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ICPIES 2025

2025 年 IEEE 电力与综合能源系统国际会议

2025 IEEE International Conference on Power and Integrated Energy Systems

April 7-9, 2025 | Haikou, China

IEEE 浙江大学 海南研究院 HAINAN INSTITUTE OF ZHEJIANG UNIVERSITY 三亚纵横能源研究院 Sanya Global Energy Research Institute 郑州轻工业大学 ZHENGZHOU UNIVERSITY OF LIGHT INDUSTRY

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Welcome Address

Dear Distinguished Guests, Esteemed Researchers, and Participants,

On behalf of the organizing committee, it is our great honor to extend a heartfelt welcome to all of you attending the 2025 IEEE International Conference on Power and Integrated Energy Systems (ICPIES 2025). This year's conference will be held in a hybrid format, combining both online and on-site participation, from April 7 to 9, 2025. We are truly grateful for your active participation and support.

In today's rapidly evolving society, the integration of power systems with sustainable energy solutions has become pivotal to addressing global challenges such as climate change, energy security, and societal development. This conference serves as an international platform for researchers, engineers, and industry leaders to collaborate, share cutting-edge innovations, and inspire transformative solutions. All accepted papers have undergone a rigorous double-blind peer-review process, ensuring the highest academic standards. Each contribution will be presented and discussed during the conference, reflecting our collective dedication to excellence and progress in the field.

We are thrilled to present a diverse and enriching program designed to stimulate intellectual dialogue. The conference features two distinguished keynote speakers and four renowned invited speakers, whose insights will illuminate emerging trends and future directions. Additionally, we have organized 3 on-site oral presentation sessions, 2 student paper competitions, 3 interactive poster sessions, and 4 virtual oral presentation sessions. We encourage you to actively participate, exchange ideas, and explore collaborations that will drive the next generation of energy systems.

Finally, we extend our deepest gratitude to everyone who has contributed to the success of ICPIES 2025. Our heartfelt thanks go to the organizing committee for their tireless efforts, the reviewers for their rigorous evaluations, the authors for their groundbreaking research, and all participants for their vibrant engagement. Together, let us seize this opportunity to forge meaningful connections and shape a sustainable energy future.

Wishing you a productive, inspiring, and memorable conference!

Fushuan Wen, Zhejiang University, China
ICPIES 2025 Conference Chair

Conference Schedule

April 7th, Monday

线下：签到，领取资料

10:00-17:00	Sign-in & Collecting Conference Material	**Hotel Lobby**

线上：测试

10:00-11:00	Test for Online Session 4, 6	**Room 1: 856 8473 3536**
	Test for Online Session 5, 7	**Room 2: 860 3614 3467**

April 8th, Tuesday

线下：会议开幕式，主旨报告，邀请报告

Hexie Ballroom (3F) | 3 楼，和谐厅

Host: Prof. Fushuan Wen, Zhejiang University, China

9:00-9:10	Opening Remarks: Prof. Donglian Qi, Zhejiang University, China	
9:10-9:55	Keynote Speech 1: Prof. Yusheng Xue, State Grid Electric Power Research Institute, China（中国工程院院士） Speech Title: The Mechanism of Ontology Complex Systems	
9:55-10:25	*Group Photo & Coffee Break*	
10:25-11:10	Keynote Speech 2: Prof. Sri Niwas Singh, Director, ABV-Indian Institute of Information Technology and Management, Gwalior (MP), India（印度工程院院士） Speech Title: Estimation of Grid Harmonics in the Presence of Renewable Energy Sources	
11:10-11:40	Invited Speech: Assoc. Prof. Pai Lu, University of South-Eastern Norway, Norway Speech Title: Multiple Electrochemical Energy Storage Solutions	
11:40-13:30	*Lunch Time*	**Hexi Dinning Hall (1F) | 1 楼，和熙厅**

线下：专题研讨，邀请报告，口头汇报，海报展示，优秀学生论文竞赛

13:30-15:45

Panel Session **Hexun Function Room (3F) | 3 楼，和逊厅**	Best Student Paper Competition 1 **Heyi Function Room (3F) | 3 楼，和怡厅**	Best Student Paper Competition 2 **Hebian Function Room (3F) | 3 楼，和辩厅**
Pei Zhang, Shi Chen, Can Wan Junru Chen, Muyang Liu, Yue Chen	ES0900, ES0824, ES1145, ES1275, ES0354, ES0530, ES1500, ES1390	ES0955, ES0653, ES0243, ES0043, ES0814, ES1045, ES0053, ES1371, ES1410

16:00-18:20

Oral Session 1 **Hexun Function Room (3F) | 3 楼，和逊厅**	Oral Session 2 **Heyi Function Room (3F) | 3 楼，和怡厅**	Oral Session 3 **Hebian Function Room (3F) | 3 楼，和辩厅**
Xiaolong Jin, ES0985, ES1091, ES1181, ES0925, ES1311, ES0621, ES0324	Shaohua Yang, ES1123, ES0631, ES0281, ES1020, ES0314, ES0253	Yuanqian Ma, ES0692, ES1321, ES1337, ES1253, ES0663, ES0700, ES1400, Li Li

13:30-14:45	**Poster Session 1** ES0733, ES0793, ES0400, ES0763, ES1111, ES1065, ES0743, ES1071, ES0465, ES0304, ES0511, ES0884, ES1015, ES1000, ES1055
15:00-16:05	**Poster Session 2** ES0975, ES0233, ES0475, ES0945, ES1221, ES1081, ES0915, ES0965, ES0935, ES0333, ES0800, ES0995, ES1381
16:30-17:25	**Poster Session 3** ES0131, ES0683, ES1211, ES0595, ES0121, ES0844, ES0410, ES0673, ES0864, ES1241, ES0141

18:20-20:00	*Award Ceremony and Conference Dinner*	**Herong Ballroom (2F) | 2 楼，和荣厅**

Conference Schedule

April 9th, Wednesday

线下：海口一日游	
8:00-18:00	One Day Visit

线上：口头汇报	
10:00-12:15	
Oral Session 4 **Room 1: 856 8473 3536**	**Oral Session 5** **Room 2: 860 3614 3467**
ES0100, ES0574, ES0894, ES1291, ES0394, ES0061, ES1300, ES0091, ES1191	ES0440, ES0611, ES0641, ES0834, ES0854, ES1231, ES0874, ES0151, ES1285
14:00-16:30	
Oral Session 6 **Room 1: 856 8473 3536**	**Oral Session 7** **Room 2: 860 3614 3467**
ES0263, ES0434, ES0753, ES1161, ES0083, ES0450, ES1264, ES0600, ES1001, ES0294	ES0713, ES0373, ES0383, ES0424, ES1051, ES0162, ES0500, ES0564, ES1100, ES0532

Session Themes

Panel Session	Future-Proofing Low-Carbon Power Grids: Innovations in Prediction, Modeling, and Control
Best Student Paper Competition 1	AI+ Applications in Planning, Operation, and Control of New Power Systems
Best Student Paper Competition 2	Emerging Technologies in Modern Power Systems: Energy Storage, Virtual Power Plant, Hydrogen, Electric Vehicle and Beyond
Oral Session 1	AI+ Applications in Planning, Operation, and Control of New Power Systems
Oral Session 2	Stability Analysis and Control of Modern Power Systems with Rich Renewable Energy Generation
Oral Session 3	Optimal Planning, Situation Awareness, and Coordinated Operation of Modern Power Systems
Poster Session 1	Stability Analysis and Control of Modern Power Systems with Rich Renewable Energy Generation
Poster Session 2	Coordinated Optimization and Economic Dispatch of Source-Load-Storage Multi-Resources in Power Systems
Poster Session 3	Emerging Technologies in Modern Power Systems: Energy Storage, Virtual Power Plant, Hydrogen, Electric Vehicle and Beyond
Oral Session 4 (Online)	AI+ Applications in Planning, Operation, and Control of New Power Systems
Oral Session 5 (Online)	Optimization and Scheduling of Integrated Energy Systems for Carbon Neutrality
Oral Session 6 (Online)	Stability Analysis and Control of Modern Power Systems with Rich Renewable Energy Generation
Oral Session 7 (Online)	Emerging Technologies in Modern Power Systems: Energy Storage, Virtual Power Plant, Hydrogen, Electric Vehicle and Beyond

