# THE 5<sup>th</sup> IEEE INTERNATIONAL CONFERENCE on RENEWABLE ENERGY RESEARCH and APPLICATIONS (ICRERA 2016)

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Birmingham-United Kingdom, 20-23 November 2016 http://www.icrera.org

CATALOG NUMBERS				
Media Type Part Number ISBN				
XPLORE COMPLIANT	CFP1635T-ART	978-1-5090-3388-1		

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# TOPICS

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, Li-ion Batteries, Capacitors

- 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 RESS
- 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

## LANGUAGE

The working language of the ICRERA conference is English

# **WELCOME to ICRERA 2016**

Dear Colleagues,

The purpose of the International Conference on Renewable Energy Research and Applications (ICRERA) 2016 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, second, third and fourth edition of ICRERA in Nagasaki, Madrid, Milwaukee, Palermo and this fifth ICRERA will continue promoting and disseminating knowledge concerning several 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 Birmingham, UK, 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 Birmingham/United Kingdom.



Professor Nagi Fahmi General Chair, ICRERA 2016



Professor Ilhami COLAK Co-Chair, ICRERA 2016



Professor Fujio KUROKAWA Co-Chair, ICRERA 2016

# **KEYNOTE SPEAKERS**

### Keynote 1: Professor Dan M. Ionel, University of Kentucky, USA Date : November 21, 2016 09.30-10.30 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-inChief 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.

### Plans for 100% Renewable Energy and Requirements for Technological Developments

**Summary:** Major plans for a future 100% renewable energy society will be reviewed with emphasis on the requirements for new technology. Record braking developments, such as the world's most powerful wind turbine, Vestas V-164, featuring ultra-long rotor blades and with an 8MW unit rating, solar concentrated power plants with integrated energy storage in excess of 17 hours, are expected to be major contributors to clean energy generation. But would the large scale deployment of such revolutionary and evolutionary technologies be enough in order to achieve the ambitious 100% penetration target by 2050? The presentation will discuss the needs for sustainable resources for manufacturing the generating components, and for developing an infrastructure that will allow delivery and, most importantly, storage of energy.

### Keynote 2: Professor Rik De Doncker, Aachen University, Germany Date : November 21, 2016 11.00-12.00 AM



**Biography:** Rik W. De Doncker, IEEE Fellow, received his Ph.D. degree in electrical engineering from the KULeuven. In 1987, he was appointed Visiting Associate Professor at the University of Wisconsin, Madison, where he lectured and conducted research on high-performance induction motor drives and soft-switching converters. In 1988, he was a General Electric Company Fellow in the microelectronic center, IMEC, Leuven, Belgium. He joined the General Electric Company Corporate Research and Development Center, Schenectady, NY, in the same year. He led research on drives and high-power soft-switching converters,

ranging from 100 kW to 4 MW, for aerospace, industrial, and traction applications. In November 1994, he joined Silicon Power Corporation (formerly GE-SPCO) as Vice President, Technology. Since October 1996, he has been a professor at Aachen University of Technology, Aachen, Germany, where he leads the Institute for Power Electronics and Electrical Drives (ISEA). In Oct. 2006 he was appointed director of the E.ON Energy Research Center at RWTH Aachen University, where he also leads the Institute for Power Generation and Storage Systems. He is director of the RWTH CAMPUS Cluster Sustainable Energy and leads the Research CAMPUS "Forschungscampus Flexible Electrical Networks".

Intelligent Sub-stations for Medium-voltage DC Distribution Systems - Power electronics, a key anbling technology.

**Summary:** Market liberalization has led to more decentralized power generation, including volatile renewable power sources. In addition, electrification of many sectors, in particular the transportation sector opens new opportunities but also brings new challenges, especially for the distribution grids. In this presentation, the research activities in Germany to cope with these challenges are presented. Next to medium- and low-voltage DC technologies for flexible grids, storages and demand side management via aggregation of prosumers, using claud based solutions are being discussed.

### Keynote 3: Professor Adel Nasiri University of Wisconsin-Milwaukee, USA Date : November 22, 2016 09.00-09.45 AM



**Biography:** Adel Nasiri, Received B.S. and M.S. degrees from Sharif University of Technology, Tehran, Iran, in 1996 and 1998, respectively, and the Ph. sD. degree from Illinois Institute of Technology, Chicago, Illinois, in 2004, all in electrical engineering.

He worked for Moshanir Power Engineering Company, Tehran, Iran, from 1998 to 2001 and ForHealth Technologies, Inc., Daytona Beach, Florida, from 2004 to 2005. Dr. Nasiri is presently a Professor and Excellence in Engineering Faculty Fellow in Power Electronics in the Department of Electrical Engineering and Computer Science at the University of Wisconsin–Milwaukee, where he is the director of Center for Sustainable Electrical Energy Systems. His research interests are renewable energy

systems including wind and solar energy, microgrids, and energy storage. Dr. Nasiri has been the primary investigator of several federal and industry funded research projects and has published numerous technical journal and conference papers on related topics. He also holds five patent disclosures. He is a coauthor of the book "Uninterruptible Power Supplies and Active Filters," CRC Press, Boca Raton, FL. Dr. Nasiri is currently an Editor of IEEE Transactions on Smart Grid, Associate Editor of IEEE Transactions on Industry Applications, Associate Editor of the International Journal of Power Electronics, and an Editor of Journal of Power Components and Systems.

He has also been a member of organizing committee for IEEE conferences including general chair of IEEE International Symposium on Sensorless Control for Electrical Drives (SLED 2012), Technical Vice-Chair for 2013 and 2015 IEEE ECCE. He served as general chair for the 2014 IEEE Symposium on Power Electronics & Machines for Wind and Water Applications and 2014 International Conference on Renewable Energy Research and Applications.

### DC UPS and Load Leveling for Pulse Loads

**Summary:** In this tutorial, an energy conversion system with Li-ion batteries providing power to DC pulse loads is discussed. The energy system has an AC input rated at nearly one tenth of the pulse load. The system includes a DC/DC converter operating as a line-interactive DC UPS. In case of high load demand, the power from Li-ion pack is added to smaller AC power from line to feed the load. During low load condition, the power from AC line charges the battery and feeds the load. In a third mode of operation, in case of AC power outage, the load is directly fed from battery packs. Several aspects of the system including battery cell and pack testing, battery modeling, converter design, complexities from Constant Power Load (CPL), system small signal analysis, system stability, and experimental verifications are discussed. The attendees will learn: how to test and model batteries, design a power electronic converter system, solve stability issues from CPL, design controls, and implement test setups.

### Keynote 4: Dr. Yousuke Nozaki, NTT Facilities, Japan Date : November 22, 2016 09.45-10.30 AM



**Biography:** Dr. Yousuke Nozaki received the B.E. and M.E. degrees in mechanical engineering from Tohoku University, Sendai in 1987 and 1989, respectively. He joined Nippon Telephone and Telegraph Corporation (NTT) Laboratories in 1989. Since then, he has been engaged in R&D of switching power regulators, photovoltaic and fuel-cell systems, high-voltage power feeding systems for telecommunication systems, and micro grid power supply systems. He is a director of Solar Business Headquarters of NTT FACILITIES. He is a member of the Institute of Electronics, Information and Communication Engineers (IEICE), and the Institute of Energy Economics Japan and the IEEE.

