CONFERENCE PROGRAM

February 15-17, 2025, UTC+9 / Fukuoka, Japan

- 2025 15th International Conference on Power, Energy, and Electrical Engineering (CPEEE 2025)

- 2025 15th International Conference on Renewable and Clean Energy (ICRCE 2025)
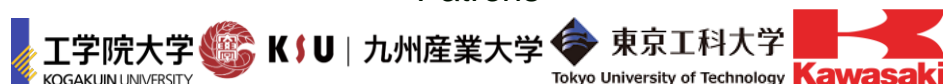
Co-sponsor

Co-host

Patrons

Contact

CPEEE 2025	ICRCE 2025
Ms. Chiko	Ms. Penny P. L. Gan
cpeee_conf@126.com	icrceconf@126.com

Table of Content

General Information

| 1 | Conference Venue (Link) |

5th Floor
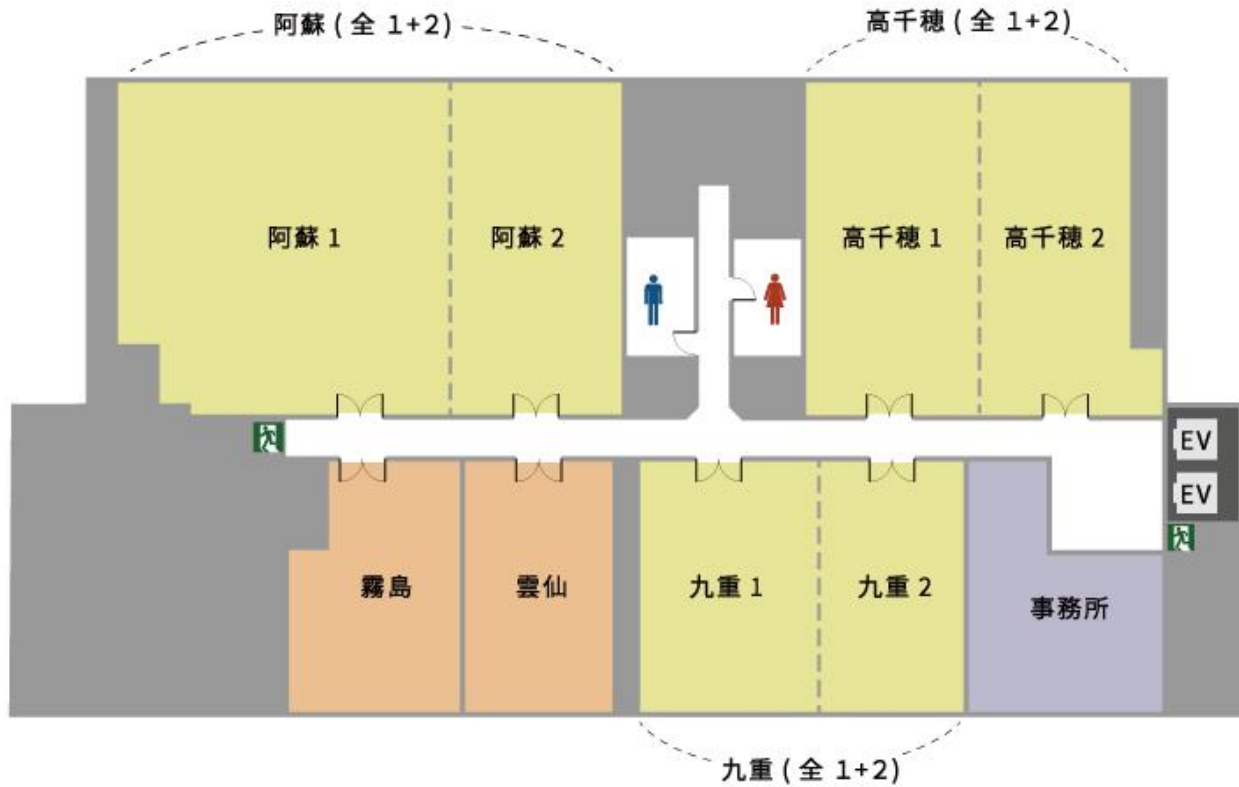
TKP Garden City Hakata

(TKP ガーデンシティ博多)

Japan, 〒812-0011 Fukuoka, Hakata Ward, Hakata Ekimae, 3 Chome−4−8 サットンホテル博多シティ 内 5F
Tel: 092-474-5145

JR Kagoshima Line-Hakata Station-Hakata Gate, 5min walking
Fukuoka Airport Line-Hakata Station-West 21 Gate, 5min walking
Fukuoka Airport-15min by Taxi

Date	高千穂 1+2	高千穂 2	九重 1	九重 2	雲仙	霧島	阿蘇
Feb 15	/	/	/	/	/	Registration 10:00~17:00	/
Feb 16	Keynote Session 9:00~12:10	Oral Session 5, 10 Poster Exhibition 13:30~18:00	Lunch Oral Session 1, 6 12:10~18:00	Lunch Oral Session 2, 7 12:10~18:00	Lunch Oral Session 3, 8 12:10~18:00	Lunch Oral Session 4, 9 12:10~18:00	Dinner 18:15~20:00

2	Onsite Registration

Registration desk (5F 霧島) → Inform the staff of your paper ID→ Sign-in→ Claim your conference kit.

3	Devices Provided by the Organizer

Laptops (with MS-Office & Adobe Reader) / Projectors & Screen / Laser Sticks

4	Materials Provided by the Presenter

Oral Session: Slides (pptx or pdf version). Format 16:9 is preferred.

Poster Exhibition: Size-A1.

Official language: English.

5	Duration of Each Presentation

Keynote Speech: 40min, including Q&A.   Oral Session: 15min, including Q&A.

6	Notice

※ Please wear your delegate badge (name tag) for all the conference activities. Lending your participant card to others is not allowed.

※ Please take good care of your valuables at any time during the conference. The conference organizer does not assume any responsibility for the loss of personal belongings of the participants during conference day.

※ **Wear a Mask. Make sure your mask fits well with the nose clip.**

※ **UTC+9. Time in Japan. Please be aware of time difference between this and your region/country.**

7	Online Presentation Tips

	Meeting ID	Link
zoom Zoom Download	Room A: 860 4954 4406	https://us02web.zoom.us/j/86049544406
	Room B: 886 2344 8689	https://us02web.zoom.us/j/88623448689

Note:

We recommend that you install the Zoom platform on your computer before the conference starts. New users can participate in the Zoom meeting without registration.

Participants who are going to do an online presentation are required to join the rehearsal in Zoom on Saturday, February 15, 2025. Duration: 3min apiece. Feel free to leave after you finish the test.

◆Name Setting   ◆Useful Links

Keynote Speaker: KN-Name   ✧   Conference Banner

Committee: Position-Name   ✧   Zoom Background

Author: Paper ID-Name

Delegate: Delegate-Name

Wechat Contact

Welcome Message

Dear All,

On behalf of the conference organizing committees, we are delighted to welcome you to the hybrid conference (onsite+online) of the 2025 15th International Conference on Power, Energy and Electrical Engineering (CPEEE 2025), along with 2025 15th International Conference on Renewable and Clean Energy (ICRCE 2025) which is co-sponsored by Toyota Technological Institute, Japan, IEEE PES, IEEE, co-hosted by Nihon University, Japan and proudly patronized by the Kogakuin University, Kyushu Sangyo University, etc.

The objective of the conferences is to provide a premium platform to bring together researchers, scientists, engineers, academics and graduate students to share up-to-date research results. We are confident that during this time you will get the theoretical grounding, practical knowledge, and personal contacts that will help you build a long term, profitable and sustainable communication among researchers and practitioners in the related scientific areas.

This year's program is composed of 12 oral sessions, 1 poster exhibition, and 5 keynote speeches delivered respectively by Prof. Emeritus Takashi HIYAMA (IEEE Life Fellow, AAIA Fellow, IEEJ Life Member, Kumamoto University, Japan), Prof. Mingcong Deng (IEEE Fellow, Tokyo University of Agriculture and Technology, Japan), Prof. Mohamed Benbouzid (IEEE Fellow, University of Brest, France), Prof. Masafumi Yamaguchi (IEEE Member, Toyota Technological Institute, Japan) and Prof. Hiroyuki Mori (IEEJ, IEEE, SIAM, ACM Member, Meiji University, Nakano-Ku, Japan). We would like to express our gratitude to all the speakers in this conference. Special thanks to all of our committee members, all the reviewers, and the attendees for your active participation. Hope you could enjoy the conference and have an unforgettable experience!

We are looking forward to seeing you in Fukuoka!