Online Room 1: ZOOM ID: 856 8473 3536, ZOOM link: https://us02web.zoom.us/j/85684733536
Online Room 2: ZOOM ID: 860 3614 3467, ZOOM link: https://us02web.zoom.us/j/86036143467

Conference Committees

Advisory Chairs

Gerard Ledwich, Queensland University of Technology, Australia (IEEE Fellow)
Zhaoyang Dong, City University of Hong Kong, Hong Kong, China (IEEE Fellow)
S. N. Singh, India Institute of Technology-Kunpur, India (IEEE Fellow)

Conference Chair

Fushuan Wen, Zhejiang University, China (IEEE Fellow)

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Ping He, Zhengzhou University of Light Industry, China (IEEE Senior Member)
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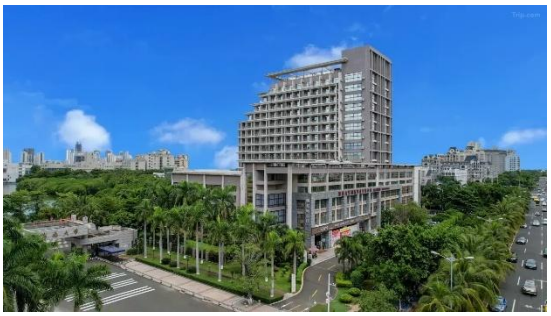
Xiaodong Li, Macau University of Science and Technology Macau, China
Chuanyang Li, School of Electrical Engineering, Tsinghua University, China
Rongwu Zhu, Harbin Institute of Technology, Shenzhen, China
Bo Liu, Tianjin University, China
Shaohua Yang, University of Macau, China

Onsite Conference Notice

Conference Venue | 会议地点



Hainan University International Academic Exchange Center Hotel (3F)
海南大学国际学术交流中心酒店（3 楼）

Address: No.58 Renmin Avenue, Meilan District, Haikou, Hainan, China
地址：海口美兰区人民大道 58 号

Oral Presentation | 口头报告

- Timing: a maximum of 15 minutes in total, including 3 minutes for Q&A. Please make sure your presentation is well timed.
- All oral session rooms are equipped with data projectors with a standard VGA connector. The speakers could also bring and use their own laptops or other presentation devices. Please check the compatibility of your laptop and the project before the session starts.
- Videos: If your Power Point files contain videos, please make sure that they are well formatted and connected to the main files.

Dress Code | 着装规范

Please wear formal clothes or national characteristics of clothing.

Important Notes | 注意事项

- Please take care of your belongings during the conference. The conference organizer does not assume any responsibility for the loss of personal belongings of the participants.
  会议期间请务必随身携带贵重物品，会议不对任何物品丢失负责。
- Please wear your participation badge during the conference. There will be NO access for people without a badge. NEVER discard your badge at will.
  会议期间进入所有会场请佩戴代表证。请不要随意丢弃代表证。
- Accommodation is not provided. Delegates are suggested to make early reservations.
  参会者请提前自行预订酒店房间。
- Please show the badge and meal coupons when dining. Please be advised that lost coupons will not be replaced.
  就餐时请同时出示代表证与餐券，餐券遗失不补。

The Photos of The Event | 扫码观看会议照片

Conference WeChat | 扫码添加会议微信

Online Conference Notice

Platform | 线上会议平台

ZOOM, Download link:

- https://zoom.us/download
- https://zoom.com.cn/download (for Chinese authors)

Time Zone | 时区

Beijing Time: UTC+8

Meeting Rooms | 线上会议房间号

Online Room 1: ZOOM ID: 856 8473 3536, ZOOM link: https://us02web.zoom.us/j/85684733536

Online Room 2: ZOOM ID: 860 3614 3467, ZOOM link: https://us02web.zoom.us/j/86036143467

Online Meeting Needs | 线上会议需求

- A computer with internet connection and camera
- Headphone/earphone
- A quiet place
- Stable internet connection
- Proper lighting and background

Test Your Presentation | 线上报告测试

Date: April 7th, Monday 10:00-11:00

Prior to the formal meeting, online presenters shall join the test room to ensure everything is on the right track.

Conference Recording | 会议录制

The whole conference will be recorded. We appreciate your proper behavior and appearance.

*The recording will be used for the conference program and paper publication requirements. The video recording will be destroyed after the conference and it cannot be distributed to or shared with anyone else, and it shall not be used for commercial or illegal purposes. It will only be recorded by the staff and presenters have no rights to record.

Keynote Speech 1

Date April 8th, Tuesday **Time** 9:10-9:55 **Venue** Hexie Ballroom (3F) | 3 楼，和谐厅

Prof. Yusheng Xue 薛禹胜教授

State Grid Electric Power Research Institute, China

中国工程院院士

BIO

Prof. Yusheng Xue is an academician of Chinese Academy of Engineering and the honorary president of State Grid Electric Power Research Institute, China. He is the Chairman of Technical Committee of Chinese National Committee of CIGRE (International Council on Large Electric Systems) and a member of the Board of Directors of Chinese Society for Electrical Engineering. Prof. Xue holds the positions of adjunct professor in several universities in China. He has made significant contributions in stability and automation theory of power system. As the inventor of the Quantitative Stability Analysis Method of Non-autonomous Motion Systems, Prof. Xue promotes the application and industrialization of an interruption defense system in eighty percent of power systems in China. He is the recipient of several National Technology Invention Awards and National Science and Technology Progress Awards in China. He has also been awarded a Chinese patent gold medal, a Chinese excellent patent award, a first prize award of the national science technology books and a nominee for the national book award of China. Prof. Yusheng Xue is a member of the International Advisory Committee of the Power and Energy Reliability Research Center of Chongqing University.

Speech Title: The Mechanism of Ontology Complex Systems

Keynote Speech 2

Date April 8th, Tuesday **Time** 10:25-11:10 **Venue** Hexie Ballroom (3F) | 3 楼，和谐厅

Prof. Sri Niwas Singh

Director, ABV-Indian Institute of Information Technology and Management, Gwalior (MP), India

印度工程院院士 Fellows of IEEE, IET, INAE, IE(I), AAIA, AIIA, IETE, AvH

BIO

Prof S. N. Singh is working as Director, Atal Bihari Bajpayee- Indian Institute of Information Technology and Management Gwalior (MP), India (on leave from Indian Institute of Technology Kanpur, India). Before joining IIT Kanpur as Associate Professor, Dr Singh worked with UP State Electricity Board as Assistant Engineer from 1988 to 1996, with Roorkee University (now IIT Roorkee) as Assistant Professor from 1996 to 2000 and with Asian Institute of Technology, Bangkok, Thailand as Assistant Professor from 2001 to 2002. He was Vice-Chancellor of Madan Mohan Malviya University of Technology Gorakhpur during April 2017 to July 2020. Dr Singh received several awards including Young Engineer Award 2000 of Indian National Academy of Engineering (INAE), Khosla Research Award of IIT Roorkee, and Young Engineer Award of CBIP New Delhi (India), 1996. Prof Singh is receipt of Humboldt Fellowship of Germany (2005, 2007) and Ottomonsted Fellowship of Denmark (2009-10). Prof Singh became first Asian to receive 2013 IEEE Educational Activity Board Meritorious Achievement Award in Continuing Education. He is also a recipient of INAE Outstanding Teacher Award 2016 and IEEE R10 region (Asia-Pacific) Outstanding Volunteer Award 2016. Dr Singh is appointed as IEEE Distinguish Lecturer of Power & Energy Society from 2019 and Industry application Society for 2019-2021. He is also a recipient of NPSC 2020 Academic Excellence Award and 2021 IEEE Industry Application Society (IAS) Outstanding Educator/ Mentor Award.

