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8th IEEE International Conference on Renewable Energy Research and Applications

ICRERA 2019

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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 Vehicular Technology, Power Electronics, 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 working language of the ICRERA conference is English

WELCOME to ICRERA 2019

Dear Colleagues,

The purpose of the International Conference on Renewable Energy Research and Applications (ICRERA) 2019 is to bring together researchers, engineers, manufacturers, practitioners, customers and participants from all over the world to share and discuss advances and developments in renewable energy research and applications.

After the success of the first seven editions of ICRERA in Nagasaki (2012), Madrid (2013), Milwaukee (2014), Palermo (2015), Birmingham (2016), San Diego (2017) and Paris (2019), the eighth edition will be in Brasov, Romania, and will continue focusing on several key topics and technologies related to renewable (green) energy systems and sources.

ICRERA aims to present important results to the international community of renewable energy fields in the form of research, development, applications, design and technology. It is therefore aimed at assisting researchers, scientists, manufacturers, companies, communities, agencies, associations and societies to keep abreast on new ideas and developments in their specialist fields and to unite in finding alternative energy solutions to current issues such as the greenhouse effect, sustainable and clean energy issues. It is our great pleasure to host and be with you in Paris, France, during the conference. Please feel free as if you are at home.

You will find the detail information about this activity on the conference official website. Please visit www.icrera.org

We are looking forward to seeing you in the well-known city Brasov, Romania.



Professor Carmen GERIGAN
General Chair, ICRERA 2019



Professor Ilhami COLAK
Co-Chair, ICRERA 2019



Professor Fujio KUROKAWA
Co-Chair, ICRERA 2019

KEYNOTE SPEAKERS

Keynote 1: Professor Atsuo Kawamura, IEEE Fellow, Yokohama National University, Japan
Date : November 4, 2019 09.40-10.30 AM



Biography: Professor Atsuo Kawamura received the B.S.E.E., M.S.E.E., and Ph.D. degrees in electrical engineering from the University of Tokyo, Tokyo, Japan, in 1976, 1978, and 1981, respectively. In 1981 he joined the Department of Electrical and Computer Engineering at the University of Missouri-Columbia as a Postdoctoral Fellow, and was an Assistant Professor there from 1983 through 1986. He joined the Department of Electrical and Computer Engineering at Yokohama National University in 1986 as an associate professor, and became a professor in 1996. He was a dean of College of Engineering between 2013 and 2015. He has served to completion 31 Ph.D and 117

Master's students. He holds 7 patents and has published more than 110 journal papers, 250 international conference papers, 500 domestic conference papers and 5 books.

His interests are mainly in power electronics, digital control, electric vehicles, robotics, and traction control. He received the IEEE IAS Transaction Prize Paper Award in 1988, and the Prize Paper Award of IEE of Japan in 1996, and the IEEE Industrial Electronics Transactions best paper award in 2001 and 2002. Dr. Kawamura became a Fellow of the IEEE in 2002 with the citation, "For Contributions to Real-Time Digital Feedback Control of PWM Inverters."

He was the conference chairperson of the IEEE/IAS and IEEJ/IAS joint Power Conversion Conference (PCC-Yokohama) in 1993. He was an associate editor of IEEE Power Electronics Transactions from 1995 to 2000. He was the program chairman of the 2009 Robotics Society of Japan Annual Meeting, and also the general chairman of International Power Electronics Conference (IPEC2010). He served as president of the Institute of Electrical Engineers of Japan/ Industry Application Society (IEEJ/IAS) from 2012-2013. Dr. Kawamura is a fellow of the IEE of Japan, and a member of Robotics Society of Japan

Challenge to 99.9 % efficiency electric power conversion and the applications

Summary: Extremely high electric power conversion efficiency over 99 % has been challenged by the authors group and several data will be summarized in this invited talk.

First in the field of the dc/dc electric power conversion, resonant switching technique was introduced, and 99 % efficiency was achieved in a very highpower density.

Second, a new concept of a partial boost circuit for dc/dc converter was introduced and over 99.5% efficiency was verified in the power range between 10 kW and 100 kW.

Third, this concept was extended to the partial power conversion principle and it is applied to dc/ac electric energy conversion i.e. inverter. Discarding the power density target, 99.65% efficiency around 2 kW power range was experimentally measured as tentative data.

Finally, applications of these power conversion techniques will be added if time is available.

Keynote 2: Professor Remus Teodorescu, IEEE Fellow, Aalborg University, Denmark
Date : November 4, 2019 11.00-11.50 AM



Biography: Remus Teodorescu received the Dipl.Ing. degree in electrical engineering from the Polytechnical University of Bucharest, Bucharest, Romania, in 1989, Ph.D. degree in power electronics from the University of Galati, Romania, in 1994 and , Dr.HC in 2016 from Transilvania University of Brasov. In 1998, he joined the Department of Energy Technology at Aalborg University where he is currently a Full Professor. Between 2013 and 2017, he has been a Visiting Professor with Chalmers University.

He is IEEE/PELS Fellow since 2012 for contributions to grid converters technology for renewable energy systems. He is past Chair of IEEE Danish Section IAS/IES/PES chapter (2005 - 2012) and Past Associate Editor of IEEE Transactions in Power Electronics (2009 – 2012). He was panel member for ERC Adv. Grant 2015 and external reviewer for governmental research programs in Belgium, Hong Kong, Norway, Kazakhstan as well as TRI member for Nordic Energy Research, Toplevel Research Initiative (2014 – 2015) He received many awards, including: ISI “Highly Cited Researcher” in 2002-2018 and inclusion in “The World’s Most Influential Scientific Minds 2014” list by Thomason Reuter, Innovation Award – Nordjysk University Fund, 2011, Best 2009 IEEE PELS chapter as chair of Danish IEEE IAS/PELS/IES Chapter, Premium Award for Best paper in IET Renewable Power Generation, 2015.

He has co-authored more than 10 industry-licensed patents, 400+ IEEE papers (100+ journals), 4 books including Teodorescu R., Liserre M., Rodriguez P. “Grid Converters for Photovoltaics and Wind Power Systems” – Wiley-IEEE Press, 2011 ISBN 9780470057513 and Sharifabadi, K.; Harnefors, L.; Nee, H.-P.; Norrga, S.; Teodorescu, R., “Design, Control and Application of Modular Multilevel Converters for HVDC Transmission Systems,” Wiley-IEEE Press, 2016 ISBN: 978- 1-118-85156-2.

He is the founder and current coordinator of the MMC laboratory at Aalborg University. His main current research areas are: Modular Multilevel Converters (MMC) for HVDC/FACTS, Multilevel Converters for automotive, Smart Batteries, Li-Ion battery SOC/SOH Estimation Models, Power Converters for PV and Wind Turbines.

Modular Multilevel Converters – A New Technology

Summary: The MMC technology, adopted by major manufacturers of HVDC equipment, has demonstrated clear advantages in comparison with two- or three-level VSC in terms of losses, fault tolerance, harmonics and footprint. Recently, the MMC technology has been applied by industry to large STATCOM and Drives. The benefits of MMC technology can be also used to improve the performances of the existing solutions for connecting WT, PV or BESS to the distribution grid. Finally, integrating battery cells with LV MMC has potential to improve battery cell balancing performance, life-time and the effective capacity. Different topologies and system architectures for different applications are compared to the conventional solutions. Cost and complexity are still the major challenges that need to be addressed.

Keynote 3:**Date : November 4, 2019 11.50-12.40 AM****Mr. Hidehiko Kikuchi**, Corporate Senior Executive, Vice President, TMEIC, Japan

Biography: Mr. Hidehiko Kikuchi graduated from School of Science & Engineering of Waseda University, Tokyo, Japan in 1980, where he majored in the electrical engineering. He joined Toshiba Corporation in April 1980, developed his career as the engineer and made excellent technical achievements in high-capacity power electronics applications. In October 2003, he moved to Toshiba Mitsubishi-Electric Industrial Systems Corporation (TMEIC), Tokyo, Japan, when the joint venture between Toshiba and Mitsubishi-Electric was established. At that time, he was Technology Executive of Power Electronics Systems Division. He was promoted to Deputy

Vice President of the same division in April 2009, to Corporate Director in June 2012 and further to Vice President of the same division in April 2013. From June 2016 to present, he has been Corporate Senior Executive Vice President. In addition to his business career, from April 2019, he has been invited as a guest professor of Nagasaki Institute of Applied Science.

Mr. Tatsuaki Ambo, Senior Fellow of Power Electronics Systems Division TMEIC, Japan

Biography: Tatsuaki Ambo received the Master degree in electrical engineering from Keio University in 1979.

He entered Toshiba Corporation 1979 and from October 2003 to present Toshiba Mitsubishi-Electric Industrial Systems Corporation (TMEIC).

He took care of the development of General Purpose Inverter, Inverter for PV, Inverter for Fuel Cell, Inverter for ESS and UPS. He was promoted to Chief Engineer of Power Electronics Department Toshiba April 1997 and to Senior Fellow of Power Electronics Systems Division TMEIC April 2010. He is a member of IEE of Japan.

Utility Scale PV/ESS Inverter System and the Basic Technology

Summary: Recently, PV generation cost is going to be almost close to the Grid Parity. High penetration of PV generation gives us various kinds of challenges. Higher penetration of PV generation is expected with Energy Storage System. TMEIC is one of the greatest PV/ESS Inverter manufacturer. TMEIC (Toshiba) had started the development of PV-Inverter since 1983, and shipped the first 1MW Utility Scale PV Inverter in 1985. We have over 35 years PV Inverter development history. The long development history and some references of PV and ESS Inverter is introduced.

The principal features and challenges for PV/ESS Inverter are

- 1) Efficiency of Inverter
- 2) Efficient and robust MPPT control
- 3) Reliability and long life
- 4) Maintenance
- 5) Grid connecting
- 6) Cost

Several TMEIC's solution for these features and challenges are introduced.

For example,

a) 3.2MW IGBT PV Inverter highest efficiency is 99.1% (CEC attestation) The neutral point piloted 3 level topology and the latest 7th generation IGBT contribute high efficiency and high power density Inverter.

b) Outdoor type Inverter adopts the hybrid cooling system with heat pipe and low speed fan. It is expected high reliability and low maintenance for total inverter life systems, and then considered a cyber-physical system. Then, an analysis of the main technical issues, the coexistence of different technologies, problems related to communications and cybersecurity will be addressed during the speech.

Keynote 4: Professor Dan M. Ionel, IEEE Fellow, University of Kentucky, USA
Date : November 5, 2019 08.50-09.40 AM



Biography: Dan M. Ionel is Professor of Electrical Engineering and the L. Stanley Pigman Chair in Power at University of Kentucky, Lexington, KY. He previously worked in industry, most recently as Chief Engineer for Regal Beloit Corp., and, before that, as the Chief Scientist for Vestas Wind Turbines. Concurrently with his industrial appointments, Professor Ionel also served as Visiting and Research Professor at University of Wisconsin and Marquette University in Milwaukee, WI.

He contributed to technology developments with long lasting industrial impact, including US' most successful range of PM motor drives and world's most powerful wind turbine. He published more than one hundred and fifty technical papers, including two winners of Best Paper Awards from the IEEE IAS EMC, and holds more than thirty patents, including a medal winner at the Geneva Invention Fair. He is a co-author and co-editor of the book "Renewable Energy Devices and Systems – Simulations with Matlab and ANSYS" to be published by CRC Press in early 2017.

Professor Ionel received the MEng and PhD degrees in electrical engineering from the University Politehnica of Bucharest, Bucharest, Romania. His doctoral program included a Leverhulme Visiting Fellowship at the University of Bath, UK. He was a Postdoctoral Researcher with the SPEED Laboratory, University of Glasgow, UK.

An IEEE Fellow, he was the inaugural Chair of the IEEE Industry Applications Society Renewable and Sustainable Energy Conversion Systems Committee, Editor of IEEE TRANSACTIONS ON SUSTAINABLE ENERGY, and Technical Program Chair for IEEE ECCE 2015. He is the Editor-in-Chief of the Electric Power Components and Systems Journal, Chair of the IEEE Power and Energy Society Electric Motor Subcommittee, and the General Chair of the IEEE 2017 IEMDC Conference Anniversary Edition.

Recent Technology Developments For Utility-Scale and Distributed Battery Energy Storage Systems

Summary: The total capacity of grid-connected electric energy storage systems deployed in the field in the US has increased most significantly in recent years. This was possible due to technological advancements both for Li-ION and flow batteries, as well as for the associated power electronic converters. Such developments will be reviewed in the presentation, together with major US national initiatives that aim to produce high-performance and cost-effective systems able to store four to eight hours of energy, long enough to shift energy generated by renewable sources to user peak demand periods. Technology specific examples will be provided from the ongoing collaborative research projects of the Power and Energy Institute of Kentucky (PEIK) from University of Kentucky. These include a field demonstrator for a multi-MW utility-scale large-energy battery with associated power electronic converters, controllable electric test loads, and an advanced SCADA system, developed as part of a joint project with the national Electric Power Research Institute (EPRI) and major US utilities. Other case studies, for distributed energy storage at building level, will be provided from Department of Energy (DOE), utility and OEM sponsored projects considering net zero energy homes, large PV arrays, hybrid energy storage systems with combined stationary and electric vehicles batteries and water heaters, and special virtual power plant (VPP) controls for operating the homes as dispatchable generators with constant power generation or absorption over relatively large time durations. The conclusions will summarize trends and anticipated short and long term developments.