With Warmest Regards,

Conference Organizing Committees

CPEEE 2025, ICRCE 2025

Conference Committees

Conference Advisory Committees

Prof. Leyi Wang, Wayne State University, USA (IEEE Life Fellow)

Prof. Mohamed Benbouzid, University of Brest, France (IEEE Fellow)

Prof. Xiaoqing Wen, Kyushu Institute of Technology, Japan (IEEE Fellow)

Conference General Chair

Prof. Masafumi Yamaguchi, Toyota Technological Institute, Japan (IEEE Member)

Conference Co-Chair

Prof. Mingcong Deng, Tokyo University of Agriculture and Technology, Japan (IEEE Fellow)

Conference Program Chairs

Prof. Takashi Hiyama, Kumamoto University, Japan (IEEE Life Fellow, AAIA Fellow, IEEJ Life Member)

Prof. Tomonobu Senjyu, University of the Ryukyus, Japan (IEEE Fellow, IEEJ Fellow, AAIA Fellow)

Prof. Eyad H. Abed, University of Maryland, USA (IEEE Fellow)

Prof. Hiroyuki Mori, Meiji University, Nakano-Ku, Tokyo, Japan (IEEJ, IEEE, SIAM, ACM Member)

Prof. Xin Wang, Southern Illinois University, USA (IEEE Senior Member)

Prof. Zhaoyun Zhang, Dongguan University of Technology, China (IEEE Senior Member)

Prof. Mohan Lal Kolhe, Universitetet of Agder, Norway

Prof. Shogo Nishikawa, Nihon University, Japan

Conference Program Co-Chair

Prof. Yasuhiro Noro, Kogakuin University, Japan (IEEE Member)

Conference Publicity Chairs

Prof. Koki Ogura, Kyushu Sangyo University, Japan (IEEE Senior Member)

Assoc. Prof. Akira NISHIMURA, Mie University, Japan

Conference Publication Chairs

Dr. Jiefeng Zhang, University of Toronto, Canada

Dr. Yee Chong Wong, Materials Research Society of Singapore, Singapore

Conference Treasurer

Assoc. Prof. Bo Liu, Massey University, New Zealand

Conference Technical Committees (CPEEE 2025)

Kazuhisa Naoi, Nihon University, Japan

Nurul Akidah Baharuddin, Universiti Kebangsaan Malaysia, Malaysia

Tamer Fawzy Megahed Abdeldayam, Egypt-Japan University of Science and Technology (E-JUST), Egypt

Francesco DG. Apolinario, Technological Institute of the Philippines, Philippines

Faizal Arya Samma, Hasanuddin University, Indonesia

Rajesh Karki, University of Saskatchewan, Canada

Kok-Keong Chong, Universiti Tunku Abdul Rahman, Malaysia

Miao Yu, Zhejiang University, China

Huan Pan, Ningxia University, China

Kein Huat Chua, Universiti Tunku Abdul Rahman, Malaysia

Boon Han Lim, Universiti Tunku Abdul Rahman, Malaysia (IEEE Member)

Kazuya Ito, Tokyo University of Science, Japan

Lei Li, Hosei University, Japan

Ryuta Takashima, Tokyo University of Science, Japan

Nguyen Duc Tuyen, Hanoi Uni. of Science and Technology, Vietnam

Jianhui Wong, Universiti Tunku Abdul Rahman, Malaysia

Jaesung Jung, Ajou University, South Korea

Chen Lin, Sun Yat-Sen University, China

Yong Li, Hunan University, China

Fang Liu, Central South University, China (IEEE Senior Member)

Mohd Kamal Mohd Shah,Universiti Malaysia Sabah, Malaysia

Yourun Zhang, University of Electronic Science and Technology of China, China

Ali Moradi Amani, RMIT University, Australia

Sudlop Ratanakuakangwan, Chulalongkorn University, Thailand

Lee Cheun Hau, Universiti Tunku Abdul Rahman, Malaysia

Pierluigi Siano, University of Salerno, Italy (IEEE Senior Member)

Pirat Khunkitti, Khon Kaen University, Thailand (IEEE Senior Member)

Jin Kwon Hwang, Woosuk University, South Korea (IEEE Senior Member)

Kazutaka Itako, Kanagawa Institute of Technology, Japan (IEEE Senior Member)

Zhaoyun Zhang, Dongguan University of Technology, China (IEEE Senior Member)

Yicheng Zhou, Waseda University, Japan (IEEE Senior Member)

Marco Jung, Bonn-Rhein-Sieg University of Applied Sciences, Germany (IEEE Senior Member)

Takuji MATSUMOTO, Kanazawa University, Japan (IEEE Member)

Eui-Jik Kim, Hallym University, South Korea (IEEE Senior Member)

Michela Longo, Politecnico di Milano, Italy (IEEE Member)

Federica Foiadelli, Politecnico di Milano, Italy (IEEE Senior Member)

Kun-Long Chen, National Taiwan University of Science and Technology, Taiwan (IEEE Member

Mir Sayed Shah Danish, Nagoya University, Nagoya, Japan (IEEE Senior Member)

Maziar Rastmanesh, Nautical Institue, Canada (IEEE Member)

Sathaporn Chuepeng, Kasetsart University, Thailand

Watcharin Srirattanawichaikul, Chiang Mai University, Thailand

Intan Zaurah Mat Darus, Universiti Teknologi Malaysia, Malaysia

Christos Mademlis, Aristotle University of Thessaloniki, Greece

Noppakun Sangkhiew, Silpakorn University, Thailand

Mohamed Moustafa, The American University in Cairo (AUC), Egypt

Shadi Yasin, Abdullah Al Salem University, Khalidya, Kuwait

Anirut Matthujak, Ubon Ratchathani University, Thailand

Mohd Shakir Md Saat, Universiti Teknikal Malaysia Melaka, Malaysia

Ahmad Arabkoohsar, Technical University of Denmark, Denmark

Mattana Santasnachok, Burapha University, Thailand

Pokkrong Vongkoon,Ubon Ratchathani University, Thailand

M. Cengiz Taplamacioglu, Gazi University, Tukey

Chul-Won Park, Gangneung-Wonju National University, South Korea

Chang-wan Kim, Konkuk University, South Korea

Hasan Smajic, TH Köln –University of Technology, Arts and Sciences, Germany

Hussein Abaza, Kennesaw State University, USA

Moo-Yeon Lee, Dong-A University, South Korea

Walbermark Marques dos Santos, Federal University of Espirito Santo (UFES), Brazil

Serdar Ethem Hamamci, Inonu University, Turkey

Chong Wen Tong, University of Malaya, Malaysia

Mihaela Popescu, University of Craiova, Romania

Adem Akpınar, Bursa Uludag University, Turkey

Roberto Pfuyo, Universidad Nacional Tecnologica De Lima Sur, Peru

Ahmed M. El-Nahas, Menoufia University, Egypt

Dinesh Kumar Sharma, KK University, India

Jun Liu, Xi'an Jiaotong University, China

Qingguang Yu, Tsinghua University, China

Dieu Vo Ngoc, Vietnam National University Ho Chi Minh City, Vietnam

Hendra Setiawan, Universitas Islam Indonesia, Indonesia

Dongho Kim, Dongguk Univerisity, South Korea

Thomas Jin-Chee Liu, Ming Chi University of Technology, Taiwan

Winai Jaikla, King Mongkut's Institute of Technology Ladkrabang, Thailand

Atallah OUAI, Amar Telidji University of Laghouat, Algeria

Pooya Davari, Aalborg University, Denmark

Worachest Pirompugd, Burapha University, Thailand

Rodney H.G. Tan, UCSI University, Malaysia

Chu-Fen Li, National Formosa University, Taiwan

I-Hsien Liu, National Cheng Kung University, Taiwan

Gokturk Poyrazoglu, Ozyegin University, Turkey

Ekkachai Sutheerasak, Burapha University, Thailand

Farzin Asadi, Maltepe University, Turkey

Smith Eiamsa-ard, Mahanakorn University of Technology, Thailand

Fabio Bisegna, Sapienza University of Rome, Italy

Xinggang Yan, University of Kent, UK

Mahdi Majidniya, Université de Lorraine, France

Philippe Le-Huy, Hydro-Quebec Research Institute, Canada

Muhammad Imran Khan, Hamad Bin Khalifa University, Qatar

Sajid Muhaimin Choudhury, Bangladesh

Raik C. Orbay, Volvo Car Corporation, Sweden

Tao Chen, University of Manitoba, Canada

Meiling Yue, Beijing Jiaotong University, China

Daniele Mestriner, University of Genoa with Regione Liguria and Toshiba S.P.A., Italy

Malka N. Halgamuge, Melbourne School of Engineering, Australia

Yuli Setyo Indartono, Bandung Institute of Technology, Indonesia

Poonam Sharma, Paradigm of Science Cultivation and Ingenious Cultivation Foundation, India

