CONFERENCE PROGRAM

QINGDAO, CHINA ◆ JULY 25-27, 2025

2025 8TH ASIA CONFERENCE ON ENERGY AND ELECTRICAL ENGINEERING

ACEEE 2025

2025年第8届亚洲 能源与电气 工程会议

Co-sponsored by

QINGDAO UNIVERSITY · IEEE · IEEE PES Power & Energy Society · BIEET

Co-hosted by

QINGDAO UNIVERSITY 电气工程学院 COLLEGE OF ELECTRICAL ENGINEERING

University of Electronic Science and Technology of China 电子科技大学 机械与电气工程学院 School of Mechanical and Electrical Engineering

Supported by

KING MONGKUT'S UNIVERSITY OF TECHNOLOGY NORTH BANGKOK

Media Partner

DU 供用电 Distribution & Utilization

TABLE OF CONTENT

GENERAL INFORMATION

| A | Conference Venue & Zoom Meeting ID |

青岛海天金融中心酒店
Qingdao Haitian Financial Center Hotel

山东省青岛市崂山区仙霞岭路 29 号
29 Xianxialing Road, Laoshan District, Qingdao, Shandong

请参会人员参照以下方式自行预订：

客房预订：梁珂 Ms. Liang Ke, (0086) 17806266119

备注：订房请告知酒店是青岛大学主办 ACEEE 会议的参会人员。

zoom
Download (Click)
Conference Banner (Click)
Zoom Background (Click)

Meeting Room	Zoom ID	Meeting Link
A	889 8100 1524	https://us02web.zoom.us/j/88981001524
B	857 9049 9806	https://us02web.zoom.us/j/85790499806

◆Name Setting

Keynote Speaker: Keynote-Name

Committee: Position-Name

Author: Paper ID-Name

Delegate: Delegate-Name

| B | Onsite Registration |

Registration desk (Hotel Lobby) → Inform the staff of your paper ID→ Sign-in→ Claim your conference kit.

| C | Devices Provided by the Organizer |

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

Poster Session: Double-sided poster stan

| D | Devices Provided by the Organizer |

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

Poster Session: A1 (Length: 841mm, width:594mm) size poster. Please bring the poster to registration desk on conference day.

GENERAL INFORMATION

E	Duration of Each Presentation

Keynote Speech: 40min, including Q&A.   Invited Talk: 20min, including Q&A.

Oral Session: 15min, including Q&A.   Poster Session: 10min, including Q&A.

F	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.

※ **UTC+8, China Standard Time (CST).** Please be aware of time difference between this and your region/country.

G	Contact Us

ACEEE 2025 Secretary: Ms. Ainmire Chang

E-mail: aceee@vip.163.com   Tel.: +86-028-83207566   Web: www.aceee.net

WELCOME MESSAGE

Dear All,

Welcome to 2025 8th Asia Conference on Energy and Electrical Engineering (ACEEE 2025). ACEEE 2025 will be held in Qingdao, China from July 25 to 27, 2025, which is co-sponsored by Qingdao University, China, IEEE, IEEE PES and Beijing CAS Industrial Energy and Environment Technology Institute (BIEET), co-hosted by College of Electrical Engineering (Qingdao University) and the School of Mechanical and Electrical Engineering (University of Electronic Science and Technology of China, China), supported by King Mongkut's University of Technology North Bangkok, Thailand.

2025 Qingdao conference will consist of 4 keynote speeches, delivered by Prof. Loi Lei Lai (Guangdong University of Technology, Guangzhou, China), Prof. Hossam A. Gabbar (Ontario Tech University, Canada), Prof. Yang Han (University of Electronic Science and Technology of China (UESTC), China), and Prof. Ronggang Ni (Qingdao University, China).

6 invited talks from Prof. Chumin Wang (National Autonomous University of Mexico, Mexico), Dr. Jiayi Kong (Beijing Institute of Graphic Communication, China), Prof. M. Mofazzal Hossain (Southeast University, Bangladesh), Dr. Zongshuai Jin (Shandong University, China), Prof. Dr. Saim Memon (Birmingham City University, UK), and Mr. Zhengjun Bi (Jilin Provincial Electric Power Research Institute Co., Ltd., China), followed by 3 special sessions, 1 oral session, 2 poster sessions, and 2 online sessions.

It is pleasing to note that the agenda of this conference covers a wide range of interesting topics related to all theoretical and practical aspects, but not limited to Advanced Power Electronics Technologies for Renewable Energy, Storage, and Grid Integration; Data-Model Dual-Driven Digital Twin Modeling and Application for Power Distribution Networks; Power Generation, Operation and Trading Strategies Based on Renewable Energy; Distributed Robust Predictive Control and Stability Enhancement for Power Transmission Networks, etc.

The papers in the proceedings are accepted after being peer-reviewed by conference committee, international reviewers based on the topic and quality. With the keynote speeches, invited speeches, parallel sessions, we'll have an exciting program this year, which will allow participants to present and discuss the latest research and industrial developments in these fields.

On behalf of the organizing committee, we would like to deeply express our heartfelt appreciation to all our delegates, keynote speakers, invited speakers, session chairs, as well as all the committee members involved in the technical evaluation of conference papers and in the organization of the conference for their time, effort, and great contributions.

We also wish that these conferences will be an unforgettable and wonderful experience for you.

With Warmest Regards,

Conference Organizing Committees

ACEEE 2025

Qingdao

CONFERENCE COMMITTEE

Advisory Committees:

Loi Lei Lai, Guangdong University of Technology, Guangzhou, China (IEEE Fellow)

Kai Sun, University of Tennessee, USA (IEEE Fellow)

Conference General Chairs:

Zhisheng Zhang, Qingdao University, China

Ronggang Ni, Qingdao University, China

Conference General Co-Chairs:

Yang Han, University of Electronic Science and Technology of China, China (IEEE PES Senior Member)

Hailiang Xu, China University of Petroleum, China (IEEE Member)

Guochang Li, Qingdao University of Science and Technology, China (IEEE Member)

Local Organizing Chairs:

Rui You, Qingdao University, China (IEEE Member)

Xiaoqin Zheng, Qingdao University, China (IEEE Member)

Jie Yu, Qingdao University, China (IEEE PES Member)

Qingzeng Yan, China University of Petroleum, China (IEEE Member)

Yanhui Wei, Qingdao University of Science and Technology (IEEE Member)

Program Chairs:

Tao Zhao, Qingdao University, China (IEEE PES Member)

Haifeng Wang, Qingdao University, China (IEEE PES Member)

Program Co-Chairs:

Yinuo Huang, Qingdao University, China

Nedim Tutkun, Istanbul Ticaret University, Turkey (IEEE Member)

Kaikai Pan, Zhejiang University, China (IEEE PES Member)

Publicity Chairs:

Xiangmin Xie, Qingdao University, China (IEEE Member)

Yujing Li, Qingdao University, China

Hui Hou, Wuhan University of Technology (WHUT), China

Publication Chairs:

Zhihao Wei, Qingdao University, China (IEEE Member)

Yuyan Wang, Southwest University, China

CONFERENCE COMMITTEE

Conference Treasurer:

Xiangqiong Liao, Southwest Petroleum University, China

Technical Program Committees:

Guangjun Tan, Yanshan University, China

Yanliang Xu, Shandong University, China

Hongwei Li, Shandong University, China

William Huacho Ichpas, Continental University, Huancayo, Perú

Qiuhua Fan, Qingdao University, China

Xuewei Xiang, Chongqing University, China

Gaoyang Shi, Tongji University, China

Jian Wei, Northeast Forestry University, China

Qiang Xie, Tongji University, China

Xingtian Feng, China University of Petroleum, China

Caitang Sun, Jilin University, China

Futian Qin, Qilu University of Technology (Shandong Academy of Sciences), China

Mehmet Şimşir, Karabük University, Turkey

Haiqing Chang, Xiamen University of Technology, China

Chumin Wang, National Autonomous University of Mexico, Mexico

Zhengjun Bi, Electric Power Research Institute of State Grid Jilin Electric Power Company Limited, China

Ma Ming, Electric Power Research Institute of Guangdong Power Grid Co., Ltd, China

