14th INTERNATIONAL CONFERENCE on RENEWABLE ENERGY RESEARCH and APPLICATIONS (ICRERA 2025), Vienna, Austria

October 27 – October 30, 2025

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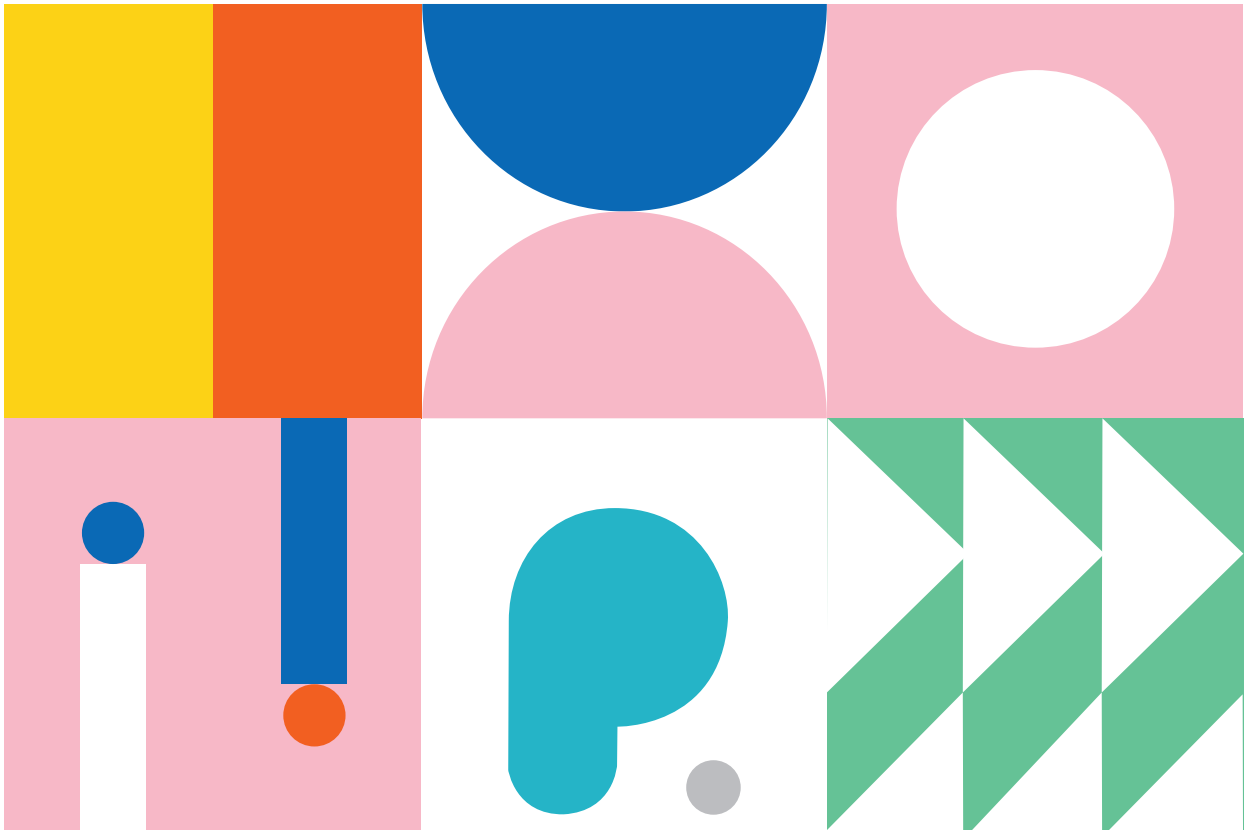

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TOPICS

Topics within the scope of the conference include the following areas, but not limited to:

- Renewable (Green) Energy Systems and Sources (RESSs) as Wind Power, Hydropower, Solar Energy, Biomass, Biofuel, Geothermal Energy, Wave Energy, Tidal energy, Hydrogen & Fuel Cells, Energy Storage
- New Trends and Technologies for RESSs
- Policies and Strategies for RESSs
- Energy Transformation from Renewable Energy System (RES) to Grid
- Novel Energy Conversion Studies for RESs
- Power Devices and Driving Circuits for RESs
- Control Techniques for RESs
- Grid Interactive Systems Used in Hybrid RESs
- Performance Analysis of RESs
- Hybrid RESSs
- Decision Support Systems for RESSs
- Renewable Energy Research and Applications for Industries
- RESSs for Electrical Vehicles and Components
- Artificial Intelligence and Machine Learning Studies for RESs and Applications
- Computational Methods for RESSs
- Energy Savings for Power Electronics, Vehicular Technology, Electric Machinery and Control, etc.
- New Approaches in Lightings
- Public Awareness and Education for Renewable Energy and Systems
- Reliability and Maintenance in RESSs
- Smart grids and RESSs
- Safety and Security of RESSs
- Renewable Energy Systems in Smart Cities
- Future Challenges and Directions for RESSs
- IoT for RESSs
- Energy Management, VPP(Virtual Power Plant) and ERAB (Energy Resource Aggregation Businesses) for RESSs
- Model based Design and Digital Twin for RESSs

LANGUAGE

The official language of the ICRERA conference is English

WELCOME to ICRERA 2025

Dear Colleagues,

The purpose of the International Conference on Renewable Energy Research and Applications (ICRERA) 2025 is to bring together researchers, engineers, manufacturers, practitioners and customers from all over the world to share and discuss advances and developments in renewable energy research and applications.
After the successes of the first, the second, the third, the fourth, the fifth , the sixth, the seventh, the eighth, the ninth, the tenth, the eleventh, the twelfth, and the thirteenth, editions of ICRERA in Nagasaki (2012), Madrid (2013), Milwaukee (2014), Palermo (2015), Birmingham (2016), San Diego (2017), Paris (2018), Brasov (2019), Glasgow (2020), Istanbul(2021), Istanbul(2022), Oshawa (2023), Nagasaki (2024), the 14th ICRERA 2025 is going to be organized by the technical co-sponsorship of IEEE IES and IAS in Vienna, Austria on October 27-30, 2025. Attending ICRERA 2025 will benefit you to meet well-known expert keynote speakers, tutorial organizers, special session organizers as well as young and many other colleagues coming from more than 60 countries.

It is our happiness to share with you that selected 100 papers out of 310 papers at ICRERA2024 have been proposed for possible publications in

- IEEE Transactions on Industrial Applications (30 papers) cited in SCI-Expended
- International Journal of Renewable Energy Research (35 Papers) cited in ESCI,
- International Journal of Smart Grid (35 papers) cited in Google Scholar,

and
Up to 2024, all papers presented ICRERA have been cited in IEEE Xplore, SCOPUS and Web of Science (Clarivate Analytics).
According to WEB of Science (Clarivate Analytics) in 2023;
h-index = 24
Average citation per item = 4.3
5 Years Impact Factor = 12.35

ICRERA aims to present important results to the international renewable energy community in the form of research, development, applications, design, and technology. It is therefore intended to assist researchers, scientists, manufacturers, companies, communities, agencies, associations and societies to keep abreast on new developments in their specialties and to unite in finding alternative energy solutions to current issues such as the greenhouse effect, sustainable and clean energy issues.

Dipl.-Ing. (FH) Johannes GRAGGER,
General Chair, ICRERA 2025

Professor Ilhami COLAK,
General Co-Chair, ICRERA 2025

Professor Fujio KUROKAWA,
General Co-Chair, ICRERA 2025

KEYNOTE SPEAKERS

Keynote 1: Mr. Makoto Yoshimura, Deputy Vice President & Technology Executive Power Electronics System Division, TMEIC Corporation

Date : October 28, 2025 9.00-10.00 AM

Biography:

Makoto Yoshimura serves as the Executive Officer and Deputy Vice President & Technology Executive of Power Electronics System Division, a role he assumed in April 2024. Yoshimura began his career with TMEIC Corporation in October of 2003, during the formation of the joint venture between Toshiba and Mitsubishi Electric. Yoshimura started in the Power Electronics System Division and was responsible for motor drive system design and development from 1989. And in October of 2017, Yoshimura was appointed the President and CEO of TMEIC Power Electronics Products Corporation in U.S.A. And in April of 2019, Yoshimura returned to TMEIC corporation in JAPAN and was appointed the Technology Executive of Industrial system Division and Renewable Energy & New technology Division. Yoshimura was born in Kure, Hiroshima Prefecture and graduated from Kyushu University with a BS in Electrical Engineering and a MS in Electrical Engineering. His current focus is to guide TMEIC Power Electronics business's further development and future growth.

Growth Power Electronics Technology to Realize the Carbon Neutral Society

Summary: In June 2025, the European Commission, together with the COP30 Presidency, Brazil, and the IEA, hosted the first High-Level Energy Transition Dialogue in Brussels. The event focused on accelerating the global shift away from fossil fuels in preparation for COP30 in November. A key highlight was affirming again the global goals made at COP28: to triple renewable energy capacity and double energy efficiency by 2030. These ambitious goals underscore the urgency of deploying innovative clean energy solutions. This presentation focuses on Power Electronics technology, highlighting its essential role in every solution aimed at reaching that goal.

TMEIC continues to develop power electronics technology under the concept of "PEiE: Power Electronics in Everything." This presentation introduces the latest development activities aimed at realizing a carbon-neutral society, showing topics applied in large-scale industries.

The first topic is high-capacity Power Electronics technology for expanding Renewable Energy. Renewable Energy is going to become the main player in electric power generation, replacing fossil-fueled generation. Energy Storage System will also play important roles in the future energy network. Power Electronics technology provides grid-forming functions for renewable energy and energy storage systems. Power Electronics also contributes to power transmission from remote Renewable Energy.

The second topic relates to Green Hydrogen. In fossil fuel driven sectors where electrification is difficult, switching to clean fuels, including Green Hydrogen, is essential. The mass production of Green Hydrogen requires high-capacity Power Electronics technology compatible with future power networks. This presentation introduces recent applications of Power Electronics in development projects in Japan.

The third topic moves to digital networks for information and communication. The digital networks will play a key role in dynamically managing and operating the future energy networks. Today, another major trend is the rise of AI, which requires large data centers. This presentation reminds that these digital networks require large scale secure electric power supply. Power Electronics technology provides the necessary power supply solutions.

The final topic introduces the Power Electronics technologies applied to industrial sectors. For achieving Carbon Neutral Society, conventional electrification solutions are often inadequate for large-scale industries. High-capacity Power Electronics technology enables electrification of facilities rated at tens of MW. The high-capacity Power Electronics also improves energy efficiency by optimally managing MW-rated systems.

Keynote 2: Professor Khaled H. Ahmed University of Strathclyde, Glasgow, UK

Date : October 28, 2025 10.10-11.10 AM

Biography:

Prof Khaled Ahmed received the BSc and MSc degrees from Alexandria University, Egypt in 2002 and 2004, respectively. He received the PhD degree in power electronics applications from the Electronic and Electrical Engineering Department, University of Strathclyde, UK, 2008. In 2011, he was appointed as a Lecturer in Power Electronics at the University of Aberdeen, and was promoted to Senior Lecturer in 2015. Currently, He is a Professor of power electronics at the University of Strathclyde (Power Electronics, Drives and Energy Conversion Group). He has over 20 years of research experience in power electronics, renewable energy integration, solar energy systems, off-shore wind energy conversion systems, smart grids, DC/DC Converters and HVDC. He has won funding of £5.2 million as Primary and Co-Investigator on projects funded by EPSRC, the EU, KTP, the British Council, the Royal Society, the Carnegie Trust, the Scottish Funding Council, the Oil and Gas Technology Centre, and industry (Rolls-Royce, Scottish Power, and Scottish and Southern Energy). Recent funding included Orion Project (first Energy Hub in the UK), £630k, funded by BP, Shell, Equinor, Ithica Energy, SIC, and SSE, 2021-2024 and Horizon EU project, 'Reliable and resilient AC & DC grid design to accelerate the integration of renewables across Europe', £560k with 13 international academic and industrial partners 2022-2026 and Neom Ltd Project 'Grid Code Development' £748k, 2022-2023. He has supervised 25 PhD students; 15 have graduated and the others are ongoing. Prof. Ahmed has published over 180 technical papers in refereed journals and conferences, 1 book, 1 book chapter, and a patent (PCT/GB2017/051364). Total citations of 6404 and h-index of 32. Two of his journal papers are rated in the top 1% of those cited in the academic field of Engineering (Web of Science). He has led the design and delivery of continuing professional development (CPD) courses on HVDC, wind energy conversion systems for technology engineering team in Scottish Power, and Scottish and Southern Energy (SSE), UK. He is a senior member of the Institute of Electrical and Electronics Engineers (IEEE) Industrial Electronics and Power Electronics Societies, IET Fellow, Chartered Engineer, and Senior Fellow of Higher Education Academy (HEA). He serves as a Co Editor-in-Chief of Elsevier Alexandria Engineering Journal, and as an Associate Editor of IEEE Open Journal of the Industrial Electronics Society (OJIES), IET Generation, Transmission & Distribution and IEEE Access.

Powering the Future: The Next Frontier of HVDC Technology

Summary: The global energy landscape is undergoing a profound transformation, driven by the imperative to integrate renewable sources and interconnect diverse grids. High-Voltage Direct Current (HVDC) technology has emerged as the critical enabler for this new era, moving beyond its traditional niche to become the backbone of the future power system. This talk explores the next frontier of HVDC, outlining its transformative potential to unlock remote renewable energy resources, establish resilient transnational supergrids, and enhance grid stability through advanced control capabilities.

The key technological advancements propelling this evolution, including the maturation of VoltageSource Converter (VSC) technology, the development of hybrid and multi-terminal systems (MTDC), and innovations in power electronics and semiconductor devices will be discussed. Furthermore, the discussion extends to the symbiotic relationship between HVDC and digitalisation, highlighting how artificial intelligence and real-time data analytics are optimising operation, predictive maintenance, and fault management.

Looking ahead, the application of HVDC is expanding into new and unprecedented domains. The technology is now seen as a cornerstone for massive offshore wind integration and the development of intercontinental 'supergrids' that can balance renewable generation across time zones. Furthermore, the concept of 'green hydrogen' production, coupled with HVDC links from remote solar and wind farms, presents a viable pathway for decarbonising industrial sectors. These applications underscore a shift in

perception. HVDC is no longer just a point-to-point connection but the foundational architecture for a new, climate-positive energy ecosystem.

However, realising this full potential requires navigating a complex web of multi-disciplinary challenges. Beyond the technical hurdles, significant barriers exist in regulatory harmonisation, financing models for multi-national projects, and public acceptance of new infrastructure. The future development of HVDC will therefore depend as much on geopolitical cooperation and innovative business cases as on pure engineering breakthroughs. Success will be measured by the ability to create a supportive policy environment that encourages investment and international collaboration.

While the path forward is promising, it is not without its challenges. The talk also touches upon the hurdles that must be overcome, such as the need for standardised international frameworks,substantial upfront investment, and the development of a skilled workforce. Ultimately, this analysis concludes that HVDC is not merely an alternative but is fundamental to building a sustainable, secure, and interconnected global energy future. The next frontier of HVDC technology is here, promising to power our future with unprecedented efficiency and scale.

Keynote 3: Professor Junichi Itoh, IEEE Fellow from Nagaoka University of Technology, Japan

Date : October 29, 2025 9.00-10.00 AM

Biography:

Jun-ichi Itoh received Ph.D. degree in electrical and electronic systems engineering from Nagaoka University of Technology, Niigata, Japan in 2000.. From 1996 to 2004, he was with Fuji Electric Corporate Research and Development Ltd., Tokyo, Japan and he was with Nagaoka University of Technology, Niigata, Japan as an associate professor. Since 2017, he has been a professor. His research interests are matrix converters, dc/dc converters, power factor correction techniques, and adjustable speed drive systems.

He received the IEEJ Academic Promotion Award (IEEJ Technical Development Award) in 2007. In addition, he also received the Isao Takahashi Power Electronics Award in IPEC-Sapporo 2010 from IEEJ, and 4th Nagamori Awards, 2018 and so on. Dr. Itoh is a Fellow member of the IEEE, and senior member of the IEEJ.

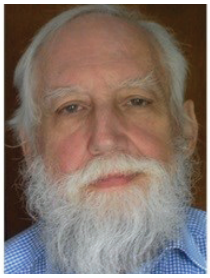
Realization of Integrated Power Conversion Systems through Universal Smart Power Modules

Summary: With the advent of SiC and GaN devices, power converters, including grid connected inverters, have made remarkable advancements in performance. On the other hand, design technologies have become increasingly complicated, requiring significant design time and human resources to accommodate diverse specifications. As the number of skilled designers continues to decline, modularization emerges as a promising approach to meet such demands. While power electronics systems have traditionally been discussed in terms of combinations of four basic discrete parts, switches, diodes, inductors (L), and capacitors (C), they are now approaching a stage similar to integrated circuits (ICs) in electronic circuits.

In response to these demands, this presentation introduces the concept of the Universal Smart Power Module (USPM). The USPM is a power electronics module that integrates not only the main circuit and protection functions but also the controller. Users can construct a power conversion system by combining multiple USPMs according to their specific requirements. Since all the complexities of implementation, such as noise mitigation and thermal management, are encapsulated within the USPM, anyone can easily build a power electronics system. This talk will present the USPM concept along with the key enabling technologies required for its realization.

Keynote 4: Professor Felix Himmelstoss, FH Technikum Wien, Austria

Date : October 29, 2025 10.10-11.10 AM



Biography:

Felix A. Himmelstoss was born in 1956 in Moedling, Austria. He received the Dipl.-Ing. and Dr. (PhD) degrees from University of Technology Vienna, in 1981 and 1990, respectively. Since 1982 he has been working on different projects for Austrian companies developing power supplies and electrical drives. He is author of numerous technical and scientific papers and patents. His main research interests are converter topologies and their control. Dr. Himmelstoss is professor and program director emeritus of the Master Course Power Electronics of the University of Applied Sciences Technikum Wien.

Tristate converters

Summary: In a tristate converter the basic circuit topology of a DC/DC converter is extended by an additional electronic switch and an additional diode. Three modes follow each other within one switching period. During the first mode M1, both electronic switches are on and both diodes are off. In the second mode M2, only the second switch is on and the first diode is conducting, and in mode M3, only the second diode is conducting. The voltage transformation ratio is a function of the two duty cycles of the electronic switches. In a typical tristate converter, the current flows through the second switch during the first two modes. In the converters especially treated here, the current is flowing through the second switch only during the second mode, so the losses are reduced compared to the normal tristate converter. This is shown for the Buck, the Buck–Boost, the Boost, the Zeta, the Cuk, the Super Boost, the quadratic Buck, and a reduced-duty cycle converter. The voltage transformation ratios are depicted in diagrams. As an example the reduced loss tristate Buck is used to demonstrate the derivation of the large and the small signal models. The transfer functions are also calculated and Bode plots are shown for an operating point. A very interesting feature of tristate converters with step-up possibility is that with a special control the small signal behavior is that of a phase-minimum system. The voltage and the current stress of the converters are analyzed and the results are summarized in tables. The considerations are proved by simulations with the help of LTSpice.

TUTORIALS

Tutorial 1: Empowering the Renewable Energy and Smart Grid with Generative AI: Opportunities, Risks, and the Road Ahead
Date : October 27, 2025 10.00-11.00 AM

Organizer: Professor Seref Sagıroglu, Gazi University, Ankara, Türkiye

Biography:

Prof. Dr. Seref Sagiroglu completed his undergraduate education at Erciyes University, Department of Electronics Engineering, and his doctoral studies at the University of Wales College of Cardiff (now Cardiff University, UK). He continues his academic career as a full professor of software engineering at Gazi University's Computer Engineering Department. Sagiroglu has an outstanding academic with more than 12.000 citations; almost 400 articles published in SCI/SSCI indexed journals, national and international conferences, symposium and workshops, editor of more than 20 books, owns 4 patents, and has completed national and international projects on cyber security, big data, intelligent modeling and control, biometric, etc. Sagiroglu organized more than 50 national and international events on artificial intelligence, 5G, Big Data, Machine Learning, Deep Learning, Information and Cyber Security, Privacy, IPv6, etc., as a chairman or co-chairman; had such duties as President and Executive Committee Members of many NGOs; completed the duties as the Deans of Graduation School of Science and Technology and Engineering Faculty, and Head of Computer Engineering Department at Gazi University; Editors of International Journal of Information Security Science; International Journal of Information Security Engineering; CyberMag; Member of Cyber Security Group of Higher Education Council of Turkey; contributed to consultants to Havelsan; IT Regulatory Body of Turkey and Personal Data Protection Regulatory Body of Turkey; the president of the 26th Chamber of Electrical Engineering Ankara Branch; established Gazi AI Center, Gaz Big Data Center; undergraduate and graduate programs of information security, big data analytics privacy and security, software engineering; big data analytic center has delivered as invited or keynote speakers more than 500 seminars, talks, conferences at universities and sectors; TV and Radio Programs, institutions and organisations in the topics of Information Security, Big and Open Data, Cyber Security and Defense, Artificial Intelligence (AI), Generative AI, Computer and Software Engineering, Privacy, Biometrics, Innovation Culture Creation, IPv6, 5G, etc. He is now the chairman of IEEE Blockchain Turkiye; Director of the AI and Big Data Laboratory of Gazi University, Vice President of Information Security Association of Turkiye.

