PSET

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2024 3rd International Conference on Power Systems and Electrical Technology

August 5-8, 2024 | **Tokyo, Japan**

Hosted by

東京大学 THE UNIVERSITY OF TOKYO

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Welcome Message

You are cordially invited to attend 2024 the 3rd International Conference on Power Systems and Electrical Technology (PSET), which will be held in Tokyo, Japan from August 5-8, 2024. PSET 2024 is co-sponsored by the Beijing CAS Industrial Energy and Environment Technology Institute and North China Electric Power University, and hosted by The University of Tokyo (Japan) and Chongqing University (China).

This conference aims to provide a platform for electrical engineers and researchers to discuss various research activities and the latest developments in the area of power systems engineering with experts and scholars from around the world. We are very pleased to offer you the exciting experience of this conference. The conference will present various awards, such as the Best Student Paper Award and the Young Scientist Award. High-quality papers will be recommended to IEEE Transactions on Industry Applications.

We have the conference for four days. There will be an IEEE PES/IAS Committee Activity on August 5th. And we will have 3 distinguished keynote speeches, they are delivered by Prof. Atsuo Kawamura, from Yokohama National University, Japan; Prof. Michael Negnevitsky, from University of Tasmania, Australia; and Prof. Xiaodong Liang, from University of Saskatchewan, Canada. Besides, there will be 1 Tutorial, 4 Best Student Paper Competitions, 2 Oral Flash Sessions and 8 Parallel Sessions for the onsite conference. 6 Online Sessions are arranged for those who are unable to come to Japan. We hope this is a memorable, valuable, and enjoyable experience! And we hope that all participants and other interested delegates benefit scientifically from the conference and also find it stimulating in this process.

Every progress and achievement is inseparable from the support and help of colleagues at home and abroad and friends from all walks of life. We would like to take this opportunity to thank all the experts and scholars for their long-term care and support for the development of our conference! Thank you for your support to PSET 2024. We wish the conference a great success!

Sincerely,

Conference Chairs
Akiko Kumada, The University of Tokyo, Japan
Ruijin Liao, Chongqing University, China

Conference Committees

Conference Chairs

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Ruijin Liao	Chongqing University, China

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Peng Luo	Guangdong Ocean University, China
Chun-An Cheng	I-Shou University, Taiwan
En-Chih Chang	I-Shou University, Taiwan
Xin Zhang	State Power Investment Corporation Research Institute Co. Ltd, China
Bo Wang	Hohai University, China

Conference Schedule (GMT+9)

Time	August 5th | Monday	
	- Online -	
10:00-12:00	Test for Online Session 9,10,11	Online Room 1
	Test for Online Session 12,13, 14	Online Room 2
	- Onsite -	
10:00-17:00	Sign-in & Collecting Conference Material	Faculty of Engineering Bldg.2 **(4F)**
13:00-16:30	IEEE PES/IAS Committee Activity	33A: EEIC Meeting Room1 (A·B·C) **(3F)**

	August 6th | Tuesday	
	- Onsite -	
	Host: Bo Jie, The University of Tokyo, Japan	
8:50-8:55	Opening Remarks: Akiko Kumada, The University of Tokyo, Japan	43A: Lecture Room 241
8:55-9:00	Welcome Address: Ruijin Liao, Chongqing University, China	
9:00-9:40	Keynote Speech I: Atsuo Kawamura, Yokohama National University, Japan	
9:40-10:20	Keynote Speech II: Michael Negnevitsky, University of Tasmania, Australia	
10:20-11:00	*Group Photo & Coffee Break*	
11:00-11:40	Keynote Speech III: Xiaodong Liang, University of Saskatchewan, Canada	
11:40-13:30	*Lunch Time*	
13:30-15:00	Tutorial: Virtual Power Plants: Modelling, Control and Operation	43A: Lecture Room 241
13:30-15:30	Session 1: Virtual Power Plant with Enormous Flexible Distributed Energy Resources	42A2: Lecture Room 242
	Session 2: Voltage Control and Performance Monitoring of New Electrical Equipment	42B2: Lecture Room 243
	Session 3: Advances in Electric Charge Phenomena in Power Equipment Insulation	42B1: Lecture Room 244
15:30-16:00	*Break Time*	
16:00-18:00	Best Student Paper Competition 1: Digital Electrical Systems and Equipment	43A: Lecture Room 241
	Best Student Paper Competition 2: Electronic Materials and Devices	42A2: Lecture Room 242
	Best Student Paper Competition 3: Application of Artificial Intelligence in Electric Power Systems	42B2: Lecture Room 243
	Best Student Paper Competition 4: Control Technology and Reliability Evaluation in Intelligent Power Systems	42B1: Lecture Room 244
18:30-20:00	*Award Ceremony —— Host: Sidun Fang, Chongqing University, China*	

	August 7th | Wednesday	
	- Onsite -	
10:00-12:00	Oral Flash Session 1: Control Models and Reliability Analysis in Power Systems	42A2: Lecture Room 242
	Oral Flash Session 2: Load Forecasting, Optimal Operation and Condition Monitoring in Electrical Systems	42B2: Lecture Room 243
	Session 4: Electric Vehicles and Power Supply Technology based on Power Drive	42B1: Lecture Room 244
	Session 5: Power Electronics and Transmission Technology	41B: EEIC Meeting Room 5
12:00-13:30	*Lunch Time*	

Conference Schedule (GMT+9)

13:30-15:30	Session 6: Distribution Network and Smart Grid	42A2: Lecture Room 242
	Session 7: High Performance Dielectric Materials	42B2: Lecture Room 243
	Session 8: Application of Artificial Intelligence in Electric Power Systems	42B1: Lecture Room 244

	August 8th | Thursday	
	- Online -	
10:00-12:00	Session 9: Voltage Control and Stability Evaluation	Online Room 1
	Session 10: Electric Vehicles and Power Supply Technology Based on Power Drive	Online Room 2
12:00-13:30	*Break Time*	
13:30-15:15	Session 11: Power Transmission and Line Protection	Online Room 1
	Session 12: Control Models and System Performance Analysis in Smart Grids and Power Systems	Online Room 2
15:15-16:00	*Break Time*	
16:00-17:45	Session 13: Load Forecasting, Optimized Control, and Management in Power and Energy Engineering	Online Room 1
	Session 14: System Security and Energy Optimization in Power Systems	Online Room 2

Session Information

Onsite Presentations	
Competition 1	ET0493、ET0730、ET1642、ET2095、ET2261、ET2654、ET2085
Competition 2	ET2352、ET0543、ET1000、ET1171、ET0513、ET1290、ET1974
Competition 3	ET0312、ET0332、ET0573、ET0603、ET1222、ET1753、ET1910、ET0302
Competition 4	ET0674、ET1366、ET0871、ET1210、ET1883、ET0688、ET2680
Session 1	ET1412、ET2500、ET0123、ET2792、ET0281、ET1142、ET0192、ET0817
Session 2	ET0153、ET0503、ET1592、ET1930、ET1990、ET2775、ET0711、ET1371
Session 3	ET2300-A、ET1950、ET1535、ET2452、ET1112、ET1820、ET1980-A、ET1652
Session 4	ET0533、ET1200、ET1810、ET2432、ET0760、ET2624、ET1600、ET2523
Session 5	ET0382、ET0261、ET1515、ET2533、ET0953、ET2044、ET2550、ET2860-A
Session 6	ET0880、ET0921、ET0271、ET0744、ET1260、ET2271、ET1660、ET2361-A
Session 7	ET1323、ET2493、ET2590、ET0700、ET1723、ET1493、ET2100-A
Session 8	ET1525、ET0654、ET0694、ET1152、ET1561、ET2311、ET2473、ET2000
Oral Flash 1	ET0342、ET0221、ET0171、ET1050、ET1071、ET1581、ET1843、ET0995、ET0205、ET0353、ET1081、ET1168、ET1793、ET1833、ET1853、ET1924、ET2190、ET2634、ET2710
Oral Flash 2	ET0452、ET1035、ET0024、ET0182、ET2614、ET0523、ET0553、ET0613、ET1091、ET0800、ET0840、ET1783、ET0985-A、ET2074、ET1230、ET2574、ET2734-A
Online Presentations	
Session 9	ET1743、ET1381、ET1551、ET1690、ET1900、ET2014、ET2400
Session 10	ET0633、ET0101 、ET1180、ET1400、ET1863、ET2372、ET2785、ET0111
Session 11	ET0015、ET0422、ET1700、ET1271、ET1300、ET1713、ET0783
Session 12	ET2331、ET2153、ET0251、ET1431、ET1500、ET1964、ET1541
Session 13	ET0082、ET2694、ET0623、ET0911、ET1281、ET2110、ET2463
Session 14	ET1250、ET1025、ET2442、ET2600、ET1242、ET1873、ET2245

Onsite Conference Notice

- Conference Venue -

The University of Tokyo (Hongo Campus)

ADD: 7-chōme-3-1 Hongō, Bunkyo City, Tokyo 113-8654, Japan

- Time Zone -

UTC/GMT+9

- Weather -

The Weather Situation of Japan in August

Average daily minimum temperature	Average daily highest temperature
25℃	32℃

- Emergency -

Hospital Emergency Phone: 119 | Fire Service: 119 | Emergency Call: 110

- Presentations -

- Timing: a maximum of 15 minutes in total, including 2 minutes for Q&A / a maximum of 6 minutes in total, including 2 minutes for Q&A. Please make sure your presentation is well timed.
- All oral session rooms are equipped with data projectors with a standard VGA connector. The speakers could also bring and use their own laptops or other presentation devices.
- Each speaker is required to meet her / his session chair in the corresponding session rooms 15 minutes before the session starts and copy the slide file (PPT or PDF) to the computer.
- Dress Code: Please wear formal clothes or national characteristics of clothing.

- Important Notes -

- Please take care of your belongings during the conference. The conference organizer does not assume any responsibility for the loss of personal belongings of the participants.
- Please wear your participation card during the conference. There will be NO access for people without a card. NEVER discard your badge at will.
- Please don't throw your name card away when you don't need it, just return it to the registration table.
- Accommodation is not provided. Delegates are suggested make early reservation.
- Please show the badge and meal coupons when dining.