Jiayi Kong, Beijing Institute of Graphic Communication, China

Gang Li, Jilin University, China

Guorui Xu, North China Electric Power University, China

Li Li, Beijing Information Science and Technology University, China

Masita Mohammad, Universiti Kebangsaan Malaysia, Malaysia

Jaroslaw Krzywanski, Jan Dlugosz University in Czestochowa, Poland

Farhad SHAHNIA, Murdoch University, Australia

Ock Taeck Lim, University of Ulsan, Ulsan, South Korea

Ricardo Nuno Madeira Soares Branco, University of Coimbra, Portugal

Malinee Sriariyanun, Malinee Sriariyanun King Mongkut's University of Technology North Bangkok, Thailand

Emin Selahattin UMDU, Yasar University, Turkey

Adel Sharaf, University Newbrunswick, Canada

Ali Cheknane, Amar Telidji University of Laghouat, Algeria

Pichet NINDUANGDEE, Phetchaburi Rajabhat University, Thailand

Saim Memon, University of Huddersfield, UK

Liew Hui Fang, Universiti Malaysia Perlis, Malaysia

Jiayi Kong, Beijing Institute of Graphic Communication, China

Yingqiang Shang, Beijing Electric Power Company, State Grid Corporation China, China

AGENDA OVERVIEW (UTC+8)

| Friday, July 25, 2025		
Onsite Registration	13:00-17:00	1F Lobby, Qingdao Haitian Financial Center Hotel 1F 青岛海天金融中心酒店 大厅
Zoom Test for Online Presenters	14:00-16:00	**Zoom** Room A: 889 8100 1524

Zoom Test Timetable

✧ Participants who are going to do an online presentation are required to join the rehearsal in Zoom on **Friday, July 25, 2025**. Duration: 2-3min apiece. Feel free to leave after you finish the test.

✧ Please get your presentation slides and computer equipment prepared beforehand.

14:00-14:30	EE310 EE317 EE324 EE332 EE343 EE356 EE365 EE367 EE377 EE3003 EE363
14:30-15:00	EE321 EE304 EE306 EE344 EE374 EE384 EE407 EE3010, EE376
15:00-16:00	Other online participants, includes but not limited to keynote speakers, invited speakers, session chairs, committee members, delegates. Participants who are unavailable during the above allocated time can also join the rehearsal at 15:00-16:00.

Zoom Guidance

You can join the meeting without sign-in process.
Just put the meeting ID and join us.

URL: https://zoom.us/download
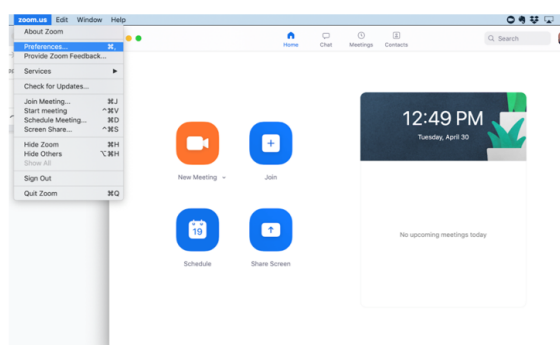
Each meeting has a unique **9, 10, or 11-digit** number called a **meeting ID** that will be required to join a Zoom meeting.

For any questions on the meeting day, you can text privately to "Assistant" for help.
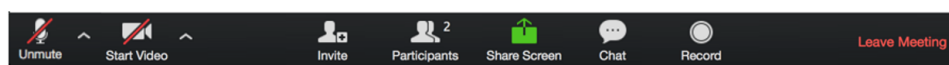
Audio muted and video off (both indicated by a red slash).

Click to open the Participants box. This will allow you to "Raise Hand".

To share screen or contents.

Click to open the Chat box. This will allow you to chat with Hosts and Participants.

JULY 25-27, 2025   QINGDAO, CHINA

AGENDA OVERVIEW (UTC+8)

Saturday, July 26, 2025 | Plenary Meeting		
宴会厅 **Ballroom 4 | 3F**		zoom **Room A: 889 8100 1524**
CHAIRPERSON: **Tao Zhao**（赵涛），Associate Professor, Qingdao University, China | Conference Program Chair		
09:00-09:10	OPENING REMARKS **Ronggang Ni**（倪荣刚） Professor, Qingdao University, China | Conference General Chair	
09:10-09:50	KEYNOTE SPEECH I **Loi Lei Lai**（赖来利） Professor, Guangdong University of Technology, Guangzhou, China | IEEE Life Fellow, IET Fellow Speech Title: Machine Learning for Smart Cities	
09:50-10:30	KEYNOTE SPEECH II **Hossam A. Gabbar** Professor, Ontario Tech University, Canada | IET Fellow Speech Title: Resilient Hybrid Energy and Transportation Infrastructures	
10:30-11:00	Group Photo & Coffee Break 3F	
11:00-11:40	KEYNOTE SPEECH III online **Yang Han**（韩杨） Professor, University of Electronic Science and Technology of China (UESTC), China Speech Title: Modeling and Control of Power Electronic Converters for Microgrid Applications	
11:40-12:20	KEYNOTE SPEECH IV **Ronggang Ni**（倪荣刚） Professor, Qingdao University, China Speech Title: Sensorless Control of PMSM using Single Current Sampling	
12:20-13:30	Lunch Buffet <宴会厅 Ballroom 3 | 3F >	

Saturday, July 26, 2025 | Parallel Session (Onsite)		
13:30-16:05	**Special Session 1: Advanced Power Electronics Technologies for Renewable Energy, Storage, and Grid Integration** *Chairperson: Assoc. Prof. Tao Zhao, Qingdao University, China* Invited Talk: Prof. Chumin Wang EE357, EE325, EE350, EE3019, EE369, EE392, EE3020, EE393, EE362-A	3F 会议室 1 Meeting Room 1
	Special Session 2: Data-Model Dual-Driven Digital Twin Modeling and Application for Power Distribution Networks *Chairperson: Assoc. Prof. Xiangmin Xie, Qingdao University, China* Invited Talk: Dr. Jiayi Kong EE371, EE368, EE391, EE408, EE385, EE389, EE3023, EE3018, EE3024	3F 会议室 2 Meeting Room 2
	Poster Session 1: Control Model and Stable Operation of Digital Distribution System *Chairperson: Dr. Zongshuai Jin, Shandong University, China* EE314, EE322, EE323, EE330, EE331, EE334, EE339, EE372, EE380, EE386, EE388, EE394, EE3012, EE315, EE351	3F

15:30-16:00		Coffee Break 3F
16:05-18:35	**Special Session 3: Protection and Fault Location Principles of Offshore Clean Energy Power Generation System and Transmission System** *Chairperson: Dr. Jiayi Kong, Beijing Institute of Graphic Communication, China* EE366, EE381, EE3004, EE3005, EE3008, EE360, EE3009, EE3017, EE3016, EE354	3F 会议室 1 Meeting Room 1
	Oral Session: Power Generation, Operation and Trading Strategies Based on Renewable Energy *Chairperson: Prof. M. Mofazzal Hossain, Southeast University, Bangladesh* Invited Talk: Prof. M. Mofazzal Hossain & Dr. Zongshuai Jin EE305, EE309-A, EE340, EE353, EE361, EE3007, EE3011	3F 会议室 2 Meeting Room 2
	Poster Session 2: Clean Energy Based Power Generation System and Advanced Control Strategy *Chairperson: Prof. Chumin Wang, National Autonomous University of Mexico, Mexico* EE320, EE335, EE336, EE337, EE352, EE358, EE359, EE387, EE395, EE3013, EE3014, EE3015, EE3021, EE3022, EE390	3F
18:40-21:00		Dinner Buffet < Cafeteria 海风自助餐厅 4F >

Sunday, July 27, 2025 | Parallel Session (Online)		
09:00-12:05	**Online Session 1: Distributed Robust Predictive Control and Stability Enhancement for Power Transmission Networks** *Chairperson: Dr. Guang Chen, State Grid (Suzhou) Energy & City Research Institute, China* Invited Talk: Assoc. Prof. Kaikai Pan EE310, EE317, EE324, EE332, EE343, EE356, EE365, EE367, EE377, EE3003, EE363	zoom Room A: 889 8100 1524
	Online Session 2: New Motor Design and Electrical Performance Analysis *Chairperson: Assoc. Prof. Jian Wei, Northeast Forestry University, China* Invited Talk: Prof. Saim Memon & Mr. Zhengjun Bi EE321, EE304, EE306, EE344, EE374, EE384, EE407, EE3010, EE376	zoom Room B: 857 9049 9806

Note: We will take a group photo at the end of each online session, please stay in the meeting room until your session is finished.

