



上海交通大学
SHANGHAI JIAO TONG UNIVERSITY



IEEE



Power & Energy Society®



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ICPRE
2023



The 8th International Conference on Power and Renewable Energy

2023年第八届电力与可再生能源国际会议

上海

2023/09/22-25
Shanghai, China

CONFERENCE PROGRAM

2023 the 8th International Conference on Power and Renewable Energy 2023 年第八届电力与可再生能源国际会议 (ICPRE 2023)

Shanghai, China | September 22-25, 2023
中国, 上海 | 2023 年 9 月 22-25 日

-Co-Sponsored by-



IEEE



Onsite Venue

Venue: Grand Central Hotel
会议酒店: 上海大酒店

Address: No. 505, Jiujiang Rd, Shanghai
地址: 上海市黄浦区九江路 505 号



tencent meeting

Online Link

Room	Room ID	Passwords
Room A	374-2133-9885	2023
Room B	963-8237-7050	2023
Room C	457-5218-4973	2023
Room D	543-4917-8655	2023



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扫码获取现场照片

AGENDA OVERVIEW / 日程概览

*All schedules will be process in **Beijing Time (UTC+8)** 会议时间安排均为北京时间 (UTC+8)

Day-1 September 21, 2023 2023 年 9 月 21 日 星期四		
10:00-17:00	Registration 线下参会人员领取参会资料	Hotel Lobby 上海大酒店大堂
10:00-17:30	Online Test 线上参会人员设备测试	Voov Meeting 线上腾讯会议
Day-2 September 22, 2023 2023 年 9 月 22 日 星期五		
09:00-12:20	Conference Opening 线下开幕式 Keynote Speeches 1-4 & Invited Speech 1 线下或线上主旨报告 1-4 & 邀请报告 1	Shanghai Grand Ballroom 上海厅 Room A 线上会议室 A
12:30-14:00	Lunch & Break 午餐和午休	Coffee Shop 咖啡厅 (1F)
14:00-18:00	Keynote Speech 5 & Invited Speech 2 & 3 线下或线上主旨报告 5 & 邀请报告 2&3 Best Student Paper Competition 01 线下最佳学生文章竞赛 1	Jade Hall II (翡翠厅 II -4F) Room A 线上会议室 A
	Invited Speech 4-6 线下邀请报告 4-6 Best Student Paper Competition 02 线下最佳学生文章竞赛 2	Crystal Hall II (紫晶厅 II -4F)
	Invited Speech 7-9 线下邀请报告 7-9 Best Student Paper Competition 03 线下最佳学生文章竞赛 3	Iris Room I (金百合厅 I -2F)
	Track 1 & Track 2 线下 Track 分会 1 & 2	Iris Room II (金百合厅 II -2F)
	Poster Session 01-04 线下海报展示 1-4	Foyer 序厅-4F
14:00-16:00	Best Student Paper Competition 04 线上最佳学生文章竞赛 4 Best Student Paper Competition 05 线上最佳学生文章竞赛 5 Best Student Paper Competition 06 线上最佳学生文章竞赛 6	Room B 线上会议室 B Room C 线上会议室 C Room D 线上会议室 D
19:00-21:00	Gala Dinner & Award 晚宴和颁奖	Jade Hall (翡翠厅-4F)
Day-3 September 23, 2023 2023 年 9 月 23 日 星期六		
09:30-12:00	Invited Speech 10 & Track 3 线下邀请报告 10 & Track 分会 3 Invited Speech 11 & Track 4 线下邀请报告 11 & Track 分会 4 Track 5 线下 Track 分会 5 Track 6 线下 Track 分会 6 Poster Session 05-06 线下海报展示 05-06	Crystal Hall I (紫晶厅 I -4F) Crystal Hall II (紫晶厅 II -4F) Iris Room I (金百合厅 I -2F) Iris Room II (金百合厅 II -2F) Foyer 序厅-4F
10:00-12:00	Track A & B 线上 Track 分会 A&B	Room A&B 线上会议室 A&B
12:00-14:00	Lunch & Break 午餐和午休	Coffee Shop 咖啡厅 (1F)
14:00-16:00	Track 7 线下 Track 分会 7 Session A 线下分会报告 A Session B 线下分会报告 B Session C 线下分会报告 C Poster Session 07-09 线下海报展示 07-09	Crystal Hall I (紫晶厅 I -4F) Crystal Hall II (紫晶厅 II -4F) Iris Room I (金百合厅 I -2F) Iris Room II (金百合厅 II -2F) Foyer 序厅-4F
	Track C & D 线上 Track 分会 C&D	Room A&B 线上会议室 A&B
Day-4 September 24, 2023 2023 年 9 月 24 日 星期日		
10:00-12:00	Online Session 01-03 线上报告	Room A&B&C 线上会议室 A&B&C
13:30-18:00	Online Session 04-07 线上报告	Room A&B 线上会议室 A&B
Day-5 September 25, 2023 2023 年 9 月 25 日 星期一		
09:40-10:00	Online Invited Speech12 线上邀请报告 12	Room A&B&C&D
10:00-12:00	Online Session 08-11 线上分会报告 8-11	线上会议室 A&B&C&D
14:00-16:00	Online Session 12-14 线上分会报告 12-14	Room B&C&D 线上会议室 B&C&D
17:00-17:30	Closing Ceremony 闭幕式	Room A 线上会议室 A

Welcome to 2023 / 欢迎致辞

The field of Power and Renewable Energy has been rapidly growing in recent years, with a focus on developing sustainable and environmentally friendly energy sources. Research has been focused on areas such as energy storage systems, power electronics, grid integration, and control of renewable energy sources. Advances in technology have enabled increased efficiency and cost-effectiveness, making renewable energy a more viable option for widespread adoption. The 8th International Conference on Power and Renewable Energy serves as a platform for researchers and practitioners to share the latest advancements in this field and discuss their potential applications. It is important to regularly convene such international conferences to promote collaboration and exchange of ideas, ultimately driving progress and innovation in the field of power and renewable energy.

2023 The 8th International Conference on Power and Renewable Energy, the annual premier power and renewable energy development meeting, will be held from September 22-25, 2023 in Shanghai, China. ICPRE 2023 is sponsored by Shanghai Jiaotong University, China and technically supported by Shanghai University, Shanghai Maritime University, Shanghai University of Electric Power, North China Electric Power University, Anhui University of Science and Technology, etc.

ICPRE is an annual conference in the Asia-Pacific Region that attracts industry practitioners, policy makers and researchers to share and exchange the experiences, ideas and technologies on power and renewable energy. Interest in Power and Renewable Energy with novel achievements has remarkably increased in recent years. ICPRE welcome you to submit the papers that could be included in two main topics-Clean and Renewable Energy as well as Power and Energy Engineering by following general topics, but not limited to this.

We truly believe that ICPRE 2023 will achieve greater success and provide a better platform for all the participants to have fruitful discussions and to share ideas of researches. With high standard and high-quality submissions and presentations in ICPRE. With the four days' conference, there will be plenty of opportunities for you to showcase your work in front of professionals in the power and energy engineering sector at this hugely popular, one-of-a-kind conference.

Hope everyone will enjoy this conference and benefit from all the speeches and presentations. Look forward to seeing you at ICPRE2024!

Your sincerely,

ICPRE 2023
Organizing Committee

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孙庆
上海大学

荣淼
上海大学

SESSION OVERVIEW / 分会速览

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Conference Venue / 会场信息

Conference Venue / 会议地点

Venue

Grand Central Hotel
上海大酒店

Address

No. 505, Jiujiang Rd, Shanghai
上海市黄浦区九江路 505 号



Sign-in / 注册

Spot

1F / Lobby 酒店大厅

Time

10:00 am-5:00 pm | September 21, 2023

Transportation / 交通信息

Shanghai Pudong International Airport

45 minutes by car

Hongqiao Airport

25 minutes by car

Shanghai Railway Station

15 minutes by car

Gaoke Rd(W) @ Metro Line 1, 2 and 8

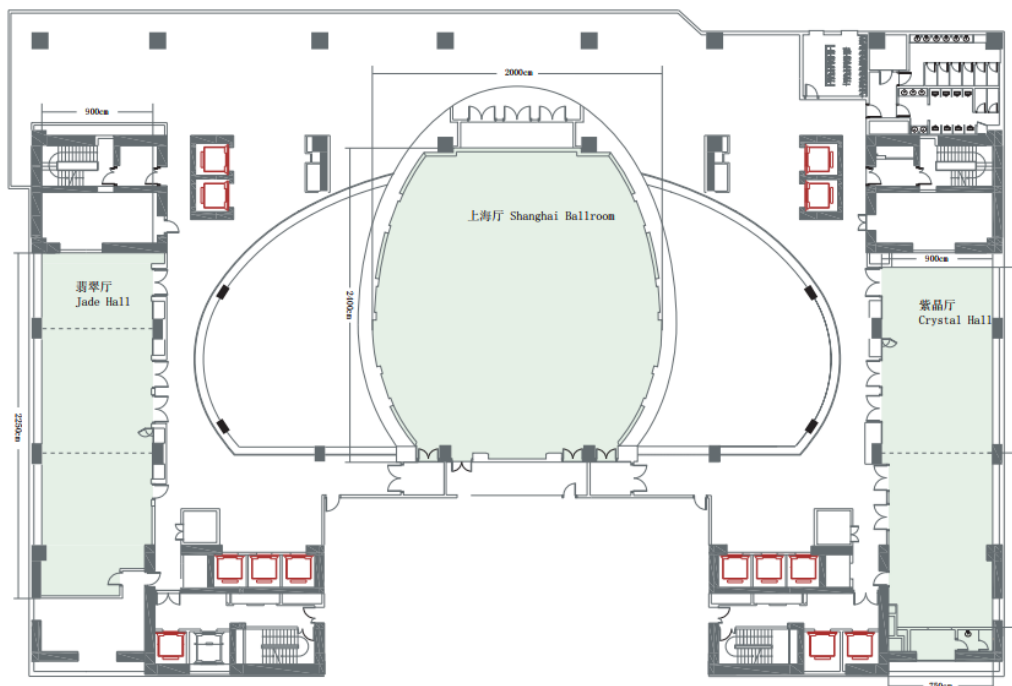
3 minutes by foot

Floor Plan / 楼层安排

CONFERENCE ROOMS

Level	Meeting Room	Sep. 21	Sep. 22	Sep. 23
1F	Lobby (大厅)	★	★	★
2F	Iris Room (金百合厅)		★	★
4F	Shanghai Grand Ballroom (上海厅)		★	
4F	Crystal Hall (紫晶厅)		★	★
4F	Jade Hall (翡翠厅)		★	

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Accommodation recommends:

住宿推荐:

王宝和大酒店（4 星）/ 商务间单间或标间

Central Hotel Shanghai / Superior Room/King size or twin Size

上海大酒店（5 星）/豪华间单间或标间

Grand Central Hotel / Deluxe Room/King size or twin Size

*Notice:

Please note that the conference hotel or conference secretary will not contact any participant for reservation, please be careful when anyone asks you to provide your credit card information to book rooms for you. If you have any questions, please contact us via the conference email address or phone or WeChat on the contact page.

会议酒店以及会务组不会以任何形式索要任何参会者的信用卡、银行卡信息用订房或者购买机票，请大家务必

警惕，如有遇到，请第一时间通过会议官方联系方式与我们取得联系并确认真实性。

Guidelines for Onsite Talks /现场参会指导

Oral Presentation / 口头汇报

- The duration of a presentation slot is 15 minutes. Please target your lecture for a duration of about 12-13 minutes for the presentation plus about 2-3 minutes for questions from the audience.
- Your punctual arrival and active involvement in each session will be highly appreciated.
- Get your presentation PPT or PDF files prepared and backed up.
- Laptops, projector & screen, laser sticks will be provided by the conference organizer.

Poster Presentation / 海报展示

- **A1 size (841mm×594mm, height > width) in Portrait mode.**
- It's expected that at least one author stands by the poster for (most of the time of) the duration of the poster session. This is essential both to present your work to anyone interest in it and to make sure that your presence is verified by committee.

Name Badge / 会议材料

- For security purposes, delegates, speakers, exhibitors and staff are required to wear their name badge to all sessions and social functions. Entrance into sessions is restricted to registered delegates only. If you misplace your name badge, please replace at the registration counter.

Tips / 注意事项

- Your punctual arrival and active involvement in each session will be highly appreciated.
- Get your presentation PPT or PDF files prepared.
- Laptop (with MS-Office & Adobe Reader), projector & screen, laser sticks will be provided by the conference organizer.
- Please keep all your belongings (laptop and camera etc.) with you in public places, buses, subway.

Reminder / 安全提示

- please remember to take all personal belongings with you whenever you leave a conference room or public area. Do not leave bags or laptops unattended.
- Please silence your cell phones during presentations or sessions to minimize the disruptions.

Guidelines for Online Talks /线上参会指导

Time Zone / 时区

- China Standard Time (CST) UTC/GMT+08:00
- Please make sure that both the clock and the time zone on your computer are set to the correct China Time

Device / 设备

- A computer with an internet connection (wired connection recommended)
- USB plug-in headset with a microphone (recommended for optimal audio quality)
- Webcam (optional): built-in or USB plug-in

Environment / 环境

- Quiet Environment
- Stable Internet Connection
- Proper lighting

Platform: Voov / 线上平台

- For Users from mainland China: <https://meeting.tencent.com/download>
- For General Users: <https://voovmeeting.com/>
- Voov Help Center: <https://www.tencentcloud.com/document/product/1054?lang=en&pg=>

Room	Room ID	Link	Passwords
Room A	374-2133-9885	https://meeting.tencent.com/dm/9fr7D2eJgGHd	2023
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Room C	457-5218-4973	https://meeting.tencent.com/dm/Fk8q3V0ypeDU	2023
Room D	543-4917-8655	https://meeting.tencent.com/dm/f4K9O0O0clLT	2023

Sign and Join / 登录须知

- Join a meeting without signing in: A Voov account is required if you join a meeting as a participant, but you can change the virtual background or edit the profile picture
- Sign in with a Voov account: All the functions are available

Voice Control Rules / 静音

- The host will mute all participants while entering the meeting.
- Speakers can unmute microphone when it is his or her turn for presentation.
- Q&A goes after each speaker, the participant can raise questions.

Detailed Agenda / 日程安排

September 21, 2023 Thursday (2023 年 9 月 21 日 – 星期四)

- ONSITE / 现场注册 -

TIME/时间	ACTIVITY / 会议安排	
10:00-17:00	Onsite Sign-in @ Lobby of Grand Central Hotel 签到: 上海大酒店大厅 (1F) <ul style="list-style-type: none"> Give your Paper ID+Name to the staff. 告知工作人员您的文章/听众编号和名字 Sign your name in the attendance list and check meal information. 在签到表签字并反馈用餐信息 Check your conference kit, which includes conference bag, name tag, meal voucher, conference program, the receipt of the payment, the USB. 确保您收集齐以下会议资料: 会议包, 代表证, 餐券, 会议日程, 发票 (电子发票于会前 3-5 日发送到邮箱) 以及会议 U 盘。 	
16:00-17:00	Tutorial Protection and Control of Modern Power Systems (电力系统保护与控制) Director Xinli Jiang (Editor)	Crystall Room (紫晶厅- 4F)

- ONLINE TEST / 线上测试 -

Room	Room ID	Link	Passwords
Room A	374-2133-9885	https://meeting.tencent.com/dm/9fr7D2eJgGHd	2023
Room B	963-8237-7050	https://meeting.tencent.com/dm/7Gh1MwSpdpnl	2023
Room C	457-5218-4973	https://meeting.tencent.com/dm/Fk8q3V0ypeDU	2023
Room D	543-4917-8655	https://meeting.tencent.com/dm/f4K9O0O0clLT	2023

TIME/时间	ACTIVITY / 会议安排	Room ID / 线上会议室
10:00-10:15	Prof. Ayman El-refaie Marquette University, USA	Room A
10:15-12:00	Hongying He, Yuanpeng Guan, Lianfei Xu, Kaibo Shi, Heng Chen, Zhou Zhe, Changzhou Yu, Qiang Yu, Ningyi Dai, Chunya Yin, Huan Pan, Rui You, Tian Mao, Somboon Nuchprayoon, Yang Zhang, Zhen Wu, Yang Zhang, Chunyang Gong, Xin Xiao, Li Ming	
12:00-14:00	Break Time	
14:00-14:30	Prof. João P. S. Catalão, University of Porto, Portugal	Room A
14:30-15:30	Best Student Paper Competition 04 & 05 & 06	Room A
	Track A & Track B & Track C	Room B
	Track D & Session 01 & 02	Room C
	Session 03 & Session 04 & Session 05	Room A
15:30-16:30	Session 06 & Session 07 & Session 08	Room B
	Session 09 & Session 10 & Session 11	Room C
	Session 12 & Session 13 & Session 14	Room B
16:30-17:30		

Grand Central Hotel 上海大酒店
Address: No. 505, Jiujiang Rd, Shanghai
地址: 上海市黄浦区九江路 505 号

ONSITE
线下

Time Zone
China Standard Time (CST), UTC +8
Please set up your laptop time in advance

ONLINE
线上

September 22, 2023 - Friday (2023 年 9 月 22 日 – 星期五)Chaired by: **Prof. Zhixin Wang**, Shanghai Jiaotong University, China

Onsite: Shanghai Grand Ballroom (上海厅-4F)

Online: Room A: 374-2133-9885 Passwords: 2023

09:00-09:10	Opening Ceremony	Honorary Chair Prof. Minrui Fei, Shanghai University, China	
09:10-09:45	Keynote Speech 1	Prof. Andy Knight (IEEE Fellow) University of Calgary, Canada Speech Title: Approaches to Support Renewable Energy Integration, from Large Systems to Microgrids	
09:45-10:20	Keynote Speech 2 (Online)	Prof. Ayman El-Refaie (IEEE Fellow) Marquette University, USA Speech Title: Energy Conversion for a Sustainable Future Revived Role of Power and Energy	
10:20-11:00		Coffee Break & Group Photo Foyer (序厅-4F)	
11:00-11:30	Keynote Speech 3	Prof. Dajun Du Shanghai University, China Speech Title: Security Detection, Estimation, and Authentication of Cyber-physical Power Systems	
11:30-12:00	Keynote Speech 4	Prof. Weimin Wu Shanghai Maritime University, China Speech Title: Research on Application of Kalman Filter in Grid-connected Inverter Control	
12:00-12:20	Invited Speech 1	Prof. Yamada Hirohito Tohoku University, Japan Speech Title: A DC Microgrid with Batteries Directly Connected Bus-line	
12:20-14:00		Lunch Coffee Shop 咖啡厅 (1F)	
Onsite Arrangements (现场安排)			
Chaired by: Xue Li, Shanghai University, China			
14:00-14:20	Invited Speech 2	Prof. Chengbin Ma Shanghai Jiao Tong University, China Speech Title: Existence and Uniqueness of Locational Marginal Prices	Jade Hall II (翡翠厅 II -4F)
14:20-14:40	Invited Speech 3	Assoc. Prof. Jun Ji Shanghai Maritime University, China Speech Title: Development and Application of Low-temperature Phase Change Materials for Cold Chain Logistics	
14:40-15:15	Keynote Speech 5 (Online)	Prof. João P. S. Catalão (IEEE Fellow) University of Porto, Portugal Speech Title: Increasing Renewable Energy Integration in Island Grids with Advanced Tools	
15:15-15:40		Coffee Break Foyer (序厅-4F)	
15:40-17:25	Best Student Paper Competition 01	Topic: Collaborative Operation and Control in Novel Power Systems 主题: 新型电力系统中的协同运行与控制 NE-008, NE-034, NE-235, NE-330, NE-441, NE-186, NE-132	

Chaired by: Xin Li, Shanghai University, China			
14:00-14:20	Invited Speech 4	Prof. Donghan Feng Shanghai Jiao Tong University, China <i>Speech Title: Existence and Uniqueness of Locational Marginal Prices</i>	Crystal Hall II (紫晶厅 II -4F)
14:20-14:40	Invited Speech 5	Assoc. Prof. Zhongcheng Wang Shanghai Maritime University, China <i>Speech Title: Marine Methanol Fuel Power Technology</i>	
14:40-15:00	Invited Speech 6	Assoc. Prof. Huirong Zhao Shanghai University of Electric Power, China <i>Speech Title: Research on Integrated Smart Energy Technology for Energy Conservation and Carbon Reduction on the Consumer Side</i>	
15:00-15:40	Coffee Break	Foyer (序厅-4F)	
15:40-17:25	Best Student Paper Competition 02	Topic: Stability and Economic Benefit Evaluation of Intelligent Power Control System 主题: 智能电力控制系统稳定性及经济效益评估 NE-485, NE-182, NE-187, NE-116, NE-298, NE-405, NE-415	
Chaired by: Hui Chen, Shanghai University of Electric Power, China			
14:00-14:20	Invited Speech 7	Assoc. Prof. Yujie Wang University of Science and Technology of China <i>Speech Title: Key Technologies and Applications of Battery Management in Electric Vehicles</i>	Iris Room I (金百合厅 I -2F)
14:20-14:40	Invited Speech 8	Sr. Engineer Fangyuan Li State Grid Smart Grid Research Institute Co., Ltd., China <i>Speech Title: High Precision Real-time Digital-physical Hybrid Simulation Technology of Large-scale DC Grid</i>	
14:40-15:00	Invited Speech 9	Sr. Engineer Tao Liu China Southern Power Grid Energy Storage Co., Ltd., China <i>Speech Title: Construction of new power system and pumped storage</i>	
15:00-15:40	Coffee Break	Foyer (序厅-2F)	
15:40-17:25	Best Student Paper Competition 03	Topic: Renewable Energy Utilization and Integrated Energy System Optimization 主题: 可再生能源利用与综合能源系统优化 NE-014, NE-117, NE-018, NE-423, NE-033, NE-218, NE-134	
14:00-16:30	Track 1	Topic: Distributed Energy Systems Operation and Prediction Control 主题: 分布式能源系统运行与预测控制 NE-381, NE-232, NE-382, NE-136, NE-384, NE-179, NE-408, NE-419, NE-433	Iris Room II (金百合厅 II-2F)
16:30-18:15	Track 2	Topic: Advanced Control Technology of Generation, Operation, and Low-Carbon Electricity Trading Based on Renewable Energy 主题: 基于可再生能源的发电、运营和低碳电力交易的先进控制技术 NE-366, NE-429, NE-431, NE-058, NE-112, NE-508, NE-427	
14:30-16:00	Poster Session 01	Topic: New Batteries and Health Status Estimation 主题: 新型电池及健康状况估计 NE-094, NE-114, NE-271, NE-464, NE-476, NE-471, NE-062	Foyer 序厅-4F

16:30-18:00	Poster Session 02	Topic: Simulation of Electronic Component Design Performance 主题: 电子元器件设计性能模拟 NE-258, NE-022, NE-380, NE-299, NE-320, NE-421, NE-333	Foyer 序厅-4F
	Poster Session 03	Topic: Simulation and Reliability Evaluation of Distribution Network Systems 主题: 配电网系统仿真与可靠性评估 NE-035, NE-138, NE-192, NE-296, NE-300, NE-363, NE-321, NE-207, NE-512, NE-513	
	Poster Session 04	Topic: Smart Grid Configuration and System Stability Analysis 主题: 智能电网配置及系统稳定性分析 NE-345, NE-026, NE-091, NE-507, NE-236, NE-406, NE-420, NE-498, NE-522, NE1-002, NE-348	
	Online Arrangements (线上安排)		
14:00-15:30	Best Student Paper Competition 04	Topic: Digital Power Grid and Distribution System 主题: 数字电网与配电系统 NE-286, NE-292, NE-488, NE-064, NE-478, NE-439	Room B 963-8237-7050
14:00-15:45	Best Student Paper Competition 05	Topic: Characteristic Analysis and Functional Control of Electronic Devices/Electrical Equipment 主题: 电子器件/电气设备特性分析及功能控制 NE-161, NE-189, NE-455, NE-165, NE-460, NE-311, NE-475	Room C 457-5218-4973
14:00-15:45	Best Student Paper Competition 06	Topic: Advanced Battery and Energy Storage Technology 主题: 先进电池及储能技术 NE-121, NE-220, NE-248, NE-260, NE-483, NE-168, NE-412	Room D 543-4917-8655
19:00-21:00	Gala Dinner & Award		Jade Hall (翡翠厅-4F)

September 23, 2023 - Saturday (2023 年 9 月 23 日 - 星期六)

Onsite Arrangements (现场安排)