Empowering the Renewable Energy and Smart Grid with Generative AI: Opportunities, Risks, and the Road Ahead

Summary: The global energy landscape is undergoing an unprecedented transformation, driven by the urgent need for decentralized, resilient, and sustainable infrastructures. Within this dynamic shift, Generative Artificial Intelligence (GenAI) is emerging as a pivotal force, poised to fundamentally redefine the capabilities of renewable energy systems and smart grids. This talk will explore the profound impact of GenAI, moving beyond conventional automation to unlock new paradigms in energy forecasting, distribution, management, and security. The speech would focus on the most recent advancements and cutting-edge applications, showcasing how GenAI is revolutionizing the sector.

This includes sophisticated AI-driven demand response mechanisms that adapt to real-time fluctuations, the creation of hyper-realistic synthetic data for robust grid simulations and training next-generation energy models, proactive anomaly detection that anticipates and mitigates disruptions, and intuitive natural language interfaces that make complex energy systems more accessible and manageable. However, this transformative potential is accompanied by critical considerations. In the talk, these topics will be critically examined by evolving challenges presented by GenAI within critical infrastructure, specifically focusing on heightened cybersecurity risks, the imperative for explainable AI to ensure transparency and trust in autonomous decisions, and the complex landscape of regulatory uncertainties.

Drawing upon insights from recent real-world pilot programs, pioneering academic research, and prevailing industry trends, this presentation will purpose a future-ready framework. This framework seamlessly integrates trustworthy GenAI principles with established grid reliability and resilience standards, providing a roadmap for secure and sustainable implementation.

Our objective is to empower a diverse audience, from engineers and data scientists to policymakers, to leverage GenAI not merely as a tool for efficiency, but as a strategic catalyst for constructing the next generation of sustainable, secure, and truly intelligent renewable energy networks.

Tutorial 2: DC Microgrids for a Greener and More Efficient Future: A Review of Current Research Trends

Date : October 27, 2025 11.20-12.20 AM

Organizer: Professor V. Fernão Pires, Polytechnic Institute of Setúbal, Portugal

Biography:

V. Fernão Pires (M'96–SM'09) received the B.S. degree in Electrical Engineering from Institute Superior of Engineering of Lisbon, Portugal, in 1988 and the M.S. and Ph.D. Degrees in Electrical and Computer Engineering from Technical University of Lisbon, Portugal, in 1995 and 2000, respectively. Since 1991, he has been a member of the teaching staff with the Electrical Engineering Department, Superior Technical School of Setúbal—Polytechnic Institute of Setúbal. He is currently a Professor teaching power electronics and control of power converters. He is also a Researcher with the Instituto de Engenharia de Sistemas e Computadores—Investigação e Desenvolvimento em Lisboa (INESC-ID). His work has resulted in more than 300 publications. He is member of IEEE since 1996 and senior member since 2009. He is currently serving in IEEE IES Technical Committee in Power Electronics. He is an evaluator of research proposals for several international funding agencies He was the general chair of the international conference icSmartGrids 2021, icSmartGrids 2024 and general co-chair of the IEEE CPE-POWERENG 2020. He was also one of the founders of the IEEE POWERENG conference series. He has been Program Committee and/or Track Chair member of several international conferences (IECON, ISIE, CPE, ICELIE, POWERENG, ICMLA, INTELEC, ICRERA, ICPEA, PEMC, TENSYMP, BEC, ICEEEP, SMARTGREENS, GreenCom).

DC Microgrids for a Greener and More Efficient Future: A Review of Current Research Trends

Summary: A significant paradigm shift is emerging within electrical distribution networks. Although these grids have historically relied on AC (alternating current) transmission, recent technological advances have positioned DC (direct current) distribution as a promising and viable alternative. Today, we are seeing a massive increase in DC equipment, including renewable energy sources and storage systems.

As a result, DC networks have become critical for the quick and seamless integration of this technology into existing electrical grids. However, the development of these networks is not driven solely by the number of new DC devices. Compared to traditional AC transmission systems, DC networks are more efficient and reliable, and they avoid issues with reactive power and frequency control. Despite these advantages and extensive research, standardization has yet to be established for several technical aspects. This uncertainty remains an obstacle to a faster transition to DC systems. Furthermore, more research is needed to make this technology a viable daily solution and to fully explore its many potential applications.

Finally, there are significant opportunities to apply these DC microgrids across various sectors, but many remain unaddressed. All of these aspects represent critical challenges that must be addressed. This talk will provide an overview of existing and potential solutions for this type of microgrid. Furthermore, it will focus on the obstacles that still need to be faced. These include not only technical aspects but also those related to the required legislation.

Tutorial 3: From Microgrids to Smart Interlinked Systems: Next-Generation Energy Management

Date : October 27, 2027 12.40-13.40 PM

Organizers: Dr. Javad Khazaei, Lehigh University, U.S.
Dr. Faegheh Moazeni, Lehigh University, U.S.

Biography:

Dr. Javad Khazaei is an Assistant Professor in the Department of Electrical and Computer Engineering at Lehigh University, U.S. and the Director of the INTEGrated, Resilient, and Intelligent EnergY Systems (INTEGRITY) Laboratory. Between 2016 and 2021, he was an Assistant Professor at Penn State Harrisburg and an Affiliated Assistant Professor in the Architectural Engineering Department at Penn State University Park, U.S. He earned his Ph.D. in Electrical Engineering (Power and Energy) from the University of South Florida (USF) in 2016. Dr. Khazaei's research focuses on smart grid dynamics and control, datadriven model identification and control, water-energy microgrids, smart grid cybersecurity, and the integration of renewable energy into cyber-physical power systems. In this tutorial, he will introduce the fundamentals of energy management in microgrids, with a focus on modeling, control, and optimization techniques, and provide a hands-on MATLAB session to demonstrate implementation and simulation strategies.

Biography:

Dr. Faegheh Moazeni is the Director of the interconnected Critical infrastructure systems engineering (CONCISE) laboratory and an Assistant Professor in the Department of Civil and Environmental Engineering at Lehigh University, U.S. She holds a B.Sc. and M.Sc. in Chemical Engineering from Sharif University of Technology and a Ph.D. in Civil and Environmental Engineering from the University of Nevada, Las Vegas (UNLV). Her research focuses on cybersecurity, optimization, and control of interconnected water and energy systems, with a particular emphasis on the water-energy nexus and mathematical optimization frameworks for resilient and efficient operations. Dr. Moazeni is currently serving as the chair of Efficient Combined Operation of Water Energy Systems (ECO-WES) Task Committee under American Society of Civil Engineers (ASCE). In this tutorial, Dr. Moazeni will extend the discussion of microgrid energy management to interlinked infrastructure systems, presenting advanced modeling, co-optimization strategies, and real-world applications in water-energy microgrids.

From Microgrids to Smart Interlinked Systems: Next-Generation Energy Management

Summary: This tutorial, presented by Dr. Javad Khazaei and Dr. Faegheh Moazeni, offers a comprehensive overview of microgrids, advanced energy management strategies in microgrids, and their extension to interlinked infrastructure systems such as water-energy microgrids. The session begins with an introduction by Dr. Khazaei, focusing on the fundamentals of microgrid operation, optimization, and control. Topics will include modeling inverter-based resources (IBRs) and their constraints, energy scheduling problems in microgrids including economic dispatch and optimal power flow. Attendees will gain hands-on experience with MATLAB modeling and coding, learning to implement and simulate optimization algorithms for microgrid energy management.

Building on these foundations, Dr. Moazeni will expand the discussion to the co-optimization and control of interdependent infrastructures, emphasizing the unique challenges and opportunities in integrating water and energy systems. The session will explore state-of-the-art modeling approaches, cyber-physical interdependencies, and real-time decision-making frameworks that enhance operational resilience and efficiency.

By the end of this tutorial, participants will understand the theoretical principles, computational tools, and practical applications of energy management across microgrids and their interconnected systems. The session is designed for students, researchers, engineers, and practitioners seeking to deepen their knowledge in microgrid management and integrated infrastructure optimization.

Tutorial 4: The Future of Renewable Energy in Numbers
Date : October 27, 2025 14.00-15.00 PM

Organizer: Professor Halil Ibrahim Bulbul, Gazi University, Ankara, Türkiye

Biography:

Dr. Halil Ibrahim BULBUL is currently working as a Prof. Dr. at Department of Computer and Instructional Technologies of Gazi Education Faculty of Gazi University. He has been teaching various graduate and undergraduate level computer courses within the department.

He received his Ph.D. degree from Ankara University, Ankara, Turkey, M.S.c. degree from California University of PA, U.S.A, in 1997 and 1990, respectively, and his B.S. degree from Gazi University, Ankara, Turkey, in 1985. His research interests include computer network, computer hardware, educational technologies, e-learning, we based education, distance education, educational software design, database management systems, machine learning, data maining, information security, information security policies and standards, smart grids security, renewable energy systems, occupational standards and vocational qualifications system.

Books, articles, etc. related to the above-mentioned subjects. Various publications and ICMLA, ICRERA, icSMART GRIDS etc. He is a member of the organizing committee at the National and International Conferences he organizes. He has carried out various national and international projects supported by the state and private sector. Tübitak, Ministry of Industry, Kösgep, National agency etc. arbitrator, panelist and Commissioner etc. in organizations. carries out its duties.

He has published some books and various indexed articles and conference papers, He has joined and completed various projects in national and international levels supported by government and private sectors.

Currently he is a staff of Gazi Education Faculty, He is board members of Distance Education Committee at Higher Education Council and He is working Distance education Coordinator of Ahmet Yesevi University.

The Future of Renewable Energy in Numbers

Summary: As the global demand for energy continues to rise alongside the urgency of addressing climate change, renewable energy has emerged as a cornerstone of the world's energy transition. This tutorial presents a data-driven exploration of the future of renewable energy, using key statistics, projections, and technological trends to illustrate the scale and speed of this transformation.

We begin by analyzing the current global energy mix as of 2025, where renewable sources such as solar, wind, hydro, and geothermal collectively account for approximately 30% of global electricity generation. Special focus is placed on the remarkable growth of solar and wind energy, which are outpacing fossil fuels in both adoption rates and investment.

Looking ahead, we examine projections up to 2050, highlighting expected milestones such as:

- Renewables supplying up to 70% of global electricity by 2030,
- Annual investments in clean energy surpassing $2 trillion,
- A projected 38 million jobs in the renewable energy sector by 2030.

The tutorial also covers technological advancements that will enable and accelerate the shift, including:

- The rapid scaling of battery storage capacity,
- The development of smart grids and decentralized energy systems,
- Innovations in offshore wind and green hydrogen.

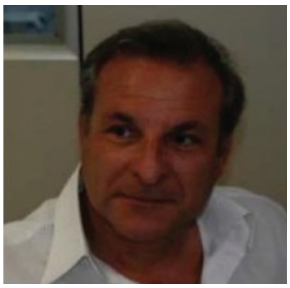
Economic and social implications are addressed, showing how falling costs of renewable technologies are making clean energy more accessible worldwide, particularly in developing regions. At the same time, challenges such as energy storage limitations, grid modernization needs, and regulatory bottlenecks are acknowledged as critical areas for innovation and policy reform.

Through clear visualization of global data and scenario-based modeling, this tutorial aims to equip learners, policymakers, and professionals with a deeper understanding of how numbers tell the story of a renewable-powered future. The evidence is compelling: renewable energy is not only environmentally necessary, but also economically inevitable and technologically achievable.

Tutorial 5: Benefits of Model Predictive Control in Multilevel Inverter-Based Power Electronics and Drives

Date : October 27, 2025 15.20-16.20 PM

Organizer: Professor Rosario Miceli, Palermo University, Italy
Dr Gioacchino Scaglione, University of Palermo



Biography:

Rosario Miceli received the B.S. degree in electrical engineering and the Ph.D. degree from the University of Palermo, Palermo, Italy, in 1982 and 1987, respectively. He is a Full Professor of electrical machines with the Polytechnic School, University of Palermo. He is a Personnel in Charge of the Sustainable Development and Energy Savings Laboratory of the Palermo Athenaeum. His main research interests include mathematical models of electrical machines, drive system control, and diagnostics, renewable energies, and energy management. Prof. Miceli is in charge for the University of Palermo of the "European Union - NextGenerationEU – National Sustainable Mobility Center". He is a Reviewer for the IEEE Transactions on Industrial Electronics and the IEEE Transactions on Industry Applications.

Biography:

Dr. Gioacchino Scaglione is a Research Fellow at the Sustainable Development and Energy Saving Laboratory of the University of Palermo, Italy. He received his M.Sc. in 2021 and Ph.D. in 2025 from the University of Palermo, with a thesis entitled "Advanced Model Predictive Control of Cascaded HBridge-fed Drives for E-Mobility Applications." His research encompasses the implementation of modulation strategies for multilevel converters, the development of advanced control techniques for AC drives fed by multilevel inverters, and the design and implementation of Model Predictive Control (MPC) strategies for both AC drives and grid-connected applications using Cascaded H-Bridge inverters. Dr. Scaglione has contributed to multiple international conferences and journals, addressing topics such as predictive control, multilevel converter topologies, modulation strategies, and power electronics applications beyond traditional drives. In this tutorial, he will explore the benefits and open challenges of FCS-MPC in multilevel inverter-fed systems, discussing practical implementation, performance optimization, and emerging research directions for both industrial and grid-connected applications.

Benefits of Model Predictive Control in Multilevel Inverter-Based Power Electronics and Drives

Summary: The field of power electronics and drives is undergoing a profound transformation, driven by the demand for higher efficiency, enhanced dynamic performance, and seamless integration with renewable energy sources. In this context, Model Predictive Control (MPC) has emerged as a promising solution and has been deeply investigated in the scientific literature, giving rise to numerous variants and applications. In particular, Finite Control Set MPC (FCS-MPC) has demonstrated remarkable potential in multilevel inverter-fed systems, offering fast dynamics, intuitive formulation, and the ability to naturally handle system constraints. Despite this extensive academic attention, MPC has not yet become the de facto standard in commercial industrial applications, where conventional modulation and control techniques still dominate. The reason lies in several open challenges that continue to limit its wider adoption, such as the pursuit of lower current distortion, the reduction of losses in both converters and machines, improved robustness to parameter variations, full compliance with evolving grid codes, and the economic implications of variable apparent switching frequency. This tutorial aims to critically investigate these challenges while showcasing the practical benefits that FCS-MPC can already deliver in both AC drives and grid-connected applications. By bridging the gap between research achievements and industrial needs, the presentation will provide participants with a comprehensive understanding of the state of the art, the barriers that remain, and the pathways toward establishing predictive control as a key enabling technology for the next generation of power electronic systems.

ICRERA 2025 Program at a Glance (Morning)

Program Summary of ICRERA 2025, Vienna-Austria, October 27-30, 2025

OCTOBER 27, 2025 (MONDAY)

OCTOBER 27, 2025 (MONDAY)	
REGISTRATION 09.00-16.00	10.00 11.00 Tutorial - 1
	11.10 12.10 Tutorial - 2
	12.20 13.20 Tutorial - 3

OCTOBER 27, 2025 (MONDAY)				
09.00-10.40	Online Session-O1 5 PAPERS (5*20=100 Min)	Online Session-O2 5 PAPERS (5*20=100 Min)	Online Session-O3 5 PAPERS (5*20=100 Min)	Online Session-O4 5 PAPERS (5*20=100 Min)
10.40-11.00	BREAK			
OCTOBER 27, 2025 (MONDAY)				
11.00-12.40	Online Session-O5 5 PAPERS (5*20=100 Min)	Online Session-O6 5 PAPERS (5*20=100 Min)	Online Session-O7 5 PAPERS (5*20=100 Min)	Online Session-O8 4 PAPERS (4*20=80 Min)
12:40-13:50	BREAK			

REGISTRATION 08.30-16.00

OCTOBER 28, 2025 (TUESDAY)	
08.30-09.00	Opening Ceremony and Speeches
09.00-10.00	Keynote Speech-I (60 Min), Room F0.0.1
10.00-10.10	BREAK
10.10-11.10	Keynote Speech-II (60 Min), Room F0.0.1
11.10-11.30	MORNING COFFEE BREAK
OCTOBER 28, 2025 (TUESDAY)	
11.30-11.50	Industrial Session, Room F0.0.1 PAYCLE & UPCX
11.50-12.00	Industrial Session, Room F0.0.1 NXTEC
12.50-13.50	LUNCH

OCTOBER 29, 2025 (WEDNESDAY)					
09.00-10.00	Keynote Speech-III (60 Min), Room F0.0.1				
10.00-10.10	BREAK				
10.10-11.10	Keynote Speech-IV (60 Min), Room F0.0.1				
11.10-11.30	MORNING COFFEE BREAK				
OCTOBER 29, 2025 (WEDNESDAY)					
11.30-12.50	Face to Face Session-F16 4 PAPERS (4*20=80 Min) Room F0.01	Face to Face Session-F17 4 PAPERS (4*20=80 Min) Room F4.03	Face to Face Session-F18 4 PAPERS (4*20=80 Min) Room F4.06	Face to Face Session-F19 4 PAPERS (4*20=80 Min) Room F4.07	Face to Face Session-F20 4 PAPERS (4*20=80 Min) Room F4.08
12:50-13:50	LUNCH				

OCTOBER 30, 2025 (THURSDAY)					
09.00-11.00	Face to Face Session-F31 6 PAPERS (6*20=120 Min) Room F0.01	Face to Face Session-F32 6 PAPERS (6*20=120 Min) Room F4.03	Face to Face Session-F33 6 PAPERS (6*20=120 Min) Room F4.06	Face to Face Session-F34 6 PAPERS (6*20=120 Min) Room F4.07	Face to Face Session-F35 6 PAPERS (6*20=120 Min) Room F4.08
11.10-11.30	MORNING COFFEE BREAK				
OCTOBER 30, 2025 (THURSDAY)					
11.30-12.50	Face to Face Session-F36 4 PAPERS (4*20=80 Min) Room F0.01	Face to Face Session-F37 4 PAPERS (4*20=80 Min) Room F4.03	Face to Face Session-F38 4 PAPERS (4*20=80 Min) Room F4.06	Face to Face Session-F39 4 PAPERS (4*20=80 Min) Room F4.07	Face to Face Session-F40 4 PAPERS (4*20=80 Min) Room F4.08
12:50-13:50	LUNCH				

ICRERA 2025 Program at a Glance (Afternoon)