Keynote 5: Professor Carlo Cecati, IEEE Fellow, University of L'Aquila, L'Aquila, Italy
Date : November 5, 2019 09.40-10.30 AM



Biography: Carlo Cecati (IEEE Fellow, class 2006) was graduated in Electrical Engineering from the University of L'Aquila, L'Aquila, Italy in 1983. From 1983 to 1987 he was a consultant and a research fellow. In 1987, he joined the University of L'Aquila, L'Aquila, Italy, where, since 2006, he has been a Full Professor of Converters, Electrical Machines and Drives. He served his university in various capacities, including as a rector's delegate. Since September 2015, he has been appointed distinguished professor (1000 Talents Plan for High Level Foreign Experts) at Harbin Institute of Technology (HIT), Harbin, P.R. China. From August 2014 to August 2015, he was Chief International Academic Adviser of the same university. His research and technical interests fall in the area of renewable energies and energy saving, in particular the application of power electronics to renewable energy systems, distributed generation, smart grids, electrical drives, electric vehicles. Carlo Cecati received three best paper awards from IEEE journals. From 2013 to 2015 he has been the Editor in Chief of the IEEE Transactions on Industrial Electronics; previously, from 2009-2012, he has been a Co-Editor-in-Chief. Currently he is the General Chairman of the conference IEEE IECON 2016 which will be held next October in Florence, Italy.

Some emerging issues related to modern power converters

Summary: Power converters are becoming ubiquitous and their power level is now ranging from fractions of Watt up to several Megawatt, while their voltage rating starts from few Volt or less exceeding some thousand Volt or even more, in some applications, such as HVDC systems, and currents from pico or nanoampere up to thousands Ampere. Their applications are almost infinite and include most fields of today's life.

The scope of the speech will be to identify and discuss some key aspects related to the design of power converters, with special emphasis on their application field, their topologies, control and modulation in the perspective of the development of "intelligent power converters" (IPC). Depending on several factors and/or motivations, IPC must or should or could be "intelligent" and interconnected with other devices and systems, and then considered a cyber-physical system. Then, an analysis of the main technical issues, the coexistence of different technologies, problems related to communications and cybersecurity will be addressed during the speech.

Industrial Talk 1: Dr. Hitoshi Hayashiya, East Japan Railway Company, Japan

Date : November 5, 2019 10.30-11.00 AM



Biography: Hitoshi Hayashiya was born in 1970 in Tokyo, Japan. He graduated, received master degree and doctor degree from the University of Tokyo in 1994, 1996 and 1999, respectively. He was Assistant Professor of the University of Tokyo from 1999 to 2002 and entered East Japan Railway Company in July, 2002.

After entering East Japan Railway Company, he worked for R&D center from 2002 to 2006, for maintenance depot of high speed railway in Ohmiya Branch Office from 2006 to 2008, for railway operation headquarters from 2008 to 2016 and for Tokyo Branch Office from 2016 to 2018. Now, he is General Manager of Electrical & Signal Network System Department, Railway Operation Headquarters. Also, he has been Visiting Associate Professor of Advanced Collaborative Research Organization for Smart Society, Waseda University since 2019.

His specialties were high voltage engineering (bachelor degree), magnetic levitation and linear motor (master and doctor degree), plasma physics and plasma diagnosis (assistant professor) and railway power supply (JR East).

He is also involved in some activities related to international standard in IEC TC-9, railway applications. He was one of the experts members of revision/amendment of the following standards: IEC60850 (power supply voltage), IEC61992 (DC switchgear), IEC62128(safety and grounding) and so on.

Doctor of Engineering, Professional Engineer, Japan, of Electrical & Electronics Engineering, of Mechanical Engineering, of Applied Science, and of Engineering Management.

The history of electric energy utilization in Japanese railway and future prospects of renewable energy applications

Summary: The first demonstration of electric railway was performed during the third domestic industrial exposition at Ueno in 1890 by Dr. Ichisuke Fujioka, and the first business operation of electric tram was started in Kyoto in 1895, respectively. This is the beginning of the history of electric railway in Japan, and rail electrification was promoted mainly around city areas and some of mountainous lines by virtue of high acceleration and strong propulsion force of electric railway in early 20th century.

After that, the rail electrification had been progressively carried out in the name of "Power Modernization Project" of Japan National Railway (JNR) since 1960. Rail electrification of 3222km was accomplished in 1960s and it became one of the most important infrastructures to support high economic growth and sustainable development in Japan.

In this industrial talk, the history of rail electrification and electric energy utilization in Japanese railway are reviewed and future prospects of renewable energy utilization including energy storage applications will be also shown.

Industrial Talk 2: Yoshiyasu Nakashima, FUJITSU Advanced Technologies Limited, Japan
Date : November 5, 2019 11.00-11.20 AM



Biography: Yoshiyasu Nakashima received the Master's degree in Electronic Engineering from Saga University, Japan in 1989 following a research project on medical electronics. He has been employed at Fujitsu Laboratories since 1989 and now employed at Fujitsu Advanced Technologies since 2019. His current research area is power saving and power supply technologies for server systems, and energy management for renewable energy system.

High-Efficiency Energy Conversion from Solar to Hydrogen

Summary: We successfully used electricity obtained from high-efficiency concentrator photovoltaic cells (with an output of 470 W), currently under research and development at the University of Miyazaki, to electrolyze water, converting 18.8% of the solar energy (daily average) to hydrogen energy. This is the highest efficiency ever achieved by a practical system in an outdoor experiment.

Using model-based development, high efficiency and optimized operation of the system have been realized by simulations with precisely modeled component. The concentrator photovoltaic and water electrolysis cells and converters are expressed as an equivalent circuit based on actual measurements.

SPECIAL SESSIONS

Special Session 1: Cyber Security and Big Data Analytics for Smart Grids

Date : November 5, 2019 – 14.20-18.20 PM

Organizers: Prof. Dr. Seref SAGIROGLU, Gazi University, Turkey

Summary: Smart grid systems (SGSs) become a requirement to improve efficiency and reliability of the power generation, transmission, and particularly distribution systems. In order to maintain power networks with high performance as well as reducing operational cost, utility companies need to implement SGSs into their networks. Many smart grid initiatives leverage an increased dependency of information and communication technologies (ICT) to integrate more accurate physical parameter measurements and intelligent controller devices to the systems. It is well known that advancement in ICT provides easier and fast communication capabilities to SGSs to keep different components in power systems connected. However, the increased ICT dependency also introduces additional security risks for utility networks using SGSs resulting from poor system configurations, poor network design and vulnerabilities in software and operating platforms, lack of security policies and standards. Big Data Analytics also provides new perceptions and solutions to SGSs. This special session aims to bring together researchers and developers from academia, industry and governmental institution to share and exchange novel ideas, expectations, concerns and solutions, explore the inherent challenges in developing more secure SGSs with the current solutions and dig data analytics and share current experiences.

Topics include, but are not limited to:

- System security concerns
- Vulnerabilities and threats
- Security requirements for information and infrastructure
- Security policies critical
- Network security in smart grid
- Operating system security
- Communication protocol security
- Application security
- Malicious software threats and protections
- Security risk analysis, modeling, evaluation and management
- Machine to machine communication security
- Growing concern for customers privacy
- Standardization efforts and regulatory compliance
- Secure design techniques and tools
- Secure Monitor and control of distributed smart grid networks
- Software security in smart grid
- Industry 4.0 for SGSs
- Big data analytics, technologies, techniques and solutions for Smart grids
- Machine learning solutions for smart grid system security
- IoT and IoE in smart grid application and implementation.

Special Session 4: Opportunities and Challenges of Integrating Renewable Energy sources towards Smart Grid

Date : November 5, 2019 – 16.20-18.00 PM

Organizer: Dr.Subhransu Sekhar Dash, Government College of Engineering, Keonjhar, India
Dr.M.Arun Bhaskar, Velammal Engineering College, India
Dr.C.Subramani, SRM Institute of Science and Technology, India

Summary: Smart grid technology is the key for an efficient use of distributed energy resources. Noting the climate change becomes an important issue the whole world is currently facing, the ever increasing price of petroleum products and the reduction in cost of renewable energy power systems, opportunities for renewable energy systems to address electricity generation seems to be increasing. However, to achieve commercialization and widespread use, an efficient energy management strategy of system needs to be addressed. Recently, the concept of smart grid has been successfully applied to the electric power systems. Smart grid has a demanding and critical role in the future of efficient power generation and distribution. Renewable energy system is an innovative option for electricity generation, especially the PV system as it is a clean energy resource. However, to achieve a goal, a lots of issues need to be solved or addressed. These issues are basically related to the design and size of the system, the suitable and effective model which can cover the technical and financial aspects of PV smart grid to supply electricity, and the equalized electricity price for integrating PV in a smart grid system. This special session aims to bring together researchers and developers from academia, industry and governmental institution to share and exchange novel ideas and experiences that address challenges in developing intelligent systems for power networks. Topics include, but are not limited to:

- Smart Grid Technologies
- Power Generation Technologies and Power Apparatus
- Power System Operation, Control, and Automation
- Power System Optimization, Forecasting, Planning, and Reliability
- Wide Area Monitoring, Protection and Network Control
- Extreme Events and Grid Resiliency
- Electricity Market and Policy/Regulatory Aspects
- Distributed Generation & Power Distribution Issues
- Technologies for Grid Interfacing
- Conditioners for Power & Energy Systems
- Energy and Demand Side Management
- Renewable Sources - Grid Integration Challenges
- Energy Storage Technologies
- Renewable Energy Applications in Electric Vehicles.
- Power Quality Monitoring and Mitigation
- Micro Grids and Nano Grids
- Electric Vehicle and Grid Interaction
- Signal Processing Applications in Power Systems
- Computer and IT Applications in Power System
- Cyber and Physical Security of Power Grid
- Condition Monitoring and Power System Asset Management
- Power Engineering Education & Industry-Institute Collaboration

TUTORIALS

Tutorial 1: Big Data Analytics for Smart Grid Systems

Date : November 3, 2019- 12.00-13.30 AM

Organizer: Professor Seref Sagiroglu, Gazi University, Turkey

Summary: The objective of this tutorial is to present an insight on big data, big data analytics and smart grid systems. Big data analytics are considered as recent technology which provide solutions in various topics. Big data is known as huge data sets that are beyond the capture, manage and process ability of traditional techniques and tools. A review on smart grid systems and big data analytics are presented. In order to achieve this, available articles in the literature were reviewed in perception with the features of big data and smart grid systems. These systems are developed with the idea of having various data and integrating those data into intelligence for all electrical grids and components to manage huge and complex networks including different types and numerous numbers of devices and assets connected with a network for controlling, monitoring, tracking and managing the system according to the demands. When the smart grid systems are examined in the point of big data, providing new solutions from available measurements, enabling consumer demands, predicting new loads, and suggesting new ideas and new perceptions are considered. Potential issues for smart grids and big data analytics were discussed.

Tutorial 2: Li-Ion batteries and Smart Battery Solutions**Date** : November 3, 2019- 13.45-15.15 PM**Organizers:** Remus Teodorescu (Professor, Aalborg University)
Daniel Stroe (Associate Professor, Aalborg University)

Summary: The importance of the Lithium-ion (Li-ion) batteries is booming and after dominating the portable electronics applications, they are entering into new sectors such as propellant for electrical vehicles (EV) and renewable energy storage applications. The penetration of renewable energies in the power system is considered to significantly increase in near future; thus, batteries can play a crucial role in the reliable and cost efficient grid integration of intermittent energy sources. Besides the grid support applications, Li-ion batteries are already playing a major role in the automotive market. The use of batteries in automotive applications was demonstrated as a viable solution to replace the internal combustion engine cars with ideally, zero emissions vehicles (full electric vehicles), or with controlled emission vehicles (hybrid electric vehicles and plug-in hybrid electric vehicles).

The objective of this tutorial is to provide the audience with an extensive overview of the lithium-ion battery energy storage technology, its operating principles, advantages and drawbacks, system integration issues and requirements. Moreover, a part of the tutorial is dedicated to the performance (dynamic) modelling of Li-ion batteries. Different modelling methods will be introduced and their characteristics (e.g., accuracy, complexity etc.) will be assessed.

Furthermore, new emerging battery applications require Smart Battery solutions involving power electronics, intelligent BMS with SOC/SOH estimation and wireless communication in order to improve life-time, useful capacity and safety and a SOA will be presented.

Tutorial 3: Applications of Renewable Energy and Other Energy Saving Technologies to Railway Stations and Traction Power Supply System

Date : November 3, 2019- 15.30-17.00 PM

Organizers: Dr. Hitoshi Hayashiya, East Japan Railway Company, Japan

Summary: In ICRERA2017 at San Diego, overview of our trials related to improvement of electric energy utilization in railway power supply system was described, mainly focusing on utilization of regenerative energy in DC traction power supply system by applying energy storage systems and regenerative inverters, in Tutorial-3.

In this occasion, on the other hand, our experiences to improve energy utilizations related to railway stations are shown.

For example, 10 railway stations, called ECOSTE, Environment Earth Conscious Station of East Japan Railway Company, are selected from each region and some new technologies are implemented to improve energy efficiency at railway stations. The outline of ECOSTE project have already been introduced in the previous tutorial in San Diego, the details and some evaluation results to review the effect of each station will be shown. Some examples of ECOSTE are as follows:

Hiraizumi Station in Iwate Prefecture: 78kV photovoltaic panels and 240kW Lithium iron batteries are installed and all electric power is supplied from electric energy generated from solar power even during the nighttime.

Oga Station in Akita Prefecture: Nine 4.9kW small size wind power generators with 48.3kWh energy storage system are installed and the electric energy is used for station and some residual energy is supplied to battery train, called ACCUM.

Musashi-Mizonokuchi Station in Kanagawa Prefecture: CO2 free hydrogen are produced by electrolysis using electric energy from 30kW photovoltaic system. Produced hydrogen is stored in storage tank and is supplied to 3.5kW fuel cell for emergency power supply to railway station.

Niitsu Station in Niigata Prefecture: Regenerative inverter with batteries are installed and the regenerative power from braking train is supplied to railway station. 40% reduction of CO2 emission from the station is expected.

About regenerative energy utilization, which as already mentioned in the previous tutorial in ICRERA2017, some additional information during the last two years will be mentioned. Two regenerative inverters at Fukiage Substation and Kajibashi Substation and one energy storage system at Kita-Senju Substation started operation last fiscal year.