INTRODUCTION OF KEYNOTE SPEAKER

Loi Lei Lai 赖来利

Professor, IEEE Life Fellow, IET Fellow
Guangdong University of Technology, Guangzhou, China

Speech Title: Machine Learning for Smart Cities

Abstract: This talk covers some important topics associated with machine learning research and application to systems such as microgrid control & management, health, mobility and education. To achieve net-zero emissions by 2050/2060, and mitigate global warming, people need to promote sustainability and adopt renewables. Smart energy network control, operation, management, and planning will play a key role in a carbon-neutral society. Major environmental, economic, and technological challenges such as climate change, economic restructuring, pressure on public finances, cyber security, digitalization of the retail and entertainment industries, and growth of urban and ageing populations have generated huge interest for cities to be run differently and smartly. There is a consideration in urban air mobility to provide service for inter- or intra-urban transport in alleviating environmental problems, due to the use of electric vertical take-off and landing aircraft. Also, there is study in an energy efficient memristive sequence network for human emotion classification in mental health monitoring. Some current international research and development activities will be reported, future directions and the importance of various readiness levels will be discussed.

Bio: Loi Lei Lai (Life Fellow, IEEE) received the B.Sc. (First-Class Hons.) and Ph.D. degrees in electrical and electronic engineering from the University of Aston, Birmingham, U.K., in 1980 and 1984, respectively, and the D.Sc. degree in electrical and electronic engineering from the City, University of London, London, U.K., in 2005. He is currently a University Distinguished Professor with the Guangdong University of Technology, Guangzhou, China. He was a Pao Yue Kong Chair Professor with Zhejiang University, Hangzhou, China, and the Professor and the Chair of Electrical Engineering with the City, University of London. His current research areas are in smart cities and smart grid. He was awarded an IEEE Third Millennium Medal, the IEEE Power and Energy Society (IEEE/PES) UKRI Power Chapter Outstanding Engineer Award in 2000, a Special Award from the City, University of London in 2005 and is its honorary graduate, the IEEE/PES Energy Development and Power Generation Committee Prize Paper in 2006 and 2009, the IEEE/SMCS Outstanding Contribution Award in 2013 and 2014, the Most Active Technical Committee Award in 2016, and his research team received a Best Paper Award in the IEEE International Smart Cities Conference in October 2020. He is an Associate Editor of the IEEE Transactions on Systems, Man, and Cybernetics: Systems, the Editor-in-Chief of the IEEE Smart Cities Newsletter, a member of the IEEE Smart Cities Steering Committee, and the Chair of the IEEE Systems, Man, and Cybernetics Society (IEEE/SMCS) Standards Committee. He was a member of the IEEE Smart Grid Steering Committee; the Director of the Research and Development Center, State Grid Energy Research Institute, China; a Vice President for Membership and Student Activities with IEEE/SMCS; a Fellow Committee Evaluator for the IEEE Industrial Electronics Society; and an IEEE PES Lifetime Achievement Award Assessment Committee Member. He is a Fellow of IET.

INTRODUCTION OF KEYNOTE SPEAKER

Hossam A. Gabbar

Professor, IET Fellow

Ontario Tech University, Canada

Speech Title: Resilient Hybrid Energy and Transportation Infrastructures

Abstract: This talk will present development strategies of hybrid energy systems and transportation charging stations and their integration witihn energy and transportation infrastructures. The design and control strategies of hybrid energy systems and integrations with fast charging stations will be presented with hybrid energy storage. Modeling and simulation approaches will be discussed and utilized in case studies. Hardware-in-the-loop and real time simulation are used to evaluate the proposed design and implementation scenarios. Integrated nuclear-renewable hybrid energy systems using Small Modular Reactor (SMR) or Micro Modular Reactor (MMR) wihitn micro energy grids are used to achieve resilient energy supply within charging stations. Intergation betweeen hyrdogen and fuel cell systems are demonstrated to achieve hybrid charging stations and support the transition to clean transportation. Transactive mobility will be discussed to support the deployment of charging stations within energy and transportation infrastructures, as integrated with community applications in city, urban, and remote communities. Performance measures are modeled and evaluated for different design and operation strategies. Resiliency and performance measures will be discussed in view of number of operation and control strategies to meet user requirements.

Bio: Dr. Gabbar is a full Professor in the Department of Energy and Nuclear Engineering, the Faculty of Engineering and Applied Science, at Ontario Tech University (UOIT), where he has established the Energy Safety and Control Lab (ESCL), Smart Energy Systems Lab, and Advanced Plasma Engineering Lab. He is the recipient of the Senior Research Excellence Aware for 2016, UOIT. He is recognized among the top 2% of worldwide scientists with high citation in the area of energy. He is a Fellow IET (FIET) and a Distinguished Lecturer – IEEE NPSS on Nuclear-Renewable Hybrid Energy Systems and Plasma-based Waste-to-Energy. He is leading national and international research in the areas of smart energy grids, energy safety and control systems, and waste-to-energy using advanced plasma technologies. Dr. Gabbar obtained his B.Sc. degree in 1988 with first class of honor from the Faculty of Engineering, Alexandria University (Egypt). In 2001, he obtained his Ph.D. degree from Okayama University (Japan). From 2001 till 2004, he joined Tokyo Institute of Technology (Japan), as a research associate. From 2004 till 2008, he joined Okayama University (Japan) as an Associate Professor, in the Division of Industrial Innovation Sciences. From 2007 till 2008, he was a Visiting Professor at the University of Toronto. He also worked as process control, safety, and automation specialist in energy and oil & gas industries. Dr. Gabbar has more than 290 publications, including patents, books / chapters, journal and conference papers.

INTRODUCTION OF KEYNOTE SPEAKER

Yang Han 韩杨

Professor, University of Electronic Science and Technology of China (UESTC), China

Speech Title: Modeling and Control of Power Electronic Converters for Microgrid Applications

Abstract:

Bio: Yang Han (S'08-M'10-SM'17) received the Ph.D. degree in Electrical Engineering from Shanghai Jiaotong University (SJTU), Shanghai, China, in 2010. In 2010, he joined the University of Electronic Science and Technology of China (UESTC), Chengdu, China, where he has been an Associate Professor in 2013, and Full professor in 2021. From March 2014 to March 2015, he was a Visiting Scholar with the Department of Energy Technology, Aalborg University, Aalborg, Denmark. He is currently with the School of Mechanical and Electrical Engineering, UESTC. His research interests include the ac/dc microgrids, active distribution networks, power quality, grid-connected converters for renewable energy systems, active power filters, multilevel converters, and static synchronous compensators (STATCOMs).

Dr. Han has received several national and provincial projects, and more than 30 industrial projects in the area of power electronics, smart grid, microgrid, and power quality analysis and compensation. He holds more than 40 issued and pending patents. Dr. Han was listed as "World's Top 2% Scientist 2022" by Stanford University in 2022, and the recipient of the Young Scientist Award in CPESE 2021, the Provincial Science and Technology Award in 2020 and 2022, Science and Technology Award from Sichuan Electric Power Company in 2019, Academic Talent Award by UESTC, in 2017, Baekhyun Award by the Korean Institute of Power Electronics, in 2016.

He has published a book "Modeling and Control of Power Electronic Converters for Microgrid Applications", ISBN: 978-3-030-74512-7, Springer. He served as an Associate Editor of Journal of Power Electronics and IEEE ACCESS (2019-2020).

INTRODUCTION OF KEYNOTE SPEAKER

Ronggang Ni 倪荣刚

Professor, Qingdao University, China

Speech Title: Sensorless Control of PMSM using Single Current Sampling

Abstract: In the realm of AC variable frequency drive systems, Permanent Magnet Synchronous Machines (PMSMs) are highly favored for their remarkable efficiency, high power density, and uncomplicated mechanical structure. Motor systems consume nearly half of the world's electricity, and in the industrial and home appliance Fields, motor energy consumption accounts for the majority. The technology of single current sampling and position sensorless control can simplify hardware, reduce costs and improve efficiency, which is a research direction that has attracted attention in recent years. Position sensorless control of PMSMs offers notable advantages in enhancing reliability and reducing system cost. However, the reliability of position sensorless control, particularly at low speeds, is impacted by the distortion of applied voltage and reconstruction error of phase current caused by the unmeasurable regions when using single DC current sampling.