Program Summary of ICRERA 2025, Vienna-Austria, October 27-30, 2025

OCTOBER 27, 2025 (MONDAY)					OCTOBER 28, 2025 (TUESDAY)						OCTOBER 29, 2025 (WEDNESDAY)						OCTOBER 30, 2025 (THURSDAY)					
09.00-16.00 REGISTRATION	13.30 14.30 Tutorial - 4	13.50-15.30	Online Session-O9 5 PAPERS (5*20=100 Min)	Online Session-O10 5 PAPERS (5*20=100 Min)	Online Session-O11 5 PAPERS (5*20=100 Min)	08.30-16.00 REGISTRATION	13.50-15.50	Face to Face Session-F1 6 PAPERS (6*20=120 Min) Room F4.03	Face to Face Session-F2 6 PAPERS (6*20=120 Min) Room F0.01	Face to Face Session-F3 6 PAPERS (6*20=120 Min) Room F4.06	Face to Face Session-F4 6 PAPERS (6*20=120 Min) Room F4.07	Face to Face Session-F5 6 PAPERS (6*20=120 Min) Room F4.08	13.50-15.50	Face to Face Session-F21 6 PAPERS (6*20=120 Min) Room F4.03	Face to Face Session-F22 6 PAPERS (6*20=120 Min) Room F4.06	Face to Face Session-F23 6 PAPERS (6*20=120 Min) Room F0.01	Face to Face Session-F24 6 PAPERS (6*20=120 Min) Room F4.07	Face to Face Session-F25 6 PAPERS (6*20=120 Min) Room F4.08	13.50-15.50	Face to Face Session-F41 6 PAPERS (6*20=120 Min) Room F0.01	Face to Face Session-F42 6 PAPERS (6*20=120 Min) Room F4.03	Face to Face Session-F43 6 PAPERS (6*20=120 Min) Room F4.06	Face to Face Session-F44 6 PAPERS (6*20=120 Min) Room F4.07	Face to Face Session-F45 6 PAPERS (6*20=120 Min) Room F4.08
	14.40 15.40 Tutorial - 5	15.30-15.50	BREAK				15.50-16.10	AFTERNOON COFFEE BREAK					15.50-16.10	AFTERNOON COFFEE BREAK					15.50-16.10	AFTERNOON COFFEE BREAK				
		15.50-17.30	Online Session-12 5 PAPERS (5*20=100 Min)	Online Session-O13 5 PAPERS (5*20=100 Min)	Online Session-O14 5 PAPERS (5*20=100 Min)		16.10-17.30	Face to Face Session-F6 4 PAPERS (4*20=80 Min) Room F0.01	Face to Face Session-F7 4 PAPERS (4*20=80 Min) Room F4.03	Face to Face Session-F8 Organized Session 4 PAPERS (4*20=80 Min)) Room F4.06	Face to Face Session-F9 4 PAPERS (4*20=80 Min) Room F4.07	Face to Face Session-F10 4 PAPERS (4*20=80 Min) Room F4.08	16.10-17.50	Face to Face Session-F26 5 PAPERS (5*20=100 Min) Room F4.03	Face to Face Session-F27 5 PAPERS (5*20=100 Min) Room F4.06	Face to Face Session-F28 5 PAPERS (5*20=100 Min) Room F0.01	Face to Face Session-F29 5 PAPERS (5*20=100 Min) Room F4.07	Face to Face Session-F30 5 PAPERS (5*20=100 Min) Room F4.08	16.10-17.30	Face to Face Session-F46 4 PAPERS (4*20=80 Min) Room F0.01	Face to Face Session-F47 4 PAPERS (4*20=80 Min) Room F4.03	Face to Face Session-F48 4 PAPERS (4*20=80 Min) Room F4.06	Face to Face Session-F49 4 PAPERS (4*20=80 Min) Room F4.07	Face to Face Session-F50 Organized Session 4 PAPERS (4*20=80 Min) Room F4.08
							17.30-17.40	BREAK											17.30-17.40	BREAK				
							17.40-19.00	Face to Face Session-F11 4 PAPERS (4*20=80 Min) Room F0.01	Face to Face Session-F12 4 PAPERS (4*20=80 Min) Room F4.03	Face to Face Session-F13 4 PAPERS (4*20=80 Min) Room F4.06	Face to Face Session-F14 4 PAPERS (4*20=80 Min) Room F4.07	Face to Face Session-F15 4 PAPERS (4*20=80 Min) Room F4.08							17.40-19.00	Face to Face Session-F51 3 PAPERS (3*20=60 Min) Room F0.01	Face to Face Session-F52 3 PAPERS (3*20=60 Min) Room F0.03	Face to Face Session-F53 3 PAPERS (3*20=60 Min) Room F0.06	Face to Face Session-F54 3 PAPERS (2*20=40 Min) Room F0.07	Face to Face Session-F55 2 PAPERS (2*20=40 Min)Room Room F0.08
							19.30-21.00	Welcome Party					19.00-21.00	Gala Dinner					19.00	Closing Ceremony, Room F0.01				

CONFERENCE PROGRAM

Date: 27 OCTOBER 2025	
TUTORIAL - 1	**Room: F203**
10.00-11.00	**Speaker:** **Professor Seref Sagiroglu** **Gazi University, Ankara, Türkiye** **Chairs: Halil Ibrahim Bulbul**
11.00-11.20	**BREAK**
TUTORIAL - 2	**Room: F203**
11.20-12.20	**Speaker:** **Professor V. Fernão Pires** **Polytechnic Institute of Setúbal, Portugal** **Chairs: Halil Ibrahim Bulnul**
12.20-12.40	**BREAK**
TUTORIAL - 3	**Room: F203**
12.40-13.40	**Speaker:** **Dr. Javad Khazaei, Dr. Faegheh Moazeni** **Lehigh University, U.S.** **Chairs: Erdal Bekiroglu**
13.40-14.00	**BREAK**
TUTORIAL - 4	**Room: F203**
14.00-15.00	**Speaker:** **Professor Halil Ibrahim Bulbul** **Gazi University, Ankara, Türkiye** **Chairs: Seref Sagiroglu**
15.00-15.20	**BREAK**
TUTORIAL - 5	**Room: F203**
15.20-16.20	**Speaker:** **Professor Rosario Miceli, Dr Gioacchino Scaglione** **Palermo University, Italy** **Chairs: Seref Sagiroglu**

Date: 27 OCTOBER 2025		
	ONLINE PRESENTATIONS	**ONLINE PRESENTATIONS**
	SESSION O1 **CHAIRS:Zeynep Osmanpasaoglu, Orhan Kaplan**	**SESSION O2** **CHAIRS: Ghouse Syed, Nihat Oztırk**
09.00-09.20	**ID:12 Multi-Voltage Performance Analysis and Quality Index Development for DC EV Charging Systems using Ripple Measurement** Jeykishan Kumar K (Central Power Research institute)*	**ID:398 A Multi-Layered Security Concept Model for SDN-Enabled Smart Grids** Seref Sagiroglu (Gazi University); Murat Dener (Gazi University)*; M. Sedef Demirci (Gazi University); Ali Kara (Gazi University); Yilmaz Atay (Gazi University); Mehmet Demirci (Gazi University); Samed Al (Gazi University); Selcuk Yilmaz (Gazi University)
09.20-09.40	**ID:21 A Deep Learning Approach to Climate-Driven Power Generation Forecasting for Renewable Energy in Sri Lanka** Kavindya Koralegei (informatics institute of Technology)*; Banuka Athuraliya (informatics institute of Technology)	**ID:266 Towards Unified Energy Flexibility Quantification in Commercial Buildings** Philipp Wussow (iBM)*; Jan Haase (Nordakademie)
09.40-10.00	**ID:25 Deep Q-Learning for Energy Management in Hybrid Power Systems** Noha Shouman (German international University)*; Amir Roufael (German international University)	**ID:270 Challenges and Limitations of XAI in Smart Grid Applications** Bilgehan Arslan (Gazi University)*; Seref Sagiroglu (Gazi University)
10.00-10.20	**ID:93 Adaptive Event-Driven Distributed Control for Efficient Power Management in DC Microgrids** Ihami Poyraz (Dicle University); Heybet KiliC (Dicle Universitesi); Mehmet Emin Asker (Dicle University)*	**ID:493 A Triangulated Spatial-Interpolation Approach for Renewable Energy Potential Analysis Using Solar-Powered Iot Weather Stations** Santiago Santafé (Universidad De La Sabana); Juan Manuel Aranda (Universidad De La Sabana); David Celeita (Universidad De La Sabana)*
10.20-10.40	**ID:228 Knowledge-Informed Parameter Estimation for Dynamic Modeling of Wind Turbine Digital Twins** César Tadeu Medeiros Branco (Universidade Federal de Santa Catarina)*; Leonardo Olimpio da Rosa (Universidade Federal de Santa Catarina)	**ID:394 How Much Training Data Is Enough? An Empirical Study on Load Forecasting for a Distribution Transformer in Germany** Dimitrios Papadopoulos (University of Freiburg)*; Alvaro Diaz (University of Freiburg); Evi Monique Kasper (Offenburg University of Applied Sciences); Ramiz Qussous (University of Freiburg)
10.40-11.00	**BREAK**	

	Date: 27 OCTOBER 2025	
	ONLINE PRESENTATIONS	**ONLINE PRESENTATIONS**
	SESSION O3 **CHAIRS: Mehmet Rida Tur, Abdelhakim Belkaid**	**SESSION O4** **CHAIRS: Sevki Demirbas, Md Yakub Ali Khan**
09.00-09.20	**ID:448 Operating Bess as Vpl to Simultaneously Minimize Curtailment, Mitigate Congestion, and Deliver Fcr in High-Res Power Systems** Ehsan Shayani (Polytechnic University of Vienna(tuw))*	**ID:67 Principal Component Analysis (Pca) for the Frequency Stability of the Senelec Electricity Grid Integrating Solar PV and Wind Power Plants** Alphousseyni Ndiaye (Universite Alioune Diop De Bambey-Senegal)*
09.20-09.40	**ID: 500 Control Strategy Based Sliding Mode Control of DC Microgrid in Islanded Mode Operations** Burak Onar (Başkent University)*; Şevki Demirbaş (Gazi University); Kenan ÜNAL (Gazi University)	**ID:70 Machine Learning Algorithm for Short-Term Forecasting of Energy Production from Renewable Energy Sources (PV-Wind) Connected to the Electricity Grid for Greater Resilience: Case Study, the Senelec Network, Senegal** Alphousseyni Ndiaye (Universite Alioune Diop De Bambey-Senegal)*
09.40-10.00	**ID:198 Develop an on-Load Automatic Voltage Regulation System Utilizing Triacs for Power Transformers in the 6-10 Kv Range** Mirodil Kobilov (Fergana State Technical University)*; Mukhlisakhon Begmatova (Ferghana State Technical University); Jasur Ulmasov (Fergana State Technical University); Saidislomkhon Tukhtasinov (Fergana State Technical University); Azizbek Rakhmonov (Fergana State Technical University)	**ID: 514 Financial Analysis of Utilizing Forest Waste for Energy Production in Türkiye** Sinan Yigit (Necmettin Erbakan University)* Semih Sadi Kilic (Gazi University) Halil İbrahim Variyenli (Gazi University)
10.00-10.20	**ID:66 Technical and Techno-Economic Feasibility Analysis of a University-Scale Virtual Power Plant** Maja Celeska Krstevska (University of Ss. Cyril and Methodius in Skopje)*; Aleksandra Krkoleva Mateska (University of Ss. Cyril and Methodius in Skopje); Mare Srbinovska (University of Ss. Cyril and Methodius in Skopje); Petar Krstevski (University of Ss.	**ID:307 A Critical Review of Landfill Leachate and Its Treatment by Electrochemical Oxidation: A Future Energy-Oriented Approach for Sustainable Liquid Waste Treatment** Sadique Khan (King Fahd University of Petroleum & Minerals)*; Muhammad Shariq Vohra (King Fahd University of Petroleum & Minerals)
10.20-10.40	**ID:113 Data-Driven Optimization of Battery Storage for a Photovoltaic Living Lab** Emilija Cheshmedjievska (University of Ss. Cyril and Methodius in Skopje); Maja Celeska Krstevska (University of Ss. Cyril and Methodius in Skopje)*	**ID:71 Robust Control of a Dual Star Permanent Magnet Synchronous Generator in Normal and Fault Conditions** Mouhamed Mbengue (Esp/Ucad)*
10.40-11.00	**BREAK**	

Date: 27 OCTOBER 2025		
	ONLINE PRESENTATIONS	**ONLINE PRESENTATIONS**
	SESSION O5 **CHAIRS:Jeykishan Kumar K, Mehmet Demirtas**	**SESSION O6** **CHAIRS: Murat Dener, Bachina Harishbabu**
11.00-11.20	**ID:397 From Voice to Efficiency: Natural Language Processing for Energy-Optimized Robot Programs** Zeynep Osmanpasaoglu (Marmara University)*; Mustafa Caner Akuner (Marmara University)	**ID:477 Operational Cost Assessment Using IGDT Considering Uncertainty in Wind and Solar Power with Battery Integration** Basim ALbaaj (Gazi University); Orhan KAPLAN (Gazi University)*
11.20-11.40	**ID:408 Targeted Interconnection Mechanisms for Near-Term Resource Adequacy in U.S. ISOs/RTOs Markets** Ahmed Sallam (JERA Americas iNC)*	**ID:479 Market-Based Strategies for Enhancing Grid Resilience under High Renewable Penetration** Ghouse Syed (CMR University)*
11.40-12.00	**ID:412 Surplus Interconnection in U.S. ISO/RTO Markets: Leveraging Unused Capability to Accelerate Grid Connections** Ahmed Sallam (JERA Americas iNC)*	**ID:480 Economic Implications of Electric Vehicle Integration on Power Markets and Grid Stability** Ghouse Syed (CMR University)*
12.00-12.20	**ID:414 Experimental Evaluation of Motor Current Harmonics and Core Loss under PAM Inverter Excitation with Different Control Sampling Frequencies** Md Yakub Ali Khan (Shimane University)*; Gia Minh Thao NGUYEN (Shimane University); Kosuke Shintani (Shimane University); Keisuke Fujisaki (Toyota Technological institute); Duc-Kien Ngo (The University of Danang – University of Technology and Education)	**ID:481 Dynamic Pricing and Demand Response Mechanisms for Economic Grid Operation** Ghouse Syed (CMR University)*
12.20-12.40	**ID:436 A Review of Energy Storage Technologies for Renewable Energy Integration in Iran, India, and the UAE: Status, Challenges, and Opportunities** Parisa Hosseini (Univ.of Texas at San Antonio)*	**ID:482 AI-Enabled Optimization of Fractional Order PID Controllers for Robust Stability in All-Electric Naval Energy Systems** Riyaz Ahammed (Nitte University)*
12.40-13.50	**BREAK**	

	ONLINE PRESENTATIONS	ONLINE PRESENTATIONS
	SESSION O7 **CHAIRS: Ehsan Shayani, Maja Celeska**	**SESSION O8** **CHAIRS: Sevki Demirbas, Md Yakub Ali Khan**
11.00-11.20	**ID: 513 Data Center Developments for Flexible Generation Dispatch, Advanced Infrastructure, and Ultra-Fast Digital Twins** Grant M. Fischer, Rosemary E. Alden, Donovin D. Lewis, Aron Patrick*, and Dan M. Ionel (University of Kentucky, Lexington, USA*) PPL Corp., Allentown, USA	**ID:348 Robust Energy Management of Battery-Supported Hybrid Fuel Cell EV with Variable-Exponent Smc** Abdullah Abushokor (Kfupm); Syed Amrr (King Fahd University of Petroleum & Minerals)*; Md Samiullah (Kfupm); Ali T. Al-Awami (King Fahd University of Petroleum & Minerals)
11.20-11.40	**ID: 473 Digitalization of Energy Communities: Participation, Social Capital, and Decision-Making on a Virtual Platform** Mehmet Rida Tur (Batman University); Hafize Nurgul Durmus Senyapar (Gazi University); Ramazan Bayindir (Gazi University)*; Merve Suvak (Batman University)	**ID:508 Determination of PV Capacity for Charging: A Case Study on the Electrification of Clinic Shuttle Services in Japan** Koki Kumaoka (Osaka Electro-Communication University); Haru Morikawa (Osaka Electro-Communication University); Nobumasa Matsui (Nagasaki Institute of Applied Science); Jiyoung Choi (Nagasaki Institute of Applied Science); Yuji Mizuno (Osaka Electro-Communication University)*
11.40-12.00	**ID:440 Motivations and Barriers to Electric Vehicle Charging Station Adoption: A Consumer-Centered Perspective** Mustafa Tolga Yeni (Gazi University); Hafize Nurgul Durmus Senyapar (Gazi University); Ramazan Bayindir (Gazi University)*	**ID: 520 Stability-Oriented Analysis of a CO2 Turbine-Based Thermal Gradient Power Generation System** Sho Nagata (Nagasaki Institute of Applied Science)*; Yuji Mizuno (Osaka Electro-Communication University); Jiyoung Choi (Nagasaki Institute of Applied Science); Nobumasa Matsui (Nagasaki Institute of Applied Science)
12.00-12.20	**ID:434 Renewable Energy Investments in Rural Areas: Socio-Economic Impacts, Governance, and Migration Dynamics** Murat Akil (Selcuk University); Hafize Nurgul Durmus Senyapar (Gazi University); Ramazan Bayindir (Gazi University)*	**ID:261 Urban Energy Modeling and System Design for a Hydrogen-Based E-Cargo Bike** Mehmet Onur Genc (Bursa Technical University, Electric Vehicles Application and Research Center); Alper Yilmaz (Bursa Technical University, Electric Vehicles Application and Research Center); Ahmad Nour Ahmad (Bursa Technical University, Dept. of Electrical and Electronics Engineering); Gokay Bayrak (Bursa Technical University, Dept. of Electrical and Electronics Engineering)*
12.20-12.40	**ID:517 From Centralization to Participation: Governance Patterns in Renewable Energy Transitions Across Europe and Asia** Umit Cetinkaya (Turkish Electricity Transmission Corporation); Samet Ayik (Nevsehir Haci Bektas Veli University); Hafize Nurgul Durmus Senyapar (Gazi University); Meta Kagan Isikli (Gazi University); Ramazan Bayindir (Gazi University)	
12.40-13.50	**BREAK**	

Date: 27 OCTOBER 2025			
	ONLINE PRESENTATIONS	**ONLINE PRESENTATIONS**	**ONLINE PRESENTATIONS**
	SESSION O9 **CHAIR: Riyaz Ahammed, Murat Akil**	**SESSION O10** **CHAIRS: Mehmet Emin Asker, Md Yakub Ali Khan**	**SESSION O11** **CHAIRS: Nihat Ozturk, Cem Haydaroglu**
13.50-14.10	**ID:483 Metaheuristic AI-Optimized Buck-Boost Converter for Efficient V2G and G2V Power Exchange in Electric Vehicles** Bachina Harishbabu (VNR vignana jyothi institute of Engineering and Technology)*	**ID:246 Intelligent Battery Control for Solar Systems** Abdelhakim Belkaid (Bejaia University)*; ilhami colak (istinye University); Lylia Larbi (Bejaia University); Slimane hadji (Bejaia University); nassima ouali (Bejaia University); korhan kayisli (Gazi University); said aissou (Bejaia University)	**ID:509 Arbitrary Fixed-Time Sliding Mode Control for Quadrotor Trajectory Tracking under Disturbances** Ferhat Bodur (Gazi University); Orhan Kaplan (Gazi University)*
14.10-14.30	**ID:484 Intelligent Performance Assessment of Multilevel Converter-Based Active Filters in PV-Integrated Smart Grids** shiva prasad (VNR VJiET)*	**ID:288 Optimization of Photovoltaic System Using a Predictive Adaptive RST-Based Controller** Abdelhakim Belkaid (Bejaia University)*; nassima ouali (Bejaia University); hocine lehouche (Bejaia University); ilhami COLAK (istinye University); lylia larbi (Bejaia University); abdelyazid achour (Bejaia University); korhan kayisli (Gazi University)	**ID:308 A Case Study About Floating Solar Systems: Economic, Environment and Efficiency Analysis** Ruhi Zafer Caglayan (Ted University); Korhan Kayisli (Gazi University)*; Firat Hardalac (Gazi University); Abdelhakim Belkaid (Bejaia University)
14.30-14.50	**ID:485 Intelligent Fuzzy Control of PMSG-Based Diesel Generator Sets for Reactive Power Compensation and Power Quality Improvement** Riyaz Ahammed (Nitte University)*	**ID:169 A hybrid deep learning approach using significant wave height and energy period for wave energy forecasting** Long Hoang (University of Galway)*; Umair Ui Hassan (University of galway)	**ID:427 A Novel Inverter-Based Mppt in Grid-Connected PV Systems Using Sliding Mode Control with Moving Average and Chattering Mitigation** Ruhi Zafer Caglayan (Ted University); Resul Coteli (Firat University); Korhan Kayisli (Gazi University)*
14.50-15.10	**ID:491 Equity Aware Robust Dynamic Pricing for Renewable Integrated Smart Grids Using Multi Objective Optimization** Ghouse Syed (CMR University)*	**ID:318 Artificial Neural Network-based Hybrid Control Technique for Superior Circulating Current Suppression in Modular Multilevel Converters** Nassim Zemirline (LREA Laboratory); Nadir Kabeche (LREA Laboratory); Samir Moulahoum (University of Madia)*; ilhami Colak (istinye University)	**ID:387 Fuzzy Logic-Based Hybrid Heating System for Energy Efficiency in Turkey's Diverse Climates and Building Types** Murat Beken (Bolu Abant Izzet Baysal University)*; Muhammet Derin (Bolu Abant Izzet Baysal University)
15.10-15.30	**ID:494 Hierarchical Deep Reinforcement Learning for Secure Cloud Scheduling with Digital Twin Validation** Naimil Gadani (ContentActive LLC)*	**ID:475 A Unified Backstepping and Enhanced Integral Fast Terminal Sliding Mode Control Strategy for Robust Control of Single-Phase Inverters** Cagdas Hisar (Gazi University)*; GUven Balta (Erzurum Technical University); Necmi Altin (Gazi University); ibrahim Sefa (Gazi University)	**ID:386 Artificial Intelligence Based Forest Fire Early Warning System in Turkey and the Mediterranean Basin: Analysis of Economic and Ecological Losses and Land Use Changestemplate Containing Author Guidelines for Peer-Review** Murat Beken (Bolu Abant Izzet Baysal University)*; Oyku Suzgun (Turk-Alman Universitesi)
15.30-15.50	**BREAK**		