CONFERENCE PROGRAM SUMMARY

03.11.2019 Sunday		04.11.2019 Monday				05.11.2019 Tuesday				06.11.2019 Wednesday			
08:30-17:00		Registration											
Program		Program				Program				Program			
		09:00-09:40	Opening Ceremony and Speeches -Prof. Carmen GERIGAN, General Chair of ICRERA 2019 -Prof. Ilhami COLAK, General Co-Chair of ICRERA 2019 -Prof. Fujio KUROKAWA, General Co-Chair of ICRERA 2019 -Mr. Yuji Kawagoe from ENET as Honorary Chair -Dr. Noriko Kawakami, IEEJ President, Japan			08:50-9:40	KEYNOTE SPEECH-4 Professor Dan Ionel, Kentucky University, USA			09:00-09:20 09:20-09:40 09:40-10:00 10:00-10:20 10:20-10:40	ORAL PRESENTATION (3 PARALLEL SESSION) 5 PAPERS*20 MINUTES 15 PAPERS		
		09:40-10:30	KEYNOTE SPEECH-1 Professor Atsuo Kawamura, IEEE Fellow, Yokohama National University, Japan			09:40-10:30	KEYNOTE SPEECH-5 Professor Carlo Cecati, IEEE Fellow, University of L'Aquila, L'Aquila, Italy						
		10:30-11:00	COFFEE BREAK			10:30-11:00	INDUSTRIAL TALK 1 Dr. Hitoshi Hayashiya, East Japan Railway Company			10:40-11:00	COFFEE BREAK		
		11:00-11:50	KEYNOTE SPEECH-2 Professor Remus Teodorescu, IEEE Fellow, Aalborg University, Denmark			11:00-11:20	INDUSTRIAL TALK 2 Mr. Yoshiyasu Nakashima, FUJITSU ADVANCED TECHNOLOGIES LIMITED			ORAL PRESENTATION (3 PARALLEL SESSION) 5 PAPERS*20 MINUTES 15 PAPERS			
		11:50-12:40	KEYNOTE SPEECH-3 -Mr. Hidehiko Kikuchi, Corporate Senior Executive, Vice President, TMEIC, Japan -Mr. Tatsuaki Ambo, Senior Fellow of Power Electronics Systems Division TMEIC, Japan			11:20-11:40	COFFEE BREAK						
12:00-13:30	TUTORIAL-1	11:50-12:40	LUNCH BREAK			11:40-12:00 12:00-12:20 12:20-12:40 12:40-13:00 13:00-13:20	ORAL PRESENTATION (3 PARALLEL SESSION) 5 PAPERS*20 MINUTES 15 PAPERS			11:00-11:20 11:20-11:40 11:40-12:00 12:00-12:20 12:20-12:40	ORAL PRESENTATION (3 PARALLEL SESSION) 5 PAPERS*20 MINUTES 15 PAPERS		
13:30-13:45	COFFEE BREAK	12:40-14:20				13:20-14:20				LUNCH BREAK			
13:45-15:15	TUTORIAL-2	14:20-14:40 14:40-15:00 15:00-15:20 15:20-15:40 15:40-16:00	14:20-16:00	POSTER PRESENTATION-1 (21 PAPERS)		14:20-14:40 14:40-15:00 15:00-15:20 15:20-15:40 15:40-16:00	ORAL PRESENTATION (3 PARALLEL SESSION) 5 PAPERS*20 MINUTES 15 PAPERS			14:20-16:00	POSTER PRESENTATION-2 (19 PAPERS)		
15:15-15:30	COFFEE BREAK												
15:30-17:00	TUTORIAL-3												
		16:00-16:20	COFFEE BREAK			16:00-16:20	COFFEE BREAK			16:00-16:20	COFFEE BREAK		
		16:20-16:40 16:40-17:00 17:00-17:20 17:20-17:40 17:40-18:00	ORAL PRESENTATION (3 PARALLEL SESSION) 5 PAPERS*20 MINUTES 15 PAPERS			16:20-16:40 16:40-17:00 17:00-17:20 17:20-17:40 17:40-18:00	ORAL PRESENTATION (4 PARALLEL SESSION) 5 PAPERS*20 MINUTES 20 PAPERS			16:20-16:40 16:40-17:00 17:00-17:20 17:20-17:40 17:40-18:00	ORAL PRESENTATION (3 PARALLEL SESSION) 5 PAPERS*20 MINUTES 15 PAPERS		
18:00-19:30	WELCOME RECEPTION									18:00-18:30	CLOSING CEREMONY		
						19:30-21:30	GALA DINNER						

CONFERENCE PROGRAM SCHEDULE

Date: 3 November 2019		HALL: LOBBY
08:30-17:00	Registration	
Date: 3 November 2019		
TUTORIALS		HALL: UI2
12:00-13:30	TUTORIAL-1: Professor Seref Sagiroglu, Gazi University, Turkey "Big Data Analytics for Smart Grid Systems "	
13:30-13:45	COFFEE BREAK	
13:45-15:15	TUTORIAL-2: Remus Teodorescu (Professor, Aalborg University); Daniel Stroe (Associate Professor, Aalborg University) "Li-Ion batteries and Smart Battery Solutions"	
15:15-15:30	COFFEE BREAK	
15:30-17:00	TUTORIAL-3: Dr. Hitoshi Hayashiya, East Japan Railway Company, Japan "Energy utilization at railway station as informed in advance "	
Date: 3 November 2019		
18:00-19:30	WELCOME RECEPTION	

Date: 4 November 2019		HALL: LOBBY
08:30–17:00	Registration	
Date: 4 November 2019 - AM		HALL: AULA MAGNA
09:00-09:40	<p>Opening Ceremony and Speeches</p> <p>-Prof. Carmen GERIGAN, General Chair of ICRERA 2019 -Prof. Ilhami COLAK, General Co-Chair of ICRERA 2019 -Prof. Fujio KUROKAWA, General Co-Chair of ICRERA 2019 -Mr. Yuji Kawagoe from ENET as Honorary Chair -Dr. Noriko Kawakami, IEEJ President, Japan</p> <p>Chairs: Mihai Cernat, Seref Sagiroglu</p>	
KEYNOTE		HALL: AULA MAGNA
09:40-10:30	<p>Professor Atsuo Kawamura, Japan, "Challenge to 99.9 % efficiency electric power conversion and the applications"</p> <p>Chairs: Nobukazu Hoshi, Halil Ibrahim Bulbul</p>	
10:30-11:00	COFFEE BREAK	
KEYNOTE		HALL: AULA MAGNA
11:00-11:50	<p>Professor Remus Teodorescu, Denmark, "Modular multilevel converters – A new technology "</p> <p>Chairs: Hiroo Sekiya, Andres Annuk</p>	
11:50-12:40	<p>Mr. Hidehiko Kikuchi, Corporate Senior Executive, Vice President, TMEIC, Japan Mr. Tatsuaki Ambo, Senior Fellow of Power Electronics Systems Division TMEIC, Japan</p> <p>" Utility Scale PV/ESS Inverter System and the Basic Technology"</p> <p>Chairs: V. Fernao Pires, Nobumasa Matsui</p>	
12:40-14:20	LUNCH BREAK	
14:20-16:00	Poster Session-1	HALL: LOBBY (Ground Floor)

ORAL PRESENTATIONS	
Date: 4 November 2019 - PM	
HALL: UI2	
MAIN TRACK: Control Techniques for RESSs,	
SESSION CHAIRS: Naci Genc, Massimo Caruso	
14:20-14:40	<p>ID:7 Prediction of higher heating value HHV of date palm biomass fuel using artificial intelligence method Bousdira Khalida (Unité de Recherche Appliquée en Energies Renouvelables, URAER, Centre de Développement des Énergies Renouvelables, CDER, 47133, Ghardaïa, Algeria)*; Ziani Mohamed (Unité de Recherche Appliquée en Energies Renouvelables, URAER, Centre de Développement des Énergies Renouvelables, CDER, 47133, Ghardaïa, Algeria)*; Sabrina Belaid (Unité de Recherche Appliquée en Energies Renouvelables, URAER, Centre de Développement des Énergies Renouvelables, CDER, 47133, Ghardaïa, Algeria)*; Hamid Oudjana Samir (Unité de Recherche Appliquée en Energies Renouvelables, URAER, Centre de Développement des Énergies Renouvelables, CDER, 47133, Ghardaïa, Algeria)*; Khadidja Sobhi (Unité de Recherche Appliquée en Energies Renouvelables, URAER, Centre de Développement des Énergies Renouvelables, CDER, 47133, Ghardaïa, Algeria)*; Said Midane (Unité de Recherche Appliquée en Energies Renouvelables, URAER, Centre de Développement des Énergies Renouvelables, CDER, 47133, Ghardaïa, Algeria)*</p>
14:40-15:00	<p>ID:116 Using Biomass Gasification for Small Scale Power Generation Systems: Specifications of the Conceptual Framework Fernanda O. Resende (University of Aveiro, Escola Superior de Tecnologia e Gestão de Águeda)*; Valter Silva (University of Aveiro, Escola Superior de Tecnologia e Gestão de Águeda); Miguel Mendonça (University of Aveiro, Escola Superior de Tecnologia e Gestão de Águeda); A.C. Barbosa (University of Aveiro, Escola Superior de Tecnologia e Gestão de Águeda); P. Brito (Polytechnic Institute of Bragança & CIMO); J.C. Azevedo (Polytechnic Institute of Bragança & CIMO); A. Almeida (Polytechnic Institute of Bragança & CIMO); H.T. Gomes (Polytechnic Institute of Bragança & CIMO)</p>
15:00-15:20	<p>ID:49 A novel design of solid oxide fuel cell-based combined cooling, heat and power residential system in the UK Xinjie Yuan (University College London)*; Yuanchang Liu (University College London); Richard Bucknall (University College London)</p>
15:20-15:40	<p>ID:106 Evaluating heat current through concrete crush for heat storing application J. Birgitta Martinkauppi (University of Vaasa)*; Erkki Hiltunen (University of Vaasa)</p>
15:40-16:00	<p>ID:124 Real-Time Qualitative Model for Estimate Water Content in PEM Fuel Cell Gomer Abel Rubio (ESPOL)*; Wilton Edixon Agila (ESPOL); Livingston Miranda (ESPOL); Byron Lima (UPS)</p>
16:00-16:20	COFFEE BREAK
MAIN TRACK: Control Techniques for RESSs	
SESSION CHAIRS: V. Ferno Pires, Luz Cárdenas Herrera	
16:20-16:40	<p>ID:10 Optimized Decentralized Control Strategy of Grid-Connected Residential Photovoltaic Inverters Based on Voltage Sensitivity Matrix Jinrui Tang (Wuhan University of Technology)*; Yuanchao Qiu (Wuhan University of Technology); Binyu Xiong (Wuhan University of Technology); Yang Li (Wuhan University of Technology); Chengqing YUAN (Wuhan University of Technology); Yuwei SUN (Wuhan University of Technology)</p>
16:40-17:00	<p>ID:14 Optimization Design and Feature Research on VSG Control Strategy of Marine Photovoltaic Grid-connected Inverter Xujing Tang (Wuhan University of Technology); Huang Yaling (Wuhan University of Technology); Yuwei SUN (Wuhan University of Technology)*; Chengqing YUAN (Wuhan University of Technology); Hang Yu (Wuhan University of Technology)</p>
17:00-17:20	<p>ID:51 Output Characteristics of Energy Harvesting Using Multiple Energy Sources Toshihiko Ishiyama (Hachinohe Institute of Technology)*</p>
17:20-17:40	<p>ID:196 The Closed Loop Controller Gain Characterization for Enhanced Current Quality in Solar Inverters coupled with Weak Grid Ramachandra K Sekhar (Indian Institute of Technology, Ropar)*; Baibhav Kumar Gupta (Indian Institute of Technology, Ropar); Amol Ishwarrao Gedam (Indian Institute of Technology, Ropar)</p>
17:40-18:00	<p>ID:228 PV Power Based Duty Cycle Control of Quasi-Resonant Inverter for Induction Cooking Adem Sular (Van Yuzuncu Yil University); Ali Mamizadeh (Van Yuzuncu Yil University); Naci Genc (Van Yuzuncu Yil University)*; Muhammed Karaca (Van Yuzuncu Yil University)</p>