09:30-09:50	Invited Speech 10	Prof. Yue Song Tongji University, China <i>Speech Title: Voltage Regulation under Uncertainty: Harnessing the Flexibility in Network Topologies</i>	Crystal Hall I (紫晶厅 I-4F)
09:50-11:20	Track 3	Topic: Data-driven Operation of Renewable Energy Systems 主题: 数据驱动的可再生能源系统运行 NE-318, NE-385, NE-461, NE-432, NE-110, NE-249	
09:30-09:50	Invited Speech 11	Asst. Prof. Xinran Zhang Beihang University, China <i>Speech Title: Power System Demand Side Modeling Based on Noise-Like Signals</i>	Crystal Hall II (紫晶厅 II-4F)
09:50-11:20	Track 4	Topic: Advanced Physical Energy Storage Techniques and Apparatus 主题: 先进物理储能技术及装备 NE-459, NE-119, NE-457, NE-374, NE-502, NE-214,	

09:30-11:30	Track 5	Topic: Planning, Control, and Resilience Enhancement in Low-Carbon-Driven Power Systems and Electricity Markets 主题: 低碳电力系统和电力市场的规划、控制和弹性增强 NE-386, NE-391, NE-122, NE-274, NE-392, NE-310, NE-411	Iris Room I (金百合厅 I -2F)
09:30-11:30	Track 6	Topic: Digitalized Operation and Decision Making for Modern Power Grids 主题: 现代电网的数字化运行与决策 NE-238, NE-494, NE-495, NE-496, NE-176, NE-245, NE-302, NE-306	Iris Room II (金百合厅 II -2F)
10:00-12:00	Poster Session 05	Topic: Intelligent Power System Monitoring and Operation 主题: 智能电力系统监测与运营 NE-143, NE-390, NE-016, NE-444, NE-448, NE-261, NE-334, NE-357, NE-360, NE-096, NE-099, NE-111, NE-394	Foyer 序厅-4F
	Poster Session 06	Topic: New Energy Power Generation Technology and Energy Estimation 主题: 新能源发电技术及电量估计 NE-210, NE-030, NE-107, NE-108, NE-050, NE-317, NE-324, NE-048	
12:00-14:00	Lunch & Break		Coffee Shop 咖啡厅 (1F)
14:00-16:00	Track 7	Topic: Dispatching Analysis and Control of High Penetration Renewable Energy System 主题: 高比例新能源电力系统调度分析与控制 NE-181, NE-069-A, NE-525, NE-526, NE-006, NE-024, NE-290, NE-463	Crystal Hall I (紫晶厅 I -4F)
14:00-16:00	Session A	Topic: Photovoltaic System Construction and Grid Connection Technology 主题: 光伏系统构建与并网技术 NE-519, NE-505, NE-090, NE-113, NE-124, NE-362, NE-467, NE-398	Crystal Hall II (紫晶厅 II -4F)
14:00-16:00	Session B	Topic: Power System Control and Reliability Assessment 主题: 电力系统控制与可靠性评估 NE-255, NE-352, NE-375, NE-438, NE-052, NE-147, NE-155, NE-340	Iris Room I (金百合厅 I -2F)
14:00-16:00	Session C	Topic: Virtual Power Plant Optimization Management and Power Communication 主题: 虚拟电厂优化管理与电力通信 NE-128, NE-191, NE-259, NE-194, NE-070, NE-404, NE-283, NE-044	Iris Room II (金百合厅 II -2F)
14:00-16:00	Poster Session 07	Topic: Fault Diagnosis and Maintenance in Electrical Systems 主题: 电气系统中的故障诊断及维护 NE-167, NE-177, NE-440, NE-446, NE-397, NE-469, NE-180	Foyer 序厅-4F
	Poster Session 08	Topic: Integrated Energy System and Energy Storage Technology 主题: 综合能源系统与储能技术 NE-213, NE-466, NE-037, NE-355, NE-304, NE-160, NE-434	
	Poster Session 09	Topic: Modern Energy System and Electricity Market Management 主题: 现代能源系统与电力市场管理 NE-150, NE-198, NE-250, NE-443, NE-456, NE-337, NE-470	

Online Arrangements (线上安排)			
10:00-12:00	Track A	Topic: Distributed Energy Systems Operation and Prediction Control 主题: 分布式能源系统运行与预测控制 NE-200, NE-190, NE-247, NE-103, NE-201, NE-297, NE-509, NE-202	Room A 374-2133-9885
10:00-12:00	Track B	Topic: Advanced Control Technology of Generation, Operation, and Low-Carbon Electricity Trading Based on Renewable Energy 主题: 基于可再生能源的发电、运营和低碳电力交易的先进控制技术 NE-428, NE492, NE-499, NE-454, NE-516, NE-458, NE-510, NE-370	Room B 963-8237-7050
12:00-14:00	Lunch Time		
14:00-16:00	Track C	Topic: Digitalized Operation and Decision Making for Modern Power Grids 主题: 现代电网的数字化运行与决策 NE-474, NE-489, NE-493, NE-242, NE-367, NE-349, NE-480, NE-101	Room A 374-2133-9885
14:00-16:00	Track D	Topic: Dispatching Analysis and Control of High Penetration Renewable Energy System 主题: 高比例新能源电力系统调度分析与控制 NE-268, NE-497, NE-336, NE-056, NE-203, NE-224, NE-244, NE-388	Room B 963-8237-7050

September 24, 2023 - Sunday (2023 年 9 月 24 日 - 星期日)

Online Arrangements Only (线上安排)			
10:00-12:00	Session 01	Topic: New Power System Operation and Control Strategies 主题: 新型电力系统运行与控制策略 NE-221, NE-312, NE-226, NE-326, NE-316, NE-234, NE-442, NE-100	Room A 374-2133-9885
10:00-12:00	Session 02	Topic: Smart Grid Control and Optimal Dispatch 主题: 智能电网控制与优化调度 NE-080, NE-354, NE-159, NE-295, NE-435, NE-162, NE-331, NE-523	Room B 963-8237-7050
10:00-12:00	Session 03	Topic: Optimization and Control of Distribution Network 主题: 配电网优化与控制 NE-280, NE-329, NE-369, NE-372, NE-414, NE-339, NE-451, NE-185	Room C 457-5218-4973
12:00-13:30	Lunch Time		
13:30-15:30	Session 04	Topic: Structural Design and Performance Measurement of Intelligent Electrical Equipment 主题: 智能电气设备结构设计与性能测量 NE-093, NE-350, NE-373, NE-315, NE-450, NE-216, NE-506, NE-092	Room A 374-2133-9885
13:30-15:45	Session 05	Topic: Wind Farm Simulation, Wind Power Generation System Control, and Power Generation Prediction 主题: 风电场模拟, 风力发电系统控制与发电量预测 NE-152, NE-228, NE-217, NE-222, NE-289, NE-294, NE-409, NE-230, NE-243	Room B 963-8237-7050
15:30-16:00	Break Time		

16:00-18:00	Session 06	Topic: Safety and Anomaly detection of Power Transmission Lines 主题: 电力输电线路安全及异常检测 NE-166, NE-170, NE-293, NE-465, NE-346, NE-206, NE-010, NE-395	Room A 374-2133-9885
16:00-18:15	Session 07	Topic: Fault Detection and Diagnosis in Power Systems 主题: 电力系统中的故障检测与诊断 NE-209, NE-032, NE-079, NE-156, NE-341, NE-422, NE-262, NE-081, NE-084	Room B 963-8237-7050
September 25, 2023 - Monday (2023 年 9 月 25 日 - 星期一)			
Online Arrangements Only (线上安排)			
09:40-10:00	Invited Speech 12	Dr. Yikui Liu Sichuan University, China <i>Speech Title: Exploring Multidimensional Spatial-temporal Hydropower Operational Flexibilities by Modeling and Optimizing Water constrained Cascading Hydroelectric Systems</i>	Room A 374-2133-9885
10:00-12:00	Session 08	Topic: Control Models and Parameter Analysis in Power Systems 主题: 电力系统中的控制模型与参数分析 NE-012, NE-514, NE-257, NE-328, NE-472, NE-445, NE-172, NE-368	
10:00-12:15	Session 09	Topic: Novel Battery Design and Energy Utilization 主题: 新型电池设计与能源利用 NE-075, NE-118, NE-145, NE-060, NE-074, NE-130, NE-351, NE-424, NE-453	Room B 963-8237-7050
10:00-12:00	Session 10	Topic: Thermoelectric Systems and Heat Exchange 主题: 热电系统与热交换 NE-125, NE-098, NE-004, NE-153, NE-123, NE-109, NE-239, NE-265	Room C 457-5218-4973
10:00-12:00	Session 11	Topic: Image-based Intelligent System Design and Power Communication Technology 主题: 基于图像的智能系统设计与电力通信技术 NE-115, NE-211, NE-447, NE-146, NE-148, NE-403, NE-503, NE-430	Room D 543-4917-8655
12:00-14:00	Lunch Time		
14:00-16:15	Session 12	Topic: Key Technologies in Photovoltaic Modules and Power Generation Systems 主题: 光伏组件与发电系统中的关键技术 NE-003, NE-073, NE-193, NE-335, NE-396, NE-410, NE-436, NE-323, NE-364	Room B 963-8237-7050
14:00-16:15	Session 13	Topic: Energy Management System and Energy Consumption 主题: 能源管理系统与能源消费 NE-002, NE-065, NE-135, NE-178, NE-204, NE-266, NE-126, NE-252, NE-416	Room C 457-5218-4973
14:00-16:00	Session 14	Topic: Electricity Trading and Market Analysis 主题: 电力交易与市场分析 NE-400, NE-417, NE-082, NE-215, NE-212, NE-468, NE-076, NE-219	Room D 543-4917-8655
17:00-17:30	Online Closing Ceremony 线上闭幕式		Room A 374-2133-9885

Keynote Speakers / 主旨报告人

Beijing Time	09:10-09:45 Sep. 22, 2023 09:10-09:45 2023 年 9 月 22 日	Onsite Room	Shanghai Grand Ballroom (上海厅-4F)
Room A	374-2133-9885	Passwords	2023



Prof. Andy Knight

- University of Calgary, Canada, IEEE IAS President
- IEEE Fellow

Approaches to Support Renewable Energy Integration, from Large Systems to Microgrids

Abstract: Challenges for integration of renewable resources into electrical systems vary depending on the characteristics of that system. In addition to the availability of each renewable resource critical characteristics can be physical, such as geographic distances and temperature ranges; technical, such as load profile and grid strength; political, whether the system is operated by an integrated utility or decentralized. The talk will use the Canadian Province of Alberta to illustrate some of these issues, and present challenges and solutions to support integration of renewable.

BIO

Andy Knight is a Professor and Head of Electrical and Software Engineering at the University of Calgary. His research program focuses on the challenges of integrating renewable energy sources into electrical systems, energy efficiency, and electrical energy conversion.

Dr. Knight was awarded the PhD from the University of Cambridge and was a Professor at the University of Alberta prior to joining Calgary. He is a Professional Engineer registered in the Province of Alberta, Senior Member of IEEE and is a recipient of prize paper awards from IEEE Power and Energy Society (PES) and IEEE Industry Applications Society (IAS).

He is currently the Vice President of IEEE Industry Applications Society, a member of the Steering Committee for IEEE Electrification Magazine, and has previously held various roles with IEEE including Chairing the Steering Committees the for IEEE Energy Conversion Congress & Exposition and the IEEE International Electric Machines and Drives Conference, as a member of the Steering Committees for IEEE Journal on Selected and Emerging Topics in Power Electronics, IEEE Open Journal on Industry Applications, and Chair of IEEE Smart Grid R&D Committee.

Keynote Speakers / 主旨报告人

Beijing Time	09:45-10:20 Sep. 22, 2023 09:45-10:20 2023 年 9 月 22 日	Onsite Room	Shanghai Grand Ballroom (上海厅-4F)
Room A	374-2133-9885	Passwords	2023



Prof. Ayman El-Refaie

- Marquette University, USA
- IEEE Fellow

Energy Conversion for a Sustainable Future Revived Role of Power and Energy

Abstract: Energy sustainability is arguably one of the most critical challenges for a sustainable future. With predictions showing future scarcity and/or higher degree of extraction difficulty of traditional sources of energy for example coal, oil and natural gas, the shift to sustainable clean sources of energy is a must. Another key reason is the increasing detrimental impact of using fossil fuels. Over the last few decades, there has been serious effort to replace mechanical and hydraulic systems with electrical systems. This effort also includes replacing fixed-speed and old electrical drives with higher performance variable-speed drives. This is mainly due to the higher reliability, efficiency and robustness of electrical systems. This trend of “more electric” systems could be seen across a wide range of applications. These include traction, aerospace, actuation, mining, oil & gas, and industrial applications as examples. This push for electrification posed a lot of challenges to develop electrical systems that meet the demanding requirements of the various applications including harsh environments, high power density, high efficiency and fault tolerance in safety-critical applications. At the heart of the electrification effort is the development of advanced electrical machines and drives. This presentation will provide an overview of the various applications where electrification is taking place. The presentation will focus on electrical machines and drives that have been developed or are currently under development. The presentation will also cover some general trends in electrical machines and potential areas of research.

BIO

Ayman M. El-Refaie received the M.S. and Ph.D. degrees in electrical engineering from the University of Wisconsin Madison on 2002, and 2005 respectively. Between 2005 and 2016 he has been a principal engineer and a project leader at the Electrical Machines and Drives Lab at General Electric Global Research Center. His interests include electrical machines and drives. Since January 2017 he joined Marquette University as the Werner Endowed Chair for Energy Sustainability. He has over 200 journal and conference publications. He has 48 issued US patents. At GE, he worked on several projects that involve the development of advanced electrical machines for various applications including, aerospace, traction, wind, and water desalination. He was the chair for the IEEE IAS Transportation Systems committee and an associate editor for the Electric Machines committee.

Keynote Speakers / 主旨报告人

Beijing Time	11:00-11:30 Sep. 22, 2023 11:00-11:30 2023 年 9 月 22 日	Onsite Room	Shanghai Grand Ballroom (上海厅-4F)
Room A	374-2133-9885	Passwords	2023



Prof. Dajun Du

- Shanghai University, China

Security detection, estimation, and authentication of cyber-physical power systems

Abstract: Cyber-physical power systems (CPPSs) profoundly change the operation method of conventional power systems, yet the integration of communication and computation technologies will also bring new cybersecurity changes. It will seriously threaten the security and reliable operation of CPPSs. Therefore, a novel construction method for false data injection attacks is firstly proposed based on fast regression algorithm, which reveals the construction mechanism of false data injection attack strategy and obtain good sparsity attack vector. Then, aiming at the problem that traditional chi-square detection cannot identify false data injection attacks, an online chi-square detection method combining two state estimates is proposed to improve detection performance. Next, for hybrid cyber-attacks in CPPSs, an ADMM-based distributed state estimation method is proposed to ensure resilient state estimation. Finally, from the perspective of active defense, a novel revocable lightweight authentication scheme is proposed for resource-constrained devices to improve their security.

BIO

Prof. Dajun Du received his B.Sc. and M.Sc. degrees from Zhengzhou University and his Ph.D. degree from Shanghai University. He was a visiting Ph.D. student and Research Fellow at Queen's University Belfast, U.K. He is currently a professor of Shanghai University, Shanghai youth science and technology star, Shanghai talent development fund winner. His current research interests include system modeling and secure control of cyber-physical systems. He has published more than 160 SCI/EI papers, authorized 11 invention patents, and 9 software copyrights. He has hosted more than 10 projects including National Natural Science Foundation of China, ministry of industry and information technology of China, etc. He has won the second prize of Shanghai Natural Science Award, the first prize of Shanghai science and technology award, the first prize of Science and Technology Award of China Instrument and Control Society, the first prize of Innovation Technology Award of China Simulation Federation, etc. He has obtained 3 Best Paper/ Best student paper Awards such as IEEE RASSE 2021, IMIoT&ICSEE 2018, LSMS&ICSEE2017.

Keynote Speakers / 主旨报告人

Beijing Time	11:30-12:00 Sep. 22, 2023 11:30-12:00 2023 年 9 月 22 日	Onsite Room	Shanghai Grand Ballroom (上海厅-4F)
Room A	374-2133-9885	Passwords	2023



Prof. Weimin Wu

- Shanghai Maritime University

Research on Application of Kalman Filter in Grid-connected Inverter Control

Abstract: With the progress of science and technology and the rapid development of society, the power inverters have been widely used, following which the performance requirements of the inverters are much higher, including better quality of output waveform, lower total harmonic distortion (THD), faster dynamic response, higher efficiency and so on. And the performances of the whole inverter system largely depend on the merits of the grid-connected inverter control method. As an efficient autoregressive filter, the Kalman filter can estimate the state of a dynamic system in the combined information of various uncertain situations, and is a powerful and versatile tool. Applying the Kalman filter to the control method of the inverter can greatly improve the performance of the grid-connected inverter. This report focuses on the application of Kalman filters in grid-connected inverter control: including the improved sliding mode control scheme based on Kalman filter, the harmonic current suppression method based on Kalman filter, the equivalent grid impedance estimation by Kalman filter and the seamless switching control method base on Kalman filter.

BIO

Weimin Wu received Ph.D. degrees in Electrical Engineering from the College of Electrical Engineering, Zhejiang University, Hangzhou, China, in 2005.

He worked as a research engineer in the Delta Power Electronic Center (DPEC), Shanghai, from July, 2005 to June, 2006. Since July, 2006, he has been a Faculty Member at Shanghai Maritime University, where he is currently a Full Professor in Department of Electrical Engineering. He was a Visiting Professor in the Center for Power Electronics Systems (CPES), Virginia Polytechnic Institute and State University, Blacksburg, USA, from Sept. 2008 to March. 2009. From Nov. 2011 to Jan. 2014, he was also a visiting professor in the Department of Energy Technology, Aalborg University, Denmark, working at the Center of Reliable Power Electronics (CORPE). He has coauthored over 180 papers and holds 20 patents. He has won the Elsevier Highly Cited Scholar from 2020 to now. His areas of interests include power converters for renewable energy systems, power quality, smart grid, and energy storage technology.

Dr. Wu serves as an Associate Editor for the IEEE TRANSACTIONS ON INDUSTRY ELECTRONICS and also as the Director of "Shanghai Frontiers Science Center of 'Full Penetration' Far-Reaching Offshore Ocean Energy and Power".

Keynote Speakers / 主旨报告人

Beijing Time	14:40-15:15 Sep. 22, 2023 14:40-15:15 2023 年 9 月 22 日	Onsite Room	Jade Room II (翡翠厅-4F)
Room A	374-2133-9885	Passwords	2023



Prof. João P. S. Catalão

- University of Porto, Portugal
- IEEE Fellow

Increasing Renewable Energy Integration in Island Grids with Advanced Tools

Abstract: A large share of renewable energy sources installed capacity is taking place in insular electricity grids. However, the increasing renewables penetration in the generation mix of insular power systems presents a big challenge in the efficient grid management, mainly due to the limited predictability and the high variability of renewables, in conjunction with the relevant small size of most of these networks. This Keynote Lecture addresses the effects of large-scale integration of renewables on the operation of insular power systems, presenting efficient solutions and tools towards the development of a sustainable and smart grid. Different insular electricity grids across Europe will be highlighted. Special focus will be given to the challenges and benefits associated with the increasing renewable energy integration in island grids with advanced tools.

BIO

João P. S. Catalão is an IEEE Fellow. He received the M.Sc. degree from the Instituto Superior Técnico (IST), Lisbon, Portugal, in 2003, and the Ph.D. degree and Habilitation for Full Professor ("Agregação") from the University of Beira Interior (UBI), Covilha, Portugal, in 2007 and 2013, respectively. Currently, he is a Professor at the Faculty of Engineering of the University of Porto (FEUP), Porto, Portugal. He was the Primary Coordinator of the EU-funded FP7 project SiNGULAR, a 5.2-million-euro project involving 11 industry partners. He has authored or coauthored more than 500 journal publications and 400 conference proceedings papers, with an h-index of 89 and more than 30,000 citations (according to Google Scholar), having supervised more than 120 post-docs, Ph.D. and M.Sc. students, and other students with project grants. He was the General Chair and General Co-Chair of SEST 2019 and SEST 2020, respectively, after being the inaugural Technical Chair and co-founder of SEST 2018. He is a Senior Editor of the IEEE TRANSACTIONS ON NEURAL NETWORKS AND LEARNING SYSTEMS. Furthermore, he is an Associate Editor of nine other IEEE TRANSACTIONS/JOURNALS. He was an IEEE Computational Intelligence Society (CIS) Fellows Committee Member in 2022 and 2023. He was recognized as one of the Outstanding Associate Editors 2020 of the IEEE TRANSACTIONS ON SMART GRID, and one of the Outstanding Associate Editors 2021 of the IEEE TRANSACTIONS ON POWER SYSTEMS. He has multiple Highly Cited Papers in Web of Science. He has won 5 Best Paper Awards at IEEE Conferences.

Invited Speakers / 邀请报告人

Beijing Time	12:00-12:20 Sep. 22, 2023 12:00-12:20 2023 年 9 月 22 日	Onsite Room	Shanghai Grand Ballroom (上海厅-4F)
Room A	374-2133-9885	Passwords	2023



Prof. Yamada Hirohito

- Tohoku University, Japan

A DC Microgrid with Batteries Directly Connected Bus-line

Abstract: A DC microgrid in which small batteries are distributed and directly connecting on the bus-line give a large electrical inertia force on the bus-line and can passively equalize the power distribution within the microgrid. Therefore, the autonomous decentralized cooperative control of microgrid becomes very easy and simple. We built a testbed of the battery directly connected DC microgrid on our university campus and have been operating it for over a year without connection to the existing power grid (that is, off-grid). This time, I introduce the configuration of the DC microgrid testbed, and also describe the various characteristics and advantage of this method based on experiments. Furthermore, I will also introduce micro data centers those are operating as the power load. The data centers are located roof top of our buildings and runs on 100% renewable energy. I will also introduce the operations and effects of job scheduling using the micro data center.

BIO

Hirohito Yamada received his B.E. degree in electronics engineering from Kanazawa University in 1981, and his M.E. and Ph.D. degrees in electronics engineering from Tohoku University in 1983 and 1987, respectively. In 1987 he joined the Opto-Electronics Research Laboratories, NEC Corporation, where he has been engaged in research on semiconductor lasers for optical communications. From 1991 to 1997 he researched semiconductor lasers especially for use in access network systems in Kansai Electronics Research Laboratory. From 1998, he researched Si nano-photonic devices especially for photonic crystals and Si-wire waveguides in NEC Tsukuba Labs. In 2006, he moved on Tohoku University. Now he is a Professor of Tohoku University

Invited Speakers / 邀请报告人

Beijing Time

14:00-14:20 | Sep. 22, 2023

14:00-14:20 | 2023 年 9 月 22 日

Onsite Room

Jade Hall II

(翡翠厅 II -4F)



Prof. Chengbin Ma

- Shanghai Jiao Tong University Joint Institute, China

Multi-Port Energy Routing and Cloud-Local Dual Redundancy Management

Abstract: This presentation will cover two important aspects of the proliferation of renewable energy systems: hardware and software for power flow control. First, multi-port power converters are important for energy routing in renewable energy applications. In particular, magnetic-coupled multiport converters are especially advantageous in terms of galvanic isolation and reduced number of magnetic components. They also enable highly integrated and modular circuit designs. At the same time, their Multiple Input Multiple Output (MIMO) characteristics complicate control. Therefore, this presentation will present a new approach to MIMO-based control of multi-port power converters and its fast implementation for energy routing. Second, scheduling and controlling microgrids under dynamically changing power supply and demand conditions is a major challenge compared to traditional energy systems. Although cloud-based microgrid management can provide long-term power prediction and scheduling, the prediction accuracy and communication quality seriously affect the reliability in real-world applications. This presentation will introduce a new cloud-local dual redundancy scheme for coordinating and switching cloud-based energy management and its local counterpart. In particular, an update of the associated weight coefficients is developed to allow for a smooth transition from cloud-local joint control to fully local control in the event of a communication failure. The results show that the proposed cloud-local joint control operates economically and reliably under both normal and communication failure scenarios.

BIO

I am particularly interested in the design, management and control of various dynamic systems, especially energy storage systems, microgrids and smart grids, wireless power transfer systems, and electric vehicles. The research includes a strong "interdisciplinary" element, namely synergistic integration of physical systems, control theory and design, circuit and device implementation, and increasingly importantly human behaviors, which makes it possible to generate more efficient, smarter, more resilient and more reliable systems.