Date: 27 OCTOBER 2025			
	ONLINE PRESENTATIONS	**ONLINE PRESENTATIONS**	**ONLINE PRESENTATIONS**
	SESSION O12 **CHAIRS: Abdelhakim Belkaid, Naimil Gadani**	**SESSION O13** **CHAIRS: Ghouse Syed, Mehmet Demirtas**	**SESSION O14** **CHAIRS: Murat Beken, Ruhi Zafer Caglayan**
15.50-16.10	**ID:330 Electric Vehicle Charging Stations and Calculation of Voltage Performance** Dr. D Chandra Sekhar (Jntu Anathapur, Anathapuramu)*	**ID:478 A Comparative Study of Machine Learning Algorithms for Photovoltaic Power Forecasting** Mustafa TEKE (Cankiri Karatekin University); Cagdas Hisar (Gazi University)*	**ID:175 Control of a Wind Energy Conversion System Based on Permanent Magnet Synchronous Generators** **Ibrahim Yaichi (Laboratoire De Developpement Durable Et** D'informatique (Lddi), University Ahmed Draia Adrar, Algeria)*; Colak Ilhami (Dept. of Electrical and Electronics Eng, Faculty of Engin. and Natural Science,istinye University, Istanbul, Turkey)
16.10-16.30	**ID:54 Real-Time Islanding Detection in Microgrids Using RVFLN: A Case Study on IEEE 13-Bus System** Yahya Akil (Dicle University); Ali Rifat Boynue_ri (Yildiz Technical University); Musa Yilmaz (Batman University); Cem Haydaroglu (dicle Universitesi)*	**ID:463 Knowledge-Distillation-Based Sentiment Analysis for Renewable Energy News** Nihal Zuhal Kayali (Turkish German University); Fulya Yenilmez (Turkish German University)*	**ID:226 Control of a Doubly-Fed Induction Generator for Wind Energy Conversion System** Mohammed Aoumri (University Adrar); Ibrahim Yaichi (Univ Adrar)*; Ilhami Colak (Full Professor at Istinye University, Turkiye)
16.30-16.50	**ID:55 AI-Based Subscriber Classification in Power Distribution Networks Using Load Profiles** Gaye TUlgen Kale (Firat Universitesi); Omer AdigUzel (Firat University); cem haydaro_lu (dicle Universitesi)*; Ozal Yildirim (Firat University); Heybet KiliC (Dicle University)	**ID:193 IMPACT of VOLTAGE UNBALANCE on DISTRIBUTION TRANSFORMER EFFICIENCY UNDER ASYMMETRIC and PV-INTEGRATED LOADS.** MiRKAMOL RAXiMOV (Fergana State Technical University)*; Afzal Qodirov (Fergana State Technical University); Abdulahad Ashurov (Fergana State Technical University); Mashkhurakhon Kholiddinova (Fergana State Technical University)	**ID:285 Digital Control Design for a Universal Input 1mhz Llc Converter with High Power Density** Adel Nasiri (University of South Carolina)*; Farrukh Jamshed (University of South Carolina)
16.50-17.10	**ID:432 Comparative Evaluation of Estimation Algorithms in Digital Twin Architecture for Radar Altimeter Faults** Mustafa Enes AKCAY (TUSAS-Turkish Aerospace industries inc., Gazi University, Graduate School of Natural and Applied Sciences); Seyfettin Vadi (Gazi University)*	**ID:191 Analysis of methods for diagnosing mechanical fault of power transformer winding** Abduvokhid Abdullaev (Fergana State Technical University); Abduvokhid Abdullaev (Fergana State Technical University)*; Anvarbek Khaqiqov (Fergana State Technical University); islomjon Bokhodirov (Fergana State Technical University); Ahliddin ibrokhimjonov (Fergana State Technical University)	**ID:287 Fem-based Design and Experimental Validation of a High-Power Density Planar Transformer for an Active Clamp Flyback Converter** Adel Nasiri (University of South Carolina)*; Farrukh Jamshed (University of South Carolina); Reza Mounesi (University of South Carolina)
17.10-17.30	**ID: 504 Hourly Load Forecasting Using GRU and Classical Models: A Benchmark Study on Subscriber-Level Data** Ömer Adıgüel (Dicle Üniveritesi); Gaye Tülgen Kaya (Dicle Üniveristesi); Cem Haydaroğlu (dicle üniversitesi)*; Özal Yıldırım (Fırat Üniveristesi); Heybet Kılıç (Dicle Üniversitesi)	**ID:326 Insulation Coordination for Direct Mv Connected Power Converters** Adel Nasiri (University of South Carolina)*; Necmi Altin (University of South Carolina); Saban Ozdemir (University of South Carolina)	**ID:447 A Modular Mv Sst Design Based on 10kv Sic Mosfets** Adel Nasiri (University of South Carolina)*; Yousef Alamri (University of South Carolina); Necmi Altin (University of South Carolina); Saban Ozdemir (University of South Carolina)

Date: 28 OCTOBER 2025	
Room: F0.01	Opening Ceremony
08.30-09.00	Opening Ceremony and Speeches: - Mr. Hidehiko Kikuchi, Chief Executive Officer, Power Systems Corporation, Japan, Honorary Chair, ICRERA 2025 - Prof. Johann Walter Kolar, ETH Zürich, Switzerland, Honorary Chair, ICRERA 2025 - Dipl.-Ing. (FH) Johannes Gragger, General Chair, ICRERA 2025 - H. E. Ambassador Kiminori Iwama, Embassy of Japan in Austria - Prof. Fujio Kurokawa, General Co-Chair, ICRERA 2025 - Prof. Ilhami Colak, General Co-Chair, ICRERA 2025 Chairs: Professor Nobumasa Matsui, Professor Felix Himmelstoss
Room: F0.01	KEYNOTE
09.00-10.00	Speaker: Mr. Makoto Yoshimura Deputy Vice President & Technology Executive, Power Electronics System Division, TMEIC Corporation Chairs: Professor Rosario Miceli, Professor Armando Pires
10.00-10.10	BREAK
Room: F0.01	KEYNOTE
10.10-11.10	Speaker: Professor Khaled H. Ahmed University of Strathclyde, Glasgow, UK Chairs: Professor Mariacristina Roscia, Professor Daniel Fodorean
11.10-11.30	MORNING COFFEE BREAK
Room: F0.01	INDUSTRIAL SESSION
11.30-11.50	PAYCLE & UPCX Chairs: Professor Fujio Kurokawa, DI (FH) Johannes Gragger
Room: F0.01	INDUSTRIAL SESSION
11.50-12.00	NXTEC Chairs: Professor Fujio Kurokawa, DI (FH) Johannes Gragger
12.50-13.50	LUNCH

	Date: 28 OCTOBER 2025	
	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS
	SESSION F1 **Room F4.03** **CHAIRS: Zhang Chengquan, Hiroaki Nishi**	**SESSION F2** **Room F0.01** **CHAIRS: Simon Johannliemke-Appelbaum, Aleem Pasha Shaik**
13.50-14.10	**ID:345 Green Hydrogen Production Capability Based on a Hybrid Renewable System – a Case Study** Daniel Fodorean (Technical University of Cluj-Napoca)*; Lucian A.C. Ciochinda (Technical University of Cluj-Napoca)	**ID:76 Individual Identification of Multiple EV–charger Pairs via Modulated Charging Currents Technology** Narutaka Nomura (University of Tsukuba)*; Masaki imanaka (The University of Tokyo); Hiroyuki Baba (The University of Tokyo); Daisuke Kodaira (University of Tsukuba)
14.10-14.30	**ID:68 Operational Challenges of Energy Communities in Belgian Territories** Chadi MAHFOUD (University of Mons)*; Sesil KOUTRA (University of Mons)	**ID:82 Optimizing Offshore AC and DC Power Systems for Floating Marine Exploration Platforms** Pedro Pinto (University of Trás-os-Montes and Alto Douro); inês Ferreira (University of Trás-os-Montes and Alto Douro); Adelaide Cerveira (University of Trás-os-Montes and Alto Douro); José Baptista (University of Trás-os-Montes and Alto Douro)*
14.30-14.50	**ID:323 Design for Additive Manufacturing: Enhancing the Strength-to-Weight of Mechanical Metamaterials for Energy Applications** Kashif Azher (King Fahd University of Petroleum & Minerals)*; Aamer Nazir (King Fahd University of Petroleum & Minerals)	**ID:83 Evaluation and characterization of direct current emissions caused by inverters in the distribution grids** Christoph Brugger (University of Applied Sciences Technikum Vienna); Bernhard Grasel (University of Applied Sciences Technikum Vienna); Alexander Erber (University of Applied Sciences Technikum Vienna); Harald Weidl (University of Applied Sciences Technik
14.50-15.10	**ID:89 A Simulation-Based Study of Hybrid Renewable Energy System Powered Cold Ironing for Port Electrification** Mohab Eweda (Arab Academy for Science, Technology and Maritime Transport)*; Rana Ahmed (Arab Academy for Science, Technology and Maritime Transport); Mona Abdelkader (Arab Academy for Science, Technology and Maritime Transport); Ahmed Abdelsalam (Arab Ac	**ID:94 Battery model parameters anomaly corrections with machine learning methods** El Hadji Mbaye NDiAYE (Univ Gustave Eiffel); Eduardo REDONDO-iGLESiAS (Univ Gustave Eiffel)*; Marwan HASSiNi (Univ Gustave Eiffel); Serge PELiSSiER (Univ Gustave Eiffel); Oumar BA (Univ Cheikh Anta Diop)
15.10-15.30	**ID:90 Digital Twin-Enabled Cooperative Control for Networked DC Microgrids** Xiaoran Dai (Wuhan University)*; Guo-Ping Liu (Southern University of Science and Technology); Zhongcheng Lei (Wuhan University); Wenshan Hu (Wuhan University); Yiwei Zhou (Cardiff University)	**ID:95 Condensation cleaning and simplification of CO2 capture through nitrogen-free incineration of MSW** Elizaveta Girshova (LUT)*; Maxim Permyakov (Tectohash); Mikhail Kaliteevski (Tectohash)
15.30-15.50	**ID:91 Improving Microgrid Operation by Integrating Virtual Oscillator Control and Active Power Decoupling in Single-Phase Inverters** Ronald Musona (Transilvania University of Brasov)*; ioan Serban (Transylvania University of Brasov); Tamas Kerekes (Aalborg)	**ID:96 Ripple Current Estimation in AC filters of Voltage Source Converters** Lorenzo Giuntini (ABB Switzerland)*
15.50-16.10	**AFTERNOON COFFEE BREAK**	

	Date: 28 OCTOBER 2025		
	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS
	SESSION F3 **Room F4.06** **CHAIRS: Hibiki Morita, Javad Khazaei**	**SESSION F4** **Room F4.07** **CHAIRS: Linda Hassaine, Nobumasa Matsui**	**SESSION F5** **Room F4.08** **CHAIRS: Tsuyoshi Omi, Fabio Viola**
13.50-14.10	**ID:84 PV-Battery Powered Surface Water Heat Pump System Control and Simulation** Joyce Assaf (GREAH ULHN)*; Mamadou-Baïlo Camara (GREAH ULHN); Damien Guilbert (GREAH ULHN); Brayima Dakyo (GREAH ULHN)	**ID:125 Solar-Powered Desalination System Combining Reverse Osmosis and Membrane Distillation to Enhance the Recovery Ratio** PAOLO ViTULLi (Università Politecnica delle Marche)*; Alejandro Bueso Sánchez (CiEMAT - Plataforma Solar de Almería); Emanuele Principi (Università Politecnica delle Marche); Stefano Squartini (Università Politecnica delle Marche); Guillermo Zaragoza del	**ID:51 Sustainable Desalination Using Wind-Powered Multi-Stage Vacuum Membrane Distillation** Mohamed Kotb (Kfupm)*; Atia Khalifa (King Fahd University of Petroleum and Minerals); Mahmoud El Boghdadi (King Fahd University of Petroleum and Minerals)
14.10-14.30	**ID:85 Control of a DC Microgrid Integrating a Single-Phase Inverter and a Dual Active Bridge Converter for EV Charging and V2G Operation** James Sora (Transilvania University of Brasov)*; ioan Serban (Transilvania University of Brasov); Ronald Musona (Transilvania University of Brasov)	**ID:124 Energy Storage and Managenet in Battery-free Wireleess Sensor Networks** Bernardo Yaser León Ávila (UNiTBV)*; Carlos Alberto García Vázquez (UNiTBV); Osmel Pérez Baluja (UNiTBV); Luis Alberto Quintero Domínguez (UNiSS); Daniel Tudor Cotfas (UNiTBV); Petru Adrian Cotfas (UNiTBV)	**ID:324 Adaptive Pi Control with Signal Synthesis for Robust Power System Frequency Regulation** Muhammad S. Tolba (King Fahd University of Petroleum and Minearls (Kfupm)); Muhammad Majid Gulzar (King Fahd University of Petroleum and Minerals)*; Sami`` Elferik (King Fahd University of Petroleum and Minearls (Kfupm))
14.30-14.50	**ID:88 Data-Driven Geospatial Analysis for Utility-Scale Solar PV Siting** MOHAMED ELKADEEM (King Fahd University of Petroleum and Minerals)*; Mohamed Abido (King Fahd University of Petroleum and Minerals)	**ID:129 Design of Class-E/F_2 Inverters** Jun Jiang (Chiba institute of Technology)*; Zhihao Yang (Chiba institute of Technology); Soraki Aizawa (Chiba institute of Technology); Xiuqin Wei (Chiba institute of Technology)	**ID:320 Intelligent Optimization-Based Load Frequency Control for Multi-Source Hybrid Power Systems** Muhammad S. Tolba (King Fahd University of Petroleum and Minearls (Kfupm)); Muhammad Majid Gulzar (King Fahd University of Petroleum and Minerals)*; Mohamed Soliman (King Fahd University of Petroleum and Minearls (Kfupm)); Sami El-Ferik (King Fahd University of Petroleum and Minearls (Kfupm))
14.50-15.10	**ID:99 A New Symmetric High Step-Up DC/DC Converter with Three-Winding Active-Switched Coupled Inductors and a Voltage-Stacked Module** Cheng-Hsuan Chiu (Department of Engineering Science, National Cheng Kung University); SUNG-PEi YANG (Department of Engineering Science, National Cheng Kung University)*; Shiu-Ju Chen (Department of Electrical Engineering, Kun Shan University); Cho-Ming	**ID:130 Hydrogen Recovery from Waste Plastics-Derived Syngas via Pyrolysis and Palladium Membrane Separation** Mohammad Rasul (Central Queensland University)*	**ID:325 Techno-Economic Performance of Renewable-Powered Hydrogen Systems for Residential Electricity Supply** Mohamed Elsheikh (Kfupm)*; Pieter Boom (Kfupm); Awad Alquaity (Kfupm)
15.10-15.30	**ID:103 A New High Step-Up DC-DC Converter with Three-Winding Coupled Inductor for Renewable Energy Systems** SHiN-JU CHEN (Department of Electrical Engineering, Kun Shan University)*; Sung-Pei Yang (Department of Engineering Science, National Cheng Kung University); Chao-Ming Huang (Department of Electrical Engineering, Kun Shan University); Shun-Wei Liang (Dep	**ID:86 A Fault-Tolerant Model Predictive Control with Self-Adaption for the Three-Phase T-Type Inverter** Joaquim Monteiro (Isel)*; Fernando Silva (Ist/Ul); Sonia Pinto (Ist/Ul); Vitor Pires (Estsetubal/Ips)	**ID:136 Method for the Automated Evaluation of Energy Flexibility in Industrial Energy Systems** Kerim Torolsan (Fraunhofer institute for Manufacturing Engineering and Automation iPA)*; Manuel Schmalzried (University of Stuttgart institute for Energy Efficieny in Production EEP)
15.30-15.50	**ID:111 A Deep Learning-Based Ensemble Method for Parameter Estimation of Photovoltaic Modules Using a Physical Model** Sung-Pei Yang (National Cheng Kung University); Fong-Ruei Shih (National Cheng Kung University); Chao-Ming Huang (Kun Shan University)*; Shin-Ju Chen (Kun Shan University); Cheng-Hsuan Chiua (National Cheng Kung University)	**ID:87 Decoupled Direct Power Compensators for a Dual-Inverter-Based Upfc** Joaquim Monteiro (Isel)*; Fernando Silva (Ist/Ul); Sonia Pinto (Ist/Ul); Vitor Pires (Estsetubal/Ips)	**ID:450 Disaggregation of Load Profiles of Industrial Processing Machines Utilizing a Transformer Based Artificial Neural Network Architecture** Dietmar HOlderle (Fraunhofer iPA)*; Robin Binnig (Fraunhofer iPA)
15.50-16.10	**AFTERNOON COFFEE BREAK**		

	Date: 28 OCTOBER 2025	
	SESSION F6 **Room F0.01** **CHAIRS: Daniel Fodorean, Chadi Mahfoud**	**SESSION F7** **Room F4.03** **CHAIRS: Narutaka Nomura, José Baptista**
16.10-16.30	**ID:115 Assessing the Potential of Vehicle-to-Shelter (V2S) for Emergency Response: A Case Study of The Tokyo Metropolis** ZHANG CHENGQUAN (Tokyo institute of Technology)*; HiROSHi Kitamura (NEC Corporation); Mika Goto (Tokyo institute of Technology)	**ID:108 Magnetic Core loss Assessment using a High-Power AC-Source based on a SiC H-Brigde converter** Simon Johannliemke-Appelbaum (Ruhr University Bochum)*; Jan Przybylak (Ruhr University Bochum); Volker Staudt (Ruhr University Bochum)
16.30-16.50	**ID:117 Dual PWM Inverter by Coupling Reactor for PMSM and Active LC-LPF Driven by IRM-ILQ Optimal Current Control** Kazuki Abe (Shibaura institute of Technology)*; Kohei Aiso (Shibaura institute of Technology); Ryuki Ono (Shibaura institute of Technology); Hiroshi Takami (Shibaura institute of Technology); Masashi Nakamura (TMEiC corporation); Toshiaki Oka (TMEiC corpo	**ID:109 Validation of Load Adaptive Power Efficiency Control in a Processor Power Supply Integrated into Computing System** Shinichi Kawaguchi (Kanagawa institute of Technology)*
16.50-17.10	**ID:119 Smart Microclimate Estimation System for Energy-Efficient Greenhouse Control** Goro Terumichi (Graduate School of Science and Technology, Keio University)*; Emiri Hayashi (Graduate School of Science and Technology, Keio University); Hiroaki Nishi (Graduate School of Science and Technology, Keio University)	**ID:110 Optimal Control for Energy Storage System Using Prediction of Wind Farm Output _Experiment Verification_** Hibiki Morita (Chiba University)*
17.10-17.30	**ID:316 Auxiliary Power and Electrical Losses for PV and BESS power plants** Christian Sanchez (Boise State University); Julie Matarweh (Boise State University)*; Eklas Hossain (Boise State University)	**ID:61 A Multi-Criteria Decision Support System for the Evaluation of Solar Panels** Aleem Pasha Shaik (King Fahd University of Petroleum and Minerals)*; Ahmed Attia (King Fahd University of Petroleum and Minerals); Yasser Almoghathawi (King Fahd University of Petroleum and Minerals); Hasan Masrur (King Fahd University of Petroleum and Minerals); Abdullahi Salad (King Fahd University of Petroleum and Minerals)
17.30-17.40	**BREAK**	