# Photovoltaic Power Systems Deployment For Half A Century and Our

### **Technical Contribution in Asia**

**Summary:** We have worked on photovoltaic power systems (PV) deployment in Asia. The first PV system installation was in 1962, as a stand-alone power supply system for a public telephone in an isolated island in Japan. In 1995, 555kW PV system, which was the world-largest at that time, was installed onto the rooftop of NTT Training Center. Since 2006, one of the most famous PV demonstration projects named "Verification of grid stabilization with large-scale PV power generation systems" had been implemented in Hokuto City, subsidized by New Energy and Industrial Technology Development Organization (NEDO). Then, new research projects were started in India, United States and Thailand. As a result, NTT FACILITIES Group has contributed to the characteristics evaluation of over 50 different types of PV modules under the actual climate conditions, the de-facto standardization of the Japanese largescale PV systems and the construction of over 500MW PV systems.

### Keynote 5: Professor Rosario Miceli, Palermo University Date : November 22, 2016 11.00-12.00 AM



**Biography:** Rosario Miceli received. the MSc and Ph.D. degree in Electrical Engineering from the University of Palermo, respectively in 1982 and 1987. From 1992 he was Assistant Professor and from 2003 Professor of Electrical Machines at University of Palermo, Italy. He is currently Professor of Electrical Machines, Power Electronics and Systems Automation with the Faculty of Engineering, University of Palermo. He is Personnel-in-Charge of the Sustainable Development and Energy Savings Laboratory of the Palermo Athenaeum. His main research interests include mathematical models of electrical machines, drive-system control, diagnostics, renewable energies, and energy management. He has published more than 150 technical papers, 1 chapter of a book and a book (Energy Management via Connected Household Appliances. vol. 1, p. 1-162,

McGraw-Hill, ISBN:978-88-386-6676-6).

#### Fault tolerant inverter operation

**Summary:** To get the target of a wider dissemination of DG and so to maximize the use of renewable energy it will be necessary to overcome the manifold of problematic issued by the network management no longer characterized by unidirectional power flows, as for example, those regarding the non optimal development of lines and transformers, the complexity in voltage regulation, the unwanted islanded operations and the increased complexity in the protection issues, the development of fault tolerant operation systems. The most recent studies have shown as, in the field of variable frequency electrical drives and grid interconnecting inverters, up than the 80% of faults are to be ascribed to single or multiple device failures. Typically these failures are caused by counterblow destruction as in the case of short circuit of silicon packed devices, by losing driver pulse occurring if driver circuit or power supply are invalid so that no trigger pulse can be sent to the gate of the power device, and, finally, by open circuit failure that heavily affects the output voltages and currents waveforms. Open circuit faults generally do not cause shutdown of the system, but degrades its performance. Therefore, diagnostic methods can be used to drive fault-tolerant systems, which continue working even with occurring faults, but at reduced capacity, saving in this manner the production of a lot of renewable energy. Fault-tolerant converters have been widely investigated for years and nowadays an extensive technical literature on this field exists. This lecture presents the concept of fault detection methods. In the methods analysis, both the case of faults in single device and the lose of an entire inverter leg have been considered. False positive detections are avoided by considering a proper number of current samples. In the lecture a new fault detection algorithm is proposed, characterized by simplicity, low computational and implementation effort with a consequent enough fast execution, easy control integration with the possibility to use it both in hardware in the loop systems and microprocessor of common industrial usage.

# SPECIAL SESSIONS

Session 1: Smart Grid Systems and Security Date : November 22, 2016 – 16.20-18.00 PM

**Organizer:** Prof. Dr. Seref SAGIROGLU Gazi University, Ankara/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. 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, ex- plore the inherent challenges in developing more secure SGSs and share current experiences.

Topics include, but are not limited to:

- System security concerns
- Vulnerabilities and threats
- Security requirements for critical information and infrastructure
- Security policies
- Standardization efforts and regulatory compliance
- Secure design techniques and tools
- Secure Monitor and control of distributed smart grid networks
- Software security in smart grid
- 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

Session 2: Renewable Energy: Modelling, Design, Control and Applications Date : November 21, 2016 – 16.20-18.00 PM

**Organizers:** Youcef Soufi, University Larbi Tébessi, Tébéssa, Algeria. Omar Hegazy, Vrije Universiteit Brussel (VUB), Belguim.

**Summary:** Dear colleagues, We have the pleasure to announce you the organization of a special session on Renewable Energy: Modelling, Design, Control and Applications at the 5th International Conference on Renewable Energy Research and Applications which will be held 06-09 November 2016 in Bermigham, United Kingdom. We would very much appreciate if you participate to this session, and share the announcement below with those who may be interested. This session aims to provide a platform to present and discuss recent developments and advances in modeling, design and control of renewable energy conversion systems, bring researchers and experts together to discuss and share their experiences. Submitted papers include Topics below:

- Modeling and control of renewable energy systems,
- Advances in control of PV systems and hybrid sources of energy
- Robust control of generators in wind turbine
- Renewable Energy Sources, Technologies and Systems Applications
- Electrical Machines and Drives
- Power Electronics in Renewable Energy Systems
- Power quality and filtering techniques
- High efficiency electrical machines and drives for energy saving
- Diagnosis, Monitoring and Fault Tolerance Control
- Power electronics for grid interface
- Control Systems and Optimization in Renewable Energy Systems
- -Control and optimization of electrical power.

Session 3: Wind Energy Conversion Systems: Design, Control and Applications Date : November 22, 2016 – 16.20-18.00 PM

**Organizers:** Prof, AbdelGhani AISSAOUI, University of Bechar, Algeria. Prof. Ahmed TAHOUR, University of Mascara, Algeria.

**Summary:** Renewable energies as: solar, wind, ... constitute excellent solutions to both the increase of energy consumption and environment problems. They are clean and constitute an alternative to meet the needs of today's society. These energies neglected in the past, find their proper place, obtained through researches and studies that are increasingly diverse and multidisciplinary.

The wind source of energy is subject of advanced research; the aim is to develop techniques for extracting power with high reliability, lower cost and increased energy efficiency

The goal of this session is to present last works on design, control and applications in wind energy conversion systems (WECS) and in marine current turbines, to maximize the energy production in such systems and to increase their economic attractiveness.

- Topics:
  - Onshore and offshore wind turbines
  - Small wind turbines
  - Marine current turbines
  - Generators (DFIG, SG, PMSG, ...);
  - Use of Robust control;
  - Design of observer in WECS;

Session 4: HVDC Transmission Systems and DC Grids: Enabling Technologies for Large Evacuation of Renewable Energy and Inter-regional Power Systems
 Date : November 22, 2016 - 16.20-18.00 PM

**Organizers:** Dr. Khaled Ahmed, University of Aberdeen, UK. Dr. Grain P. Adam, University of Strathclyde, UK.

**Summary:** In recent years, high-voltage direct current (HVDC) and DC grids have attracted significant research interest from industry and academia. Today, commercial HVDC links are being built using line commutatting current source converter (LCC) or self-commutated voltage source converter (VSC) technologies.

