-098   Sustainable Energy Solutions for Community Power Stability in Nigeria: A Case Study in Kaduna State
Bello Yakubu, Niigata University

O-099   Energy-mix Optimization including Technology Selection of Battery Energy Storage System
Yumae Naoya, Kanagawa University

O-100   Current status and prospects of research on optimized operation of integrated energy systems
Ding Xiao, State Grid Zhejiang Electric Power CO., LTD.

O-101   ~~Analysis of Technical Route & Economic Efficiency of Nuclear Energy and Petrochemical Coupling Development under the Goal of Carbon Neutrality~~
~~Wang Yan, *China Electric Power Planning and Engineering Institute*~~

B6 Energy Storage System – 2

Chairperson: Akihiro Satake, Kyushu Institute of Technology

O-102   The Possibility of Korea Introduction and Global Status of Hydropower/Pumped Water-BESS Hybrid Plants
Choi Jaeseok, KHNP

O-103   Optimal PlusDR Incentive for Time-of-Use Users Considering the Internal Rate of Return for Energy Storage System Installation
Bae Gyuhyeon, Tech University of Korea

O-104   Optimal Sizing of Hydrogen Energy Storage System in Consideration of Economic Operations of Energy Storage Systems in Microgrids
Nyabuto Mogiti Welma, Gifu University

O-105   Visualization of Self-sufficiency Ratio of Renewable Energy and Costs of Photovoltaic and Battery Storage
Amano Hiroki, Kyushu Institute of Technology

O-106   Risk of Battery Energy Storage System during natural disasters , and their countermeasures
Tashiro Yoichiro, Tokyo Electric Power Company Holdings

C6 Power System Operation and Control – 2

Chairperson: Akira Koide, University of Toyama

O-107   Estimation method of Optimal Capacity for VPL to improve Power curtailment of Renewable energy sources

Choi Sung Moon, Korea University of Technology and Education

O-108   Economic Evaluation of VPL to Improve Power Curtailment of Renewable Energy Sources

Rho Seong-Eun, Korea University of Technology and Education

O-109   Assessing Reliability and Uncertainty in Dynamic Line Rating Forecasts Using Mesoscale Ensemble Prediction

Shimoo Takahiro, Toshiba Energy Systems & Solutions Corporation

O-110   Optimizing Power Generation Dispatch through Dynamic Line Rating : A Comprehensive Analysis with Economic Benefit Evaluation

Shimoo Takahiro, Toshiba Energy Systems & Solutions Corporation

O-111   Rethinking Static Line Rating for Economic and Efficient Power Operation in South Korea

Park Junseon, Pukyong National University

D6 Advanced Protection and Maintenance for Power Systems

Chairperson: Yoshinobu Ueda, MEIDENSHA CORPORATION

Co-chairperson: Jae Woong Shim, Sangmyung University

O-112   Digital Twin Application for Preventing Maloperation of Transformer Differential Protection

Yoon Seong-Min, Myongji University

O-113   Optimal Design Method of 2-Port Surge Protection Device for Control Power Supply System in Energy Storage System

Kim Yun-Ho, Korea University of Technology and Education

O-114   Protection of the Electrical Grid of an Island with Fully Inverter-Based Resources

Cho Gvan Chun, Korea Electrotechnology Research Institute

O-115   A Study on Operation Method of Protection Coordination in Grid-connected Community Micro-grid System

Lee Na-Kyung, Korea University of Technology and Education

O-116   ImprovesThe Essential Safety Level of Hydropower Plants to Prevent Flooding of Plants.

Zhang Hailong, China Yangtze Power Co., Ltd.

O-117   Research on the division of vibration zone limits for giant Francis units based on big data

Li Ling, China Yangtze Power Co., Ltd

Poster Session - 4

P-082   Semiconductor Microfabrication Experience for Junior High School Students in Sendai

Furubayashi Yoko, Micro System Integration Center, Tohoku University

Fujiwara Masaki, The Institute of Electrical Engineers of Japan

P-098   Development of Global Grid Code Compliance Program
Shin Heewon, Korea Electrotechnology Research Institute

P-099   Health Evaluation of Photovoltaic Arrays
Yuan Bi Ting, New Energy Technology Research Institute of National Energy Group

P-100   ~~Korean renewables management system: Copulas model based adaptive droop control strategy~~
~~Sungyoon Song, *Korea Electrotechnology Research Institute*~~

P-101   Analysis and Visualization of Conductor's Movement with Emotional Expression Using Optical Motion Capture System
Tsukada Yuta, Nihon University

P-102   Research and Application of Self-Diagnosis Technology for Critical Data of Relay Protection Equipment
Wang Runyi, Guodian Nanjing Automation Co., Ltd.