	Date: 28 OCTOBER 2025		
	SESSION F8 Room F4.06 **Organized Session:Technological Developments and Applications of Hydrogen in the Energy Transition** **CHAIRS: Mariapia Martino, Evren Unsal**	**SESSION F9** Room F4.07 **CHAIRS: Joyce Assaf, Yudai Furukawa**	**SESSION F10** Room F4.08 **CHAIRS: Mohamed Kotb, Mohamed Elsheikh**
16.10-16.30	**ID:128 Reactor design for a greener future: Comparing isothermal and adiabatic methanation under renewable energy fluctuations** Michelle Mattenet (Shell)*; Francesco Franco (Shell); Gerald Sprachmann (Shell); Abdullah Bamoshmoosh (Politecnico di Milano); Francesc Font (Universidad Politecnica de Catalunya)	**ID:237 Advanced Control Strategy for PV–Diesel/Gas Hybrid Systems in Isolated Southern Algerian Grid** Linda Hassaine (Centre de Développment des energies renouvelables)*	**ID:100 Improving Energy Efficiency During State-of-Charge Balancing in Battery Energy Storage Systems through Enhanced Use of Circulating Current** Tsuyoshi Omi (HiTACHi,LTD.)*; Tomoyuki Hatakeyama (HiTACHi,LTD.)
16.30-16.50	**ID:123 Advancing Overpressure Quantification Methodology for Hydrogen Venting** Adisa Jarubenjaluk (Politecnico di Torino)*; Josué Melguizo-Gavilanes (Shell Global Solutions B.V.); Pascale Vacca (Universitat Politècnica de Catalunya); Andrea Carpignano (Politecnico di Torino)	**ID:376 Development of a Cost-Effective Internet-Based Home Energy Management System with Appliance Prioritization** Motaz Amer (AAST&MT)*	**ID:131 Investigation of Combustion and Emission Performance in Ammonia-Diesel Dual-Fuel Engines** Mohammad Rasul (Central Queensland University)*
16.50-17.10	**ID:137 A simulation-based evaluation of a direct air capture system with coupled electrochemical and thermochemical processes** Giuseppe Calabrese (Politecnico di Torino)*; Massimo Santarelli (Politecnico di Torino); ignasi Burgués-Ceballos (Universitat Politècnica de Catalunya); Gerald Sprachmann (Shell Global Solutions international B.V.)	**ID:235 A Two-Stage Nonlinear Model Predictive Control for Navigation and Resource Allocation of Autonomous Navy Ships** Natalie Xu (Lehigh University); Saskia Putri (Lehigh University); Faegheh Moazeni (Lehigh University); Javad Khazaei (Lehigh University)*	**ID:63 Fault tolerant multi-stack hydrogen fuel cell system for maritime applications** Jihane AiT EL MAHJOUB (iREENA laboratory (Nantes University))*; Jean-christophe OLiViER (iREENA laboratory (Nantes University)); Mohamed MACHMOUM (iREENA laboratory (Nantes University)); Salah LAGHROUCHE (Marie et Louis Pasteur University, UTBM, CNRS FEMT
17.10-17.30	**ID:196 A concept study for autonomous and scalable methanol production facility** Joris Groot (Technical University of Delft); Arnoud Higler (Shell Global Solutions international BV); Moumita Rana (Technical University of Delft); Evren Unsal (Shell Global Solutions international BV)*	**ID:402 Effect of DC Bias Characteristics of Multi-layer Ceramic Capacitors on Surge Voltage Suppression in Snubber Circuits** Kenji Natori (Chiba University)*; Koki Takei (Chiba University); Kotaro Kawasaki (Chiba University); Yian Hu (Chiba University); Yukihiko Sato (Chiba University); Taro Kuwano (institute of Science Tokyo); Manabu Hagiwara (Keio University); Sakyo Hirose (Murata Manufacturing Co., Ltd.); Hiroki Taniguchi (Nagoya University)	**ID:133 Reactive Current Control for Grid-Side Power Factor Correction of WPT System Using Matrix Converter** Masaki Yamamoto (Nagoya institute of Technology)*; Wataru Kitagawa (Nagoya institute of Technology); Takaharu Takeshita (Nagoya institute of Technology)
17.30-17.40	**BREAK**		

Date: 28 OCTOBER 2025		
	SESSION F11 Room F0.01 **CHAIRS: Kazuki Abe, V. Fernão Pires**	**SESSION F12 Room F4.03** **CHAIRS: Shinichi Kawaguchi, Kashif Azher**
17.40-18.00	**ID:127 Enhanced Quadrotor Trajectory Tracking Using an Integral Sliding Mode Controller in Wind-Disturbed Environments** Muhammad Majid Gulzar (King Fahd University of Petroleum and Minerals)*; Hassan Zia Ullah (King Fahd University of Petroleum and Minearls (KFUPM)); Salman Habib (King Fahd University of Petroleum and Minearls (KFUPM))	**ID:282 Artificial Neural Network-Based Power Prediction of a 5.5 kWp PV System in Algiers (Algeria) Under Mediterranean Climate Conditions** Houria ASSEM (CDER)*
18.00-18.20	**ID:13 Novel Transition to Solar Energy Systems in Higher Education Research Centers in Cuenca, Ecuador. Case Study CIITT of the Universidad Católica de Cuenca** Daniel icaza (Catholic University of Cuenca, Cuenca, Ecuador)*	**ID:46 Renewable Energy Integration in Microalgae-Based Biofuel Systems: Exploring Solar, Geothermal, and Advanced Conversion Pathways** Seyed Abolfazl Mirnezami (Macquarie University)*; Nazmul Huda (Macquarie University); Vladimir Strezov (Macquarie University)
18.20-18.40	**ID:34 Models of Energy Communities** ionut Ciobanu (University POLiTEHNiCA of Bucharest)*	**ID:49 Constructing Reliable Prediction Intervals for Wind Speed Forecasting Using Adaptive Kernel Density Estimation** Rami AL-HAJJ (American University of the Middle East)*; Ali ASSi (iEEE); Mehmet Rida TUR (Batman University)
18.40-19.00	**ID:35 Novel Solar Distillation Dome: New Approach for Sustainable Freshwater Production Augmentation** Shafiqur Rehman (King Fahd University of Petroleum and Minerals & Research institute); Mohamed E. Zayed (King Fahd University of Petroleum & Minerals); Mohamed Ghazy (King Fahd University of Petroleum & Minerals); Kashif irshad (King Fahd University of	**ID:45 Design and Deployment of Deception-Based Honeypot Systems for Early Detection of Advanced Persistent Threats** Pradyot Mahadeven Khajuria (University of Huddersfield)*
19.30	**Welcome Party**	

	SESSION F13 Room F4.06 CHAIRS: Adnan Majeed, Adisa Jarubenjaluk	SESSION F14 Room F4.07 CHAIRS: Ainur Kapparova, Kenji Natori	SESSION F15 Room F4.08 CHAIRS: Mohammad Rasul, Yuji Mizino
17.40-18.00	**ID: 497 Transient Response of DC-DC Converter through Dynamic Feedback Gain** Yudai Furukawa (Nagasaki Institute of Applied Science)* Fujio Kurokawa (Nagasaki Institute of Applied Science))	**ID:162 Solar-Powered Cooling Unit Based on Thermoelectric Cooler TEC for Cooling and Dehumidification Applications** Mahmoud Elboghdadi (KFUPM)*; Atia Khalifa (KFUPM); Mohamed Kotb (KFUPM)	**ID:180 Analysis on Sub-Synchronous Oscillation of Grid Forming Converters Connected to Resistive Grids** Yasuaki Mitsugi (TMEiC)*; Takuro Abe (Tokyo City University); Satoshi Sugimori (TMEiC); Tatsuhito Nakajima (Tokyo City University)
18.00-18.20	**ID:57 Output Power Characteristics and Its Control Range of Star-Delta Connected Three-Phase SR-SAB DC-DC Converter** Yu Sonohara (Nagoya institute of Technology)*; Kohei Budo (Gifu University); Wataru Kitagawa (Nagoya institute of Technology); Takaharu Takeshita (Nagoya institute of Technology)	**ID:64 Advanced Electrode Homogenization-Based Design of an Electrochemical Pseudo-2D Model for Fast Charging Li-ion Batteries** Raymonda DiAB (Nantes University)*; Emmanuel SCHAEFFER (institut de Recherche en Energie Electrique de Nantes Atlantique (iREENA)); FranCois AUGER (institut de Recherche en Energie Electrique de Nantes Atlantique (iREENA)); Philippe POiZOT (institut des	**ID:297 Current Balancer design in Parallel Opereted Inverter for Several-kW class MHz-band Wireless Power Transfer System** Masamichi YAMAGUCHi (Nagaoka University of Technology)*; Kodai Nishikawa (Nagaoka University of Technology); Hiroki Watanabe (Nagaoka University of Technology); Jun-ichi itoh (Nagaoka University of Technology)
18.20-18.40	**ID:58 8/6 Switched Reluctance Motor Drive Fed by a Bipolar DC Microgrid with Active Voltage Balancing** Victor Pires (Polytechnical institute of Setubal); Daniel Foito (Polytechnical institute of Setubal); Armando Cordeiro (Polytechnic institute of Lisboa); Armando Pires (Polytechnical institute of Setubal)*	**ID:101 Machine Learning Models for Predicting Electrode and Membrane Degradation in Alkaline Water Electrolysis for Hydrogen Production** Santosh Walke (College of Engineering, National University of Science and Technology)*; Syed Rizwan (College of Engineering, National University of Science and Technology)	**ID:41 Smart Water Level Monitoring and Control System for Efficient Water Resource Management Using IoT** Ainur Zhumadillayeva (L.N. Gumilyov Eurasian National University); Tariq Ahanger (Prince Sattam Bin Abdulaziz University)*; Zhanuzak Abdibayev (L.N. Gumilyov Eurasian National University); Saule Sagnayeva (L.N. Gumilyov Eurasian National University); Kanagat Dyussekeyev (L.N. Gumilyov Eurasian National University)
18.40-19.00	**ID:185 Frequency and Voltage Control with Active Power Output Fluctuation Suppression for DFIG-based Wind Turbine Generator** Satoshi Sakurai (Sophia university)*; Orie Sakamoto (Sophia University)	**ID:410 Spectral Analysis of a Fresnel–plano-Concave for Low-Concentration Photovoltaics** Sayat Orynbassar (Al-Farabi Kazakh National University)*; Ainur Kapparova (Al-Farabi Kazakh National University); Dinara Almen (Al-Farabi Kazakh National University); Yeldos Svanbayev (Al-Farabi Kazakh National University); Ahmet Saymbetov (Al-Farabi Kazakh National University); Madiyar Nurgaliyev (Al-Farabi Kazakh National University); Askhat Bolatbek (Al-Farabi Kazakh National University); Gulbakhar Dosymbetova (Al-Farabi Kazakh National University)	**ID:377 Computational Modeling and Energy Optimization of Reverse Osmosis Desalination under Fouling and Scaling Effects** Jawaher Hajaji (King Fahd University of Petroleum and Materials)*
19.30	**Welcome Party**		

Date: 29 OCTOBER 2025	
Room: F0.01	**KEYNOTE**
09.00-10.00	Speaker: **Professor Junichi Itoh** **IEEE Fellow from Nagaoka University of Technology, Japan** **Chairs: Professor V. Fernão Pires, Professor Takaharu Takeshita**
10.00-10.10	**BREAK**
Room: F0.01	**KEYNOTE**
10.10-11.10	Speaker: **Professor Felix Himmelstoss** **FH Technikum Wien, Austria** **Chairs: Professor Mehdi Bagheri, Professor Haruhi Eto**
11.10-11.30	**MORNING COFFEE BREAK**

	Date: 29 OCTOBER 2025	
	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS
	SESSION F16 Room F0.01 **CHAIRS: Patxi Garcia Novo, Atia Khalifa**	**SESSION F17 Room F4.03** **CHAIRS: Niko Lukac, Sarah-Lena Steinacker**
11.30-11.50	**ID:135 Energy Management Strategies for Optimal Operation of a Dual Chemistry Hybrid Battery System on a Modular Power Barge** Samed GUzel (Elkon)*; Batuhan Cakan (Elkon); Mert Can Celik (Elkon)	**ID:139 A Control Method for Grid-forming Inverters to Suppress Overcurrent at Grid Fault Clearance** Shoya Yamamoto (Tokyo City University)*; Tatsuhito Nakajima (Tokyo City University); Yasuaki Mitsugi (TMEiC); Satoshi Sugimori (TMEiC)
11.50-12.10	**ID:203 Maximum Power Point Tracking in Photovoltaic Systems Using the Snake Optimization Algorithm** Nursultan Koshkarbay (Al Farabi Kazakh National University)*; Karam Khairullah Mohammed (University of Malaya); Saad Mekhilef (Swinburne University of Technology); Nurzhigit Kuttybay (Al Farabi Kazakh National University); Nurdaulet Kalassov (Al Farabi Kazakh National University); Ahmet Saymbetov (Al Farabi Kazakh National University); Madiyar Nurgaliyev (Al Farabi Kazakh National University)	**ID:305 Performance Evaluation of Grid-Connected PV Systems under Variable Tilt Angles: A Case Study in Karaman Industrial Zone, Turkiye** Celal Ugurluyol (Institute of Science); Seda Kul (Karamanoglu Mehmetbey University)*
12.10-12.30	**ID:120 Comparative Analysis of Feature Selection Techniques for SoH Estimation in Li-ion Batteries via Electrochemical Impedance** Motoya Furugori (Tokyo University of Science)*; Noboru Katayama (Tokyo University of Science)	**ID:142 Machine Learning for Solar Power Prediction: Leveraging Large Scale Real Solar Generation Data and Weather Inputs in Saudi Arabia** Abdulaziz Abdulaziz (King's college London)*
12.30-12.50	**ID:138 Study on Grid-Forming Inverter Response to Grid Voltage Phase Jump Using Power-Angle Curve** Tomoki Aoyama (Tokyo City University)*; Tatsuhito Nakajima (Tokyo City University); Yasuaki Mitsugi (TMEiC); Satoshi Sugimori (TMEiC)	**ID:144 Correlation Analysis Between Simulated Heat Generation and Battery Degradation Under Fast Charging** Xuelu WANG (ESTACA)*; Toufik Azib (ESTACA); Jianwen Meng (ESTACA); Khelil Sidi-Brahim (ESTACA)
12.50-13.50	**LUNCH**	

	Date: 29 OCTOBER 2025		
	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS
	SESSION F18 Room F4.06 **CHAIRS: Simeon Kremzow-Tennie, Lidia Navarro**	**SESSION F19 Room F4.07** **CHAIRS: Chun Yin Li, Masaya Kato**	**SESSION F20 Room F4.08** **CHAIRS: Mehdi Bagheri, Keiichi Hirose**
11.30-11.50	**ID:146 Concept Study on a Transformerless Medium Voltage Battery Storage System based on MOSFET-H-Bridges** Paul Aspalter (MPEi, TU Wien)*; Yasuaki Mitsugi (The University of Tokyo); Markus Vogelsberger (MPEi, TU Wien); Uwe Drofenik (MPEi, TU Wien); Hans Ertl (MPEi, TU Wien)	**ID:210 Energy supply optimization and demand-side flexibility of a paper drying plant** Marco Lauricella (ABB AG Corporate Research Center)*; Jonathan Sejdija (FH Aachen); Jan Christoph Schlake (ABB AG Corporate Research Center); Ralf Schemm (FH Aachen); Andreas Zehnpfund (ABB AG Corporate Research Center); Philip Kayser (Modellfabrik Papie	**ID:116 Analytical Study of Datacenter Resiliency Improving Through Virtual Energy Transfer** Andres Kwasinski (Rochester institute of Technology); Alexis Kwasinski (University of Pittsburgh)*
11.50-12.10	**ID:147 Overshoot Reduction in Levitation and Propulsion Control of Linear Induction Motors** Takumu Horimoto (Osaka institute of Technology)*; Toshimitsu Morizane (Osaka institute of Technology); Hidehito Matayoshi (Osaka institute of Technology); Soma Jinno (Osaka institute of Technology)	**ID:214 Small-Signal Model of Asymmetric PWM Control based LLC Resonant Converter** Gwang-Min Park (Korea National University of Transportation)*	**ID:122 Energy Generation Forecasting Techniques for Energy Communities** Angel Marcos Trujillo Trujillo (Universidad de La Laguna)*; Darius Peteleaza (University of Sibiu); Jose Manuel Gonzalez Cava (Universidad de La Laguna); Lorena Maria Olaru (University of Sibiu); Arpad Gellert (University of Sibiu); Juan Albino Mendez Perez (Universidad de La Laguna)
12.10-12.30	**ID:148 A Correction of Wind Speed Decreasing by the Wake Effect using Double-Gaussian Wake Model and Wind Predictions** Yuancheng Li (Niigata University)*; Akira SUGAWARA (Niigata University); isak Lineekela SHAWAPALA (Niigata University)	**ID:209 Interpretable Neural Network Control for Boost Converters in Quasi-Resonant Mode** Zhi Li (Technical University of Munich)*; Benjamin Schwabe (infineon Technologies AG); Lorenzo Servadei (Technical University of Munich); Robert Wille (Technical University of Munich)	**ID:166 Performance Analysis of Enhanced Vapor Injection Air-Source Heat Pumps under Cold Climate Conditions** EoJin Kim (Pukyong National University)*; Seon-Woo Lee (Pukyong National University); Ji-Won Yoon (Pukyong National University); Jung-in Yoon (Pukyong National University); Sung-Hoon Seol (Pukyong National University)
12.30-12.50	**ID:149 Excitation Characteristics of Separate Excitation Transformer by Simulation and Experiment** Shinichi Nagou (Osaka Institute of Technology)*; Toshimitsu Morizane (Osaka Institute of Technology); Hidehito Matayoshi (Osaka Instituteof Technology); Soma Jinno (Osaka Institute of Technology)	**ID:213 Risk analysis of fuel procurement costs on small-scale wood biomass power generation (Combined Heat and Power) projects** Masaya Kato (Shibaura institute of Technology Graduate School)*	**ID:178 Verification tests for the utilization of regenerative power in case of substation bus voltage droppage** Shun iwatsuki (East Japan Railway Company)*
12.50-13.50	**LUNCH**		

	Date: 29 OCTOBER 2025	
	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS
	SESSION F21 **Room F4.03** **CHAIRS: Yudai Furukawa, Motoya Furugori**	**SESSION F22** **Room F4.06** **CHAIRS: Shoya Yamamoto, Abdulaziz Abdulaziz**
13.50-14.10	**ID:160 Solar Vacuum Membrane Distillation for Desalination in Arid Regions** Atia Khalifa (King Fahd University of Petroleum and Minerals)*; Mohamed Kotb (KFUPM); Mahmoud Elboghdadi (King Fahd University of Petroleum and Minerals)	**ID:164 Efficiency Analysis based on a Balance of Plant Model for a Modular Electrolysis System** Sarah-Lena Steinacker (University of Applied Sciences Ulm)*
14.10-14.30	**ID:163 Optimization of the spatial distribution of turbines in a tidal energy array for the maximization of its capacity factor** Patxi Garcia Novo (Nagasaki University)*; Yusaku Kyozuka (Nagasaki University); Daisaku Sakaguchi (Nagasaki University)	**ID:165 GPU-accelerated Sparse Voxel Octree for irradiance simulation using remote sensing data** Niko Lukac (University of Maribor)*; Domen Mongus (University of Maribor); Gorazd Stumberger (University of Maribor); Marko Bizjak (University of Maribor)
14.30-14.50	**ID:271 Priorities for Upgrading Electric Vehicle Public Charge Points to Reduce Charging Session Duration** Dinesh Chacko (institute of Electrical and Electronics Engineers)*; Monika Wahi (Research and Data Lab)	**ID:167 Analysis of EMI and Efficiency in a GaN-Based Non-Resonant DAB Converter Operating at High Switching Frequencies** Manel Vilella (Universitat Politecnica de Catalunya)*; David Lumbreras (Universitat Politecnica de Catalunya); Néstor Berbel (Universitat Politecnica de Catalunya); Jordi Zaragoza (Universitat Politecnica de Catalunya)
14.50-15.10	**ID:188 Dual-Output Buck–Boost Inverter with Optimized Use of Passive and Active Components** Abd Ullah (Chosun University)*	**ID:197 Kazakhstan's Fuel-Energy Flows (2021–2023): Energy Balances and Sankey Visualizations by LEAP** Gulden Ormanova (Astana iT University)*; Lunara Rakhymbay (Astana iT University); Nurkhat Zhakiyev (Astana iT University); Tomas Mac Uidhir (University College Cork)
15.10-15.30	**ID:189 Vienna Rectifier Front-End Dual Inverter Drive System with Synergetic Control** Takanobu Ohno (University of innsbruck)*; Spasoje Miric (University of innsbruck); Michael Haider (independent researcher)	**ID:199 Distributed Energy Management in Solar-Powered EV Charging: Monitoring and Forecasting** Shantanu Saxena (iiT Jammu); Sushant Saroch (Model institute of Engineering and Technology); Nalin Kumar Sharma (iiT Jammu); SUDHAKAR MODEM (iiT Jammu)*
15.30-15.50	**ID:143 Data-Centric Linear Sate Feedback Control of Inverter-based Resources (IBRs) using Willems' Fundamental Lemma** Zihao Xin (Lehigh University); Javad Khazaei (Lehigh University)*	**ID:200 Investigation of the Reduction of Charging Frequency in Electric Vehicles with Photovoltaic Systems** Kenta Takishima (Nissan Motor Co., Ltd.)*; Yosuke Tomita (Nissan Motor Co., Ltd.); Tsutomu Tanimoto (Nissan Motor Co., Ltd.); Masanori Saito (Nissan Motor Co., Ltd.); Yoshiyuki Nagai (Nissan Motor Co., Ltd.); Kimihiro Nishijima (Sojo University)
15.50-16.10	**AFTERNOON COFFEE BREAK**	