At present, most of the HVDC transmission systems in operation are of the LCC type, which uses thyristors as the main switching devices. The main attributes of LCC-HVDC links are: low semiconductor losses and proven track record of operation in systems with ultra high dc voltage (UHVDC) link up to ±800kV and rated power up to 7200MW, thanks to the availability of high voltage and current capacity thyristor (8kV, 4kA light triger thyristors). Some of the drawbacks of LCC-HVDC link are: it injects significant low frequency harmonics into both AC and DC sides, which must be eliminated by large passive filters; and control of real power being injected into the AC network is coupled the converter reactive power consumption.

In contrast, VSC-HVDC transmission systems offer increasing operation flexibilites compared to LCC counterpart such as independent control of active and reactive power; power reversal is being achieved with chnage of DC current direction and low filtering requirments. Despite these attributes, safe and secure operation of DC grids will require substantail technological advancement beyond the currently available and being used in point-to-point VSC-HVDC links. Some of the potentail challenges of DC grid are: how to interrupt high DC currents during DC faults and with reasonable speed to prevent the collapse of the DC grid; how to prevent misoperation of protection systems due to interactions during AC or DC faults; and how to step up/down DC voltages efficiently? These research questions summarise the importance of developing cost-effective high power DC Circuit Breaker, high power DC transformers and effective coordinated protection systems.

The main objectives of the special issue is to provide a platform for researchers, and experts from academia and industry to discuss, share, exchange, and provide ideas, identify unforeseen challenges and problems, and suggest solutions.

The technical topics in this Special Session include:

### Research and development on HVDC transmission systems and DC grids:

- Design
- Control
- Modelling
- Protection

## DC transmission systems for offshore wind power plants:

- Technology for integration large offshore systems
- Stability and reliability issues
- Operation and control of offshore power systems

### HVDC converter topologies, modulation and control strategies:

- Half and full bridge modular multilevel converters
- Hybrid converters and modular converters with smart submodules
- Other converter topologies
- Strategies for internal fault management in modular and hybrid converters

### Dedicated control strategies and technologies for DC grids:

- DC/DC converters (isolated and non-isolated)
- DC grid control
- DC circuit breakers (hybrid and mechanical)
- Strategies for AC and DC fault ride-through in DC grids
- Generic DC grids with VSCs and LCCs

Session 5: Power Quality Improvement for Renewable Energies Systems Date : November 23, 2016 – 09.00-10.40 PM

**Organizers:** Samir Moulahoum and Nadir Kabache, University of Médéa, Algeria.

**Summary:** To overcome the pollution problems caused by the consumption of fossil fuels, renewable energies are the alternatives recommended to ensure green energy. However, low power factor (PF) and bad total harmonic distortion (THD) generated by nonlinear loads affects the equipment's connected to the renewable source. The problem of harmonic pollution has lead researchers in electrical engineering to develop more effective solutions to meet the requirements for the quality of electric power. These types of devices are generally referred to: active power filters. Power factor corrector, sinus rectifiers... Several control methods can be used to control these converters: Direct power control (DPC), Predictive power control (PPC), sliding mode and new methods based on intelligent techniques (neuronal, fuzzy logic,) All innovative topics on the power quality improvement regarding any component of renewable energy system are welcome to join this special session. The session covers topics including, but not limited to:

- AC/DC converters for high power quality for renewable energy systems
- DC/DC Converters in renewable energy applications
- Active power filters (shunt, series and hybrid)
- Sinus and PWM rectifiers
- Vienna rectifier applications in renewablesenergies
- Unity Power Factor corrector UPFC
- Control techniques applied for power quality improvement
- Intelligent control (neuronal, fuzzy, GA,..) for power quality improvement

Session 6: Autonomous Dynamic Intelligent Systems For Renewable Energy Application Date : November 21, 2016 – 16.20-18.20 PM

**Organizers:** Prof. Dr. M. Arif Wani, Institute of Technology, Zakura, India.

**Summary:** Intelligent Techniques are increasing being used to improve efficiency and reliability of power generation, transmission, and distribution systems. Incorporating intelligent techniques into power networks play an important role in improving the performance and reducing the operational cost of these networks. A number of intelligent techniques which include artificial neural networks, fuzzy logic, evolutionary algorithms, dimensionality reduction, feature selection, clustering, reinforcement learning and deep learning techniques have been used in power networks. Big data analytics techniques for handling power networks involving large volumes of data have been studied by researchers. Cloud computing for virtualization of intelligent power networks have also been studied by researchers. One of the challenges is to develop autonomous dynamic intelligent systems which can evolve incrementally as new learning data becomes available. The dynamic systems should adapt to learn of their own without external intervention and without scrapping the exiting learned system. 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 autonomous dynamic intelligent systems for power networks and share current experiences. Topics include, but are not limited to:

- Artificial Neural Networks,
- Fuzzy Logic
- Evolutionary Systems
- Feature Selection
- Reinforcement Learning
- Clustering Machine Learning
- Support Vector Machines
- Data Mining
- Dimensionality Reduction

- Deep Learning
- Big Data
- Cloud Computing
- Statistical Learning
- Collaborative Systems
- Hybrid Systems
- Dynamic Learning Systems
- Autonomous Learning System
- Incremental Learning System

**Session 7:** Distributed Generation Resources: Sizing, Optimizing, Control Techniques and Performance Enhancement

**Date** : November 23, 2016 - 14.20-16.40 PM

Organizer: Dr. Subhransu Sekhar Dash, SRM University, Chennai, India.

Summary: With renewable energy price drooping down and people concern on environment increasing, power production through distributed generation resources is dragging attention in research arena. On the other hand energy conversion through Distributed power conversion is hampered by its inherent nature of being intermittent and exhibiting non linear power output characteristics. Power Maximizations algorithms are dragging much attention since its inception, but these algorithms may not go in hand when distributed sources are hindered by environmental hindrances. Therefore smart Maximum Power Point Tracking (MPPT) algorithms using intelligent soft computing techniques are needed to make most out of the available power in the power sources. On the other hand, the distributed and variable nature of renewable creates challenges for an electrical grid built for centralized generation and predictable loads. Therefore issues in appropriate sizing, planning with storage systems and integration between sources and to the load should be witnessed prudently. This special session aims at bringing together researchers, faculties from academia, industrial expertise to create a platform where knowledge, ideas, innovations can be shared in improving the performance of distributed power generation systems, optimizing its power yielding capacity, sizing and scaling to meet appropriate loads. Topics include, but not limited to, but not limited to

- Modeling and Analysis of Distributed renewable sources.
- Soft computing techniques in power maximization algorithms
- Advanced processor and control algorithm
- Modeling and control of renewable energy systems.
- Advances in control of distributed systems and hybrid sources of energy.
- Robust control of generators in wind turbine
- Renewable Energy Sources, Technologies and Systems Applications
- Power Electronics in Renewable Energy Systems
- Power quality and filtering techniques
- Control Systems and Optimization in Renewable Energy Systems

**Session 8:** Special Session on Renewable Energies Visions and Dialogues On The Next Future **Date** : November 21, 2016 – 14.00-16.00 PM

**Organizer:** Fabio Viola, University of Palermo, Italy.

**Summary:** Renewable energies, like sun and wind, are an excellent solution to face the continuous increase of energy demand and the environment problems. This special session aims to provide a platform to present and discuss recent developments and advances in renewable energies, which can be applied to reduce the pollutants in urban centers. Particular attention is dedicated to evaluate and increase the economic attractiveness of innovative solutions. Submitted papers include following topics below but not limited to:

- Economic evaluation of PV systems;
- New solutions on PV, wind and innovative generation systems for urban loads;
- Diffusion of new high urban loads such electric vehicles and techniques to feed;
- Simulation of complex systems

# TUTORIALS

**Tutorial 1:** Non-traditional Methods to Obtain Energy from the Environment **Date** : November 20, 2016- 13.00-14.00 PM

**Organizer:** Professor Dr. Stanimir Valtchev, Universidade Nova de Lisboa, Portugal.

**Summary:** This tutorial is not claiming to make a wide review of energy harvesting ideas, technical methods and their usability. The ambition is to show some not conventional, strange methods.