Invited Speakers / 邀请报告人

Beijing Time

14:00-14:20 | Sep. 22, 2023
14:00-14:20 | 2023 年 9 月 22 日

Onsite Room

Crystal Hall II
(紫晶厅 II -4F)



Prof. Donghan Feng

- Shanghai Jiao Tong University, China

Existence and Uniqueness of Locational Marginal Prices

Abstract: When the optimal solution of the spot electricity market clearing model is degenerate, the uniqueness of the nodal marginal price cannot be guaranteed. At this time, existing pricing software randomly outputs a value from the solution set, which weakens the consistency and stability of electricity prices, biases the incentives of prices to market participants, and causes unreasonable congestion surplus. We studied the existence and uniqueness of the nodal marginal electricity price from three levels: mechanism, detection, and pricing. Specifically, we analyzed the intrinsic mechanism of the multiplicity of nodal marginal price, and reveal the physical meaning of the detection matrix obtained from the constraint specifications, and propose a systematic solution for the price multiplicity based on satisfaction consistency. This study is especially important for the early-stage electricity spot markets to avoid the unnecessary volatility of day-ahead and real-time prices.

BIO

Donghan Feng has been with the faculty of Shanghai Jiao Tong University (SJTU), Shanghai, China, since 2008, where he currently a Professor. He also serves as the Deputy Director of the State Energy Smart Grid Research and Development Center. He received the B.Sc. and Ph.D. degrees from the Department of Electrical Engineering, Zhejiang University, Hangzhou, China, in 2003 and 2008, respectively. He was a Graduate Research Assistant with Tsinghua University, Shenzhen, China, from 2005 to 2006; a Visiting Scholar with the University of Hong Kong, Hong Kong, from 2006 to 2007; a Hans Christened Ørsted Postdoctor with the Technical University of Denmark, Lyngby, Denmark, from 2009 to 2010; and a Visiting Research Scholar with University of California, Berkeley, from 2015 to 2016. His research interests include operation and trading strategies in smart energy networks.

He is and was the principal investigator of several national and continental projects. His research is and was supported by National Natural Science Foundation of China (NSFC), Danish Energy Association (DEA), Ministry of Education of China (MOE), Ministry of Science and Technology of China (MOST), the Seventh Framework Programme for Research (FP7) of European Commission, SMC Morningstar Excellent Young Faculty Program of SJTU, and the Future Scientist Program of China Scholarship Council, Ministry of Education of China, etc.

Invited Speakers / 邀请报告人

Beijing Time14:00-14:20 | Sep. 22, 2023
14:00-14:20 | 2023 年 9 月 22 日**Onsite Room**Iris Room I
(金百合厅 I-2F)

Assoc. Prof. Yujie Wang

- University of Science and Technology of China

Key Technologies and Applications of Battery Management in Electric Vehicles

Abstract: This report focuses on the core technologies of power battery management system, and discusses several frontier issues such as battery modeling, model parameter identification, state estimation, charging optimization, fault diagnosis, and battery management system design. By analyzing the characteristics of multi-scale and multi-physical processes involved, the report comprehensively introduces the technical advantages of high-quality models and data-driven methods, and proposes effective cloud management systems and algorithms, as well as provides an outlook on several cutting-edge issues in future battery management research.

BIO

Yujie Wang, Ph.D., is currently an Associate Professor at the University of Science and Technology of China, and his main research interests include energy-saving and new energy vehicle technologies, battery safety management, integrated energy system control, digital twins, and the application of AI in energy systems. He has published more than 80 SCI papers, with more than 6000 Google Scholar citations (44 H-index, 67 i10-index), 3 books, and more than 20 Chinese patents. He has presided over more than 10 national and provincial research projects such as the National Key Research and Development Program, the National Natural Science Foundation of China, etc. He has been awarded the President's Special Prize of Chinese Academy of Sciences (CAS), the Excellent Doctoral Dissertation of CAS, the First Prize of Natural Science of Chinese Association of Automation, the First Prize of Natural Science of China Simulation Federation, the Second Prize of Technological Invention of Ministry of Education, the Second Prize of Science and Technology of Anhui Province, the Second Prize of Technological Invention of Chinese Association of Automation, and the Excellent Paper Award of the 34th World Electric Vehicle Conference. He is the deputy editor-in-chief of the Chinese Journal of System Simulation, the Secretary-general of the System Simulation Committee of the Chinese Association of Automation, and a member of the Simulation Technology Application Committee of the China Simulation Federation.

Invited Speakers / 邀请报告人

Beijing Time

14:20-14:40 | Sep. 22, 2023
14:20-14:40 | 2023 年 9 月 22 日

Onsite Room

Jade Room II
(翡翠厅 II-4F)



Assoc. Prof. Jun Ji

- Shanghai Maritime University, China

Development and Application of Low-temperature Phase Change Materials for Cold Chain Logistics

Abstract: Under the background of Carbon Peak and Carbon Neutralization, phase change energy storage technology has been developed rapidly, which is widely used in solar energy utilization, power peak regulation, industrial heat recovery, building energy saving, and cold chain logistics. In the fields of cold chain logistics, low-temperature phase change materials (PCMs) with a phase transition temperature below 0 °C have great application space. However, it is still limited by high supercooling degree, low thermal conductivity and cold storage efficiency and poor stability in practice. In view of such problems, a new type of organic-inorganic nanocomposite PCM was prepared based on mannitol aqueous solution, and its thermal properties were studied. It is found that the addition of mannitol can reduce the supercooling degree and the cooling effect of MgCl₂ is the most remarkable among KCl, Na₂SO₄ and MgCl₂. For the improvement of cold storage efficiency, nano-copper oxide (Nano CuO) and covalently modified hydroxylated multi-walled carbon nanotubes (MWCNT-OH) were selected as thermal conductive enhancers, and in order to optimize the dispersion effect, sodium dodecyl benzene sulfonate (SDBS), polyacrylamide (PAM) and Guar gum (GG) were taken as dispersants. Their dispersion effect on nanoparticles under phase transition behavior demonstrate that the anionic dispersant SDBS has poor dispersion effect in salt solution, while the polymer dispersant is better than PAM and GG. The thermal properties and cyclic stability of the composite PCM was also investigated and the results show that the phase change system of mannitol/MgCl₂@MWCNT-OH/PAM has the best thermal performance, with the thermal conductivity of 0.685 W/(m·K), increased by 18.16 %, and the cold storage time being reduced by 57.3 %. Finally, the application of the composite PCMs in cold chain equipment has been studied, which shows a broad development prospect in the field of cold chain.

BIO

Ji Jun received her Ph.D. degree from Shanghai Maritime University in 2010. In the same year, she became a member of it in Merchant Marine College. She was a visiting scholar from September 2015 to September 2016 in the Department of Mechanical, Industrial and Systems Engineering, at the University of Rhode Island, USA. Her research interests include safety and energy-saving for refrigerated transportation, phase change energy storage technology and ship refrigeration and air conditioning technology. She has published more than 20 academic papers in domestic and foreign journals as the first author, such as Journal of Energy Storage, Journal of Materials Science and Journal of Chemical Engineering.

Invited Speakers / 邀请报告人

Beijing Time

14:20-14:40 | Sep. 22, 2023
14:20-14:40 | 2023 年 9 月 22 日

Onsite Room

Crystal Hall II
(紫晶厅 II -4F)



Assoc. Prof. Zhongcheng Wang

- Shanghai Maritime University, China

Marine Methanol Fuel Power Technology

Abstract: In this paper, the power technology of marine methanol fuel is discussed under the background of energy saving and emission reduction and double carbon at home and abroad. Starting from the physical and chemical properties of methanol, the feasibility of methanol as a new green fuel is discussed. The development of methanol fuel ships is reviewed, and the advantages of methanol as fuel ships and other new energy ships are compared. Through simulation experiments, the L23 / 30H four-stroke diesel engine is used as the simulation object, and the engine parameters are set to explore the effects of compression ratio, intake boundary conditions, injection time, spark plug position, injection strategy, ignition strategy, and number of spark plugs on the combustion characteristics of methanol fuel. The simulation results are demonstrated in the form of real ship sea trial, and the best parameters of each group are finally obtained. Finally, the economic and social benefits after the technology is put into operation are analyzed, and the advancement of methanol fuel technology is demonstrated.

BIO

Wang Zhongcheng, male, born in September 1979. Doctor of Engineering, Associate Professor and Chief Engineer, Doctoral Supervisor, Director of Marine Engineering Department of Merchant Marine College.

It is mainly engaged in the research of ship green power plant configuration and pedigree, ship low carbon or zero carbon fuel combustion technology, ship energy saving and carbon capture technology. Has won the Shanghai Municipal Education Commission key curriculum construction and other 4 awards, one key teaching reform project of China Transportation Education Research Association, five textbooks edited by the chief editor and one monograph. He presided over 7 key research projects at the national and provincial levels. He published 28 high-level academic papers with the first author or corresponding author, and applied for 18 invention patents and utility model patents. Won the 'Shanghai Maritime University Teaching Achievement Award', 'China Transportation Education Excellent Young and Middle-aged Teacher Award' and 'the Ministry of Transport of the People's Republic of China Major Scientific and Technological Innovation Achievements Storage' and many other awards.

Invited Speakers / 邀请报告人

Beijing Time

14:20-14:40 | Sep. 22, 2023

14:20-14:40 | 2023 年 9 月 22 日

Onsite Room

Iris Room I

(金百合厅 I-2F)



Sr. Engineer Fangyuan Li

- State Grid Smart Grid Research Institute Co., Ltd.

High Precision Real-time Digital-physical Hybrid Simulation Technology of Large-scale DC Grid

Abstract: In recent years, in order to improve the flexibility and controllability of power system, DC grid technology based on VSC-HVDC has been rapidly developed, and the Zhangbei four terminals DC grid demonstration project has been completed. The DC grid contains several types of DC devices such as modular multilevel converters (MMC), DC circuit breakers (DCCB), DC/DC converter, etc. The DC grid has a large scale of electrical nodes, numerous switch combinations, and complex internal energy conversion and coupling mechanisms. Therefore, the real time simulation technology with high precision and wide-band characteristics is urgently required for system analysis and devices development. This report will introduce the latest research progress of the state key laboratory of advanced power transmission technology in the field of real-time digital simulation, physical simulation and digital-physical hybrid simulation. Also, this report will introduce the 23 terminals DC grid digital-physical simulation platform developed by the laboratory and its application in the research and development of DC fault current suppression technology.

BIO

Fangyuan Li is currently a senior research engineer in the state key laboratory of advanced power transmission technology, State Grid Smart Grid Research Institute Co. Ltd. She received her M.Sc. degree in computer technology from China Electric Power Research Institute in 2015. Since 2015, she has joined the State Grid Smart Grid Research Institute Co. Ltd. Her research interest is real-time electromagnetic transient simulation of UHVDC and VSC-HVDC. She has participated in several science and technology projects of State Grid Corporation of China as the subject leader. She has also participated in the construction of VSC-HVDC projects in China including Yu'E B2B project etc.

Invited Speakers / 邀请报告人

Beijing Time

14:40-15:00 | Sep. 22, 2023

14:40-15:00 | 2023 年 9 月 22 日

Onsite Room

Crystal Hall II

(紫晶厅 II -4F)



Assoc. Prof. Huirong Zhao

- Shanghai University of Electric Power, China

Research on Integrated Smart Energy Technology for Energy Conservation and Carbon Reduction on the Consumer Side

Abstract: The energy consumption revolution is an important measure to achieve China's dual carbon goals. Distributed integrated smart energy technology is a key technology for transforming the role of energy consumers into producers and consumers, and is also an important technological means for achieving energy conservation and carbon reduction on the consumption side. In this report, we will focus on discussing energy consumption structure, energy conservation and carbon reduction needs in key areas of energy consumption, and integrated smart energy technologies for typical consumption side energy conservation and carbon reduction scenarios.

BIO

Huirong Zhao is currently an Associate Professor in the College of Automation Engineering at Shanghai University of Electric Power. She received her B.E. and Ph.D. degree in Thermal Engineering from Southeast University, China, in 2012 and 2017, respectively. From 2014 to 2016, she was a visiting scholar in the Department of Mechanical Engineering at University of Illinois at Urbana-Champaign, United States. Her research interests include smart energy generation, integrated smart energy system, energy internet, et.al. She was selected as project leaders of a youth program by National Natural Science Foundation of China, a Shanghai Sailing Program by Science and Technology Commission of Shanghai Municipality, and a Shanghai Chenguang Program by Shanghai Education Development Foundation and Shanghai Municipal Education Commission. In 2021, She won the First Prize of Scientific and Technological Progress Award by Chinese Association of Automation.

Invited Speakers / 邀请报告人

Beijing Time14:40-15:00 | Sep. 22, 2023
14:40-15:00 | 2023 年 9 月 22 日**Onsite Room**Iris Room I
(金百合厅 I-2F)

Sr. Engineer Tao Liu

- China Southern Power Grid Energy Storage Co., Ltd.

Construction of New Power System and Pumped Storage

Abstract: In order to implement the national strategic deployment and achieve the goals of carbon peaking and carbon neutrality, it is necessary to accelerate the construction of a new type of power system with a gradually increasing proportion of new energy, vigorously improve the consumption and storage capacity of new energy, and lead the systematic transformation of the economy and society with the green and low-carbon development of energy and electricity.

Building a new type of power system with a gradually increasing proportion of new energy, pumped storage energy faces a strategic opportunity for great development. Pumped storage energy is currently the most mature technology, economically optimal, and has the most conditions for large-scale development of large capacity. It is a safe, reliable, green, low-carbon, clean, and flexible adjustable power source, and is an important component of building a new type of power system.

BIO

Liu Tao, male, born in October 1983, Member of the Communist Party of China, graduated from Huazhong University of Science and Technology majoring in Water conservancy and hydropower Engineering, bachelor's degree, senior engineer. Chief engineer of Engineering Construction Management Branch of China Southern Power Grid Energy Storage Co., LTD., member of Youth Committee of China Hydropower Engineering Society, first-class leading professional and technical expert of China Southern Power Grid Corporation, winner of the 4th China Hydropower Talent Award, and third-class Merit winner of China Southern Power Grid.

He has been engaged in pumped storage project construction for nearly 17 years, mainly engaged in pumped storage power station mechanical and electrical project management, turbine stability research, generator and high voltage equipment research and application and other related work. He has presided over or participated in the construction management and key technology research and application of pumped storage power stations in Guangzhou, Huizhou, Qingyuan, Yangjiang and Meizhou. He has experienced many projects and positions. He has a solid professional foundation and rich experience in construction management. Led the team to win 3 provincial and ministerial level and above science and technology progress awards, 1 international invention patent, 15 national patents, published 6 academic papers in domestic and foreign core journals, participated in the compilation of 2 works, participated in the compilation of 4 national and industry norms.

Invited Speakers / 邀请报告人

Beijing Time

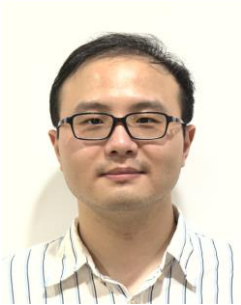
09:30-09:50 | Sep. 23, 2023

09:30-09:50 | 2023 年 9 月 23 日

Onsite Room

Crystal Hall I

(紫晶厅 I -4F)



Prof. Yue Song

- Tongji University, China

Voltage Regulation under Uncertainty: Harnessing the Flexibility in Network Topologies

Abstract: Distribution systems and microgrids are facing with more significant voltage fluctuation and a greater risk of voltage violation due to the increasing penetration of renewable energy. Conventionally the impact of renewable uncertainty is addressed by flexible power injections from dispatchable generators, energy storage units, and controllable loads. On the other hand, the flexibility from the underlying network structure has been paid less attention. In this talk, power system optimization is revisited by incorporating network flexibility in the form of line switching or soft line parameter adjustment. The former one is usually referred to as network reconfiguration and the latter one is enabled by installing line-based power electronic devices. Via both analytical and numerical studies, we reveal that power injection flexibility and network flexibility take complementary effects in accommodating renewable energy. Power injection flexibility mainly tunes the forecast-scenario operating point, while network flexibility contributes to reducing the degree of voltage fluctuation under uncertainty, showing that network flexibility is a promising control resource in high-renewable grids.

BIO

Yue Song received the B.S. and M.S. degrees from Shanghai Jiao Tong University in 2011 and 2014, respectively, and the Ph.D. degree from the University of Hong Kong (HKU) in 2017. From 2017 to 2020 he was a postdoc researcher at HKU. From 2020 to 2023 he was a Research Assistant Professor with the Department of Electrical and Electronic Engineering, HKU. He is currently an Associate Professor with the Department of Control Science and Engineering, Tongji University, and also an Honorary Assistant Professor at HKU. His research interests include control theory, network science, and optimization theory with application to energy systems.

Invited Speakers / 邀请报告人

Beijing Time

09:30-09:50 | Sep. 23, 2023

09:30-09:50 | 2023 年 9 月 23 日

Onsite Room

Crystal Hall II

(紫晶厅 II -4F)



Asst. Prof. Xinran Zhang

- Beihang University, China

Power System Demand Side Modeling Based on Noise-Like Signals

Abstract: In recent years, as the dynamics of the load side of my country's power grid have become more and more complex, a large number of distributed power sources have been connected, and the proportion of dynamic loads has continued to increase, the problem of voltage stability caused by load dynamics has become increasingly prominent. In the existing research, the load modeling method cannot track the time-varying nature of the load model, and the traditional load model cannot fully cover new components such as new energy sources. Restricted by these factors, the load dynamic characteristics are not considered sufficiently in the study of voltage stability. In response to these problems, this report innovatively proposes a method of periodically establishing a load model based on noise-like signals, and covers new components such as new energy and power electronic loads; and then based on the load modeling results, it reveals the dynamic impact of complex loads Mechanism of voltage stabilization. The specific research content includes: based on the noise-like signal, the modeling method that can periodically track the time-varying load model is studied; combined with the noise-like identification and statistical information, the complex load modeling method that introduces new components such as new energy and power electronic loads is studied; Based on the results of complex load modeling, a transient voltage stability assessment and preventive control method considering complex load dynamics is studied.

BIO

Xinran Zhang received the B.S. degree and Ph.D. degrees in electrical engineering and automation from Tsinghua University, Beijing, China, in 2011 and 2016, respectively, both with honors. From 2016 to 2020, he was a postdoctoral fellow with the Department of Electrical and Electronic Engineering, The University of Hong Kong. He is currently an assistant professor with School of Automation Science and Electrical Engineering, Beihang University. His research interests include power system stability and control, wide-area damping control system, load modeling, and short-term voltage stability.

Invited Speakers / 邀请报告人

Beijing Time

09:40-10:00 | Sep. 25, 2023
09:40-10:00 | 2023 年 9 月 25 日

Room A

374-2133-9885

Passwords

2023



Dr. Yikui Liu

- Sichuan University, China

Exploring Multidimensional Spatial-temporal Hydropower Operational Flexibilities by Modeling and Optimizing Water constrained Cascading Hydroelectric Systems

Abstract: The power industry such as Portland General Electric (PGE) continues to evolve their operation strategies for cascading hydroelectric systems (CHS) to provide enhanced values to the grid. However, existing heuristic operation practices predate the integration of renewables, which could prohibit effective utilization of their inherent flexibilities in delivering maximum financial benefits and valuable grid services. This talk discusses our DOE project with PGE to develop machine learning based water inflows forecast models and optimal operation models, which would leverage unique characteristics of CHSs to promote their multidimensional operational flexibilities.

BIO

Yikui Liu received the Ph.D. degree in electrical and computer engineering from the Stevens Institute of Technology, Hoboken, NJ, USA, in 2020. During 2020–2021, he was with Siemens, USA, as an Energy Market Engineer, and thereafter, to 2023, he was a Postdoctoral Researcher with the Stevens Institute of Technology, Hoboken, NJ, USA. He also worked with New York Independent System Operator (NYISO) and Midcontinent Independent System Operator (MISO) respectively in 2017 and 2019. He is currently an Associate Researcher with Sichuan University, Chengdu, China. His research interests include power market, IES, and OPF in distribution system.

SESSIONS

Day 2-Onsite

Sep. 22, 2023—Friday

Best Student Paper Competition 01

15:40-17:25

Collaborative Operation and Control in Novel Power

新型电力系统中的协同运行与控制

Room: Jade Hall II (翡翠厅 II -4F)

Session Chair: Chong Wang, Hohai University, China

15:40-15:55

NE-008

Experimental verification and simulation analysis of a battery directly connected DC microgrid system

Author(s): Ke Liu, Hirohito Yamada, Katsumi Iwatsuki and Taichi Otsuji

Presenter: Ke Liu

Affiliation: Tohoku University, Japan

15:55-16:10

NE-034

Optimization Model of PV-ESS Synergistic Harmonic Mitigation Under Multi-Harmonic Source

Author(s): Xinru Wang, Wen Zhou and Ying Wang

Presenter: Xinru Wang

Affiliation: Sichuan University, China

16:10-16:25

NE-235

Research on Reduced Order Model of MMC Grid-Connected System

Author(s): Wei Wei, Huajun Zheng, Xufeng Yuan, Luowei Zhou, Yongxiang Cai and Wei Xiong

Presenter: Wei Wei

Affiliation: Guizhou University, China

16:25-16:40

NE-330

Deep Learning based Real-time Approach for Robust Optimal Power Flow in Three-Phase Unbalanced Distribution Systems

Author(s): Haiyang You, Jin Yang and Chengwei Lou

Presenter: Haiyang You

Affiliation: University of Glasgow, United Kingdom

16:40-16:55

NE-441

Digital Power Grid Technology Maturity Assessment Based on the Delphi Method

Author(s): Mingli Chen, Shaoji Qin, Di Zhang, Yongjun Zhang, Peng Wang Wang and Lu Gan

Presenter: Mingli Chen

Affiliation: South China University of Technology, China

16:55-17:10

NE-186

Electric Network Stimulation-Response Relationship and Its Characteristics under Time-Varying Amplitude and Frequency

Author(s): Rongxin Sun and Xiaoming Yuan

Presenter: Rongxin Sun

Affiliation: Huazhong University of Science and Technology, China

17:10-17:25

NE-132

Virtual Contribution Theory-Based Bidirectional Loss Allocation Method for Active Distributed Networks

Author(s): Jing Zhao, Yanjun Dong, Jingtong Zhao, Songhuai Du and Juan Su

Presenter: Jing Zhao

Affiliation: China Agricultural University, China

Best Student Paper Competition 02 Stability and Economic Benefit Evaluation of Intelligent Power Control System 智能电力控制系统稳定性及经济效益评估 Room: Crystal Hall II (紫晶厅 II -4F)	
Session Chair: Jin Zhang, Shanghai University, China	
15:40-17:25 NE-485	Frequency Dynamics-Constrained Unit Commitment with High Penetration of Wind Power Author(s): Yang Zeng, Yi Yu, Jiayong Li, Binxian Li, Yuhua Hu and Lipeng Zhu Presenter: Binxian Li Affiliation: Hunan University, China
15:55-16:10 NE-182	A day-ahead electricity price forecasting algorithm considered with multidimensional factors Author(s): Yanjun Dong, Jing Zhao, Juan Su and Songhuai Du Presenter: Yanjun Dong Affiliation: China Agricultural University, China
16:10-16:25 NE-187	Power-Imbalance Stimulation and Internal-Voltage Response Relationships Based Modeling Method of Multi-Timescale PE-Interfaced Device Author(s): Jin Huang and Xiaoming Yuan Presenter: Jin Huang Affiliation: Huazhong University of Science and Technology, China
16:25-16:40 NE-116	A Multi-consensus Distributed Economic Dispatch Strategy for Integrated Energy System with Energy Storage Author(s): Zhao YanDong, Li Xue, Zhou Zhe, Zhang Yu Presenter: Zhao YanDong Affiliation: Shanghai University, China
16:40-16:55 NE-298	Price Risk Assessment of Electricity Markets Considering the Uncertainties of Natural Gas Supply Author(s): Junchao Cheng, Lizhong Xu, Ke Sun, Qiwen Tang, Ziqing Zhou Presenter: Junchao Cheng Affiliation: Zhejiang University, China
16:55-17:10 NE-405	Hybrid Generalized Short Circuit Ratio Considering the Flexible DC Author(s): Chaosheng Wang, Rongze Pang, Qiulong Ni, Xiaolei Yang and Chong Wang Presenter: Chaosheng Wang Affiliation: Hohai University, China
17:10-17:25 NE-415	Distributed Fixed-Time Secondary Control for DC Microgrid with Less Information Exchange Author(s): Junwei Chai, Xue Lyu, Minghao Wang and Zhao Xu Presenter: Junwei Chai Affiliation: The Hong Kong Polytechnic University, China