P-103   A Study on Acceleration Measurement of Upper Limb Tremor
Okamoto Koki, The University of Electro-Communications

P-104   Magnetic Levitation System Supporting One Edge of a Flexible Steel Plate: Fundamental Study on the Characteristics of a Flexible Steel Plate in the Gripping State
Itoyama Rintaro, Fukuoka Institute of Technology

P-105   Advanced Incremental Conductance Method Analysis for Solar Power Systems
Lim Jong-Ho, Gachon university

P-106   Resonant inductive coupling wireless power transfer to a rotating object using Parity-Time symmetry
Ishida Hiroki, Okayama University of Science

P-107   Construction of Hydroponic Cultivation that Reduces Power Consumption of Lighting
Ogawa Yuria, Kurume Institute of Technology

P-108   Research on development of remanufacturability index for power equipment
An Byeong-Hyeon, Mokpo National University

July 3rd, 13:00 – 14:40, Conference Room A

A7 Market and Policy

Chairperson: Taisuke Masuta, Meijo University

Co-chairperson: Bo Jie, The University of Tokyo

O-118   Analysis of Reserve Procurement for Supply-Demand Balance Considering the Interaction of Spot and Reserve Market
Kato Keita, Tohoku University

O-119   Relationship Analysis between Capacity and Value in Balancing Market of Distributed Energy Resources
Imai Ryunosuke, Waseda University

O-120   Relationship between Capacity Market Pricing and Electric Power Company Profits under Japanese
Electricity Market

Okada Tsuyoshi, Meijo University

O-121   ~~New Online Unit Commitment in South Korea [Structure]~~

~~Donghwi Seo, *Korea Power Exchange*~~

O-122   New Online Unit Commitment in South Korea [Optimization]

~~Junoh Kang, *Korea Power Exchange*~~

July 3rd, 13:00 – 14:40, Conference Room B

B7 AI and Intelligent System Application

Chairperson: Dinh Hoa Nguyen, Kyushu University

O-123   Chiller Plant Replacement by MiMEP and Optimization with Reinforcement Learning Algorithm

Li Chelsea H.C., Electrical and Mechanical Services Department, The Government of the Hong Kong
Special Administrative Region

O-124   Utilising Machine Learning Techniques for Predictive Maintenance of 11kV Distribution Transformers

Lau Eric Hok Kwun, CLP Power

O-125   Deep Learning Based Solar Cell Recognition for Optical Wireless Power Transfer

Huang Sida, Kyushu University

O-126   Prediction of Company Market Value Using Financial and Non-Financial Information and Machine
Learning: A Case Study of 1800 Listed Companies

Shiozawa Morihiro, Tokyo Electric Power Company Holdings Inc.

O-127   A Fuzzy Logic-Based Energy Management System in 5G Mobile Networks

Naseri Saray Reza, Faculty of Artificial Intelligence

July 3rd, 13:00 – 14:40, Conference Room C

C7 Electrical Machines & Smart Appliances

Chairperson: Susumu Hara, Nagoya University

Co-chairperson: Kazunori Hasegawa, Kyushu Institute of Technology

O-128   Development of SynRM with World-Class Rated Torque for Electric Propulsion Systems for Ships

Wakasugi Sunao, TMEIC Corporation

O-129   Development of Benefit-Effect Assessment Method Using EEG Measurement for Improving Social
Acceptability of Urban Air Mobilities

Kusano Satoshi, Nagoya University

O-130   Properties of Electromagnetic Noise from Inverter System and Discharge-Emitted Signal to Design
Frequency Specification of New Sensors for Smart Factory

Gantulga Tuvshinzaya, Kyushu Institute of Technology

O-131   Attempt of Fire Protection for Metal Objects in Microwave Oven by Detecting Initial Discharge during
Microwave Operation

Sergelen Gonchigsuren, Kyushu Institute of Technology

O-132   Consideration of Differences Between ICT Responses and Actual Operational behaviors on Remote Operation Request for DERs

Umihara Takuro, The University of Tokyo

July 3rd, 13:00 – 14:20, Conference Room D

<u>D7 Distribution System – 2</u>

Chairperson: Satoru Akagi, Tokyo Electric Power Company Holdings, Inc.