This report presents the state-of-the-art of phase current reconstruction techniques using single DC current sensor along with position sensorless control. Additionally, it proposes the GINFORM (Generalized INdirect Flux detection by Online Reactance Measurement) method to minimize the negative impact of unmeasurable regions and enhance control reliability. Furthermore, a variable carrier frequency modulation strategy is introduced to improve the current loop bandwidth and dynamic performance.

The report provides experimental results from a 2.2kW PMSM platform to validate the effectiveness of the proposed GINFORM method under single current sampling. It also demonstrates the higher current loop bandwidth and better dynamic performance achieved with the variable carrier frequency modulation strategy compared to conventional methods.

Bio: Ronggang Ni received the B.S., M.S. and Ph.D. degrees from Harbin Institute of Technology, Harbin, China, in 2010, 2012 and 2017, respectively, all in electrical engineering. From 2015 to 2016, he was a visiting scholar at Aalborg University, Denmark. In 2017, he was with the Shanghai STEP Electric Corporation, Shanghai, China. From 2018, he has been with Qingdao University, Qingdao, China, and currently a full professor and the vice dean of the School of Electrical Engineering. His research interests include electric machine design and drive. Dr. Ni is a senior member of IEEE, and member of IEEE VTS VPP committee. He is PI of several projects granted by National Science Foundation of China and Shandong Province, and the leader of Shandong Provincial Innovation Team on new energy transportation and electric drive. He has authored and coauthored more than 30 technical papers and holds 13 patents. He was awarded the First Prize of Technological Invention of the Shandong Association of Automation, and the Second Prize of Science and Technology Advancement of Qingdao City.

INTRODUCTION OF INVITED SPEAKER

Chumin Wang

Professor, National Autonomous University of Mexico, Mexico

Speech Title: Quantum Theory of Exciton Dissociation in Organic Photovoltaic Devices

Abstract: Sunlight is the most plentiful source of clean energy, providing to the earth in one hour enough energy for current human needs of one year. In addition, photovoltaic devices based on organic semiconductors possess many remarkable advantages in comparison with the inorganic technology, such as flexibility, transparency, low weight and inexpensive manufacture. Hence, understanding the kinetics of light-generated excitons around the organic donor-acceptor heterojunction may significantly improve the performance of such solar cells. In this talk, we present a quantum mechanical theory of molecular photocells based on a coarse-grained attractive Hubbard Hamiltonian, where the transport and dissociation of excitons are analyzed on an excitonic state lattice containing impurity sites originated from the attractive electron-hole interaction. The presence of these impurity sites prevents the use of reciprocal space and then, the numerical calculation was carried out by means of an independent channel plus real-space renormalization method, where the competition between the driving force from heterojunction and the Coulomb attraction leading to an electron-hole recombination has been explicitly addressed. The results reveal an optimal distance between molecular photocells to achieve the maximum quantum efficiency, in accordance with numerous experimental reports about the optimal concentration of donor molecules. Moreover, the calculated quantum efficiency has good agreement with those obtained from diverse organic photovoltaic devices, such as bilayer, perovskite and inverted solar cells. This research was partially supported by projects CF-2023-I-830, UNAM-IN110823 and LANCAD-UNAM-DGTIC-039.

Bio: Prof. Wang received the B.S., M.S., and Ph.D. degrees in physics from the National Autonomous University of Mexico (UNAM). He was a Postdoctoral Associate at the Department of Physics, University of California, Berkeley, from 1993 to 1994. He is currently a tenure-track full professor at the Materials Research Institute of the UNAM. His research interests include strongly correlated electron systems and elementary excitations in organic solar cells, as well as in porous semiconductors.

INTRODUCTION OF INVITED SPEAKER

Saim Memon

Professor, Birmingham City University, UK

Speech Title: The Industrial Inventions of Vacuum Insulation Energy Savings Technologies for Net-Zero Energy Infrastructure and Sustainability Goals

Abstract: Escalating energy demand, rising fuel costs and tightening carbon-emission targets highlight the urgent need for envelope-scale solutions that reduce heat transfer without compromising space or aesthetics. Vacuum-based insulation systems uniquely satisfy these requirements because, by evacuating air to pressures below 10 Pa, they suppress both conductive and convective heat flow to near-negligible levels. This paper presents a consistent performance appraisal of the author's portfolio of vacuum insulation technologies—standard Vacuum Insulation Panels (VIP), Decorative Integrated VIP (DVIP), Vacuum-Insulated Bags-or-Boxes (VIBB), Vacuum-Insulated Heatable Curtains (VIHC) and Vacuum-Insulated Curtains (VIC)—all progressed from laboratory concept (TRL 1) to full prototyping or commercial readiness (TRL 9). Fibreglass-core VIPs 15 mm thick achieve thermal conductivities of 2.5 mW m^{-1} K^{-1} and centre-of-panel U-values of 0.16 W m^{-2} K^{-1}; 25 mm fumed-silica VIPs attain 4.5 mW m^{-1} K^{-1} and U $\approx$ 0.17 W m^{-2} K^{-1}. These panels form the thermal heart of the 30 mm Decorative Integrated VIP, which embeds the vacuum core between calcium–silicate back and Mid-Century-Modern or metal façades, delivering $\lambda \approx$ 7 mW m^{-1} K^{-1} while meeting EN 13501-1 Class A1/A2 non-combustibility and surviving accelerated ageing for $\geqslant$ 35 years. Vacuum-Insulated Wallpaper (VIW)—a 4 mm laminate containing 3 mm VIPs—offers $\lambda \approx$ 5 mW m^{-1} K^{-1} and can be supplied as 200 × 200 mm self-adhesive tiles to minimise damage propagation and simplify DIY installation. When retrofitted to solid masonry in London, VIW lowers wall U-value by 71 % and annual heating demand by up to 30 %. For transparent façades the 7 mm Vacuum-Insulated Curtain combines a cotton pocket layer (housing removable 3 mm VIPs) with a bespoke decorative front. With $\lambda \approx$ 13.1 mW m^{-1} K^{-1} and U $\approx$ 1.87 W m^{-2} K^{-1}, VIC reduces cooling loads by $\geqslant$ 23 % in single-glazed offices in Riyadh; the electrically assisted VIHC variant adds low-wattage ($\approx$ 1 kWh per three-hour cycle) radiant heating, targeted at high-latitude markets where space heating dominates. Finally, VIBB medical and fresh-food containers integrate modular VIP blocks into polymer shells, preserving pharmaceuticals, vaccines and perishable foods for up to 147 h without active refrigeration. Collectively, these vacuum systems demonstrate a scalable, shape-flexible route across Building Construction, Retrofits, Refurbishments, Storage Transportation, AI Electronics & Automation Sector, enabling 20–90 % energy-use reductions and offering an immediate, materials-based pathway towards net-zero building operation and cold-chain resilience.

Bio: Professor Saim Memon is an accomplished CEO and Industrial Professor of Renewable Energy Engineering, renowned for bridging the gap between academic research, industrial innovation, and global market impact. With a distinguished academic career rooted in the UK, he holds a PhD in Mechanical, Electrical, and Manufacturing Engineering, a PGCert in Teaching Qualification, an MSc in Mechatronics, and a BEng (Hons) in Electrical Engineering (First-Class Distinction). A Chartered Engineer and Fellow of the

Higher Education Academy, Prof. Memon also holds Qualified Teacher Status, awarded by the General Teaching Council for Scotland.

Recognised as a global thought leader, Prof. Memon ranks among the top 0.96% worldwide in the field of Energy and the top 0.86% across all disciplines (ScholarGPS) over the past five years, underscoring his prolific contributions to academia and industry. His exceptional track record includes over 120 research publications, leadership of 41 teaching modules spanning electrical, electronic, mechanical, and renewable energy engineering, with consistently outstanding student satisfaction rates exceeding 90%. He has successfully supervised multiple doctoral, master's, and undergraduate research projects, cultivating the next generation of engineering innovators. Prof. Memon's academic influence is further amplified through 50+ invited and keynote lectures, collaborations with researchers from over 40 countries, 1,600+ citations, and an h-index of 25+ and i10-index of 55+. As a thought leader, he has served as Editor-in-Chief and Guest Editor for several prestigious journals and as a reviewer for over 40 peer-reviewed publications. His contributions to academic leadership include steering research groups, developing and validating MSc, MEng, and BEng (Hons) programmes, and pioneering degree apprenticeships in engineering. A world-class expert in multidisciplinary research, Prof. Memon specialises in cutting-edge advancements for net-zero energy solutions. His research portfolio spans thermal management of electric vehicle batteries, vacuum insulation technologies, translucent vacuum insulation panels, energy-efficient materials for smart windows, vacuum-based photovoltaic solar thermal systems, thermoelectric devices, and fast-charging mechanisms for electric vehicles. His innovative work integrates renewable energy systems into smart grids, addressing critical challenges in sustainable energy and mobility. Prof. Saim Memon's vision and expertise continue to inspire advancements in renewable energy engineering, shaping a more sustainable and energy-efficient future on a global scale.