Best Student Paper Competition 03 Renewable Energy Utilization and Integrated Energy System Optimization 可再生能源利用与综合能源系统优化 Room: Iris Room I (金百合厅 I-2F)	
Session Chair: Xi Zhang, State Grid Smart Grid Research Institute Co. Ltd., China	
15:40-17:25	
15:40-15:55 NE-014	Building Load Prediction Model Based on Integration of Mechanism and Data in District Heating Systems Author(s): Ning Zhang, Xiaojie Lin, Wei Zhong and Liuliu Du-Ikonen Presenter: Ning Zhang Affiliation: Zhejiang University, China
15:55-16:10 NE-117	Eco-driving Intelligent Systems and Algorithms: A Patent Review Author(s): Zhipeng Ma, Bo Nørregaard Jørgensen and Zheng Grace Ma Presenter: Zhipeng Ma Affiliation: University of Southern Denmark, Denmark
16:10-16:25 NE-018	Equilibrium Analysis of the Electricity Market considering strategic bidding by coalition of Renewable Energy and Energy Storage Author(s): Ziyang Zhang, Xian Wang, Shaohua Zhang Presenter: Ziyang Zhang Affiliation: Shanghai University, China
16:25-16:40 NE-423	Experimental Research on the Proton Exchange Membrane Fuel Cell Waste Heat Recovery System Author(s): Hao Wang, Guoxin Yu, Yongkang Liu, Jing Li, Liangran Li, Nan Lv and Rui You Presenter: Hao Wang Affiliation: Qingdao University, China
16:40-16:55 NE-033	Granularity Analysis and Optimum Design of Secondary Network in Heating System for Solar Energy Consumption Author(s): Yuting Zhou, Wei Zhong, Xiaojie Lin and Shaoxiong Liu Presenter: Yuting Zhou Affiliation: Zhejiang University, China
16:55-17:10 NE-218	Study of error characteristics of all-fiber-optic current transformers in extreme environments Author(s): Xingyue Chen, Shipu Wu, Jin Qiu, Qing Huai, Yirun Ji, Xixiu Wu Presenter: Xingyue Chen Affiliation: Wuhan University of Technology, China
17:10-17:25 NE-134	Energy management strategy for hybrid energy storage considering battery fatigue life in cascade utilization Author(s): Zhehao Hu, Huiqun Yu, Daogang Peng and Haoyi Sun Presenter: Zhehao Hu Affiliation: Shanghai University of Electric Power, China

Track 1	
Distributed Energy Systems Operation and Prediction Control 分布式能源系统运行与预测控制	
Room: Iris Room II (金百合厅 II -2F)	
Session Chair: Peng Lu, China Agricultural University, China	
14:00-16:30	
14:00-14:15 NE-381	Optimal Dispatch Strategy of Electric Vehicles under Coupled Transportation Network and Power Grid Author(s): Keming Luo, Xiaohan Fang, Yuan Fan Presenter: Keming Luo Affiliation: Anhui University, China
14:15-14:30 NE-232	Incremental Learning for Appliance Identification Based on V-I Trajectory Signature Author(s): Shiming Li, Ruifeng Zhao, Keke Li, Jiangang Lu, Yanru Ren, Zhiwen Yu Presenter: Keke Li Affiliation: Tianjin University, China
14:30-14:45 NE-382	Optimization Strategies for Hydrogen Mixing Scheduling in Natural Gas Networks in Integrated Energy Systems Author(s): Zixun Zhang, Xiaohan Fang, Yuan Fan Presenter: Zixun Zhang Affiliation: Anhui University, China
14:45-15:00 NE-136	Auxiliary modelling error and probability density function based neuro-fuzzy short-term wind power prediction Author(s): Jianfang Li, Li Jia, Daogang Peng, Rui Hou Presenter: Jianfang Li Affiliation: Shanghai University, China
15:00-15:15 NE-384	Stackelberg Game Model for Optimal Dispatching of Electricity Consumption for Community Microgrid Considering Demand Response Mechanism Author(s): Di Tan, Xiaohan Fang, Yuan Fan Presenter: Di Tan Affiliation: Anhui University, China
15:15-15:30 NE-179	Research on optimal control strategy of compound heating system based on model prediction Author(s): Guoxin Sun, Yongheng Yu, Qihui Yu, Xin Tan, Linfeng Wu and Yahui Wang Presenter: Yongheng Yu Affiliation: Inner Mongolia University of Science and Technology, China
15:30-15:45 NE-408	Real-time pricing method through market auction based on multi-agent reinforcement learning Author(s): Peng Hong, Shuping He, Xiaohan Fang Presenter: Peng Hong Affiliation: Anhui University, China

15:45-16:00 NE-419	Optimal Design of Topological Structure for Mountainous Wind Farm Collection System Author(s): Guoyu Chen, Heng Gao, Ming Li Presenter: Guoyu Chen Affiliation: Dalian University of Technology, China
16:00-16:15 NE-433	Economic Scheduling of Multi-microgrid Systems Based on Distributed Event-triggered Consensus Strategy Author(s): Tingting Xu, Xiaohan Fang, Yuan Fan Presenter: Tingting Xu Affiliation: Anhui University, China
NE-462 16:15-16:30	Wind-CSP collaborative optimization method based on source-load multivariate correlation Author(s): Jianbin Yang, Lin Ye, Yuanyuan Shi, Kaifeng Wang, Zhuo Li, Ming Pei and Peng Lu Presenter: Jianbin Yang Affiliation: China Agricultural University, China

Track 2

16:30-18:15

Advanced Control Technology of Generation, Operation, and Low-Carbon Electricity Trading Based on Renewable Energy
基于可再生能源的发电、运营和低碳电力交易的先进控制技术

Room: Iris Room II (金百合厅 II -2F)

Session Chair: Wenyang Deng, South China University of Technology, China

16:30-16:45 NE-366	Optimal Scheduling of Flexible Loads for New Building Clusters Considering Potential Games Author(s): Dongming Liu, Zhipeng Xu, Kanghua Zhong, Wei Fan, Yu Liu, Yongjun Zhang Presenter: Zhipeng Xu Affiliation: South China University of Technology, China
16:45-17:00 NE-429	Decoupling Control Strategy for Input-series-output-parallel Dual Active Bridge Converter Based on Active Disturbance Rejection Control Author(s): Li Qin, Xinzhang Wu, Yuanpeng Guan, Guiju Zhang and Li Liu Presenter: Li Qin Affiliation: Guangxi University, China
17:00-17:15 NE-431	Multi-region energy scheduling method based on evolutionary game Author(s): Zhang Jun, Yuehan Huang, Siliang Liu, Dongming Liu, Yulong Huang, Yongjun Zhang Presenter: Zhang Jun Affiliation: South China University of Technology, China

17:15-17:30 NE-058	<p>Spatial correlation-based ultra-short-term power generation prediction of grid-connected distributed PV in counties</p> <p>Author(s): Chengxi Li, Jinfeng Huang, Xiaobing Wu, Jianing Huang, Yi Liu, Jun He</p> <p>Presenter: Yi Liu</p> <p>Affiliation: Hubei University of Technology, China</p>
17:30-17:45 NE-112	<p>Low-carbon Economic Dispatching Strategy of Park Integrated Energy System Considering Source Load Uncertainty</p> <p>Author(s): Yiwei Xu, Enrong Wang, Hailong Zhang</p> <p>Presenter: Yiwei Xu</p> <p>Affiliation: Nanjing Normal University, China</p>
17:45-18:00 NE-508	<p>Research and Application on Output Voltage Stabilization of DAB Converter Based on LADRC with Reduced-Order Model</p> <p>Author(s): Shenqi Gao and Hui Li</p> <p>Presenter: Shenqi Gao</p> <p>Affiliation: Shanghai University of Electric Power, China</p>
18:00-18:15 NE-427	<p>Optimization model of a ring-grid distribution system based on a solid-state hydrogen storage station</p> <p>Author(s): Yun Zhao, Yuxin Lu, Ziwen Cai, Yanhe Yin, Yi Zhong, Bolin Xie, Yuquan Chi</p> <p>Presenter: Yuquan Chi</p> <p>Affiliation: South China University of Technology, China</p>

14:30-16:00	<p>Poster Session 01</p> <p>New Batteries and Health Status Estimation</p> <p>新型电池及健康状况估计</p> <p>Room: Foyer (序厅-4F)</p>
Session Chair: Duo Yang, Zhengzhou University, China	
NE-094	<p>A State-of-health Estimation Method for LiFePO₄ Batteries based on Gaussian Process Regression using Partial Charging Curve</p> <p>Author(s): Jianghao Shi, Changjiang Ju, Yiming Wang, Po Xu, Xiaotian Yu, Zekai Chen, Guohuan Wang</p> <p>Presenter: Jianghao Shi</p> <p>Affiliation: Shanghai Jiao Tong University, China</p>
NE-114	<p>Battery Capacity Degradation Trajectory Estimation for Real-World Electric Vehicles Based on Complete Ensemble Empirical Mode Decomposition with Adaptive Noise</p> <p>Author(s): Haoxiang Xiang, Yujie Wang, Xingchen Zhang</p> <p>Presenter: Haoxiang Xiang</p> <p>Affiliation: University of Science and Technology of China, China</p>

NE-271	<p>Low Carbon Economic Optimization Dispatching of Medium and Low Voltage Distribution Systems Based on Carbon Emission Flow</p> <p>Author(s): Chutian Yu, Siqi Liang, Lijun Zhang, Meijin Gao, Jiangqian Huang, Yanhan Zhu, Tianwei Liu and Xiaoyan Bian</p> <p>Presenter: Tianwei Liu</p> <p>Affiliation: Shanghai University of Electric Power, China</p>
NE-464	<p>Scalable dissipative analysis for multi-wind turbine combined with common battery energy storage system</p> <p>Author(s): Zhi Qiu, Yang Song, Mingcong Du, Wanqing Zhao</p> <p>Presenter: Zhi Qiu</p> <p>Affiliation: Shanghai University, China</p>
NE-476	<p>A Novel Dual AUV Wireless Charging System Based on Underwater Hybrid Energy</p> <p>Author(s): Zhijie Zhang, Jie Yang, Sen Yang, Zongju Cai, Xiaofang Yue, Yuying Zhou</p> <p>Presenter: Zhijie Zhang</p> <p>Affiliation: CSSC Systems Engineering Research Institute, China</p>
NE-471	<p>An Online OCV Calibration-Based Adaptive SOC Estimation Approach for Lithium Battery</p> <p>Author(s): Jiarui He, Keting Wan, Lingxia Lu, Miao Yu</p> <p>Presenter: Jiarui He</p> <p>Affiliation: Zhejiang University, China</p>
NE-062	<p>State vector evaluation of energy storage plants considering battery loss characteristics under different operating conditions</p> <p>Author(s): Xiao Rong Huang, Guan Ke Liu, Da Wei Lu, Wei Lin, Xi Liang Dai, Wen Hui Lin</p> <p>Presenter: Zong Liu</p> <p>Affiliation: Hubei University of Technology, China</p>

14:30-16:00	<p align="center">Poster Session 02</p> <p align="center">Simulation of Electronic Component Design Performance</p> <p align="center">电子元器件设计性能模拟</p> <p align="center">Room: Foyer (序厅-4F)</p>
Session Chair: Duo Yang, Zhengzhou University, China	
NE-258	<p>A method for evaluating the adjustable capacity of electrolytic copper load based on modeling of power regulation characteristics</p> <p>Author(s): Lingfang Li, Jie Zhang, Yixuan Chen, Cong He, Shanquan Pi, Siyang Liao</p> <p>Presenter: Cong He</p> <p>Affiliation: Wuhan University, China</p>
NE-022	<p>Design of driving strategy and protection circuit based on IGBT in MMC sub-module</p> <p>Author(s): Yang Zhang, Xuefan Zhao, Yinyin Lu, Xiaohua Ding, Fanxing Rao, Fangfang Guo, Weixing Lin</p> <p>Presenter: Xuefan Zhao</p> <p>Affiliation: Nanchang Institute of Technology, China</p>

NE-380	Numerical study on the influence of Helmholtz resonators on gas mixing performance Author(s): Seyed Ali Zamani, Mahdi Nili-Ahmadabadi, Amir Joulaei and Man Yeong Ha Presenter: Mahdi Nili-Ahmadabadi Affiliation: Isfahan University of Technology, Iran
NE-299	Study on Dynamic Threshold Multivariate State Estimation of Condenser Based on Marine Environment Author(s): Qian Hong, Wang Haixin Presenter: Wang Haixin Affiliation: Shanghai University of Electric Power, China
NE-320	Improved Detection of Defects in Dialyzers Using Enhanced FCOS Network Author(s): Xingyun Xi, Dakui Wu, Wenju Zhou, Huaqiang Teng Presenter: Xingyun Xi Affiliation: Shanghai University, China
NE-421	Study of the effect of low-dose gamma radiation on the surface properties of silicone rubber materials Author(s): Wei Xiao, Mengyuan He, Bing Luo, Haofeng Zhang, Yongsheng Xu, Shaojie Chen, Lin Yang Presenter: Mengyuan He Affiliation: South China University of Technology, China
NE-333	Optimal configuration of coupling equipment for electric-gas integrated energy system considering the influence of voltage sag Author(s): Yi Zhang, Jiazhong Zhang, Yan Zhang, Shuqi Zhang, Rong Jia, Yifan Wu Presenter: Jiazhong Zhang Affiliation: Fuzhou University, China

16:30-18:00	Poster Session 03
	Simulation and Reliability Evaluation of Distribution Network Systems 配电网系统仿真与可靠性评估
	Room: Foyer (序厅-4F)
Session Chair:	
NE-035	A Method of Weak Node and Weak Line Identification in Distribution Network Based on Probabilistic Power Flow Author(s): Zhiyu Zhao, Shen Liu, Xuan Li, Yue Yu, Xiaoguang Wang, Shipo Zhao Presenter: Zhiyu Zhao Affiliation: State Grid Jibei Electric Power Research Institute, China
NE-138	Research on True-type Test Technology of Intelligent Circuit Breakers and Intelligent Integrated Terminals in Distribution Networks under Different Faults Author(s): Cheng Chen, Shang Chen, Mingfeng Shao, Hui Li, Jing Yin, Jiangbo Chen Presenter: Chen Cheng Affiliation: China Electric Power Research Institute Co., Ltd., China

NE-192	<p>A Differential Protection Scheme for Distribution Networks with Multiple T-connected Inverter-Interfaced Distributed Generators</p> <p>Author(s): Yunbo Li, Lanjun Yang, Lei Hu, Liang Zhang</p> <p>Presenter: Yunbo Li</p> <p>Affiliation: Xi'an Jiaotong University, China</p>
NE-296	<p>Design of Cascade Power Electronic Transformer Based Flexible Interconnection System for Distribution Network</p> <p>Author(s): Weiming Chen, Xiaochun Weng, Shichuan Chen, Han Wu, Yuanliang Fan, Zewen Li</p> <p>Presenter: Weiming Chen</p> <p>Affiliation: State Grid Fujian Electric Power Research Institute, China</p>
NE-300	<p>Topology Identification of Distribution Network Considering Radial Bus Connection Characteristics</p> <p>Author(s): Junlin Yang, Yaqi Qian, Xue Li, Zhe Zhou</p> <p>Presenter: Junlin Yang</p> <p>Affiliation: Shanghai University, China</p>
NE-363	<p>The Optimal Location Algorithm of SAPFs in Distribution Network Based on Harmonic State Estimation</p> <p>Author(s): Xiaoqing Yin, Hao Yi, Zebin Yang, Fang Zhuo, Yao Zhang, Wei Wei</p> <p>Presenter: Xiaoqing Yin</p> <p>Affiliation: Xi'an Jiaotong University, China</p>
NE-321	<p>Low-Voltage Management for Distribution Network Based on Parallel Flexible DC System: The Fujian Experience</p> <p>Author(s): Weiming Chen, Xiaochun Weng, Shichuan Chen, Han Wu, Yuanliang Fan, Zewen Li</p> <p>Presenter: Weiming Chen</p> <p>Affiliation: State Grid Fujian Electric Power Research Institute, China</p>
NE-207	<p>High Voltage Ride Through Strategy for Full DC Wind Power Generation System Through DC Transmission</p> <p>Author(s): Jiangshan Liu, Fengting Li, Chunya Yin, Ruikang Chen</p> <p>Presenter: Jiangshan Liu</p> <p>Affiliation: Xinjiang University, China</p>
NE-512	<p>A Demand Side Adjustable Load Cluster Regulation Method Based on Alternating Direction Multiplier Method</p> <p>Author(s): Chong Shao, Zhiwen Liu, Yan Li, Yuejia Hong, Ran Cheng and Yao Duan</p> <p>Presenter: Chong Shao</p> <p>Affiliation: Energy Development Research Institute, China Southern Power Grid, China</p>
NE-513	<p>The operation optimization method of distribution grid considering the access of multi-types adjustable loads</p> <p>Author(s): Yan Li, Zhiwen Liu, Chong Shao, Yuejia Hong, Yao Duan and Ran Cheng</p> <p>Presenter: Yan Li</p> <p>Affiliation: Energy Development Research Institute, China Southern Power Grid, China</p>

16:30-18:00	<p align="center">Poster Session 04</p> <p align="center">Smart Grid Configuration and System Stability Analysis</p> <p align="center">智能电网配置及系统稳定性分析</p> <p align="center">Room: Foyer (序厅-4F)</p>
Session Chair:	
NE-345	<p>Design and Application of Trigger Switch Scheme for DC Controllable Lightning Arrester</p> <p>Author(s): Jiang Zhe, Li Zhibing, Deng Weihua, Zhang Ran, Chen Kailong, Han Naizheng</p> <p>Presenter: Jiang Zhe</p> <p>Affiliation: State Grid Smart Grid Research Institute Co., Ltd, China</p>
NE-026	<p>Protection logic based on intelligent phase change switch phase-to-phase short circuit fault</p> <p>Author(s): Yang Zhang, Fangfang Guo, Xuefan Zhao, Yinyin Lu, Huijun Xu, Weixing Lin</p> <p>Presenter: Fangfang Guo</p> <p>Affiliation: Nanchang Institute of Technology, China</p>
NE-091	<p>Research on harmonic transmission characteristics of AC power grid</p> <p>Author(s): Ming Chen, Ziyue Qiu, Qingming Xin, Qing Li, Junjie Feng, Zhihua Xu, Biye Huang and Jiyang Wu</p> <p>Presenter: Qingming Xin</p> <p>Affiliation: Electric Power Research Institute, China Southern Power Grid, China</p>
NE-507	<p>Research and Application on Variable Frequency and Phase-Shift Control Strategy of CLLLC Resonant Converter Based on LADRC</p> <p>Author(s): Baichao Song and Hui Li</p> <p>Presenter: Baichao Song</p> <p>Affiliation: Shanghai University of Electric Power, China</p>
NE-236	<p>Control Strategy for Frequency Support Based on Modular Multilevel Matrix Converter with Emulation Inertia</p> <p>Author(s): Yibo Li, Yafeng Jiang, Qiuwei Wu, Jian Chen, Qian Zhou</p> <p>Presenter: Yibo Li</p> <p>Affiliation: Shandong University, China</p>
NE-406	<p>Output Impedance Reshaping of Grid-connected Inverter Based on Voltage Feedforward under Extremely Weak Grid</p> <p>Author(s): Bo Yang, Xueqian Cao, Zhixin Wang, Xu Zhou, Yulin Zhang</p> <p>Presenter: Bo Yang</p> <p>Affiliation: Shanghai Chint Power System Co., Ltd , China</p>
NE-420	<p>Research and Development of BPA-DlgSILENT Power Grid Model Conversion Software</p> <p>Author(s): Yonghan Liu, Jingmei Guo, Peng Wang, Haoran Zhao, Qin Su, Chaoyun Yu</p> <p>Presenter: Yonghan Liu</p> <p>Affiliation: Shandong University, China</p>

NE-498	<p>Study on rigid strength of magnetic pole connection of large capacity and high speed generator motor</p> <p>Author(s): Tao Liu, Yulin Li, Xingchun Lei, Tao Liu, Kai Guo, Zhengxin Cao</p> <p>Presenter: Tao Liu</p> <p>Affiliation: China Southern Power Grid Peak Shaving and Frequency Modulation Power Generation Co., Ltd, Guangzhou, China</p>
NE-522	<p>Analysis, Design, and Control of Interlinking Dual Capacitive Filter Inverters in Microgrids</p> <p>Author(s): Wenyang Deng, Ziwen Liu, Yongjun Zhang, Mingli Chen</p> <p>Presenter: Wenyang Deng</p> <p>Affiliation: South China University of Technology, China</p>
NE1-002	<p>Improved multi-objective lion swarm algorithm based on scheduling model for wind power systems</p> <p>Author(s): Qi Zhang, Mingyan Jiang, Keqin Jiang</p> <p>Presenter: Keqin Jiang</p> <p>Affiliation: Shandong University, China</p>
NE-348	<p>Dynamic data modeling based on Kalman state estimation</p> <p>Author(s): Chengli Wang and Shenglin He</p> <p>Presenter: Chengli Wang</p> <p>Affiliation: North China Electric Power University, China</p>

SESSIONS

Day 2-Online

Sep. 22, 2023—Friday

14:00-15:30	<p align="center">Best Student Paper Competition 04</p> <p align="center">Digital Power Grid and Distribution System 数字电网与配电系统</p> <p align="center">Room B: 963-8237-7050 Passwords: 2023</p>
<p>Session Chair: Hongying He, Hunan University, China</p>	
<p>14:00-14:15 NE-286</p>	<p>Topology Identification of Low-Voltage Distribution Networks Considering Hidden Errors Author(s): Yingqi Yi, Yongjun Zhang, Wenyang Deng, Siliang Liu and Kaidong Lin Presenter: Yingqi Yi Affiliation: South China University of Technology, China</p>
<p>14:15-14:30 NE-292</p>	<p>High power density two-phase interleaved boost converter based on coupled inductor Author(s): Shuo Sang and Zhilei Yao Presenter: Shuo Sang Affiliation: Shanghai Maritime University, China</p>
<p>14:30-14:45 NE-488</p>	<p>Data-driven Strategy for Model Identification and Voltage Estimation in Low-voltage Distribution Networks Author(s): Yatao Shen, Yaqun Jiang, Wenmei Li and Ziwen Gu Presenter: Yatao Shen Affiliation: Hunan University, China</p>
<p>14:45-15:00 NE-064</p>	<p>Dual-Hysteresis Control of Bi-directional Noninverting Buck–Boost Converter for Wide Voltage Range in Energy Interconnected Systems Author(s): Yi Zhang, Donglai Zhang, Qing Liu, Jing Yu and Yilong Zhou Presenter: Yi Zhang Affiliation: Harbin Institute of Technology (Shenzhen), China</p>
<p>15:00-15:15 NE-478</p>	<p>Early warning of low-frequency oscillations in power system with Vinncombe criterion fused with PMU data Author(s): Jianqun Sun, Miao Yu, Jingxuan Hu, Shouzhi Zhang, Jingjing Wei and Yixiao Wu Presenter: Jianqun Sun Affiliation: Beijing University of Civil Engineering and Architecture, China</p>
<p>15:15-15:30 NE-439</p>	<p>Improved droop control strategy for AC microgrid Author(s): Kaibo Gao, Zhilei Yao Presenter: Kaibo Gao Affiliation: Shanghai Maritime University, China</p>

14:00-15:45	<p align="center">Best Student Paper Competition 05</p> <p align="center">Characteristic Analysis and Functional Control of Electronic Devices/Electrical Equipment</p> <p align="center">电子器件/电气设备特性分析及功能控制</p> <p align="center">Room C: 457-5218-4973 Passwords: 2023</p>
<p>Session Chair: Yuanpeng Guan, Jinan University, China</p>	
<p>14:00-14:15 NE-161</p>	<p>Research on Fault Arc Detection Method Based on Multivariate Criterion Author(s): Mengqian Guo, Li'An Chen, Yongxin Jiang and Bin Huang Presenter: Mengqian Guo Affiliation: Xiamen University of Technology, China</p>
<p>14:15-14:30 NE-189</p>	<p>Feasibility Study of DC Offshore Wind Farms Using Multiphase Generator-Rectifier Author(s): Pengzhao Wang, Ruochen Tang, Xiangjun Zeng, Xin Guo and Qian Zhang Presenter: Pengzhao Wang Affiliation: Xi'an Jiaotong University, China</p>
<p>14:30-14:45 NE-455</p>	<p>Inter-turn Short Circuit Fault Detection of a Novel PMSM with Fault Tolerance Author(s): Long Zhao, Yinru Bai and Xuping Wang Presenter: Long Zhao Affiliation: Taiyuan University of Technology, China</p>
<p>14:45-15:00 NE-165</p>	<p>Research on adjustable load classification and aggregation and external characteristic identification method Author(s): Yuanhao Gao, Zhenlan Dou, Chunyan Zhang, Chuanwen Jiang and Lingling Wang Presenter: Gao Yuanhao Affiliation: Shanghai Jiao Tong University, China</p>
<p>15:00-15:15 NE-460</p>	<p>Decentralized Control Strategy for Modular Three-phase Inverters with AC/DC Power Decoupling Author(s): Xiaolu Ge, Shangzhi Pan, Kemin Dai and Wei Li Presenter: Xiaolu Ge Affiliation: Wuhan University, China</p>
<p>15:15-15:30 NE-311</p>	<p>Virtual Inertia Enhancement of DC Microgrid Based on Adaptive Motor Load Control Author(s): Sizhe Hu, Yong Li, Cheng Fan, Zheng Feng, Yangyang He, Nengling Tai, Qi Liu Presenter: Sizhe Hu Affiliation: Shanghai Jiaotong University, China</p>
<p>15:30-15:45 NE-475</p>	<p>Asymmetrical High-Voltage Ride Through of Brushless Doubly Fed Induction Generators for the Wind Power Generation Based on Improved Indirect Power Control Author(s): Yongen Che, Shuhong Wang, Huibin Fan and Jiabin Li Presenter: Yongen Che Affiliation: Taiyuan University of Technology, China</p>