ORAL PRESENTATIONS	
Date: 4 November 2019 - PM	
HALL: UI3	
MAIN TRACK: Control Techniques for RESs	
SESSION CHAIRS: Mark Vygoder, Saban Ozdemir	
14:20-14:40	ID:232 The Effects of PR Control in Three-Level Single-Phase Multilevel Inverter Ilhami Colak (Nisantasi University); Ersan Kabalci (Nevsehir University); Gokhan KEVEN (Nevsehir Haci Bektas Veli University)*
14:40-15:00	ID:272 MPPT Based Model Predictive Control of Grid Connected Inverter for PV Systems Naki GÜLER (Gazi University)*; Erdal Irmak (Gazi University)
15:00-15:20	ID:233 Comparison between Norton Impedance Model and Frequency Scan Analysis of 3.36MW Inverter Mohammad Bani Shamseh (TMEIC)*; Ruben Inzunza (TMEIC); Masahiro Kinoshita (TMEIC); Tatsuaki Amboh (TMEIC)
15:20-15:40	ID:21 A Grid-Connected PV Multilevel Cascaded Inverter System Based on Single and Three-Phase Two-Level Inverters V. Ferno Pires (ESTSetubal/IPS)*; Joaquim Monteiro (ISEL – Polytechnic Institute of Lisboa); José Silva (INESC-ID, IST, Universidade de Lisboa)
15:40-16:00	ID:193 Analysis of Passive Filters for PV Inverters Under Variable Irradiances Muhammed Karaca (Van Yuzuncu Yil University); Ali Mamizadeh (Van Yuzuncu Yil University); Naci Genc (Van Yuzuncu Yil University)*; Adem Sular (Van Yuzuncu Yil University)
16:00-16:20	COFFEE BREAK
MAIN TRACK: Artificial Intelligence and Machine Learning..	
SESSION CHAIRS: Mariacristina Roscia, Erdal Irmak	
16:20-16:40	ID:93 Comparative Analysis of ABC, Bat, GWO and PSO Algorithms for MPPT in PV Systems Maykon Rocha (Federal University of Technology); Leonardo P Sampaio (Federal University of Technology)*; Sérgio Oliveira da Silva (Federal University of Technology)
16:40-17:00	ID:109 Estimation of Photovoltaic Panel Parameters by a Numerical Heuristic Searching Algorithm Oumaima Mesbahi (University of Évora)*; Mouhayedine tlemcani (Evora); Fernando Janeiro (University of Évora); Abdelowahed Hajjaji (University of Chouaib Doukkali); Khalid Kandoussi (University of Chouaib Doukkali)
17:00-17:20	ID:266 Classification of Turkey in Terms of Energy Efficiency, Total Renewable Energy and Greenhouse Gas Emission by Machine Learning Murat BEKEN (Nisantasi Üniversitesi)*; Batuhan Hangün (Nisantasi University); Onder Eyecioglu (Nisantasi University)
17:20-17:40	ID:268 Optimal Power Flow Using Artificial Bee Colony, Wind Driven Optimization and Gravitational Search Algorithms Salih Ermiş (Ahi Evran Üniversitesi); Mehmet Yesilbudak (Nevsehir Haci Bektas Veli University); Ramazan Bayindir (Gazi University)*
17:40-18:00	ID:84 Experimental Investigation of Fuzzy Logic Controller Based Indirect Current Control Algorithm for Shunt Active Power Filter Ahmed Bouhouta (Research Laboratory of Electrical Engineering & Automatic, LREA, University of Médéa); Samir Moulahoum (University of Medea)*; Nadir Kabache ("Research Laboratory LREA, University of Medea"); Ilhami Colak (Nisantasi University)
18:00-18:20	ID:41 Study of Potential and Utilization of Regenerative Power in Electric Railway Takashi Yoshinaga (East Japan Railway Company)*; Kota Minaminosono (East Japan Railway Company); Makoto Hashimoto (East Japan Railway Company)

Date: 4 November 2019 - PM		HALL: UI7
ORAL PRESENTATIONS		
MAIN TRACK: Computational Methods for RESSs		SESSION CHAIRS: Nobukazu Hoshi, Melicio Rui
14:20-14:40	ID:11 Techno-economic assessment of a PV/SC hybrid power system integrated into 2240 PCTC ro-ro ship Yuanhao Qiu (Wuhan University of Technology); Chengqing YUAN (Wuhan University of Technology)*; Xujing Tang (Wuhan University of Technology); Jinrui Tang (Wuhan University of Technology); Yan Zhang (Wuhan University of Technology); Xiuqin BAI (wuhan university of technology)	
14:40-15:00	ID:20 Examination of Correction Method of Long-term Solar Radiation Forecasts of Numerical Weather Prediction Miki Ueshima (NTT FACILITIES,INC.)*; Kazufumi Yuasa (Kyushu Institute of Technology); Tadatoshi BABASAKI (NTT FACILITIES); Ichiro Omura (Kyushu Institute of Technology)	
15:00-15:20	ID:246 A Hybrid Deep Learning Model with Evolutionary Algorithm for Short-Term Load Forecasting Abdullah Al Mamun (International Islamic University Chittagong); Muntasir Hoq (Bangladesh University of Engineering & Technology); Eklas Hossain (Oregon Tech); Ramazan Bayindir (Gazi University)*	
15:20-15:40	ID:271 Monthly Electrical Energy Consumption Modeling Using Ant Lion Optimizer Mehmet Yesilbudak (Nevsehir Haci Bektas Veli University)*; Ozge Sagliyan (Istanbul Technical University); Ayse Colak (Cardiff University)	
15:40-16:00	ID:52 Impacts of Wind Speed and Humidity on the Performance of Photovoltaic Module Ilhami Colak (Nisantasi University); Faten Faten Ayadi (ENIS)*; Naci Genc (Van Yuzuncu Yil University); Halil Ibrahim BULBUL (Gazi University)	
16:00-16:20	COFFEE BREAK	
MAIN TRACK: Control Techniques for RESSs		SESSION CHAIRS: Mehdi Bagheri, Solomon Oyegoke
16:20-16:40	ID:150 Disturbance Rejection Control Strategy of Hybrid Battery/Super Capacitors Power System Based on a Single Converter Yue Zhou (FC Lab,UTBM,Université Bourgogne-Franche-Comté)*; Hussein Obeid (FC Lab,UTBM,Université Bourgogne-Franche-Comté); Salah Laghrouche (FC Lab,UTBM,Université Bourgogne-Franche-Comté); Mickael Hilairet (FC Lab,UTBM,Université Bourgogne-Franche-Comté); Abdesslem Djerdir (FC Lab,UTBM,Université Bourgogne-Franche-Comté)	
16:40-17:00	ID:87 Distributed Control of Battery Energy Storage System in a Microgrid Jie Ma (Lancaster University)*; Xiandong Ma (Lancaster University)	
17:00-17:20	ID:170 A High Frequency Power Transformer for isolated and bidirectional DC-DC Converter used for MVDC Collection System in Wind Farms Rasoul Hosseini (UW-Milwaukee)*; Robert Cuzner (UW-Milwaukee)	
17:20-17:40	ID:185 Transient Response Improvement Method with State Space Control for Triple Active Bridge DC/DC Converter Takanobu OHNO (Tokyo University of Science)*; Nobukazu Hoshi (Tokyo University of Science)	
17:40-18:00	ID:211 Isolated DC to Single-phase AC Converter with Active Power Decoupling Capability for Battery Storage System Nagisa Takaoka (Nagaoka University of Technology)*; Hiroki Watanabe (Nagaoka University of Technology); Jun-ichi Itoh (Nagaoka University of Tec.)	

POSTER SESSION-1 (4 November 2019 MONDAY, 14:20-16:00)

HALL: LOBBY (Ground Floor)

TRACK

SESSION CHAIRS: Nobumasa Matsui, Fabio Viola, Mehmet Rida Tür

ID:15 Modeling and Simulation of the Electrical Characteristics of the Space Satellite Prototype UCACUETEL Based on the Ecuadorian Experience PEGASO.

Manuel Cardenas Herrera (Universidad Nacional de San Agustín de Arequipa); Daniel Icaza (Catholic University of Cuenca, Cuenca, Ecuador)*; Luz Cardenas Herrera (Universidad Nacional de San Agustín de Arequipa); Angel Maurisio Alojano Lojano (Catholic University of Cuenca, Cuenca, Ecuador); Fernando Mejía Nova (Universidad Nacional de San Agustín de Arequipa); Santiago Pulla (Catholic University of Cuenca, Cuenca, Ecuador)

ID:17 Hybrid Energy Storage System consisting of a Flywheel and a Lithium-ion Battery for the Provision of Primary Control Reserve

Panagiotis Mouratidis (Technische Universität Darmstadt)*; Benedikt Schuessler (Technische Universität Darmstadt); Stephan Rinderknecht (Technical University Darmstadt)

ID:18 System of Generation of Energy Based on Solar Energy for the Rural Political Movements Centers.

Luz Cardenas Herrera (Universidad Nacional de San Agustín de Arequipa); Daniel Icaza (Catholic University of Cuenca, Cuenca, Ecuador)*; Manuel Cardenas Herrera (Universidad Nacional de San Agustín de Arequipa); Fernando Mejía Nova (Universidad Nacional de San Agustín de Arequipa); Fernando Icaza (De la Salle, Cuenca, Ecuador); Marilú Flores (Universidad Técnica Particular de Loja)

ID:38 An Impedance Based Modeling Towards the Aging Prediction of Lithium-Ion Battery for EV Applications

Federico M Ibanez (Skolkovo Institute of Science and Technology)*; Tanvir Ahmed (Skolkovo Institute of Science and Technology); Ildar Idrisov (Skolkovo Institute of Science and Technology); Sebastián Gutiérrez (Facultad de Ingeniería Universidad Panamericana Aguascalientes, México)

ID:43 ILQ optimal voltage control for Biomass Free-Piston Stirling Engine

Ka Ahmadou (shibaura Institute of technology)*; Yusuke Nakamura (Department of Electrical Engineering and Computer science,); Massahiro Fujiwara (Faculty of engineering, and department of Electrical Engineering); Hiroshi Takami (Shibaura Institute of Technology); Kazuki Sato (Faculty of engineering, and department of Electrical Engineering)

ID:47 Performance Analysis Of Decoupling DC-Link Capacitors For A SiC-MOSFET-Inverter Module

Matthias Spieler (Infineon Technologies AG)*; Omar Vanegas (Infineon Technologies AG)*; Galek Marek (Department of Electrical Engineering and Information Technology, University of Applied Sciences Munich)

ID:48 A Water Pumping Photovoltaic Powered System Based on a DC-DC Converter with Dual Output and Extended Voltage e Gain

Daniel Foito (ESTSetubal - IPS)*; Armando Cordeiro (ISEL - IPL); Tito Amaral (ESTSetubal/IPS); V. Fernao Pires (ESTSetubal/IPS)

ID:63 Sustainable Energy: A Strategic Overview of Fuel Cells

Gomer Abel Rubio (ESPOL)*; W. Agila (ESPOL)*

ID:64 Transient Analysis in Proton Exchange Membrane Fuel Cells: A Critical Review and a Novel Model

Gomer Abel Rubio (ESPOL)*; W. Agila (ESPOL)*

ID:70 Selection and Structural Design of Reactive Power Compensators for a 200 MW Floating Offshore Wind Farm

Ga-Eun Jung (Changwon National University); MINH CHAU DINH (Changwon National University); Hae-Jin Sung (Changwon National University); Jae-In Lee (Changwon National University); Minwon Park (Changwon National University)*

POSTER SESSION-1 (4 November 2019 MONDAY, 14:20-16:00)

HALL: LOBBY (Ground Floor)

TRACK

SESSION CHAIRS: Nobumasa Matsui, Fabio Viola, Mehmet Rida Tür

ID:72 Simplified Floating Offshore Wind Turbine Model for Time-domain Simulation

MINH CHAU DINH (Changwon National University)*; THAI-THANH NGUYEN (Incheon National University); MINWON PARK (Changwon National University)

ID:76 Characteristics of Wireless Power Transfer System According to The Shape of Magnetic Path

Pyungho SO (HANBAT NATIONAL UNIVERSITY); Jisu AN (HANBAT NATIONAL UNIVERSITY); Hyunwoo YOU (HANBAT NATIONAL UNIVERSITY); Byoung-Hee Lee (Hanbat National University)*; Kang-Hyun Yi(Daegu University)

ID:77 Research on Wireless Power Transfer for Electronic Device

Yeongseong KIM (HANBAT NATIONAL UNIVERSITY); Kang-Hyun Yi (Daegu University); Jisu AN (HANBAT NATIONAL UNIVERSITY); Hyunwoo YOU (HANBAT NATIONAL UNIVERSITY); Byoung-Hee Lee (Hanbat National University)*

ID:90 Diesel engine waste heat recovery potential versus driving cycles

Venetia SANDU (Transilvania University)*; Adrian S Mazilu (Universitatea Transilvania Brasov)

ID:94 Dynamic Model of Proton Exchange Membrane Fuel Cells: A Critical Review and a Novel Model

Gomer Abel Rubio (ESPOL)*; W. Agila (ESPOL)*

ID:221 Reliability assessment of Modular Multilevel Converters by industrial and military prediction models

Giorgio Graditi (ENEA Portici)*; Giovanna Adinolfi (ENEA -Italian National Agency for New Technologies, Energy and Sustainable Economic Development-); Valeria Palladino (ENEA -Italian National Agency for New Technologies, Energy and Sustainable Economic Development-); Maria Valenti (ENEA)

ID:151 Transformer Winding Modelling to Study the Effect of Inter-disk Faults on Frequency Response Signature

Venera Nurmanova (Electrical and Computer Engineering Department, Nazarbayev University)*; Yerbol Akhmetov (Nazarbayev University); Maxim Lu (Electrical and Computer Engineering Department, Nazarbayev University); Mehdi Bagheri (Electrical and Computer Engineering Department, Nazarbayev University); Toan Phung (University of New South Wales, Sydney, Australia)

ID:276 Estimation of Energy Production by Using Probabilistic Programming Methods in Solar Power Plants: The case of Gazi Technopark

Mehmet Demirtas ("Faculty of Technology, Gazi University")*; Nuran Akkoyun (Graduate School of Natural and Applied Sciences Gazi University); Emrah Akkoyun (Department of Medical Informatics Middle East Technical University); İpek Çetinbaş (Eskişehir Osmangazi University)

ID:83 SVC-based Controller Design via Ant Colony Optimization Algorithm

Luay Elkhidir (King Fahad University for Petroleum and Minerals); Abubakr Hassan (King Fahad University for Petroleum and Minerals)*; Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))

ID:194 Balanced Phase Sequential Controller for Zero Circulating Current in Grid Connected Modular Solar Inverters

baibhav kumar gupta (IIT, Ropar)*; K.Ramchandra Sekhar (IIT, Ropar); Amol Ishwarrao Gedam (IIT, Ropar)

ID:112 Energy Management Strategy Considering Battery Efficiency for Grid-Tied Microgrids During Summer in the Kingdom of Saudi Arabia

Salman Umar Taiwo (King Fahd University of Petroleum and Minerals (KFUPM)" & "King Abdullah City for Atomic and Renewable Energy (K.A.CARE)); Mohammed A Abdulgalil (King Fahd University of Petroleum and Minerals (KFUPM))*; Olaoti S. Wasiu (King Fahd University of Petroleum and Minerals (KFUPM)); Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM)" & "King Abdullah City for Atomic and Renewable Energy (K.A.CARE))