	Date: 29 OCTOBER 2025		
	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS
	SESSION F23 Room F0.01 **CHAIRS: Paul Aspalter, Yuancheng Li**	**SESSION F24 Room F4.07** **CHAIRS: Marco Lauricella, Zhi Li**	**SESSION F25 Room F4.08** **CHAIRS: Kazuhiro Kajiwara, Shun iwatsuki**
13.50-14.10	**ID:168 Design of GaN-Based LLC-DAB Converter for Light Electric Vehicles** Lidia Navarro (Technical University of Catalonia)*; Jordi Zaragoza (Technical University of Catalonia); Néstor Berbel (Technical University of Catalonia); Manuel Lamich (Technical University of Catalonia); Gabriel Capellà (Technical University of Cataloni	**ID:182 High Power-Density Insulated Single-Stage AC/DC-Converter with Very Low Internal Energy Storage** Simon Johannliemke-Appelbaum (Ruhr University Bochum)*; Karl Lutz (Ruhr University Bochum); David Reiff (Siemens AG); Volker Staudt (Ruhr University Bochum)	**ID:243 Parameter Estimation with Phototropic Growth Algorithm and Cape Lynx Optimizer for Lithium-Ion Battery** Kezban KOC SAVAS (Gazi University)*; Mehmet DEMIRTAS (Gazi University); Ipek CETINBAS (Eskisehir Osmangazi University)
14.10-14.30	**ID:173 Can Crowdsourced SOH Data Reveal the Effects of Fast Charging on EV Battery Degradation?** Simeon Kremzow-Tennie (Bochum University of Applied Sciences, Electric Vehicle institute)*; Friedbert Pautzke (Bochum University of Applied Sciences, Electric Vehicle institute); Benedikt Schmuelling (University of Wuppertal, institute of Electric Mobilit	**ID:183 State of Health Estimation for Second-Life Lithium-ion Batteries in Renewable Energy Storage Using SHAP-NSSR-BiLSTM** Chi Chung Lee (Hong Kong Metropolitan University); Panpan Hu (Hong Kong Metropolitan University); Chenhang Bian (Hong Kong Metropolitan University); Chun Yin Li (Hong Kong Metropolitan University)*	**ID:425 Performance Evaluation of Variable Reluctance Resolvers with Different Stator Winding Structures** Nihat Ozturk (Gazi University)*; Sedef Degirmenci (Gazi University)
14.30-14.50	**ID:174 In-Situ Determination of Battery State of Health Considering the Remaining Capacity in Electric Vehicles – A Case Study** Tobias Scholz (Bochum University of Applied Sciences, Electric Vehicle institute)*; Friedbert Pautzke (Bochum University of Applied Sciences, Electric Vehicle institute); Benedikt Schmuelling (University of Wuppertal, institute of Electric Mobility	**ID:184 Optimization of Hybrid CHP–PV Systems with Battery Storage for Small-Scale District Heating Applications** Mihai Tirsu (Technical University of Moldova, institute of Power Engineering of Moldova)*; Galina Verdes (Technical University of Moldova, institute of Power Engineering)	**ID:140 Adaptive hybrid ANFIS-PSO approach for Indirect Evaporative Cooling Performance Prediction** ASHRAF JAHLAN (king Fahd University of Petroleum and Minerals)*; Luai Alhems (king Fahd University of Petroleum and Minerals)
14.50-15.10	**ID:201 Minimum Conduction Losses and Power Transistor Effort of Battery-Integrated Multilevel Inverters** Rahel Herzog (Advanced Mechatronic Systems Group)*; Johann W. Kolar (Advanced Mechatronic Systems Group); Jonas Huber (Advanced Mechatronic Systems Group)	**ID:211 Run-of-river Hydropower Generation Modelling in European Countries by Open-access Meteorological Database** Yi Liu (KTH Royal institute of Technology)*; Mikael Amelin (KTH Royal institute of Technology)	**ID:361 Machine Learning–based Hvac Optimization for Energy-Efficient Air Conditioning in Office Buildings** Ashraf Jahlan (King Fahd University of Petroleum and Minerals)*; Huanxin Chen (Huazhong University of Science and Technology); Luai Alhems (King Fahd University of Petroleum and Minerals)
15.10-15.30	**ID:202 Enhancing Photovoltaic Generation Forecasting with Diffusion-Based Profile Generation** Guillaume Habault (KDDi Research, inc.)*; Masato Taya (KDDi Research, inc.)	**ID:296 Electrification of Emergency Generator: Quantitive comparison between Diesel Generator and ESSs** Abdulla Aldabbous (Saudi Aramco)*	**ID:212 Comparative Performance Analysis of Switching Devices in a Continuous Conduction Mode Boost Converter** Muhammad Muzammil Farooqi (University of Palermo)*; Filippo Pellitteri (University of Palermo); Gerlando Frequente (University of Palermo); Giuseppe Schettino (University of Palermo); Rosario Miceli (University of Palermo); Angelo Alberto Messina (STMicroelectronics)
15.30-15.50	**ID:204 Comparison and Evaluation of PWM-Based Overmodulation Methods** Simon Johannliemke-Appelbaum (Ruhr University Bochum)*; Volker Staudt (Ruhr University Bochum)	**ID:299 An SOC-Based Charging Scheme for A Li-ion Battery Stack** Fereshteh Poloei (Queen's University)*; alireza bakhshai (Queens university)	**ID:383 Cyber Security, Privacy, Big Data and GenAI Issues in Smart Grid Systems: Challenges, Solutions, and Future Direction** Ali Oter (KSU Department of Electronic and Automation)*; Seref Sagiroglu (Gazi University, Department of Computer Engineering)
15.50-16.10	**AFTERNOON COFFEE BREAK**		

	Date: 29 OCTOBER 2025	
	SESSION F26 **Room F4.03** **CHAIRS: Takanobu Ohno, Abd Ullah**	**SESSION F27** **Room F4.06** **CHAIRS: Gulden Ormanova, Sudhakar Modem**
16.10-16.30	**ID:150 Characterization of Ultra-Low Pt Catalyst Layers for PEMFCs under Varying Humidity and Pt/C Ratios** Hikaru Arai (Tokyo University of Science)*; Akira Nishimura (Tokyo University of Science); Noboru Katayama (Tokyo University of Science)	**ID:154 Perspectives for the Decarbonization of a Mountain Hut in the Trentino Region** Niccolo Andreetta (NTNU)*; Spyridon Chapaloglou (Wartsila Norway AS); Elisa Bortolotti (University of Trento); Elisabetta Tedeschi (NTNU)
16.30-16.50	**ID:151 Fabrication and Evaluation of Flow-Directional Graded Catalyst Layers in PEMFCs Using Electrospray Deposition** Eiji Yoshida (Tokyo University of Science)*; Hikaru Arai (Tokyo University of Science); Noboru Katayama (Tokyo University of Science)	**ID:155 Assessing vegetation-driven reduction in window solar heat gain using LiDAR-based modelling** Marko Bizjak (University of Maribor)*; Gorazd _tumberger (University of Maribor); Domen Mongus (University of Maribor); Niko Luka_ (University of Maribor); Jihui Yuan (Osaka Metropolitan University)
16.50-17.10	**ID:152 Small-Signal Model of Asymmetric PWM Control based Parallel Resonant Converter** Na-Yeon Kim (Korea National University of Transportation)*	**ID:158 Forecasting Peak Supply of Solar PV Systems Utilizing Machine Learning Algorithms** Ahmed Ali (University of Johannesburg)*
17.10-17.30	**ID:153 Hill-climbing method using solar radiation estimation for PV system with capacitor directly connected to power converter input** Seiya Hattori (Shizuoka University)*; Takumi Soeda (Shizuoka University); Hitoshi Haga (Shizuoka University)	**ID:159 Enhancement of Solar Panel Efficiency Using Anti Reflective Coatin** Ahmed Ali (University of Johannesburg)*
17.30-17.50	**ID:391 Behaviorally Informed Demand-Side Management in Hyper-Arid Regions: A Study of Nudges in Qatar's Smart Grid** Ameni BOUMAiZA (QEERi)*; Ahmad Furkan (Qatar Environment and Energy Research institute)	**ID:384 Simplified Photovoltaic and Wind Turbine Models for Phasor-Domain Simulation Studies of Renewable Dominated Power Systems** Mahdi Zolfaghari (Department of Electrical Engineering, Amirkabir University of Technology); Moslem Salehi (Department of Electrical Engineering, Technical and Vocational University); Venera Nurmanova (Electrical and Computer Engineering Department, Nazarbayev University)*; Gevork B. Gharehpetian (Department of Electrical Engineering, Amirkabir University of Technology); Mehdi Bagheri (Department of Electrical and Computer Engineering, School of Engineering and Digital Sciences, Nazarbayev University)
19.00	**Gala Dinner**	

	Date: 29 OCTOBER 2025		
	SESSION F28 Room F0.01 **CHAIRS: Guillaume Habault, Simon Johannliemke-Appelbaum**	**SESSION F29 Room F4.07** **CHAIRS: Fereshteh Poloei, Abdulla Aldabbous**	**SESSION F30 Room F4.08** **CHAIRS: Muhammad Muzammil Farooqi, Ali Oter**
16.10-16.30	**ID:176 Enhancing Off-Grid Energy Autonomy through Coordinated Energy Management among Distributed Households: Toward Energy Justice** Masao Shinji (Waseda University)*; Yu Fujimoto (Waseda University); Nanae Kaneko (Waseda University); Farhan Mahmood (Space Environment and Energy Labs., NTT, inc.); Motoki Suwabe (Space Environment and Energy Labs., NTT, inc.); Toshihiro Hayashi (Space E	**ID:340 A Frequency Support Control Strategy for Single-Phase Inverter Cascaded PV-Storage Grid-Connected System** Denian Liu (Central South University)*; Hua Han (Central South University); Guangze Shi (Hunan University of Technology and Business); Junlan Ou (Universitat Politècnica de Catalunya)	**ID:488 Evaluation of GaN-Based Paralleled DC-DC Converters for ICT Equipment** Kazuhiro Kajiwara (Nagasaki institute of Applied Science); Takato Suzuta (Nagasaki institute of Applied Science)*; Fujio Kurokawa (Nagasaki institute of Applied Science)
16.30-16.50	**ID:177 Decarbonization of the civil sector through utility-scale PV and related grid improvements: assessment of economic and carbon impact in an Italian case study** Elena Benedetti (La Sapienza University of Rome)*; Federico Castellani (La Sapienza University of Rome); Cecilia Servi (La Sapienza University of Rome); Federico Santi (La Sapienza University of Rome); Maria Carmen Falvo (La Sapienza University of Rome)	**ID:346 A Modified Direct Current-Synchronization Control for Fault Ride Through Enhancement of Grid-forming Converters** He Guo (Central South University)*; Hua Han (Central South University)	**ID:507 An Optimal Route Planning for EV Shuttle Services Based on Openstreetmap and Fundamental Geospatial Data of Japan** Koki Kawaoka (Nagasaki Institute of Applied Science)*; Yuji Mizuno (Osaka Electro-Communication University); Jiyoung Choi (Nagasaki Institute of Applied Science); Nobumasa Matsui (Nagasaki Institute of Applied Science)
16.50-17.10	**ID:181 Novel full converter topology for variable speed wind generators** Taiga Yamaguchi (Chiba university)*; Kenta Koiwa (Shibaura institute of technology); Kang-Zhi Liu (Chiba university)	**ID:344 A multi-time scale photovoltaic storage system active support optimal dispatch scheme** Xiong Shi (Central South University)*	**ID:332 Transient Characteristics of a Porous Steam Methane Reforming Reactor** Abdelwahab N. Allam (King Fahd University of Petroleum & Minerals (KFUPM))*; Medhat A. Nemitallah (King Fahd University of Petroleum & Minerals (KFUPM)); Mohamed A. Habib (King Fahd University of Petroleum & Minerals (KFUPM)); Naef A. Qasem (King Fahd University of Petroleum & Minerals (KFUPM))
17.10-17.30	**ID:205 An improved Single-Stage Solar Water Pumping System Based on SRM** Mahmoud Hamouda (King Fahd University of Petroleum and Minerals (KFUPM))*	**ID:338 A Fast and Less Sensor Open-Circuit Fault Diagnosis for Converters in DC Microgrids** gao sheng (central south university)*	**ID:518 Occupancy Estimation Using Environmental Sensors in a Japanese Nursing Facility** Takuya Miura (Nagasaki Institute of Applied Science)*; Yuji Mizuno (Osaka Electro-Communication University); Jiyoung Choi (Nagasaki Institute of Applied Science); Nobumasa Matsui (Nagasaki Institute of Applied Science)
17.30-17.50	**ID:126 Adaptive Control and DC-Link Regulation of Grid-Connected PV–PEMFC Systems Using Dual-Layer MPPT Architecture** Noman Bashir (King Fahd University of Petroleum and Minearls (KFUPM)); Muhammad Majid Gulzar (King Fahd University of Petroleum and Minerals); Abdullah Memon (King Fahd University of Petroleum and Minearls (KFUPM)); Salman Habib (King Fahd University of Petroleum and Minearls (KFUPM))	**ID:333 AI-powered wireless charging systems in homes in an energy community** Mariacristina Roscia ("University of Bergamo, italy")*; cristian Lazaroiu (University Politehnica of Bucharest); Giuliana Daniela Foti (Universita degli Studi di Bergamo)	**ID:170 Solar Tracking Fresnel Csp – PV Hybrid System** Evren Toygar (Dokuz Eyll University)*; Tufan Bayram (Solarux Company); Beren Sahutoglu (Dokuz Eylul University); Mert Becerikci (Dokuz Eylul University); Berke Uguroglu (Dokuz Eylul University); Kagan Uzun (Dokuz Eylul University); Ulas Sezen (Dokuz Eylul University); Aleyna Cakirgoz (Dokuz Eylul University); Mehmet Kurt (Dokuz Eylul University); Hasan Dogan (Dokuz Eylul University)
19.00	**Gala Dinner**		

	Date: 30 OCTOBER 2025	
	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS
	SESSION F31 Room F0.01 CHAIRS: Jaime Tarraso, Joselyn Menye	SESSION F32 Room F4.03 CHAIRS: Toshihiko ishiyama, Erdal Bekiroglu
09.00-09.20	**ID: 498 Effect of Natural Ester Oils on Distribution Transformers' Thermal Performance** Ömer Ergen (Sem Transformer Inc.); Erdal ırmak (Gazi University); Erdal Bekiroğlu (Gazi University)	**ID:223 Mapping the Innovation Pathways of PEMFC Technologies through NLP-Based Patent Analytics** qimei chen (National Science Library, Chinese Academy of Sciences)*
09.20-09.40	**ID:217 Industrial Non-Intrusive Power Monitoring to Unlock the Usability of Renewable Energy Sources: A Comparative Study** Giulia Tanoni (Università Politecnica delle Marche)*; Paolo Vitulli (Università Politecnica delle Marche); Enrik Xhani (Università Politecnica delle Marche); Muhammad Affan Khan (Università Politecnica delle Marche); Emanuele Principi (Università Politecn	**ID:227 Energy Management Scheme for Hybrid System using Backstepping Controller** ibrahima TOURE (GREAH)*
09.40-10.00	**ID:220 Comparative Analysis of Neural Network Models for PV Inverter Variable Prediction** Luca Notarpietro (Politecnico di Bari)*; Riccardo Leuzzi (Politecnico di Bari); Vito Giuseppe Monopoli (Politecnico di Bari)	**ID:186 Basic Consideration on Effects of Voltage and Frequency Control by Demand-side Batteries on System Stability in Urban Area** Moe iizuka (Sophia University)*; Satoshi Sakurai (Sophia University); Orie Sakamoto (Sophia University)
10.00-10.20	**ID:268 Design and Optimization of a Bicycle-Based Renewable Energy Storage and IoT Monitoring System** _EVVAL TURAN (Bisan Motosiklet ve Bisiklet Sanayi A._); SEHER __M_EK (Bisan Motosiklet ve Bisiklet Sanayi A._); UTKU TARAKCi (Bisan Motosiklet ve Bisiklet Sanayi A._); AL_ EREN C_FTC_ (Bisan Motosiklet ve Bisiklet Sanayi A._); OZGE ADA BOZBA_ (Bisan Mot	**ID:273 Evaluation of passive maximum power point tracking performance of power conditioner-less PV-storage battery systems** Yasuyuki Kanai (Exeo Group, inc.)*
10.20-10.40	**ID:269 Multiphysics Analysis of Impact of Vibrations on the Formation of Dendrites in Lithium-Ion Batteries** Ashish Patil (Sheffield Hallam University)*; David Asquith (Sheffield Hallam University); Faris Al-naemi (Sheffield Hallam University); Mohammad Musameh (Sheffield Hallam University); Walid issa (Sheffield Hallam University)	**ID:274 Exploring Reinforcement Learning Algorithms for Current Control of Single-Phase AC/DC Full-Bridge Converters** Patrick Mederitsch (TU Wien); Johann W. Kolar (TU Wien); Uwe Drofenik (TU Wien)*
10.40-11.00	**ID:272 Deep Reinforcement Learning-Based on Energy Management of a Hydrogen Power Supply System for an H-bike** Mamoru Otsuka (Tokyo University of Science)*; Masami Sumita (Tokyo University of Science); Koki Harano (Tokyo Universiyu of Science); Noboru Katayama (Tokyo Universiyu of Science); Tomoya Ezawa (Tokyo Universiyu of Science); Kiyoshi Dowaki (Tokyo Universi	**ID:275 MSW Incineration in Oxygen-Enriched Environments: A Review of Pollutant Emissions and NOx Formation** Elizaveta Girshova (LUT)*
11.10-11.30	MORNING COFFEE BREAK	