14:00-15:45	<p align="center">Best Student Paper Competition 06</p> <p align="center">Advanced Battery and Energy Storage Technology 先进电池及储能技术</p> <p align="center">Room D: 543-4917-8655 Passwords: 2023</p>
<p>Session Chair: Lianfei Xu, Hebei University of Technology, China</p>	
<p>14:00-14:15 NE-121</p>	<p>Control strategy for energy storage batteries participating in secondary frequency regulation considering the frequency characteristics of the power grid Author(s): Yuan Wang, Daogang Peng, Huirong Zhao and Jianfei Zhu Presenter: Yuan Wang Affiliation: Shanghai University of Electric Power, China</p>
<p>14:15-14:30 NE-220</p>	<p>Two-stage charge and discharge optimization of battery energy storage systems in microgrids considering battery state of health Author(s): Zenghui Zhang, Kaile Zhou and Shanlin Yang Presenter: Zenghui Zhang Affiliation: Hefei University of Technology, China</p>
<p>14:30-14:45 NE-248</p>	<p>Research on optimal scheduling of integrated energy system based on coordinated control of flexible load Author(s): Tianyu Li, Yu Xia, Gang Ma and Sun Yu Presenter: Tianyu Li Affiliation: Nanjing Normal University, China</p>
<p>14:45-15:00 NE-260</p>	<p>Research on energy management of multi-charging station Author(s): Teng Liu, Liang Huang and Tao Zhou Presenter: Teng Liu Affiliation: Wuhan University of Technology, China</p>
<p>15:00-15:15 NE-483</p>	<p>Optimal Scheduling of Mobile Energy Storage for Mitigating Voltage Problem in Distribution System Author(s): Heng Zhuang and Ting Wu Presenter: Heng Zhuang Affiliation: Harbin Institute of Technology, China</p>
<p>15:15-15:30 NE-168</p>	<p>Optimal Scheduling of Port Clusters Integrated Energy System Considering Shared Energy Storage and Demand Response Author(s): Yuang Chen and Yi Guo Presenter: Yuang Chen Affiliation: Shanghai Maritime University, China</p>
<p>15:30-15:45 NE-412</p>	<p>Low-Carbon Oriented Optimization of Integrated Energy System Considering Complex Coupling of Carbon and Hydrogen Author(s): Yinghao Niu, Qian Chen, Zhengwei Zhang, Beiqi Qian, Zongyuan Li and Xiaowen Xu Presenter: Yinghao Niu Affiliation: Hohai University, China</p>

SESSIONS

Day 3-Onsite

Sep. 23, 2023—Saturday

Track 3	
09:50-11:20	Data-driven Operation of Renewable Energy Systems 数据驱动的可再生能源系统运行 Room: Crystal Hall I (紫晶厅 I-4F)
Session Chair: Ce Shang, Shanghai Jiao Tong University, China	
09:50-10:05 NE-318	Time-varying correlation analysis and modeling of distributed renewable energy joint output based on time-varying Copula Author(s): Minzhen He, Xiaohui Liu, Yi Huang, Han Wu, Ankang Miao, Yue Yuan Presenter: Minzhen He Affiliation: Hohai University, China
10:05-10:20 NE-385	Research on the Design Methodology of Integrated Energy System Evaluation System Considering Different Weighting Rates of Multiple Indicators Author(s): Qiang Yu, Jidong Song, Ziliang Yang, Shumin Sun, Song Yang, Peng Yu, Haijie Qi Presenter: Jidong Song Affiliation: China Agricultural University, China
10:20-10:35 NE-461	Resilience-Constrained Planning of Energy Hub Considering Waste Heat Reuse of Data Center Author(s): Wenguang Jin, Shenxi Zhang, Tong Sun and Haozhong Cheng Presenter: Wenguang Jin Affiliation: Shanghai Jiao Tong University, China
10:35-10:50 NE-432	Optimal Planning of HVDC Converter Stations for AC-DC Mixed Power Grid with High Penetration of Renewable Energy Author(s): Jiawei Zhou, Longze Kou, Fangyuan Li, Qi Liu, Zheng Fan, Dong Liu Presenter: Jiawei Zhou Affiliation: State Grid Smart Grid Research Institute Co., Ltd, China
10:50-11:05 NE-110	Event-Triggered State Estimation for Distribution Systems with SCADA and Smart Meter Data Author(s): Manyun Huang, Qiying Xu, Zhinong Wei Presenter: Qiying Xu, Manyun Huang Affiliation: Hohai university, China
11:05-11:20 NE-249	Optimization Operation Model of Integrated Energy System in Expressway Service Area with P2G Author(s): Xiaojuan Yang, Suhua Lou, Yuanyuan Zhao, Chongtao Bai, Ting Huang Presenter: Xiaojuan Yang Affiliation: Huazhong University of Science and Technology, China

Track 4	
09:50-11:20	Advanced Physical Energy Storage Techniques and Apparatus 先进物理储能技术及装备
Room: Crystal Hall II (紫晶厅 II -4F)	
Session Chair: Yiming Ma, CSG PGC Energy Storage Research Institute, China	
09:50-10:05 NE-459	<p>Research on the application of energy consumption monitoring technology in the construction of pumped storage power station</p> <p>Author(s): Fanqi Huang, Hao Zhang, Yikai Li, Yumin Peng, Yiming Ma, Zengtao Zhao</p> <p>Presenter: Fanqi Huang</p> <p>Affiliation: China Southern Power Grid Power Generation Co., Ltd Energy Storage Research Institute, China</p>
10:05-10:20 NE-119	<p>Research on the Characteristics of Suppressing Photovoltaic Radiation Fluctuations in Ice Storage Systems</p> <p>Author(s): Zhuoli Zhang, Ming Li, Tianyu Xing, Ying Zhang</p> <p>Presenter: Zhang Zhuoli</p> <p>Affiliation: Yunnan Normal University, China</p>
10:20-10:35 NE-457	<p>HVDC Transient Reactive Power-Voltage Characteristics and Impact of Control System Parameters During Commutation Failure and Recovery</p> <p>Author(s): Youhua Jiang, Meng Zhou, Peng Hu, Han Wang</p> <p>Presenter: Meng Zhou</p> <p>Affiliation: Shanghai University of Electric Power, China</p>
10:35-10:50 NE-374	<p>Research on the Current Status and Development Direction of Partial Discharge Monitoring and Diagnosis Technology for Large Pumped Storage Units</p> <p>Author(s): Tao Liu, Kai Lin, Tao Liu, Kai Guo, Zhengxin Cao</p> <p>Presenter: Tao Liu</p> <p>Affiliation: China Southern Power Grid Peak Shaving and Frequency Modulation Power Generation Co., Ltd, Guangzhou, China</p>
10:50-11:05 NE-502	<p>Analysis and research on generator design technology of variable speed pumping and storage units at home and abroad</p> <p>Author(s): Tao Liu, Jiansheng Yu, Kai Lin, Xingchun Lei, Peng Xu, Zhengxin Cao</p> <p>Presenter: Tao Liu</p> <p>Affiliation: China Southern Power Grid Peak Shaving and Frequency Modulation Power Generation Co., Ltd, China</p>
11:05-11:20 NE-214	<p>The Optimization Clearing Model and Algorithm Research of Electric Heat Storage Participates in Electricity Spot Market to Improve Renewable Energy Absorption Capacity</p> <p>Author(s): Gang LIU, Miao WANG, Qingsong ZHAO, Zhonghui WANG, Meishan ZHANG, Dianyang LI</p> <p>Presenter: Qingsong ZHAO</p> <p>Affiliation: State Grid LiaoNing Electric Power Supply Co. LTD, Electric Power Research Insitute, China</p>

09:30-11:30	<p align="center">Track 5</p> <p align="center">Planning, Control, and Resilience Enhancement in Low-Carbon-Driven Power Systems and Electricity Markets</p> <p align="center">低碳电力系统和电力市场的规划、控制和弹性增强</p> <p align="center">Room: Iris Room I (金百合厅 I-2F)</p>
Session Chair: Yun Zhou, Shanghai Jiao Tong University, China	
09:30-09:45 NE-386	<p>Optimal Electricity Dispatch Strategy for Urban Residential Quarter Considering Nearby Battery Swapping Station</p> <p>Author(s): Lingyu Guo, Weidong Hu, Yang Du, Zhongguang Yang, Xianghong Xiong, Simin Wu, Yipu Li, Yun Zhou</p> <p>Presenter: Weidong Hu</p> <p>Affiliation: Shanghai Jiao Tong University, China</p>
09:45-10:00 NE-391	<p>Capacity and Operation Planning Model of Energy Storage System in Power Spot Market</p> <p>Author(s): Haojing Wang, Zihao Tian, Qin Xu, Shanshan Shi, Chen Fang, Donghan FengShi,</p> <p>Presenter: Zihao Tian</p> <p>Affiliation: Shanghai Jiao Tong University, China</p>
10:00-10:15 NE-122	<p>Carbon Footprint Analysis of Processes in Typical Steel Enterprises</p> <p>Author(s): Weisheng Zhang, Yuzhen Sun, Quan Zhou, Huirong Zhao, Daogang Peng</p> <p>Presenter: Weisheng Zhang</p> <p>Affiliation: Shanghai University of Electric Power, China</p>
10:15-10:30 NE-274	<p>Distributed Optimal Dispatch of Active Distribution Network Considering Carbon-electricity Trading</p> <p>Author(s): Xiang Yuan, Lu Dong, Chutian Yu, Meijin Gao, Lijun Zhang, Jie Yu, Xueer Wang, Xiaoyan Bian</p> <p>Presenter: Xueer Wang</p> <p>Affiliation: Shanghai University of Electric Power, China</p>
10:30-10:45 NE-392	<p>Planning of Park Integrated Energy System with Peer-to-peer Trading Cooperation under Electricity-carbon-green Certificate Market</p> <p>Author(s): Jing Liu, Tiantian Chen, Zhen Dong, Zeqi Liang, Ling Luo, Donghan Feng, Qiyuan Liu, Yun Zhou</p> <p>Presenter: Zeqi Liang</p> <p>Affiliation: Shanghai Jiao Tong University, China</p>
10:45-11:00 NE-310	<p>Market equilibrium analysis under the coupling of carbon market, energy usage right market and electricity market</p> <p>Author(s): Gang Chen, Kun Fan, Zhonghua Xie, Shaoyun Hong, Mo Qi, Hongjun Qin, Yuxiang Huang, Haoyong Chen</p> <p>Presenter: Hongjun Qin</p> <p>Affiliation: South China University of Technology, China</p>
11:00-11:15 NE-411	<p>Portfolio Trading Strategies for Integrated Generators in the Electricity Mid to Long-term and Spot Markets</p> <p>Author(s): Guohui Lan, Jing Yu, Mingxing Guo, Li Lan, Yudi Wang, Donghan Feng</p> <p>Presenter: Yudi Wang</p> <p>Affiliation: Shanghai Jiao Tong University, China</p>

Track 6	
09:30-11:30	Digitalized Operation and Decision Making for Modern Power Grids 现代电网的数字化运行与决策 Room: Iris Room II (金百合厅 II -2F)
Session Chair: Lipeng Zhu, Hunan University, China	
09:30-09:45 NE-238	Reliability Assessment of Honeycomb Distribution Network Based on Quasi-Sequential Monte Carlo Simulation Method Author(s): Yang Han, Xiang Sheng, Liu Xiaohui, Miao'an Kang, Hemin Zhen, Yuan Yue Presenter: Yang Han Affiliation: Hohai University, China
09:45-10:00 NE-494	Short-term Wind Power Prediction Based on Error Estimation Author(s): Yuhan Hu, Lipeng Zhu, Jiayong Li, Yang Zeng, Limengqian Zheng, Yunhe Hou Presenter: Yuhan Hu Affiliation: Hunan University, China
10:00-10:15 NE-495	A Robust Parameter Identification Strategy of Composite Load Model With a Neural Differential Algebraic Network Author(s): Songyan Zhang, Xinran Zhang, Chao Lu Presenter: Songyan Zhang Affiliation: Tsinghua University, China
10:15-10:30 NE-496	A novel hybrid data-driven PV output prediction method based on error correction Author(s): Sufei Lu, Wei Zhang*, Cong Zhang, Jieming Du, Huaizhi Yang Presenter: Sufei Lu Affiliation: Hunan University, China
10:30-10:45 NE-176	FTL-EDGE: A Feature Federation Transfer Learning Algorithm For Single Microgrid Edge Computing Author(s): Qi Xu, Xiaohong Shi Presenter: Xu Qi Affiliation: Shanghai Maritime University, China
10:45-11:00 NE-245	High-capacity Multi-level Emergency Load Shedding Technology for Electrolytic Aluminum Load Author(s): Lingfang Li, Yixuan Chen, Jie Zhang, Shanquan Pi, Cong He, Siyang Liao Presenter: Shanquan Pi Affiliation: Wuhan University, China
11:00-11:15 NE-302	Resilience Enhancement of Urban Energy Systems through Coordinated Operation of Electric Buses Author(s): Heng Hu, Xi Zhang, Meng Hou, Qingwei Guan, Qinghe Sun Presenter: Heng Hu Affiliation: State Grid Smart Grid Research Institute, China

11:15-11:30 NE-306	Robust economic dispatching algorithm of uncertain microgrid based on tie-line power tracking Author(s): Chen Fei, Wang Peng, Zheng Lin, Ji Keqin, Hou Jiansheng Presenter: Zheng Lin Affiliation: State Grid Jinhua Power Supply Company, China
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14:00-16:00	<p>Track 7</p> <p>Dispatching Analysis and Control of High Penetration Renewable Energy System</p> <p>高比例新能源电力系统调度分析与控制</p> <p>Room: Crystal Hall I (紫晶厅 I-4F)</p>
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Session Chair: Qian Ma, Power Dispatching and Control Center of CSG, China

14:00-14:15 NE-181	Research and application of secondary air adjustment system for energy saving and nitrogen reduction in secondary reheat units Author(s): Hong Hu, Libin Wen Presenter: Hong Hu Affiliation: Electric Power Research Institute of Guangxi Power Grid Co., Ltd, China
14:15-14:30 NE-069-A	A simulation study on co-flow MFC with arc-shaped electrodes Author(s): Baoxin Wu, Yifei Wang Presenter: Baoxin Wu Affiliation: Harbin Institute of Technology, China
14:30-14:45 NE-525	Addressing Power Supply by Complementary Hydro-Wind-Solar-Gas-Storage Multi-Energy System: The Wenshan Case Study Author(s): Jicai Wang Presenter: Jicai Wang Affiliation: Datang Yunnan Power Generation Co., Ltd., China
14:45-15:00 NE-526	Extreme Scenarios of High Percentage of Renewable Energy Connected to Power System: A Review on System Power and Electricity Balance Aspect Author(s): Guo Hongxia, Chen Lingxuan, Ma Qian, Zou Guilin, Liu Shuangquan, Presenter: Guo Hongxia Affiliation: South China University of Technology, China
15:00-15:15 NE-006	Research on optimization of power generation quality of marine main engine electric dynamometer system Author(s): Zeang Jie, Guichen Zhang Presenter: Zeang Jie Affiliation: Shanghai Maritime University, China
15:15-15:30 NE-024	Research on energy storage converter based on two-stage power converter Author(s): Yang Zhang, Yinyin Lu, Fangfang Guo, Jing Sheng, Fanxing Rao, Xuefan Zhao,

	<p>Weixing Lin</p> <p>Presenter: Yinyin Lu</p> <p>Affiliation: Nanchang Institute of Technology, China</p>
<p>15:30-15:45 NE-290</p>	<p>Research on coupling design and intelligent operation of power flow system in green factory</p> <p>Author(s): Xiaopeng Xin, Zhangxin Lin, Zirui Lv, Zhong Ye, Zhenyu Liu, Jianrong Tan</p> <p>Presenter: Xiaopeng Xin</p> <p>Affiliation: Turbine New Energy co., Ltd, China</p>
<p>15:45-16:00 NE-463</p>	<p>BEB-Net: Boundary Extraction Based Semantic Segmentation Network for Indoor Scenes in Smart Power Plants</p> <p>Author(s): Jinlong Jiang, Ning Yang, Muhammad Ilyas Menhas, Heping Huang, Hui Chen</p> <p>Presenter: Jinlong Jiang</p> <p>Affiliation: Shanghai University of Electric Power, China</p>

	<p>Session A</p> <p>Photovoltaic system construction and grid connection technology 光伏系统构建与并网技术</p> <p>Room: Crystal Hall II (紫晶厅 II -4F)</p>
14:00-16:00	
Session Chair:	
<p>14:00-14:15 NE-519</p>	<p>Calculation of the Maximum Hosting Capacity of Distributed Photovoltaics in Distribution Networks Considering Flexible Interconnections</p> <p>Author(s): Tong Sun, Yi Song, Kai Yuan, Ruosong Hou, Jiakun An, Wenguang Jin, Shenxi Zhang and Haozhong Cheng</p> <p>Presenter: Tong Sun</p> <p>Affiliation: Shanghai Jiao Tong University, China</p>
<p>14:15-14:30 NE-505</p>	<p>Design and Application of Photovoltaic Energy Storage DC Technology In Municipal Stormwater Detention Tank System</p> <p>Author(s): Yuan Zheng, Li Yijun, Hou Yuanjun, Zhao Jinbin, Wang Zhixin</p> <p>Presenter: Hou Yuanjun</p> <p>Affiliation: Shanghai Municipal Engineering Design Institute(Group) Co., Ltd China</p>
<p>14:30-14:45 NE-090</p>	<p>Study on the influence of desert dust accumulation on the output power of photovoltaic modules</p> <p>Author(s): Mingzhi Zhao, Jianan Wang, Chun Chang, Xiaoyu Xu, Ningbo Wang, Yixuan Ma</p> <p>Presenter: Jianan Wang</p> <p>Affiliation: Inner Mongol University of Technology, China</p>

14:45-15:00 NE-113	<p>A PV Power Prediction Method Based On Optimized VMD and Optimal Combination Prediction Model Selection Strategy</p> <p>Author(s): Yuhan Zhang, Xu Li</p> <p>Presenter: Yuhan Zhang</p> <p>Affiliation: Shanghai University, China</p>
15:00-15:15 NE-124	<p>Photovoltaic Simulation Design Research Application of PEDF Building Power Distribution System</p> <p>Author(s): Tian Mao, Jianqi Xu</p> <p>Presenter: Tian Mao</p> <p>Affiliation: The Architectural Design & Research Institute of Zhejiang University Co., Ltd, China</p>
15:15-15:30 NE-362	<p>A Multiple-Complex Coefficient-Filter-Based PLL-Less Power Quality Control Method for Photovoltaic Generation Systems</p> <p>Author(s): Xueheng Yao, Hong Zhu, Miaogen Shi, Chaojun Wang and Zhengmin Bao</p> <p>Presenter: Xueheng Yao</p> <p>Affiliation: Hangzhou kaide electricity construction co., LTD, China</p>
15:30-15:45 NE-467	<p>Research on Soft Switching Optimization Control Strategy for ANPC Half-bridge DAB under Wide Voltage Range</p> <p>Author(s): Zhiguang Lin, Kailong Chen, Weihua Deng, Jie Li, Naizheng Han</p> <p>Presenter: Jie Li</p> <p>Affiliation: State Grid Smart Grid Research Institute Co., Ltd, China</p>
15:45-16:00 NE-398	<p>Doubly Grounded Dual-Input Transformer-less Three-phase Inverter for PV-battery System</p> <p>Author(s): Yifeng Han, Zhilei Yao</p> <p>Presenter: Yifeng Han</p> <p>Affiliation: Shanghai Maritime University, China</p>

14:00-16:00	<p align="center">Session B</p> <p align="center">Power System Control and Reliability Assessment</p> <p align="center">电力系统控制与可靠性评估</p> <p align="center">Room: Iris Room I (金百合厅 I-2F)</p>
Session Chair: Li Liu, Ludong University, China	
14:00-14:15 NE-255	<p>Power System Flexibility Assessment Method for Matching Supply and Demand with Flexibility</p> <p>Author(s): Sha Luo, Jian Zhou, Nan Feng, Yun Su, Donghao Yang, Bing Wang</p> <p>Presenter: Donghao Yang</p> <p>Affiliation: Nanjing Haoqing Information Technology Co., Ltd, China</p>
14:15-14:30 NE-352	<p>Event-triggered grid-forming control for power converters via switching approach</p> <p>Author(s): Jin Zhang, Chen Peng, Jing Shi, Minrui Fei</p> <p>Presenter: Jin Zhang</p> <p>Affiliation: Shanghai University, China</p>
14:30-14:45 NE-375	<p>Online Harmonic Phasor Measurement of Sub/sup-synchronous Oscillation for Power System</p> <p>Author(s): Yuan Zhu, Zhebo Zhang, Lei Yang</p> <p>Presenter: Lei Yang</p> <p>Affiliation: Zhejiang Energy R & D Institute Co., Ltd, China</p>
14:45-15:00 NE-438	<p>Improved droop control strategy for resistive inverters connected in parallel</p> <p>Author(s): Kaibo Gao, Shupeng Zhou, Zhilei Yao</p> <p>Presenter: Kaibo Gao</p> <p>Affiliation: Shanghai Maritime University, China</p>
15:00-15:15 NE-052	<p>Flexibility and Operation Economy of Cogeneration Unit with Air-cooled Condenser and High Back Pressure Heating System</p> <p>Author(s): Haisheng Yang, Guangtong Tang and Xiaopei Yan</p> <p>Presenter: Haisheng Yang</p> <p>Affiliation: Hebei Electric Power Testing and Research Institute, China</p>
15:15-15:30 NE-147	<p>A Novel DC Control Optimization Strategy for Supporting Transient Voltage of HVDC Sending End System</p> <p>Author(s): Qingxi Duan, Yanhui Qin, Zhen Liu, Yu Duan, Zimin Zhu, Xiaoyun Wang, Xing Ma, Weihong Zao</p> <p>Presenter: Qingxi Duan</p> <p>Affiliation: Xinjiang Electric Power Research Institute, China</p>
15:30-15:45 NE-155	<p>Novel Overcurrent Protection Method for VSC-LCC Parallel Hybrid DC Transmission System</p> <p>Author(s): Xingyang Hu, Kun Chen, Kanjun Zhang, Longen Zhang, Ting Wang, Pangqi Ye</p> <p>Presenter: Xingyang Hu</p> <p>Affiliation: State Grid Hubei Electric Power Research Institute, China</p>

15:45-16:00 NE-340	<p>Influence of Permeability on Voltage Stability of PV Inverters through LCC-HVDC System</p> <p>Author(s): Fei Li, Huan Liu, Rui Gan, Yuanze Zhang, Ming Li, Xing Zhang</p> <p>Presenter: Huan Liu</p> <p>Affiliation: Hefei University of Technology, China</p>
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14:00-16:00	<p>Session C</p> <p>Virtual Power Plant Optimization Management and Power Communication 虚拟电厂优化管理与电力通信</p> <p>Room: Iris Room II (金百合厅 II -2F)</p>
Session Chair:	
14:00-14:15 NE-128	<p>Prediction of SDN Heterogeneous Network Traffic Based on Improved LSTM with Self-attention Mechanism</p> <p>Author(s): Xiangcai Zhao, Dajun Du, Yi Zhang</p> <p>Presenter: Xiangcai Zhao</p> <p>Affiliation: Shanghai University, China</p>
14:15-14:30 NE-191	<p>H^∞ Filtering Method for WSNs with Privacy Protection under FDI Attack</p> <p>Author(s): Jinming Liu, Li Liu, Yinggang Zhang</p> <p>Presenter: Li Liu</p> <p>Affiliation: Ludong University, China</p>
14:30-14:45 NE-259	<p>Aggregation-based Self-dispatch of the Virtual Power Plant with Massive Controllable Batteries</p> <p>Author(s): Mengmeng Su, Zhanfei Qie, Yong Zhang, Min Li, Zhongkai Yi, Ying Xu</p> <p>Presenter: Zhanfei Qie</p> <p>Affiliation: Harbin Institute of Technology, China</p>
14:45-15:00 NE-194	<p>Day-ahead optimization strategy considering demand response in power-based virtual power plant</p> <p>Author(s): Songsong Chen, Ke Chen, Qingrong Zheng, Jianli Zhao</p> <p>Presenter: Ke Chen</p> <p>Affiliation: China Electric Power Research Institute, China</p>
15:00-15:15 NE-070	<p>An Optimized Configuration Method for MESV Connected to VPP</p> <p>Author(s): Long Li, Ying Wang and Xianyong Xiao</p> <p>Presenter: Long Li</p> <p>Affiliation: Sichuan University, China</p>
15:15-15:30 NE-404	<p>Bi-level configuration optimization model for multi-energy capacities in virtual power plant cluster</p> <p>Author(s): Juan Zuo, Wenbo Wang, Chongxin Xu, Yu Ji</p>