His research interests include power system restructuring, FACTS, power system optimization & control, security analysis, wind power, etc. Prof Singh has published more than 550 papers (h-index=62, Citation=15k+) in International/ national journals/conferences and supervised 42 PhD (9 PhD under progress). He has written 33 book-chapters, 18 edited books and 2 text-books. His two NPTEL (YouTube) video lectures on HVDC Transmission and Power System Operation & Control are very popular.

Prof Singh was Chairman, IEEE UP Section for 2013-2014, IEEE R10 (Asia-Pacific) Conference & Technical Seminar Coordinator (2015-2018) and R10 Vice-Chair, Technical Activities (2019-2020). He was India Council Chair from 2019 to 2020. He is IEEE R10 PES Chapters Coordinator (West Zone), India. Dr Singh is Fellows of IEEE (USA), IET (UK), INAE, IE(I), AAIA, AIIA, IETE, AvH.

Speech Title: Estimation of Grid Harmonics in the Presence of Renewable Energy Sources

ABSTRACT

Developments in the power electronics converter technology and control methodologies have been accelerated many folds in recent years and have made possible for the renewable energy sources (RESs) interconnection to the utility grid. Penetration of RES into the electric power system is growing rapidly across the globe owing to its environment friendly and several other important characteristics. The use of power electronics devices for interconnection of RES have resulted in severe harmonics pollution. Harmonics, apart from creating problems of equipments overheating, noise and communication interference at customer end, also increase the reactive power requirement of converters, damage filter capacitances, disturb controller functioning, increase losses in cables/transformers /machines, etc., and introduce unwanted torque harmonics in the rotating machines. The estimation of harmonics has become very important for design, analysis, tariff, control and monitoring purposes. Fourier transform based harmonics analyzers are available for the measurement of harmonics spectrum; however, it suffers from many limitations. As a result, intensive research has been focused on harmonics measurement and estimation in recent years. This presentation briefly covers some of the important techniques of power system harmonics estimation along with scope and future challenges.

Invited Speech

Date April 8th, Tuesday **Time** 11:10-11:40 **Venue** Hexie Ballroom (3F) | 3 楼，和谐厅

Assoc. Prof. Pai Lu

University of South-Eastern Norway, Norway

BIO

Assoc. Prof. Dr. Pai Lu has been working in the field of electrochemical energy storage (Battery, Capacitor, Power to Gas) for more than 10 years both in academia and industrial community. He has been managing 10 research projects (1 international collaboration project, 3 at national level, 6 at regional level) on electrochemical energy storage and conversion both in Norway and in China. The main research outcomes include more than 50 publication and more than 10 patens. 2 of his Patents and 1 extension patent on supercapacitor research has resulted in a supercapacitor start-up in Norway.

Speech Title: Multiple Electrochemical Energy Storage Solutions

ABSTRACT

Energy storage solutions are of significance for efficiently capturing and utilizing the renewable energy sources (e.g., from solar cell, wind farm). Electrochemical energy storage technologies have been devoted with tremendous efforts due to their high efficiency, location flexibility and suitability for mass scale application. In this talk, a multiple of electrochemical energy storage technologies including battery, lithium-ion capacitor, supercapacitor, and green hydrogen will be reviewed by demonstrating their recognized characteristic, our recent research work and the relevant research hotspots in Norway and Europe.

Panel Session

Future-Proofing Low-Carbon Power Grids: Innovations in Prediction, Modeling, and Control

Chairs: Yuechuan Tao, City University of Hong Kong, China
Jiaqi Ruan, Sichuan University, China
Xianzhuo Sun, Shandong University, China

13:30-15:30 | April 8	Hexun Function Room (3F) | 3 楼，和逊厅

13:30-13:50

Prof. Pei Zhang, Tianjin University, China

Speech Title: Real-time Coupling Relationship between Electric Power and CO2 Emissions in Coal-fired Power Plants based on Newton's Paradigm and Kepler's Paradigm

Abstract: Real-time coupling relationship between electric power and CO2 emissions in coal-fired power plants is investigated by combining Newton's Paradigm and Kepler's Paradigm. Firstly, according to the Newton's paradigm, the physical driven approach is adopted to derive the mathematical model between electric power and CO2 emissions based on the energy conversion processes of coal-fired power plants. Secondly, according to the Kepler's paradigm, the data driven approach is adopted to investigate the relationship between electric power and CO2 emissions using real-time measured data. Finally, the physical approach and data driven approach were mutually verified.

13:50-14:10

Assoc. Prof. Shi Chen, Sichuan University, China

Speech Title: The Application of AI in Optimal Dispatching and Control of New Power System

Abstract: With the rapid development of the new generation of AI technologies, the advantages of data-driven approaches in feature extraction, modeling, and optimized decision-making for complex nonlinear objects have become increasingly prominent. The new power system is a typical large-scale and complex system, and its volatility and uncertainty have brought great difficulties to the precise modeling and operational decision-making of the system. Attempts to apply the new generation of artificial intelligence technologies are expected to address the challenges in the modeling, operation, and control of the new power system.

14:10-14:30

Prof. Can Wan, Zhejiang University, China

Speech Title: Uncertainty Analysis of Renewable Energy Power System Operation Driven by Data-Model Fusion

Abstract: The integration of renewable energy sources (RES) into power systems introduces significant challenges due to the inherent uncertainty of renewable generation. This paper presents a comprehensive approach to uncertainty analysis in renewable energy power system operations, driven by the fusion of data and models. By leveraging real-time data from smart grids and advanced forecasting models, the proposed methodology enhances the prediction accuracy of renewable generation and demand fluctuations. The data-model fusion framework integrates probabilistic forecasting with optimization techniques, enabling more resilient and efficient decision-making for power system operators. Key focus areas include uncertainty quantification, risk assessment, and robust operational strategies under varying levels of renewable energy penetration. The results demonstrate the effectiveness of the proposed approach in reducing operational risks and improving system reliability, offering valuable insights for future energy system design and management.

14:30-14:50

Assoc. Prof. Junru Chen, Xinjiang University, China

Speech Title: Grid-forming Converter: Assessment, Siting, configuration and its implementation in Xinjiang

Abstract: With the significant increase of renewable energy sources in the power grid, system inertia and damping are greatly reduced, leading to challenges in grid stability. Grid-Forming Energy Storage System (GFM-ESS) is considered essential for improving the system stability and performance because it has control response characteristics in the same manner as Synchronous Generation (SG). To fully explore the advantages of GFM-ESSs in power systems, it is crucial to consider their optimal deployment. This talk introduces a strategy for optimizing GFM-ESS site selection, addressing both device itself and the system stability statically and dynamically.ion and introduce a reshaping method for the uncertainty set based on the optimization result to reduce conservativeness.

14:50-15:10

Assoc. Prof. Muyang Liu, Xinjiang University, China

Speech Title: Hierarchy Inertia Estimation for New Power System in Xinjiang

Abstract: Virtual inertia provided by the control of power electronic control is reckoned as one of the solutions to maintain the frequency security and stability of the low-inertia power system with high penetrations of renewables and power electronics. However, whether and how the power-electronic virtual inertia response can regulate the lowest requirement of the power system rotational inertia are not well-solved yet. This report concerns on the rotational inertia, as well as the virtual inertia that may replace the rotational inertia needing of the power system by providing first-aid frequency support and maintaining the frequency security and stability. This report explains the on-line estimation method for the inertial support ability of the new power system of Xinjiang, to obtain the real-time information of the fast frequency support for the accurate assessment of the synthetic inertial level for the typical sending-end new power system.