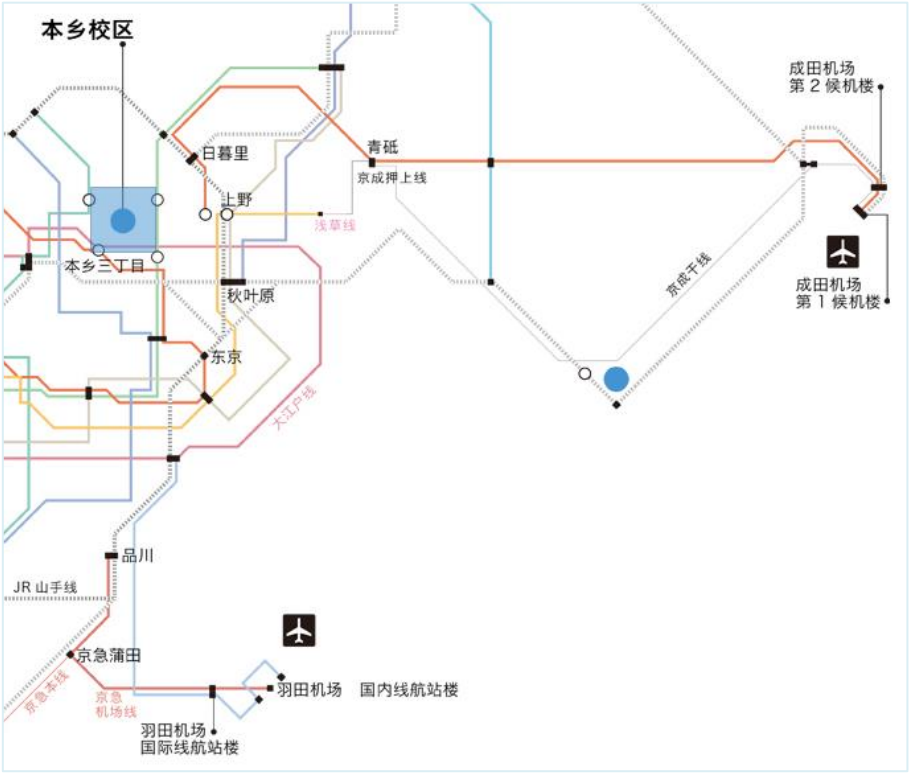
Onsite Conference Notice

- Access Map (English Version) -

https://www.u-tokyo.ac.jp/content/400020133.pdf

- Access Map (Chinese Version) -

https://www.u-tokyo.ac.jp/content/400036318.jpg



Onsite Conference Notice

- Campus Map -

https://www.u-tokyo.ac.jp/content/400020145.pdf

Conference Location: Building 76 - Faculty of Engineering Bldg.2 (4th Floor)

- Floor Plan -

43A	241 号講義室 Lecture Room 241	401・402	245 号講義室 Lecture Room 245
42A2	242 号講義室 Lecture Room 242	403・404・405	246 号講義室 Lecture Room 246
42A1	電気系学生控室 EEIC Student Room	406	電気系コピー室・用務員室 EEIC Copy Room・anitor Room
42B1	244 号講義室 Lecture Room 244	407・408	電気系事務室 EEIC Office
42B2	243 号講義室 Lecture Room 243	409	電気系名誉教授室・非常勤講師室 EEIC Emeritus prof.Room・Part-time Lecture waiting Room
41A	電気系学生実験室 A EEIC Student Experiment RoomA	410	電気系専攻長室・就職担当 Office of the Head of the EEIC Department・ob hunting staff
41B	電気系会議室 5 EEIC Meeting Room5	411・412	電気系学生実験準備室 Staff Room of EEIC Student Experiment
		413・414	電気系学生実験室 EEIC Student Experiment Room
		415	フォトニクス実験室 EEIC Photonics Experiment Room
		416	エレクトロニクス実験室／電波暗室 EEIC Electronics Experiment Room/Anechoic Chamber

Online Conference Notice

Platform: ZOOM
ZOOM help center:
https://support.zoom.us

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

Time Zone
Japan Time (GMT+9)

Meeting Rooms
Online Room 1: Meeting ID- 871 7564 8320, Meeting link: https://us02web.zoom.us/j/87175648320
Online Room 2: Meeting ID- 860 3706 6611, Meeting link: https://us02web.zoom.us/j/86037066611

Presentation Time
A maximum of 15 minutes, including Q&A. Please make sure your presentation is well timed.

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

Online Presentation Test
Time: 10:00-12:00, August 5th, 2024 (GMT+9)
Prior to the formal meeting, presenters shall join the test room to ensure everything is on the right track.

Conference Recording
- The whole conference will be recorded. We appreciate you proper behavior and appearance.
- The recording will be used for conference program and paper publication requirements. The video recording will be destroyed after the conference and it cannot be distributed to or shared with anyone else, and it shall not be used for commercial nor illegal purpose. It will only be recorded by the staff and presenters have no rights to record.

IEEE PES/IAS Committee Activity

August 5th | 13:00-16:30 | 33A: EEIC Meeting Room1 (A·B·C) (3rd floor)

Prof. Ryuji Matsuhashi, The University of Tokyo, Japan

Born in 1963, Mr. Ryuji Matsuhashi earned the Bachelor of Engineering degree from the Department of Electronics, Faculty of Engineering, the University of Tokyo in 1985, and the Doctor of Engineering in 1990 from the same department. He became an Associate Professor at the Department of Geosystem Engineering, Faculty of Engineering, the University of Tokyo since 1994 after serving as the Research Associate of the same from 1990 to 1993. He has become an Associate Professor at the Institute of Environmental Studies, Graduate School of Frontier Sciences, The University of Tokyo, since 1999. Next, he has become a Professor at the same institute of the University of Tokyo, since 2003. Then he has become a Professor at the Electrical Engineering and Information Systems, Graduate School of Engineering in the same university, since 2011. His intensive works in the analysis of energy systems and global environmental issues produced various books and papers. He is currently a member of Japan Society of Energy and Resources, the Institute of Electrical Engineers of Japan, the Japan Institute of Energy.

Prof. Sidun Fang, Chongqing University, China

Sidun Fang (Senior Member, IEEE) is currently a Full Professor with Chongqing University. His research interests include integrated energy system and energy-transport integration. Dr. Fang was the recipient of the Outstanding Graduate Prize of Shanghai Jiao Tong University. His doctoral dissertation was nominated as the Excellent Dissertation Papers in Shanghai Jiao Tong University in 2017. He is also an Associate Editor for IEEE Transactions on Industrial Cyber-Physical Systems, IEEE Transactions on Industry Applications, and IET Renewable Power Generation.

Prof. Takao Tsuji, Yokohama National University, Japan

Takao TSUJI (Member of IEEJ, IEEE) received his Dr. Eng. Degree from Yokohama National University, Japan, in 2006. In April of the same year, he was appointed as a Research Associate in the Graduate School of Information Science and Electrical Engineering of Kyushu University. Since April of 2007, he has been with the Faculty of Engineering at Yokohama National University, Japan and is currently a Professor. His research interests include the planning, operation, and control of electricity power systems.

Prof. Yu Wang, Chongqing University, China

Yu Wang (Senior Member, IEEE) is currently a Professor with the School of Electrical Engineering, Chongqing University, Chongqing, China. He was a Marie Skłodowska-Curie Individual Fellow with Control and Power Group, Imperial College London, London, U.K. His research interests include microgrid control and stability, power system operation and control, and cyber-physical systems.

Keynote Speaker

Prof. Atsuo Kawamura

Yokohama National University, Japan

(Life Fellow of IEEE)

August 6th	9:00-9:40	43A: Lecture Room 241

Speech Title: 99.9% Class Efficiency DC-AC Power Conversion and Its Future Applications

Abstract: The advent of wide bandgap semiconductor devices has enabled power conversion with high conversion efficiency; DC-AC power conversion (inverter) is more difficult to achieve ultra-high efficiency than DC-DC conversion because the output is AC and the input-output voltage ratio varies.

First, a survey of recent published literature on inverters with efficiencies in the 99.9% class will be presented. Next, the latest results of a 99.9% class HEECS inverter, which the speaker's group is working on, will be presented. With higher efficiency comes the need to guarantee measurement accuracy. The speaker proposed a loss measurement method using only electrical measuring instruments, called the VTASLM method, and measured a conversion efficiency of 99.75% with a measurement accuracy of 0.006%. In addition, results of loss breakdown measurements are presented to clarify the distribution of losses. Optimization methodologies to obtain higher efficiencies will be presented and the latest highest efficiency data (HEECS inverters in SiC and GaN) will be presented.

Finally, applications will be presented: grid-connected HEECS inverters for renewable energy and motor drives.

Biography: Atsuo Kawamura (Life Fellow, IEEE) received the B.S.E.E., M.S.E.E., and Ph.D. degrees in electrical engineering from the University of Tokyo, Tokyo, Japan, in 1976, 1978, and 1981, respectively. After the five-year-stay at the University of Missouri-Columbia as a faculty member, he joined Yokohama National UniversityYNU) in 1986, and in 1996 he became a professor. He served as a dean of College of Engineering Science and Graduate School of Engineering from 2013 to 2015. He has become Professor Emeritus in 2019, and was a professor of endowed chair (Power Electronics) at YNU till 2024, and now belongs to Institue of Multidiciplinary Science of YNU. He has served to completion of 38 Ph.D and 147 Master's and 179 Bacheler's students. He holds 7 patents and has published more than 140 journal papers and 320 international and 580 domestic conference papers, and 9 books. (h-index(Google) is 47.)

His research interests include power electronics, digital control, electric vehicles, robotics, train traction control, etc. He received several awards including several Transactions Prize Paper Awards from IEEE and IEEJ and 2025 IEEE W. E. Newell Power Electronics Award.

Dr. Kawamura is a Fellow of the Institute of Electrical Engineers of Japan (IEE of Japan).

Keynote Speaker

Prof. Michael Negnevitsky

University of Tasmania, Australia

(Fellow of IEEE)

August 6th	9:40-10:20	43A: Lecture Room 241

Speech Title: Smart Grids Management and Control: A New Approach to Integrating Isolated Power Systems

Abstract: Isolated communities are located far from major electrical networks and sources (i.e., bulk interconnected power systems) and, therefore, grid connection to these sources may not be practical or economically justified. Electricity in isolated remote areas is generated and consumed locally within an arrangement of electrical components deployed to supply, transfer and consume local electricity. Such networks are called Isolated Power Systems (IPSs), which subject to their specific application can have different composition and configuration.

As IPSs integrate increasing penetrations of renewable energy, they face technical challenges in hosting a greater capacity of inverter-based generation. Inverter-based technologies are unable to supply the full range of service commonly provided via synchronous thermal generation, and new applications and approaches must be developed to ensure system security and reliability. Known issues include the limited ability for fault current contribution, typically 1.5 times inverter rating or less and the inability of synthetic inertia to fully replicate mechanical inertia. The issues become particularly acute in system with high penetration of inverter-based generation based on intermittent resources (i.e. wind and solar). In response to these issues, the Centre for Renewable Energy and Power Systems has developed a range of flexible supply side technologies able to support high renewable penetrations while preserving much of the ancillary service traditionally sourced from synchronous generation. A range of these applications are discussed in this paper including low load diesel, variable speed diesel, and different type of storage.

This key-note paper discusses the common characteristics seen in the legacy IPSs and trends and challenges of system transformation to a clean and sustainable way of operation. While discussions and illustrations mostly centre around IPSs located on islands, similar trends can be observed in other remote coastal and inland locations (e.g., mines, military bases, remote communities such as Alaska and other rural settlements).

Biography: Professor Michael Negnevitsky is Chair in Power Engineering and Computational Intelligence and Director of the Centre for Renewable Energy and Power Systems, University of Tasmania, Australia. The primary focus of his research is smart grids, power system security, demand response, and isolated and remote area power systems with high renewable energy penetration. Professor Negnevitsky authorised more than 500 research publications and received 4 patents for inventions. He is Fellow of IEEE, Fellow of Engineers Australia. Professor Negnevitsky is Chair of the IEEE PES Working Group on High Renewable Energy Penetration in Remote and Isolated Power Systems, Chair of the IEEE PES Working Group on Asian and Australasian Infrastructure – Smart Grids with Large Penetration of Renewable Energy, Member of CIGRE AP C4 (System Technical Performance) and CIGRE AP C6 (Distribution Systems and Dispersed Generation), Australian Technical Committee.