Co-chairperson: Andrew Yan, HKIE

O-133   Voltage Control Method for Expansion of Photovoltaic Generation Capacity in Low-voltage Distribution System with Solid-state Transformer

Tonomura Mitsuo, Yokohama National University

O-134   An Evaluation of Effectiveness of Coordinated Voltage Control Method Using PV-STATCOM and Voltage Regulator in Distribution System

Arita Tomoya, Yokohama National Univercity

O-135   Cooperative voltage control method of LDC and Volt-Var Control based on estimation of Voltage Profile

Inoue Toshio, University of Toyama

O-136   Detection and Location of Open Conductor Faults for Distribution Networks through Contingency Analysis

Sim Gi-Do, Chonnam National University

July 3rd, 13:00 – 14:40, Event Hall

<u>Poster Session - 5</u>

P-109   Analytical Simulation of Vertical type Self-biased Channel Diode with Fin Structure

Kobayashi Masashi, Kanagawa Institute of Technology

P-110   Study on Acoustic Emission by Partial discharge in Oil Paper Insulation Based on Insulating Oil Coupled Sensing Method

Zhou Junjie, Xi'an Jiaotong University

P-111   Reliability Evaluation of Eco-Friendly Insulated Cable through AC and DC Breakdown Strength Analysis

Park Keonhee, Mokpo National Maritime University

P-112   Experimental Model Designing and Partial Discharge Characteristics of $\pm$ 800kV Converter Transformer Line-side Lead Exit

Xu Haowei, Xi'an Jiaotong University

P-113   A Two-Layer Energy Management System for Hydrogen-based Microgrids Considering State-transitional Dynamics

Cha Junsang, Korea university

P-114   Optimizing Cable Replacement Schedules in Power Grids: A Data-Driven Approach with Machine Learning and Power Flow Analysis

Lee Junhyun, Pukyong National University

P-115   Risk Assessment of Power Distribution Line Interconnected with Distributed Generation

Kim Gimin, Gachon University

P-116   Optimal ESS(Energy Storage System) Scheduling for Cost Reduction in Industry Customers in Korea

Hwang Sun Young, Konkuk University

P-117   Research on Sensitivity-based reactive power dispatch of wind farms connected to the grid

Ben-Smith Frederick, Hanbat National University

P-118   A study of dynamic characteristics in a microgrid

Muto Omi, Aichi Institute of Technology

P-119   Study of output characteristics of special winding transformer during system failure

Matsunaga Akari, Aichi Institute of Technology

P-120   A Study on Estimation of Battery's SOC and SOH in Microgrid Based on EKF

Fu Mingchong, Meiji University

P-121   A Study on Carbide Generation for Energy Storage Devices Using CO2 Laser

Kobayashi Shuto, Fukuoka Institute of Technology

P-122   Algorithm for estimaitng distribution system voltage using substation voltage and current data

Kim Jinhyeok, Myongji University

P-123   A Study on the Analysis of Frequency Stability according to Power System Input of Fuel Cells

Jeong Youngmin, Gachon University

P-124   Research on Green Thermal Energy Supply Scheme for Industrial Parks

Wu Qian, China Electric Power Planning and Engineering Institute

P-125   Fundamental Investigation of Internal Heating Power for Operating Point in a Single-Crystal Si Solar Cell

Toishi Chihiro, Kanagawa Institute of Technology

P-126   Smart Meter Data Compression: A Dynamic Data Streaming Scheme for Power System Analysis

Kwok K.M.

P-127   An Experimental Study on Current Noise Dependence on Distance from Arc Fault Point

Hasegawa Sora, Aichi Institute of Technology

P-128   Development of an Intelligent Skin Detection System Using Deep Learning

Wang Guo Jyun, Tzu Chi University

P-129   Investigation of Relation between Plucked Position and Tone by Electrical Analysis in Classical Guitars

Yabuta Rio, Kanagawa Institute of Technology

P-130   STA-SMO Method for Restarting Speed Sensorless Controlled Induction Motor in the Rotating Condition

Gou Lifeng, China Three Gorges Corporation

P-131   Design of Magnetic Coupling with Torque Optimization for Magnetic Pump System

Yoon Myung-Hwan, Korea Electronics Technology Institute

P-132   Characteristics Analysis of RCD Snubber Circuit for Spike Voltage Reduction in Flyback Converters
Won Young-Je, Gachon university

P-133   Proposal and Problem Extraction of Coordinate Measurement System for Flying Cars Using Traffic Signals
Mizuma Yusuke, Nihon University

P-134   A Passive Resonant Level Shifter for Mitigating Crosstalk and Minimizing Body Diode Loss in Bridge Legs of SiC MOSFETs
Tang Ho-Tin, City University of Hong Kong