Date: 5 November 2019		HALL: LOBBY
08:30-17:00	Registration	
Date: 5 November 2019 - AM		
KEYNOTE		HALL: AULA MAGNA
08:50-09:40	Professor Dan M. Ionel, USA, " Recent Technology Developments For Utility-Scale and Distributed Battery Energy Storage Systems " Chairs:Wahiba Yaici, Mamadou Bailo Camara	
KEYNOTE		HALL: AULA MAGNA
09:40-10:30	Professors Carlo Cecati, Italy, " Some emerging issues related to modern power converters " Chairs:Rosario Miceli, Mehdi Bagheri	
INDUSTRIAL TALK 1		HALL: AULA MAGNA
10:30-11:00	Dr. Hitoshi Hayashiya, East Japan Railway Company, Japan " The history of electric energy utilization in Japanese railway and future prospects of renewable energy applications " Chairs:Noriyuki Kimura, Erdal Bekiroglu	
INDUSTRIAL TALK 2		HALL: AULA MAGNA
11:00-11:20	Mr. Yoshiyasu Nakashima, FUJITSU ADVANCED TECHNOLOGIES LIMITED, Japan " High-Efficiency Energy Conversion from Solar to Hydrogen " Chairs:Noriyuki Kimura, Erdal Bekiroglu	
11:20-11:40	COFFEE BREAK	

ORAL PRESENTATIONS	
Date: 5 November 2019 - PM	
HALL: UI2	
MAIN TRACK: Control Techniques for RESs	
SESSION CHAIRS: Carlo Cecati, Necmi Altin	
11:40-12:00	ID:215 A New 6kW Wireless V2H System with Synchronized Parallel Bidirectional Single-Ended Converters and Bi-Fila Coils Junnosuke Nohara (Osaka institute of technology)*; Hideki Omori (Osaka Institute of Technology); Masahito Tsuno (Nichicon Co. Ltd.); Noriyuki Kimura (Osaka Institute of Technology); Toshimitsu Morizane (Osaka Institute of Technology)
12:00-12:20	ID:217 A Multiport Bidirectional LLC Resonant Converter for Grid-Tied Photovoltaic-Battery Hybrid Systems Garry Jean-Pierre (UW-Milwaukee); Ahmad El Shafei (UW-Milwaukee); Necmi Altin (UW-Milwaukee); Adel Nasiri (University of Wisconsin Milwaukee)*
12:20-12:40	ID:254 Variable Feedback Gain DC-DC Converter Tracing Output Voltage Fluctuation for Renewable Energy System Yudai Furukawa (Fukuoka University)*; Hyuga Tomura (Nagasaki Institute of Applied Science); Tadashi Suetsugu (Fukuoka University); Fujio Kurokawa (Nagasaki Institute of Applied Science)
12:40-13:00	ID:270 Two Degree of Freedom PID Controller For AC/DC Converters Nihat Ozturk (Gazi University)*. Emre Çelik (Düzce University)
13:00-13:20	ID:39 Optimal design methodology for high-power interleaved bidirectional buck-boost converters for supercapacitors in vehicular applications Arnur Karbozov (Skolkovo Institute of Science and Technology); Federico M Ibanez (Skolkovo Institute of Science and Technology)*
13:20-14:20	LUNCH BREAK
ORAL PRESENTATIONS	
Date: 5 November 2019 - PM	
HALL: UI2	
MAIN TRACK: Decision Support Systems for RESs	
SESSION CHAIRS: Noriyuki Kimura, Dan M. IoneI	
14:20-14:40	ID:128 Aggregation of Wind, Photovoltaic and Thermal Power with Demand Response Isaias Gomes (IDMEC, Instituto Superior Técnico, Universidade de Lisboa); Melicio Rui (IDMEC, Instituto Superior Técnico, Universidade de Lisboa)*; Victor Mendes (CISE, Electromechatronic Systems Research Centre, Universidade da Beira Interior)
14:40-15:00	ID:92 Smoothing Methodologies for Photovoltaic Power Fluctuations Ammar Atif Abdalla (King Fahd University of Petroleum and Minerals (KFUPM))*; Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))
15:00-15:20	ID:114 Stacking-Based Ensemble of Support Vector Regressors for One-Day-Ahead Solar Irradiance Prediction. Rami AL-HAJJ (American University of the Middle East)*; Ali ASSI (The Islamic University in Lebanon); Mohamad Fouad (Mansoura University)
15:20-15:40	ID:183 Output Voltage Control of Hydrogen Engine Generator by Cascade Control using Hydrogen Flow Rate Estimation Scheme HIKARI NITTA (Tokyo University of Science)*; Nobukazu Hoshi (Tokyo University of Science); KAZUHITO FUKUDA (DAYTONA CORPORATION)
15:40-16:00	ID:220 Optimized Power System Planning for Base Transceiver Station (BTS) based on Minimized Power Consumption and Cost Huzaifa Rauf (Lahore University of Management Sciences)*; Hassan Abbas Khan (Lahore University of Management Sciences); Naveed Arshad (Lahore University of Management Sciences)
16:00-16:20	COFFEE BREAK
MAIN TRACK: Energy Savings for Vehicular Technology	
SESSION CHAIRS: Remus Teodorescu, Hitoshi Hayashiya	
16:20-16:40	ID:267 A Hybrid Overload Current Limiting and Short Circuit Protection Scheme: A Case Study on UPS Inverter Cem Koseoglu (Inform); Necmi ALTIN (Gazi University)*; Fevzi Zengin (Inform); Hasan Kelebek (Inform); IBRAHIM SEFA (GAZI UNIVERSITY)
16:40-17:00	ID:125 Dynamic Simulation of Battery/Supercapacitor Hybrid Energy Storage System for the Electric Vehicles Wahiba Yaici (CanmetENERGY/Natural Resources Canada)*; Lia Kouchachvili (CanmetENERGY/Natural Resources Canada); Evgueniy Entchev (CanmetENERGY/Natural Resources Canada); Michela Longo (Politecnico di Milano)
17:00-17:20	ID:182 Design and Optimization of Electric Cars. A Review of Technological Advances Ferruh Altun (Erciyes University); Sezai Alper Tekin (Erciyes University); Seyfettin Gürel (Erciyes University)*; Mihai Cernat (Transilvania University of Brasov)
17:20-17:40	ID:149 Stable Operation of an Automotive Photovoltaic System under Moving Shadows Yosuke Tomita (NISSAN MOTOR CO.,LTD.)*; Yoshiyuki Nagai (NISSAN MOTOR CO.,LTD.); Masanori Saito (NISSAN MOTOR CO.,LTD.); Naotaka Niina (NISSAN MOTOR CO.,LTD.); Yusuke Zushi (NISSAN MOTOR CO.,LTD.)
17:40-18:00	ID:129 Aerostat Powered by PV Cells: hot-spot effect Isaias Gomes (IDMEC, Instituto Superior Técnico, Universidade de Lisboa); Melicio Rui (IDMEC, Instituto Superior Técnico, Universidade de Lisboa)*; Victor Mendes (Instituto Superior de Engenharia de Lisboa); Paulo Gordo (European Space Agency); Tiago Pardal (OMNIDEA, Lda)
18:00-18:20	ID 289: Optimization of PID Parameters Using Ant Colony Algorithm for Position Control of DC Motor Enes Can Şimşek (Gazi University); Ali KOSE (Gazi University); Murat Şahin (Roketsan); Erdal Irmak (Gazi University)*

ORAL PRESENTATIONS	
Date: 5 November 2019 - PM HALL: UI3	
MAIN TRACK: Performance Analysis of RESs SESSION CHAIRS: Wahiba Yaici, Atsuo Kawamura	
11:40-12:00	ID 278: A study of the introduction of the photovoltaic generation system to conventional railway Yoko Ishii; Hiroto Amata; Akifumi Yumoto; Kazumi Nagano; Mayumi Kanayasu; Yugo Yamada; Shiro Sekijima; Motohiko Onuki; Makoto Hashimoto; Koji Kasai (East Japan Railway Company)
12:00-12:20	ID:46 Model-based load estimation for wind turbine blade with Kalman filter Kazuo Muto (Hitachi, Ltd.); Nobuo Namura (Hitachi, Ltd.); Yosuke Ueki (Hitachi, Ltd.); Norio Takeda (Hitachi, Ltd.)
12:20-12:40	ID:180 Wind Power Volatility Alleviation Considering Battery systems and Responsive Loads: A Stochastic Framework Amirhossein Khazali (Loyola Tech)*; Pedro Rodriguez (Loyola University Andalusia)
12:40-13:00	ID:210 Wind Turbine Generator Emulator with Current Control mode Satoshi Nagai (Nagaoka University of Technology)*; Kouki Tokui (Nagaoka University of Technology); Hiroki Watanabe (Nagaoka University of Technology); Jun-ichi Itoh (Nagaoka University of Tec.)
13:00-13:20	ID:243 Development of Doubly-Fed Direct Drive Modular Permanent Magnet Wind Generator Erkan Meşe (Ege University); Ali Bakbak (Ege University)*; Murat Ayaz (Kocaeli University); Mutlu Boztepe (Ege University); Mert Altıntaş (Ege University); Özkan AKIN (Ege University); Hüseyin Tayyer Canseven (Ege University)
13:20-14:20	LUNCH BREAK
ORAL PRESENTATIONS	
Date: 5 November 2019 - PM HALL: UI3	
MAIN TRACK: Performance Analysis of RESs SESSION CHAIRS: Gurkan Soykan, Bader Alharbi	
14:20-14:40	ID:44 Influence of an Impulse Current near a Photovoltaic Solar Module on Bypass Diode Characteristics Yudai Fujimoto (National Institute of Technology, Ube College); Kenta Nakamoto (National Institute of Technology, Ube College); Ikuo Nanno (National Institute of Technology, Ube College); Toshiyuki Hamada (National Institute of Technology, Ube College)*; Norio Ishikura (National Institute of Technology, Yonago College); Shinichiro Oke (National Institute of Technology, Tsuyama College); Masayuki Fujii (National Institute of Technology, Oshima College); Takashi Oozeki (National Institute of Advanced Industrial Science and Technology, AIST)
14:40-15:00	ID:132 Multi-Receiver Dynamic Wireless Charging System's Architecture as a Means to Mitigate Voltage Pulsations at the Receiver: A Simulation Study Maxim Lu (Electrical and Computer Engineering Department, Nazarbayev University)*; Bexultan Nursultan (Nazarbayev University); Aidyn Zhambyl (Nazarbayev University); Yerniyaz Tolegen (Nazarbayev University); Aidar Tleubayev (Nazarbayev University); Mehdi Bagheri (Electrical and Computer Engineering Department, Nazarbayev University); Alex James (Electrical and Computer Engineering Department, Nazarbayev University)
15:00-15:20	ID:207 The World's First Small Power Modulation Injection Approach for Inertia Estimation and Demonstration in the Island Grid Naoki Hosaka (Tokyo Electric Power Company Holdings, Inc.)*; Brian Berry (Reactive Technologies); Satoshi Miyazaki (TEPCO)
15:20-15:40	ID:239 Identification of common services in European flexibility demonstrators for laboratory-based interoperability validation Jawad Haider Kazmi (AIT Austrian Institute of Technology)*; Amir Ahmadifar (RWTH Aachen); Mirko Ginocchi (RWTH Aachen); Friederich Kupzog (AIT Austrian Institute of Technology); Marco Cupelli (RWTH Aachen); Olivier Genest (TRIALOG SA); Mihai Calin (AIT Austrian Institute of Technology); Milica Savic (AIT Austrian Institute of Technology); Antonello Monti (RWTH Aachen)
15:40-16:00	ID: 22 Paper title: Internal Model Repetitive Control for an Active Power Filter Costin F. Ciusdel (UnitBV)*; Ioan Serban (Transilvania University of Brasov)
16:00-16:20	COFFEE BREAK
TRACK 4: Opportunities and Challenges of Integrating... SESSION CHAIRS: S. S. Dash, M.Arun Bhaskar, C.Subramani	
16:20-16:40	ID:110 Sizing and Allocation for Solar Energy Storage System Considering the Cost Optimization Mohamed Elsir (King Fahd University of Petroleum & Minerals); Mohammed A Abdulgalil (King Fahd University of Petroleum & Minerals)*; Ali T. Al-Awami (King Fahd University of Petroleum & Minerals); Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))
16:40-17:00	ID:209 Smart Power System Operation with Dynamic Thermal Limits on Critical Transmission Lines and Integration of Large PV Systems Bader Alharbi (University of Birmingham)*; Dilan Jayaweera (University of Birmingham)
17:00-17:20	ID:237 SHO designed fuzzy logic based controller for AGC study with capacitor energy storage Subhadra Sahu (ITER, Siksha 'O' Anusandhan (Deemed to be University)); Nimai Charan Patel (Government College Of Engineering, Keonjhar, Odisha)*; Narendra Kumar Jena (ITER, Siksha 'O' Anusandhan (Deemed to be University)); Subhransu Sekhar Dash (Government College of Engineering, Keonjhar); Binod Kumar Sahu (Siksha 'O' Anusandhan University, Bhubaneswar, Odisha.); Ramazan Bayindir (Gazi University)
17:20-17:40	ID:238 Novel application of Selfish Herd Optimisation based Two Degrees of Freedom cascaded controller for AGC study Narendra Kumar Jena (ITER, Siksha 'O' Anusandhan (Deemed to be University)); Subhransu Sekhar Dash (Government College of Engineering, Keonjhar); Subhadra Sahu (ITER, Siksha 'O' Anusandhan (Deemed to be University)); Binod Kumar Sahu (Siksha 'O' Anusandhan University, Bhubaneswar, Odisha.); Nimai Charan Patel (Government College Of Engineering, Keonjhar, Odisha)*; KANUNGO B MOHANTY (NIT ROURKELA); Ramazan Bayindir (Gazi University)
17:40-18:00	ID 288: Performance Mechanism of Active Clamp Resonant SEPIC Converter in Renewable Energy Systems Kazuhiro Kajiwara (Nagasaki Institute of Applied Science); Kazuki Tsuji (Nagasaki Institute of Applied Science)*; Satoshi Ikeda (Panasonic); Nobumasa Matsui (Nagasaki Institute of Applied Science); Fujio Kurokawa (Nagasaki Institute of Applied Science)