15:10-15:30

Vice-Chancellor Assist. Prof. Yue Chen, The Chinese University of Hong Kong, China

Speech Title: Predict-and-Optimize Robust Unit Commitment with Statistical Guarantees via Weight Combination

Abstract: The growing uncertainty from renewable power and electricity demand brings significant challenges to unit commitment (UC). While various advanced forecasting and optimization methods have been developed to predict better and address this uncertainty, most previous studies treat forecasting and optimization as separate tasks. This separation can lead to suboptimal results due to misalignment between the objectives of the two tasks. To overcome this challenge, we propose a robust UC framework that integrates the forecasting and optimization processes while ensuring statistical guarantees. In the forecasting stage, we combine multiple predictions derived from diverse data sources and methodologies for an improved prediction, aiming to optimize the UC performance. In the optimization stage, the combined prediction is used to construct an uncertainty set with statistical guarantees, based on which the robust UC model is formulated. The optimal robust UC solution provides feedback to refine the forecasting process, forming a closed loop. To solve the proposed integrated forecasting-optimization framework efficiently and effectively, we develop a neural network-based surrogate model for acceleration and introduce a reshaping method for the uncertainty set based on the optimization result to reduce conservativeness.

Best Student Paper Competition 1

AI+ Applications in Planning, Operation, and Control of New Power Systems Chair: Xinyue Chang, Taiyuan University of Technology, China	
13:30-15:30 | April 8	**Heyi Function Room (3F) | 3 楼，和怡厅**
ES0900 13:30-13:45	*A Baseline Prediction Method for Building Demand Response based on Historical Similarity Day Recognition* **Mr. Zhanbin Shi**, Yuming Zhao, Jing Wang, Xinyu Xie, Yu Yao Zhejiang University, China
ES0824 13:45-14:00	*PPO Based DRL for Online Solution of Optimal Configuration of GFM/GFL Generation Units in Hybrid Wind Power Station* **Ms. Jun Li**, Tao Lin, Chang Ye, Chen Li, Zhengyang Lin, Xialing Xu Wuhan University, China
ES1145 14:00-14:15	*Modelling Analysis of Virtual Power Plant to Enhance Energy Trading in Electricity Market Considering Green Certificate Trading Mechanism* **Ms. Ziye Han**, Yinxin Zhang, Lu Xing, Junxuan Zou Huazhong University of Science and Technology, China
ES1275 14:15-14:30	*Optimal Scheduling Strategy for PV-ES-CS in Public Buildings Considering Economy and Demand Response* **Mr. Haoxuan Ding**, Manying Zhang, Chengjin Ye, Jun Tang, Yu Yao Zhejiang University, China
ES0354 14:30-14:45	*Adjustable Robust Optimization for Hybrid Hydrogen-Battery Microgrids with LSTM-QR Forecaster* **Mr. Zuqing Zheng**, Zhaoyang Dong, Tong Li, Yuechuan Tao, Guo Chen, Fushuan Wen Central South University, China
ES0530 14:45-15:00	*A Discretization Method for PMSM Drive Using Single-Phase Current Sensor and State Observer* **Mr. Zehong Wu**, Jiayang Zhang, Sheng Zhou, Yunzhi Lin, Tao Jin Fuzhou University, China
ES1500 15:00-15:15	*Rapid Estimation Method of Surface Electric Field Strength of the Fork-Type Preformed Helical Spacer* **Mr. Xiaotian Zhang**, Yuanqing Liu, Zhengshan Zhong China Electric Power Research Institute, China
ES1390 15:15-15:30	*Evaluation of Adjustable Potential for Demand Response in Power Systems* **Mr. Ao Dong**, Ke Sun, Jian Liu, Yilei Gu, Yunpeng Jiang, Fushuan Wen Zhejiang University, China

Best Student Paper Competition 2

Emerging Technologies in Modern Power Systems: Energy Storage, Virtual Power Plant, Hydrogen, Electric Vehicle and Beyond Chair: Qin Wang, Hong Kong Polytechnic University, China	
13:30-15:45 | April 8	Hebian Function Room (3F) | 3 楼，和辩厅
ES0955 13:30-13:45	*2D Model of the Spatial Position of Litz Wire Strands Based on the Variable Neighborhood Search* **Mr. Shunjun Chen**, Ruitian Wang, Xinsheng Zhang, Cai Chen Huazhong University of Science and Technology, China
ES0653 13:45-14:00	*Coordinated Peak-shaving Optimization Strategy for Power Sources* **Mr. Yicheng Liu**, Zhaolin Liu, Qinglan Wang, Ruiming Fan, Bingcheng Zuo The Hong Kong Polytechnic University, China
ES0243 14:00-14:15	*Optimal Flexible Ramping Product Provisions by VPP with Aggregated Cold Chain Containers* **Mr. Weile Kong**, Hongxing Ye, Yinyin Ge, Song Gao Xi'an Jiaotong University, China
ES0043 14:15-14:30	*Optimal Scheduling of Integrated Energy System Considering Hydro-Wind-Solar Correlation* **Ms. Pengxia Chang**, Qiannan Zhu, Yulong Xiao, Shiqi Li, Ting Wu, Lihao Li, Chaoshun Li Huazhong University of Science and Technology, China
ES0814 14:30-14:45	*Carbon Emission Analysis of EV-penetrated Power Systems* **Mr. Yu Sheng**, Zixuan Zhu, Yicheng Liu, Qin Wang, Siqi Bu The Hong Kong Polytechnic University, China
ES1045 14:45-15:00	*Ring-Based Radial Topology Offshore Wind Collector System* **Ms. Xingru Ye**, Ronghua Zhu, Zheng Yang, Qiuyu Yan, Cailiang Zhang, Haining Xing Zhejiang University, China
ES0053 15:00-15:15	*Optimal Scheduling of Hydro-Wind-Solar Integrated Energy System Considering Uncertainties* **Mr. Qiannan Zhu**, Pengxia Chang, Yulong Xiao, Shiqi Li, Ting Wu, Lihao Li, Adnan Saeed, Chaoshun Li Huazhong University of Science and Technology, China
ES1371 15:15-15:30	*Electricity and Reserve Market Clearing Model with Intermittent Renewable Energy Generation Participation* **Ms. Xiaoru Zhang**, Liang Shao, Shuang Liang, Gang Lu, Dazheng Liu, Dazheng Liu, Yan Li, Fushuan Wen Zhejiang University, China
ES1410 15:30-15:45	*An Efficient Allocation Method for Virtual Power Plant and Energy Storage Profits Based on Shapley Value* **Mr. Yinuo Zhu**, Qianying Wang, Sheng Zhou, Kaile Zeng， Li Yang, Zhenzhi Lin Zhejiang University， China