Chathura Ranasinghe, University of Moratuwa, Sri Lanka

Chokchai Chuenwattanapraniti, Burapha University, Thailand

Conference Technical Committees (ICRCE 2025)

Han-Shen Chen, Chung Shan Medical University, Taiwan

Tarlochan Sidhu, University of Ontario Institute of Technology, Canada

Zhaoyun Zhang, Dongguan University of Technology, China

Marco Jung, Bonn-Rhein-Sieg University of Applied Sciences, Germany

Barbara Teruel, University of Campinas (UNICAMP), Brazil

Chong Wen Tong, University of Malaya, Malaysia

Adem Akpınar, Bursa Uludag University, Turkey

Mihaela Popescu, University of Craiova, Romania

Roberto Pfuyo, Universidad Nacional Tecnologica De Lima Sur, Peru

Ahmed M. El-Nahas, Menoufia University, Egypt

Dinesh Kumar Sharma, KK University, India

Chun-Cheng Lin, Air Force Academy, Taiwan

Jaya Krishna Devanuri, National Institute of Technology Warangal, India

Necibe Fusun Oyman Serteller, Marmara University, Turkey

Arthur L. Nash Jr, University of Alaska Fairbanks, USA

Hui Shan Lee, Universiti Tunku Abdul Rahman, Malaysia

Jingzheng Ren, The Hong Kong Polytechnic University, Hong Kong

Rosmadi Ghazali, FAKULTI SAINS GUNAAN, Malaysia

Shunichi Ohmori,Waseda University, Japan

Diankai Qiu, Shanghai Jiao Tong University, China

Pooya Davari, Aalborg University, Denmark

Pierluigi Siano, University of Salerno, Italy

Worachest Pirompugd, Burapha University, Thailand

Rodney H.G. Tan, UCSI University, Malaysia

Chu-Fen Li, National Formosa University, Taiwan

Sharath Srinivasamurthy, Saga University, Japan

Christine May Creayla Salvaloza, Xavier University - Ateneo de Cagayan, Philippines

Yu-Jen Chen, Southern Taiwan University of Science and Technology, Taiwan

I-Hsien Liu, National Cheng Kung University, Taiwan

Sandra Hasanefendic, Vrije Universiteit Amster-dam, Netherlands

Ekkachai Sutheerasak, Burapha University, Thailand

Pirat Khunkitti, Khon Kaen University, Thailand

Pasist Suwanapingkarl, Rajamangala University of Technology Phra Nakhon, Thailand

Mohd Saiful Asmal Rani, Universiti Putra Malaysia, Malaysia

Seongho Hong, Korea University, South Korea

NORLEE HUSNAFEZA BINTI AHMAD, Universiti Teknologi MARA, Malaysia

Atiqah Hamizah Mohd Nordin, Universiti Teknologi MARA, Malaysia

Xianhui Che, Queen Mary University of London, UK

Noppakun Sangkhiew, Silpakorn University, Thailand

Smith Eiamsa-ard, Mahanakorn University of Technology, Thailand

Xinggang Yan, University of Kent, UK

Mahdi Majidniya, Université de Lorraine, France

Philippe Le-Huy, Hydro-Quebec Research Institute, Canada

Maziar Rastmanesh, Nautical Institue, Canada

Muhammad Imran Khan, Hamad Bin Khalifa University, Qatar

Sajid Muhaimin Choudhury, Bangladesh

Raik C. Orbay, Volvo Car Corporation, Sweden

Takuji MATSUMOTO, Kanazawa University, Japan

Tao Chen, University of Manitoba, Canada

Meiling Yue, Beijing Jiaotong University, China

Daniele Mestriner, University of Genoa with Regione Liguria and Toshiba S.P.A., Italy

Malka N. Halgamuge, Melbourne School of Engineering, Australia

Ir. Yuli Setyo Indartono, Bandung Institute of Technology, Indonesia

Poonam Sharma, Paradigm of Science Cultivation and Ingenious Cultivation Foundation, India

Chathura Ranasinghe, University of Moratuwa, Sri Lanka

Chokchai Chuenwattanapraniti, Burapha University, Thailand

Masoud Taghavi, Technical and Vocational University (TVU), Iran

Agenda Overview (UTC+9)

Saturday, February 15, 2025 (Hybrid Conference)

Onsite Registration in Fukuoka

10:00-17:00	TKP Garden City Hakata **5F 霧島**
	Conference Materials Collection

Zoom Test for Online Presenters

10:00-12:00	Zoom Room A: <u>860 4954 4406</u>

Zoom Test Timetable

✧ Participants who are going to do an online presentation are required to join the rehearsal in Zoom on **Saturday, February 15, 2025.** Duration: 3min apiece. Feel free to leave after you finish the test.

✧ We will test control panel including screen sharing, audio, video and "Raise Hand" feature, etc. Please get your presentation slides and computer equipment prepared beforehand.

10:00-10:30	10:30-11:00
P017 P018 P025 P042 P043 P153 P054 P009 P092 P105 P152 P008	**P019 P049 P050 P056 P076 P112 P132 P144 P075 P083 P067 P108 P1004 P521**

11:00~12:00

Alternative time for participants who are unavailable at allocated time.
Other online participants, includes but not limited to keynote speaker, session chair, committee member, delegate.

Sunday, February 16, 2025 (Onsite Presentation)

08:00~	Registration (5F)

Keynote Speech (Onsite) / 5F 高千穂 1+2	**Zoom Room A: 860 4954 4406**

Chairman: Prof. Masafumi Yamaguchi, Toyota Technological Institute, Japan (Conference General Chair)

09:00~09:10	Opening Remarks (Conference General Chair) **Prof. Masafumi Yamaguchi, Toyota Technological Institute, Japan**
09:10~09:50	Keynote Speech I "Multi-Agent Based Self-Healing Intelligent Power Systems" **Prof. Emeritus Takashi HIYAMA, Kumamoto University, Japan** (IEEE Life Fellow, AAIA Fellow, IEEJ Life Member)
09:50~10:30	Keynote Speech II "Development of Quantum Evolutionary Computation for Power Systems" **Prof. Hiroyuki Mori, Meiji University, Nakano-Ku, Japan**
10:30~10:50	Group Photo & Coffee Break
10:50~11:30	Keynote Speech III "Operator Based Nonlinear Control Design on Wireless Power Transfer Systems" **Prof. Mingcong Deng, Tokyo University of Agriculture and Technology, Japan** (IEEE Fellow)
11:30~12:10	Keynote Speech IV "Importance of Solar-powered Vehicles toward Creation of Clean Energy Society" **Prof. Masafumi Yamaguchi, Toyota Technological Institute, Japan**
12:10~13:30	Lunch (5F 九重 1+九重 2+雲仙+霧島)

Parallel Oral Session (Onsite) / 5F	
13:30~15:45 九重 1	**Oral Session 1-Modeling and Fault Analysis of New Power Appliances and Equipment** P011 P016 P037 P012 P060 P136 P150 P146 P1001
13:30~15:45 九重 2	**Oral Session 2-Power Generation and Energy Conversion Analysis of Power Machinery** P530 P504 P507 P529 P028 P508 P532 P534 P045
13:30~15:45 雲仙	**Oral Session 3-Advanced Battery Design and Energy Storage Technology** P044 P128 P002 P010 P013 P015-A P036 P073 P098
13:30~15:45 霧島	**Oral Session 4-New Energy Generation and Utilization** P524-A P087 P512 P148 P515-A P518-A P528 P546-A P127
13:30~15:45 高千穂 2	**Oral Session 5-Power Operation, Low-Carbon Power Trading and Energy Consumption Prediction** P520 P046 P059 P117 P123 P129-A P135 P147 P531-A
15:45~16:00	Coffee Break
16:00~18:00 九重 1	**Oral Session 6-Renewable Energy and Energy Management** P053 P062 P090 P097 P107 P113 P522 P544-A

16:00~18:00 九重 **2**	**Oral Session 7-Digital Operation and Decision Analysis of Modern Power Grid** P023 P114 P131 P142 P058 P143 P116 P151
16:00~17:45 雲仙	**Oral Session 8-Photovoltaic System and Solar Energy Utilization** P080 P115 P063 P089 P137 P535 P543-A
16:00~18:00 霧島	**Oral Session 9-Distributed Energy Collaborative Optimization and Advanced Energy Storage Systems** P102 P118 P121 P141 P021 P124 P064 P057
16:00~18:00 高千穂 **2**	**Oral Session 10-New Control Models, Equipment Reliability and Safety Assessment in Smart Grids and Power Systems** P065 P070 P095 P106 P138 P022 P154 P020
13:30~18:00 高千穂 **2**	**Poster Exhibition** P099-A P149 P1002
18:15~20:00	Dinner (5F 阿蘇) 15th Anniversary
Monday, February 17, 2025 (Tour)	
One Day Tour	8:00 | Pick up from TKP Garden City Hakata 9:40 | Kumamoto Castle 熊本城（60mins） 12:00 | Kusasenri 草千里（60mins） 13:00 | Mount Aso Crater 阿蘇火山口 (20mins) 14:30 | Kurokawa Onsen 黒川温泉 (80mins) 17:00 | Back to Hakata Station