	<p>Presenter: Jinxi Yuan</p> <p>Affiliation: State Grid Shanghai Energy Interconnection Research Institute co., LTD; Shanghai Jiao Tong University, China</p>
<p>15:30-15:45 NE-283</p>	<p>Multi-Target Pedestrian Tracking Using Radar and Visual Detection Information Fusion</p> <p>Author(s): Yuan Lin, Wenju Zhou, Shunan Wang, Wei Ruan</p> <p>Presenter: Yuan Lin</p> <p>Affiliation: Shanghai University, China</p>
<p>15:45-16:00 NE-044</p>	<p>Comparative evaluation of thermoelectric decoupling potential and economy of multi-type small capacity thermal power units in virtual power plant</p> <p>Author(s): Yao Fan, Zhang Junqi, Zhao Dan, Zheng Qiwei, Chen Heng, Zhao Shuyuan</p> <p>Presenter: Zheng Qiwei</p> <p>Affiliation: North China Electric Power University, China</p>

<p>10:00-12:00</p>	<p>Poster Session 05</p> <p>Intelligent Power System Monitoring and Operation</p> <p>智能电力系统监测与运营</p> <p>Room: Foyer (序厅-4F)</p>
<p>Session Chair: Kun Zhang, Nantong University, China</p>	
<p>NE-143</p>	<p>A Multivariate Load Forecasting Method Based on ESAM-MTL Model</p> <p>Author(s): Yunan Wang, Ming Chen, Lufeng Xuan, Jin Yu</p> <p>Presenter: Jin Yu</p> <p>Affiliation: State Grid Shanghai ShiNan Electric Power Supply Company, China</p>
<p>NE-390</p>	<p>An Adaptive Detection and Clustering Method of Harmonic from Noisy Signal Based on Prony</p> <p>Author(s): Hao JIAO, Qingpeng WANG, Yuxuan LI, Baofeng SHAN, Xinyue CUI, Zongshuai JIN</p> <p>Presenter: Zongshuai Jin</p> <p>Affiliation: Shandong University, China</p>
<p>NE-016</p>	<p>Total Supply Capability Evaluation of Distribution Systems considering Soft Open Points and Network Reconfiguration</p> <p>Author(s): Shan He, Qilin Hou, Jing Wang and Yuming Zhao</p> <p>Presenter: Qilin Hou</p> <p>Affiliation: University of Macau, China</p>
<p>NE-444</p>	<p>Modified APC Strategy for Doubly Salient Electro-Magnetic Generator With Controlled Rectifier Considering Dramatic Load Changes</p> <p>Author(s): Zhenyu Lei, Shuanghong Wang and Zixin Li</p> <p>Presenter: Zhenyu Lei</p> <p>Affiliation: Huazhong University of Science and Technology, China</p>
<p>NE-448</p>	<p>Influence Mechanism of PLL on Active/Reactive Voltage Excitation and AC current Amplitude/Frequency Response Relationship of LCC-HVDC station</p>

	<p>Author(s): Shuchan He, Xiaoming Yuan, Jiabing Hu</p> <p>Presenter: Shuchan He</p> <p>Affiliation: Huazhong University of Science and Technology, China</p>
NE-261	<p>Energy Optimization of Microgrids Based on Electricity-Carbon-Green Certificate Synergy</p> <p>Author(s): Xiaoying Bian, Lu Tan, Nian Liu</p> <p>Presenter: Lu Tan</p> <p>Affiliation: North China Electric Power University, China</p>
NE-334	<p>2-D Images Combination and Expanded-Channel ResNet Based Power Quality Disturbance Recognition Approach</p> <p>Author(s): Jieyu Ou, Yi Zhang, Jinrong Lin, Bijie Liu</p> <p>Presenter: Jieyu Ou</p> <p>Affiliation: Fuzhou University, China</p>
NE-357	<p>A New Control Strategy for VSG on Improving Voltage Support Ability for Power Network with High Penetrated Renewable Energy</p> <p>Author(s): Yuchen Qi, Shihao Wang, Tianli Song, Haoen Li, Ruanming Huang, Yumeng Jiang, Yinzhe Xie, Na li</p> <p>Presenter: Yumeng Jiang</p> <p>Affiliation: State Grid Shanghai Electric Power Co., Ltd Economic and Technological Research Institute, China</p>
NE-360	<p>A New Coordinative Control Strategy for Renewable Generation and STATCOM during Imbalanced Voltage Sags</p> <p>Author(s): Yumeng Jiang, Shihao Wang, Yuchen Qi, Haoen Li, Ruanming Huang, Tianli Song, Zhu Chen, Yurong Li</p> <p>Presenter: Yumeng Jiang</p> <p>Affiliation: State Grid Shanghai Electric Power Co., Ltd Economic and Technological Research Institute, China</p>
NE-096	<p>Economic assessment of a methane production approach integrated with the carbon capture of a coal power plant</p> <p>Author(s): Xingang Wang, Gaolei Wu, Hailiang Liu, Zhiyong Yu, Xin Yuan, Heng Chen</p> <p>Presenter: Xin Yuan</p> <p>Affiliation: North China Electric Power University, China</p>
NE-099	<p>Economic Dispatch of a Virtual Power Plant with Wind-photovoltaic-storage Considering Demand Response</p> <p>Author(s): Jiayu Bian, Zhuan Zhou, Zhiyong Yu, Jin Yu, Kaijie Gou, Heng Chen</p> <p>Presenter: Kaijie Gou</p> <p>Affiliation: North China Electric Power University, China</p>
NE-111	<p>Comprehensive Cost and Benefit Evaluation of Carbon Reduction Technologies for Power Transmission and Transformation Projects Based on Hierarchical Analysis and Entropy Power Method</p> <p>Author(s): Cheng Xin, Shuyuan Zhao, Weite Shi, Huijuan Huo, Heng Chen</p> <p>Presenter: Shuyuan Zhao</p> <p>Affiliation: State Grid Economic and Technical Research Institute Ltd., China</p>

NE-394	<p>Optimal decision method of load aggregator in virtual power plant mode</p> <p>Author(s): Tianding Xie, Ning Xie, Chengmin Wang</p> <p>Presenter: Tianding Xie</p> <p>Affiliation: Shanghai Jiao Tong University, China</p>
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10:00-12:00	<p>Poster Session 06</p> <p>New Energy Power Generation Technology and Energy Estimation</p> <p>新能源发电技术及电量估计</p> <p>Room: Foyer (序厅-4F)</p> <p>Session Chair: Kun Zhang, Nantong University, China</p>
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NE-210	<p>A Protection Scheme for Flexible Low Frequency AC System Power Collecting Line of Offshore Wind Farm Based on Transient High Frequency Energy</p> <p>Author(s): Xing Gao, Tianjia Sun, Tonghua Wu, Gang Yao, Yangyang He, Nengling Tai</p> <p>Presenter: Gao Xing</p> <p>Affiliation: Shanghaijiaotong University, China</p>
NE-030	<p>Data Self-Expansion and DoppelGANger-Based Time-Series Modeling for Realistic Steam Data Generation</p> <p>Author(s): Xinying Cai, Zheng Luo, Xueru Lin, Ning Zhang, Yihui Mao, Xiaojie Lin, Wei Zhong</p> <p>Presenter: Xinying Cai</p> <p>Affiliation: Zhejiang University, China</p>
NE-107	<p>A novel design for biogas-based power generation incorporating a coal-fired power plant</p> <p>Author(s): Yu Zhiyong, Zhou Zhuan, Shi Xiaochao, Zhu Zimin, Zhao Xinyue, Chen Heng</p> <p>Presenter: Zhao Xinyue</p> <p>Affiliation: North China Electric Power University, China</p>
NE-108	<p>A novel medical waste-to-hydrogen design based on plasma gasification</p> <p>Author(s): Yu Jin, Bian Jiayu, Zhu Zimin, Yu Zhiyong, Li Jiarui, Chen Heng*</p> <p>Presenter: Li Jiarui</p> <p>Affiliation: North China Electric Power University, China</p>
NE-050	<p>Flexibility Upgrading of High Pressure Industrial Heating System for a Cogeneration Unit and its Performance Improvement</p> <p>Author(s): Haisheng Yang, Lujiang Li and Weijiang Zhang</p> <p>Presenter: Haisheng Yang</p> <p>Affiliation: Hebei Electric Power Testing and Research Institute, China</p>
NE-317	<p>Study on Predicting and Warning of the Wet Flue Gas Desulfurization System Slurry Poisoning Based on Improved K-means Clustering</p> <p>Author(s): Bao Gu, Junwei Fu, Qing Guo, Xinnan, Xiaoyan JiaZhenwei Zhang, Rongdong Yu, Ye,</p> <p>Presenter: Qing Guo</p> <p>Affiliation: Zhejiang Energy Digital Technology Co., Ltd, China</p>

NE-324	<p>Optimization Scheduling and Adequacy Evaluation of Cascade Hydropower Stations Considering the Extreme Weather</p> <p>Author(s): MingKui Wei, Liang Lu, Hong Zhou, Li Shen, Qing Wang, Bangan Hu</p> <p>Presenter: Bangan Hu</p> <p>Affiliation: Sichuan University, China</p>
NE-048	<p>Technical and Economic Feasibility of Different Urban Sludge Treatment Technologies</p> <p>Author(s): Fangxu Gui, Lai Wei, Peiyuan Pan, Heng Chen, Kai Zhang</p> <p>Presenter: Fangxu Gui</p> <p>Affiliation: North China Electric Power University, China</p>

14:00-16:00	<p>Poster Session 07</p> <p>Fault Diagnosis and Maintenance in Electrical Systems</p> <p>电气系统中的故障诊断及维护</p> <p>Room: Foyer (序厅-4F)</p> <p>Session Chair: Tao Liu, China Southern Power Grid Peak Shaving and Frequency Modulation Power Generation Co. Ltd., China</p>
NE-167	<p>A Method for Generating Fault Current in VSC-HVDC Protection Testing</p> <p>Author(s): Chen Kun, Yao Qi-xin, Zhang Long-en, Hu Xing-yang, Chen Pan</p> <p>Presenter: Chen Kun</p> <p>Affiliation: State Grid Hubei Electric Power Research Institute, China</p>
NE-177	<p>Application of controllable resistive-type fault current limiter to low-voltage ride-through of DFIG</p> <p>Author(s): Tingting Sun, Hongru Shi, Jiejie Huang</p> <p>Presenter: Tingting Sun</p> <p>Affiliation: Nantong Institute of Technology, China</p>
NE-440	<p>Enhanced Power Synchronization Based Vector Control with Fault Ride Through for VSC-HVDC</p> <p>Author(s): Rongcai Pan, Chunpeng Li, Yuexi Yang, Xiao Zhou</p> <p>Presenter: Rongcai Pan</p> <p>Affiliation: State Grid Smart Grid Research Institute, China</p>
NE-446	<p>Transient characterization of doubly fed induction generator for during LVRT</p> <p>Author(s): Yiyun Gou, Jinghong Zheng, Zhuang Liu and Yusheng Ding</p> <p>Presenter: Yiyun Gou</p> <p>Affiliation: Tsinghua University, China</p>
NE-397	<p>High-Voltage Nanosecond Pulse Generator Based on DSRD Series Components</p> <p>Author(s): Yunlong Liu, Liang Yu, Xiandong Li, Huadong Li, Tao Ma, Shengyuan Guan, Zixin Nie and Chenguo Yao</p> <p>Presenter: Yunlong Liu</p> <p>Affiliation: State Grid Chongqing Shibe Electric Power Supply Branch, China</p>

NE-469	<p>A Transient Voltage Support Strategy Based on Medium Voltage Photovoltaic Grid-Connected Converter During Commutation Failure in the LCC-HVDC System</p> <p>Author(s): Hong Lu, Yali Liu, Yijia Yuan, Weihua Deng, Pengfei Deng, Xirui Jiang</p> <p>Presenter: Hong Lu</p> <p>Affiliation: State Grid Smart Grid Research Institute Co., Ltd, China</p>
NE-180	<p>Research on the Detection of Hazardous Sources in the Vicinity of Transmission Lines Based on Deep Learning Algorithms</p> <p>Author(s): Kun Zhang, Peng Ouyang, Jiajie Qian, Minrui Fei, Liang Hua, Jianguo Wu</p> <p>Presenter: Kun Zhang</p> <p>Affiliation: Nantong University, China</p>

14:00-16:00	<p>Poster Session 08</p> <p>Integrated Energy System and Energy Storage Technology</p> <p>综合能源系统与储能技术</p> <p>Room: Foyer (序厅-4F)</p>
<p>Session Chair: Tao Liu, China Southern Power Grid Peak Shaving and Frequency Modulation Power Generation Co. Ltd., China</p>	
NE-213	<p>Frequency Emergency Control Strategy using Energy Storage based on Model Predictive Control</p> <p>Author(s): Heng Wang, Yuxin Weng, Yu Li, Yiqian Sun, Xinyan Zhang, Jianfeng Guo, Zhe Wang, Li Bo</p> <p>Presenter: Yuxin Weng</p> <p>Affiliation: Zhejiang University, China</p>
NE-466	<p>Control strategy and simulation analysis of wind-solar-storage integrated coupling hydrogen production system</p> <p>Author(s): Shuaiqi Zhang, Yingjun Guo, Hexu Sun, Yuyang Zhao, Pengcheng Li, Weichao Dong</p> <p>Presenter: Zhang Shuaiqi</p> <p>Affiliation: Hebei University of Science and Technology, China</p>
NE-037	<p>Energy Storage Configuration Method for Distribution Network Resilience Enhancement Using Two-Stage Game Optimization</p> <p>Author(s): Shuai Liu, Yuwen Li, Heng Zhou, Kuan Cao and Yutian Liu</p> <p>Presenter: Heng Zhou</p> <p>Affiliation: Shandong University, China</p>
NE-355	<p>Study on profit model and operation strategy optimization of energy storage power station</p> <p>Author(s): Peng YUAN, Jifeng CHENG, Qingsong ZHAO, Jiajue LI, Gang LIU, Zhonghui WANG, Miao WANG</p> <p>Presenter: Peng YUAN</p> <p>Affiliation: State Grid LiaoNing Electric Power Supply Co. LTD, Electric Power Research Institute, China</p>

NE-304	<p>Research on the operation strategy of energy storage power station under the environment of power market</p> <p>Author(s): Zhonghui Wang, Miao Wang, Peng Yuan, Gang LIU, Jinze Li, Zhi Fa, Jifeng Cheng</p> <p>Presenter: Peng Yuan</p> <p>Affiliation: State Grid LiaoNing Electric Power Supply Co. LTD, Electric Power Research Institute, China</p>
NE-160	<p>Chance-constrained model predictive control based real-time dispatch strategy of regional integrated energy systems considering profit allocation</p> <p>Author(s): Yubin Wang, Yanchong Zheng, Qiang Yang</p> <p>Presenter: Yubin Wang</p> <p>Affiliation: Zhejiang University, China</p>
NE-434	<p>Optimization Design of the Black Start Process of Auxiliary Power Supply System for Shenzhen Pumped Storage Power Station</p> <p>Author(s): Danqi Chen, Bo Wan, Wenxing Hu</p> <p>Presenter: Danqi Chen</p> <p>Affiliation: China Southern Power Grid Power Generation Co., Ltd Energy Storage Research Institute, China</p>

14:00-16:00	<p>Poster Session 09</p> <p>Modern Energy System and Electricity Market Management 现代能源系统与电力市场管理</p> <p>Room: Foyer (序厅-4F)</p>
<p>Session Chair: Tao Liu, China Southern Power Grid Peak Shaving and Frequency Modulation Power Generation Co. Ltd., China</p>	
NE-150	<p>Investigation of the Correlation between Weather Parameters and DC total Electric Field</p> <p>Author(s): Huichun Xie, Jiangong Zhang, Xingfa Liu and Ni Li</p> <p>Presenter: Huichun Xie</p> <p>Affiliation: China Electric Power Research Institute, China</p>
NE-198	<p>A Study on the Carbon Trading Systems And Demand Side Carbon Emissions Obligation</p> <p>Author(s): Zhou Yang, Xingqiu Wei, Juntao Pan, Jie Li, BeiBei Wang, Chenxuan Wu</p> <p>Presenter: Chenxuan Wu</p> <p>Affiliation: Southeast University, China</p>
NE-250	<p>Fast Power Point Tracking of Two-Stage Photovoltaic System based on Polynomial Approximation</p> <p>Author(s): Wei Chen, Wenbin Yang, Zhaohui Shi, Hongke Li</p> <p>Presenter: Wei Chen</p> <p>Affiliation: Power China Huadong Engineering Corporation Limited, China</p>

NE-443	<p>Load Adjustable Potential Assessment Considering Load Flexible Control and Air Conditioner Load Response in Extremely Hot Weather</p> <p>Author(s): Liang Lu, Mingkui Wei, Peng Zhang, Yiyu Wen, Yuxiao Yang, Wenying Mao</p> <p>Presenter: Wenying Mao</p> <p>Affiliation: Sichuan University, China</p>
NE-456	<p>Power System Restoration Method with the Flywheel Energy Storage Support</p> <p>Author(s): Daiyu Xie, Xin Wei, Yangtian Ning, Sheng Yang, Zhicheng Zhou</p> <p>Presenter: Yanting Luo</p> <p>Affiliation: Guangxi Power Grid Dispatching Control Center, China</p>
NE-337	<p>Dueling double deep Q Cooperative Control Algorithm for Distributed Grid</p> <p>Author(s): Tao Wang, Jiang Li, Tian Mao, Wenmeng Zhao, Caiyu Chen</p> <p>Presenter: Caiyu Chen</p> <p>Affiliation: Electric Power Research Institute, CSG, China</p>
NE-470	<p>Design and Evaluation of Demand Side Market Based on Balance Unit Mechanism of German Electricity Market</p> <p>Author(s): Kun Li, Guoqing Li, Zhengzhong Guo, Haisheng Zhu, Xiaofei Li and Yanmin Liu</p> <p>Presenter: Wang Zongshi</p> <p>Affiliation: Guodian Power Inner Mongolia New Energy Development Co., Ltd Hohhot, China</p>

SESSIONS

Day 3-Online

Sep. 23, 2023—Saturday

Track A	
10:00-12:00	Distributed Energy Systems Operation and Prediction Control 分布式能源系统运行与预测控制 Room A: 374-2133-9885 Passwords: 2023
Session Chair: Kaibo Shi, Chengdu University, China	
10:00-10:15 NE-200	Dynamic data modeling based on Kalman state estimation Author(s): Chengli Wang and Shenglin He Presenter: Chengli Wang Affiliation: North China Electric Power University, China
10:15-10:30 NE-190	Topology Identification of Low-Voltage Distribution Networks Considering Hidden Errors Author(s): Yingqi Yi, Yongjun Zhang, Wenyang Deng, Siliang Liu and Kaidong Lin Presenter: Yingqi Yi Affiliation: South China University of Technology, China
10:30-10:45 NE-247	High power density two-phase interleaved boost converter based on coupled inductor Author(s): Shuo Sang and Zhilei Yao Presenter: Shuo Sang Affiliation: Shanghai Maritime University, China
10:45-11:00 NE-103	Data-driven Strategy for Model Identification and Voltage Estimation in Low-voltage Distribution Networks Author(s): Yatao Shen, Yaqun Jiang, Wenmei Li and Ziwen Gu Presenter: Yatao Shen Affiliation: Hunan University, China
11:00-11:15 NE-201	Dual-Hysteresis Control of Bi-directional Noninverting Buck–Boost Converter for Wide Voltage Range in Energy Interconnected Systems Author(s): Yi Zhang, Donglai Zhang, Qing Liu, Jing Yu and Yilong Zhou Presenter: Yi Zhang Affiliation: Harbin Institute of Technology (Shenzhen), China
11:15-11:30 NE-297	Early warning of low-frequency oscillations in power system with Vinncombe criterion fused with PMU data Author(s): Jianqun Sun, Miao Yu, Jingxuan Hu, Shouzhi Zhang, Jingjing Wei and Yixiao Wu Presenter: Jianqun Sun Affiliation: Beijing University of Civil Engineering and Architecture, China
11:30-11:45 NE-509	Improved droop control strategy for AC microgrid Author(s): Kaibo Gao, Zhilei Yao Presenter: Kaibo Gao Affiliation: Shanghai Maritime University, China

11:45-12:00 NE-202	<p>Study on the Impact of Considering Dynamic Thermal Rating on Distributed PV Acceptance Capacity</p> <p>Author(s): Lei Chen Mengshuang Gan Xinhui Miao Lin Ye* Junjie Zheng Kaifeng Wang</p> <p>Presenter: Miao Xinhui</p> <p>Affiliation: China Agricultural University, China</p>
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10:00-12:00	<p>Track B</p> <p>Advanced Control Technology of Generation, Operation, and Low-Carbon Electricity Trading Based on Renewable Energy</p> <p>基于可再生能源的发电、运营和低碳电力交易的先进控制技术</p> <p>Room B: 963-8237-7050 Passwords: 2023</p>
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Session Chair: Heng Chen, North China Electric Power University, China

10:00-10:15 NE-428	<p>Anti-Power Supply Disturbance Optimization Design and Self-Correction Measurement Method of TMR Current Sensor</p> <p>Author(s): Shenwang Li, Zhaofei Jin, Qiuren Su, Li Liu, Likun Hu, Thomas Wu</p> <p>Presenter: Zhaofei Jin</p> <p>Affiliation: Guangxi University, China</p>
10:15-10:30 NE-492	<p>Study on prediction of energy storage penetration rate for electric futures based on ARMA-GARCH model</p> <p>Author(s): Siting Dai, Danni Cui, Qi Zhang and Wenyang Deng</p> <p>Presenter: Siting Dai</p> <p>Affiliation: City University of Macau, China</p>
10:30-10:45 NE-499	<p>Research on the Debugging Strategy of Doubly Fed Variable Speed Pumped Storage Units</p> <p>Author(s): Ling Peng, Li Qing, Yang Haixia, Liu Xiangdong</p> <p>Presenter: Ling Peng</p> <p>Affiliation: Maintenance and Testing Branch of China Southern Power Grid Peak shaving Frequency Modulation Power Generation Co., Ltd, Guangzhou, China</p>
10:45-11:00 NE-454	<p>Study on Automatic Oil Sample Collection Device for Power Transformer of Photovoltaic Power Station</p> <p>Author(s): Qiuren Su, Shenwang Li, Guangyu Zeng, Yiming Cai</p> <p>Presenter: Qiuren Su</p> <p>Affiliation: Guangxi University, China</p>
11:00-11:15 NE-516	<p>A Quantile Interval Prediction Based Power-voltage Control Method with Storage Regulation</p> <p>Author(s): Wei Fan, Yang Yi, Jiaying Huo, Yu Liu, Lu Miao, Hongyan Xiao</p> <p>Presenter: Jiaying Huo</p> <p>Affiliation: South China University of Technology, China</p>
11:15-11:30 NE-458	<p>Study on Magnetic Field Interference Characteristics of Difference Magneto-optical Current Transformer</p> <p>Author(s): Shenwang Li, Zhaofei Jin, Wenyang Deng, Qiuren Su, Likun Hu, Thomas Wu</p>

	<p>Presenter: Zhaoifei Jin</p> <p>Affiliation: Guangxi University, China</p>
<p>11:30-11:45</p> <p>NE-510</p>	<p>Application Analysis of Intelligent Monitoring System in Pumped-storage Hydroelectricity</p> <p>Author(s): Kaiwei Xu, Mingxuan Yang, Yaxiong Yu, Xiaobo Qiu, Zhongjie Huang, Ziyang Wu*</p> <p>Presenter: Kaiwei Xu</p> <p>Affiliation: Maintenance and Testing Branch of China Southern Power Grid Peak shaving Frequency Modulation Power Generation Co., Ltd, Guangzhou, China</p>
<p>11:45-12:00</p> <p>NE-370</p>	<p>Preferred scoring method for medium and low voltage distribution network infrastructure projects based on improved hierarchical analysis method</p> <p>Author(s): Lingling Ma</p> <p>Presenter: Lingling Ma</p> <p>Affiliation: Guangdong Nengyang Power Construction Co., Ltd., Guangzhou, China</p>