Keynote Speaker

Prof. Xiaodong Liang

University of Saskatchewan, Canada

(Fellow of IET)

August 6th	11:00-11:40	43A: Lecture Room 241

Speech Title: Optimal Microgrid Implementation in Distribution Grid Modernization

Abstract: Renewable energy sources are paving their way into the modern mixed energy landscape, transforming conventional centralized bulk power systems with large-scale power generation to tomorrow's decentralized systems with small-scale distributed generation (DG) units near consumers. Along with environmental benefits of renewables, uncertainties, bidirectional power flow and DG interfacing inverters make the planning, operation and control of future distribution grids very challenging. The microgrid is a fundamental building block for smart grids, and its implementation along with advanced control, optimization and machine learning techniques can significantly improve reliability and resiliency of distribution grids. This talk will share our recent research efforts on optimal microgrid implementation in distribution grid modernization, focusing on planning and service restoration through microgrid formation in renewable-rich distribution systems. Service restoration has been achieved using microgrid formation, deep reinforcement learning and Soft Open Points.

Biography: Xiaodong Liang received the Ph.D. degree in electrical engineering from the University of Alberta, Edmonton, Canada in 2013. She is currently a full Professor and Canada Research Chair in Technology Solutions for Energy Security in Remote, Northern, and Indigenous Communities at the University of Saskatchewan, Saskatoon, Canada. She was previously a lecturer at Northeastern University, Shenyang, China from 1995 to 1999, a Power Systems Engineer with Schlumberger (SLB) in Edmonton, Canada from 2001 to 2013 (promoted to Principal Power Systems Engineer in 2009), an Assistant Professor and later an Associate Professor with Washington State University in Vancouver, United States and Memorial University of Newfoundland in St. John's, Canada from 2013 to 2019. Her research interests include power systems, renewable energy, and electric machines. In these research areas, she has authored/co-authored more than 230 refereed journal and conference papers, four book chapters, and numerous research reports. She is the Deputy Editor-in-Chief of IEEE Transactions on Industry Applications, the Chair of the Power System Engineering Committee of IEEE Industry Applications Society (IAS), and a Fellow of IET.

Tutorial

Virtual Power Plants: Modelling, Control and Operation

August 6th	13:30-15:00	43A: Lecture Room 241

Summary

The tutorial discusses the dynamic analysis and operation of virtual power plants (VPPs), that is, clusters of generators located at different locations of the grid and providing coordinated services. The tutorial is organized into three parts. The first part provides an overview of the structure, components and services that can be provided by VPPs. The second part focuses on the dynamic operation and control of the VPPs and introduces the novel concept of dynamic VPP. The third part discusses the operation of VPPs and their role in ancillary service electricity markets. The tutorial presents the contributions of two European projects, namely edgeFLEX (https://www.edgeflex-h2020.eu/) and POSYTYF (https://posytyf-h2020.eu/) both based on large consortia that blend industry experience and recent trends in academic research. All parts of the tutorial are enriched with several illustrative examples based on both benchmark and real-world systems.

Duration

1.5 hours

Agenda

Three parts, 30 minutes each part.

Each part will consist of 25 minutes for the presentation + 5 minutes for Q&A.

Tutorial - part 1

Prof. Federico Milano

University College Dublin, Ireland

August 6th	13:30-14:00	43A: Lecture Room 241

Speech Title: A Taxonomy of Virtual Power Plants

Abstract: The virtual power plant (VPP) is a paradigm that aggregates widely dispersed resources over an electrical grid or part of it thereof and aspires to emulate the behavior of conventional generators. The structure and composition of VPPs can vary, yet it is possible to define a general taxonomy of the devices and services that VPPs provide. This first part of the tutorial will discuss this taxonomy and, in particular the role of distributed energy resources (DERs), energy storage systems (ESS), information and communication technologies (ICT) and controllable loads for the composition of VPPs. Then a classification of VPP frameworks control methods and operation will be provided. A variety of examples illustrating the various aspects of the VPPs will complete this first part. In particular the examples will show the effect of different VPP topologies on their ability to provide primary frequency control, and the differences between secondary frequency control service and short-term operation of VPPs. The examples provided in this tutorial were developed for the European Project edgeFLEX (https://www.edgeflex-h2020.eu/).

Biography: Federico Milano received from the University of Genoa, Italy, the ME and PhD in Electrical Eng. in 1999 and 2003, respectively. From 2001 to 2002 he was with the University of Waterloo, Canada, as a Visiting Scholar. From 2003 to 2013, he was with the University of Castilla-La Mancha, Spain. In 2013, he joined the University College Dublin, Ireland, where he is currently a full professor. He has authored 8 books and more than 330 papers. He was elevated IEEE Fellow in 2016 for his contributions to power system modeling and simulation, IET Fellow in 2017, and IEEE PES Distinguished Lecturer in 2020. He is currently an editor in chief of the IET Generation, Transmission & Distribution, the chair of the Technical Program Committee of the PSCC 2024, a member of the CIGRE Irish National Committee, the chair of the IEEE Power System Stability Controls Subcommittee and a Senior Editor of the IEEE Transactions of Power Systems.

Tutorial - part 2

Prof. Bogdan Marinescu

Ecole Centrale de Nantes –LS2N, France

August 6th	14:00-14:30	43A: Lecture Room 241

Speech Title: Dynamic VPP Realization for Multi-time Scales Integration

Abstract: The concept of Virtual Power Plant (VPP) has arisen over a decade ago from the relatively low competitiveness of the back then emerging non-dispatchable Renewable Energy Sources (RES). A set of smaller generators imitates the behavior of large synchronous generators. So far, static aspects such as generation or slow dynamics have been of interest, as it is the case for the zonal secondary frequency control scheme in Spain, which can be viewed as a VPP. However, considering dynamic aspects is of high importance, especially to further increase the current penetration level of RES. For that, a new concept called Dynamic VPP (DVPP) which fully integrates the dynamic aspects at all levels: locally (for each RES generator), globally (for grid ancillary services and interaction with other close-by elements of the grid) and economically (for internal optimal dispatch and participation in electricity markets). A DVPP is a set of dispatchable and non-dispatchable RES along with a set of common control and operation procedures. Original control architectures are proposed to ensure both local and grid voltage and frequency objectives. Solutions for integration of such DVPP to actual primary and secondary controls are discussed. This results in a multi-time scales synthesis of the controls. These architectures will be presented along with validations and comparative studies done both in real-time simulation and hardware in the loop. This new DVPP concept is now under development in the H2020 POSYTYF project (https://posytyf-h2020.eu/).

Biography: Bogdan Marinescu was born in 1969 in Bucharest, Romania. He received the Engineering degree from the Polytechnical Institute of Bucharest in 1992, the PhD from Université Paris Sud-Orsay, France in 1997 and the "Habilitation à diriger des recherches" from Ecole Normale Supérieure de Cachan, France in 2010. He is currently a Professor in Ecole Centrale Nantes and LS2N laboratory where he is the Head of the chair "Analysis and control of power grids" - http://chairerte.ec-nantes.fr/home/ - (2014-2024) and the Coordinator of the POSYTYF H2020 RIA project - https://posytyf-h2020.eu/ - (2020-2023) and DREAM Erasmus Mundus Master - https://master-dream.ec-nantes.fr/ - (2021-2027). In the first part of his carrier, he was active in R&D divisions of industry (EDF and RTE) and as a part-time professor (especially from 2006 to 2012 in Ecole Normale Supérieure de Cachan). His main fields of interest are the theory and applications of linear systems, robust control and power systems engineering.

Tutorial - part 3

Prof. Álvaro Ortega

Comillas Pontifical University, Spain

August 6th	14:30-15:00	43A: Lecture Room 241

Speech Title: Optimal Bidding of Renewable-based VPPs in Energy and Ancillary Service Markets

Abstract: Building upon the dynamic aspects of VPPs (and DVPPs) emphasized in previous presentations, such as frequency and voltage estimation, primary and secondary control, this presentation transitions the focus towards strategic decision making. The goal is to seek maximum economic profitability of the VPP by means of robust optimal bidding strategies in energy and ancillary service markets. In this regard, the tutorial outlines the development and application of an advanced optimization tool tailored for renewable-based VPPs. The tool accounts for the volatile nature of non-dispatchable renewable energy sources and demand consumption, as well as varying market conditions, in a simple and computationally efficient manner. By introducing a robust optimization framework, VPP operators can be equipped with the capabilities to make informed and accurate decisions in the market bidding process, enhancing their economic resilience and operational efficiency. The effectiveness of the robust optimization tool is illustrated through case studies in diverse European market conditions. This work is also part of the H2020 POSYTYF framework (https://posytyf-h2020.eu/).

Biography: Alvaro Ortega received his ME and PhD in Electrical Engineering from The Higher Technical School of Industrial Engineering, University of Castilla - La Mancha (Spain) in 2013, and from University College Dublin (Ireland) in 2017, respectively. In September 2020, he joined the Institute for Research in Technology (IIT) at Comillas Pontifical University, where he currently is an Assistant Professor of Electric Power Systems. He is currently an editor of the IET Generation, Transmission and Distribution, and a Member of the IEEE PES Distributed Energy Resources and IEEE PES Power System Stability Controls Subcommittees. His current fields of research include optimal integration and operation of converter-interfaced renewable energy sources; and frequency estimation, control, and stability in low-inertia systems.

Session 1

Virtual Power Plant with Enormous Flexible Distributed Energy Resources

Chair: Hongchao Gao, Tsinghua University, China

13:30-15:30 | August 6th	42A2: Lecture Room 242
ET1412 13:30-13:45	*Enhanced Semi-supervised Non-intrusive Load Identification via Contrastive Graph Regularization* **Assoc. Prof. Bo Liu**, Yutong Wu, Keke Li, Wenpeng Luan, Bochao Zhao, Yanru Ren Tianjin University, China
ET2500 13:45-14:00	*Real-Time Detection of False Data Injection Attacks in Cyber-Physical Networked Microgrids Based on Delayed Unknown Input Observer* Dingjie Lin, Xingye Xu, Wei Du, Kaihao Zou, Qunjie Zhou, **Assoc. Prof. Kaishun Xiahou** South China University of Technology, China
ET0123 14:00-14:15	*System-wide Benefits of Renewable-based Virtual Power Plants in Island Power Systems* **Dr. Mohammad Rajabdorri**, Lukas Sigrist, Álvaro Ortega Manjavacas, Enrique Lobato IIT, Comillas Pontifical University, Spain
ET2792 14:15-14:30	*Home Energy Management System Based on Hybrid Soft Actor-Critic Network* Jizhong Zhu, **Ms. Kaixin Lin**, Le Zhang, Xuemeng Lan South China University of Technology, China
ET0281 14:30-14:45	*Newton-Armijo Backtracking-based Aggregation of DERs for Look-ahead Flexibility Dispatch* Abtahi Reza, **Assoc. Prof. Liang Du** Temple University, United States
ET1142 14:45-15:00	*Integrated Energy Park Capacity Allocation Considering the Seasonal Operation* Shiyun Qin, Muyang Liu, **Dr. Yutian Chen**, Mingshi Qiu Xinjiang University, China
ET0192 15:00-15:15	*A Planning Model for Flexibility Retrofitting of Coal-Fired Power Plants* Xinjiang Chen, Jianxiao Wang, **Dr. Zongxian Wang**, Michael R. Davidson, Ruaridh MacDonald, Jie Song, Guannan He Peking University, China
ET0817 15:15-15:30	*Charging Optimization Strategy for EVs Considering the Interest of Supply Side and Demand Side* **Dr. Lili Gong**, Yu Zhang, Xiaofan Chen, Lunlai Wan University of Science and Technology of China, China