	Date: 30 OCTOBER 2025		
	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS
	SESSION F33 Room F4.06 **CHAIRS: Ahmed Ali, Ahmed Khan Leghari**	**SESSION F34** Room F4.07 **CHAIRS: Noboru Katayama, Hayder Ali**	**SESSION F35** Room F4.08 **CHAIRS: Nouhou Bako Zeinabou, Mehdi Bagheri**
09.00-09.20	**ID:247 Voltage Regulation in Distribution Networks Using Fuzzy Logic Algorithms** Mirzokhid Sharobiddinov (Fergana State Technical University)*; Michele Pastorelli (Politecnico di Torino); ilkh_mb_k Kh_liddin_v (Fergana State Technical University); Zoxidov iqboljon (Fergana State Technical University)	**ID:252 Thermal Stability of Quaternary Electrolyte in Direct Carbon Fuel Cell** Lia Kouchachvili (Natural Resources Canada)*; Philip Geddis (Natural Resources Canada); Steven Chen (Natural Resources Canada); Quan Zhuang (Natural Resources Canada); Brianna Hataley (Natural Resources Canada)	**ID:428 Quasi-Dynamic Assessment of Electric Vehicle Charging Points in Radial Low Voltage Grid** Gurkan Soykan (Bahcesehir University)*
09.20-09.40	**ID:250 Power Density Analysis of an Medium-Voltage Isolated DC/DC Solid-State Transformer Building Block** Bernhard Suppan (TU Wien)*; Clara HOnlinger (TU Wien); Uwe Drofenik (TU Wien)	**ID:253 Self-Driven Magnetic Fluid Cooling for Power Devices Utilizing Permanent Magnet** Masataka Anazawa (Nagaoka University of Technology)*	**ID:455 Cluster-Based Behavioral Analysis of Electric-Bus Charging Processes** Mina Eskander (Helmut-Schmidt-University)*; Amra Jahic (Helmut-Schmidt-University); Maik Plenz (Helmut-Schmidt-University); Edvard Avdevicius (Helmut-Schmidt-University); Detlef Schulz (Helmut-Schmidt-University)
09.40-10.00	**ID:505 Analysis of Pm2.5 and Pm10 in City Streets: Environmental Impacts and Strategies for Reduction** Fabio Viola (Università Di Palermo)*; Rosario Miceli (Università Di Palermo, Italy); Sonia Leva (Politecnico Di Milano); Michela Longo (Politecnico Di Milano); Sergio Calabrese (Università Di Palermo, Italy); Filippo Brugnone (Università Di Palermo, Italy)	**ID:258 Thermohydraulic performance Investigation of GQD/water nanofluids in a Microchannel Heat Sink with Sinusoidal Cavity** Mohamed Bargal (King Fahd University of Petroleum & Minerals)*; Luai M. Alhems (King Fahd University of Petroleum and Minerals)	**ID:107 Systematic Identification of Customer Requirements for Electrolysis Systems** Rebecca Rasche (Hochschule Rhein Waal)*; Mona Wappler (Hochschule Rhein Waal)
10.00-10.20	**ID:276 Efficiency / Power Density Analysis of Single-Phase and Three-Phase Transformers Employed in DAB and DCX DC/DC Converters** Thomas Guillod (Dartmouth College)*; Daifei Zhang (University of Toronto); Charles R. Sullivan (Dartmouth College); Johann W. Kolar (ETH ZUrich)	**ID:187 A Turns Ratio Adjustable Llc Resonant Converter for High-Power EV Charging Across a Wide Voltage Range** Yongho Park (Chosun University)*	**ID:145 A Novel Dual-Axis Voltage Control for Grid-Forming Inverters: Enhancing Dynamic Responsiveness** Daisuke Kanda (Tmeic)*
10.20-10.40	**ID:277 Experimental Verification of Single-Phase Supplied Motor Power Puulsation Buffer Dual-Inverter Variable Speed Drive** Spasoje Miric (University of innsbruck)*; Junzhong Xu (SJTU China); Jonas Huber (ETH ZUrich); Michael Haider (ETH ZUrich); Kaelin Samuel (ETH ZUrich); Dominik Bortis (ETH ZUrich); Johann Kolar (ETH ZUrich)	**ID:283 Stellar Oscillation Optimizer Based Combined Automatic Voltage Regulation and Load Frequency Control of Two Area Power System** Cenk Andic (istanbul Technical University)*	**ID:499 Integrated Planning of the Electricity-Gas-Water Nexus for Smart City Infrastructure** Mariacristina Roscia ("University of Bergamo, Italy")*; Alireza Fereidunian (Electrical Engineering from Iran University of Science and Technology (Iust)); Amin Hajizadeh (Department of Energy Technology, Aau Energy, Aalborg University,); Pouya Salyaniaa (Faculty of Electrical Engineering, K.n. Toosi University of Technology); Hossein Shahinzadeh (Department of Electrical Engineering, Amirkabir University of Technology (Tehran Polytechnic))
10.40-11.00	**ID:278 Estimation of State Imbalance in a Proton Exchange Membrane Water Electrolyzer Stack Using Electrochemical Impedance Spectroscopy and Machine Learning** Ryoma iki (Tokyo University of Science)*; Noboru Katayama (Tokyo University of Science)	**ID:286 A Single-Inductor Current-Source-Type Isolated AC–DC Converter with Active Power Decoupling for EV On-Board Chargers** Yuuki Yamaguchi (Nagaoka University of Technology)*; Masamichi Yamaguchi (Nagaoka University of Technology); Kodai Nishikawa (Nagaoka University of Technology); Hiroki Watanabe (Nagaoka University of Technology); Jun-ichi itoh (Nagaoka University of Techn	**ID:102 Performance Analysis of a Residential Single-Phase Voltage Regulator Under Varying Reactive Load Conditions** John Licari (University of Malta)*; Cyril Spiteri Staines (University of Malta)
11.10-11.30	**MORNING COFFEE BREAK**		

	Date: 30 OCTOBER 2025	
	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS
	SESSION F36 **Room F0.01** **CHAIRS: Giulia Tanoni, Ali Oter**	**SESSION F37** **Room F4.03** **CHAIRS: Moe iizuka, Mariacristina Roscia**
11.30-11.50	**ID:411 Modelling of Electrical Power Consumption in Waste Water Treatment Plants** Jaime Tarraso (Universitat Politecnica De Catalunya)*; Stoyan Danov (Building Energy Efficiency Group); Daniel Pérez (Building Energy Efficiency Group); ÁLvaro Luna (Universitat Politecnica De Catalunya)	**ID:314 Evaluation of Cold Heat Recovery based on Exergy and Thermoelectric Power Generation** Toshihiko ishiyama (Hachinohe institute of Technology)*
11.50-12.10	**ID:300 Understanding the SoC–OCV Relationship: Insights from GITT and Current Waveform Analysis** Joselyn Menye (GREAH Laboratory, Université Le Havre)*; ibrahima Toure (GREAH Laboratory, Université Le Havre); Mamadou Baïlo CAMARA (GREAH Laboratory, Université Le Havre); Brayima DAKYO (GREAH Laboratory, Université Le Havre)	**ID:319 Aerodynamic Analysis of Bluff Bodies for VIV Energy Harvesting** RAUL AVALOS ZUÑiGA (iNSTiTUTO POLiTECNiCO NACiONAL CiCATA QRO)*; Melvin KLUGE (Technische Universität Dresden)
12.10-12.30	**ID:306 Behavioral Aging Modeling and Real-Time Parameters Estimation of LFP Battery in a Hydrogen Production System.** Junior Diamant Ngando Ebba (Université Le Havre Normandie)*; Junior Diamant Ngando Ebba (Univesité Le Havre Normandie); Mamadou Baïlo Camara (Université Le Havre Normandie); Mamadou Lamine Doumbia (Université du Québec à Trois-Rivières); Brayima Dakyo (Un	**ID:321 Soft Computing Driven Hybrid MPPT Strategy for Photovoltaic Systems in Variable Environments** MD. Samiul Alam (King Fahd University of Petroleum and Minearls (KFUPM)); Muhammad Majid Gulzar (King Fahd University of Petroleum and Minerals)*; Mohamed Soliman (King Fahd University of Petroleum and Minearls (KFUPM))
12.30-12.50	**ID:310 Feasibility of Hydrogen Energy Storage Systems for Power System Balancing** Mihai Tirsu (Technical University of Moldova, institute of Power Engineering of Moldova)*; Dumitru Braga (Faculty of Energetics and Electrical Engineering, Technical University of Moldova); Mihai Corcimari (Technical University of Moldova, institute of Po	**ID:322 Impact of Ambient Temperature on Reversible Capacity Loss and Electrochemical Behavior of Commercial Lithium-Ion Battery Chemistries** Hayder Ali (King Fahd University of Petroleum & Minerals (KFUPM))*; Atif Alzahrani (King Fahd University of Petroleum & Minerals (KFUPM)); Muhammad Khalid (King Fahd University of Petroleum & Minerals (KFUPM))
12.50-13.50	**LUNCH**	

	Date: 30 OCTOBER 2025		Date: 30 OCTOBER 2025
	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS
	SESSION F38 Room F4.06 CHAIRS: Michele Pastorelli, Spasoje Miric	SESSION F39 Room F4.07 CHAIRS: Kenza Maher, Cenk Andic	SESSION F40 Room F4.08 CHAIRS: Fabio Viola, Daisuke Kanda
11.30-11.50	**ID:341 Utilizing artificial intelligence to improve solar inverter efficiency** Ahmed Ali (University of Johannesburg)*	**ID:313 Platform for Testing Grid Support Services of Grid-Forming Hybrid PV Power Plants** Javier Roldan-Perez (iMDEA Energy)*; Njegos Jankovic (Mjolner informatics); Jose Miguel Cordoba-Mendez (iMDEA Energy); Juan Diego Rios-Peñaloza (iMDEA Energy); Josue Andino (iMDEA Energy); Milan Prodanovic (iMDEA Energy)	**ID:312 Estimation and Prediction of Solar Radiation Using an Empirical Model and an Artificial Neural Network in the River Zone of Niger** Nouhou Bako Zeinabou (University of Maradi)*
11.50-12.10	**ID:342 Unsymmetrical Fault Prediction and Fault Level Evaluation for Inverter Systems in the South African Power Distribution Network** Ahmed Ali (University of Johannesburg)*	**ID:347 Design of a Machine Learning–Based Controller for Buck Converters with Direct Gate Control** Noboru Katayama (Tokyo University of Science)*	**ID:309 Application and Control of a Grid-Forming Redox-Flow Battery** Javier Roldan-Perez (iMDEA Energy)*; Juan Diego Rios-Peñaloza (iMDEA Energy); Enrique Garcia-Quismondo (iMDEA Energy); Gabriel García-Gutierrez (Universidad de Alcalá); Josue Andino Bustamante (iMDEA Energy); Milan Prodanovic (iMDEA Energy)
12.10-12.30	**ID:343 Power Electronic Transformer-Enabled Wireless Electric Vehicle Charging Systems An Integrated Approach** Ahmed Ali (University of Johannesburg)*	**ID:349 Solar Irradiance Estimation Framework using Transfer Learning and Explainable Artificial Intelligence** Sueda Eren (Gazi University)*; Munevver Irem Gokdemir (Gazi University); Seref Sagiroglu (Gazi University); Betul Ersoz (Gazi University)	**ID:62 DC-DC Converter with Wider Static Voltage Gain Based on the Differential Connections** V. Fernao Pires (ESTSetubal/iPS)*; Armando Cordeiro (iSEL-iPL); Daniel Foito (ESTSetubal/iPS); Georgios I. Orfanoudakis (Hellenic Mediterranean University); Joaquim Monteiro (iSEL-iPL)
12.30-12.50	**ID:48 Social Life Cycle Assessment of Stationary Battery Storage Systems: A Focus on Local Communities and Workers** Luis RUiZ (CERTES)*; Helene Peton (iRG); Jura ARKHANGELSKi (CERTES); Mahamadou Abdou-Tankari (certes); Gilles Lefebvre (CERTES)	**ID:354 Study of Solar Panels Installation to Reduce the Energy Consumption of AHU Motors** Carlos Alberto Garcia Vazquez (Universitatea Transilvania din Brasov)*; DanielTudor Cotfas (Universitatea Transilvania din Brasov); Ana isabel González Santos (Technological University of Havana Havana); Bernardo Yaser León Ávila (Universitatea Transilvan	**ID:79 Solar Panel Fault Detection using Lightweight SqueezeNet model** Tito Amaral (ESTSetubal/iPS)*; Armando Pires (ESTSetubal/iPS); Vitor Pires (ESTSetubal/iPS)
12.50-13.50	LUNCH		

	Date: 30 OCTOBER 2025	
	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS
	SESSION F41 **Room F0.01** **CHAIRS: Junior Diamant Ngando Ebba, Mihai Tirsu**	**SESSION F42** **Room F4.03** **CHAIRS: Raul Avalos Zuniga, Akash Kadechkar**
13.50-14.10	**ID:382 Intelligent and Optimized Management of a PV-Battery-Hydrogen Hybrid System for Constant Grid Injection** El hadji Mbaye Ndiaye (UADB)*; Alphousseyni Ndiaye (Université Alioune Diop, Bambey (UADB)); Mactar Faye (Université Alioune Diop, Bambey (UADB)); Daouda Gueye (Université Alioune Diop, Bambey (UADB)); Mamadou Traore (Université Alioune Diop, Bambey (UADB)); Amadou Ba (Université Alioune Diop, Bambey (UADB)); Cheikh Saliou Toure (Université Alioune Diop, Bambey (UADB))	**ID:53 X2Power: A Framework for Industry's Energy Needs in a Power2X World** Ahmed Khan Leghari (Force Technology)*
14.10-14.30	**ID:221 Data-driven approach to ensure reliability of local electricity generation data based on SRI** Alejandro Fernandez Benages (iREC)*; Francisco Arellano Espitia (iREC); Eduardo J. Salazar (iREC); Lucia igualada (iREC); Manel Serrano Borja (iREC)	**ID:190 Integration of Cloud Computing and Real-Time Simulation Systems for Validating Energy Management Solutions** Jaume Asensio (Universitat Politècnica De Catalunya)*; Marc Girona (Centre Internacional De Mètodes Numèrics En Enginyeria (Cimne)); Alba Oliver (Universitat Politècnica De Catalunya); Pablo Moreno (Universitat Politècnica De Catalunya); ÁLvaro Luna (Universitat Politècnica De Catalunya); Gerard Laguna (Centre Internacional De Mètodes Numèrics En Enginyeria (Cimne))
14.30-14.50	**ID:254 Performance Analysis of Models for Short-Term Building-Level Load Forecasting** Sergi Sanchez Hernandez (iREC); Alejandro Fernandez Benages (iREC)*; Francisco Arellano Espitia (iREC); Lucia igualada (iREC)	**ID:388 Experimental Evaluation of VAWT Airfoil with Active Pitch Control** SATHYAN KRiSHNAN (Higher Colleges of Technology, UAE)*; ELSA JOSEPH (Higher Colleges of Technology); RANJEET RANJAN (Higher Colleges of Technology); HASAN Mohammad Al Hammadi (Higher Colleges of Technology); MOHAMED Yousif Albeshr (Higher Colleges of Technology)
14.50-15.10	**ID:437 EMI Noise Reduction Design for DC-DC Converter Using Zero-Voltage Switching** Dawoon Kim (KATECH); Jisu Yu (KATECH); Kilho Lee (KATECH)*	**ID:496 Unsupervised Clustering Approaches to Analyze Electric Vehicle Charging Behavior for Smart Grid Integration** Onder Eyecioglu (Bolu Abant izzet Baysal University)*; Umit Senturk (Bolu Abant izzet Baysal University)
15.10-15.30	**ID:438 Active Gate Driver for Current Stress Reduction in Si/SiC Hybrid Switch** Shunki Hashimoto (Department of Electrical Engineering, Nagoya University)*; Kiyotaka Ono (Department of Electrical Engineering, Nagoya University); Sihoon Choi (institute of Materials and Systems for Sustainability (iMaSS), Nagoya University); Jun imaoka (institute of Materials and Systems for Sustainability (iMaSS), Nagoya University); Masayoshi Yamamoto (institute of Materials and Systems for Sustainability (iMaSS), Nagoya University)	**ID:441 Experimental Evaluation of a Hydrogen Generation System for Fuel Cells Using NaBH4 and $B(OH)_3$ with Pressure Control** Keigo Matsui (tokyo university of science)*; Nobukazu Hoshi (Tokyo University of Science)
15.30-15.50	**ID:439 Quasi resonant ZCS (2d-1)/(1-d) DC-DC converter** Felix Himmelstoss (Technikum Wien)*; Johannes Gragger (University of Applied Sciences Technikum Wien)	**ID:442 Impact of Catalyst Layer Structure on PEMFC Performance under Constant Solid Volume** Hikaru Arai (Tokyo University of Science)*; Noboru Katayama (Tokyo University of Science)
15.50-16.10	**AFTERNOON COFFEE BREAK**	

	Date: 30 OCTOBER 2025		
	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS	FACE TO FACE PRESENTATIONS
	SESSION F43 **Room F4.06** **CHAIRS: Luis Ruiz, Merve Comert**	**SESSION F44** **Room F4.07** **CHAIRS: Carlos Alberto Garcia Vazquez, Samaneh Yazdanipour**	**SESSION F45** **Room F4.08** **CHAIRS: Joaquim Monteiro, Maik Plenz**
13.50-14.10	**ID:401 Demonstration of Standalone Solar Carport Model Utilizing Fully Renewable Energy** Keiichi Hirose (Nagasaki institute of Applied Science)*	**ID:409 Comparison of Differential Mode Filters for Synchronous Buck Converter** erdal sehirli (Silicon Austria Labs GmbH)*	**ID:206 Automated Knowledge Graph Generation for Hydropower Plants Using Iso 81346 and Rag-Enhanced Large Language Models** Surya Teja Kandukuri (Norce Research as)*; Kristoffer Tangrand (Norce Research as); Lars Kristian Vognild (Norce Research as); Grunde Olimstad (Å Energi as)
14.10-14.30	**ID:403 Flexibility Management Approaches for Low-Voltage Grids: Comparing §14a EnWG, Dynamic Operating Envelopes, and Grid-Sensitive Energy Communities** Evi Monique Kasper (University of Applied Science Offenburg)*; Sylvia WUst (University of Applied Science Offenburg); Michael Schmidt (University of Applied Science Offenburg)	**ID:413 Electric Motorcycles in Colombia: A Systematic Assessment of Barriers and Opportunities to Sustainable Mobility** Santiago Bernal (EAFiT University)*	**ID:43 Understanding Heat Generation and Degradation Pathways in Lco/Graphite Lithium-Ion Cells** Kenza Maher (Qatar Environment & Energy Research Institute (Qeeri) @ Hamad Bin Khalifa University (Hbku) @ Qatar Foundation (Qf))*
14.30-14.50	**ID:404 Multi-Cell Current Source Inverter Concept for Modular Machine Drives** Spasoje Miric (University of innsbruck)*; Takanobu Ohno (University of innsbruck)	**ID:315 Seamless Transition of Microgrids between Grid-Connected and Islanded Modes** Julie Matarweh (Boise State University)*; Eklas Hossain (Boise State University); Said Ahmed-Zaid (Boise State University)	**ID:104 Thermal Degradation and Safety Assessment of Li-Ion Battery Cells in Harsh Climates** Kenza Maher (Qatar Environment & Energy Research Institute (Qeeri) @ Hamad Bin Khalifa University (Hbku) @ Qatar Foundation (Qf))*; Nursultan Yerken (Hamad Bin Khalifa University (Hbku) @ Qatar Foundation (Qf))
14.50-15.10	**ID:452 Soft Open Point for Voltage Optimization in Low-Voltage Microgrids** Kiswendsida OUEDRAOGO (izmir economics university)*; Pinar Ekim (izmir economics university); Erhan Demirok (izmir Katip Celebi University)	**ID:458 Modeling of Short-Circuit Faults and Estimation of Arc Discharge Energy in Motor Drive Circuits** Kengo Nagai (Department of Electrical Engineering, Nagoya University)*; Koichi Shigematsu (institute of Materials and Systems for Sustainability (iMaSS), Nagoya University); Yota Omizu (Department of Electrical Engineering, Nagoya University); Jun imaoka (institute of Materials and Systems for Sustainability (iMaSS), Nagoya University); Masayoshi Yamamoto (institute of Materials and Systems for Sustainability (iMaSS), Nagoya University); Takashi Usui (Daikin industries, Ltd., Chemical Division, Product Development Department); Yasutaka Negishi (Daikin industries, Ltd., Chemical Division, Product Development Department); Tomoyuki Goto (Daikin industries, Ltd., Chemical Division, Product Development Department)	**ID:365 Comprehensive Machine Learning for Lithium-Ion Battery State-of-Health Estimation Using Group-Wise Cross-Validation** Kenza Maher (Qatar Environment & Energy Research Institute (Qeeri) @ Hamad Bin Khalifa University (Hbku) @ Qatar Foundation (Qf))*; Nursultan Yerken (College of Science and Engineering (Cse) Hamad Bin Khalifa University (Hbku), Qatar Foundation (Qf)
15.10-15.30	**ID:454 Stacked-Plate Heatsink Design for Effective Thermal Management of Power Semiconductor Modules** Jiyoon Choi (Nagoya University)*; Sihoon Choi (Nagoya University); Kazuhiro Umetani (Nagoya University); Jun imaoka (Nagoya University); Masayoshi Yamamoto (Nagoya University)	**ID:459 Photovoltaic Generation Prediction using a Weather-Forecast-Aware Autoformer** Sergio Vanegas Arias (LUT University)*; Lasse Lensu (LUT University); Samuli Honkapuro (LUT University); Fredy Orlando Ruiz Palacios (Politecnico di Milano)	**ID:446 Fuzzy-Enhanced Smart Building Energy Forecasting: A** Case Study from the 2025 Gecad Competition Gulcihan Ozdemir (Istanbul Technical University); Can Gunes (Istanbul Technical University)*
15.30-15.50	**ID:456 Hybrid MPPT-based PV-Integrated Three-Phase Grid-Tied Inverter Using Adaptive Particle Swarm Optimization Technique** MD. Samiul Alam (King Fahd University of Petroleum and Minearls (KFUPM)); Muhammad Majid Gulzar (King Fahd University of Petroleum and Minerals)*; Abdulaziz Qwbaiban (King Fahd University of Petroleum and Minearls (KFUPM)); Shahidzada Afnan Malik (Perfect elektro mek Pakistan)	**ID:460 Analysis Method for Turn-off Oscillation Considering Turn-off Voltage** kota okada (nagoya university Department of Electrical Engineering)*; Sihoon Choi (institute of Materials and Systems for Sustainability (iMaSS), Nagoya University); Kazuhiro Umetani (institute of Materials and Systems for Sustainability (iMaSS), Nagoya University); Jun imaoka (institute of Materials and Systems for Sustainability (iMaSS), Nagoya University); Masayoshi Yamamoto (institute of Materials and Systems for Sustainability (iMaSS), Nagoya University); Hironari Takase (Hyundai Mobility Japan R&D Center Co., Ltd.); Juman Yoon (Hyundai Mobility Japan R&D Center Co., Ltd.); Hiroki Nishi (Hyundai Mobility Japan R&D Center Co., Ltd.)	**ID:179 Development of Grid-Tied Inverters Using Multi-Sampling Deadbeat Control** Kosuke Seki (Tmeic)*
15.50-16.10	**AFTERNOON COFFEE BREAK**		