INTRODUCTION OF INVITED SPEAKER

M. Mofazzal Hossain

Professor, Southeast University, Bangladesh

Speech Title: Advancing Sustainable Food Security: The Role of Renewable Energy

Abstract: Global sustainable food security is a cornerstone of the Sustainable Development Goals (SDGs), yet in 2023 approximately 2.33 billion people are undergoing moderate to dreadful food insecurity, including 733 million suffering from hunger, according to a UN report. Concurrently, renewable energy is vital to achieving multiple SDGs, especially SDG 2 (Zero Hunger) and SDG 7 (Affordable and Clean Energy). In 2021, agriculture, forestry, fisheries, and aquaculture accounted for 15.4% of global energy consumption, with renewables supplying over 55% of this share. The causes of global food insecurity are multidimensional encompassing to climate change, shortage of irrigation, post-harvest waste, regional conflicts, and lack of infrastructure, particularly in low and middle-income nations. Innovative renewable energy solutions are proving critical: off-grid solar-powered irrigation can double or triple yields, and micro-hydropower is powering agro-processing. In many countries, food waste has been a crucial issue due to the lack of cold storage and food processing facilities. As of 2022, in India about 40% of the food produced was wasted due to the lack of cold storage. Additionally, solar cookstoves in Zambia have cut household fuel costs, easing nutrition-related expenditure constraints. This presentation explores barriers such as high cost, policy gaps, and infrastructure deficits while highlighting scalable renewable-energy-driven solutions like agrivoltaics, solar-powered irrigation, solar thermal food drying, cold storage systems, and off-grid microgrids. By focusing on practical, context-specific innovations, the aim is to illustrate how renewable energy can significantly advance food security in underdeveloped and developing countries.

Bio: M. MOFAZZAL HOSSAIN (Senior Member, IEEE) was born in Mymensingh, Bangladesh, in December 1969. He received the B.S. degree in electrical and electronic engineering from Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, in 1993, and the M.S. and Ph.D. degrees in electrical and electronic engineering from Kanazawa University, Japan, in 2000 and 2003, respectively. Currently, he is working as a Pro-Vice Chancellor and a Professor in electrical and electronic engineering with Southeast University, Dhaka, Bangladesh. He started his career, in April 1994, as a Lecturer with Chittagong University of Engineering and Technology, Bangladesh. During his last 31 years of career, he worked with East West University, Dhaka, University of Liberal Arts Bangladesh, and Tokyo Institute of Technology, Japan, in various academic, research, and administrative capacities. His current research interests include design, modeling and simulation of high efficiency PV cells, impacts of renewable energy sources, climate action, and applications of machine learning and deep learning. Prof. Hossain's awards and honors include Japan Society for the Promotion of Science (JSPS) Fellowship, JASSO Fellowship, and Japanese Government Scholarship.

INTRODUCTION OF INVITED SPEAKER

Zongshuai Jin

Doctor, Associate Researcher, Shandong University, China

Speech Title: Real-Time Wideband Dynamic Measurement In Embedded System

Abstract: Aiming at the application challenges of high-precision wideband dynamic measurement methods in embedded measurement devices with limited computing resources and lacking native support for complex-valued operations for new energy grids, the real-valued fast measurement method for wideband dynamic signals is proposed and applied in the embedded system. There is no need for special real-valued processing of complex-valued programs according to the specific type of embedded system, resulting in low computational complexity and minimal memory overhead. Through the measurement analysis of field wideband oscillation recorded signals and practical tests on domestic embedded systems, the engineering applicability of the proposed method is verified.

Bio: Zongshuai Jin has been an associate researcher since July 2023 at the School of Electrical Engineering, Shandong University, Jinan, China. He is a member of IEEE, a senior member of CSEE, and a member of SAC/TC82 working group. His research primarily focuses on the theoretical methods and applications of wideband situation awareness in power systems. He has led one project supported by the National Natural Science Foundation of China (NSFC), one project supported by the Shandong Provincial Natural Science Foundation, and multiple horizontal scientific and technological projects from enterprises. He has received two first prizes for scientific and technological progress from the Chinese Society for Electrical Engineering, one award for excellence in the National Postdoctoral Innovation and Entrepreneurship Competition organized by the Ministry of Human Resources and Social Security, and one second prize for scientific and technological progress from the State Grid Corporation of China. He has published over 20 high-level papers in top domestic and international journals, and has been granted 18 invention patents.

INTRODUCTION OF INVITED SPEAKER

Jiayi Kong

Doctor, Lecturer, Beijing Institute of Graphic
Communication, Beijing, China

Speech Title: Multi-output Resonant DC-DC Converter

Abstract: This paper proposes a multi-output resonant DC-DC converter with the fixed-on time modulation method. The converter maintains full-range voltage regulation regardless of load variations. Besides, zero-voltage switching (ZVS) turn-on for power switches and zero-current switching (ZCS) turn-off for power diodes are achieved, effectively reducing switching losses and improving the system efficiency. This paper systematically analyzes the operating principle of the converter, and a detailed mathematical model is developed to characterize its voltage regulation. Furthermore, simulations are conducted to verify the theoretical analysis. The results demonstrate that the proposed converter achieves excellent voltage stability, validating the proposed topology's effectiveness in enhancing voltage stability and system efficiency.

Bio: Jiayi Kong received her B.S. degree in Electrical Engineering from Shandong University of Science and Technology, China, in 2016; and her Ph.D. degree in Electrical Engineering from China University of Mining and Technology, Beijing, China, in 2022. From 2019 to 2021, she was a visiting Ph.D. student supported by the China Scholarship Council in the Department of Electrical Engineering and Computer Science, University of California, Irvine, CA, USA. She is presently working as a lecturer at the Beijing Institute of Graphic Communication, Beijing, China. Her current research interests include dc-dc converters, high power multilevel converters, the modeling and control of switching converters, and power electronics in smart grids. She has published over 20 academic papers and holds over 10 invention patents.

INTRODUCTION OF INVITED SPEAKER

Zhengjun Bi

State Grid Jilin Electric Power Co., Ltd., China

Speech Title: Dynamic Correction Method for the Electricity Load Guarantee Supply Capacity of Thermal Power Units

Abstract: Escalating energy demand, rising fuel costs and tightening carbon-emission targets highlight the urgent need for envelope-scale solutions that reduce heat transfer without compromising space or aesthetics. Vacuum-based insulation systems uniquely satisfy these requirements because, by evacuating air to pressures below 10 Pa, they suppress both conductive and convective heat flow to near-negligible levels. This paper presents a consistent performance appraisal of the author's portfolio of vacuum insulation technologies—standard Vacuum Insulation Panels (VIP), Decorative Integrated VIP (DVIP), Vacuum-Insulated Bags-or-Boxes (VIBB), Vacuum-Insulated Heatable Curtains (VIHC) and Vacuum-Insulated Curtains (VIC)—all progressed from laboratory concept (TRL 1) to full prototyping or commercial readiness (TRL 9). Fibreglass-core VIPs 15 mm thick achieve thermal conductivities of 2.5 mW m^{-1} K^{-1} and centre-of-panel U-values of 0.16 W m^{-2} K^{-1}; 25 mm fumed-silica VIPs attain 4.5 mW m^{-1} K^{-1} and U $\approx$ 0.17 W m^{-2} K^{-1}. These panels form the thermal heart of the 30 mm Decorative Integrated VIP, which embeds the vacuum core between calcium–silicate back and Mid-Century-Modern or metal façades, delivering $\lambda \approx 7$ mW m^{-1} K^{-1} while meeting EN 13501-1 Class A1/A2 non-combustibility and surviving accelerated ageing for $\geqslant 35$ years. Vacuum-Insulated Wallpaper (VIW)—a 4 mm laminate containing 3 mm VIPs—offers $\lambda \approx 5$ mW m^{-1} K^{-1} and can be supplied as 200×200 mm self-adhesive tiles to minimise damage propagation and simplify DIY installation. When retrofitted to solid masonry in London, VIW lowers wall U-value by 71 % and annual heating demand by up to 30 %. For transparent façades the 7 mm Vacuum-Insulated Curtain combines a cotton pocket layer (housing removable 3 mm VIPs) with a bespoke decorative front. With $\lambda \approx 13.1$ mW m^{-1} K^{-1} and U ≈ 1.87 W m^{-2} K^{-1}, VIC reduces cooling loads by $\geqslant 23$ % in single-glazed offices in Riyadh; the electrically assisted VIHC variant adds low-wattage (≈ 1 kWh per three-hour cycle) radiant heating, targeted at high-latitude markets where space heating dominates. Finally, VIBB medical and fresh-food containers integrate modular VIP blocks into polymer shells, preserving pharmaceuticals, vaccines and perishable foods for up to 147 h without active refrigeration. Collectively, these vacuum systems demonstrate a scalable, shape-flexible route across Building Construction, Retrofits, Refurbishments, Storage Transportation, AI Electronics & Automation Sector, enabling 20–90 % energy-use reductions and offering an immediate, materials-based pathway towards net-zero building operation and cold-chain resilience.