Oral Session 1

AI+ Applications in Planning, Operation, and Control of New Power Systems Chair: Yumin Zhang, Shandong University of Science and Technology, China	
16:00-18:05 | April 8	**Hexun Function Room (3F) | 3 楼，和逊厅**
IS 16:00-16:20	*Aggregation, Control, and Market Mechanisms for Large-Scale Buildings-to-Grid* **Dr. Xiaolong Jin** Tianjin University, China
ES0985 16:20-16:35	*Short-term Prediction of Wind Turbine Power based on Improved CNN-LSTM Hybrid Model* Ming Cheng, Siyu Lu, Xinyi Lai, Huimin Wang, Jingxuan Zhang, **Assoc. Prof. Xinyue Chang** Taiyuan University of Technology, China
ES1091 16:35-16:50	*Flexible Resource Scheduling of Distribution Network Based on Deep Reinforcement Learning* Yujie Zhu, **Mr. Haoyun Yuan**, Xingyao Xiong, Jiaqi Ruan, Shi Chen Sichuan University, China
ES1181 16:50-17:05	*Bidding Strategies for Virtual Power Plants in Multi-Energy Systems: A Comparative Study of Model-Based and AI-Based Approaches* Zuliang Huang, Zhaoyang Dong, Tianjing Wang, Zuqing Zheng, Tong Li, **Assist. Prof. Yuechuan Tao** City University of Hong Kong, China
ES0925 17:05-17:20	*A Transferable State-of-Health Prediction Method for Lithium-ion Batteries Based on ConvLSTM-Trans* Shu Zhang, **Dr. Xuanang Gui**, Yuheng Cheng, Zhengwen Zhang, Junhua Zhao, Xinlei Cai The Chinese University of Hong Kong (Shenzhen), China
ES1311 17:20-17:35	*Visual Inspection System for High-Voltage Switchgear based on Digital Twin* **Dr. Qi Li**, Kaiqi Ye, Haidong Chu, Yanghao Gu, Yunfeng Yan, Donglian Qi Zhejiang University, China
ES0621 17:35-17:50	*Research and Application of Optimized Distribution Method for Electric Power Materials Based on Multiple Vehicle Types* Jinjin Li, **Ms. Xiuqing Lin**, Dandan Yan, Daiyuan Bao Measurement Center Guangxi Power Grid Co., Ltd, China
ES0324 17:50-18:05	*Economic and Energy Feasibility of Hydrogen-Powered Hybrid System for Rural Electrification* **Dr. Shoaib Ahmed Khan**, Zou Tao, Shah Fahad, Muhammad Salman, Mustafa Tahir, Anwar Ali Guangzhou University, China

Oral Session 2

Stability Analysis and Control of Modern Power Systems With Rich Renewable Energy Generation

Chair: Ping He, Zhengzhou University of Light Industry, China

16:00-17:50 | April 8	Heyi Function Room (3F) | 3 楼，和怡厅
IS 16:00-16:20	*Resilience Enhancement of Urban Distribution Networks Considering the Integration of Large-Scale Flexible Loads* **Dr. Shaohua Yang** University of Macau, China
ES1123 16:20-16:35	*STATCOM and Flexible DC Coordinated Control Strategies for Improving the Stability of Hybrid Multi-infeed HVDC Operation* Congshan Li, **Mr. Hang Wei**, Jian Guo, Ping He Zhengzhou University of Light Industry, China
ES0631 16:35-16:50	*Different LVRT Performance Analysis of PV Inverters in the Large-Scale Photovoltaic Cluster Transmission by VSC-HVDC* Xiaobin Zhao, Tianyu Li, **Mr. Zehao Wang**, Biyue Huang, Xia Chen, Kewei Xu Electric Power Research Institute, China Southern Power Grid, China
ES0281 16:50-17:05	*Analysis of the Impact of Ultra High Voltage AC/DC Integration on Transient Stability of the Western Inner Mongolia Power Grid* Ping He, **Mr. Lingshuai Kong**, Xinyan Liu, Guodong Qin Zhengzhou University of Light Industry, China
ES1020 17:05-17:20	*Operation and Modulation of A Hybrid Submodule Alternate Arm Converter* **Dr. Kaiwen Liao**, Kai Zhang Huazhong University of Science and Technology, China
ES0314 17:20-17:35	*The Large-Capacity Energy Storage Configuration for New Energy Integration Systems* **Dr. Yuwei Chen** Powerchina Huadong Engineering Corporation Limited, China
ES0253 17:35-17:50	*Coordinationed Optimization of the STATCOM-PSS Device Parameter Design based on the WPTB Delivery System* Ping He, **Mr. Zemeng Liu**, Jingjing Shao, Zhangjie Guo Zhengzhou University of Light Industry, China

Oral Session 3

Optimal Planning, Situation Awareness, and Coordinated Operation of Modern Power Systems

Chair: Zhenzhi Lin, Zhejiang University, China

16:00-18:20 | April 8	Hebian Function Room (3F) | 3 楼，和辩厅
IS 16:00-16:20	*Electricity Retail Plan Recommendation Method Based on Multigranular Hesitant Fuzzy Sets and an Improved Non-Negative Latent Factor Model* **Dr. Yuanqian Ma** Zhejiang Sci-Tech University, China
ES0692 16:20-16:35	*Study on the Performance of the STMAS-WRF Model in Short-term Forecasting of Wind Field in Hangzhou Bay, Zhejiang Province* Chenping Ren, Yanan Wang, Luan Xu, Shuxin Cai, **Ms. Yaying Pan**, Juxiang Yao Zhejiang Meteorological Service Center, China
ES1321 16:35-16:50	*Rolling Optimization Model for Coordinating with Multi-Type Reserve Resources in Power Systems Considering Multiple Uncertainties* Jian Wang, **Mr. Qiwenli Chen**, Zhengbo Shan, Yan Guo, Dawei Wang, Shiqi Liu, Yunchu Wang, Zhenzhi Lin Zhejiang University, China
ES1337 16:50-17:05	*Tripartite Evolutionary Game Simulation Analysis of Carbon Emission Reduction Strategy from the Perspectives of Carbon Pricing and Taxation Mechanisms* **Dr. Feng Lu**, Zhong Jiang, Lei Xiang, Kai Chen, Yi Xing, Songsong Zheng State Grid HuZhou Electric Power Supply Company, China
ES1253 17:05-17:20	*Generation Capacity Adequacy Assessment Considering Multi-resource Coupling* Zhou Lan, **Mr. Ankai Liu**, Yidi Zhang, Zikang Shen, Zhenzhi Lin, Li Yang Zhejiang University, China
ES0663 17:20-17:35	*Identifying Typical Load Curves of Industrial Customers Based on DBSCAN-DPC Dual-Layer Algorithm* Yuanqian Ma, **Ms. Huan Xu**, Xueyan Liang, Hangzhe Wu, Yunchu Wang, Nuo Xu Zhejiang Sci-Tech University, China
ES0700 17:35-17:50	*Correlation Analysis of Meteorological Warning Signals and Wind Turbine Operating Failures* **Ms. Yanan Wang**, Chenping Ren, Tingting Gu, Yaying Pan, Juxiang Yao, Hengyu Shi Zhejiang Meteorological Service Center, China
ES1400 17:50-18:05	*Credible Capacity Accounting for Energy Storage Based on the Effective Load Carrying Capacity Method* **Ms. Sicheng Xu**, Yidi Zhang, Zhou Lan, Ankai Liu, Zikang Shen, Li Yang Zhejiang University, China
18:05-18:20	*An Optimal PMU Placement Method Considering Zero Injection Nodes Properties and Node Criticality* **Senior Engineer Li Li** Guangdong Electric Power Grid Co., Ltd. Electric Power Research Institute, China

Poster Session 1

Stability Analysis and Control of Modern Power Systems with Rich Renewable Energy Generation