	Date: 30 OCTOBER 2025	
	SESSION F46 **Room F0.01** **CHAIRS: Alejandro Fernandez Benages, Felix Himmelstoss**	**SESSION F47** **Room F4.03** **CHAIRS: Ayagoz Khamzina, Hikaru Arai**
16.10-16.30	**ID:263 Electrochemical Energy Harvesting for IoT Applications: Comparing Electrode Materials in Galvanic Cell** Joel Haverinen (University of Vaasa); Jussi Keskikuru (University of Vaasa); Tuomas Rauta (University of Vaasa); J. Birgitta Martinkauppi (University of Vaasa)*; Pekka Ruuskanen (University of Vaasa)	**ID:357 Connected Electric Truck Powertrains: Non-Invasive Fault Detection using Ultra-Low Power Edge AI Sensors** Akash Kadechkar (Nvision)*
16.30-16.50	**ID:265 AI-BASED CONTROL STRATEGY for INDUSTRIAL PEAK SHAVING USING HYBRID SOLAR PV and BATTERY ENERGY STORAGE SYSTEMS (BESS) in UZBEKISTAN** Alisher Tukhtashev (Fergana state technical university)*; Michele Pastorelli (Politecnico di Torino); Hikmatilla Ne'matjonov (Fergana State Tiechnical University); Kamoliddin Kadirov (institute of Energy Problems of the Academy of Sciences of the Republic	**ID:375 Novel deformable beam load break switch for sustainable SF6-free switchgear** Alborz Aghamalekisarvestani (ABB AG)*; Adithya Ravindran (ABB AG); Jianye shi (ABB AG); Ole Granhaug (ABB Electrification Norway AS)
16.50-17.10	**ID:267 RISING of GLOBAL ELECTRICITY DEMAND: THE IMPORTANCE of INDUSTRY and RENEWABLE ENERGY INTEGRATION** Alisher Tukhtashev (Fergana state technical university)*; Michele Pastorelli (Politecnico di Torino); Hikmatilla Ne'matjonov (Fergana State Tiechnical University); Kamoliddin Kadirov (institute of Energy Problems of the Academy of Sciences of the Republi	**ID:378 D-Axis and Zero-Axis Current Equal Zero Ampere Control in Discontinuous Current Vector Control of SR Motor** Keitaro Kawarazaki (Tokyo University of Sceince)*; Nobukazu Hoshi (Tokyo University of Sceince)
17.10-17.30	**ID:292 Renewable Energy-Powered Desalination: A Techno-Economic Comparison of Photovoltaic and Wind Systems** Ahmed Geweda (King Fahd University of Petroleum and Minerals (KFUPM))*; Ahmed Omera (King Fahd University of Petroleum and Minerals); Mohamed Antar (King Fahd University of Petroleum and Minerals)	**ID:379 Simultaneous Suppression Control for 6th- and 12th-Order Torque Ripple in PMSM** Taiki Mikami (Tokyo University of Science)*; Nobukazu Hoshi (Tokyo University of Science)
17.30-17.40	**BREAK**	

	Date: 30 OCTOBER 2025		
	SESSION F48 Room F4.06 **CHAIRS: Jiyoon Choi, Spasoje Miric**	**SESSION F49** Room F4.07 **CHAIRS: Sergio Vanegas Arias, Kengo Nagai**	**SESSION F50** Room F4.08 **Organized Session: Technological Developments and Applications of Hydrogen in the Energy Transition** **CHAIRS: Mariapia Martino, Evren Unsal**
16.10-16.30	**ID:426 Energy Storages as an Enabler of Renewable Integration in Kazakhstan: PyPSA modeling** Nurkhat Zhakiyev (Astana iT University)*; Ayagoz Khamzina (Astana iT University); Naziya Baisakalova (Astana iT University); Ruslan Omirgaliyev (Astana iT University)	**ID:298 Overview on Controllers in Wireless Power Transfer Systems for EVs** Samaneh Yazdanipour (Toronto Metropolitan University)*; Mehrdad Ebrahimi (Toronto Metropolitan University); Mohammadreza F. M. Arani (Toronto Metropolitan University)	**ID:216 Addressing fundamental knowledge gaps in Underground Hydrogen Storage** Eleonora Parente (Shell (Netherlands), The Hague, Netherlands); Steffen Berg (Shell (Netherlands), The Hague, Netherlands); Evren Unsal (Shell (Netherlands), The Hague, Netherlands)*
16.30-16.50	**ID:429 The Effect of Permanent Magnet Faults in PMSG for Offshore WECS** Merve COMERT (KUtahya Dumlupinar University)*; Huseyin Tayyer CANSEVEN (LUT University); Abdurrahman UNSAL (KUtahya Dumlupinar University)	**ID:257 Identifying Realistic Fleet Charging Patterns Through Self-Supervised Learning and Density-Based Clustering** Maik Plenz (Helmut-Schmidt University)*; Andreas Stadler (Helmut-Schmidt University); Edvard Avdevicius (Helmut-Schmidt University); Amra Jahic (Helmut-Schmidt University); Detlef Schulz (Helmut-Schmidt University)	**ID:251 Research and technology collaborations for a sustainable energy future** Evren Unsal (Shell Global Solutions international BV)*; Arnoud Higler (Shell Global Solutions international BV)
16.50-17.10	**ID: 512 A Soft Actor-Critic–Based Deep Reinforcement Learning for Nanogrid Energy Management** Süleyman Emre Eyimaya (Gazi University)	**ID:255 Performance Analysis of a Dual Concentrated Photovoltaic System with Phase Change Materials** Qamar Abbas (King Fahd University of Petroleum and Minerals)*; Hafiz Muhammad Ali (King Fahd University of Petroleum and Minerals)	**ID:279 Balancing renewable energy intermittency: A comparative study for Netherlands and Poland** Evren Unsal (Shell Global Solutions international BV)*; Anna Gucwa (AGH University of Technology Krakow, Poland); Emilia Kazanecka (AGH University of Technology Krakow, Poland); Artur Wyrwa (AGH University of Technology Krakow, Poland); Arnoud Higler (She
17.10-17.30	**ID:461 Rooftop Solar Explorer: Accelerating India's Rooftop Solar Adoption Through Geospatial Intelligence** sheikh madiha syed (Centre for Study of Science, Technology and Policy (CSTEP))*; Shantanu Roy (Centre for Study of Science, Technology and Policy (CSTEP)); Mahesh Kalshetty (Centre for Study of Science, Technology and Policy (CSTEP)); Saptak Ghosh (Centre for Study of Science, Technology and Policy (CSTEP))	**ID:372 Thermal and Oxidative Behavior of Carbonate Electrolytes with Cathode Materials for fire safety of Lithium-Ion Batteries** Ghulam Gohar (King Fahd University of Petroleum & Minerals, Dhahran 31261, Saudi Arabia)*; Hafiz Muhammad Ali Arshad (King Fahd University of Petroleum & Minerals, Dhahran 31261, Saudi Arabia); Zhao Hao (College of Engineering, Peking University, China)	**ID:195 Techno-Economic and Environmental Analysis of Hydrogen Supply Chains** Amirhossein Shahpari (Polytechnic University of Turin)*; Arnoud Higler (Shell Global Solutions International Bv, Energy Transition Campus Amsterdam); Evren Unsal (Shell Global Solutions International Bv, Energy Transition Campus Amsterdam); Andrea Lanzini (Polytechnic University of Turin)
17.30-17.40	**BREAK**		**BREAK**

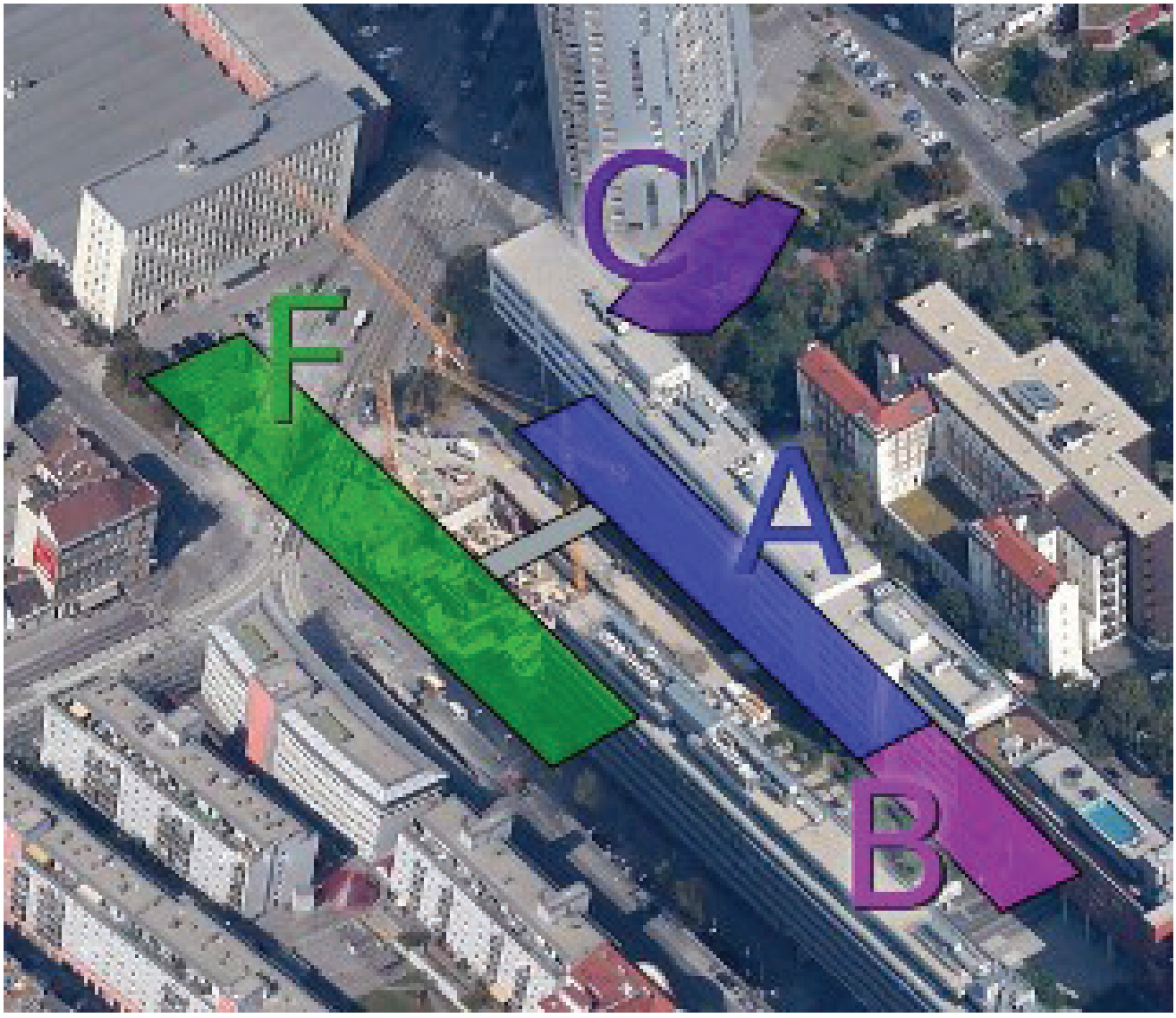
	Date: 30 OCTOBER 2025	
	SESSION F51 **Room F0.01** **CHAIRS: J. Birgitta Martinkauppi, Ahmed Geweda**	**SESSION F52** **Room F4.03** **CHAIRS: Keitaro Kawarazaki, Alborz Aghamalekisarvestani**
17.40-18.00	**ID:331 An Early Warning System for Renewable Energy Supply Shortfalls in Europe Using Integrated Machine Learning and Spatiotemporal Energy Data** Atif Khan (AGH University of Krakow); Artur Wyrwa (AGH University of Krakow)*	**ID:73 Machine Learning Insights into Electric Vehicles and Energy Network Optimization** Muhammad Habibul ilmi Nasution (King Fahd University of Petroleum & Minerals, Dhahran 31261, Saudi Arabia); Salman Habib (King Fahd University of Petroleum & Minerals, Dhahran 31261, Saudi Arabia)*; Farheen Ehsan (School of international and Public Affai
18.00-18.20	**ID:363 Electrochemical Enhancement of Mn and Co Co-Doped Lanio3 Perovskite Oxides for High-Performance Supercapacitor Applications** Adnan Majeed (King Fahd University of Petroleum & Minerals)*; Mohammed Ashraf Gondal (King Fahd University of Petroleum & Minerals); Ahmar Ali (King Fahd University of Petroleum & Minerals)	**ID:236 Analysis of the Reactive Power Compensation of a Load Sided Resonant Inverter for the Operation of Spmsms** Jan Loos (Institute of Measuring and Sensor Technology)*
18.20-18.40	**ID:208 Analytical and Simulation-Based Power Losses of Mosfets in a Single Phase Inverter with Bipolar PWM for Grid Applications** Muhammad Muzammil Farooqi (University of Palermo)*; Filippo Pellitteri (University of Palermo); Aqeel Ur Rahman (University of Palermo); Rosario Miceli (University of Palermo); Michele Calabretta (Stmicroelectronics); Francesco Piran (University of Palermo)	**ID:234 Design of a Frequency Variable Capacitor Array as Part of a Load Sided Resonant Inverter for Pmsms** Jan Loos (Institute of Measuring and Sensor Technology)*
19.00	**Closing Ceremony, Room F0.01**	

17.30-17.40	BREAK		BREAK
	Date: 30 OCTOBER 2025		
	SESSION F53 Room F4.06 CHAIRS: Erdal Irmak, Onder Eyecioglu	SESSION F54 Room F4.07 CHAIRS: Samaneh Yazdanipour, Ghulam Gohar	SESSION F55 Room F4.08 CHAIRS: Qamar Abbas, Amirhossein Shahpari
17.40-18.00	**ID:462 Data Driven Models for Online Tar Monitoring in Biomass Gasification** Jairo Rubiano (Universidad de la Sabana)*	**ID:486 Protecting Substations: Grounding System Performance Under Evolving Climatic Stress** Maik Plenz (Helmut-Schmidt University)*; Andreas Stadler (Helmut-Schmidt University); Detlef Schulz (Helmut-Schmidt University)	**ID:65 Low-Inertia Grids & Overcurrent Protection Risks: Analyzing Sensitivity & Coordination in Ieee 9-Bus Systems** Ammar Abdelwahab (Budapest University of Economic and Technology)*
18.00-18.20	**ID:353 Investigation on the DC-Link Current Ripple of a Load Sided Resonant Inverter for the Operation of Spmsms** Jan Loos (Institute of Measuring and Sensor Technology)*	**ID:92 Exergy Analysis of Biomass and Solar Based Methanol Synthesis System** Muhammet Mert Dincer (Yildiz Technical University); Berat Kuran (Yildiz Technical University); Merve Ozturk Kirkar (Yildiz Technical University)*	**ID:302 Current Imbalance Reduction for Gan Transistors by Transient Model** Kouta Tanimoto (National Institute of Technology, Maizuru College)*
18.20-18.40	**ID:280 Data-Driven Thermal Performance Prediction of Zno/Water Nanofluid Radiators for Fuel Cell Cooling** Mohamed H.s. Bargal (King Fahd University of Petroleum & Minerals)*; Fardos Mohamed Ali (Beni Suef); Luai M. Alhems (King Fahd University of Petroleum & Minerals)		
19.00	**Closing Ceremony, Room F0.01**		

Venue Address

Fachhochschule Technikum Wien
Main Campus
Höchstädtplatz 6
1200 Wien

ICRERA Registration is open from 27th October on the Ground Floor of Building F



Public Transport to Conference Venue and Welcome Party

- Subway: U6 – Station Dresdner Straße
- Tram: Linie 2, Linie 31, Linie 33 – Station Höchstädtplatz
- Tram: Stations Handelskai or Traisengasse
- Bus: Linie 37A – Station Höchstädtplatz

Addresses of Conference Venue and Welcome Party

The welcome party will take place at the same address as the conference:
Fachhochschule Technikum Wien
Main Campus, Building F
Höchstädtplatz 6
1200 Wien

Gala Dinner Address

The gala dinner will take place at this address:
Heuriger 10er Marie
Ottakringerstraße 222-224
A-1160 Wien

Presentation Instruction for ICRERA 2025 Presenters

- Total time is 20 minutes, including 20 minutes of presentation and 5 minutes of questions and discussion.
- Please use your PC with an HDMI connection for your presentation.
- Please enter the room 10 minutes before your session.
- No-show papers will NOT be uploaded to IEEE Xplore.

Notes for Participants

- At the closing ceremony, the awards winners will be announced.
- Foods are halal, and the tableware and cooking utensils are halal-friendly.

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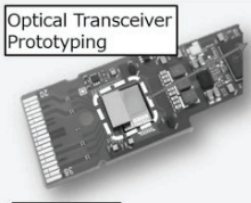
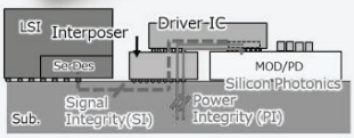
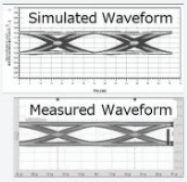
Optical Transceiver Prototyping

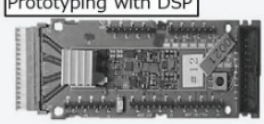


Our strength: Analog design
- Photonics-Electronics Convergence
- Co-design and –assembly for PEC
- Partner fab: AMF, GF, JSC, etc
- CMOS node:TSMC28/16/7 nm





Optical Transceiver Prototyping with DSP



Our strength: Circuit/PCB design, Firmware for PEC
- High-speed serial transmission (28/56/112Gbps)
- Power supply (low-voltage, high-power)
- High-density assembly

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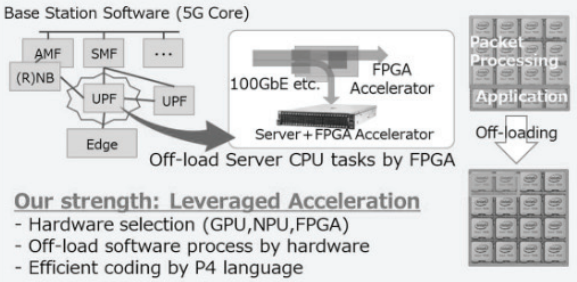
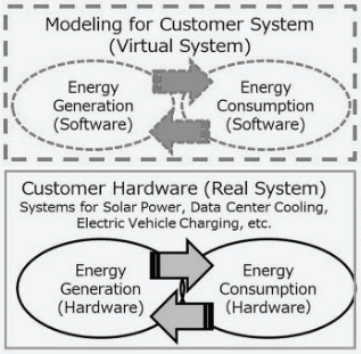
Hardware Acceleration



Our strength: Leveraged Acceleration
- Hardware selection (GPU,NPU,FPGA)
- Off-load software process by hardware
- Efficient coding by P4 language

Model Based Design



Our speciality: Modeling Techniques
Virtual system simulation for dynamic behavior as MBD (Model Based Development)