Monday, February 17, 2025 (Online Presentation)	
Keynote Session (Online)	**Zoom** Room A: <u>860 4954 4406</u>
13:30~14:10	Keynote Speech V "Tidal stream turbines grid-connection: Meeting the challenges and capitalizing on the opportunities of tidal energy production" **Prof. Mohamed Benbouzid, University of Brest, France** (IEEE Fellow)
Parallel Session (Online)	
14:30~16:00	**Online Session 1 (Part A)-System Control Model and Equipment Functional Analysis in Modern Power Integration System** P017 P018 P025 P042 P043 P153	**Zoom** Room A <u>860 4954 4406</u>
14:30~16:15	**Online Session 2 (Part A)-Intelligent Power System and Energy Development** P019 P049 P050 P056 P076 P112 P132	**Zoom** Room B <u>886 2344 8689</u>
16:15~16:30	Break

16:30~18:00	**Online Session 1 (Part B)-System Control Model and Equipment Functional Analysis in Modern Power Integration System** P054 P009 P092 P105 P152 P008	**Zoom** Room A **860 4954 4406**
16:30~18:15	**Online Session 2 (Part B)-Intelligent Power System and Energy Development** P144 P075 P083 P067 P108 P1004 P521	**Zoom** Room B **886 2344 8689**

Keynote Speech (UTC+9)

09:10~09:50
Sunday, February 16, 2025

Keynote Speech I (Onsite)

TKP Garden City Hakata 5F 高千穂 1+2

Zoom Room A: 860 4954 4406

Prof. Emeritus Takashi HIYAMA (IEEE Life Fellow, AAIA Fellow, IEEJ Life Member)
Kumamoto University, Japan

Speech Title: Multi-Agent Based Self-Healing Intelligent Power Systems

Abstract: Innovation of power distribution schemes is already available to realize the stable power supply to the loads. Those new types of power distribution systems have been well known as Micro Grid. In this presentation, the multi-agent based configuration of self-healing electric power systems will be introduced including renewable energy power sources and energy storage devices together with several case studies to demonstrate the future possibility of multi-agent based self-healing operation and control to bring the intelligent power systems to the real world.

Takashi HIYAMA received his B.E., M.S., and Ph.D. degrees all in Electrical Engineering from Kyoto University, Japan in 1969, 1971, and 1980, respectively. Since 1989 to March 2012, he had been a full professor at the Department of Electrical Engineering and Computer Science, Kumamoto University, Japan. For two months from April to May of 1975, he was a Visiting Researcher at Moscow Energy Institute of former Soviet Union following the governmental exchange agreement of scholars and researchers. From May 1985 to September 1986, he was with Clarkson University, NY, USA as the Research Fellow involved in ESSERCO (Empire State Electrical Energy Research Corporation) project on Harmonics Measurement and Analysis. He was also working as the Director of International Student Center, one of the Members of the Special Advisory Board for the President, the Vice-Dean and the Dean of the Graduate School of Science and Technology, and the Director of Shock Wave and Condensed Matter Research Center at Kumamoto University. After his retirement from Kumamoto University at the end of March 2012, he got the title of Professor Emeritus of Kumamoto University. He was also assigned to the President of Kumamoto Prefectural College of Technology. After two years work there, he came back to Kumamoto University in April 2014 with the title of Distinguished Professor at the Priority Organization for Innovation and Excellence (POIE). There, he worked as the Director of International Collaborative Research Group for Science and Technology and later as the Director of International Research Organization for Advanced Science and Technology (IROAST) until the end of March, 2021.

His research interests included intelligent systems applications to the operation, control and management of electric power systems. In addition, his research covered the applications of renewable energy power sources in power distribution networks for the configuration of micro-grid and/or smart-grid. Especially, the following research works are still highly cited: the fuzzy logic based operation of power systems, the introduction of Artificial Neural Network based MPPT control for PV systems, and the application of Multi-agent Systems for the coordinated Intelligent Automatic Generation Control (AGC) including PV, WTG, and Energy Capacitor Systems with regular power plants. He published 5 books and 213 reviewed papers including international conference papers. Currently, the total citation of his papers reached 4893 and his h-index is 36.

He also performed his joint research for 25 years with the several divisions of Kyushu Electric Power Co. including its Research Institute. His joint research topics covered wider areas of operation, control and management of electric power systems. His current title is Professor Emeritus, Kumamoto University. He is a Life Fellow of IEEE, Fellow of AAIA, and Life Member of IEEJ.

09:50~10:30 Sunday, February 16, 2025	Keynote Speech II (Onsite)
TKP Garden City Hakata 5F 高千穂 1+2	Zoom Room A: 860 4954 4406

Prof. Hiroyuki Mori (IEEJ, IEEE, SIAM, ACM Member)
Meiji University, Nakano-Ku, Japan

Speech Title: Development of Quantum Evolutionary Computation for Power Systems

Abstract: This talk presents Quantum Evolutionary Computation for power systems. Quantum Innovations are one of the current hot topics for opening a new paradigm in all the engineering fields. Apart from Quantum Computers, Quantum AI/Machine Learning is gathering attention in Quantum Computing, which belongs to Quantum Innovations. Quantum Evolutionary Computation (QEC) is key in evaluating better solutions in complicated nonlinear optimization problems. In practice, QEC has the advantage of extending the solution search to improve the solutions. As high-performance evolutionary computation, this talk integrates Brain Storm Optimization (BSO) and its variants with the idea of QEC. BSO is a new kind of Evolutionary Computation that imitates the process of brainstorming to employ a clustering technique to carry out efficient solution selections. We demonstrate the effectiveness of new Unit Commitment (UC) methods in power systems.

Hiroyuki Mori received the B.Sc., M.Sc., and Ph.D. degrees, all in Electrical Engineering, from Waseda University, Tokyo, Japan, in 1979, 1981, and 1985, respectively. From 1984 to 1985 he was a Research Associate at Waseda University. In 1985, he joined the Dept. of Electrical Engineering at Meiji University (MU), Japan. In 1995, he became a Professor at Dept. of Electrical Engineering and is now a Professor at Dept. of Network Design of MU since 2013. From 1997 to 2002, he was Division Director of Evolutionary Learning Systems at MU High Technology Research Center for Artificial Life. From April 2005 to March 2010, he was appointed Director of MU High Technology Research Center for Sustainable Energy & Materials. He was a Visiting Associate Professor from March 1994 to May 1995, a Visiting Professor from April 2017 to March 2018, and a Visitor from June 2022 to October 2022 at Cornell University, Ithaca, NY, USA.

He was the Technical Committee Chair of IEEE ANNPS1993 in Yokohama, Japan, and IEEE CAS Technical Committee Chair on Power Systems and Power Electronics from June 1993 to May 1994. Also, he was General Chair of IEEE PES ISAP2013 in Tokyo, Japan, and IFAC (International Federation of Automatic Control) CPES2018 in Tokyo, Japan. He was Chair of the IEEE PES Analytic Methods for Power Systems Committee (AMPS) Intelligent Systems Subcommittee (ISS) from January 2020 to December 2022 and Secretary of the IEEE PES AMPS ISS Working Group on Open Data and IFAC TC6.3. He has been an IEEJ Fellow since 2019, an IEEJ Professional since 2021, and received the Working Group Recognition Award (Modern Heuristics Optimization) in 2022, IEEE PES AMPS Subcommittee Chair Recognition Award in 2023, an IEEJ Outstanding Achievement Award in 2024.

His research interests are power system operation and planning, active distribution automation, and intelligent systems applications (Deep Neural Networks, Evolutionary Computation, Fuzzy Logic, Data Mining). He is a member of IEEJ, IEEE, SIAM, and ACM.