Session 2

Voltage Control and Performance Monitoring of New Electrical Equipment

Chair: Jingyang Fang, Shandong University, China

13:30-15:30 | August 6th	42B2: Lecture Room 243
ET0153 13:30-13:45	*Modulation for Step-load Change of a Neutralpoint-clamped Hybrid Three-level Dual Active Bridge Converter* Ruiqi Ding, Chao Tang, Chuan Sun, Shiyuan Liu, **Prof. Xiaodong Li**, Song Hu Macau University of Science and Technology, China
ET0503 13:45-14:00	*Speed Stability Analysis of High-Power PWM Current Source Inverter (CSI)-Fed Motor Drive System Based on Discrete-Time State Space Equation* **Assist. Prof. Pengcheng Liu**, Lei Guan, Zheng Wang, Ming Cheng Southeast University, China
ET1592 14:00-14:15	*Shifting Technique for Cogging Torque Suppression in Yokeless and Segmented Armature Machines* **Dr. Feng Yi**, Chi Zhang, Shuheng Qiu, Jinhua Chen, Wei Liu, Xindong Shu Chinese Academy of Sciences College of Materials Science and Opto-Electronic Technology, China
ET1930 14:15-14:30	*Hierarchical Coordination of Inverter-based Voltage/Var Control via Droop Function Optimizaton* Pei Zhou, **Dr. Bo Wang**, Xingying Chen, Lei Gan, Kun Yu, Haochen Hua Hohai University, China
ET1990 14:30-14:45	*Fault Current Limiting Control Strategy for GFM Converters Based on Direct Internal Voltage Control with Improved Transient Stability* Han Yan, **Assoc. Prof. Jianhua Wang**, Xiaokuan Jin, Baojian Ji, Zhendong Ji, Xinsheng Wei Southeast University, China
ET2775 14:45-15:00	*Fractal Converters with Boundless Current and Voltage Ratings* **Prof. Jingyang Fang**, Qin Jiang, Hanqing Yang Shandong University, China
ET0711 15:00-15:15	*230V-Multilevel DC-DC Converter for Low Input Voltage Range using Adaptive Look-Up Table Tuned PI Controller* **Prof. Faizal Arya Samman**, Nassri Maulana, Rhiza S. Sadjad Universitas Hasanuddin, Indonesia
ET1371 15:15-15:30	*Optimal Design of Power Electronic Transformer based on Hybrid MMC under Boost-AC Operation* Xudong Zhang, **Dr. Yaqian Zhang**, Fujin Deng, Jianzhong Zhang Southeast University, China

Session 3

Advances in Electric Charge Phenomena in Power Equipment Insulation

Chair: Zhonglei Li, Tianjin University, China

13:30-15:30 | August 6th	42B1: Lecture Room 244
ET2300-A 13:30-13:45	*Near-infrared Photoelectrochromic Device with Graphene Quantum dot Modified WO3 Thin Film Toward Fast-response Thermal Management for Self-powered Agrivoltaics* **Assoc. Prof. Min-Hsin Yeh** National Taiwan University of Science and Technology, Taiwan
ET1950 13:45-14:00	*Performance Assessment Method of PP Films for HVDC Capacitors in Converter Valves* Anbang Xu, **Dr. Zhaoyu Ran**, Yuhang Liu, Yajing Li, Li Meng, Fan Fan, Qi Li Tsinghua University, China
ET1535 14:00-14:15	*Power Losses Balancing Method for Multi-port Magnetic Network Energy Routers under Hybrid Phase Shift Time Sharing Control* **Dr. Yongqing Lv**, Fujin Deng, Sahar S. Kaddah, Sayed Abulanwar Southeast University, China
ET2452 14:15-14:30	*A Multi-mode Combined Control Method for Wide Input Voltage Application Based on Series-half-bridge LLC Resonant Converter* **Mr. Haoru Luo**, Chuan Yao, Lin Xu, Xuehua Wang Huazhong University of Science and Technology, China
ET1112 14:30-14:45	*Space Charge and Electric Field Distributions in Extrusion Molded Joint for ±500 kV HVDC Cables* Zhong Zheng, **Assoc. Prof. Zhonglei Li**, You Wu, Boxue Du Tianjin University, China
ET1820 14:45-15:00	*Condition Monitoring and Identification Method for Multiple Filters of Gas Turbine* Linfeng Xu, **Assoc. Prof. Dengji Zhou**, Wang Xiao, Chongyuan Shui, Zewen Gu, Chen Wang Shanghai Jiao Tong University, China
ET1980-A 15:00-15:15	*Charge Transport Regulation and Performance Improvement of High-temperature Energy Storage Dielectric Materials* **Dr. Zhaoyu Ran** Tsinghua University, China
ET1652 15:15-15:30	*Self-supervised Learning-based Partial Discharge Diagnosis in Gas-insulated Switchgear* **Mr. Ho Trong Tai**, YOUNG-WOO YOUN, HYEON-SOO CHOI, Yong-Hwa Kim Korea National University of Transportation, South Korea

Best Student Paper Competition 1

Digital Electrical Systems and Equipment

Chair: Dengji Zhou, Shanghai Jiao Tong University, China

16:00-17:45 | August 6th	43A: Lecture Room 241
ET0493 16:00-16:15	*Online Monitoring Technology for Vacuum Degree of Vacuum Circuit Breakers Based on Fiber-Optical Laser-induced Breakdown Spectroscopy* **Mr. Feilong Zhang**, Fengtong Wu, Huan Yuan, Aijun Yang, Xiaohua Wang, Mingzhe Rong Xi'an Jiaotong University, China
ET0730 16:15-16:30	*Current-based Adaptive Low-Pass Filter for Energy Management of Dual-Source Electric Vehicle* **Mr. Hari Maghfiroh**, Oyas Wahyunggoro, A.I. Cahyadi Universitas Gadjah Mada, Indonesia
ET1642 16:30-16:45	*Multiphase Two-loop Control in Digital Controlled Buck Converter with Fast Load Transient* **Mr. Lingyun Li**, Shen Xu, Yijie Qian, Haiqing Zhang, Weifeng Sun Southeast University, China
ET2095 16:45-17:00	*A New Fixed Current Frequency Modulation Scheme for Low Switching Loss of Asymmetrical Half-Bridge Converter* **Mr. Seung-Won Lee**, Eun-Seo Lee, Dae-Ho Heo, Jung-Kyu Han Hanbat National University, South Korea
ET2261 17:00-17:15	*An Improved Synchronous Rectification LLC Resonant Converter for Hold-Up Time Compensation* **Mr. Zuohao Luo**, Zaijun Wu, Xiangjun Quan, Huiyu Miao, Fei Zeng, Xiaodong Yuan Southeast University, China
ET2654 17:15-17:30	*An Advanced Flyback Converter-Based MPPT Strategy for Optimizing PV System Performance* **Ms. Meilin Yang**, Guanying Chu, Qinglei Bu, Leilei Guo, Yinxiao Zhu, Ruihang Li Xi'an Jiaotong-Liverpool University, China
ET2085 17:30-17:45	*A New Chain-Structured Cell-Balancing Circuit with a Coupled-Inductor Based Modules* **Ms. Eun-Seo Lee**, Seung-Won Lee, Chang-Seok Kim, Jung-Kyu Han Hanbat National University, South Korea

Best Student Paper Competition 2

Electronic Materials and Devices

Chairs: Hanwen Ren, North China Electric Power University, China

Zhaoyu Ran, Tsinghua University, China

16:00-17:45 | August 6th	42A2: Lecture Room 242
ET2352 16:00-16:15	*A Novel SF6 Alternative Gas Discovered by High-throughput Molecular Design and Screening* **Ms. Yuyang Yao**, Boya Zhang, Xingwen Li, Jiaxin Tan Xi'an Jiaotong University, China
ET0543 16:15-16:30	*Market Gaming Response Strategies for Virtual Power Plants Aggregated by Base Stations of Communications Integrators* **Mr. Yanjia Wang**, Da Xie, Gunagyi Shao, Tong Liu, Xitian Wang, Yanchi Zhang Shanghai Jiao Tong University, China
ET1000 16:30-16:45	*Ab Initio Molecular Dynamics based Thermal Decomposition Study of Carbonate-based Electrolytes towards Battery Energy Storage* **Mr. Ziyi Wang**, Yulai Wei, Sida Zhang, Zhiwei Shen, Changding Wang, Weigen Chen Chongqing University, China
ET1171 16:45-17:00	*Lithium Ion Transport Properties in Carbonate Electrolytes under Electric Field Coupling* **Mr. Xin He**, Zhuohao Li, Xianbo Zhou, Kangli Wang Huazhong University of Science and Technology, China
ET0513 17:00-17:15	*Gold Nanoparticle-Enhanced Laser-Induced Breakdown Spectroscopy Technology under Low Pressure* **Dr. Jiaqi Liu**, Xiaokang Ding, Huan Yuan, Aijun Yang, Xiaohua Wang, Mingzhe Rong Xi'an Jiaotong University, China
ET1290 17:15-17:30	*Reference Power Generation for Modular PEM Electrolyzers During Power Transition with Dynamic Model Consideration* **Mr. Hamed Nezhadkhatami**, Amin Hajizadeh, Mohsen Soltani Aalborg University, Denmark
ET1974 17:30-17:45	*Analysis of Transient Stability Boundaries of GFMcs Based on Advanced Damping Area Approximation* **Mr. Xiaokuan Jin**, Jianhua Wang, Han Yan, Baojian Ji, Zhendong Ji, Changjun Ma Southeast University, China

Best Student Paper Competition 3

Application of Artificial Intelligence in Electric Power Systems

Chair: Xiaodong Li, Macau University of Science and Technology, China

16:00-18:00 | August 6th	42B2: Lecture Room 243
ET0312 16:00-16:15	*Fault Section Locating Method in Distribution Network with Distributed Generators based on Adaboost Ensemble Learning Algorithm* **Mr. Shi Pan**, Jipu Gao, Haoyu Ma, Yuanyuan Zhang, Ran Bi, Mingyong Xin, Shilin Wu, Jun Hu Tsinghua University, China
ET0332 16:15-16:30	*Policy Iteration Based Microgrid Frequency Control* **Mr. Byungchul Kim**, Eyad H. Abed University of Maryland, USA
ET0573 16:30-16:45	*Optimizing Electrical Systems Stability: A Novel Lyapunov Framework for Harmonic Reduction and Power Quality Enhancement* **Dr. Wilson Pavon**, Michael Chamorro, Ismael Minchala, Diego Guffanti, Mohan Kolhe Universidad Polit´ecnica Salesiana, Ecuador
ET0603 16:45-17:00	*Graph Neural Networks for Power System Security Assessment* **Dr. Glory Justin**, Santiago Paternain Rensselaer Polytechnic Institute, United States
ET1222 17:00-17:15	*A Hybrid Method for Estimating the State of Health of Lithium-ion Batteries Based on Health Indicators during the Constant-Voltage Charging Stage* **Mr. Zhuohao Li**, Qionglin Shi, Maoshu Xu, Kangli Wang, Kai Jiang Huazhong University of Science and Technology, China
ET1753 17:15-17:30	*Mobile Resource Logistics for Transportation and Power Network Recovery: Co-dispatching Modeling of Repair Resources and EVs Clusters* **Dr. Shaohua Sun**, Gengfeng Li, Zhaohong Bie Xi'an Jiaotong University, China
ET1910 17:30-17:45	*Intelligent Diagnosis of Composite Insulator Operating States Based on Knowledge Extraction from Infrared Images* **Mr. Wendi Ding**, Lijun Jin, Zhenyuan Li, Zhiwei Zhang, Jinyu Wang, Yinchen Zhang Tongji University, China
ET0302 17:45-18:00	*Calculation of Spatial Magnetic Field for Conductors with Various Cross-Sectional Shapes: Methods and Analysis* **Mr. Haoyu Ma**, Ran Bi, Shi Pan, Huiquan Zhang, Xinting Liu, Shilin Wu, Jun Hu Tsinghua University, China