Bio: Bi Zhengjun, a senior expert of State Grid Jilin Electric Power Co., Ltd., holds a master's degree and has the title of associate senior engineer. He is mainly engaged in the production and scientific research work related to clean heating, power grid simulation analysis, reactive power optimization, technical supervision, and power supply guarantee. He has won more than ten provincial and ministerial as well as prefectural and municipal scientific and technological awards. In the aspects of flexible load, wind power prediction, cloud platform construction, etc., he has been authorized 13 related patents. He has published a total of 17 papers, among which 10 are as the first author, and 6 are included in core journals or indexed by EI.

INTRODUCTION OF INVITED SPEAKER

Kaikai Pan

Associate Professor, Zhejiang University, China

Speech Title: Power IoT Security: Attack and Defense from a Novel Cyber-Physical Perspective

Abstract: The talk begins with a foundational overview of the Internet of Things (IoT) and its applications within power grid systems. Subsequently, the discussion shifts to a specific category of IoT vulnerabilities—those originating from the sensors embedded within IoT systems. This class of vulnerability is distinct from the extensively studied issues in communication networks and embedded systems. Instead, the focus is on how sensor values can be manipulated at the point of measurement and the critical role that physical spoofing signals play in facilitating such sensor-based attacks. As a concrete example, the presentation will introduce recent work on the systematic vulnerability analysis of power IoT devices, specifically solar inverters, highlighting how both sensors and control algorithms may be susceptible to physical spoofing. Finally, the talk will conclude with an overview of potential defensive strategies against these types of sensor vulnerabilities.

Bio: Kaikai Pan is an Assistant Professor at the College of Electrical Engineering, Zhejiang University. He holds a Ph.D. degree from Delft University of Technology (TU Delft), the Netherlands, under the supervision of Prof. Peter Palensky and Prof. Peyman Mohajerin Esfahani. Currently He is affiliated with the Ubiquitous System Security Lab. (USSLAB), with a research focus on the renewable energy system security, unmanned system control security, and cyber-physical system security. He has authored over 30 high-quality academic papers, including 10 first-author or corresponding-author journal articles indexed in SCI journals such as IEEE Transactions on Power Systems (TPWRS), IEEE Transactions on Smart Grid (TSG), and IEEE Industrial Electronics Magazine (IEM). He serves as a guest editor for the SCI-indexed Journal of Modern Power Systems and Clean Energy (MPCE) and is a program committee member for multiple international conferences. He also acts as a reviewer for top journals such as IEEE TSG, IEEE TPWRS, IEM, IEEE TII, IEEE TCST, and IEEE TIFS, etc. He has been recognized with various awards, including the 2022 First Prize for Technological Progress from the Chinese Institute of Electronics, the "Humans of EEMCS" award from Delft University of Technology, and the Best Paper Award at the prestigious IEEE SmartGridComm'17 conference.

SPECIAL SESSION 1

Saturday, July 26, 2025 13:30-16:05	3F 会议室 1 Meeting Room 1

Special Session 1: Advanced Power Electronics Technologies for Renewable Energy, Storage, and Grid Integration

Chairperson: Assoc. Prof. Tao Zhao, Qingdao University, China

Time	Paper ID	Speech Title & Presenter
13:30-13:50	Invited Talk	Quantum Theory of Exciton Dissociation in Organic Photovoltaic Devices *Prof. Chumin Wang, National Autonomous University of Mexico, Mexico*
13:50-14:05	EE357	A Method for Time-Frequency-Domain Electromagnetic Transmitting Waveforms Synthesis Based on Particle Swarm Optimization *Jinglin Wang, College of Instrumentation & Electrical Engineering, Jilin Univerity, China*
14:05-14:20	EE325	Improved MPPT Technique for Low Power Solar PV Applications *Nedim Tutkun, Istanbul Ticaret University, Turkey*
14:20-14:35	EE350	Selection of Wire Gauge and Voltage Grade for Microgrids in Extreme Lunar Environments *Tengfei WANG, The National Key Laboratory of Space Power, Shanghai Institute of Space Power Sources, China*
14:35-14:50	EE3019	Comparative Analysis and Optimization Design of High-performance Low-rare-earth Hybrid Permanent Magnet Assist Synchronous Reluctance Motor *Peng Zhou, Shandong University, China*
14:50-15:05	EE369	Seismic Performance Assessment and Enhancement Strategy for UHV Converter Stations *Gaoyang Shi, Tongji University*
15:05-15:20	EE392	Waste Heat Recovery and Economic Operation Optimization of an Integrated Energy System Including Offshore Wind Power，Hydrogen，Methanol，and Carbon Capture *Kang Bie, Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences, China*
15:20-15:35	EE3020	Design and Research on Hybrid Excitation Inductor Machine for Flywheel Energy Storage System *Changhu Wang, Shandong University, China*
15:35-15:50	EE393	Two-layer Optimal Scheduling of Integrated Energy System Considering Comprehensive Demand Response *Yuhang Fan, College of Electrical Engineering and Automation, Fuzhou University, China*
15:50-16:05	EE362-A	Thermoelectricity in segmented and branched nanowires *Vicenta Sanchez, National Autonomous University of Mexico, Mexico*

SPECIAL SESSION 2

Saturday, July 26, 2025 13:30-16:05	3F 会议室 2 Meeting Room 2

Special Session 2: Data-Model Dual-Driven Digital Twin Modeling and Application for Power Distribution Networks

Chairperson: Assoc. Prof. Xiangmin Xie, Qingdao University, China

Time	Paper ID	Speech Title & Presenter
13:30-13:50	Invited Talk	Multi-output Resonant DC-DC Converter *Dr. Jiayi Kong, Beijing Institute of Graphic Communication, China*
13:50-14:05	EE371	Analysis of Distributed PV Harmonic Characteristics Based on Harmonic Coupling Admittance Matrix Model *Longwei Xu, State Grid Shandong Electric Power Company Qingdao Power Supply Company, China*
14:05-14:20	EE368	Peak Current Control with Feed-Forward Compensation of DAB under Single Phase-Shift Control *Jiahang Dong, Wuhan University, China*
14:20-14:35	EE391	Proportional Allocation Analysis of Grid-Following and Grid-Forming Wind Turbines with Consideration of Grid Strength *Li Xu, Nanjing University of Science and Technology, China*
14:35-14:50	EE408	Reserve Planning for Interconnected Power Systems Based on Reliability Assessment Using Regional Unit Outage Probability Approximation *Sui Peng, Grid Planning Research Center, Guangdong Power Grid Co., Ltd., China*
14:50-15:05	EE385	Optimization of Distribution Network Operation Strategy Based on EV Users' Willingness for Power Regulation Engagement *Fan Wang, Nanjing University of Science and Technology, China*
15:05-15:20	EE389	Grid-forming Operation of Zhoushan Multi-terminal VSC-HVDC System *Jialu Xu, Shanghai Jiao Tong University, China*
15:20-15:35	EE3023	Sensorless Control of Oil-submersible IPMSM with MTPA Strategy over Full Speed Range *Yunlong Peng, Shandong University, China*
15:35-15:50	EE3018	Voltage Stabilization Control for Permanent Magnet Synchronous Generator Based on Improved Non-Singular Fast Terminal Integral Sliding Mode Control *Yong Zhou, Shandong University, China*
15:50-16:05	EE3024	An identification model for grounding fault in distribution networks based on D-S evidence theory *Biyun Zhang, Electric Power Research Institute of Guangxi Power Grid, China*