The process of energy harvesting is associated with ambient power sources: electromagnetic emissions (including radio waves, solar radiation, high voltage electric fields, etc.), gradients of physical variables (temperature, pressure, velocity, etc.), kinetic energy sources (wind, convection, linear and circular movement, acceleration, etc). To make even wider the scope of the energy sources, here must be included the artificially made energy that may be harvested (artificial lighting, turbines vibrations, artificial electromagnetic emissions). Here some research results will reveal unusual ways to harvest energy by applying the existing potential differences (of the neutral conductor) in some types of electrical networks. Moreover, in some cases not only energy will be harvested to supply small electronic devices, but also the potential will be used to measure (fully or partially) the electric network consumption (loading), thus giving the opportunity for decision making in smart/micro grid, and load/local network management. Technical details will be revealed on how different problems were solved, including more efficient rectifier design, voltage output improvement and step-up conversion in case of very low input voltages. Additional circuits that offer non-conventional lowpower supply will be discussed. Comparison will be made against some monolithic power management IC. Following the "strange" nature of the topic, the presentation will remind some unconventional/conceptual methods for single-wire signalling and power transfer. The known achievements will be presented together with results of own practical research. General conclusions for the possibility for wireless ground/marine signalling and energy transmission are made, mainly backed up by patents and publications of other researchers and enthusiasts. Although electrical engineering knowledge is sufficient, some knowledge of RF engineering will be helpful for understanding the strange concepts, e.g. the single-wire and wireless transmission methods.

### Key points:

\*Brief overview of the common energy harvesting methods.

\*Overview of some electric network types.

\*Opportunities from the potential of the neutral conductor as a power source.

\*Load management for smart and not so smart grids.

\*Utilization of ultra-low voltage sources.

\*The voltage drop of the semiconductor devices facing the harvesting from ultra-low voltage AC sources.

\*Emergency power supply.

\*Single wire earth return.

\*Conceptual one-wire signalling and power supply.

\*Conceptual "wireless" signalling and power supply through the earth and by electromagnet waves.

**Tutorial 2:** Distributed Generation **Date :** November 20, 2016 - 14.10-15.10 PM

**Organizer:** Dr Khaled H. Ahmed University of Aberdeen, UK.

**Summary:** Distributed generation (DG), sometimes called embedded generation, is electricity generation which is connected to the distribution network rather than the high voltage transmission network. It is typically smaller generation such as renewable generation, including small hydro, wind, solar power, and smaller combined heat and power. The development of distributed generation has an important role to play in current long-term environmental targets. The main goals to be achieved are: to increase the network connection capacity by allowing more consumers and producer customers connection without creating new reinforcement costs, to enhance the reliability of the systems by enhanced protection, and to improve the overall quality of supply with sophisticated voltage control. One of the main problems facing DG system deployment is the connection to the network or grid. Unfortunately, the electrical output of many DG resources is incompatible with the fixed frequency electricity supply network; as a result it is necessary to develop power electronic interfacing methods. Many DG sources are dc. Any method must have features of reliable, fast response, ease of control and hardware interface ability. The best candidate for the application is the power converter coupled via a power filter. The system must transfer the energy from the dc link to the three-phase ac system with controlled active and reactive power and without injecting harmonic currents. Both switching frequency effects and grid voltage distortion contribute to poor power quality. A well designed filter can attenuate switching frequency components but impacts on the control bandwidth and the impedance presented to grid distortion. The main objective of the tutorial is to investigate the distributed generation systems with clarifying different topologies advantages and disadvantages. The current, future, and challenges of DG systems will be covered. The output LC filter design for grid coupled applications in distributed generation systems is presented. The design is in accordance with harmonic standards that specify the level of current harmonics that can be injected into the grid. The tutorial will study DG operation, control and interactions with AC systems. The interactions of current source and voltage source DG with AC systems through controls and harmonics will be analysed. The tutorial covers also the latest novel islanding detection technique based on the point of common coupling voltage change to differentiate between islanding and load disturbances. AC and DC faults analysis for different DG technologies will be presented. The tutorial is supported with simulation on MATLAB/SIMULINK software and experimental results.

Tutorial 3: Photovoltaic Solar Panels Date : November 20, 2016 - 15.20-16.20 PM

Organizer: Profesor Carlos Ferreira Fernandes, Lisbon University, Portugal.

**Summary:** As the effects of climate changes are becoming increasingly obvious, a change of energy systems is imperative. In the context of the sustainability of the earth's energy supply chain, renewable energy sources (wind, hydro, solar, geothermal, bio,...) play an important role. Among them, solar energy has the advantage of being environmental friendly and to have unlimited availability. The development of technology in the last decades has lead to an efficient use of the solar energy as a source of thermal energy, known as solar thermal (T), and of electric energy, the solar photovoltaic (PV). A third group, the solar hybrid photovoltaic-thermal (PVT), provides simultaneously thermal and electrical energies from a single collector.

- Studies on a cost-effectiveness basis provide clear metrics that can be used to estimate the costs and performances of different renewable power generation technologies. Despite the difference between the final electricity price paid by the consumers and the cost of generation, the evaluation of the economic feasibility of any PV project is more and more based on the levelized cost of electricity (LCOE) generation, which is the price per unit energy generated. The price of solar power has been continuously decreasing in the last decades (\$96 per watt in the middle- 1970 to less than \$1 per watt in 2016). However, solar cells still remain the most

expensive component of PV modules. In any comparative analysis of different systems or technologies, the annual cost-productions are generally referred per area. More energy collected with less area is the main goal. By reducing the total collector area, solar systems that recur to concentrating contribute to important performance improvements. Nevertheless, high concentration levels highlight non-uniformities in the radiation distribution, leading to the premature aging of the panels. Failure analysis/mitigation should include the complete description of the PV solar generator.

- Solar cell numerical simulation/modelling represent current investigation tasks. Avoiding the need for the manufacturing of series of expensive prototypes, flexible numerical models represent a powerful tool to the redesign of devices already in the market or to the design of more competitive components in this field. Adequate collector geometries are crucial for the fulfilment of consumer satisfaction demands.

- This tutorial presents examples of solar cell modelling/simulation analysis in different types/geometries of PV solar collectors. Experimental tests in lab/ outdoor tests will be presented for validation purposes. Concepts concerning fundamental understanding of the functioning of solar cells and for improving their efficiency will be dealt with.

**Tutorial 4:** : Digital Power Converter for Renewable Energy System Date : November 20, 2016 - 16.30-17.30 PM

Organizers: Professor Fujio Kurokawa, Nagasaki University, Japan, IEEE Fellow.

### Summary:

- The renewable energy attracts attention because of the energy problem and global warming because dependence on fossil fuels and CO2 emission are reduced. The energy management is necessary in the renewable energy system to utilize the power obtained from the renewable energy efficiently. When the energy management is implemented, the monitoring of the power consumption and the communication with other component are needed. Thus, the digital control switching power supply is very attractive because various functions can be included easily.