Best Student Paper Competition 4

Control Technology and Reliability Evaluation in Intelligent Power Systems

Chairs: Runjia Sun, Shandong University, China

Kaishun Xiahou, South China University of Technology, China

16:00-17:45 | August 6th	42B1: Lecture Room 244
ET0674 16:00-16:15	*Numerical Simulation Evaluation on Space Charge under Combined High-Frequency Electrothermal Stresses* **Mr. Tianrun Qi**, Haoyu Gao, Hanwen Ren, Qingmin Li, Yidan Ma, Yiqun Ma, Tao Xiao North China Electric Power University, China
ET1366 16:15-16:30	*Effect of Metal Particle Position in Surface Charge Accumulation on DC GIS Insulator* **Mr. Di Lu**, Yu Gao, Shuangying Li, Pinhao Huang, Baixin Liu, Boxue Du Tianjin University, China
ET0871 16:30-16:45	*A Hierarchical Modeling Method of Cyber-Physical System and Vulnerability Assessment for Distribution Network* **Ms. Xinran Kang**, Qifang Chen, Mingchao Xia, Wenhao Yao, Liufeng Zhao, Xinhao Luo Beijing Jiaotong University, China
ET1210 16:45-17:00	*Leveraging Simulation-Based Statistical Analysis for Optimal Polynomial and Inflection Point Selection in Local Frequency-Based Center of Inertia Frequency Estimation* **Mr. Yukai Wang**, Jumpei Baba The University of Tokyo, Japan
ET1883 17:00-17:15	*Single Wire Resonant Power Transfer in Varying Metallic Environments* **Mr. Santosh Parajuli**, Vikas Kumar, Gayatri Ranade, Thomas Thundat, Ankur Gupta IIT Delhi, India
ET0688 17:15-17:30	*Assessment of the Charge Perturbation Effect of the Terahertz Pulse: Towards to the Space Charge Ellipsometry Detection* **Mr. Haoyu Gao**, Tianrun Qi, Hanwen Ren, Qingmin Li, Tao Xiao, Yiqun Ma, Yidan Ma North China Electric Power University, China
ET2680 17:30-17:45	*Analysis and Control Method of SLCC-HVDC System Oriented to Retrofit AC Transmission Lines* **Mr. Ruiting Xu**, Qin Jiang, Wei Kuang, Junchao Zheng, Baohong Li, Qiao Peng, Lu Nan Sichuan University, China

Session 4

Electric Vehicles and Power Supply Technology based on Power Drive

Chair: Kevin M. Suliva, Polytechnic University of the Philippines, Philippines

10:00-12:00 | August 7th	42B1: Lecture Room 244
ET0533 10:00-10:15	*A High-sensitivity Current Differential Protection for Renewable Energy Station* Wei Zhou, Jindao Zhang, Chaofan He, **Mr. Zhengqian Han**, Chen Lan, Huaiyu Zhang, **Prof. Xiaodong Zheng** Shanghai Jiao Tong University, China
ET1810 10:15-10:30	*Different Models to Calculate Spinning Reserve between Interconnected Grids: Case Study* **Dr. Sultan Sh Alanzi**, Ghada Shehada Kuwait University, Kuwait
ET1200 10:30-10:45	*A Spatial-temporal Electric Vehicle Charging Load Forecasting Method Based on Dynamic Traffic Equilibrium* Xiaohong Dong, **Mr. Xing Dong**, Qianyu Si, Yanqi Ren, Xinzhen Li, Ruizhi Mu Hebei University of Technology, China
ET2432 10:45-11:00	*Simplified Time-Domain Design Methodology for LLC Resonant Converter in EV Charging Station Application* **Mr. Ye Yuan**, Xu Lin, Chuan Yao, Jialing Yuan, Xuehua Wang, Xinbo Ruan Huazhong University of Science and Technology, China
ET0760 11:00-11:15	*Study on Impact of Weather Based Dynamic Line Rating on Renewable Integration in a Practical Indian Power System* **Mr. Piyush Kumar Gupta** Solar Energy Corporation of India Limited, India
ET2624 11:15-11:30	*Mitigation of PV Output Curtailment by Applying EV Optimal Charging Mechanism with Monte Carlo Method* **Assist. Prof. Bo Jie**, Jumpei Baba, Akiko Kumad The University of Tokyo, Japan
ET1600 11:30-11:45	*Charging Decision of Electric Vehicles Considering Users' Bounded Rationality* Yan Zhan, **Assoc. Prof. Lei Gan**, Yangyi Hu, Bo Wang Hohai University, China
ET2523 11:45-12:00	*Plug-in Fuel Cell Electric Vehicle: Control Strategy Analysis and Comparison with Battery Electric Vehicle* **Dr. Tatiana S. Andrade**, Torbjörn Thiringer Chalmers University of Technology, Sweden

Session 5

Power Electronics and Transmission Technology

Chair: Boya Zhang, Xi'an Jiaotong University, China

10:00-12:00 | August 7th	41B: EEIC Meeting Room 5
ET0382 10:00-10:15	*Metaheuristic PID Design to Optimize DC-DC Converter's Response to Wide Load Variations* **Dr. Giuseppe Marsala**, Massimiliano Luna National Research Council (CNR), Italy
ET0261 10:15-10:30	*A High-Precision Calibration Method for Electric Field Sensors and Error Analysis under Non-uniform Electric Fields* **Dr. Shilin Wu**, Xinting Liu, Haoyu Ma, Ran Bi, Shi Pan, Huiquan Zhang, Jun Hu, Ke Zhou, Qingren Jin, Baihua Lu Tsinghua University, China
ET2533 10:30-10:45	*Fortifying the Power Eye: Counteracting Adversarial Attack in Power System Inspection* **Dr. Zixiang Wei**, Yun Li, Ruoyu Wang, Zhikang Yuan University of Warwick, the United Kingdom
ET1515 10:45-11:00	*Closed-loop Power Regulation for Auxiliary Power Supply based on Power over Fiber* **Mr. Dingyi Lin**, Fujin Deng, Huailong Li, Jie Tian, Yu Lu, Gang Li Southeast University, China
ET0953 11:00-11:15	*Development and Demonstration of an Adaptive DC Optimizer to Solve Mismatched Output Power in PV Systems* **Dr. Seungho Choi**, Junhee Hong, Sangyoung Park, Jehyuk Won Gachon University, South Korea
ET2044 11:15-11:30	*A Low-cost Technique for Minimizing the SEIG Electromechanical Transient from Islanded to Grid-connected Configuration in Hydropower Plants* Angelo Accetta, Massimiliano Luna, Marcello Pucci, Marco Sinagra, Tullio Tucciarelli, **Dr. Giuseppe Marsala** National Research Council (CNR), Italy
ET2550 11:30-11:45	*Cooperative Prediction Approach for the Small-Signal Stability Margin of Renewable Power System Based on Vertical Federated Learning* **Mr. Xiang Lai**, Zhihao Chen, Yun Liu, Tianchen Dai, Haiqing Cai, Haohan Gu, Wei Chen South China University of Technology, China
ET2860-A 11:45-12:00	*Evaluation of Synchronous Generators' Dynamics in Today's Power Systems* **Prof. Jožef Ritonja** University of Maribor, Slovenia

Session 6

Distribution Network and Smart Grid Chair: Dazhong Ma, Northeastern University, China	
13:30-15:30 | August 7th	42A2: Lecture Room 242
ET0880 13:30-13:45	*A Multi-functional DC Current Limiter for DC Distribution Networks* Zhihui Dai, **Mr. Yiran Li**, Chen Shi, Xinze Zhou North China Electric Power University, China
ET0921 13:45-14:00	*Programmable Breaker Array for Multi-source Power Distribution Systems: A Case Study* **Mr. Xin Wang**, Meng Jiao, Hai-An Zhu Research Center Midas Electric, China
ET0271 14:00-14:15	*Non-contact Voltage Measurement Method in 10 kV Distribution Network* Shilin Wu, Xinting Liu, Haoyu Ma, Ran Bi, Shi Pan, Huiquan Zhang, **Prof. Jun Hu**, Ke Zhou, Qingren Jin, Baihua Lu Tsinghua University, China
ET0744 14:15-14:30	*A Multi-level Voltage/Var Stochastic Optimization Method for Distribution Networks Considering Communication Conditions* **Dr. Yufeng Wu**, Songqing Xie, Jinyu Chai, Wang Liao, Xu Wei, Fei Chen, Jiaming Weng, Dong Liu Shanghai Jiao Tong University, China
ET1260 14:30-14:45	*Developing a Smart Distribution Grid: Case Study in Ethiopia* **Mr. Markus Lehner**, Dejenie Birile Gemeda, Biruk Simani, Nanecha Kebede, Abduro Guye, Wilhelm Stork Karlsruhe Institute of Technology, Germany
ET2271 14:45-15:00	*An Economic and Low-carbon Dispatch Algorithm for Microgrids with Electric Vehicles* **Ms. Jiayu Cheng**, Hao Liang, Xiaoying Tang, Shuguang Cui The Chinese University of Hong Kong, China
ET1660 15:00-15:15	*Demand Side Management in KSA Integrated with a Market Model and Smart Grid Technologies* **Eng. Abdulrahman. M. AL Kelbi**, Sameir. A. Mohammed Saudi Electricity Company, Saudi Arabia
ET2361-A 15:15-15:30	*Exploring the Integration of Solar-Powered Microgrids in Oman's Agricultural Landscape: Opportunities and Challenges* **Mr. Ali al Kalbani** Middle East College, Oman