ORAL PRESENTATIONS	
Date: 5 November 2019 - PM	
HALL: UI7	
MAIN TRACK: Smart grids and RESSs	SESSION CHAIRS: Tadashi Suetsugu, Mehmet Yesilbudak
11:40-12:00	ID:269 SHA-512 based Wireless Authentication Scheme for Smart Battery Management Systems Ahmad Hasan Abed Al Khas (Istanbul Şehir University)*; Ihsan Cicek (Istanbul Sehir University)
12:00-12:20	ID:172 Potential Sources of Renewable Energy for the Energy Supply in the City of Cuenca-Ecuador with Towards a Smart Grid. Daniel Icaza (Catholic University of Cuenca, Cuenca, Ecuador)*; David Borge Diez (Departamento de Ingeniería Eléctrica de Sistemas Automática Universidad de León)
12:20-12:40	ID:91 New approach for Smart Community Grid through Blockchain and smart charging infrastructure of EVs. Mariacristina Roscia (University of Bergamo)*; Cristian Lazaroiu (University Politehnica of Bucarest)
12:40-13:00	ID:97 Integrating autonomous dc microgrids on the basis of a plant/controller modular formulation of individual DERs Despoina Ioannis Makrygiorgou (University of Patras)*; Antonio Alexandridis (University of Patras)
13:00-13:20	ID 287: Design Comparison of Peak Current Mode Switching Power Converter for DC Distribution Systems Kazuhiro Kajiwara (Nagasaki Institute of Applied Science); Yasuyuki Koga (Nagasaki Institute of Applied Science)*; Shinichiro Hattori (ISAHAYA ELECTRONICS CORPORATION); Nobumasa Matsui (Nagasaki Institute of Applied Science); Fujio Kurokawa (Nagasaki Institute of Applied Science)
13:20-14:20	LUNCH BREAK
ORAL PRESENTATIONS	
Date: 5 November 2019 - PM	
HALL: UI7	
TRACK 1: Cyber Security and Big Data Analytics for Smart Grids...	SESSION CHAIRS: Seref Sagiroglu
14:20-14:40	ID:198 Performance Analysis of DC Grid Connected PV System Under Irradiation and Temperature Variations Ece Kurt (Bahcesehir University)*; Gurkan Soykan (Bahcesehir University)
14:40-15:00	ID:136 AI concepts for Demand Side Shedding Management in Libya ALI A.A. ALARBI (Loughborough University)*; Dani Strickland (Loughborough University); Richard Blanchard (Loughborough University)
15:00-15:20	ID: 108 Optimal Charging Scheduling of Electrical Vehicles in a Residential Microgrid based on RES Catalin P Ion (Transilvania University of Bra)*; Corneliu Marinescu (Transilvania University of Brasov)
15:20-15:40	ID:245 Enhancing the Performance of Photovoltaic Systems under Partial Shading Conditions Using Cuttlefish Algorithm Mariam A. Sameh (Future University in Egypt); Mahmoud A. Attia (Ain Shams University); Mostafa I. Marei (Ain Shams University); Mohamad A Badr (Future University in Egypt)*
15:40-16:00	ID:253 DTC Control of the DFIG, Application to the Production of Electrical Energy Youcef Bakou (URERMS Adrar); Mohamed Abid (URERMS Adrar); Harrouz Abdelkader (Department of Hydrocarbon and Renewable Energy, Laboratory (LEESI), University of Adrar, Algeria)*; Ibrahim Yaichi (University of Djillali Liabes, Sidi Bel Abbe 022000); Ilhami Colak (Nisantasi University); Korhan KAYISLI (Nisantasi University); Abdel Ghani AISSAOUI (University of Bechar)
16:00-16:20	COFFEE BREAK
TRACK 1: Cyber Security and Big Data Analytics for Smart Grids...	SESSION CHAIRS: Seref Sagiroglu
16:20-16:40	ID:8 Energy Modeling Output of Wind System Based on Wind Speed Harrouz Abdelkader (Department of Hydrocarbon and Renewable Energy, Laboratory (LEESI), University of Adrar, Algeria)*; Ilhami Colak (Nisantasi University); Korhan KAYISLI (Nisantasi University)
16:40-17:00	ID:25 Bi-directional Multiport Converter for Utilizing Green Base Stations as Virtual Power Plant Masaki Nakamura (NTT DOCOMO, INC.)*; Kazuhiko Takeno (NTT DOCOMO, INC.); Ryota Hisamitsu (Kyushu University); Masahito Shoyama (Kyushu University)
17:00-17:20	ID:27 Power Factor Control in Buildings by Air Conditioners with Built-in Active Filters Masaki Kono (DAIKIN INDUSTRIES,LTD.)*; Keisuke Ohta(DAIKIN INDUSTRIES,LTD.)
17:20-17:40	ID: 88 Paper title: Li-Ion energy storage capacity estimation in residential applications with EV Luminita Barote (Transilvania University of Brasov)*; Corneliu Marinescu (Transilvania University of Brasov)
17:40-18:00	ID: 169 Frequency and Voltage Control of Island System using Power Hardware In the Loop. Solomon Oyegoke (University of Greenwich)*; Yehdego Habtay (University of Greenwich); Marios Maniatopoulos (National Technical University of Athens); Simeon Keates (Edinburgh Napier University)
18:00-18:20	ID:86 Back-Up-Capacity Prediction in a Power-Grid Dominated by Renewable Electricity Bernhard Hoppe (Darmstadt University of Applied Science)*

ORAL PRESENTATIONS**Date: 5 November 2019****- PM****HALL: UI6****MAIN TRACK: Smart grids and RESSs****SESSION CHAIRS: Ramazan Bayindir**

16:20-16:40	ID 248: Power Quality Enhancement with Wind Energy coupled UPQC using Adaptive Controller Sunitha Devendran (Velammal Engineering College); Dr.S.S Dash (GCE, Keonjhar Odisha); Senthil Kumar V (Anna University); Arun Bhaskar Mayilvaganan (Velammal Engineering College)*; Anjana S V (Velammal Engineering College)
16:40-17:00	ID:247 Protection of Stand-Alone Wind Energy Conversion System using Bridge Type Fault Current Limiters Arun Bhaskar Mayilvaganan (Velammal Engineering College)*; Dr.S.S DASH (GCE, Keonjhar odisha); Premalatha S (Velammal Engineering College); Arjun Parameswaran (Velammal Engineering College); Dinesh P (Velammal Engineering College)
17:00-17:20	ID:152 Optimized Integration of Solar PV Energy on to Telecom Power Systems for DC and A/C buses or Energy Storages with proposed Converters to make them as profit centers. Kasun C Wijesinghe (Edotco Services Lanka Limited.)*

Date: 6 November 2019		HALL: LOBBY
08:30-17:00	Registration	
14:20-16:00	Poster Session-2	HALL: LOBBY (Ground Floor)
ORAL PRESENTATIONS		
Date: 6 November 2019 - AM		HALL: UI2
MAIN TRACK: System Design For Renewable Energy Application		SESSION CHAIR: Kazufumi Yuasa, Nihat Ozturk
09:00-09:20	ID:286 Artificial Neural Network Based Automatic Voltage Regulator for a Stand-Alone Synchronous Generator Güngör BAL (Gazi University)*; Orhan KAPLAN (Gazi University); Süleyman Samet Yalçın (Gazi University)	
09:20-09:40	ID:148 Loss Analysis and Temperature Measurement of Middle Frequency Transformer Applied for Solid State Transformer Noriyuki Kimura (Osaka Institute of Technology)*; Kazushige Nakao (Fukui University of Technology); Toshimitsu Morizane (Osaka Institute of Technology)	
09:40-10:00	ID:42 Hybrid Sepic-Cúk DC-DC Converter Associated to a SRM Drive for a Solar PV Powered Water Pumping System Armando Cordeiro (ISEL - IPL)*; Miguel Chaves (ISEL - Instituto Superior de Engenharia de Lisboa); Hiren Canacsinh (ISEL - Instituto Superior de Engenharia de Lisboa); Ricardo Luis (ISEL - Instituto Superior de Engenharia de Lisboa); V. Ferno Pires (ESTSetubal/IPS); Daniel Foito (ESTSetubal - IPS); Armando Pires (Polytechnical Institute of Setubal); J. F. Martins (FCT/UNL)	
10:00-10:20	ID:50 The water production system with Peltier element and Photovoltaic Atsushi Nakajima (Tokyo Denki University)*; Shigeo Masukawa (Tokyo Denki University)	
10:20-10:40	ID:96 Supercapacitors Characterization using Impedance Spectroscopy and taking account dynamics constraints and their combinations Cheikh Tidiane Sarr (Le Havre University)*; Mamadou Bailo Camara (Le Havre University); Brayima DAKYO (Le Havre University)	
10:40-11:00	COFFEE BREAK	
MAIN TRACK: Policies and Strategies for RESSs		SESSION CHAIR: Noriyuki Kimura, Orhan Kaplan
11:00-11:20	ID:19 Power Energy Cost Reduction Effects by Applying Optimized Long-Term Storage Battery Operation Strategy Kazufumi Yuasa (Kyushu Institute of Technology)*; Miki Ueshima (NTT FACILITIES,INC.); Tadatoshi BABASAKI (NTT FACILITIES); Ichiro Omura (Kyushu Institute of Technology)	
11:20-11:40	ID:53 Case study for battery bank subsidization Heiki Lill (Estonian University of Life Sciences)*; Alo Allik (Estonian University of Life Sciences); Andres Annuk (Estonian University of Life Sciences)	
11:40-12:00	ID:115 A Reactive Power Compensation Strategy in Radial Distribution Network with High PV Penetration Khalid A Khan (King Fahd University of Petroleum and Minerals)*; Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))	
12:00-12:20	ID: 161 Integration into a platform real-time of distributed generation Angel Lojano (Catholic University of Cuenca, Ecuador)*; Diego Morales (Catholic University of Cuenca); Ricardo Medina (Catholic University of Cuenca); Javier González (Catholic University of Cuenca)	
12:20-12:40	ID:275 Energy Management of a PV Energy System and a Plugged-in Electric Vehicle Based Micro-Grid Designed for Residential Applications İpek Çetinbaş (Eskişehir Osmangazi University); Bunyamin Tamyurek (Gazi University); Mehmet Demirtas ("Faculty of Technology, Gazi University")*	
13:20-14:20	LUNCH BREAK	
14:20-16:00	Poster Session-2	HALL: LOBBY (Ground Floor)

ORAL PRESENTATIONS	
Date: 6 November 2019 - PM	
HALL: UI2	
MAIN TRACK: Power Devices and Driving Circuits for RESs	
SESSION CHAIR: Daniel Icaza, Korhan Kayıslı	
14:20-14:40	ID:23 A Skewness Based Method for Diagnosis in Quasi-Z T-Type Grid-Connected Converters Tito Amaral (ESTSetubal/IPS)*; V. Ferno Pires (ESTSetubal/IPS); Armando Cordeiro (ISEL - IPL); Daniel Foito (ESTSetubal - IPS)
14:40-15:00	ID:131 Design Considerations for GaN Based Converters Ilan Aharon (Ariel University)*; Moshe Sitbon (Ariel University)*; Joseph Bernstein (Ariel University)*
15:00-15:20	ID:171 Analysis of Class-E Rectifier with Low Output-Filter Inductance A siya (chiba University)*; Tatsuki Ohsato (Chiba University); Xiuqin Wei (Nil); Kien Nguyen (Chiba University); Hiroo Sekiya (Chiba University)
15:20-15:40	ID:175 Improving the Life-Cycle and SOC of the Battery of a Modular Electric Vehicle using Ultra-Capacitor Arif Şenol Şener (Nişantaşı University)*
15:40-16:00	ID:157 Applying a Novel Soft Switching Technique to Three-Phase Active Power Filter Keivan Behzadpour (JDEVS)*; Mohammad Reza Amini (Department of Electrical Engineering, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran)
16:00-16:20	COFFEE BREAK
MAIN TRACK: Power Devices and Driving Circuits for RESs	
SESSION CHAIR: V. Ferno Pires, Mehmet Rida Tür	
16:20-16:40	ID:188 A New Control Method of One-Switch Wireless V2H with a Combination of Resonant Selector and Voltage Changer Tatsuya Takahashi (Osaka Institute of Technology)*; Hideki Omori (Osaka Institute of Technology); Masahito Tsuno (Nichicon Co. Ltd.); Toshimitsu Morizane (Osaka Institute of Technology); Noriyuki Kimura (Osaka Institute of Technology)
16:40-17:00	ID:192 Efficiency Improvement for Diode-Clamped Linear Amplifier using Unequally Divided Voltage Power Supply Junnosuke Haruna (Utsunomiya University)*; Yusuke Matano (Utsunomiya University); Hirohito Funato (Utsunomiya University)
17:00-17:20	ID:204 A Study of a Newly Developed Kelvin-Source Driven SiC-VMOSFET on a High-Power Single-Ended Wireless EV Charger Taichi Iwanaga (Osaka Institute of Technology)*; Hideki Omori (Osaka Institute of Technology); kunihiro sakamoto (Advanced Industrial Science and Technology); Toshimitsu Morizane (Osaka Institute of Technology); Noriyuki Kimura (Osaka Institute of Technology)
17:20-17:40	ID:263 Peak Current Detector of Switching Power Supply for Renewable Energy System: Immune Design to Inherent Delay in FPGA Yudai Furukawa (Fukuoka University)*; Kazuya Uetsuhara (Nagasaki University); Yuichiro Shibata (Unknown); Tadashi Suetsugu (Fukuoka University); Shinichiro Hattori (ISAHAYA ELECTRONICS CORPORATION); Nobumasa Matsui (Nagasaki Institute of Applied Science); Fujio Kurokawa (Nagasaki Institute of Applied Science)
17:40-18:00	ID:222 Verification of Device Model by Measuring Capacitance and Static Characteristics for Predicting Switching Waveform Kengo Koki (Okayama University)*; Masahiko Yoshioka (Okayama University); Kazuhiro Umetani (Okayama University); Eiji Hiraki (Okayama University)
18:00-18:30	CLOSING CEREMONY (HALL:AULA MAGNA)