- The dc bus voltage fluctuates in the renewable energy system. The change of dc bus voltage becomes wide. In this case, it is very difficult to design the dc-dc converter with superior dynamic characteristics. Moreover, the digital control has the delay time in its process because an analog value should be converted into a digital value. Also, its operation process needs the calculation time. The delay time is one of the cause that make the system unstable.

- Therefore, a new control method is necessary instead of the conventional voltage mode control, which is the main stream of digital control algorithm, to operate the converter stably.

- This tutorial presents a digital control converter for renewable energy system. At first, several operation principles of digital control are described. Next, the transient responses of the output voltage and the reactor current are indicated and compared with the conventional PID control. The improved method can make the system stable and its response become gradual.

# **CONFERENCE PROGRAM SUMMARY**

	20.11.2016 Sunday		21.11.2016 Monday	22.11.2016 Tuesday		23.11.2016 Wednesday	
08:30-17:00			Registration				
	Program		Program		Program		Program
13:00-14:00	TUTORIAL-1 Professor Stanimir Valtchev Universidade	09:00-09:30	Opening Ceremony	09:00-09:45	KEYNOTE SPEECH-3 Professor Adel Nasiri University of Wisconsin-Milwaukee; USA	09:00-09:20 09:20-09:40 09:40-10:00 10:00-10:20	ORAL PRESENTATION (5 PARALEL SESSIONS)
	Nova de Lisboa, Portugal	09:30-10:30	KEYNOTE SPEECH-1 Professor Dan M. Ionel, University of Kentucky, USA	09:45-10:30	KEYNOTE SPEECH-4 Dr. Yousuke Nozaki, NTT Facilities, Japan	10:20-10:40	5 PAPERS*20 MINUTES 25 PAPERS
		10:30-11:00		COFFEE BREAK		10.40-11.00	COFFEE BREAK
14:10-15:10	TUTORIAL-2 Dr Khaled H. Ahmed University of Aberdeen, UK	11:00-12:00	KEYNOTE SPEECH-2 Professor Rik De Doncker,	11:00-12:00	KEYNOTE SPEECH-5 Professor Rosario Miceli	11:00-11:20 11:20-11:40	ORAL PRESENTATION (5 PARALEL SESSIONS)
			Aachen University, Germany		University of Palermo, Italy	11:40-12:00 12:00-12:20	4 PAPERS*20 MINUTES 20 PAPERS
		12:00-13:00		LUNCH BREAK		12:20-13:20	LUNCH BREAK
		12:20-14:20	POSTER PRESENTATION (30 PAPERS)	12:20-14:20	POSTER PRESENTATION (30 PAPERS)	12:20-14:20	POSTER PRESENTATION (30 PAPERS)
15:20-16:20	TUTORIAL-3 Profesor Carlos Ferreira Fernandes, Lisbon University, Portugal,	14:20-14:40 14:40-15:00 15:00-15:20 15:20-15:40 15:40-16:00	ORAL PRESENTATION (4 PARALEL SESSIONS) 5 PAPERS*20 MINUTES 20 PAPERS	14:20-14:40 14:40-15:00 15:00-15:20 15:20-15:40 15:40-16:00	ORAL PRESENTATION (5 PARALEL SESSIONS) 5 PAPERS*20 MINUTES 25 PAPERS	14:20-14:40 14:40-15:00 15:00-15:20 15:20-15:40 15:40-16:00	ORAL PRESENTATION (5 PARALEL SESSIONS) 5 PAPERS*20 MINUTES 25 PAPERS
		16:00 16:20	COFFEE BREAK	16:00 16:20	COFFEE BREAK	16:00 16:20	COFFEE BREAK
16:30-17:30	TUTORIAL-4 Professor Fujio Kurokawa Nagasaki University, Japan, IEEE Fellow	16:20-16.40 16:40-17:00 17:00-17:20 17:20-17:40 17:40-18:00	ORAL PRESENTATION (4 PARALEL SESSIONS) 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 (5 PARALEL SESSIONS) 5 PAPERS*20 MINUTES 25 PAPERS	16:20-16:40	CLOSING CEREMONY
18:00-20:00	WELCOMING PARTY			19:00-21:30	GALA DINNER		

# **CONFERENCE PROGRAM SCHEDULE**

# November 20, 2016

Date: 20 Nov	rember 2016		
08:30-17:00	Registration		
Date: 20 Nov	rember 2016		
	TUTORIALS HALL: GALLERY HOSPITALITY SUITE 18		
13:00-14:00	Prof. Stanimir Valtchev, "Non-traditional Methods to Obtain Energy from the Environment "		
14:10–15:10	Dr. Khaled Ahmed, "Distributed Generation "		
15:20-16:20	Prof. Carlos Ferreira Fernandes, "Photovoltaic Solar Panels"		
16:30–17:30	30 Prof. Fujio Kurokawa, "Digital Power Converter for Renewable Energy System"		
Date: 20 November 2016			
18:00-20:00	WELCOME RECEPTION		

# November 21, 2016

Date: 21 Nove	ember 2016 HALL:
08:30-17:00	Registration
Date: 21 Nove	ember 2016 - AM HALL: GALLERY SEMINAR SUITES
09:00-09:30	Opening Ceremony and Speeches
KEYNOTE	HALL: GALLERY SEMINAR SUITES
09:30-10:30	Prof. Dan M. lonel, <b>"Plans for 100% Renewable Energy and Requirements for Technological Developments"</b> Chair: Nagi Fahmi, Seref Sagiroglu, Toshiaki Yachi
10.30-11.00	COFFEE BREAK
KEYNOTE	HALL: GALLERY SEMINAR SUITES
11:00-12:00	Prof. Rik De Doncker, <b>"Intelligent Sub-stations for Medium-voltage DC Distribution Systems - Power electronics, a key</b> anbling technology. " Chair: Ilhami Colak, Fujio Kurukawa, Tadashi Suetsugu
12:00-13:00	LUNCH BREAK
12:20-14:20	Poster Session