SPECIAL SESSION 3

Saturday, July 26, 2025 16:05-18:35	3F 会议室 1 Meeting Room 1

Special Session 3: Protection and Fault Location Principles of Offshore Clean Energy Power Generation System and Transmission System

Chairperson: Dr. Jiayi Kong, Beijing Institute of Graphic Communication, China

Time	Paper ID	Speech Title & Presenter
16:05-16:20	EE366	Research on Substation Auxiliary Motor Bearing Fault Diagnosis Based on Voiceprint Recognition and INOA-SVM *Leyan Huang, Qingdao University of Science & Technology, China*
16:20-16:35	EE381	Improved Control Strategy for Energy Routers in DC Microgrids with Hybrid Energy Storage *Qingkai Chen, Qingdao University of Science and Technology, China*
16:35-16:50	EE3004	Optimal Path Planning Method for the Transformer Substation Integrated to Offshore Transmission System *Mengqi Wang, Qingdao University of Science and Technology, China*
16:50-17:05	EE3005	Research on Partial Discharge Identification Method Based on Ultraviolet Images *Yiyu Li, Qingdao University of Science and Technology, China*
17:05-17:20	EE3008	Performance Analysis of Solar Thermal-Driven Supercritical CO_2 Power Generation Systems Under Various Operating Conditions *Zhipeng Zhang, Qingdao University of Science and Technology, China*
17:20-17:35	EE360	A Novel Cable Fault Detection Method Based on Collaborative Characterization of Step Response and Impulse Response *Ran Hu, Shenzhen Power Supply Bureau Co., Ltd., China*
17:35-17:50	EE3009	The optimization scheduling problem between the tower thermal energy storage system and the battery energy storage system *Wei Jia, Qingdao University of Science and Technology, China*
17:50-18:05	EE3017	The Performance of Current Differential Protection in a Distribution Network Containing Grid-Forming Distributed Generators *Ziqi Liu, Qingdao University of Science and Technology, China*
18:05-18:20	EE3016	Photovoltaic System Fault Diagnosis Using Feature Engineering and Bayesian-Optimized CNN *Yousif Mahmoud Ali, Shandong University, China*
18:20-18:35	EE354	Design and Analysis of a Two-Degree-of-Freedom Voice Coil Motor with Opposite Magnetization *Xingyao Du, Northeast Forestry University, China*

ORAL SESSION

Saturday, July 26, 2025 16:05-18:30	3F 会议室 2 Meeting Room 2

Oral Session: Power Generation, Operation and Trading Strategies Based on Renewable Energy

Chairperson: Prof. M. Mofazzal Hossain, Southeast University, Bangladesh

Time	Paper ID	Speech Title & Presenter
16:05-16:25	Invited Talk	Advancing Sustainable Food Security: The Role of Renewable Energy *Prof. M. Mofazzal Hossain, Southeast University, Bangladesh*
16:25-16:45	Invited Talk	Real-Time Wideband Dynamic Measurement in Embedded System *Dr. Zongshuai Jin, Shandong University, China*
16:45-17:00	EE305	Computational Design Approximation of Efficient Low-Toxic Rb2TiI6/RbSn0.5Ge0.5I3 Hetero-Bilayer Perovskite Solar Cell *M. Mofazzal Hossain, Southeast University, Dhaka, Bangladesh*
17:00-17:15	EE309-A	Photostability improvement of wide bandgap mixed-halide perovskite solar cells via ion migration reduction *Vladimir Ivanov, School of Physics and Engineering, ITMO University, Russia*
17:15-17:30	EE340	Considering Energy Storage Optimization Control Based on Deep Reinforcement Learning under Two-Part Tariff *Yue Tang, Shandong University, China*
17:30-17:45	EE353	Sustainable Transportation and Electric Vehicle Adoption: Exploring Consumer Perceptions and Challenges *Farhana Ferdousi, Southeast Business School, Southeast University, Bangladesh*
17:45-18:00	EE361	Optimization Scheduling of Hydro-Wind-Solar Power in Electricity Spot Market considering VRE Output and Electricity Price Uncertainties *Yulong Xiao, Huazhong University of Science and Technology, China*
18:00-18:15	EE3007	Optimal Configuration of Inverter-Based Regenerative Feedback and Flywheel Storage in Urban Rail Power Systems via LGPSO *Haoran Chen, Zhejiang University, China*
18:15-18:30	EE3011	A short-term photovoltaic output power forecasting method by integrating physical and data-driven models *Zhe Li, Shanghai Electric Group Co., Ltd., China*

JULY 25-27, 2025   QINGDAO, CHINA

POSTER SESSION 1

	Saturday, July 26, 2025 13:30-15:50	3F

Poster Session 1: Control Model and Stable Operation of Digital Distribution System

Chairperson: Dr. Zongshuai Jin, Shandong University, China

Poster#	Paper ID	Speech Title & Presenter
01	EE314	Control and Impedance Modeling of Offshore Wind Power Hybrid Cascaded DC Transmission System Based on VSC and DRU *Haoran Wang, School of Electrical Engineering, Shandong University, China*
02	EE322	Distributed Control Structure for Hybrid DC bus Cascade H-bridge Photovoltaic Grid-connected Inverters *Fuxiu Qiu, Qingdao University, China*
03	EE323	Low Voltage Ride Through Control Strategy for Cascaded H-Bridge Photovoltaic Grid-Connected Inverter Based on Asymmetric Current Injection *Guangsheng Li, Qingdao University, China*
04	EE330	Transient Stability Analysis of Hybrid Synchronization Control with Current Limitation *Longyue Wang, College of Electrical Engineering, Zhejiang University, China*
05	EE331	A Model Predictive Control-Based Power Adaptive Compensation Strategy for Grid-Connected and Islanded Mode Switch *Longyue Wang, College of Electrical Engineering, Zhejiang University, China*
06	EE334	Robust optimization for EV charging station planning in distribution networks *Xiangjin Xin, University of Jinan, China*
07	EE339	Comparative Analysis of Damping Characteristics for Different Feedforward Strategies of LCL-Type Grid-Connected Inverters under Time-Varying Grid Impedance Conditions *Xuhang Sun, Tianjin University, China*
08	EE372	Active Frequency Support Strategy for Grid-Forming Energy Storage Converters Optimized by Genetic Algorithm *Yu Zhang, Chongqing University, China*
09	EE380	Seismic Response Time Series Prediction of a 500kV Transformer Bushing *Renpeng Liu, Tongji University, China*

10	EE386	Comparative Study on DC Circuit Breaker Configuration Schemes of Flexible HVDC Systems Based on Reliability Indices *Shiyi Sheng, Zhejiang University, China*
11	EE388	Research on the Planning Method of Energy Storage Resources Considering the Enhancement of the Carrying Capacity of the Distribution Network *Youxin Zeng, College of Electrical Engineering, Sichuan University, China*
12	EE394	Adaptive Virtual Impedance Control Strategy Based on Grid-Forming Equivalent Model *Xiang Li, North China Electric Power University, China*
13	EE3012	Modeling and Control of a Photovoltaic-hydrogen-battery microgrid by Energetic Macroscopic Representation *Shuo Tian, School of Energy Science and Engineering, University of Science and Technology of China, China*
14	EE315	Analysis of DR's AC/DC-Side Impedance Modeling Based on Harmonic Linearization *Haoran Wang, School of Electrical Engineering, Shandong University, China*
15	EE351	Frequency simplified algorithm control based on dual transformer resonant converter *YanQi Fan, China University of Petroleum (East China), China*

POSTER SESSION 2

Saturday, July 26, 2025 16:05-18:35	3F

Poster Session 2: Clean Energy Based Power Generation System and Advanced Control Strategy