Session 7

High Performance Dielectric Materials

Chairs: Shixun Hu, Tsinghua University, China

Haoou Ruan, The University of Tokyo, Japan

13:30-15:15 | August 7th	42B2: Lecture Room 243
ET1323 13:30-13:45	*Effect of Nanosilica Grafted with Aromatic Voltage Stabilizer on Electrical Properties of Low-density Polyethylene* Baixin Liu, Binyuan Ye, Chenyi Guo, Di Lu, **Prof. Yu Gao**, Boxue Du Tianjin University, China
ET2493 13:45-14:00	*Effect of Large Linking Groups on the Electrical and Thermal Properties of Aniline Cured Epoxy Resins* **Dr. Jie Li**, Boya Zhang, Xuanjie Zhang, Yixuan Li, Xiao Yuan, Xingwen Li Xi'an Jiaotong University, China
ET2590 14:00-14:15	*Charge Traps Analysis of Styrene-grafted Polypropylene with Enhanced High-temperature Resistivity* **Dr. Shixun Hu**, Qing Shao, Shangshi Huang, Hao Yuan, Baojun Zhu, Yuxiao Zhou, Qi Li, Jinliang He Tsinghua University, China
ET0700 14:15-14:30	*Phase Field Characterization Model and Dendritic Properties of CuW Alloy Contacts under High Temperature of Ignition Arcs* **Dr. Hanwen Ren**, Jian Mu, Siyang Zhao, Yateng Yang, Zhiyun Han, Junke Li, Qingmin Li, Jian Wang North China Electric Power University, China
ET1493 14:30-14:45	*Feasibility Study of An Intelligent Monitoring Platform for the Power Transformers in Saudi Arabia and the Middle East Region* **Mr. Hamad Turki Alsubaie**, Bharat B. Bhalavane Saudi Electricity Company, Saudi Arabia
ET1723 14:45-15:00	*A Dual-Channel Four-Switch Resonant Gate Driver for LLC Secondary Side MOSFETs* **Dr. Ziyan Zhou**, Qiang Luo, Yufan Wang, Yuefei Sun, Qinsong Qian, Weifeng Sun Southeast University, China
ET2100-A 15:00-15:15	*Grid Forming Converter and Stability Aspects of Renewable Based Low Inertia Power Networks: Modern Trends and Challenges* **Mr. Salem Alshahrani** Kemya-SABIC, Saudi Arabia

Session 8

Application of Artificial Intelligence in Electric Power Systems

Chair: Yu Wang, Chongqing University, China

13:30-15:30 | August 7th	42B1: Lecture Room 244
ET1525 13:30-13:45	*A Reduced-Order Temperature Field Prediction Model for Power Devices Based on Proper Orthogonal Decomposition and Deep Learning* **Dr. Jiahao Geng**, Fujin Deng, Sahar S. Kaddah, Sayed Abulanwar Southeast University, China
ET0654 13:45-14:00	*An Adaptive Clustering-Based Partitioning Method of Large-scale Power Grid for Data-driven Dynamic Security Assessment* **Dr. Hang Qi**, Runjia Sun, Peng Wang, Jiawen Cao, Yuanzhen Zhu, Changgang Li Shandong University, China
ET0694 14:00-14:15	*Efficiency Evaluation of an Industrial Process under Voltage Sag Using Bayesian Network* **Assoc. Prof. Kevin M. Suliva** Polytechnic University of the Philippines, Philippines
ET1152 14:15-14:30	*Strategic Bidding of Demand Response with Price-Quantity Pairs Based on Deep Reinforcement Learning* Yuchen Zha, Yong Zhao, Cheng Huang, Fei Hu, **Assoc. Prof. Yaowen Yu** Huazhong University of Science and Technology, China
ET1561 14:30-14:45	*Enhancing Probabilistic Peak Load Forecasting with Fuzzy Information Granulation and Deep Learning* Wenpu Sun, Zhirui Tian, **Assist. Prof. Chenye Wu** The Chinese University of Hong Kong, China
ET2311 14:45-15:00	*A Cross-Entropy-Based Convolutional Neural Network Approach To Composite Power System Risk Assessment* **Dr. Yi Tang**, Lian Geng Changshu Institute of Technology, China
ET2473 15:00-15:15	*Dynamic Network Reconfiguration in Power Distribution Network Based on Spatial-Temporal Aware Safe Reinforcement Learning* **Dr. Minghe Wu**, Lucheng Hong, Jin Zhu, Yifei Wang, Yunyi Zhu Southeast University, China
ET2000 15:15-15:30	*RF Front-end Integrated Circuits with Dual-Band Antenna for System Control Receiver* **Dr. Mao-Hsiu Hsu**, Wen-Cheng Lai, Yi Wu National Formosa University, Taiwan

Oral Flash Session 1

Control Models and Reliability Analysis in Power Systems

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

10:00-11:54 | August 7th	42A2: Lecture Room 242

ET0342 10:00-10:06	*Microgrid Frequency Management via Dynamic Event Control* **Mr. Byungchul Kim**, Eyad H. Abed University of Maryland, USA
ET0221 10:06-10:12	*Research on Hybrid Power Supplying Strategy Applicable to Post-disaster Repair of Island Microgrids* **Ms. Zichen Zhang**, Fanrong Wei, Xiangning Lin, Samir M. Dawoud, Muhammad Shoaib Khalid, Weijie He Beijing Jiaotong University, China
ET0171 10:12-10:18	*Common-Mode Voltage Elimination for Dual Two-Level Inverter-Fed Six-Phase PMSM Based on Reference Voltage Decomposition* **Assist. Prof. Mingzhe Wu**, Xiaona Xu, Kui Wang, Suna Pan, Kehu Yang, Yongdong Li China University of Mining and Technology-Beijing, China
ET1050 10:18-10:24	*An Interface Technique for the Composite Time-Step Simulation of Power System with Inverter-based Resource via Different Tools* **Mr. Shanxiang Mao**, Muyang Liu, Junru Chen Xinjiang University, China
ET1071 10:24-10:30	*EMTP-ATP Draw Based Model for Performance Evaluation of Onsite Partial Discharge Measurement for Underground XLPE Cables* M.B. Atsever, U. Deveci, **Mr. S. Yuzgulec**, N. Mesci, S.C. Yılmaz, S.Yarkan, M.H. Hocaoglu BEDAS, Turkey
ET1581 10:30-10:36	*Fuzzy PID-based Feeder Load Participation in Grid Primary Frequency Regulation* Lingfang Li, **Mr. Fengming Shi**, Jiaquan Yang, Xuehao He, Siyang Liao Wuhan University, China
ET1843 10:36-10:42	*Modeling and Design of Photovoltaic Storage and Charging DC Microgrid System* **Dr. Yingying Li**, Xin Zhang, Chuang Qi, Yanxia Qu, Ao Ling, Xiaoyan Sun, Jiawei Zhang State Power Investment Corporation Research Institute, Co. Ltd, China
ET0995 10:42-10:48	*Large Language Model based Framework for Secure Operation of Power Systems* Ling Tan, Yue Xiang, Binhua Tang, Haoxuan Li, Zequan Du, Yida Lu, Huangqi Ma, Zirui Xi, Jianping Yang, Shiqian Wang, **Mr. Lingtao Li** Sichuan University, China
ET0205 10:48-10:54	*Least Effort Attack for Inverter-based Microgrids by Deep Reinforcement Learning* **Prof. Yu Wang**, Bikash Pal Chongqing University, China

ET0353 10:54-11:00	*Cloud Distributed Optimal Control of ESS-PV Residential Inverters* **Mr. Byungchul Kim**, Eyad H. Abed University of Maryland, USA
ET1081 11:00-11:06	*Design and Testing of a Non-contact Medium Voltage Detector for Field Maintenance Vehicles* Ibrahim Teker, Ahmet Faruk Bakan, Suat Ilhan, Mustafa Alparslan Zehir, **Mr. Umur Deveci**, Seyit Cem Yilmaz BEDAS, Turkey
ET1168 11:06-11:12	*A Novel Inertia Security Region on-line Monitoring Platform Considering the Effect of Virtual Inertia* **Mr. Genzhu Wu**, Muyang Liu, Xianlong Shao, Weilin Zhong, Junru Chen, Xiqiang Chang Xinjiang University, China
ET1793 11:12-11:18	*A Study on Search and Correction of Error Dominant Regions in Simulation Based on Measured Trajectories* Lei Wang, **Ms. Ruxiang Pan**, Rui Lv, Junxian Li, Xiaoyu Yue, Siyang Liao Wuhan University, China
ET1833 11:18-11:24	*Reduced-order Linear Active Disturbance Rejection Control of Permanent Magnet Electromagnetic Suspension System* **Mr. Shuai Yang**, Jie Yang, Jintao Yu, Hui Guo Jiangxi University of Science and Technology, China
ET1853 11:24-11:30	*Analysis of Transient and Fault Characteristics of Integrated Photovoltaic Storage and Charging DC Microgrid* **Dr. Xin Zhang**, Yingying Li, Chuang Qi, Yanxia Qu, Ao Ling, Xiaoyan Sun, Jiawei Zhang State Power Investment Corporation Research Institute, Co. Ltd, China
ET1924 11:30-11:36	*A Self-Protective MOV based on Series Fuse for Hybrid Commutated Converter* **Mr. Zhizheng Gan**, Zhanqing Yu, Lu Qu, Xin Yan, Jingjing Hao, Yulong Huang, Rong Zeng Tsinghua University, China
ET2190 11:36-11:42	*A Data-driven Topology Identification Method for Low-voltage Distribution Network* Shuo Shi, **Prof. Xiaoqing Han**, Tingjun Li, Hao Zhang, Hongbo Yan Taiyuan University of Technology, China
ET2634 11:42-11:48	*Real-Time Regulation Boundary Solution Method for Electrolytic Aluminum Industrial Park* Lingfang Li, Yixuan Chen, Peng Sun, **Mr. Cong He**, Shanquan Pi, Siyang Liao Wuhan University, China
ET2710 11:48-11:54	*Design and Implementation of a Full-Bridge Phase-Shift Inverter for Induction Heating* **Prof. Fu-Sheng Pai** National University of Tainan, Taiwan

Oral Flash Session 2

Load Forecasting, Optimal Operation and Condition Monitoring in Electrical Systems

Chair: Chenye Wu, The Chinese University of Hong Kong, China

10:00-11:42 | August 7th	42B2: Lecture Room 243
ET0452 10:00-10:06	*Power System Resilience Assessment Considering the Impact of Ice Disaster* Chen Wu, Guangzeng You, Yixuan Chen, Mingyu Yuan, **Mr. Qianqian Huang**, Tao Niu, Guanhong Chen, Sidun Fang Chongqing University, China
ET1035 10:06-10:12	*Optimal Operation Strategy for Integrated Energy Systems Based on Improved Grey Wolf Optimization Algorithm* **Mr. Chongying Jiang**, Shaoji Qin, Kaidong Lin, Siliang Liu South China University of Technology, China
ET0024 10:12-10:18	*Research on Micro Defect Detection of GIS/GIL Epoxy Based Insulation Materials Based on Photon Counting* Liming Wang, Xinyu Zhang, Tengfei Li, Kai Gao, Wenhui Zhang, Xiaochuan Wei, **Mr. Hanhua Luo**, Chuanyang Li Tsinghua University, China
ET0182 10:18-10:24	*Research on the Annual Replenishment and Coordinated Dispatching Strategy for Island Energy Systems Based on the Simulated Annealing Algorithm* **Mr. Weijie He**, Fanrong Wei, Wenhao Yang, Xiangning Lin, Samir M. Dawoud, Muhammad Shoaib Khalid Huazhong University of Science and Technology, China
ET2614 10:24-10:30	*Impact Analysis of Equivalent Electrical Models for Supercapacitor Energy Storage Systems in Urban Rail Transit* **Mr. Hailiang Zhang**, Zhongping Yang, Haocheng Guo Beijing Jiaotong University, China
ET0523 10:30-10:36	*Research on the Enhancement of the Resilience of Transmission Grid under Ice Storms Disaster* Chen Wu, Yigong Xie, Lingfang Li, Meilin Lv, **Ms. Ying Lu**, Ailing Xing, Tao Niu, Guanhong Chen, Sidun Fang Chongqing University, China
ET0553 10:36-10:42	*Low-carbon Economic Dispatch of Power Svstem Considerina Source-load Uncertainties* **Dr. Wang Liao**, Songqing Xie, Dong Liu, Yufeng Wu Shanghai Jiao Tong University, China
ET0613 10:42-10:48	*Short-term Load Forecasting Based on Spatial-Temporal Correlation for Virtual Power Plant* Junkai Zhang, Xuguang Hu, Chengze Ren, Zhaokang Zhan, Tianbiao Wang, **Prof. Dazhong Ma** Northeastern University, China