ORAL PRESENTATIONS	
Date: 6 November 2019 - AM HALL: UI3	
MAIN TRACK: Power Devices and Driving Circuits for RESSs SESSION CHAIR: Noriyuki Kimura, Mehmet Demirtas	
09:00-09:20	ID:178 Effects of the HVDC System on Converter Transformers Marcos V. Czernorucki (University of Sao Paulo); Mauricio B C Salles (University of Sao Paulo)*; Andre S. Melo (University of Sao Paulo); Eduardo C. M da Costa (University of Sao Paulo); Luigi Piegari (Politecnico di Milano)
09:20-09:40	ID:218 Complete Design of a High Frequency Medium Voltage Multi-Port Transformer Ahmad El Shafei (UW-Milwaukee); Saban Ozdemir (UW-Milwaukee); Necmi Altin (UW-Milwaukee); Garry Jean-Pierre (UW-Milwaukee); Adel Nasiri (University of Wisconsin Milwaukee)*
09:40-10:00	ID:249 A High Power High Frequency Transformer Design for Solid State Transformer Applications Ahmad El Shafei (UW-Milwaukee); Saban Ozdemir (UW-Milwaukee); Necmi Altin (UW-Milwaukee); Garry Jean-Pierre (UW-Milwaukee); Adel Nasiri (University of Wisconsin Milwaukee)*
10:00-10:20	ID:176 Ultra-High Bandwidth GaN-Based Class-D Power Amplifier for Testing of Three-Phase Mains Interfaces of Renewable Energy Systems Pascal S Niklaus (ETH Zurich)*; Jon Azurza Anderson (ETH Zurich); Dominik Bortis (ETH Zurich); Johann W. Kolar (ETH Zurich)
10:20-10:40	ID:265 Design and Implementation of Sensorless DC Voltage Regulation for Shunt Active Power Filter Based Single Phase P-Q Theory Ilhami Colak (Nisantasi University); Orhan KAPLAN (Gazi University)*
10:40-11:00	COFFEE BREAK
Date: 6 November 2019 - AM HALL: UI3	
MAIN TRACK: Renewable (Green) Energy Systems and Sources (RESSs) SESSION CHAIR: G N Reddy, Mauricio B C Salles	
11:00-11:20	ID:73 Linearized Model of Power System with Synchronous Generator, Variable Renewable Energy Generation and Load Satoshi Sakurai (Sophia university)*; Ori Sakamoto (Sophia university); Tanzo Nitta (Sophia university)
11:20-11:40	ID:154 Experimental Investigation of Efficiency Map for an Inverter-fed Surface-mount Permanent Magnet Synchronous Motor Milad Golzar (University of Agder)*; Khang Huynh (University of Agder); Martin Marie Hubert Choux (University of Agder); Alf Magne Midtbø Versland (Flekkefjord Elektro Ltd.)
11:40-12:00	ID:219 A New Ultra - Capacitor Driven Dynamic WPT Scooter System Keisuke Kawashima (osaka institute of technology)*; Hideki Omori (Osaka Institute of Technology); Noriyuki Kimura (Osaka Institute of Technology); Toshimitsu Morizane (Osaka Institute of Technology)
12:00-12:20	ID:274 The Contactless Permanent Magnet Energy Harvester using gyration from Roller Conveyor Shotaro Motoyama (Tokyo Denki University)*; Atsushi Nakajima (Tokyo Denki University); Shigeo Masukawa (Tokyo Denki University)
12:20-12:40	ID:223 Axial Heating Coil Structure for Reducing Magnetic Levitation Force of All-Metal Type Induction Cookers Koki Kamaeguchi (Okayama University)*; Kazuhiro Umetani (Okayama University); Eiji Hiraki (Okayama University)
13:20-14:20	LUNCH BREAK
14:20-16:00	Poster Session-2 HALL: LOBBY (Ground Floor)

ORAL PRESENTATIONS	
Date: 6 November 2019	- PM
HALL: UI3	
MAIN TRACK: Renewable (Green) Energy Systems...	
SESSION CHAIR: Andres Annuk, Onder Eyecioglu	
14:20-14:40	ID:158 Prospective sites for solar-powered permafrost stabilization systems integration in Russian railways Egor Loktionov (Bauman Moscow State Technical University)*; Ibragim Asanov (Moscow Power Engineering Institute (National Research University)); Elizaveta Sharaborova (Bauman Moscow State Technical University)
14:40-15:00	ID:191 Impact of RES Penetration on the Frequency Dynamics of the 500 kV Vietnamese Power System Rossano Musca (University of Palermo)*; Eleonora Riva Sanseverino (University of Palermo); Salvatore Favuzza (University of Palermo); Gaetano Zizzo (DEIM University of Palermo); Milagros Navarro Navia (Università di Palermo); Ninh Nguyen Quang (Institute of Energy Science)
15:00-15:20	ID:195 Asynchrony Estimation of Solar Irradiance by Quantification of Joint Recurrence Plot Takahiro Takamatsu (Tokai University)*; Kei Yaginuma (Tokai University); Takashi Nakajima (Tokai University)
15:20-15:40	ID:264 Forecasting of Daily Total Horizontal Solar Radiation Using Grey Wolf Optimizer and Multilayer Perceptron Algorithms Medine Colak (Gazi University)*; Mehmet Yesilbudak (Nevsehir Haci Bektas Veli University); Ramazan Bayindir (Gazi University)
15:40-16:00	ID:244 Analysis of Grid Connected Wind Power System Erdal Bekiroglu (Bolu Abant Izzet Baysal University)*; Muhammed Duran yazar (BAIBU)
16:00-16:20	COFFEE BREAK
MAIN TRACK: Renewable (Green) Energy Systems...	
SESSION CHAIR: Erdal Bekiroglu, Samir Moulahoum	
16:20-16:40	ID:66 Planning of Stand-alone Systems through Statistical Analysis Guido J Rostegui (Universidade de Sao Paulo)*; Luis Timaná (Universidade de Sao Paulo); Matheus M F Gemignani (Universidade de Sao Paulo)
16:40-17:00	ID:262 Effect of Calculated VOLL and EENS Parameters on Reserve Planning in Power System Mehmet Rida TUR (Batman Üniversitesi TBMYO Department of Electrical and Energy)*; Ramazan Bayindir (Gazi University); Mohammed Wadi (İstanbul Sabahattin Zaim Üniversitesi); Abdulfetah Shobole (İstanbul Sabahattin Zaim Üniversitesi); SALOUA MARHRAOUI (Department of Electrical Engineering, Mohammadia School of Engineers (EMI), Mohammed V University in Rabat)
17:00-17:20	ID:143 Electrical Power distribution status in West Africa: Assessment and Perspective Overview Mahaman Sani M.S MOUSSA KADRI (Institut 2iE)*; Y.Coulibaly (Institut 2iE)*; A.O.Bagré (Institut 2iE)* ; M.B.Camara (Greah)*; B. Dakyo (Greah)*
17:20-17:40	ID:99 Effects of Price Developments on Photovoltaic Panel to Inverter Power Ratios Alo Allik (Estonian University of Life Sciences)*; Heiki Lill (Estonian University of Life Sciences); Andres Annuk (Estonian University of Life Sciences)
17:40-18:00	ID:260 Performance Comparison of Different Machine Learning Algorithms on the Prediction of Wind Turbine Power Generation Onder Eyecioglu (Nisantasi University)*; Batuhan Hangün (Nisantasi University); Korhan KAYISLI (Nisantasi University); Mehmet Yesilbudak (Nevsehir Haci Bektas Veli University)
18:00-18:30	CLOSING CEREMONY (HALL:AULA MAGNA)

ORAL PRESENTATIONS	
Date: 6 November 2019 - AM HALL: UI7	
MAIN TRACK : Microgrids Design, Optimization, SESSION CHAIRS: Belarbi Mustapha, Arif Senol Sener	
09:00-09:20	ID:280 A Modified Droop Control Method for PV Systems in Island Mode DC Microgrid Erdal Irmak (Gazi University)*; Naki Guler (Gazi University); Ersan Kabalci (Nevşehir University); Ayberk Calpbiniçi (Nevşehir Hacı Bektaş Veli University)
09:20-09:40	ID:111 Earthing Arrangements Impacts on Protection Schemes for a Residential Microgrid Farzad Banihashemi (University of Wisconsin, Milwaukee); Mark Vygoder (University of Wisconsin - Milwaukee)*; Nicholas Hoeft (University of Wisconsin-Milwaukee); Robert Cuzner (UW-Milwaukee)
09:40-10:00	ID:101 Optimal Control of a Microgrid with Distributed Renewable Generation and Battery Energy Storage Jaber Alshehri (King Fahd University of Petroleum and Minerals)*; Ahmed H Alzahrani (king fahd university of petroleum and minerals); Fahad Ismail (KFUPM); Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))
10:00-10:20	ID:69 Fault Characterization of Radial AC Microgrid Containing Multiple Distributed Energy Resources at Medium and Low Voltage Levels Nicholas Hoeft (University of Wisconsin-Milwaukee); Mark Vygoder (University of Wisconsin - Milwaukee)*; Robert Cuzner (UW-Milwaukee)
10:20-10:40	ID:130 A Distributed Self-Healing Method for Active Distribution Systems Mehdi Monadi (Shahid Chamran University)*; Hossein Farzin (Shahid Chamran University of Ahvaz); Pedro Rodriguez (Loyola University Andalusia)
10:40-11:00	COFFEE BREAK
MAIN TRACK : Safety and Security of RESSs SESSION CHAIRS: Pedro Rodriguez, Naki Guler	
11:00-11:20	ID:179 Characteristics of Failure SiC Schottky Barrier Diode and Si Schottky Barrier Diode using Induced Lightning Serge Application Test Toshiyuki Hamada (National Institute of Technology, Ube College)*; Kenta Nakamoto (National Institute of Technology, Ube College); Takumi Kashiwaya (National Institute of Technology, Ube College); Ikuo Nanno (National Institute of Technology, Ube College); Norio Ishikura (National Institute of Technology, Yonago College); Shinichiro Oke (National Institute of Technology, Tsuyama College); Masayuki Fujii (National Institute of Technology, Oshima College)
11:20-11:40	ID:181 Delayed Current Zero in Synchronous Compensator Plants Priyanka Gugale (ABB Switzerland Ltd)*; Alexander Antoniadis (ABB Switzerland Ltd); Mirko Palazzo (ABB Switzerland Ltd)
11:40-12:00	ID:134 Discrimination on Internal and External Faults using Differential Protection Schemes for Doubly Fed Induction Generator Renato Machado Monaro (Universidade de São Paulo)*; Mauricio B C Salles (University of Sao Paulo); Willian Gustavo dos Santos (University of Sao Paulo)
12:00-12:20	ID:216 Operating limits of battery charge controllers belarbi mustapha (University Ibn Khaldoun Tiaret)*; Diaa Eddine Kacher (University Ibn Khaldoun Tiaret); Zakaria Hallouz (University Ibn Khaldoun Tiaret)
12:20-12:40	ID:45 Hardware implementation of a synthetic inertia system for grid stability Martin Fregelius (Uppsala University)*;Urban Lundin(Uppsala University)
13:20-14:20	LUNCH BREAK
14:20-16:00	Poster Session-2 HALL: LOBBY (Ground Floor)

ORAL PRESENTATIONS	
Date: 6 November 2019 - PM	
HALL: UI7	
MAIN TRACK: Intelligent Systems for Renewable Energy....	
SESSION CHAIR: Murat Beken, Heiki Lill	
14:20-14:40	ID:202 Low-maintenance Solar-hydrogen Generator using Alkaline Water Electrolysis G N Reddy (Lamar University)*; Vijaya Krishna Teja Bangi (Lamar University); Ramesh Guduru (Lamar University)
14:40-15:00	ID:100 Electric Field Computation Under a Double Circuit 380KV Overhead Transmission Line Jaber Alshehri (King Fahd University of Petroleum and Minerals); Abdulaziz Alshalawi (Saudi Aramco)*; Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))
15:00-15:20	ID:155 An embedded microcontroller unit for PV module monitoring and fault detection Paul Nicolae Borza (Transilvania University of Brasov)*; Eleni Kaplani (University of East Anglia)
15:20-15:40	ID:227 New nanotechnology structures CNTFET GaAs Mohammed Salah Benbouza (Université de Batna2)*; D. Hocine (University Tizi-Ouzou); Y. Zid (University Batna); A. Benbouza (University Batna)
15:40-16:00	ID:40 Optimizing hybrid energy supply systems of residential building districts Georg Franke (Technische Universität Darmstadt)*; Jan Haccius (Technische Universität Darmstadt); Stephan Rinderknecht (Technical University Darmstadt); Maximilian Schneider (Technische Universität Darmstadt); Timm Weitzel (Technische Universität Darmstadt)
16:00-16:20	COFFEE BREAK
18:00-18:30	CLOSING CEREMONY (HALL:AULA MAGNA)

POSTER SESSION-2 (6 November 2019 WEDNESDAY, 14:20-16:00)

HALL: LOBBY (Ground Floor)

TRACK

SESSION CHAIRS: Massimo Caruso, Daniel Icaza, Korhan Kayıslı

ID 292: A Bidirectional IPT system for Electrical Bicycle Contactless Energy Transfer