Chairperson: Prof. Chumin Wang, National Autonomous University of Mexico, Mexico

Poster#	Paper ID	Speech Title & Presenter
01	EE320	Field-circuit Coupling Performance Optimization of PMSM Drive System Based on Reduced Order Model of Motor *Lijun Liu, Jiangsu Normal University, China*
02	EE335	Network Loss Allocation for Peer-to-Peer Energy Trading among Prosumers in Virtual Power Plants *Yanlai Zhao, University of Jinan, China*
03	EE336	Multi-Microgrid P2P Energy Sharing Mechanism Based on Credit Bargaining *Shaoqing Guo, Dongguan University of Technology, China*
04	EE337	A Low-frequency AC Transmission System Based on FBSM-9AMMC for Large-scale and Long-distance Offshore Wind Farm Integration *Futian Qin, Qilu University of Technology (Shandong Academy of Sciences), China*
05	EE352	Consensus Algorithm-based Secure Distributed Energy Management for Load Aggregators *Rong Wei, Southeast University, China*
06	EE358	Low-carbon dispatch of microgrid based on Soft Actor-Critic algorithm *Yong-hang Yang, University of Jinan, China*
07	EE359	Optimized Thermal Impedance Model of Thyristor Based on Heat Transfer Characteristics *Siyue Cheng, Xi'an Jiaotong University, China*
08	EE387	Coordinated Planning of Energy Storage Systems and Soft Open Points for Flexibility Enhancement in Distribution Networks *Qiushi Zhang, College of Electrical Engineering, Sichuan University, China*
09	EE395	A Differential Protection Method for Submarine Cables Based on Transient Frequency Characteristics *Yu Sui, North China Electric Power University, China*

10	EE3013	Predictive Synchronous Control of Dual Permanent Magnet Synchronous Motor Based on Stability Analysis *Zhiqiang Wang, Tianjin University of Technology and Education, China*
11	EE3014	Adaptive weight predictive position synchronization control for dual-motor system based on dynamic coupling gain *Zhiqiang Wang, Tianjin University of Technology and Education, China*
12	EE3015	Aggregator-Electric Vehicle Day-ahead Trading Mechanism and Scheduling Strategy Based on Master-Slave Game *Haixiang Xie, Southeast University, China*
13	EE3021	Loss Calculation and Thermal Analysis of Maglev High Speed Permanent Magnet Synchronous Motor *Lin Feng, Shandong University, China*
14	EE3022	Design and Multiphysics Analysis of Medium-Low Speed Flywheel Energy Storage System with Dual-Rotor Toroidal Winding *Gensheng Li, Shandong University, China*
15	EE390	A Safe Operating Domain Characterization Method for the Si/SiC Hybrid Switch *Ning Xie, China Southern Power Grid Company Limited, China*

ONLINE SESSION 1

<table>
<tr><td>Sunday, July 27, 2025 (UTC+8)
09:00-12:05</td><td>Room A: 889 8100 1524
Link: https://us02web.zoom.us/j/88981001524</td></tr>
</table>

Online Session 1: Distributed Robust Predictive Control and Stability Enhancement for Power Transmission Networks

Chairperson: Dr. Guang Chen, State Grid (Suzhou) Energy & City Research Institute, China

Time	Paper ID	Speech Title & Presenter
09:00-09:20	Invited Talk	Power IoT Security: Attack and Defense from a Novel Cyber-Physical Perspective *Assoc. Prof. Kaikai Pan, Zhejiang University, China*
09:20-09:35	EE310	Reduction of Infeed Effects on Distance Relays by Optimal Sizing & Placement of Inductive Fault Current Limiters *Laurence R. Navarro, Mapua University, Philippines*
09:35-09:50	EE317	Distributionally Robust Economic Dispatch Strategy for High-Penetration Photovoltaic Microgrids Considering Generation-Load Uncertainty *Zihao Song, Qingdao University, China*
09:50-10:05	EE324	Research on Frequency Regulation Collaborative Control Strategy for Non-Industrial Air Conditioning Loads in High-Proportion Renewable Energy Grids *Shilong SHU, State Grid Jiangsu Electric Power Co., Ltd. Zhenjiang Power Supply Branch Zhenjiang, China*
10:05-10:20	EE332	Insulator Defect Detection Algorithm Based on RGB-D Multimodal Images *Jianfeng Wu, Jiangmen Power Supply Bureau of Guangdong Power Grid Co, China*
10:20-10:35	EE343	Comparative Analysis of Two Parallel Current Sharing Technologies of Silicon Carbide *Shihao Zhang, Qingdao University, China*
10:35-10:50	EE356	Research on Detector Arrangement of Fire Automatic Alarm System in A Nuclear Chemical Plant *Ge Zhang, China Nuclear Power Engineering Co. Ltd., China*
10:50-11:05	EE365	Design Of Three-Valued Logic Gates Based on Knowm Memristors *KaiXuan Zhou, Qingdao University, China*
11:05-11:20	EE367	Research on Development Trend and Key Issues of Grid-connected Smart Microgrid *Guang Chen, State Grid (Suzhou) Energy & City Research Institute, China*

JULY 25-27, 2025   QINGDAO, CHINA

11:20-11:35	EE377	Intelligent Early Warning Method for Substations Based on Digital Twin *Xiaoyu XIN, Tsinghua Shenzhen International Graduate School, Shenzhen, China*
11:35-11:50	EE3003	Control Strategy for Transformer On-load Tap Changers in an Electrical Network with Embedded Generation using Fuzzy Logic *Arlon D. Magsino, Mapua University, Philippines*
11:50-12:05	EE363	Coordinated Source–Grid–Load–Storage System Operation under Uncertainty: A Chance-Constrained SOCP-based ACOPF with Industrial Load Flexibility *Mingyue He, China Electric Power Planning & Engineering Institute, China*

ONLINE SESSION 2

Sunday, July 27, 2025 (UTC+8) 09:00-11:55	Room B: 857 9049 9806 Link: https://us02web.zoom.us/j/85790499806

Online Session 2: New Motor Design and Electrical Performance Analysis

Chairperson: Assoc. Prof. Jian Wei, Northeast Forestry University, China

Time	Paper ID	Speech Title & Presenter
09:00-09:20	Invited Talk	The Industrial Inventions of Vacuum Insulation Energy Savings Technologies for Net-Zero Energy Infrastructure and Sustainability Goals *Prof. Saim Memon, Birmingham City University, UK*
09:20-09:40	Invited Talk	Dynamic Correction Method for the Electricity Load Guarantee Supply Capacity of Thermal Power Units *Mr. Zhengjun Bi, Jilin Provincial Electric Power Research Institute Co., Ltd., China*
09:40-09:55	EE321	Co-optimized scheduling of new energy charging stations and electric vehicles in parks based on a two-layer optimization model *Xingbin Yang, Qingdao University, China*
09:55-10:10	EE304	Phase-Locked-Loop Rotor Position Estimation for Six-Phase Open-End Winding PMSMs Based on Detection Coils *Zhuang Ding, Central & Southern China Municipal Engineering Design and Research Institute Co., Ltd., China*
10:10-10:25	EE306	Application of Digital Twin Technology in Intelligent Digital Power Grid *Boqing Xiang, Xiamen University of Technology, China*
10:25-10:40	EE344	Research on control strategy of proton exchange membrane fuel cell waste heat recovery system *Peichao Song, Qingdao University, China*
10:40-10:55	EE374	A Flexible Power Source-Based Method for Stator Ground Fault Detection in Large Generators *Yuanhao Gong, Changsha University of Science and Technology, China*
10:55-11:10	EE384	Terahertz-based method for detecting the degree of aging of insulating oils *Guofang Luo, State Grid Shanghai Municipal Electric Power Company, China*
11:10-11:25	EE407	The orderly charging strategy of electric vehicles in V2G mode by considering user responses *Mingchen Wang, Shandong University, China*

11:25-11:40	EE3010	New rotor topology and electromagnetic performance optimization of high-speed permanent magnet synchronous motors *Lianlian Gao, Harbin University of Science and Technology, China*
11:40-11:55	EE376	Research and Application of Electrical System Simulation Calculation in Nuclear Power Plants *Xia Lian, Suzhou Nuclear Power Research Institute, China*

DELEGATE LIST

Yang Liu, State Grid Sichuan Economic Research Institute, China

Wei Chen, State Grid Sichuan Economic Research Institute, China

Chuan Long, State Grid Sichuan Economic Research Institute, China

Jiawei Liu, State Grid Sichuan Economic Research Institute, China

Lin Zhang, State Grid Sichuan Economic Research Institute, China

Keng-Yu Lien, Dongguan University of Technology, China

NOTE

Co-sponsored by 青岛大学 QINGDAO UNIVERSITY IEEE IEEE PES Power & Energy Society® BIEET

Co-hosted by 青岛大学 QINGDAO UNIVERSITY 电气工程学院 COLLEGE OF ELECTRICAL ENGINEERING 电子科技大学 University of Electronic Science and Technology of China 机械与电气工程学院 School of Mechanical and Electrical Engineering

Supported by Media Partner DU 供用电 Distribution & Utilization