15TH CPEEE

2025 15th International Conference on POWER, ENERGY, AND ELECTRICAL ENGINEERING
2025 15th International Conference on Renewable and Clean Energy

ICRCE

10:50~11:30
Sunday, February 16, 2025

Keynote Speech III (Onsite)

TKP Garden City Hakata 5F 高千穂 1+2

Zoom Room A: <u>860 4954 4406</u>

Prof. Mingcong Deng (IEEE Fellow)
Tokyo University of Agriculture and Technology, Japan

Speech Title: Operator Based Nonlinear Control Design on Wireless Power Transfer Systems

Abstract: In this talk, operator based models on wireless power transfer systems are introduced, which describe the nonlinear dynamics based on fundamental physical relationship. As for the compensation scheme on the nonlinear dynamics, based on the concept of Lipschitz operator and the operator based robust right coprime factorization condition, robust nonlinear control designs are shown to guarantee the robust stability and desired performance for the wireless power transfer systems. For demonstrating the effectiveness, current experimental results are shown by applying the above-mentioned control designs to wireless power transfer systems.

Prof. Mingcong Deng received his PhD in Systems Science from Kumamoto University, Japan. From April 1, 1997 to September 30, 2010, he was with Kumamoto University; University of Exeter, UK; NTT Communication Science Laboratories; Okayama University. From October 1, 2010, he has been with Tokyo University of Agriculture and Technology, Japan, as a professor. Now he is the Chair of Department of Electrical and Electronic Engineering. Prof. Deng specializes in three complementary areas: Learning & operator based nonlinear fault detection and fault tolerant control system design; System design on human factor based robot control; Learning based nonlinear adaptive control. Prof. Deng has over 550 publications including 200 journal papers in peer reviewed journals including IEEE Transactions, IEEE Press and other top tier outlets. He serves as a chief editor for 2 international journals, and associate editors of 6 international journals. Prof. Deng is a co-chair of agricultural robotics and automation technical committee, IEEE Robotics and Automation Society; also a chair of the environmental sensing, networking, and decision making technical committee, IEEE SMC Society. He was the recipient of 2014 & 2019 Meritorious Services Award of IEEE SMC Society, 2020 IEEE RAS Most Active Technical Committee Award. He is a fellow of The Engineering Academy of Japan, and a fellow of IEEE.

11:30~12:10
Sunday, February 16, 2025

Keynote Speech IV (Onsite)

TKP Garden City Hakata 5F 高千穂 1+2

Zoom Room A: 860 4954 4406

Prof. Masafumi Yamaguchi
Toyota Technological Institute, Japan

Speech Title: Importance of Solar-powered Vehicles toward Creation of Clean Energy Society

Abstract: The renewable energy is very important to create clean energy society. Especially, the photovoltaics (PV) is expected to contribute as the primary energy with cumulative installed PV with 5TW and 22TW by 2030 and 2050, respectively according to the Shell's Sky Scenario [1]. However, because global cumulative PV capacity installed is only 1.558TW in the end of 2023, further development of science, technology and deployment of PV is necessary.

For realizing the above scenario and vision, we need to conduct the following issues:

1. Development of high performance, low cost and highly reliable PV materials, cells, modules, and systems.

2. Further development of smart energy management including regulations, and self-consumption in cooperation with storage battery technologies.

3. Development of new application fields such as automobile applications towards the creation of future clean energy infrastructures.

In this paper, our recent approaches on development of high-efficiency solar cells and modules, and VIPV (vehicle integrated PV) for solar-powered electric vehicles (solar-EV) are presented. The impacts of high-efficiency solar cell modules upon expanding driving range, reduction in CO_2 emission and charging cost of electric vehicles are shown. The development of high-performance solar cells offers a promising pathway toward achieving high power per unit cost for many applications. The multi-junction solar cells have great potential of more than 44% and 50% with 3-junction and 6-junction solar cells [2], although the current best efficiencies of 3-junction and 6-junction solar cells are 39.5% and 39.2%. Cost reduction of solar cells and modules is also very important for widespread applications. The Si tandem solar cells [3] have potential of low-cost and high-efficiency with an efficiency of more than 41% and 45% with 2-junction and 3-junction Si tandem solar cells. The III-V/Si 3-junction tandem solar cell modules with an efficiency of more than 36% have potential of driving distance of more than 30 km/day average and more than 50 km/day on a clear day. Most recently, the authors have achieved high-efficiency (35.8%) with InGaP/GaAs/Si 3-junction tandem solar cell with an area of 23cm2 and new world record efficiency (33.7%) InGaP/GaAs/Si 3-junction tandem solar cell module with an area of 775cm2.

Dr. Masafumi Yamaguchi is now Professor Emeritus and Invited Research Fellow at the Toyota Technological Institute, Nagoya, Japan. He is the Chairman, PV R&D Review Committee under the NEDO (New Energy and Industrial Technology Development Organization): since 2008. He was the Research Supervisor of the "Creative Clean Energy Generation using Solar Energy" under the JST (Japan Science and Technology Agency): 2009-2017. Prof. Yamaguchi has contributed to R&D for high-efficiency multi-junction, Si tandem and Si solar cells, space solar cells, defects in semiconductors, PV-powered vehicle applications. He has received numerous awards such as The Becquerel Prize from the European Commission in 2004, The William Cherry Award from the IEEE in 2008, The PVSEC Award in 2011, The WCPEC Award in 2014, The Science and Technology Award by the Minister of Education, Culture, Sports, Science and Technology in 2015 for his outstanding contributions to the development of science and technology of photovoltaics such as high-efficiency multi-junction solar cells, space solar cells, concentrator solar cells and as one of the world leaders of the development of photovoltaics and as one of the driving forces for international co-operation.

13:30~14:10
Monday, February 17, 2025

Keynote Speech V (Online)

Zoom Room A: 860 4954 4406

Prof. Mohamed Benbouzid (IEEE Fellow)
University of Brest, France

Speech Title: Tidal stream turbines grid-connection: Meeting the challenges and capitalizing on the opportunities of tidal energy production

Abstract: The world wide potential of electric power generation from marine tidal currents and waves is enormous. High load factors resulting from the fluid properties and the predictable resource characteristics make these energy resources attractive and advantageous for power generation and advantageous when compared to other renewable energies with unpredictability in availability. The technologies are just beginning to reach viability to make them potential commercial power sources. While just a few small projects currently exist, the technology is advancing rapidly and has huge potential for generating bulk power. Moreover, international treaties related to climate control and dwindling fossil fuel resources have encouraged harnessing energy sustainably from such renewable sources. Several demonstrative projects have been scheduled to capture tidal and wave energies. A number of these projects have now reached a relatively mature stage and are close to completion.

Regarding this emerging and promising area of research, this keynote will address tidal stream turbines grid-connection key issues and challenges for massive deployment, while presenting some solution based on different storage technologies.

Mohamed Benbouzid completed his Ph.D. in electrical at the National Polytechnic Institute of Grenoble, Grenoble, France, in 1994. He further earned his Habilitation à Diriger des Recherches degree from the University of Amiens, Amiens, France, in 2000. Following the completion of his Ph.D., Dr. Benbouzid joined the University of Amiens, where he held the position of Associate Professor in electrical engineering. Since September 2004, he has been affiliated with the University of Brest, Brest, France, where he currently serves as a Full Professor in electrical engineering. Additionally, he holds the distinguished positions of a Distinguished Professor and a 1000 Talent Expert at the Shanghai Maritime University in Shanghai, China. Prof. Benbouzid primary research interests and expertise include control of electric machines, variable-speed drives for traction, propulsion, and renewable energy applications, and fault diagnosis of electric machines. Prof. Benbouzid is an IEEE Fellow and a Fellow of the IET. He is the Editor-in-Chief of the International Journal on Energy Conversion and the Applied Sciences (MDPI) Section on Electrical, Electronics and Communications Engineering. He is a Subject Editor for the IET Renewable Power Generation.