Date: 21 Nove	ember 2016 - PM	HALL: GALLERY SEMINAR SUITES - I
<b>TRACK: Com</b>	nputational Methods for RESSs	SESSION CHAIRS: Robert Cuzner, Alfonso Damiano
14:20-14:40	ID: 183 A Genetic Algorithm for the Definition of Nodal Loa Saman Korjani (Università di Cagliari), Mario Porru (Università Damiano* (University di Cagliari),	d Time Evolutions in Microgrid Assessment di Cagliari), Alessandro Serpi (Univerisità di Cagliari), Alfonso
14:40-15:00	ID: 190 A Deep Convolutional Neural Network and a Rando Aerial Imagery Jordan Malof* (Duke University), Kyle Bradbury (Duke Universi University),	<b>m Forest Classifier for Solar Photovoltaic Array Detection in</b> ty), Leslie Collins (Duke University), Richard Newell (Duke
15:00-15:20	ID: 112 FPGA Implementation of the Automatic Multiscale Renewable Energy Systems Alperen Mustafa Colak* (Nagasaki University), Yuichiro Shibat	Based Peak Detection for Real-time Signal Analysis on a (Nagasaki University), Fujio Kurokawa (Nagasaki University),
15:20-15:40	ID: 334 Partitional Clustering-Based Outlier Detection for F Mehmet Yesilbudak* (Nevsehir Haci Bektas Veli University),	ower Curve Optimization of Wind Turbines
15:40-16:00	ID: 273 Single Ground Fault Location Algorithm in DC Micr Ruijing Yang (University of Wisconsin-Milwaukee), Robert Cuz	ogrid Based on Wavelet Transform her* (University of Wisconsin-Milwaukee),
16:00-16:20	COFF	EE BREAK
TRACK: Com	nputational Methods for RESSs SE	SION CHAIRS: Shailendra Shukla, Erdal Irmak
16:20-16:40	ID: 317 PI Controlled Solar Energy Supported Static Excita Generators Naki Guler* (Gazi University), Erdal Irmak (Gazi University), Mu	tion System Desing And Simulation For Synchronous ustafa Ersan (KONELSIS),
16:40-17:00	ID: 5 Heat Loss Analysis: An Approach Towards the Reviv Prof. Shailendra Shukla* (CERD), Arun Kumar (CERD),	al of Parabolic Dish Type Solar Cooker
17:00-17:20	ID: 121 Forecasting Variation of Solar Radiation and Mover Takuo Koyasu (Aichi Institute of Technology), Kazuto YUKITA* of Technology), Katsuhiro ICHIYANAGI (Aichi Institute of Tech HIROSE (NTT Facilities),	nent of Cloud by Sky Image Data (Aichi Institute of Technology), Masayuki MONOWA (Aichi Institute nology), Masayuki YODA (Aichi Institute of Technology), Keiichi
17:20-17:40	ID: 22 Designing of a fuzzy controller for grid connected pl controller Kivanc Basaran* (Celal Bayar University), Numan Cetin (Ege I	notovoltaic system's converter and comparing with PI Jniversity),
17:40-18:00	ID: 350 Energy and Exergy Analyses of a Solar Assisted C Hadi Ganjehsarabi* (Erzincan University), Mustafa Asker (Adna University),	ombined Power and Cooling Cycle n Menderes University), Aslihan Kurnuc Seyhan (Erzincan

Date: 21 Nov	vember 2016 - PM	HALL: GALLERY SEMINAR SUITES - II
<b>TRACK: Cont</b>	ntrol Techniques for RESs SE	SSION CHAIRS: Abdel Ghani Aissaoui, Mouhacine Benosman
14:20-14:40	ID: 289 Clustering Analysis of Multidimensional Wind S Mehmet Yesilbudak* (Nevsehir Haci Bektas Veli University),	beed Data Using k-Means Approach
14:40-15:00	ID: 13 Extremum Seeking-based Parameter Identification Mouhacine Benosman* (MERL), Chun Wei (University of Net	on for State-of-Power Prediction of Lithium-ion Batteries braska-Lincoln),
15:00-15:20	ID: 349 The Multi-Objective Optimization Model for a Su Reda Nujoom* (University of Portsmouth), Ahmed Mohamme (University of Portsmouth), Nick Bennett (University of Ports	stainable Manufacturing System Design ed (University of Portsmouth/Scool of Engineering), Qian Wang mouth),
15:20-15:40	ID: 139 Evaluation of State-Based Controlled STATCOM Johnny Chhor* (Institute for Power Systems Technology and Technology and Power Mechatronics), Constantinos Sourke	for DFIG-Based WECS During Voltage Sags Power Mechatronics), Pavlos Tourou (Institute for Power Systems punis (Ruhr-University Bochum),
15:40-16:00	ID: 316 Simulation and ZigBee Based Wireless Monitori Erdal Irmak* (Gazi University), Ali KOSE (Gazi University), 0	ng of the Amount of Consumed Energy at Smart Homes Bökhan Göçmen (Gazi University),
16:00-16:20	CO	FFEE BREAK
TRACK: Cont	ntrol Techniques for RESs	SESSION CHAIRS: Fujio Kurokawa, Orhan Kaplan
16:20-16:40	ID: 191 Analysis and Design of a Tower Motion Estimate Wai Hou Lio* (University of Sheffield), Bryn Jones (University	or for Wind Turbines y of Sheffield), Anthony Rossiter (University of Sheffield),
16:40-17:00	ID: 202 Switched Capacitor Discrete Control of Voltage Katsutoshi Hirayama* (Nagasaki University), Yudai Furukaw Tadashi Suetsugu (Fukuoka University), Hidenori Maruta (N	Dividing Class E Amplifier to Achieve Sub Nominal Operation ra (Nagasaki University), Takuya Sirakawa ( Nagasaki University), lagasaki University), Fujio Kurokawa (Nagasaki University),
17:00-17:20	ID: 205 A New Digital Current Control AC-DC Converter Kazuhiro Kajiwara (Nagasaki Institute of Applied Science), S Tsuyoshi Higuchi (Nagasaki University), Johann Kolar (ETH	<b>for Wind Turbine</b> atoshi Kuboyama* (Nagasaki University), Zurich), Fujio Kurokawa (Nagasaki University),
17:20-17:40	ID: 216 Stability Characteristics of Digital Peak Current Kazuhiro Kajiwara* (Nagasaki Institute of Applied Science), Yuichiro Shibata (Nagasaki University), Fujio Kurokawa (Na	Control DC-DC Converter under Input Voltage Fluctuation Hidenori Maruta (Nagasaki University), agasaki University),
17:40-18:00	ID: 239 Transient Response of Digital Peak Current Moo Yudai Furukawa* (Nagasaki University), Shintaro Nibu (Nag Fujio Kurokawa (Nagasaki University), ILHAMI COLAK (Nis	e Boost Converter for DC Bus Voltage Compensation asaki University), Haruhi Eto (Nagasaki University), santasi University),