Chair: Congshan Li, Zhengzhou University of Light Industry, China

13:30-14:45 | April 8

ES0733 13:30-13:35	*System Frequency Response Model Generation Using Weighted Recursive Least Squares* Yanli Yi, Pingping Liu, **Assoc. Prof. Yongji Cao**, Sen Yu, Changgang Li, Xiaoming Liu Shandong University, China
ES0793 13:35-13:40	*Siting Method of Distributed Synchronous Condensers for High-Proportion Renewable Energy Transmission Systems* Yutong Wang, Yuhao Liu, **Ms. Jiawen Fan**, Ruibing Zhou, Bingchen Liu Inner Mongolia Electric Power (Group) Co., Ltd. Hohhot Power Supply Branch, China
ES0400 13:40-13:45	*An Adaptive-parameter-based Master-slave Suppression Strategy for Subsynchronous Oscillations in Wind Power Grid-connected Systems* Yanhui Xu, **Ms. Aijiu Zhu**, Yundan Cheng North China Electric Power University, China
ES0763 13:45-13:50	*Optimization of Grid-forming SVG Control Strategy for Simulating the Demagnetization Effect of Rotor Windings* **Ms. Wenqing Lu**, Beihua Liang, Changyu Li, Tianzhi Cao, Shanying Li, Huan Xie State Grid Jibei Electric Power Research Institute, China
ES1111 13:50-13:55	*Data Augmentation for Dynamic Security Assessment based on Hybrid Model-Data Driven Approach* Qiuquan Deng, Cuiyun Luo, Yin Wu, Guangming Li, Xiejin Ling, Zhencheng Liang, Yuan Zeng, Chao Qin, **Dr. Junzhi Ren** Tianjin University, China
ES1065 13:55-14:00	*Optimal Pre-Disaster Deployment of Mobile Energy Storage Systems with Thermostatically Controlled Load Coordination* **Ms. Xiaoman Zhang**, Yuxiong Huang, Gengfeng Li Xi'an Jiaotong University, China
ES0743 14:00-14:05	*WRLS-ARMAX-Based Parameter Identification for System Frequency Response Model with Battery Energy Storage System* Sen Yu, **Assoc. Prof. Jiaying Wang**, Yongji Cao, Yanli Yi, Changgang Li, Baoliang Li Shandong University, China
ES1071 14:05-14:10	*EWT-Hilbert-CACLNet Hybrid Forecasting Model for Short-Term Photovoltaic Power* **Mr. Chong Wang**, Ruitian Wang, Yaxiang Fan, Wenxing Jin Naval University of Engineering, China

ES0465 14:10-14:15	*A Cooperative Game-based Model for the Coordinated Control of Wind-Solar-Storage Cluster* Peng Cong, **Mr. Lv Qi**, Liu Yuehan, Chen Xiaohui, Huang Fulin, Gu Liuyin Zhejiang University of Technology, China
ES0304 14:15-14:20	*Two-stage Stochastic Optimization Clearing Model of Day-ahead Energy Market Considering Renewable Energy* **Ms. Zhiren Zhang**, Hang Zhan, Liufu Chen, Tianyi Su, Yu Lei, Quan Che, Jiang Wan, Fuzhi Xiong State Grid Chongqing Electric Power Company, China
ES0511 14:20-14:25	*Fault Detection in Renewable Energy Systems Using Large Time Series Models* **Mr. Xiangrui Meng**, Zian Liu, Yuxiang Gong, Yan Bai, He Ma, Guolong Liu, Junhua Zhao The Chinese University of Hong Kong, China
ES0884 14:25-14:30	*Steady-State Control and Active Optimization Method for Distribution Networks with Flexible Interconnected Devices* **Ms. Jiawen Fan**, Ruibing Zhou, Yutong Wang, Bifei Hou Inner Mongolia Electric Power (Group) Co., Ltd. Hohhot Power Supply Branch, China
ES1015 14:30-14:35	*Multi Motor Switching Control Strategy for Vertical Matrix Gravity Energy Storage System Considering Charging and Discharging Characteristics* Yifei Fan, Yan Li, **Mr. Wenchao Zhai**, Liangzhong Yao, Xiangying Zhang, Jinglei Deng Wuhan University, China
ES1000 14:35-14:40	*Optimization of Distribution Systems with Hydropower, PV and Energy Storage* Liao Yaohua, Jin Xin, **Mr. Gu Zhiming**, Li Bo, Pan Tingzhe China Southern Power Grid, China
ES1055 14:40-14:45	*Optimizing Distribution Networks with Photovoltaic Unmanned Aerial Vehicles* Da Li, **Mr. Haixing Zheng**, Chaohui Wu, Junhua Weng, Xiaotong Li, Tingzhe Pan Southern Power Grid Comprehensive Energy Co., Ltd., China

Poster Session 2

Coordinated Optimization and Economic Dispatch of Source-Load-Storage Multi-Resources in Power Systems

Chair: Yaowen Yu, Huazhong University of Science and Technology, China

15:00-16:05 | April 8

ES0975 15:00-15:05	*Clustering Analysis of Electric Vehicle Charging Behavior Based on the Improved Quantum K-Means Algorithm* **Mr. Peihao Liu**, Heping Zhu, Yuting Hua, Hongbin Wu, Yueming Yu, Rui Wang Anhui University of Science and Technology, China
ES0233 15:05-15:10	*A Unified Access and Regulation Method for Source-load-storage Multiple Resources Considering Regulation Characteristics* Na Li, Song Gao, **Mr. Shuo Dai**, Yuqi Qian Xi'an Jiaotong University, China
ES0475 15:10-15:15	*Research on the Economic Optimal Dispatch of the Power Grid with Joint Participation of Wind, Solar, and Energy Storage in the Market* Xie Xu, **Mr. Qiu Hangting**, Tan Zhihua, Wang Meng, Tian Xingwei, Du Bin Zhejiang University of Technology, China
ES0945 15:15-15:20	*Pumped Storage Power Plant Quantification in Promoting Renewable Energy Integration and Carbon Emissions Reduction Based on Time Series Production Simulation* Zhiming Chen, Yuchong Yao, Hua Li, **Assoc. Prof. Guozhong Liu** Dongguan University of Technology, China
ES1221 15:20-15:25	*A Two-Stage Coordinated Sensitivity Adjustment Method for Energy Storage and Distributed Photovoltaics on Line Losses* Xiaoting Yang, Xiaoyu Shan, Zongfeng Zhang, Ming Hu, **Mr. Debao Wang** University of Jinan, China
ES1081 15:25-15:30	*A Sampling Study of Electric Vehicle Charging Data Based on K-Means-GMM-MLP Hybrid Model* **Mr. Heping Zhu**, Peihao Liu, Yuting Hua, Hongbin Wu, Yueming Yu, Rui Wang Anhui University of Science and Technology, China
ES0915 15:30-15:35	*Energy Management for Hydrogen-Lithium Powered UAV Based on Deep Reinforcement Learning* **Mr. Yue Yu**, Yufei Yao, Wenjun Yan, Hongyan Zhao Beijing University of Technology, China
ES0965 15:35-15:40	*Multi-stage Optimization of Distribution Network PMU Based on Interval State Estimation* **Ms. Rui Wang**, Yueming Yu, Yuting Hua, Hongbin Wu, Heping Zhu, Peihao Liu Anhui University of Science and Technology, China

ES0935 15:40-15:45	*Research on the Cooperative Operation Model and Benefits of Pumped Storage Power Plants and Nuclear Power Plants in Guangdong Province* Qian Peng, Dongsen Wei, Hua Li, **Assoc. Prof. Guozhong Liu** Dongguan University of Technology, China
ES0333 15:45-15:50	*Secondary Control of Parallel V2G Pharging Pile Based on Consistency Algorithm Strategy* Mingcai Wang, **Mr. Qi Jia**, Kaixuan Li, Peijun Li, Ye Yang, Liu Yang, Peng Zhang State Grid Smart Internet of Vehicles Co.,LTD, China
ES0800 15:50-15:55	*The Role of Electric Vehicles in Power System Frequency Regulation Services: Technologies, Market Positioning, and Challenges* **Ms. Chenchen Yang**, Haitao Liu, Xuran Jin, Junkai Ma, Wenxiao Zhang, Zhiming Qiao Nanjing Institute of Technology, China
ES0995 15:55-16:00	*Vulnerability Assessment of Distribution Network Nodes Based on Entropy Weight-CRITIC Method* **Mr. Yueming Yu**, Rui Wang, Yuting Hua, Hongbin Wu, Peihao Liu, Heping Zhu Anhui University of Science and Technology, China
ES1381 16:00-16:05	*Economic and Low-carbon Regulation Strategy for Flexible Resources in Providing Demand Response* You Xue, Zhesheng Hu, **Mr. Lyuxuan Ding**, Qin Xu Zhejiang University, China