Oral Session 1 (UTC+9)

Sunday, February 16, 2025	5th Floor 九重 1

Modeling and Fault Analysis of New Power Appliances and Equipment

13:30-15:45	Chairman:

P011 13:30~13:45	A New Electronic Voltage Transformer Applicable to AMI Smart Meters **Chen-En Wang**, National Taiwan University of Science and Technology, Taiwan
P016 13:45~14:00	Design and Analysis of Coil Sensors for Position Recognition in Wireless Charging **Shogo Omata**, Hirosaki University, Japan
P037 14:00~14:15	Prediction of Sequence Impedance for Grid-Connected VSC Based on interpolation method **Sijia Li**, Aalborg University, Denmark
P012 14:15~14:30	Fault Diagnosis for Oil-Immersed Power Transformers and On-Load Tap Changers Using Ensemble Learning **Yu-Po Wang**, National Taiwan University of Science and Technology, Taiwan
P060 14:30~14:45	Multilevel Inverter using Nearest-Sine-Level Stage-Capacitors with Coupled and Reduced Number of Power Semiconductor Switches **Faizal Arya Samma**, Hasanuddin University, Indonesia
P136 14:45~15:00	Design of a Bidirectional Triple Full-Bridge CLLC Converter with Dual-Output Transformer **Ying-Ting Huang**, National Taipei University of Technology, Taiwan
P150 15:00~15:15	A study on optimizing investment value of power transformers using reinforcement learning algorithms **SeonWoo Im, Kim-minje**, Mokpo National University, South Korea
P146 15:15~15:30	A Study on the Health Assessment of Sub-Modules in MVDC Converters **Jeong-sik Oh**, Mokpo National University, South Korea
P1001 15:30~15:45	Electrical Design Review Based on BIM-MEP Model **Guan-Chyun Hsieh**, Chung Yuan Christian University, Taiwan

Oral Session 2 (UTC+9)

Sunday, February 16, 2025	5th Floor 九重 2

Power Generation and Energy Conversion Analysis of Power Machinery

13:30-15:45	Chairman:

P530 13:30~13:45	Power generation and energy conversion analysis of power machinery **Ristiyanto Adiputra**, Research Center for Hydrodynamics Technology OREM-BRIN, Indonesia
P504 13:45~14:00	Experimental and Research Analysis of Aerodynamic Noise in Small Horizontal-Axis Wind Turbine Blades **Guo-Yuan Huang**, National Chung-Shan Institute of Science and Technology Aeronautical Systems Research Division, Taiwan
P507 14:00~14:15	Urban High-Rise Wind Power: Feasibility Research of Building-Integrated Wind Turbine Using Axial-Flux Permanent-Magnet Generator **Yu Jen Chen**, Southern Taiwan University of Science and Technology, Taiwan
P529 14:15~14:30	Ultimate Capacity of Designed Vertical Axis Ocean Current Turbine Blade: The Influence of Supporting Arm Distance **Aditya Rio Prabowo**, Universitas Sebelas Maret, Indonesia
P028 14:30~14:45	Use of Syngas Produced from Coconut Shells Fueled for a Petrol Engine Generator **Ekkachai Sutheerasak**, Burapha University, Thailand
P508 14:45~15:00	Design and Field Testing of Pelton Turbine Blades for Small-Scale Hydropower Generation in High and Low Head Flow Environments **Yu Jen Chen**, Southern Taiwan University of Science and Technology, Taiwan
P532 15:00~15:15	Experiment study on the skirting of a barge-type floating offshore wind turbine **Sharath Srinivasamurthy**, Saga University, Japan
P534 15:15~15:30	Comparison of Permanent Magnet Synchronous Motors in Terms of Slot Structure and Material Selection for Efficiency Improvement **Necibe Fusun Oyman Serteller**, Marmara University, Türkiye
P045 15:30~15:45	Improvements of a SI-Engine Generator to Use Bioethanol and Bioethanol-Water Blends **Mattana Santasnachok**, Burapha University, Thailand

Oral Session 3 (UTC+9)

Sunday, February 16, 2025	5th Floor 雲仙

Advanced Battery Design and Energy Storage Technology

13:30-15:45   Chairman:

P044
13:30~13:45

Parametric study of the compressed air energy storage system and analysis of financial feasibility

Ming-Hong Chen, National Atomic Research Institute, Taiwan

P128
13:45~14:00

Optimal Formation of Energy Communities under Technical-Spatial Constraints

Sérgio Ramos, Polytechnic of Porto, Portugal

P002
14:00~14:15

Health Prognosis of Lithium-Ion Batteries using CNN-SVR Fusion Model for Dynamic Discharge

Nitika Ghosh, Indian Institute of Technology Delhi, India

P010
14:15~14:30

Establishing a Certification System for the Field Project of Outdoor Battery Energy Storage System

Wei-Shan Lin, National Tsing Hua University, Taiwan

P013
14:30~14:45

Compariosn of Equivalent Circuit Model and LSTM-based Model for Battery Condition Estimation of Energy Storage Systems

Jun-Peng Wu, National Taiwan University of Science and Technology, Taiwan

P015-A
14:45~15:00

Numerical study on optimizing the charging performance of lithium-ion batteries based on structural electrode design

Taowen Zou, Sun Yat-sen University, China

P036
15:00~15:15

A Study on a Charge and Discharge Control Method of Multiple Storage Batteries Utilizing Machine Learning for Voltage Control in Distribution Grids

Nao Saito, Tohoku University, Japan

P073
15:15~15:30

Optimal BESS Scheduling with Real-Time Assessment for Time-of-Use Customers Using Particle Swarm Optimization

Alioune DIOUF, Kogakuin university, Japan

P098
15:30~15:45

A Novel Study on Suppressing Sodium Dendrites Using Coatings for Separator Based on the Piezoelectric Principle

Hong Zhao, Tiande Mo, HongKong Productivity Council, Hong Kong

Sunday, February 16, 2025	**5th Floor 霧島**

New Energy Generation and Utilization

13:30-15:45	Chairman:

P524-A 13:30~13:45	Navigating loadshedding: Investigating the adoption drivers and barriers of green energy in South Africa **Siphiwe Dlamini, Ghalieb Alli**, University of Cape Town, South Africa
P087 13:45~14:00	Hydrodynamic Analysis of Multi-Chamber Oscillating Water Column Device Using RANS Model **Amya Ranjan Ray**, Birla Institute of Technology and Science, India
P512 14:00~14:15	Harnessing Tidal Energy through Cableway Technology: the cableKites System **Yujie Feng**, Technical University of Munich, Germany
P148 14:15~14:30	Parameters Optimization of Oyster Wave Energy Converter Devices using Artificial Neural Network Model **Santanu Kumar Dash**, Birla Institute of Technology and Science-Pilani, India
P515-A 14:30~14:45	Mitigation of greenhouse gas emissions in Agriculture: adoption of bidistilled biofuel in diesel engine **Bárbara Teruel**, University of Campinas (UNICAMP) , Brazil
P518-A 14:45~15:00	Understanding Progress of Transition to Hydrogen Economy in Japan -Through a Survey of Hydrogen Experts **Kazumichi Tsukamoto**, Kyoto University, Japan
P528 15:00~15:15	Hydrodynamic Responses of OTEC Floating Platform in Operating and Dismantling States **Ristiyanto Adiputra**, Research Center for Hydrodynamics Technology OREM-BRIN, Indonesia
P546-A 15:15~15:30	Diagnosis of Local Damage in Discontinuous Cross-Section Components using MFL Method for Wind Turbine Tower Monitoring **Ju-Won Kim**, Dongguk University WISE, South Korea
P127 15:30~15:45	Integrating Autonomous Electric Vehicle Charging Stations in Local Energy Communities **Joao Soares**, Polytechnic of Porto, Portugal

Oral Session 5 (UTC+9)

Sunday, February 16, 2025	**5th Floor 高千穂 2**

Power Operation, Low-Carbon Power Trading and Energy Consumption Prediction

13:30-15:45	Chairman:

P520 13:30~13:45	Investigation of Cross-Sectional Aspect Ratios in Straight Flow Channels on PEMFC Performance Using OpenFOAM **Chakrit Suvanjumrat**, Mahidol University, Thailand
P046 13:45~14:00	Numerical Simulation of Void Growth in Electrical Solder Material **Thomas Jin-Chee Liu**, Ming Chi University of Technology, Taiwan
P059 14:00~14:15	Assessments of the Potential for Integrating Battery Energy Storage System into Vietnam National Grid **The-Anh Kieu**, Hanoi University of Science and Technology, Vietnam
P117 14:15~14:30	Low Carbon Charging Schedule of Electric Buses: Case Study in Denmark and Japan **Fumiaki Osaki**, Waseda University, Japan
P123 14:30~14:45	An adaptive class topper optimization for scheduling thermal generation with cubic fuel cost function **Pradeep Kumar Gupta**, Tallinn University of Technology, Estonia
P129-A 14:45~15:00	Co-Creation of Bio-Inspired Cooling Architectures with High Thermal Conductivity **Xiaolong Yang**, Nanjing University of Aeronautics and Astronautics, China
P135 15:00~15:15	Data-driven based Optimized Adjustment of Electricity Market's Medium-Long Term Contract Considering Autonomous Negotiation **Quan Ding**, Southeast University, China
P147 15:15~15:30	A Study on Deriving the Economic Critical Distance of LFAC Systems for Offshore Wind Power System **Seung-Yun Lee**, Mokpo National University, South Korea
P531-A 15:30~15:45	Study on Renewable Energies to Power Grid **Julius Agaka Yusufu**, Ashikaga University, Japan

Oral Session 6 (UTC+9)

Sunday, February 16, 2025   **5th Floor 九重 1**

Renewable Energy and Energy Management

16:00-18:00   Chairman:

P053 16:00~16:15	The Impact of High Penetration of Renewable Energy Generation to Locational Marginal Price and Security of Supply: Case Study at Mae Hong Son City Thailand **Patompong Boonsiri**, Chiang Mai University, Thailand
P062 16:15~16:30	A method for calculating the angle of attack applicable to the rotational speed range of tip speed ratio less than 1 in a turbine performance analysis model using aerodynamic characteristics **Kazuhisa Naoi**, Nihon University, Japan
P090 16:30~16:45	Impact of Sloping Lip Wall on the Efficiency of a Duct type OWC Device Placed over an Inclined Foundation **Santanu Kumar Dash**, Birla Institute of Technology and Science-Pilani, India
P097 16:45~17:00	Exploring Values and Perceptions of Renewable Energy in Taiwan from an Environmental Perspective: A Case Study on Geothermal Power **Han-Shen Chen**, Chung Shan Medical University, Taiwan
P107 17:00~17:15	Power Purchase Agreements in Sustainable Management for Firm and Power Generation **Yutaro Oga**, Tokyo University of Science, Japan
P113 17:15~17:30	A resilience management method for power outages with dynamic prioritization of consumer resources **Yutaka Iino**, Waseda University, Japan
P522 17:30~17:45	Enhancing Energy Security through Advanced Machine Learning for Renewable Energy in Isolated Areas: Insights from Mindanao, Philippines **Christine May Creayla Salvaloza**, Xavier University - Ateneo de Cagayan, Philippines
P544-A 17:45~18:00	Organization Readiness and Its Challenges for Business Transformation into Renewable and Clean Energy **Sally Bethesda Marpaung**, Yohana Endrawati, Pertamina, Indonesia

Oral Session 7 (UTC+9)

Sunday, February 16, 2025   **5th Floor 九重 2**

Digital Operation and Decision Analysis of Modern Power Grid

| **16:00-18:00** | Chairman: |

P023 16:00~16:15	Quantum Algorithms for Optimal Power Flow **Robert Benkoczi**, University of Lethbridge, Canada
P114 16:15~16:30	Impact of Hydrogen Storage and Flexible Load Management on Grid Emission Reduction **Joao Soares**, Polytechnic of Porto, Portugal
P131 16:30~16:45	Development of Composited Indices for Congestion Management in Low Voltage Distribution Network **Konepadith Phetsisouk**, Chiangmai University, Thailand
P142 16:45~17:00	Multi-timescale Distribution Network Optimization Based on Deep Transfer Reinforcement Learning **Junru Hu, Yi Zhang,** Southeast University, China
P058 17:00~17:15	Power System Operation as a Viable Island: The Australian Experience **Nanduni Nimalsiri**, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia
P143 17:15~17:30	Transient islanding constrained resilient planning of distribution system to achieve secure microgrid formation **Zongqiang Qi**, Southeast University, China
P116 17:30~17:45	A Reinforcement Learning Approach for Frequency-based Security Constrained Unit Commitment **Lesnanto Multa Putranto**, Universitas Gadjah Mada, Indonesia
P151 17:45~18:00	Electrical Load Forecasting Using Lstm for Power Stability **Danial Md Nor**, Universiti Tun Hussein Onn Malaysia, Malaysia

Oral Session 8 (UTC+9)

Sunday, February 16, 2025　　　　　　　　　**5th Floor** 雲仙

Photovoltaic System and Solar Energy Utilization

| **16:00-17:45** | Chairman: |

P080 16:00~16:15	Portable Off-Grid Solar Power Generation System for Emergency Energy Supply
	Fahmy Rinanda Saputri, Universitas Multimedia Nusantara, Indonesia
P115 16:15~16:30	Techno-Economic Analysis for Designing Renewable Energy Systems in El-Fasher City, Sudan
	Abuelgasim Musa Ibrahim Zakaria, Indian Institute of Technology Roorkee, India
P063 16:30~16:45	Temporal Hierarchy Reconciliation Network for PV Power Forecasting
	Yanru Yang, Tongji University, China
P089 16:45~17:00	Advancing EVA/SiC Hybrid Nanocomposite Encapsulation for Performance Optimization in Concentrated Solar Power Systems
	Hesham Ibrahem Fathi Mohamed, University Carlos III of Madrid (UC3M), Av. Universidad 30, Spain
P137 17:00~17:15	Challenges and Methodological Innovations in Developing a Digital Twin for Photovoltaic Inverters
	Oussama Idbouhouch, Green Energy Park (IRESEN/UM6P), LCCPS ENSAM (Hassan II University), Morocco
P535 17:15~17:30	The impacts of electricity tariffs on the optimal photovoltaic rooftop installation
	Pasist Suwanapingkarl, Rajamangala University of Technology Phra Nakhon, Thailand
P543-A 17:30~17:45	Investigating the Impact of Resonant Doping on the Thermoelectric Properties of Cubic Ge-Sb-Te Thin Films
	Suman Abbas, Institute of Atomic and Molecular Sciences (IAMS), Academia Sinica, Taiwan

Oral Session 9 (UTC+9)

Sunday, February 16, 2025   **5th Floor 霧島**

Distributed Energy Collaborative Optimization and Advanced Energy Storage Systems

16:00-18:00	Chairman:

P102
16:00~16:15

A Game-Theoretical Analysis of Retired Electric Vehicle Batteries in Energy Storage Markets

Yong Lyu, The University of Hong Kong, Hong Kong, China

P118
16:15~16:30

Design and develop a feasibility economics program for the optimal sizing of photovoltaic rooftop installation via using Google Worksheet

Kwanchanok Srivallop, Green KP Co., Ltd., Thailand

P121
16:30~16:45

Effects of Sea-bed Undulation and Front-wall Geometry on the Performance of a Bottom-seated OWC Device

Subhendu Paul, Birla Institute of Technology and Science- plani, Hyderabad Campus, India

P141
16:45~17:00

An Agent-based Model of Microgrids with Distributed Renewable Energy Sources

Gyu Yeon Kim, PENG DANYAO, Ewha Womans University, South Korea

P021
17:00~17:15

Development of an Optimization Algorithm for Interconnected Multi-Energy Systems Across Regions for Energy Independence

Jeongsoo Kim, Mokpo National University, South Korea

P124
17:15~17:30

AI-Driven Innovations in the Power Industry: Opportunities, Challenges, and Future Directions

Adeel Ahmed, Abdul Wahid Toor, University of Gujrat, Pakistan

P064
17:30~17:45

Model based travelling wave fault location in a treelike distribution network

Rustem Khuziashev, Kazan State Power Engineering University, Russia

P057
17:45~18:00

Study of Sinusoidal Switching Angle-Based Asymmetrical Multilevel Solar Inverter

Tapan Kumar Chakraborty, University of Asia Pacific, Bangladesh

Oral Session 10 (UTC+9)

Sunday, February 16, 2025	**5th Floor 高千穂 2**

New Control Models, Equipment Reliability and Safety Assessment in Smart Grids and Power Systems

16:00-18:00	Chairman:

P065 16:00~16:15	Design and Control of Active Magnetic Bearing for Desert Terrain Installed Wind Turbines
	Tamer Fawzy Megahed Abdeldayam, Egypt-Japan University of Science and Technology (E-JUST), Egypt
P070 16:15~16:30	Enhancing Power Transformer Reliability through Real-time Machine Learning Monitoring
	Sultan Shaqaq, Saudi Aramco, Saudi Arabia
P095 16:30~16:45	A Study of Impact of Environment Factor on Power System Equipment Partial Discharge Using Multi-Groups Analysis of Variance and Correlation Analysis
	Ding-Xue Wu, National Taipei University of Technology, Taiwan
P106 16:45~17:00	GaN Power HEMT with Breakdown Voltage >850 V Grown by MBE
	Eason Liao, Massphoton Limited, Hong Kong, China
P138 17:00~17:15	Predictive Charging Management for Battery Swapping Stations of Electric Scooters in Busan
	Jane Chung, Xiaomeng Peng, Ewha Womans University, South Korea
P022 17:15~17:30	Electric circuit Topology Design with Bandwidth Consideration in Wireless Power Transfer Systems
	Daewon Go, Mokpo National University, South Korea
P154 17:30~17:45	Dynamic Time Warping Technique for Condition Monitoring of High Voltage Circuit Breakers
	Sajjad Asefi, Tallinn University of Technologu, Estonia
P020 17:45~18:00	The Electrothermal Characteristics under Short-Circuit Stress in Planar Gate SiC MOSFETs
	Yourun Zhang, University of Electronic Science and Technology of China, China

Poster Exhibition (UTC+9)

P099-A	Design Optimization of Inverter Heat Sink for Enhancing the Cooling Performance in Electric Vehicle
	Changwan Kim, School of Mechanical Engineering, Konkuk University, South Korea
P149	Development of an Energy IoT-Based Real-Time Data Integration and Visualization System for PV-Storage-Charging Integration
	TBA
P1002	High-Dielectric Filler Effects on PVDF-Based MEMS Pressure Sensors: A COMSOL Study
	TBA