<p>14:00-16:00</p>	<p>Track C</p> <p>Digitalized Operation and Decision Making for Modern Power Grids</p> <p>现代电网的数字化运行与决策</p> <p>Room A: 374-2133-9885 Passwords: 2023</p>
	<p>Session Chair: Zhou Zhe, Shanghai University, China</p>
<p>14:00-14:15</p> <p>NE-474</p>	<p>Power system situational awareness and oscillation warning using PMU data</p> <p>Author(s): Shouzhi Zhang, Miao Yu, Jingxuan Hu, Jianqun Sun, Jingjing Wei, Yixiao Wu</p> <p>Presenter: Shouzhi Zhang</p> <p>Affiliation: Beijing University of Civil Engineering and Architecture, China</p>
<p>14:15-14:30</p> <p>NE-489</p>	<p>A Vulnerability Modeling Method for Photovoltaic Generators Under Typhoons Disaster Based on Bayesian Theory</p> <p>Author(s): Lifang Wu, Qingren Jin, Biyun Zhang</p> <p>Presenter: Lifang Wu</p> <p>Affiliation: Electric Power Research Institute Guangxi Power Grid, China</p>
<p>14:30-14:45</p> <p>NE-493</p>	<p>Optimal Configuration Method for Dynamic Reactive Power Compensation in AC/DC Receiving-end Systems Considering Reactive Power Support of Local Synchronous Generators</p> <p>Author(s): Qing Wang, Yuxuan Tao, Wenju Liang, Jiangchun Yu, Hongying He, Nan Liu</p> <p>Presenter: Jiangchun Yu</p> <p>Affiliation: Hunan University, China</p>
<p>14:45-15:00</p> <p>NE-242</p>	<p>Random Comprehensive Dispatching of Distribution Network Based on Expected Value Model</p> <p>Author(s): Yan Yao, Dong Wang, Yungao Zhou, Zhong Wang, Caiwei Zhang, Yining Qian, Xiaoqi Zhang</p> <p>Presenter: Xiaoqi Zhang</p> <p>Affiliation: State Grid Zhejiang Electric Power Co., Ltd. Ningbo Power Supply Company, Ningbo , China</p>

15:00-15:15 NE-367	Differentiated Distribution Network Reconstruction Strategy Considering Dual-Carbon Target Under the Background of New Power System Author(s): Yuxiao Zhu, Yiqun Song, Ning Xie, Chengmin Wang Presenter: Yuxiao Zhu Affiliation: Shanghai Jiao Tong University, China
15:15-15:30 NE-349	Design of Online Verification and Optimization Decision System for Emergency Disposal of Power Grid Faults Author(s): Jicheng Du, Ming Zhao, Changjiang Jiang, Xianyu Zha, Lingchuan Li, Tao Liang Presenter: Ming Zhao Affiliation: NARI Group Corporation, China
15:30-15:45 NE-480	Research on lightning strike warning of overhead transmission lines by integrating PMU data Author(s): Yixiao Wu, Miao Yu, Jingxuan Hu, Jianqun Sun, Jingjing Wei, Shouzhi Zhang Presenter: Miao Yu Affiliation: Beijing University of Civil Engineering and Architecture, China
15:45-16:00 NE-101	Transient Stability Analysis Technology Combining Machine Learning and Causal Analysis Author(s): Feng Luo, Xianyu Zha, Jian Zhang, Xiaoqin Xia, Qi Pan Presenter: Jian Zhang Affiliation: NARI Group Corporation, China

14:00-16:00	Track D
	Dispatching Analysis and Control of High Penetration Renewable Energy System 高比例新能源电力系统调度分析与控制
	Room B: 963-8237-7050 Passwords: 2023
Session Chair: Changzhou Yu, Hefei University, China	
14:00-14:15 NE-268	Parameter tuning of new energy virtual synchronous generator based on physics-informed reinforcement learning Author(s): Jian Qiu, Huanhuan Yang, Jianxin Zhang, Jiemei Gao, Tuo Jiang, Qin Gao, Junquan Chen, Guanghu Xu Presenter: Jiemei Gao Affiliation: Wuhan University, China
14:15-14:30 NE-497	Flexibility Resources Aggregation and Disaggregation Method Considering Renewable Consumption Author(s): Quan Yuan, Wei Wang, Ziqiang Wang, Liang Xiao, Chunxiao Liu, Yikai Liu, Xiaoting Chen Presenter: Xiaoting Chen Affiliation: China Southern Power Grid Co., Ltd. China
14:30-14:45 NE-336	Development and application of on-line analysis and optimal control system for short-circuit current of AC-DC hybrid power network Author(s): Huanhuan Yang, Xiaotong Xu, Zhenyu Mao, Jiabin Zhang, Qin Gao, Wang Tu

	<p>Presenter: Jiabin Zhang</p> <p>Affiliation: NARI Group Corporation, China</p>
<p>14:45-15:00</p> <p>NE-056</p>	<p>Grid-Connection Performance Evaluation of Renewable Energy Station</p> <p>Author(s): Haifeng Zhang, Yifu Zhang, Chao Chen, Dexin Li, Xiaoyu Peng</p> <p>Presenter: Haifeng Zhang</p> <p>Affiliation: Electric Power Research Institute of State Grid Jilin Electric Power, China</p>
<p>15:00-15:15</p> <p>NE-203</p>	<p>Value of CCUS Technology to the Modern Power System and Policy Framework Design</p> <p>Author(s): Siyu Zhang, Qing Shi, Ning Zhang, Yuchen Cao, Tao Cai, Hongcai Dai</p> <p>Presenter: Siyu Zhang</p> <p>Affiliation: State Grid Energy Research Institute, China</p>
<p>15:15-15:30</p> <p>NE-224</p>	<p>Stochastic Economic Dispatch of High Renewable Penetration Power System with Solar Thermal Power</p> <p>Author(s): Yingbei Yao, Jiaying Yang, Dingyuan Feng, Yuxuan Chen</p> <p>Presenter: Yuxuan Chen</p> <p>Affiliation: Xi'an Jiaotong University, China</p>
<p>15:30-15:45</p> <p>NE-244</p>	<p>Research on Optimal Allocation Strategy of Hybrid Energy Storage for Wind-Photovoltaic Hybrid Generation System</p> <p>Author(s): Lin Zhang, Tianwen Zhang, Wenbo Hu, Ke Zhang</p> <p>Presenter: Xizhi Shi</p> <p>Affiliation: Inner Mongolia University of Science and Technology, China</p>
<p>15:45-16:00</p> <p>NE-388</p>	<p>An IDM-Based Two-Stage Robust Balance Analysis Model for High-proportion Renewable Energy Integration through HVDC System</p> <p>Author(s): Jie Qi, Jincheng Guo, Yaodan Zhang</p> <p>Presenter: Jie Qi</p> <p>Affiliation: Xi'an Jiaotong University China</p>

SESSIONS

Day 4-Online

Sep. 24, 2023—Sunday

Session 01	
New Power System Operation and Control Strategies 新型电力系统运行与控制策略	
Room A: 374-2133-9885 Passwords: 2023	
Session Chair: Qiang Yu, China Agricultural University, China	
10:00-12:00	
10:00-10:15 NE-221	Optimal Power Flow for AC Power System based on Convex Relaxation with Semi-Definite Programming Author(s): Da Sang, Yaoliang Zhu, Chen Qian, Yuxuan Chen Presenter: Yuxuan Chen Affiliation: Xi'an Jiaotong University, China
10:15-10:30 NE-312	Power Electronics Impedance Enhancement Based on a Supplementary Damping Control of Virtual Synchronous Generator Author(s): Yankai Xing, Zhengtong Yang, Guangdou Zhang, Jian Li, Olusola Bamisile and Qi Huang Presenter: Yankai Xing Affiliation: University of Electronic Science and Technology of China, China
10:30-10:45 NE-226	Research on circulation suppression of multi-module parallel power router based on zero-sequence component compensation Author(s): Songfeng Wang, Zihao Xue, Xiaohong Wang, Xiaochun Mou, Qian Cheng, Zichang chen Presenter: Songfeng Wang Affiliation: NARI Group Corporation, China
10:45-11:00 NE-326	Asynchronous Switched Event-Triggered Load Frequency Control in Multi-area Power Systems With Stochastic Actuator Failures Author(s): Yajian Zhang, Jiafang Zhang, Chen Peng, Fei Xue Presenter: Jiafang Zhang Affiliation: Shanghai University, China
11:00-11:15 NE-316	Coordinated Control Method of Power Oscillation Suppression for Multi-Parallel Synchronous Generator with Distributed Photovoltaic-Storage System Author(s): Shiwei Chen, Xuhua Xia, Lujun Jiang and Yao Zhang Presenter: Yao Zhang Affiliation: Hangzhou Dianzi University, China
11:15-11:30 NE-234	A brain-inspired spiking neural network for the renewable energy short circuit ratio prediction Author(s): Yawei Wei, Guangming Lu, Dingyi Cheng, Shichao Liu, Hao Tian and Qizhen Sun Presenter: Yawei Wei Affiliation: China Electric Power Research Institute, China
11:30-11:45 NE-442	A method for improving small-signal stability via optimal allocation on the virtual inertia Author(s): Mosi Liu, Zhiyuan Sun, Mingpo Li, Kun Zheng

	Presenter: Kun Zheng Affiliation: Research Institute of Electric Power Science Guangxi Power Grid Co. Guangxi, China
11:45-12:00 NE-100	A Risk Decision Method for Online Emergency Control Adapting to Strong Uncertainty Environments Author(s): Wang Tu, Junjun Yang, Jingjing Ruan, Peng Chen, Ming Zhao Presenter: Wang Tu Affiliation: NARI Group Corporation, China

10:00-12:00	<p>Session 02</p> <p>Smart Grid Control and Optimal Dispatch 智能电网控制与优化调度</p> <p>Room B: 963-8237-7050 Passwords: 2023</p> <p>Session Chair: Ningyi Dai, University of Macau, China</p>
10:00-10:15 NE-080	Two-layer Optimal Dispatch of Distribution Networks with Distributed Resources Author(s): Xin Zhu, Wangda Chen, Ming Chen, Minghua Chu, Guozhen Yuan Presenter: Cong Gao Affiliation: Haining Power Supply Company of State Grid Zhejiang Electric Power Co., Ltd., China
10:15-10:30 NE-354	A chance-constrained dispatch for distribution networks to improve flexibility Author(s): Guowei Zhang, Fan Li, Xiaoqi Zhang, Wei Wang, Jinguang Xu, Chengjun Yan Presenter: Guowei Zhang Affiliation: Shandong University of Science and Technology, China
10:30-10:45 NE-159	Research on the Influence of Phase Shifter Interconnection on Differential Protection of 110kV Power Network Author(s): Chen Li, Zhe Wang, Hongda Zhao, Mingxia Zhu Presenter: Chen Li Affiliation: State Grid Jiangsu Electric Power Design Consulting Co., Ltd.
10:45-11:00 NE-295	Frequency Stability Analysis and Optimal Control Method in DG-BESS Microgrid System Author(s): Haobin Zhu, Haohao Hong, Jiwei Guo, Zhenghong Chen, Jian Wang, Chen Wang Presenter: Haobin Zhu Affiliation: NR Electric Co., Ltd, China
11:00-11:15 NE-435	Distributed Control Strategy of DC Microgrid Based on Convex Relaxation Method Author(s): Shu Zhang, Zhangjie Liu and Mei Su Presenter: Shu Zhang Affiliation: Central South University, China
11:15-11:30 NE-162	Optimization Strategy for Doubly Fed Induction Generator with Variable Coefficient Frequency Regulation Author(s): Changcheng Wang, Yunfeng Hu, Zheng Li, Xin Wang, Mingke Wu Presenter: Changcheng Wang Affiliation: Shanghai University of Electric Power, China

11:30-11:45 NE-331	<p>Research on Comprehensive Treatment Device of Low Voltage Distribution Network Based on Improved Particle Swarm Optimization Algorithm</p> <p>Author(s): Huaihua Zheng, Hongsheng Huang, Shuai Yang, Yifan Pang and Zhi Wu</p> <p>Presenter: Huaihua Zheng</p> <p>Affiliation: State Grid Jiading Electric Power Supply Company, China</p>
11:45-12:00 NE-523	<p>Feedforward Tracking Control of Main Steam Temperature with Disturbance Rejection</p> <p>Author(s): Hongmin Hu, Li Jun, Dapeng Zhang, Huaiwang Yang, Ze Dong</p> <p>Presenter: Ze Dong</p> <p>Affiliation: North China Electric Power University Baoding, China</p>

10:00-12:00	<p>Session 03</p> <p>Optimization and Control of Distribution Network</p> <p>配电网优化与控制</p> <p>Room C: 457-5218-4973 Passwords: 2023</p> <p>Session Chair: Chunya Yin, Xinjiang University, China</p>
10:00-10:15 NE-280	<p>Ship energy consumption analysis and transformation power distribution system solution based on real ship monitoring</p> <p>Author(s): Kai Liu, Juntang Leng</p> <p>Presenter: Kai Liu</p> <p>Affiliation: Shanghai Maritime University, China</p>
10:15-10:30 NE-329	<p>A novel distribution system weak node identification method based on finite synchronous phase measurement information</p> <p>Author(s): Jiandong Si, Jian Yang, Caiyang Yu, Yizhi Zhu, Pengcheng Hu and Zhi Wu</p> <p>Presenter: Si Jiandong</p> <p>Affiliation: State Grid Taizhou Power Supply Company, China</p>
10:30-10:45 NE-369	<p>Reliability Assessment of Active Distribution Network with Unclear Topology</p> <p>Author(s): Pengcheng Zhang, Jinsen Liu, Ning Luo, Ludong Chen, Fei Zheng</p> <p>Presenter: Pengcheng Zhang</p> <p>Affiliation: Guizhou Power Grid Co., Ltd, China</p>
10:45-11:00 NE-372	<p>Viable international conferences</p> <p>Author(s): Huang Chao, Sun Qiao, Ou Qinghai, Li Moujun, Du Qixia</p> <p>Presenter: Xuejian Kang</p> <p>Affiliation: Beijing CEC Feihua Communication Co., Ltd., Beijing, China</p>
11:00-11:15 NE-414	<p>Research on Topology and Fault Handling of AC/DC Flexible Interconnection and Distribution System Based on Cloud-edge Collaboration</p> <p>Author(s): Yuanke Zhou, Deyong Mao, Zhenbiao Qi, Zhangbin Zhou, Jian Zhu, Tao Cao</p> <p>Presenter: Yuanke Zhou</p> <p>Affiliation: State Grid Anhui Electric Power Co., Ltd, China</p>

11:15-11:30 NE-339	<p>Classification of Transient Power Quality Disturbances Based on Digital Image Processing Techniques</p> <p>Author(s): Feng Guo, Jian Li, Xu Xu, Yizhi Zhu, Xiaoyuan Luo and Wangkai Qian</p> <p>Presenter: Feng Guo</p> <p>Affiliation: State Grid Zhejiang Electric Power Co., Ltd., China</p>
11:30-11:45 NE-451	<p>Review on Evaluation of Power Communication Network, Dispatching Automation System and Distribution Automation System</p> <p>Author(s): Lirong Liu, Yudong Wang, Peizhe Xin, Jing Jiang, Yi Wan, Hui Hou</p> <p>Presenter: Yi Wan</p> <p>Affiliation: Wuhan University of Technology, China</p>
11:45-12:00 NE-185	<p>Resilience Improvement Strategy of Distribution Network in Water Project Based on Battery Energy Storage System</p> <p>Author(s): Xiandong Li</p> <p>Presenter: Xiandong Li</p> <p>Affiliation: Yellow River Water and Hydroelectric Power Development Corporation, China</p>

13:00-15:30	<p>Session 04</p> <p>Structural Design and Performance Measurement of Intelligent Electrical Equipment</p> <p>智能电气设备结构设计与性能测量</p> <p>Room A: 374-2133-9885 Passwords: 2023</p>
	<p>Session Chair: Huan Pan, Ningxia University, China</p>
	<p>Grid adequacy evaluation method considering the influence of new energy transmission channel transmission capacity</p> <p>Author(s): Junnan Chen, Rui Zhou, Minghui Yan, Weilun Ni, Xiaotong Xu</p> <p>Presenter: Junnan Chen</p> <p>Affiliation: NARI Group Corporation, China</p>
13:30-13:45 NE-093	
13:45-14:00 NE-350	<p>DC bias suppression strategy for dual active bridge DC-DC Converter based on generalized second-order differentiation</p> <p>Author(s): Fang Liu, Wenqiang Wang, Lei Tao, Zongzheng Cui, Yuanyuan Bian, Haiyan Zou</p> <p>Presenter: Wenqiang Wang</p> <p>Affiliation: Hefei University of Technology Hefei, China</p>
14:00-14:15 NE-373	<p>Detection Method of Partial Discharge of Motor Stator Bar based on Optical Fiber Transmission Ultrasonic Measurement</p> <p>Author(s): Liao Fanghua</p> <p>Presenter: Liao Fanghua</p> <p>Affiliation: Guangdong Datang International Chaozhou Power Generation Co., Ltd Chaozhou, China</p>

14:15-14:30 NE-315	Power Oscillation Suppression Method for Multi-Parallel Synchronverters Author(s): Shiwei Chen, Xuhua Xia, Lujun Jiang and Yao Zhang Presenter: Yao Zhang Affiliation: Hangzhou Dianzi University, China
14:30-14:45 NE-450	A New Coordinate Transformation Matrix Based on the Traditional Symmetric Component Method under the Condition of Motor Turn-to-turn Short Circuit Author(s): Peidong Zhao, Xuping Wang, Yinru Bai, Long Zhao Presenter: Peidong Zhao Affiliation: Taiyuan University of Technology, China
14:45-15:00 NE-216	Uncertainty Quantification and Sensitivity Analysis of High-altitude Electromagnetic Pulse Response of Buried Pipelines Based on the Stochastic Collocation Method Author(s): Yuhe Huang, Qing Liu and Yu Wang Presenter: Yuhe Huang Affiliation: Xi'an University of Science and Technology, China
15:00-15:15 NE-506	Control Strategies and Prospects for Flexible Multi-State Switch in Intelligent Distribution Network Author(s): Minchen Wang, Rongrui Wei, Hua Liu, Qiuren Su, Congzhen Su, Guiju Zhang, Presenter: Minchen Wang Affiliation: Guangxi University, China
15:15-15:30 NE-092	Identification Method of Short-Circuit Current Restricted Rules Based on Fusion of Gaussian Mixture Model and Decision Tree Author(s): Yuchen Dai, Yuangen Huang, Wei Xu, Yingjie Chen, Qi Pan Presenter: Yuchen Dai Affiliation: NARI Technology Co., Ltd, China

13:00-15:45	<p>Session 05</p> <p>Wind Farm Simulation, Wind Power Generation System Control, and Power Generation Prediction</p> <p>风电场模拟，风力发电系统控制与发电量预测</p> <p>Room B: 963-8237-7050 Passwords: 2023</p> <p>Session Chair: Rui You, Qingdao University, China</p>
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13:30-13:45 NE-152	Study On Fine Simulation Method Of Wind Field In Complex Terrain Author(s): Fan Zhao, Xianzhao Wang, Jian Zhang, Honglin Ma Presenter: Fan Zhao Affiliation: China Aerodynamics Research and Development Center, China
13:45-14:00 NE-228	Short-Term Wind Power Interval Prediction Method Based on Deep Convolution Neural Network Author(s): Haibo Shen, Lingzi Wang, Liyuan Deng, Huaying Su Presenter: Haibo Shen Affiliation: China Southern Power Grid Co., Ltd., China

14:00-14:15 NE-217	<p>Wind Direction Numerical Simulation and Application Based on Wind Direction Vector Correlation and Two-dimensional Spatial Neural</p> <p>Author(s): Xu Bingkun, Wang Xiaoyu, Bai Haojiang, Zhou Yuangui, Jia Xiaowei, Tian Pengfei</p> <p>Presenter: Xu Bingkun</p> <p>Affiliation: China Datang Science and Technology Research Institute Co., Ltd. Northwest Electric Power Test and Research Institute, China</p>
14:15-14:30 NE-222	<p>Robustness Assessment of Wind Power Prediction Under Cyber Security Attacks and its Impacts on Power System Operations</p> <p>Author(s): Jianping Zhang, Xinyue Li, Linxin Miu, Yuxuan Chen</p> <p>Presenter: Yuxuan Chen</p> <p>Affiliation: Xi'an Jiaotong University, China</p>
14:30-14:45 NE-289	<p>Research on Strategy of Wind-Storage Combined System Participating in Primary Frequency Modulation of Power System</p> <p>Author(s): Jian Tang, Jianfeng Liu, Xintao Wang, Heran Kang, Wenbo Hu, Xizhi Shi, Peihong Yang</p> <p>Presenter: Xizhi Shi</p> <p>Affiliation: Inner Mongolia University of Science and Technology, China</p>
14:45-15:00 NE-294	<p>Research on Topology Construction and Switching Control Strategy of Wind Power Multi-terminal, Low-frequency Transmission System</p> <p>Author(s): Yi Lu, Lianhui Ning, Zhibin Ye, Chenchen Li, Kaijun Wang and Xiaojun Ni</p> <p>Presenter: Zhibin Ye</p> <p>Affiliation: Xi'an Jiaotong University, China</p>
15:00-15:15 NE-409	<p>Dual-channel Dynamical Event-Triggered Load Frequency Control under Attack for Wind Power Systems with Multiple Time-varying Delay</p> <p>Author(s): Hanmei Zhou, Qishui Zhong, Shaoyu Hu, Jin Yang, Kaibo Shi</p> <p>Presenter: Hanmei Zhou</p> <p>Affiliation: University of Electronic Science and Technology of China, China</p>
15:15-15:30 NE-230	<p>Prediction Method of Wind speed and Wind power Under the Influence of Multi-factor Coupling Under Extreme Weather Conditions</p> <p>Author(s): Liyuan Deng, Haibo Shen, Lingzi Wang, Weizhi Huang</p> <p>Presenter: Liyuan Deng</p> <p>Affiliation: China Southern Power Grid Co., Ltd., China</p>
15:30-15:45 NE-243	<p>Combined Wind and Photovoltaic Power Forecasting Based on Attention-BiLSTM Multitask Learning for Renewable Energy System</p> <p>Author(s): Yingjing He, Cenfeng Wang, Keping Zhu, Yuejiang Chen</p> <p>Presenter: Yuejiang Chen</p> <p>Affiliation: Huazhong University of Science and Technology, China</p>

Session 06	
Safety and Anomaly Detection of Power Transmission Lines 电力输电线路安全及异常检测	
Room A: 374-2133-9885 Passwords: 2023	
Session Chair: Tian Mao, Zhejiang University, China	
16:00-18:00	
16:00-16:15 NE-166	<p>A Transient Voltage Stability Preventive Control Strategy for DC Receiving-end Power System</p> <p>Author(s): Lian Tu, Shuiping Zhang, Hengdao Guo*, Bo Bao, Yihua Zhu, Jian Zuo, Xiangzhong Xie, Shun Li, Dongxu Chang</p> <p>Presenter: Hengdao Guo</p> <p>Affiliation: SEPRI CSG, China</p>
16:15-16:30 NE-170	<p>Intelligent Structural Calculation and Control Design of The Intelligent Crossing Frame</p> <p>Author(s): Qin Boyang, Li Zhibin, Ru Jiateng</p> <p>Presenter: Qin Boyang</p> <p>Affiliation: Shanghai University of Electric Power, China</p>
16:30-16:45 NE-293	<p>Modeling Analysis and Measurement of Power Frequency Overvoltage Distribution of Long-Distance Transmission Cable</p> <p>Author(s): Kai Yi, Zongyao Wang, Qichao Li, Mingyu Huang, Hongwei Han, Lei Jin</p> <p>Presenter: Zongyao Wang</p> <p>Affiliation: Xi'an Jiaotong University, China</p>
16:45-17:00 NE-465	<p>Development of Multi-Parameter Intelligent Diagnosis System for High-Voltage Cables</p> <p>Author(s): Shengfu Zhang, Qiang Xu, Jie Zhou, Xing Lei Ting Ye, Ruitian Fan,</p> <p>Presenter: Ruitian Fan</p> <p>Affiliation: State Grid Shanghai Municipal Electric Power Company , China</p>
17:00-17:15 NE-346	<p>Research on High Voltage High Capacity Multi Port Energy Router</p> <p>Author(s): Deng Weihua, Ji Lanlan, Liu Yali, Jiang Zhe, Han Naizheng and Lin Zhiguang</p> <p>Presenter: Deng Weihua</p> <p>Affiliation: Geiri, China</p>
17:15-17:30 NE-206	<p>Research on Reverse Recovery Process Protection of Thyristors in Hybrid Circuit Breakers</p> <p>Author(s): Xinle Sha, Hongbo Zhan, Yu Tu, Shiyue Deng</p> <p>Presenter: Xinle Sha</p> <p>Affiliation: Wuhan Institute of Marine Electric Propulsion Equipment, China</p>
17:30-17:45 NE-010	<p>Design of intelligent measurement and control system for crossing frame</p> <p>Author(s): Jiateng Ru, Zhibin Li, Boyang Qin</p> <p>Presenter: Jiateng Ru</p> <p>Affiliation: Shanghai University of Electric Power, China</p>
17:45-18:00 NE-395	<p>Coordinated Operation Strategy for Multi-application Scenarios of Energy Storage in Traction Supply Power System Considering Uncertainty</p> <p>Author(s): Qian Ma, Leiyu Zhao, Jian Zhang, Jiaqi Mo, Zhiwei Xiao</p>