Nicola Campagna, Vincenzo Castiglia, Rosario Miceli, Filippo Pellitteri and Fabio Viola (University of Palermo)

ID 293: Comparative analysis of modified modulation scheme for three-phase voltage fed QZS inverters

Giuseppe Schettino; Rosario Miceli; Nicola Ganci and Fabio Viola (University of Palermo)

ID:103 Statistical Modeling of Solar Irradiance for Northeast Brazil

Luis F. N. Lourenco (University of Sao Paulo)*; Amanda Fernandes (University of Sao Paulo); Jose Roberto Cardoso (University of Sao Paulo); Renato Machado Monaro (Universidade de São Paulo)

ID:119 A low cost maximum power point tracker with the hybrid algorithm that uses temperature measurement

Janusz Mroczka (Wrocław University of Science and Technology); Mariusz Ostrowski (Wroclaw University of Science and Technology)*

ID:123 Economical Evaluation of an Isolated AC Offshore Grid for Pre-salt Oil Production Based on Power Hub for Reducing Carbon Emissions

Luis F. N. Lourenco (University of Sao Paulo)*; Renato Machado Monaro (Universidade de São Paulo); Mauricio B C Salles (University of Sao Paulo); Nayara Suzuki (University of Sao Paulo)

ID:126 Analysis on Hotspot Technologies and Cutting-edge Technologies of Organic Solar Cells Based on Patent Data

Fang Chen (National Science Library, Chinese Academy of Sciences)*; Qimei chen (University of Chinese Academy of Sciences)

ID:144 Grid-Connected PV Using Sliding Mode Based on Incremental Conductance MPPT and VSC

SALOUA MARHRAOUI (Department of Electrical Engineering, Mohammadia School of Engineers (EMI), Mohammed V University in Rabat)*; Ahmed ABBOU (Electric Engineering Department, The Mohammadia School's of Engineers Mohammed V University Agdal Rabat); Nezha El hichami (Electric Engineering Department, The Mohammadia School's of Engineers Mohammed V University Agdal Rabat); Salah Eddine Rhaili (Department of Electrical Engineering, Mohammadia School of Engineers (EMI), Mohammed V University in Raba); Mehmet Rida TUR (Batman Üniversitesi TBMYO Department of Electrical and Energy)

ID:285 Overview of Flywheel Systems for Renewable Energy Storage with a Design Study for High-speed Axial-flux Permanent-magnet Machines

Murat G. Kesgin (University of Kentucky)*; Peng Han (University of Kentucky); Narges Taran (University of Kentucky); Dan M. Ionel (University of Kentucky)

ID:230 A New Position Detecting Method for Wireless EV Charger

Ryohei Senju (Osaka Institute of Technology)*; Hideki Omori (Osaka Institute of Technology); Toshimitsu Morizane (Osaka Institute of Technology); Noriyuki Kimura (Osaka Institute of Technology); Daisuke Uchimoto (Rohm)

ID:231 Projection of a Renewable Energy System for the Observatory of Extraterrestrial Life in Ecuador and Peru

Fernando Mejía Nova (Universidad Nacional de San Agustín de Arequipa); Daniel Icaza (Grupo de Radiación Visible y prototipado Universidad Católica de Cuenca); Angel Lojano (Graduado de Ingeniería Eléctrica Universidad Católica de Cuenca); Luz Cárdenas Herrera (Universidad Nacional de San Agustín de Arequipa); Manuel Cárdenas Herrera (Universidad Nacional de San Agustín de Arequipa); CarlosFlores (Grupo de Radiación Visible y prototipado Universidad Católica de Cuenca)

TRACK**SESSION CHAIRS: Massimo Caruso, Daniel Icaza, Korhan Kayisli****ID:282 Smart Plug and Circuit Breaker Technologies for Residential Buildings in the US**

Rosemary E. Alden (University of Kentucky)*; Peng Han (University of Kentucky); Dan M. Ionel (University of Kentucky)

ID:203 Optimum Facility Design in Large Hospital using Renewable Energy

Yuji Mizuno (Osaka Electro-Communication University)*; Yoshito Tanaka (Nagasaki Institute of Applied Science); Fujio Kurokawa (Nagasaki Institute of Applied Science); Nobumasa Matsui (Nagasaki Institute of Applied Science)

ID:281 Optimal Combinations of Utility Level Renewable Generators for a Net Zero Energy Microgrid Considering Different Utility Charge Rates

Evan S. Jones (University of Kentucky)*; Huangjie Gong (University of Kentucky); Dan M. Ionel (University of Kentucky)

ID:235 Performance Analysis of a Residential Wind-Turbine Dual-Stator Winding Synchronous Reluctance Generator with Armature Reaction Effect

MBIKA MUTEBA (University of Johannesburg)*; Thuso Karen Mulelu (University of Johannesburg)

ID:81 Minimizing Active/Reactive Power Losses in Electricity Networks Based on Optimal Location of Battery Energy Storage System

Salem AlShahrani (King Fahd University)*; Mohammad AlMuhaini (King Fahd University of Petroleum and Minerals); Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))

ID:82 Optimal Scheduling of Power Generation Units using Differential Evolution Approach: A Case Study

Hussain A Alharthi (King Fahd University of Petroleum and Minerals)*; Jaber Alshehri (King Fahd University of Petroleum and Minerals); Muhammad Khalid (King Fahd University of Petroleum and Minerals (KFUPM))

ID 290: Harmonic reduction in CHB 13-level inverters by PAM fundamental-frequency strategy

Cristina Buccella, Carlo Cecati, Maria Gabriella Cimatori, Rosario Miceli, Giuseppe Schettino, Vincenzo Castiglia and Filippo Pellitteri (University of Palermo)

ID:236 A Dynamic Inductive Power Transfer System

Mihai Cernat (Transilvania University of Brasov)*; Constantin M. Apostoia (Purdue University Northwest Hammond, IN)

ID 291: Sensorless Speed Control for Double-Sided Linear Induction Motor Applications

Massimo Caruso*, Antonino Oscar Di Tommaso*, Rosario Miceli*, Ronilson Rocha** and Fabio Viola (University of Palermo)

Presentation Instruction for ICRERA Presenters

Oral presentation

Presentation time is 15 min. Question/Discussion is 5 min. Organizer will prepare Windows OS desktop computer with MS Office Standart 2010 in each room. Presenters can also bring their own laptop. PPT files should be uploaded to desktop computer during recess before the session. Presenter should meet session chair(s) during recess before the presentation and pass a brief bio or business card to session chair(s).

Poster presentation

Size of poster is 70*100 mm. Use the sheet of poster with the shorter side at the top. In recess before the session, presenter must meet session chair. Fail of meeting with session chair may be regarded as "No show". Poster must be removed when the session is finished.

Note that oral and poster presentations of ICRERA have same value. Both of them are included in candidates for Best Paper Award.

Internet:

Wireless Internet access will be available in conference saloons and halls.

General Information

Venue:

International Conference Center of the Transilvania University of Brasov
(Aula Sergiu Chiriacescu)

Address: Iuliu Maniu Str. 41A, 500091, Brasov, Romania.



Welcome Reception (November 03, 2019 Hours: 18:00-19:30)

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All guests will go to Welcome Reception restaurant by themselves

Gala Dinner (November 05, 2019 Hours: 19:30-21:30)

S.C. ARO-PALACE S.A.,

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B-dul Eroilor, nr. 27

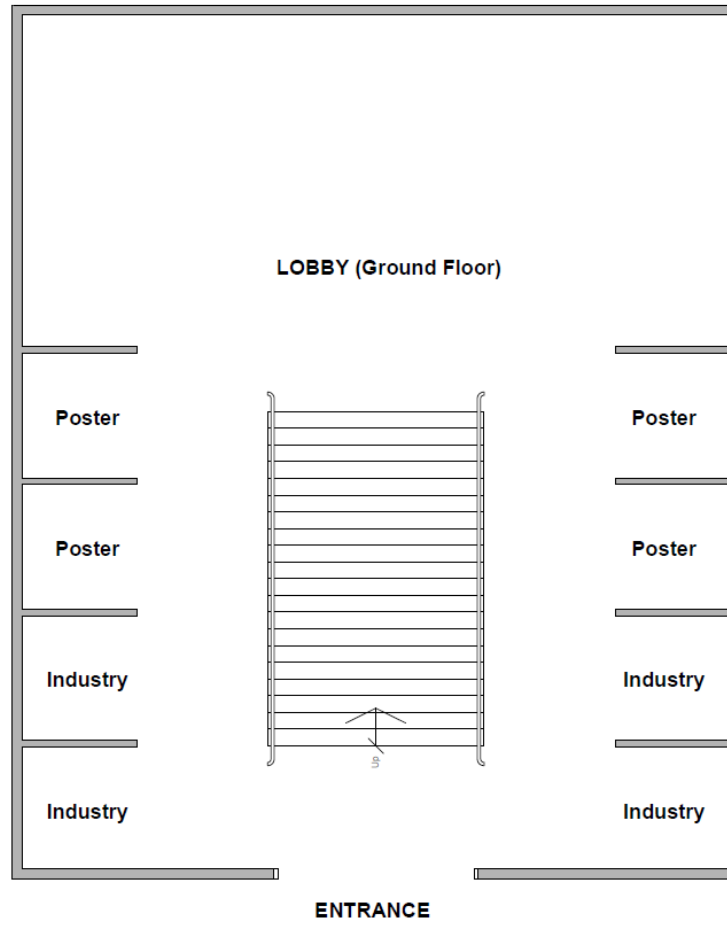
500030, Brasov, Romania

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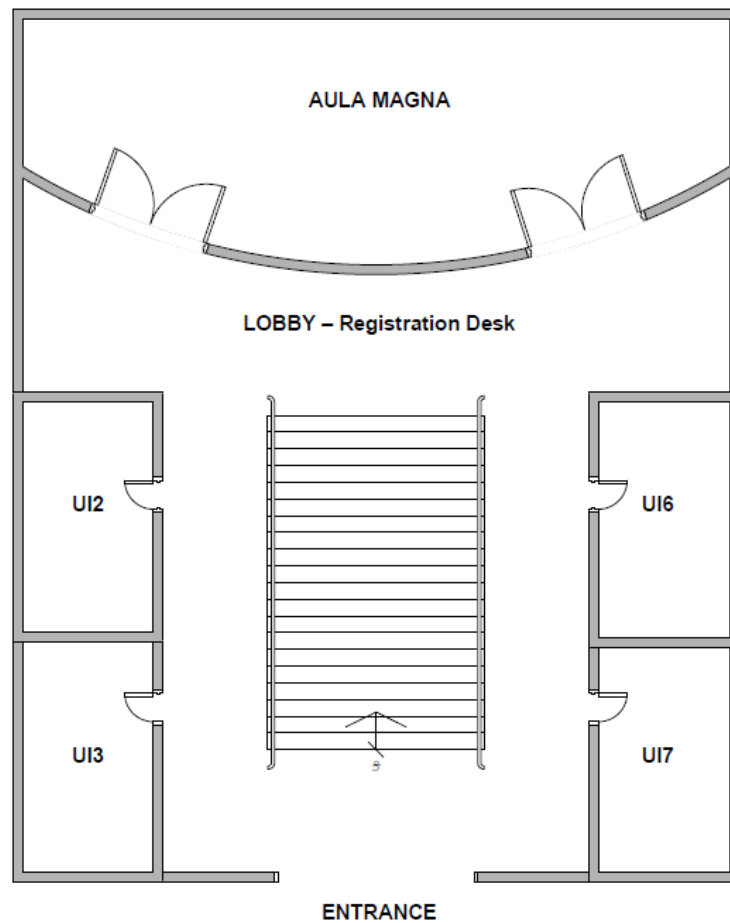
All guests will go to Gala Dinner restaurant by themselves

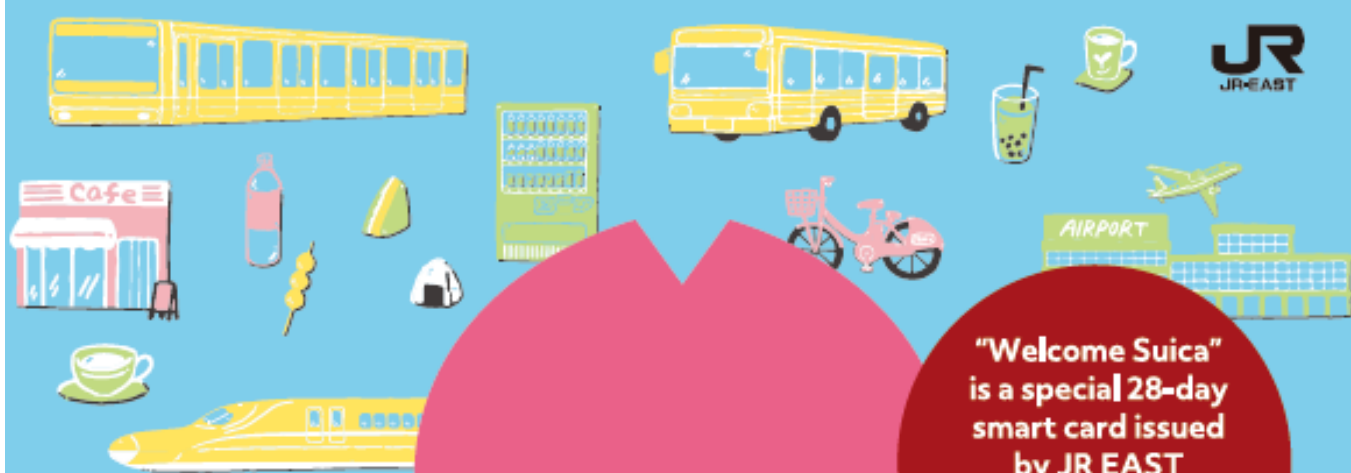
Venue Plan

GROUND FLOOR



FIRST FLOOR





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