Online Session 1 (UTC+9)

Monday, February 17, 2025	Zoom Room A: 860 4954 4406

System Control Model and Equipment Functional Analysis in Modern Power Integration System

14:30-18:00	Chairman:

Part A

P017 14:30~14:45	RT-DETR-E: A Real-Time Model for Foreign Object Detection in UAV Inspection Power Lines **Zhao Minrui**, Lanzhou University of Technology, China
P018 14:45~15:00	Frequency control in the islanded smart microgrid via diesel-engine generator **Byungchul Kim**, University of Maryland at College Park, USA
P025 15:00~15:15	Dual closed-loop inverter control system based on quasi-PR and PI **Cheng Guangjie**, Dongguan University of Technology, China
P042 15:15~15:30	Design and Development of a Planar Flyback Transformer for Isolated Power Supply Applications **Md Abu Nayeem**, IIT Madras, India
P043 15:30~15:45	Machine Learning Approached for Sophisticated Relay to Mitigate Blackouts in Power System **Md. Shahadat Jaman**, Bangladesh University of Business and Technology, Bangladesh
P153 15:45~16:00	Effect of Ambient Temperature Variations on the Design and Performance of Dry-Type Transformers **Kamran Dawood**, Astor Enerji, Turkey
16:00~16:30	Break

Part B

P054 16:30~16:45	Comparative Impact Analysis of Factors Affecting Renewable Energy Integrated and Conventional Energy Sources In Smart Grids Using MATPOWER **Xin Wang**, Southern Illinois University Edwardsville, USA
P009 16:45~17:00	Impulse Polarity Effect on Soil-Enhancement Material Mixtures **Normiza Mohamad Nor**, Multimedia University, Malaysia
P092 17:00~17:15	Impact of Installing Lightning Arresters on Low Voltage Networks in Areas with High Lightning Incidence per Kilometer **Samuel Gandy Galvez Millan**, Jhosmel Willy Pardo Chancasanampa, Universidad Continental, Peru
P105 17:15~17:30	Impact of Commissioning a Static Var Compensator at the Loma Plata Substation **David Franco Leon**, National University of Asuncion UNA, Paraguay
P152 17:30~17:45	Technical and Economic Evaluation of Class F and Class H Insulation in Dry-Type Transformers **Kamran Dawood**, Astor Enerji, Turkey
P008 17:45~18:00	Impulse Breakdown Characteristics of Soil- Enhancement Material Mixtures **Normiza Mohamad Nor**, Multimedia University, Malaysia

Online Session 2 (UTC+9)

Monday, February 17, 2025	Zoom Room B: 886 2344 8689

Intelligent Power System and Energy Development

14:30-18:15	Chairman:

Part A

P019 14:30~14:45	Decentralized distributed online multiagent systems frequency control **Byungchul Kim**, University of Maryland at College Park, USA
P049 14:45~15:00	Multi-Location and Multi-Feature LMP Forecasting: A 2D Spatiotemporal LSTM-CNN Approach **Noelyn M. De Jesus**, Technological Institute of the Philippines, Philippines
P050 15:00~15:15	IoT-Based Electronic Nose for Detecting NPK Nutrients of Chicken Manure **Vincent Emerenciana**, Mapua University, Philippines
P056 15:15~15:30	Effect of Various Parameters on Hot Spot Heating Power of Parallel Cell Cluster Type PV Module **Sho Kubota**, Kanagawa Institute of Technology, Japan
P076 15:30~15:45	Emissions-Aware Energy Storage Decision Based on Deep Reinforcement Learning **Jiachi Wang**, Tsinghua University, China
P112 15:45~16:00	Optimized Microgrid Implementation Strategy: a Model for Energy and Profit Efficient ESS **Cristian Giovanni Colombo**, Politecnico di Milano, Italy
P132 16:00~16:15	Economic Analysis of Typical Models of Renewable Hydrogen Production via Electrolysis **Xifeng Zhang**, State Grid Energy Research Institute, State Grid Corporation of China (SGCC), China
16:15~16:30	Break

Part B

P144 16:30~16:45	Machine Learning based Energy Management System for Smart Buildings **Aziza Hussein**, Effat University, Saudi Arabia
P075 16:45~17:00	Analyzing the Effect of the Uncertainty Parameters on the Technical Virtual Power Plant's Optimal Operating Schedule **Huyen Nguyen-Thi**, Hanoi University of Science and Technology, Vietnam
P083 17:00~17:15	Virtual Inertia Compound Control Strategy for Interconnection System with Wind Turbines **Shuang Wang**, State Grid Shanghai Electric Power Company, China
P067 17:15~17:30	Big-Data Modeling Based Simscape Power Systems-ST for Protective Relaying **Teukam Dabou Raoult**, Université du Québec en Abitibi-Témiscamingue, Canada
P108 17:30~17:45	An Aumann-Shapley Approach to Allocate Capacity Deferral Benefit Among Distributed Energy Resources **Shilpa Bindal**, Indian Institute of Technology Delhi, India

P521 17:45~18:00	Evaluating the Role of Thermal Energy Storage in the Performance of Concentrated Solar Power Plants
	Fatma Al-Failkawi, Kuwait Institute for Scientific Research, Kuwait
P1004 18:00~18:15	SUSTAINABLE ENERGY HARVESTING TECHNOLOGY FOR E-BICYCLE
	TBA

Kun-Long Chen	National Taiwan University of Science and Technology, Taiwan
Seungmin Rho	Chung-Ang University, South Korea
ChihHung-Lu	Bureau of Standards, Metrology, and Inspection (BSMI), MOEA in Taiwan, Taiwan
Zong Woo Geem	Gachon University, South Korea
DONGMYUNG LEE	Hongik University, South Korea
Soohyun Kim	KAIST, South Korea
Hammad Hamad Alnuman	Jouf University, Saudi Arabia
Jaehyeong Lee	Mokpo National University, South Korea
Andrew Stow	Taylor & Francis, Japan
Haejoon Jung	Kyung Hee University, South Korea
Kazuya Ito	Tokyo University of Science, Japan
Ryuta Takashima	Tokyo University of Science, Japan
Muhamad Imam Firdaus	Surabaya Merchant Marine Polytechnic, Indonesia
SOPHIE EBOT AGBORABNAG	SOPHIA UNIVERSITY, CAMEROONIAN
Sri Juni Kuntari	Pertamina, Indonesia
April M. Salazar	Xavier University - Ateneo de Cagayan, Philippines
Manoj Datta	NA

One Day Tour (UTC+9)

Monday, February 17, 2025	**8:00~17:00**

8:00	Pick up from TKP Garden City Hakata
9:40	Kumamoto Castle 熊本城（60mins）
12:00	Kusasenri 草千里（60mins）+ Lunch
13:00	Mount Aso Crater 阿蘇火山口 (20mins)
14:30	Kurokawa Onsen 黒川温泉 (80mins)
17:00	Back to Hakata Station

Note

※ Please arrive at TKP Garden City Hakata before 8am.

※ The fee includes pick-up and lunch, tickets for scenic spots. Hot springs are not included.

※ **If you have a cold or are feeling unwell, it is recommended not to attempt to soak in the hot spring. Before soaking, you should fully assess your own health condition. People with chronic conditions such as high blood pressure or heart disease should consult a doctor before deciding whether it is suitable for them to use the hot spring. Pregnant women, the elderly, and those with weak constitutions should also take extra caution to avoid discomfort caused by excessive heat or dehydration.**

※ Please take good care of your valuables at any time during the tour. The conference organizer does not assume any responsibility for the loss of personal belongings of the participants during the tour.

※ Wear a Mask. Make sure your mask fits well with the nose clip.

Kumamoto Castle 熊本城
Kumamoto Castle is a hilltop Japanese castle located in Chūō-ku, Kumamoto, in Kumamoto Prefecture. It was a large and well-fortified castle. The castle keep is a concrete reconstruction built in 1960, but a number of ancillary wooden buildings remain of the original castle.

Kusasenri 草千里 Mount Aso Crater 阿蘇火山口
Tranquil, grass-covered plateau with paths & views of Mt. Aso, Japan's largest active volcano.

Kurokawa Onsen 黒川温泉

Kurokawa Onsen is one of Japan's most attractive hot spring towns, located in the middle of Kyushu about 20 kilometers north of Mount Aso. Well coordinated efforts by the town to maintain a pleasant, traditional atmosphere have kept Kurokawa free of the massive concrete hotels, neon advertisements and loud colors that are encountered in many of Japan's other resort towns.

Note