Presenter: Leiyu Zhao
Affiliation: Xiangtan University, China

16:00-18:15	<p align="center">Session 07</p> <p align="center">Fault Detection and Diagnosis in Power Systems</p> <p align="center">电力系统中的故障检测与诊断</p> <p align="center">Room B: 963-8237-7050 Passwords: 2023</p>
Session Chair: Somboon Nuchprayoon, Chiang Mai University, Thailand	
<p>16:00-16:15 NE-209</p>	<p>Diesel generator sensor fault diagnosis model based on LMD-SVM algorithm Author(s): Wenjing Cao, Jiabiao Wang, Jiajie Chen, Jing Xu Presenter: Wenjing Cao Affiliation: Jiangsu University of Science and Technology, China</p>
<p>16:15-16:30 NE-032</p>	<p>Vibration Signal Analysis of a Reciprocating Air Compressor under Different Mechanical Faults Author(s): Shen Wei, Hu Yihuai, Li Congyue, Cui Dexin Presenter: Shen Wei Affiliation: Shanghai Maritime University, China</p>
<p>16:30-16:45 NE-079</p>	<p>Fault Ride-through Strategy of Wind Power System Based on Flexible DC Interconnection Author(s): Ma Qinfeng, An Su, Liu Mingshun, He Xianqiang Presenter: Ma Qinfeng Affiliation: Guizhou Power Grid Co. LTD, China</p>
<p>16:45-17:00 NE-156</p>	<p>The combined application of vibration analysis and acoustic imaging for transformer fault detection Author(s): Zefeng Wang, Zhibin Li Presenter: Zefeng Wang Affiliation: Shanghai University of Electric Power, China</p>
<p>17:00-17:15 NE-341</p>	<p>A data-driven fault diagnosis method for photovoltaic modules Author(s): Jiurong Yang, Xingjian Sun, Zhuoran Ma, Xiaojuan Han Presenter: Xingjian Sun Affiliation: China Electric Power Research Institute Co., Ltd, China</p>
<p>17:15-17:30 NE-422</p>	<p>A Fault Diagnosis Method for Electrical Equipment With Imbalanced SCADA Data Based on SMOTE Oversampling and Domain Adaptation Author(s): Yijie Zhang, Baoliang Liu, Chengmin Wang Presenter: Yijie Zhang Affiliation: Shanghai Jiaotong University, China</p>
<p>17:30-17:45 NE-262</p>	<p>Research on Influence Factors in MMC-HVDC Short-Circuit Current Based on Improved Calculation Method Author(s): Zhuoya Wang, Liangliang Hao, Jinghan He Presenter: Zhuoya Wang Affiliation: Beijing Jiaotong University, China</p>

17:45-18:00 NE-081	Research on the Influence of 500 kV Fault Current Limiter on Line Distance Protection Author(s): Zhang Mujie, Fu Junbo, Shao Dejun, Luo Hao, Pan Xiaojie, Wang Yukun Presenter: Zhang Mujie Affiliation: Centralchina Branch of State Grid, China
18:00-18:15 NE-084	A Fault Diagnosis Model for Wind Turbine Blade Using a Deep Learning Method Author(s): Linjie Li, Ying Xiao, Na Zhang and Wenyi Zhao Presenter: Linjie Li Affiliation: Beijing Polytechnic, China

SESSIONS

Day 5-Online

Sep. 25, 2023—Monday

Session 08	
10:00-12:00	Control Models and Parameter Analysis in Power Systems 电力系统中的控制模型与参数分析
	Room A: 374-2133-9885 Passwords: 2023
Session Chair: Yang Zhang, Nanchang Institute of Technology, China	
10:00-10:15 NE-012	Identification method based on improved hierarchical multi-innovation stochastic gradient algorithm Author(s): Pan Hui, Li Zhengyang Presenter: Li Zhengyang Affiliation: Shanghai University of Electric Power, China
10:15-10:30 NE-514	Control Strategy of Voltage Compensation with Harmonics for Dynamic Voltage Restore Author(s): Shiwei Chen, Xuhua Xia, Lei Shi, Lujun Jiang, Hongfei Lang and Yao Zhang Presenter: Yao Zhang Affiliation: Fuyang Rongda Complete-Set Electric Equipment Manufacturing Branch of Hangzhou Power Equipment Manufacturing Co., Ltd., China
10:30-10:45 NE-257	Analysis of Advantages of Frequency Modulation and Voltage Regulation for Doubly-fed Pumped Storage Units Author(s): Xing Liu, Xingang Wang, Yongan Ren, Supeng Ji Presenter: Yongan Ren Affiliation: North China Electric Power University, China
10:45-11:00 NE-328	Online Prediction Nadir Point in Primary Frequency Response of Power System Containing Converter-Based Generation Author(s): Changhong Fu, Shishuai Zhu, Qingyu Wang, Xinbo Zhou, Yi Wang, Zeyuan An, Bo Wang, Guowei Cai Presenter: Changhong Fu Affiliation: Northeast Electric Power University, China
11:00-11:15 NE-472	Reactive Power Compensation of 10kV A-Line by MCR Reactive Power Compensation Device under MFAC Control Strategy Author(s): Jia Yue Li, Zipeng Liang*, Biao Tang, Ri Sheng Qin, Hui Li, Tian Hua Zhao Presenter: Jia Yue Li Affiliation: Kunming Power Supply Bureau, Yunnan Power Grid Co., Ltd. Kunming, China
11:15-11:30 NE-445	Effect of Load Ratio Parameter on Electric Spring Performance for Critical Bus Voltage Stabilization Author(s): Hongzhe Jin, Jianhua Gong, Keng-Weng Lao Presenter: Hongzhe Jin Affiliation: University of Macau, China
11:30-11:45 NE-172	Development of digital simulation system for switchgear operation status Author(s): Qian Bifu, Liu Xi, Yu Xuran and You Yugan

	Presenter: Qian Bifu Affiliation: Wenzhou Power Supply Company, China
11:45-12:00 NE-368	Current Harmonic Suppression Method Based on SVHC and Improved SOGI for Active Power Filters Author(s): Shiwei Chen, Chenli Jin, Ying Shen and Yao Zhang Presenter: Yao Zhang Affiliation: Hangzhou Dianzi University, China

10:00-12:15	<p align="center">Session 09</p> <p align="center">Novel Battery Design and Energy Utilization</p> <p align="center">新型电池设计与能源利用</p> <p align="center">Room B: 963-8237-7050 Passwords: 2023</p>
Session Chair: Zhen Wu, Xi'an Jiaotong University, China	
10:00-10:15 NE-075	Numerical Simulation Model Construction for ISC Faults in Lithium-ion Battery Author(s): Zhifan Chen, Xianyong Xiao, Ying Wang, Long Li, Shuman Wei Presenter: Long Li Affiliation: Sichuan University, China
10:15-10:30 NE-118	Performance analysis of a pattern-matching control strategy designed for the hybrid power system used in fuel cell vehicles Author(s): Wenli Wang, Juncheng Yang, Shanshan Cai, Song Li, Zhengkai Tu Presenter: Wenli Wang Affiliation: Huazhong University of Science and Technology, China
10:30-10:45 NE-145	A Secondary Compensation Control Strategy Based on Energy Storage Battery SoC Author(s): Huan Pan, Xianhua Ning, Wanyin Ta, Guoqing Yang Presenter: Huan Pan Affiliation: Ningxia University, China
10:45-11:00 NE-060	Health State Estimation of Lithium Battery Based on Wavelet Packet Transform and Transformer Author(s): Jionghui Wei, Xiaorong Huang, Qingbo Zhang, Yang Liu, Shuping Wu, Zhaofeng Chen Presenter: Xiaorong Huang Affiliation: Guangdong Power Grid Corporation Dongguan Power Supply Bureau Dongguan, China
11:00-11:15 NE-074	A Review of Titanium-based Lithium-ion Sieve Author(s): Song Wang, Xuan Chao, Xin Huang Presenter: Song Wang Affiliation: Hohai University, China
11:15-11:30 NE-130	Carbon emission evaluation and potential assessment of energy saving and carbon reduction for iron and steel enterprises Author(s): Yingying Niu, Yuzhen Sun, Quan Zhou, Daogang Peng, Huirong Zhao

	Presenter: Yingying Niu Affiliation: Shanghai University of Electric Power, China
11:30-11:45 NE-351	Physics Informed Bellman Neural Network for Energy Management Strategy of Hybrid Electric Vehicle Author(s): Lefei Gao, Yubo Zhang, Fangyuan Li, Yanhong Liu Presenter: Lefei Gao Affiliation: Zhengzhou University, China
11:45-12:00 NE-424	Carbon Footprint Tracking Based on Non-intrusive Load Monitoring Technology Author(s): Bin Xiao, Wei Zhang, Min Liu, Yong Qi, Wei Li Presenter: Wei Li Affiliation: Shanghai Jiao Tong University, China
12:00-12:15 NE-453	Spacecraft Power Charging Regulator Based on Two-domain Control Author(s): Yuting Pang, Xinyu Gao, Ruoxuan Wang and Guofei Teng Presenter: Yuting Pang Affiliation: Xi'an Computing Technique Research Institute, China

10:00-12:00	<p>Session 10</p> <p>Thermoelectric Systems and Heat Exchange 热电系统与热交换</p> <p>Room C: 457-5218-4973 Passwords: 2023</p> <p>Session Chair: Yang Zhang, Nanchang Institute of Technology, China</p>
10:00-10:15 NE-125	Organic Rankine cycle and absorption heat pump energy system based on valley electricity utilization and molten salt energy storage Author(s): Haitao Zheng, Dechang Xu, Zouchen Lv, Jinfeng Hu Presenter: Haitao Zheng Affiliation: Powerchina jiangxi electric power engineering co., ltd., Nanchang, China
10:15-10:30 NE-098	Accident Warning and Calculation of Accident Spray Volume for Desulfurization System Author(s): Wanrong Zhang, Ruichen Gao, Zhang Wan, Yuliang Qian, Daogang Peng Presenter: Wanrong Zhang Affiliation: Shanghai University of Electric Power, China
10:30-10:45 NE-004	Energy Flow Analysis and Optimization of Tahe No.1 Union Station Author(s): Wu Long, Xiaohu Chang, Mengyao Xu, Duolong Gao, Jing Guo, Liming Du, Kexin Wang Presenter: Wu Long Affiliation: Sinopec Northwest China Petroleum Branch, China
10:45-11:00 NE-153	Study on Thermal-physical Property of MWCNTs Nanofluids and Photo-thermal Conversion Author(s): Enze Zhang, Qiuyi Shi, Zhijian Hou and Xiaojiang Ye Presenter: Enze Zhang Affiliation: Wuhan Institute of Technology, China

11:00-11:15 NE-123	Preparation and performance study of composite ceramic membrane heat exchanger tube based on membrane distillation process Author(s): Chuangen Zhang, Wenzhe Sun Presenter: Chuangen Zhang Affiliation: Shanghai Maritime University, China
11:15-11:30 NE-109	Low carbon regulation and development evaluation system of coal-fired captive power plants based on superiority chart Author(s): Jingyuan Wang, Huirong Zhao, Gang Wang, Pengyu Zhang, Hao Zhang, Daogang Peng, Ying Li, Guofeng Zhang Presenter: Jingyuan Wang Affiliation: Shanghai University of Electric Power, China
11:30-11:45 NE-239	Numerical Study on the Influence of Coal Ash Particle Concentration and Particle Size in Flue Gas on Heat Transfer of Fire Tube Waste Heat Boiler Author(s): Yue Zhu, Zhiyong Liu, Yonggang Wang, Ning Feng Presenter: Yue Zhu Affiliation: Lanzhou Jiaotong University, China
11:45-12:00 NE-265	Optimized scheduling of electric water heaters under consideration of water-using time elasticity Author(s): Zhonghui Zuo, Yuqing Bao Presenter: Yuqing Bao Affiliation: Nanjing Normal University, China

10:00-12:00	Session 11
	Image-based Intelligent System Design and Power Communication Technology 基于图像的智能系统设计与电力通信技术 Room D: 543-4917-8655 Passwords: 2023
Session Chair:	
10:00-10:15 NE-115	Research on overall architecture and Functional Application of digital UHV substation Author(s): Yan Li Presenter: Yan Li Affiliation: State Grid Corporation of China, China
10:15-10:30 NE-211	A File Transfer Method Based on Modbus Protocol Author(s): Junfeng Ding Presenter: Junfeng Ding Affiliation: Tiandi (Changzhou) Automation Co., Ltd. China
10:30-10:45 NE-447	Non-Destructive Testing of Reinforced Concrete Utility Poles Based on Electromagnetic Induction Author(s): Sheyi Ren, Wei Ren, Qiaozhi Wang, Yuanyuan Song Presenter: Sheyi Ren Affiliation: State Grid Shandong Electric Power Material Supply Company, China

10:45-11:00 NE-146	Research Progress and Case Analysis of Suspended Particulate Matter Distribution Control in Integrated Transportation Hubs Author(s): Zhuji Long, Xin Su, Yinan Li and Deliang Wang Presenter: Su Xin Affiliation: Chongqing Jiaotong University, China
11:00-11:15 NE-148	Design of intelligent electromagnetic antibacterial and descaling system based on STM32 Author(s): SUN Peiqing, HUANG Yunfeng, FANG Shiqing, CAO Jingbo Presenter: SUN Peiqing Affiliation: Shanghai University of Electric Power, China
11:15-11:30 NE-403	Research on the security of power cyber-physical system considering communication network failure Author(s): Yutian Zhou, Xin Li, Mingxin Li, Weiping Song, Tao Sui and Xuanfei Mao Presenter: Yutian Zhou Affiliation: State Grid Liaoning Electric Power Co., Ltd. Dandong Power Supply Company, China
11:30-11:45 NE-503	Comprehensive Carbon Emission Factors of Power Supply in Regional Grids Calculated Using Proportional Distribution Author(s): Huangqiang LI, Ran SHEN, Ziwei LIU Presenter: Huangqiang LI Affiliation: Yichang Power Supply Company, State Grid Hubei Electric Power Co., Ltd, China
11:45-12:00 NE-430	Review of Gravity Energy Storage Research and Development Author(s): Liyang Liu, Yiming Ma, Yikai Li, Yumin Peng, Rufe He, Yao Li Presenter: Yiming Ma Affiliation: CSG PGC Energy Storage Research Institute, China

14:00-16:15	Session 12
	Key Technologies in Photovoltaic Modules and Power Generation Systems 光伏组件与发电系统中的关键技术 Room B: 963-8237-7050 Passwords: 2023
Session Chair: Chunyang Gong, Shanghai University of Electric Power, China	
14:00-14:15 NE-003	Safety and Quality Risk Status Evaluation of Photovoltaic Power Plants in Operation based on AHP-Fuzzy Comprehensive Evaluation Method Author(s): Zikun Cheng, Pingguo Zou, Gang Li, Qiang Li, Zhentao Zhang, Xin Zhang Presenter: Zikun Cheng Affiliation: Suzhou Nuclear Power Research Institute Co., Ltd., China
14:15-14:30 NE-073	Deep Learning-Based Prediction of Maximum Carrying Capacity of Key Transmission Sections for Photovoltaic Integration Author(s): Gu Yujia, Wang Jiecong, Li Hongqiang, Lu Guangming, Zhang Hanhua, Zhang Lulu Presenter: Wang Jiecong, Jingwen Shen Affiliation: Power Research Institute of State Grid Ningxia Electric, China

14:30-14:45 NE-193	Research on Photovoltaic MPPT Technique Based on Deep Reinforcement Learning Under Varying Irradiance Levels Author(s): Wenkai Pan, Chenggang Cui, Hui Chen Presenter: Wenkai Pan Affiliation: Shanghai University of Electric Power, China
14:45-15:00 NE-335	Short-term photovoltaic output prediction model based on MOSMA feature selection and TCN Author(s): Hao Li, Gang Ma, YuXiang Meng Presenter: Hao Li Affiliation: Nanjing Normal University, China
15:00-15:15 NE-396	Dispatching Strategy Based on Energy Storage Loss and Data-Driven for Urban Integrated PV and Energy Storage Charging Station Author(s): Yutao Hu, Jianhua Wang, Xiaogang Pan, Feng Zhang Presenter: Yutao Hu Affiliation: Southeast University, China
15:15-15:30 NE-410	Evaluation method for transient reactive power voltage regulation capability of photovoltaic power stations considering power grid status Author(s): Tao Zhang, Hongbin Guo, Chi Ma, Haining Shi, Tang Tang, Hong Ying, Pingguo Zou Presenter: Tao Zhang Affiliation: Suzhou Nuclear Power Research Institute Co., Ltd., China
15:30-15:45 NE-436	Comprehensive benefit evaluation method for photovoltaic power generation projects based on cloud model Author(s): Jiandong Li, Wenhua Han, Yufei Wang, Yapeng Wang Presenter: Jiandong Li Affiliation: Shanghai University of Electric Power, China
15:45-16:00 NE-323	Harmonic Compensation Analysis of Grid-Connected System Having Photovoltaic and Energy Storage Integrated with Parallel Active Filter Author(s): Shiwei Chen, Xuhua Xia, Lujun Jiang and Yao Zhang Presenter: Yao Zhang Affiliation: Hangzhou Dianzi University, China
16:00-16:15 NE-364	Research on Multi-application Strategy for Hybrid Energy Storage Considering Battery Life Author(s): Pei Luo, Zhiwei Xiao, Jian Zhang Presenter: Zhiwei Xiao Affiliation: Xiangtan University, China

14:00-16:15	Session 13
	Energy Management System and Energy Consumption 能源管理系统与能源消费
	Room C: 457-5218-4973 Passwords: 2023
Session Chair: Xin Xiao, Donghua University, China	

14:00-14:15 NE-002	<p>Analysis on the Value of Photovoltaic Power Plant Engineering Consultant under Constraint Conditions</p> <p>Author(s): Gang Li, Zhaolin Wang, Xin Wang, Pingguo Zou, Xin Zhang, Zhentao Zhang</p> <p>Presenter: Li Gang or Xin Zhang</p> <p>Affiliation: Suzhou Nuclear Power Research Institute Co., Ltd., China</p>
14:15-14:30 NE-065	<p>The Impact of Carbon Emission Trading Pilot Policy on Energy Security</p> <p>Author(s): Han Chen, Qiyuan Cai, Yinan Li, Jinyu Chen, Hanxing Lin, Wenxin Chen</p> <p>Presenter: Han Chen</p> <p>Affiliation: Economic and Technological Research Institute, State Grid Fujian Electric Power Co., Ltd., Fuzhou, China</p>
14:30-14:45 NE-135	<p>Day-ahead optimal scheduling of integrated energy system considering carbon-green certificate trading mechanism</p> <p>Author(s): Yi Zhang, Tian Lan and Wei Hu</p> <p>Presenter: Tian Lan</p> <p>Affiliation: Shanghai University of Electric Power, China</p>
14:45-15:00 NE-178	<p>A Deep Convolutional Embedded Clustering Method for Scenario Reduction of Production Simulation</p> <p>Author(s): Yishu Peng, Lin Ye, Pai Li, Ting Gong</p> <p>Presenter: Yishu Peng</p> <p>Affiliation: China Agricultural University, China</p>
15:00-15:15 NE-204	<p>Research on the Key Technologies and Development Roadmap for Hydrogen in China</p> <p>Author(s): Siyu Zhang, Qing Shi, Ning Zhang, Yuchen Cao, Tao Cai, Hongcai Dai</p> <p>Presenter: Siyu Zhang</p> <p>Affiliation: State Grid Energy Research Institute, China</p>
15:15-15:30 NE-266	<p>Operation optimization of electric heating system based on interaction between green certificate carbon trading and source charge</p> <p>Author(s): Weikang Li, Yuxiang Meng, Cong Gao and Gang Ma</p> <p>Presenter: Weikang Li</p> <p>Affiliation: Nanjing Normal University, China</p>
15:30-15:45 NE-126	<p>Optimal planning for Energy Storage Plants Considering Location and Configuration</p> <p>Author(s): Kui Cheng, Dechang Xu</p> <p>Presenter: Kui Cheng</p> <p>Affiliation: POWERCHINA Jiangxi Electric Power Engineering Co., Ltd., China</p>
15:45-16:00 NE-252	<p>Stochastic Optimal Scheduling of Photovoltaic-Energy Storage Charging Station Based on WGAN-GP Scenario Generation</p> <p>Author(s): Xiang Bao, Yingchen Chi, Hua Zhou, Yan Huang, Xiu Wan, Fan Chen</p> <p>Presenter: Xiu Wan</p> <p>Affiliation: Nanjing Institute of Technology, China</p>
16:00-16:15 NE-416	<p>Modeling and forecasting implied long term oil price with ARIMA model</p> <p>Author(s): Yuan Qian, Huan Zheng, Bihui Chen, Yichen Ni, Shanming Huang, Sulian Wang</p> <p>Presenter: Yuan Qian</p> <p>Affiliation: SINOPEC, China</p>

14:00-16:00	<p align="center">Session 14</p> <p align="center">Electricity Trading and Market Analysis 电力交易与市场分析</p> <p align="center">Room D: 543-4917-8655 Passwords: 2023</p>
Session Chair: Li Ming, Yunnan Normal University, China	
14:00-14:15 NE-400	Research on Distribution Network Expansion Planning Considering Prosumer Participation in Ancillary Service Market Author(s): Pan Dai, Zhaoyu Liu, Jiamin Yin, Jingjing Huang, Zhesheng Hu Presenter: Jiamin Yin Affiliation: Shanghai Jiao Tong University, China
14:15-14:30 NE-417	Economic Evaluation of Build-in ESS Technology for PV Plant in Spot Market Author(s): Zhiping Gao, Yanli Jiang, Wenwen Kang, Xinghua Chen, Shanshan You and Zongxiong Liu Presenter: Wenwen Kang Affiliation: SPIC Hubei Electric Power Co., LTD, China
14:30-14:45 NE-082	The Impact of the COVID-19 Pandemic on Economy and Electricity Consumption in Thailand Author(s): Kunjana Chaiamarit, Somboon Nuchprayoon Presenter: Somboon Nuchprayoon Affiliation: Chiang Mai University, Thailand
14:45-15:00 NE-215	Optimal Spot Market Trading of Electricity Service Provider under Renewable Energy and Price Uncertainties Author(s): Zhouwu Xia, Wenzuo Ma Presenter: Zhouwu Xia Affiliation: State Grid Jibei Electric Power Company Limited, China
15:00-15:15 NE-212	Analysis of Incentive Policies and Typical Models for Electric Vehicle Participation in the Market Author(s): Kaiyu Zhang, Yaning Ji, Ran Chen, Bing Shen, Shanshan Shi and Yun Zhou Presenter: Yaning Ji Affiliation: Shanghai Jiao Tong University, China
15:15-15:30 NE-468	Optimal Participation of Electric Vehicle Aggregators in Real-Time Energy Market Author(s): Wanli Wu, Jizhong Zhu, Linying Huang, Shenglin Li, Haohao Zhu, Chenke He Presenter: Wanli Wu Affiliation: South China University of Technology, China
15:30-15:45 NE-076	Research and Application of Calculation Method of Recovering and Replenishing Electricity Based on Load Curve Restoration Author(s): Li Jinjin, Mo Fanghua, Lin Xiuqing, Qin Yupeng Presenter: Li Jinjin Affiliation: Guangxi Power Grid Co., Ltd. Electric energy metering center Nanning, China
15:45-16:00 NE-219	Research on Bidding Strategy of Virtual Power Plant Considering Dynamic Time-varying Domain Author(s): Wenguang Ma, Deli Ye, Yanbo Hu Presenter: Wenguang Ma Affiliation: POWERCHINA Qinghai Electric Power Engineering Co., Ltd., China

17:00-17:30

Online Closing Ceremony
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Room A: 374-2133-9885 Passwords: 2023



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