Poster Session 3

Emerging Technologies in Modern Power Systems: Energy Storage, Virtual Power Plant, Hydrogen, Electric Vehicle and Beyond

Chair: Pai Lu, University of South-Eastern Norway, Norway

16:30-17:25 | April 8

ES0131 16:30-16:35	*Understanding and Characterization of the Dynamic Characteristics of Grid-Connected Power Converters in Current Control Timescale* **Mr. Yangyang Yun**, Sicheng Wang, Xiaoming Yuan Huazhong University of Science and Technology, China
ES0683 16:35-16:40	*Research on Short-Term Load Forecasting Based on the Integrated Model* **Ms. Yiran Li**, Gengfeng Li, Yuxiong Huang, Dingmao Zhang Xi'an Jiaotong University, China
ES1211 16:40-16:45	*A Novel Quotient Gradient System for Power Line Inspection Model* **Mr. Debao Wang**, Bingyang Ma, Tianqi Zhao, Xingong Cheng, Xianlong Lv, Conghao Li, Chuang Xu, Junwei Liu University of Jinan, China
ES0595 16:45-16:50	*Probabilistic Static Voltage Stability Assessment of Power Systems with Different Sampling Methods* Yanbo Jia, Zhaohui Shi, **Mr. Lei Zhang** Powerchina Huadong Engineering Corporation Limited, China
ES0121 16:50-16:55	*Research on the Mechanism of Network Energy Participation in the Dynamic Process of the Converter Interfaced System* **Ms. Qiumeng Xu**, Sicheng Wang, Xiaoming Yuan Huazhong University of Science and Technology, China
ES0844 16:55-17:00	*Power System Damage Assessment Considering Cascading Failures under E1 HEMP* Shuai Dong, Zitao Lü, **Ms. Binlu Wang**, Gengfeng Li Huaneng Yimin Coal-Power CO.,LTD, China
ES0410 17:00-17:05	*Data-driven Identification of Active Conditional Transmission Section Limits in SCUC* Yanan Wu, Hong Yu, Meicen Pan, **Assoc. Prof. Yaowen Yu**, Yong Zhao, Yijie Gao Huazhong University of Science and Technology, China
ES0673 17:05-17:10	*Impact of V2G-containing Virtual Power Plant on Transmission Cross-section Identification under Typhoon Disaster* **Mr. Daiyu Xie**, Biao Chen, Boyao Wei, Mingyuan Chen, Dong Mo, Bao Li Guangxi Power Grid Co., Ltd., China
ES0864 17:10-17:15	*Automatic Generation Control of HVDC Interconnected Power Grids Considering Frequency Synchronous Control Strategy* **Mr. Yukang Shen**, Chenhui Lin, Wenchuan Wu, Run Huang, Yixuan Chen, Qiang Yu Tsinghua University, China

ES1241 17:15-17:20	*Development of the Monitoring System for the Stress State of Power Cable Laying Based on LoRa Wireless Spread Spectrum Technology* Zhang Qiang, Dong Haojie, Sun Xiaopan, Yu Yadong, Yin Zhaoyang, **Prof. Cheng Xian** Zhengzhou University, China
ES0141 17:20-17:25	*Amplitude/Frequency Continuous Modulation Law of Oscillation Signals in Power Systems and Demodulation Method* **Mr. Baike Cai**, Sicheng Wang, Xiaoming Yuan Huazhong University of Science and Technology, China

Oral Session 4 (Online)

AI+ Applications in Planning, Operation, and Control of New Power Systems Chair: Hui Hou, Wuhan University of Technology, China	
10:00-12:15 | April 9	**ZOOM ID: 856 8473 3536** **ZOOM link: https://us02web.zoom.us/j/85684733536**
ES0100 10:00-10:15	*Fault Analysis of Guangdong Power Grid in China During Typhoon Yagi (2024)* **Mr. Yuanzhao Shi**, Hui Hou, Ruizeng Wei, Lei Wang Wuhan University of Technology, China
ES0574 10:15-10:30	*Fast Implementation of Model Predictive Control for PMSG Wind Turbine Generator Based on Deep Learning* **Mr. Guanming Zeng**, Mingqun Liu, Liang Tu, Xin He, Yihua Zhu, Peng He Electrical Power Research Institute, China Southern Power Grid (CSG), China
ES0894 10:30-10:45	*Inertia Ancillary Service Market Mechanism for Renewable-Dominated Power Systems: A Review* Xinyi Chen, Fei Du, **Ms. Ying Cao**, Zhenfei Tan, Zheng Yan Shanghai Jiao Tong University, China
ES1291 10:45-11:00	*Evaluation of Power Losses in Cable Caused by Harmonics* **Dr. Yaqiong Li**, Hao Luo China Electric Power Research Institute, China
ES0394 11:00-11:15	*A Cyber-Physical-Social System Framework for Power Outage Risk Factor Classification Using Deep Learning Method* Weitao Tan, Qinying Liu, Hong Wang, Xian Zhang, Guibin Wang, **Mr. Yunjin Yang** Shenzhen University, China
ES0061 11:15-11:30	*Research on the Effective Asset Prediction Model of Power Grid Enterprise Based on Particle Swarm Algorithm* **Mr. Yijhong Zhang**, Yanzuo Chen, Zhao Yang Economic Research Institute of State Grid Zhejiang Electric Power Company, China
ES1300 11:30-11:45	*Review of Pricing Mechanisms and External Cost Allocation in the Green Power Trading System* Yifeng Liu, Meng Chen, Pingfan Wang, Yingxiang Wang, **Mr. Yuanzhao Shi**, Feng Li, Hui Hou Wuhan University of Technology, China
ES0091 11:45-12:00	*A Suggested Definition for Microgrids Appropriate to the Construction of New Electricity System in China* **Dr. Ziliang Xu**, Yuchun Chen, Zhongjian Chu, Jinyong Shi, Suoyu Li, Junchao Ran, Dikang Sun, Yuhang Liu Power Consumption Technology Branch Company, NARI Group, China
ES1191 12:00-12:15	*Waveform Tracking, Efficiency Analysis and Application Scenarios of Boost Circuits* **Ms. Zhouyue Wang** Shihezi University, China

Oral Session 5 (Online)

Optimization and Scheduling of Integrated Energy Systems for Carbon Neutrality Chair: Gaoqi LIANG, Harbin Institute of Technology, Shenzhen, China	
10:00-12:15 | April 9	ZOOM ID: 860 3614 3467 ZOOM link: https://us02web.zoom.us/j/86036143467
ES0440 10:00-10:15	*A Joint Planning Framework for Charging Stations, Integrated Hydrogen Production-Refueling Stations and Power Distribution Systems with Market Mechanism Integration* **Mr. Chen Ma**, Siyi Liu, Xian Zhang, Guibin Wang Harbin Institute of Technology Shenzhen, China
ES0611 10:15-10:30	*Large Language Model-Based Operation Ticket Generation: A Case Study* Shuwen Zhang, Huan Zhao, Yuheng Cheng, Jujin Wu, Junhua Zhao, **Dr. Zibin Pan** The Chinese University of Hong Kong, China
ES0641 10:30-10:45	*Joint Optimization Scheduling Strategy for Low-Carbon Multi-Energy Microgrid Considering Energy Sharing* **Ms. Yumeng Qiu**, Weili Wu Xi'an University of Science and Technology, China
ES0834 10:45-11:00	*Reserve and Peak Shaving Cost Allocation for Volatile Renewable Generation in Power System* Xiaogang Li, Min Wu, Fubin Liu, Zhongyang Chen, **Mr. Dianfeng Jiang**, Zhenfei Tan Shanghai Jiao Tong University, China
ES0854 11:00-11:15	*Research on Coordinated Optimal Scheduling Strategy for Park-level Multi-microgrids Considering Power Interaction* **Ms. Jiale Li**, Jingjing Jiang Changsha University of Science & Technology, China
ES1231 11:15-11:30	*Multi-objective Planning of Integrated Regional Energy Systems Based on Engineering Economics* **Ms. Yuwei Guo**, Bowen Zhou, Wentao Xu, Yanru Chen Northeastern University, China
ES0874 11:30-11:45	*A Large Language Model-Based Agent for Automated Bidding Strategy Generation in Electricity Markets* **Ms. Ruixi Zou**, Xiyuan Zhou, Yuheng Cheng, Wenxuan Liu, Xinlei Wang, Junhua Zhao, Xinlei Cai The Chinese University of Hong Kong (Shenzhen), China
ES0151 11:45-12:00	*Comparative Analysis of MPPT Based on PSO, SSA and ISSA Algorithms under Partial Shade Conditions* **Mr. Yuxin Zhang**, Shaojuan Yu, Liqun Liu, Xiaokang Jia, Bingtao Zhou, Yan Feng Taiyuan University of Science and Technology, China
ES1285 12:00-12:15	*Research on the Construction Method of Energy Development Strategy Environmental Assessment Indicator System Based on Information Contribution Degree and Principal Component Analysis* **Dr. Peng Xia**, Bo Yuan, Yichun Gong, Cong Wu State Grid Laboratory of Energy and Power Planning, China