ET1091 10:48-10:54	*An Overview of Data Center Operation Methods Based On Flexible Power Supply From Renewable Energy Power Plants* Wei Fan, Yang Yi, **Dr. Kanghua Zhong**, Yu Liu, Lu Miao, Yongjun Zhang South China University of Technology, China
ET0800 10:54-11:00	*Joint Scenario Generation for Sources and Loads of Power System Considering Meteorological Factors* Chen Wu, Ye He, Chaoming Zheng, **Mr. Haitao Zhang**, Qiushi Cui, Guanhong Chen, Sidun Fang, Tao Niu Chongqing University, China
ET0840 11:00-11:06	*A Novel Charging Scheduling Strategy for Island Electric Commuter Ship based on Diesel Unit and Wind Power Collaboration* **Ms. Xitao Yuan**, Xiangning Lin, Fanrong Wei, Weijie He, Muhammad Shoaib Khalid, Samir M. Dawoud Huazhong University of Science and Technology, China
ET1783 11:06-11:12	*Coordinated Optimal Scheduling of Power System with Wind Power Considering the Flexibility Space of Energy-intensive Load and Pumped Storage* Lingfang Li, **Mr. Xiaoyu Yue**, Xuehao He, Jiaquan Yang, Ruxiang Pan, Siyang Liao Wuhan University, China
ET0985-A 11:12-11:18	*Numerical Simulation Study on the Effect of Microwave Power on Microwave Vacuum Drying* **Assist. Prof. Wen-Ken Li**, Kai-Hsiang Chuang Chung Yuan Christian University, Taiwan
ET2074 11:18-11:24	*Risk Evaluation for Battery-powered Vessels based on TOPSIS and Bayesian Network* Feng Liu, **Ms. Yubing Wang**, Siqing Guo, Yue Feng, Lei Dai, Hao Hu Shanghai Jiao Tong University, China
ET1230 11:24-11:30	*SCNN-K: An Improved Load Forecasting Method Based on Multi-source Data for Distribution Network* Xuntao Shi, Jian Sun, Yiyong Lei, Hao Yang, **Ms. Runting Cheng**, Liehao Hu South China University of Technology, China
ET2574 11:30-11:36	*Research on Temperature Correction of Infrared Image based on Multi-emissivity of Substation Equipment* Jialong Dong, **Dr. Sheng Han**, Xiaoqing Han, Wei Guo Taiyuan University of Technology, China
ET2734-A 11:36-11:42	*Real-time Wind Damage Warning Model of Roof-mounted Solar Arrays in Urban Blocks* Yi Liu, **Dr. Yin Gu**, Ranpeng Wang, Zhengzheng Huang, Yongqiang Chen Tsinghua University, China

Session 9 (Online)

Voltage Control and Stability Evaluation

Chair: Chongyu Wang, Hong Kong Polytechnic University, China

10:00-11:45 (GMT+9) | August 8th	Online Room 1: Meeting ID - 871 7564 8320 Meeting link: https://us02web.zoom.us/j/87175648320
ET1743 10:00-10:15	*Transient Voltage Characteristics Analysis of DC Receiving-End Power Grid with Large-Scale Integrated Distributed Photovoltaics* **Ms. Jia Wang**, Zhenyuan Zhang, Jianbo Yi, Zhiyu Chen, Changxuan Liu University of Electronic Science and Technology of China, China
ET1381 10:15-10:30	*Voltage Stability-constrained Transmission Switching with the Minimum Number of Actions* **Ms. Wenjing Yang**, Lei Wang, Hengxu Ha Shandong University of Technology, China
ET1551 10:30-10:45	*Hierarchical Control Strategy for Active Power in Photovoltaic Clusters* **Mr. Haiyang Zhao**, Chao Wang, Hui Cui, Lin Ye, Chuancheng Zhang China Agricultural University, China
ET1690 10:45-11:00	*Improved Induced Current and Voltage of Overhead Ground Wires based on the Grounding Mode Optimization* **Mr. Shuangxi Liu**, Daoyuan Zhao, Tairan Li, Andi Liu, Sha Li State Grid Jinan Power Supply Company, China
ET1900 11:00-11:15	*Output Voltage Tracking of DC-AC Solar Inverters Using Enhanced Grey Fast Convergent Sliding Mode Control* **Prof. En-Chih Chang**, Chun-An Cheng I-Shou University, Taiwan
ET2014 11:15-11:30	*Detection of Interturn Fault in DFIG Using Zero-Sequence Voltage Component* **Dr. Muhammad Shahzad Aziz**, Jianzhong Zhang, Sarvarbek Ruzimov, Latipov Sherkhon, Yongbin Wu Southeast University, China
ET2400 11:30-11:45	*Primary Frequency Regulation Control Strategy with Battery Energy Storage System Based on Allocation Factor and Measured SOC* **Ms. Changxuan Liu**, Jianbo Yi, Zhenyuan Zhang, Shuyi Wang, Jia Wang, Zhiyu Chen University of Electronic Scienceand Technology of China, China

Session 10 (Online)

Electric Vehicles and Power Supply Technology Based on Power Drive

Chair: Yu Huang, Nanjing University of Posts and Telecommunications, China

10:00-12:00 (GMT+9) | August 8th	Online Room 2: Meeting ID - 860 3706 6611 Meeting link: https://us02web.zoom.us/j/86037066611
ET0633 10:00-10:15	*Protection Settings in A Distribution System with A Medium Voltage Motor as Load* **Mr. Antony Jácome-Barrionuevo**, Mateo Quizhpi-Cuesta, Flavio Quizhpi-Palomeque Universidad Polit´ecnica Salesiana, Ecuador
ET0101 10:15-10:30	*Research on Wake-up Method for Lightning Monitoring Systems in Transmission Lines* Xiaomin Ma, Fan Liu, Xiaojiang Liu, Li Chen, **Ms. Zhiling Chen** Chongqing University, China
ET1180 10:30-10:45	*Multi-time Scale Optimal Operation of Virtual Power Plants with Integrated EV Charging and Swapping Stations* **Dr. Hongtao Yuan**, Xiaoyuan Xu, Zheng Yan, Jinsong Liu, Bing Shen, Bingyan Xu Shanghai Jiao Tong University, China
ET1400 10:45-11:00	*Electric Vehicle Fast Charging Space Guidance Strategy Based on Flexible Actor-Critic* Yongcan Wang, Peng Shi, Xi Wang, Baorui Chen, Chengwei Fan, Gang Chen, Runtao Zhang, **Mr. Yunyang Li** Southwest Jiaotong University, China
ET1863 11:00-11:15	*Modular Configuration Method of Urban Rail Transit Energy Storage System Considering Energy Saving and Emergency Power Supply* **Dr. Yajie Zhao**, Fei Lin Beijing Jiaotong University, China
ET2372 11:15-11:30	*Design and Vibration and Noise Characteristics of In-wheel Vernier Motor* **Dr. Cheng Pi**, Bo Jiang, ZiWei Zhou East University of Heilongjiang, China
ET2785 11:30-11:45	*Dynamic Process of Power Grid Cascading Failure* **Mr. Hanyang Liu**, Yifei Wang, Minghe Wu, Jun Liu Southeast University, China
ET0111 11:45-12:00	*Low-Power Optimization Method for Fire Early Warning Systems in Transmission Lines* Xiaomin Ma, Fan Liu, Yicen Liu, Li Cheng, **Ms. Zhiling Chen** Chongqing University, China

Session 11 (Online)

Power Transmission and Line Protection

Chair: En-Chih Chang, I-Shou University, Taiwan

13:30-15:15 (GMT+9) | August 8th	Online Room 1: Meeting ID - 871 7564 8320 Meeting link: https://us02web.zoom.us/j/87175648320
ET0015 13:30-13:45	*Research on the Dynamic Evolution Characteristics of Ground Fault Fire in Cable Lines* Xinqiang Zhou, Wanlin Li, Yu Peng, Chengshan Wan, Kai Chen, Jinhuang Wang, **Ms. Xinyi Wang** State Grid Yibin Power Supply Company, China
ET0422 13:45-14:00	*Additional DQ Axis Improvement of LADRC Subsynchronous Oscillation Suppression Strategy* **Ms. Beilei Ren**, Kun Li Guo, Bo Hao Li, Wei Zheng Cai, Ling Tao Li, Ke Fan Jiang, Hang Li Xi'an Polytechnic University, China
ET1700 14:00-14:15	*Effect of Overhead Transmission Line Arrangement on Energy Losses in Overhead Power Line Ground Wires* **Mr. Shuangxi Liu**, Andi Liu, Daoyuan Zhao, Wenao Ye State Grid Jinan Power Supply Company, China
ET1271 14:15-14:30	*Simulation Study on the Performance of Fiber Wound Composite Insulators based on Micromechanics* Wenhua Wu, **Mr. Lei Yang**, Jinxiang Liang, Hu Zhang, Xuezong Wang, Jing Zhou China Electric Power Research Institute, China
ET1300 14:30-14:45	*Research on Grouping Strategy of Feeders in Distribution Network Considering the Importance Degree of Tie Switches* Minghui Chen, Longbo Luo, Renbo Wu, **Mr. Haocheng Wang**, Hongjun Gao, Junyong Liu Sichuan University, China
ET1713 14:45-15:00	*Induced Current and Voltage of Overhead Power Line Ground Wires in 750-kV Double-Circuit Transmission Lines* **Mr. Chuanjun Shao**, Zhilei Wang, Andi Liu, Xiaoxue Rong State Grid Jinan Power Supply Company, China
ET0783 15:00-15:15	*A Three-Port Cascaded STATCOM with Energy Storage System* **Mr. Neng Peng**, Minxuan Peng, Qionglin Li, Shuangyin Dai, Yi Wang, Xiaoming Zha, Jianjun Sun Wuhan University, China

Session 12 (Online)