Date: 21 Nove	ember 2016 - PM	HALL: GALLERY SEMINAR SUITES - III
TRACK: Cont	trol Techniques for RESs	SESSION CHAIRS: Sevki Demirbas, Abbas Fotouhi
14:20-14:40	ID: 51 Arrangement of Fibonacci Sequence Photo Akiko Takahashi* (Tokyo University Of Science),	voltaic Modules for Power Generation Forest
14:40-15:00	ID: 66 An Impedance Analyzer Application Using Taha Gücin* (University of Yalova), Levent Ovacik (Is	Cross-Correlation Method tanbul Technical University),
15:00-15:20	ID: 233 Power Differential Method Based Islandin Okan Ozgonenel* (Ondokuz Mayis University),	g Detection in PV Systems
15:20-15:40	ID: 141 Vector Control of DFIG in Wind Power App E. Aydın, Abdullah Polat*, Lale Ergene (Istanbul Tech	plications nical University),
15:40-16:00	ID: 277 Influence of Battery Capacity on Performa Abbas Fotouhi* (Cranfield University), Daniel J. Auge Neda Shateri (Cranfield University), Karsten Propp (C	nce of an Electric Vehicle Fleet r (Cranfield University), Tom Cleaver (OXIS Energy Ltd), Cranfield University), Stefano Longo (Cranfield University),
16:00-16:20		COFFEE BREAK
TRACK: Auto	onomous Dynamic Intelligent Systems	SESSION CHAIRS: M. Arif Wani, Medine Colak
16:20-16:40	ID: 117 Development of a Low Cost Universal Set Abdoulkarim Bouabana*(Power Systems Technology Power Mechatronics), Constantinos Sourkounis (Ruh	nsors for Measurement of Current, Voltage and Temperature and Power Mechatronics), Erol Sanal (Power Systems Technology and r-University Bochum),
16:40-17:00	ID: 95 Normal Power Generation Area of Wind Tu Miguel Sanz Bobi* (Comillas Pontifical University), M	rbines for the Detection of Abnormal Performance ar Carmona Sanz (Comillas Pontifical University),
17:00-17:20	ID: 17 Analysis, Design and Reel-Time Implemen Based on Predictive Direct Power Control Samir Moulahoum* (University of Media), Oualid Aiss Nadir Kabache (LREA), Ilhami Colak (Nisantasi Univ	tation of Shunt Active Power Filter for Power Quality Improvement a (LREA), Badreddine Babes (university of setif), ersity),
17:20-17:40	ID: 116 Design of a Direct-Drive Permanent Magn Aydın Başkaya* (TUBITAK/MAM Energy Institute), O	<b>et Generator for a 50 kW Wind Turbine</b> zan Keysan (Middle East Technical University),
17:40-18:00	ID: 149 Dynamic Performance of Wind-Driven Sel Ayodeji Ogunjuyigbe (University of Ibadan), Temitope Abdul-Ganiyu Jimoh (Tshwane University of Technolo	f-Excited Reluctance Generator under Varying Wind Speed and Load Ayodele*(University of Ibadan), Bukola Adetokun (University of Ibadan), gy),
18:00-18:20		
	5 AA4A	
Date: 21 Nove	ember 2016 - PM	HALL: GALLERY HOSPITALITY SUITE 18
Date: 21 Nove TRACK: Rene	ember 2016 - PM ewable Energy Visions	HALL: GALLERY HOSPITALITY SUITE 18 SESSION CHAIR: Fabio Viola
Date: 21 Nove TRACK: Rene 14:20-14:40	ember 2016 - PM ewable Energy Visions ID: 344 Sensitivity Analysis of a Bidirectional Wir Alicia Triviño (Universidad de Málaga), JOSE AGUAL Foiadelli Politecnico di Milano),	HALL: GALLERY HOSPITALITY SUITE 18 SESSION CHAIR: Fabio Viola eless Charger for EV DO (University of Malaga), Michela Longo* (Politecnico di Milano), Federica
Date: 21 Nove TRACK: Rene 14:20-14:40 14:40-15:00	ember 2016       - PM         ewable Energy Visions         ID: 344 Sensitivity Analysis of a Bidirectional Win         Alicia Triviño (Universidad de Málaga), JOSE AGUAE         Foiadelli       Politecnico di Milano),         ID: 352 Day-Ahead Forecasting for Photovoltaic F         Mohammed Omar (Politecnico di Milano), Emanuele Giovann	HALL:       GALLERY HOSPITALITY SUITE 18         SESSION CHAIR: Fabio Viola         eless Charger for EV         OO (University of Malaga), Michela Longo* (Politecnico di Milano), Federica         Power Using Artificial Neural Networks Ensembles         ara (Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco i Ogliari (Politecnico di Milano), Fabio Viola (Università di Palermo),
Date: 21 Nove TRACK: Rene 14:20-14:40 14:40-15:00 15:00-15:20	ember 2016       - PM         ewable Energy Visions         ID: 344 Sensitivity Analysis of a Bidirectional Wire         Alicia Triviño (Universidad de Málaga), JOSE AGUAE         Foiadelli Politecnico di Milano),         ID: 352 Day-Ahead Forecasting for Photovoltaic P         Mohammed Omar (Politecnico di Milano), Alberto Dol         Mussetta* (Politecnico di Milano), Emanuele Giovann         ID: 362 Economic Evaluation of PV System for EV         Orientation and Storage System Employment         Rosario Miceli* (University of Palermo), Fabio Viola (         Oscar Di Tommaso (University of Palermo), Giuseppe Sc         Spataro (University of Palermo),	HALL: GALLERY HOSPITALITY SUITE 18 SESSION CHAIR: Fabio Viola         eless Charger for EV       OO (University of Malaga), Michela Longo* (Politecnico di Milano), Federica         Power Using Artificial Neural Networks Ensembles         ara (Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco i Ogliari (Politecnico di Milano), Fabio Viola (Università di Palermo),         // Charging Stations: Comparison Between Matching Maximum         Università di Palermo), Massimo Caruso (University of Palermo), Antonino Imburgia (University of Palermo), Michela Longo (Politecnico di Milano), ciro
Date: 21 Nove TRACK: Rene 14:20-14:40 14:40-15:00 15:00-15:20	ember 2016       - PM         ewable Energy Visions         ID: 344 Sensitivity Analysis of a Bidirectional Wir         Alicia Triviño (Universidad de Málaga), JOSE AGUAE         Foiadelli Politecnico di Milano),         ID: 352 Day-Ahead Forecasting for Photovoltaic F         Mohammed Omar (Politecnico di Milano), Alberto Dol         Mussetta* (Politecnico di Milano), Emanuele Giovann         ID: 362 Economic Evaluation of PV System for EV         Orientation and Storage System Employment         Rosario Miceli* (University of Palermo), Fabio Viola (         Oscar Di Tommaso (University of Palermo), Giuseppe Sc         Spataro (University of Palermo),         ID: 364 CO2 Reduction Exploiting RES for EV Cha         Rosario Miceli* (University of Palermo), Morris Brenr         Zaninelli (Politecnico di Milano), Fabio Viola (University	HALL: GALLERY HOSPITALITY SUITE 18 SESSION CHAIR: Fabio Viola         BESSION CHAIR: Fabio Viola         eless Charger for EV         DO (University of Malaga), Michela Longo* (Politecnico di Milano), Federica         Ower Using Artificial Neural Networks Ensembles         ara (Politecnico di Milano), Giulia Magistrati ( Politecnico di Milano), Marco i Ogliari ( Politecnico di Milano), Fabio Viola (Università di Palermo),         V Charging Stations: Comparison Between Matching Maximum         Università di Palermo), Massimo Caruso (University of Palermo), Antonino Imburgia (University of Palermo), Michela Longo (Politecnico di Milano), nettino (University of Palermo), Giuseppe Salvo (University of Palermo), Ciro         Irging         na (Politecnico di Milano), Michela Longo (Politecnico di Milano), Dario tà di Palermo),