Oral Session 6 (Online)

Stability Analysis and Control of Modern Power Systems With Rich Renewable Energy Generation

Chair: Yaqi Shen, North China Electric Power University, China

14:00-16:30 | April 9	ZOOM ID: 856 8473 3536 ZOOM link: https://us02web.zoom.us/j/85684733536
ES0263 14:00-14:15	*Research on the Grid-Forming Control Strategy of the Receiving-End MMC and the Autonomous Inertia Response Method of the MMC-HVDC System* **Mr. Guanming Zeng**, Mingqun Liu, Liang Tu, Xin He, Yihua Zhu, Peng He Electrical Power Research Institute, China Southern Power Grid (CSG), China
ES0434 14:15-14:30	*The Control Technology Study of Doubly Fed Induction Generator Participation in Primary Frequency Regulation* **Assoc. Prof. Changjiang Zhu**, Lin Wang, Ruiliang Wang Windey Energy Technology Group Co., Ltd., China
ES0753 14:30-14:45	*Stochastic Modeling Method and Heavy Overload Analysis of Source Loads in Distribution Substations* **Mr. Shengyang Liu**, Jin Yi Changsha University of Science & Technology, China
ES1161 14:45-15:00	*Pilot Protection of Low-Frequency Transmission Lines for Offshore Wind Power Based on JS Divergence* **Mr. Yinjie Zhang**, Xindong Li, Tonghua Wu, Wei Dai, Miao Shi NARI Group Corporation, China
ES0083 15:00-15:15	*Research on Operation State Evaluation Strategy of Oil-immersed Power Transformer based on Membership Function of Cloud Model* **Ms. Jiajia Huang**, Santao Wang, Beilei Huang, Jun Wang, Wenbo Cai, Maoji Liu, Yibin Chen, Qiang Gao State Grid Zhejiang Electric Power Company, China
ES0450 15:15-15:30	*Grid Forming Inverter Based on Luenberger Observer Reinforcement Learning for Voltage Control* **Mr. Amoh Mensah Akwasi**, Haoyong Chen, Junfeng Liu South China University of Technology, China
ES1264 15:30-15:45	*Short-term Voltage Stability Assessment in Power Systems based on Deep Learning* Xiaohu Zhang, Jun Yan, Jun Qi, Rihong Zheng, Xiwei Jiang, Aiguo Zhao, **Mr. Wenliang Wang** Shandong University, China
ES0600 15:45-16:00	*Dual-input LC Resonant Converter* **Dr. Jiayi Kong**, Chen Zhao, Mingjin Xu, Xiaojing Liu, Liyao Wang, Yi Du, Rui Sun Beijing Institute of Graphic Communication, China
ES1001 16:00-16:15	*A First-order Meteorological Markov Chain-based Method for Generating A Long-term Dataset of Photovoltaic Outputs* Min Sun, Wei Zeng, **Mr. Riying Xiao** Nanchang University, China
ES0294 16:15-16:30	*Power Decoupling Method for Droop-controlled Converter Based on Reactive Power Compensation* **Mr. Jiahui Wang**, Pengcheng Wang, Cheng Ling, Xiaziru Xu, Ge Shan, Feng Jiang, Min Chen Zhejiang University, China

Oral Session 7 (Online)

Emerging Technologies in Modern Power Systems: Energy Storage, Virtual Power Plant, Hydrogen, Electric Vehicle and Beyond

Chair: TBA

14:00-16:30 | April 9	ZOOM ID: 860 3614 3467 ZOOM link: https://us02web.zoom.us/j/86036143467
ES0713 14:00-14:15	*Application of Data-Driven Online Prediction and Localization Method for Weak Batteries in Energy Storage Stations* **Mr. Bo Sun**, Mou Huang, Lingfeng Wei, Guowei Chen China Electric Power Research Institute, China
ES0373 14:15-14:30	*Optimal Design of High-Voltage Cascaded Energy Storage System* **Mr. Dong Jianzheng**, Liao Baowen PowerChina Fujian Electric Power Engineering CO.,LTD, China
ES0383 14:30-14:45	*FBWM-MARCOS Based Planning Method for Grid Peak-frequency Regulation Energy Storage System* **Mr. Zhiguo Yang**, Wenlin Zheng Changsha University of Science & Technology, China
ES0424 14:45-15:00	*Researchon STM32F407 Control System of Permanent Magnet Synchronous Motor for Motor Maintenance* Xiangui Liu, **Mr. Zitao Jin** North China University of Science and Technology, China
ES1051 15:00-15:15	*Integrated Dispatch of Cascade Hydropower Stations and Hybrid Pumped Storage under Different Water Inflow Conditions* Fei Du, Xinyi Chen, **Mr. Taiyan Zhao**, Zhenfei Tan, Zheng Yan Shanghai Jiao Tong University, China
ES0162 15:15-15:30	*Research on Multi-subject Collaborative Decision-making of Incremental Distribution Network Equity Investment based on Game Theory and Optimized Genetic Algorithm* **Mr. Qian Zhuang**, Xinyuan Shi, Bingwu Lou Tongxiang Power Supply Company, China
ES0500 15:30-15:45	*An Optimal Voltage Balancing Control Strategy for MMC-HVDC* **Mr. Yunlong Fan**, Shuaidong Zhang, Jun Yang, Tianqi Wen Baotou Power Supply Company, China
ES0564 15:45-16:00	*Analysis and Design of Non-isolated LC Full-bridge Grid-connected Inverter* **Dr. Xiaopeng Zheng**, Zongyao Nie, Erwei Li, Lan Peng University of Science and Technology of China, China
ES1100 16:00-16:15	*A Fault State Evaluation Method for Relay Protection Equipment* **Dr. Peng Guo**, Lie Zhang, GuoshengYang, Zhongqing Li, Yanfei Li China Electric Power Research Institute, China
ES0532 16:15-16:30	*Research Progress on Influencing Factors of Electrostatic Precipitator Efficiency* **Mr. Junbin Huang**, Jinyi Fang, Qiang Liu, Yaqi Zhang Guangdong Polytechnic Normal University, China

Delegates

Xuguang Min	Jiangxi Science and Technology Normal University, China
Yadong Yu	Zhengzhou University, China
Haojie Dong	Zhengzhou University, China
Wenjun Yan	Beijing University of Technology, China
Jingxuan Zhang	Taiyuan University of Technology, China
Huimin Wang	Taiyuan University of Technology, China
Yutong Wang	Inner Mongolia Electric Power (Group) Co., Ltd. Hohhot Power Supply Branch, China
Hongxing Ye	Xi'an Jiaotong University, China
Gengyu Wang	Shanghai Jiao Tong University, China

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