Control Models and System Performance Analysis in Smart Grids and Power Systems

Chair: Xiaolong Li, Shenyang University of Technology, China

13:30-15:15 (GMT+9) | August 8th	Online Room 2: Meeting ID - 860 3706 6611 Meeting link: https://us02web.zoom.us/j/86037066611
ET2331 13:30-13:45	*A Real-Time IoT-Based Data Acquisition and Monitoring System for Photovoltaic Applications* **Mr. Adam Barbosa**, Hamza Mubarak, Fazel Mohammadi, Mohammad J. Sanjari, Mehrdad Saif University of Windsor, Canada
ET2153 13:45-14:00	*Coordinated Control Strategies for Parallel Matrix Converters Based on Shared SVPWM* **Dr. Zhuoqun Wu** Yanshan University, China
ET0251 14:00-14:15	*Privacy-preserving Multiarea Economic Optimization In Power System Using Homomorphic Encryption* **Mr. Zhenyang Yan**, Yujian Ye, Xijin Guo, Hao Hu, Xiangpeng Xie Nanjing University of Posts and Telecommunications, China
ET1431 14:15-14:30	*Applying Bootstrap Resampling and Multi-Objective Optimization to Improve Non-Intrusive Load Monitoring* Xinhe Yang, Gengsheng He, **Mr. Junyi Tao**, Jincan Zeng, Xinyue Yan, Shangheng Yao, Shuhan Zhang, Ran Li, Shuangyuan Wang Shanghai Jiao Tong University, China
ET1500 14:30-14:45	*Output Power Boost Method of Magnetic Field Energy Harvester with Air Gaps Based on Controllable Rectification* Chenjin Xu, **Assoc. Prof. Wei Wang**, Yuchen Shi, Wenbo Su, Zhenya Ji, Minqiang Hu Nanjing Normal University, China
ET1964 14:45-15:00	*Effect of High Proportion Wind Energy Penetration on the Operation Characteristics of Transformer in Distribution Network* Mengzhao Zhu, **Dr. Zhaoliang Gu**, Wenbing Zhu, Qingdong Zhu State Grid Shandong Electric Power Research Institute, China
ET1541 15:00-15:15	*Comparative Study for Different Kinds of Matrix Converters* **Dr. Zhuoqun Wu** Yanshan University, China

Session 13 (Online)

Load Forecasting, Optimized Control, and Management in Power and Energy Engineering

Chair: Zhuoqun Wu, Yanshan University, China

16:00-17:45 (GMT+9) | August 8th	Online Room 1: Meeting ID - 871 7564 8320 Meeting link: https://us02web.zoom.us/j/87175648320
ET0082 16:00-16:15	*WOA-XGBoost Short-term Wind Power Prediction Model Based on Error Correction* **Ms. Haolan Hu**, Lin Ye, Bo Sun, Yan Wang, Shangqiu Shi, Lue Sun China Agricultural University, China
ET2694 16:15-16:30	*Comparison Between Two Structures of CZTS Thin Film Solar Cell and Impact of Defects on Different Layers and Their Interfaces* Tanima Aktar, Amit Hasan Pranto, Ummae Habiba Jahan Aney, **Dr. Tasnia Hossain** University of Asia Pacific, Bangladesh
ET0623 16:30-16:45	*Microgrid Energy Management Considering Communication: A Bayesian Deep Q-learning Learning Approach* **Mr. Qinhan Hu**, Yujian Ye, Yizhi Wu, Xiangpeng Xie Nanjing University of Posts and Telecommunications, China
ET0911 16:45-17:00	*Probabilistic Forecasting Based Stochastic Optimal Bidding Strategy for a Wind-Storage Integrated System in Joint Electricity and Reserve Markets* **Mr. Kun Xiao**, Ximu Liu, Yujian Ye Southeast University, China
ET1281 17:00-17:15	*Optimized Inspection Timing Strategy Based on Load Forecasting* **Mr. Qi Li**, Yanfang Ma State Grid Tianjin Electric Power Company, China
ET2110 17:15-17:30	*A Model-Based Approach for Minimizing Specific Energy Consumption in Variable Speed Driven Pumping Systems* **Assoc. Prof. M.I. Jahmeerbacus** University of Mauritius, Mauritius
ET2463 17:30-17:45	*Vehicle-to-Grid Technology meets Packetized Energy Management: A Co-Simulation Study* **Mr. Freddy Tuxworth**, Adnan Aijaz Toshiba Europe Ltd., United Kingdom

Session 14 (Online)

System Security and Energy Optimization in Power Systems

Chair: Qiuqin Sun, Hunan University, China

16:00-17:45 (GMT+9) | August 8th	Online Room 2: Meeting ID - 860 3706 6611 Meeting link: https://us02web.zoom.us/j/86037066611
ET1250 16:00-16:15	*Fast Adjustment Method for Firing Angle of Dynamic Harmonic Distorted Commutation Voltage* **Mr. Hongjian Sun**, Zongshuai Jin, Xinyao Yu, Ke Xu, Xinhao Wang, Jiacheng Ruan, Fang Shi, Chen Feng Shandong University, China
ET1025 16:15-16:30	*Effect of Al2O3@SiO2 Core-shell Nanospheres on the Electrical Conduction Properties of Polypropylene* Xuening Wang, Zeqin Liu, Wanting Jiang, Xuanhe Liu, **Assoc. Prof. Zhipeng Lei**, Rujia Men, Yuanyuan Li Taiyuan University of Technology, China
ET2442 16:30-16:45	*Distributed Network Carbon Emission Forecasting Based on Adaptive Graph Convolutional Recurrent Neural Networks* **Ms. Binxie Ren**, Pengfei Zhao, Shi Jing, Zhenyuan Zhang, Ying Liu, Zheng Wang University of Electronic Science and Technology of China, China
ET2600 16:45-17:00	*Research on Improved FBD Harmonic Detection Method Based on CNF-DSOGI* **Mr. Bo Jiang**, Ying Xue, Cheng Pi, Ziwei Zhou East University of Heilongjiang, China
ET1242 17:00-17:15	*Exploring Carrier Injection and Migration Behavior in β-Nucleation Regulated Polypropylene Insulation* **Mr. Heyu Wang**, Zhonglei Li, Yaqing Zheng, Boxue Du Tianjin University, China
ET1873 17:15-17:30	*Research on Energy Storage Optimization Scheduling Considering the Scheduling Potential of 5G base Stations* Haifeng Liang, **Ms. Lei Tan** North China Electric Power University, China
ET2245 17:30-17:45	*Aggregation and Comprehensive Assessment for Renewable Energy and Energy Storage Integrated into Power Grid* **Mr. Xunjun Chen**, Yingjing He, Quanyuan Jiang, Guangchao Geng, Cenfeng Wang, Keping Zhu Zhejiang University, China

Delegates

Abdulelah Al Noaim, Saudi Aramco, Saudi Arabia	Qin Jiang, Sichuan University, China
Ailing Xing, Chongqing University, China	Qingmin Li, North China Electric Power University, China
Baohong Li, Sichuan University, China	Ranpeng Wang, Tsinghua University, China
Ba Djibeyrou, Renewable Energy Institute, Japan	Runjia Sun, Shandong University, China
Boya Zhang, Xi'an Jiaotong University, China	Ruoyu Wang, Georgia Institute of Technology, United States
Changhee Han, Gyeongsang National University, Republic of Korea	Sang Woo Joo, Yeungnam University, Korea
Chen Feng, Shandong University of Science and Technology, China	Seungmin Jung, Hanbat National University, Republic of Korea
Chih-En Lin, Amazon, Taiwan	Shuai Han, State Grid Japan Representative Office, Japan
Do-Hyung Park, Kookmin University, The Republic of Korea	Siyang Liao, Wuhan University, China
Doosoo Hyun, Dongyang Mirae University, Republic of Korea	Sunho Park, Dankook University, South Korea
Fahad Abdullah Alanazi, SHARQ, Saudi Arabia	Tai Jin, Sichuan Energy Internet Research Tsinghua University, China
Guannan He, Peking University, China	Tingjun Li, Taiyuan University of Technology, China
Haocheng Wang, Sichuan University, China	Wei Kuang, Sichuan University, China
Hongchao Gao, Tsinghua University, China	Wei-Chun Chen, National Applied Research Labora, Taiwan
Hyun Seung Cho, Yonsei University, Republic of Korea	Xiaohong Dong, Hebei University of Technology, China
Ikuo Hoshino, Energy Exemplar Pty Ltd., Japan	Yeuntae Yoo, Myongji University, Republic of Korea
Jehyuk Won, Gachon University, South Korea	Yi Liu, Tsinghua University, China
Jinyoung Jung, Korea Automotive Technology Institute, Republic of Korea	Yongqiang Chen, Peking University, China
Jonghoon Kim, Chungnam National University, Republic of Korea	Yujian Ye, Southeast University, China
Jui-Hung Hsieh, National Kaohsiung University of Science and Technology, Taiwan	Yutong Wu, Tianjin University, China
Jung-Kyu Han, Hanbat National University, South Korea	Yuxiang Yuan, State Grid Japan Representative Office, Japan
Lijun Jin, Tongji University, China	Zhejing Bao, Zhejiang University, China
Lu Nan, Sichuan University, China	Zhengzheng Huang, Tsinghua University, China
Qiang Weng, State Grid Japan Representative Office, Japan	Zong Woo Geem, Gachon University, South Korea
Qiao Peng, Sichuan University, China	Zongshuai Jin, Shandong University, China
Qifang Chen, Beijing Jiaotong University, China	

Cultural Visit

11:00-18:00 | Aug. 8, 2024

The University Museum

The University of Tokyo

Brief Introduction:

The University Museum, The University of Tokyo (UMUT), was founded as the University's storage center in 1966, where research materials collected by the faculty members. These materials, right from those on earth sciences and biological sciences to an extensive collection of items related to cultural sciences and other fields accumulated since the university’s inception in 1877, are remarkable not only for their variety but also their number—over 4 million specimens, proof of the university’s continuous research and education activities.

Notice

1. Price: Free
2. The museum opens at 11:00 AM and closes at 6:00 PM. Interested participants may register and apply for appointments with the organizing committee. Following approval, visitors are welcome to explore the museum during the scheduled visitation time on their own.

One-day Visit

9:00-19:00 | Aug. 8, 2024

From Tokyo to Kamakura

Kamakura Daibutsu

The Kamakura Daibutsu (鎌仓大佛), also known as the Great Buddha of Kamakura, is a bronze statue of Amida Buddha located at Kotokuinn (古德院) in Kamakura. Built in 1252, it represents the Kamakura period's style, with a serene expression and designated as a National Treasure of Japan.

Kamakura Koukou Mae Eki

Kamakura Koukou Mae Eki (鎌仓高校前站) is a railway station operated by Enoshima Electric Railway located in Kamakura, Kanagawa Prefecture, Japan. It is an unmanned station along the Enoshima Electric Railway Line. The station offers scenic views of the nearby coastline of Shitirigahama (七里滨), across Route 134. From the platform, visitors can enjoy picturesque views of the seaside.

Komachi Dori

Komachi-dori (小町通) is a famous shopping street known for local delicacies, unique gifts, and friendly service. It's a must-visit for international tourists looking to experience authentic Japanese cuisine and hospitality while exploring Kamakura.

Enoshima

Enoshima (江之岛) is a 4-kilometer-long, 60-meter-high island located in Fujisawa City, Kanagawa Prefecture, Japan. Situated at the mouth of the Katase River as it flows into Sagami Bay, Enoshima is now the central hub of the Shonan region and a popular tourist destination along the Sagami Bay coastline.

Notice

1. Price: 85USD per person (Excluding dinner and other personal expenses).
2. Lunch: Ramen
3. The driver takes tourists to each scenic spot, and tourists tour by themselves without a tour guide.
4. Each scenic spot has a prescribed tour time. After the tour, tourists need to gather at the pick-up point and get on the car.
5. Pick-up and Drop-off Location: The University of Tokyo — Main Gate.