Date: 21 Nove TRACK: Rene 14:20-14:40 14:40-15:00 15:00-15:20 15:20-15:40	<ul> <li>ID: 344 Sensitivity Analysis of a Bidirectional Wirk Alicia Triviño (Universidad de Málaga), JOSE AGUAD Foiadelli Politecnico di Milano),</li> <li>ID: 352 Day-Ahead Forecasting for Photovoltaic F Mohammed Omar (Politecnico di Milano), Alberto Dol Mussetta* (Politecnico di Milano), Emanuele Giovann</li> <li>ID: 362 Economic Evaluation of PV System for EV Orientation and Storage System Employment Rosario Miceli* (University of Palermo), Fabio Viola ( Oscar Di Tommaso (University of Palermo), Antonino Pietro Romano (University of Palermo), Giuseppe Sc Spataro (University of Palermo),</li> <li>ID: 364 CO2 Reduction Exploiting RES for EV Cha Rosario Miceli* (University of Palermo), Morris Brenr Zaninelli (Politecnico di Milano), Fabio Viola (University ID: 347 A Novel MPPT Algorithm for Photovoltic S Method</li> </ul>	HALL: GALLERY HOSPITALITY SUITE 18 SESSION CHAIR: Fabio Viola         Beless Charger for EV       OO (University of Malaga), Michela Longo* (Politecnico di Milano), Federica         Power Using Artificial Neural Networks Ensembles       ara (Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco i Ogliari (Politecnico di Milano), Fabio Viola (Università di Palermo),         V Charging Stations: Comparison Between Matching Maximum         Università di Palermo), Massimo Caruso (University of Palermo), Antonino Imburgia (University of Palermo), Michela Longo (Politecnico di Milano), ciro         Industria (University of Palermo), Giuseppe Salvo (University of Palermo), Ciro         rging         Ia (Politecnico di Milano), Michela Longo (Politecnico di Milano), Dario tà di Palermo),         Systems under Dynamic Partial Shading - Recurrent Scan and Track
Date: 21 Nove TRACK: Rene 14:20-14:40 14:40-15:00 15:00-15:20 15:20-15:40 15:40-16:00	<ul> <li>ember 2016 - PM</li> <li>ewable Energy Visions</li> <li>ID: 344 Sensitivity Analysis of a Bidirectional Wirk Alicia Triviño (Universidad de Málaga), JOSE AGUAL Foiadelli Politecnico di Milano),</li> <li>ID: 352 Day-Ahead Forecasting for Photovoltaic F Mohammed Omar (Politecnico di Milano), Alberto Dol Mussetta* (Politecnico di Milano), Emanuele Giovann ID: 362 Economic Evaluation of PV System for EV Orientation and Storage System Employment Rosario Miceli* (University of Palermo), Fabio Viola ( Oscar Di Tommaso (University of Palermo), Antonino Pietro Romano (University of Palermo), Giuseppe Sc Spataro (University of Palermo),</li> <li>ID: 364 CO2 Reduction Exploiting RES for EV Cha Rosario Miceli* (University of Palermo), Morris Brenr Zaninelli (Politecnico di Milano), Fabio Viola (Universi ID: 347 A Novel MPPT Algorithm for Photovoltic S Method Alberto Dolara* (Politecnico di Milano), Sonia Leva (F Mussetta (Politecnico di Milano), Emanuele Giovanni</li> </ul>	HALL: GALLERY HOSPITALITY SUITE 18 SESSION CHAIR: Fabio Viola         Beless Charger for EV       OO (University of Malaga), Michela Longo* (Politecnico di Milano), Federica         Power Using Artificial Neural Networks Ensembles         ara (Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco i Ogliari (Politecnico di Milano), Fabio Viola (Università di Palermo),         V Charging Stations: Comparison Between Matching Maximum         Università di Palermo), Massimo Caruso (University of Palermo), Antonino Imburgia (University of Palermo), Michela Longo (Politecnico di Milano), nettino (University of Palermo), Giuseppe Salvo (University of Palermo), Ciro         rging         na (Politecnico di Milano), Michela Longo (Politecnico di Milano), Dario tà di Palermo),         ta di Palermo),         wastems under Dynamic Partial Shading - Recurrent Scan and Track         Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco Ogliari (Politecnico di Milano), R Varun Arvind (Politecnico di Milano),
Date: 21 Nove TRACK: Rene 14:20-14:40 14:40-15:00 15:00-15:20 15:20-15:40 15:40-16:00 16:00-16:20	<ul> <li>ember 2016 - PM</li> <li>ewable Energy Visions</li> <li>ID: 344 Sensitivity Analysis of a Bidirectional Wirk Alicia Triviño (Universidad de Málaga), JOSE AGUAL Foiadelli Politecnico di Milano),</li> <li>ID: 352 Day-Ahead Forecasting for Photovoltaic F Mohammed Omar (Politecnico di Milano), Alberto Dol Mussetta* (Politecnico di Milano), Emanuele Giovann</li> <li>ID: 362 Economic Evaluation of PV System for EV Orientation and Storage System Employment Rosario Miceli* (University of Palermo), Fabio Viola ( Oscar Di Tommaso (University of Palermo), Antonino Pietro Romano (University of Palermo), Giuseppe Sc Spataro (University of Palermo),</li> <li>ID: 364 CO2 Reduction Exploiting RES for EV Cha Rosario Miceli* (University of Palermo), Morris Brenr Zaninelli (Politecnico di Milano), Fabio Viola (Universi ID: 347 A Novel MPPT Algorithm for Photovoltic S Method Alberto Dolara* (Politecnico di Milano), Sonia Leva (F Mussetta (Politecnico di Milano), Emanuele Giovanni</li> </ul>	HALL: GALLERY HOSPITALITY SUITE 18 SESSION CHAIR: Fabio Viola         Beless Charger for EV       OO (University of Malaga), Michela Longo* (Politecnico di Milano), Federica         Ower Using Artificial Neural Networks Ensembles         ara (Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco i Ogliari (Politecnico di Milano), Fabio Viola (Università di Palermo),         // Charging Stations: Comparison Between Matching Maximum         Università di Palermo), Massimo Caruso (University of Palermo), Antonino Imburgia (University of Palermo), Michela Longo (Politecnico di Milano), ciro         rging         na (Politecnico di Milano), Michela Longo (Politecnico di Milano), Dario tà di Palermo),         ystems under Dynamic Partial Shading - Recurrent Scan and Track         Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco Ogliari (Politecnico di Milano), R Varun Arvind (Politecnico di Milano),         COFFEE BREAK
Date: 21 Nove TRACK: Rene 14:20-14:40 14:40-15:00 15:00-15:20 15:20-15:40 15:40-16:00 16:00-16:20 TRACK Rene	<ul> <li>ember 2016 - PM</li> <li>ewable Energy Visions</li> <li>ID: 344 Sensitivity Analysis of a Bidirectional Wirk Alicia Triviño (Universidad de Málaga), JOSE AGUAL Foiadelli Politecnico di Milano),</li> <li>ID: 352 Day-Ahead Forecasting for Photovoltaic F Mohammed Omar (Politecnico di Milano), Alberto Dol Mussetta* (Politecnico di Milano), Emanuele Giovann</li> <li>ID: 362 Economic Evaluation of PV System for EV Orientation and Storage System Employment Rosario Miceli* (University of Palermo), Fabio Viola ( Oscar Di Tommaso (University of Palermo), Antonino Pietro Romano (University of Palermo), Giuseppe Sc Spataro (University of Palermo),</li> <li>ID: 364 CO2 Reduction Exploiting RES for EV Cha Rosario Miceli* (University of Palermo), Morris Brenr Zaninelli (Politecnico di Milano), Fabio Viola (Universi ID: 347 A Novel MPPT Algorithm for Photovoltic S Method Alberto Dolara* (Politecnico di Milano), Sonia Leva (F Mussetta (Politecnico di Milano), Emanuele Giovanni</li> </ul>	HALL: GALLERY HOSPITALITY SUITE 18 SESSION CHAIR: Fabio Viola         Beless Charger for EV       OO (University of Malaga), Michela Longo* (Politecnico di Milano), Federica         Power Using Artificial Neural Networks Ensembles         ara (Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco i Ogliari (Politecnico di Milano), Fabio Viola (Università di Palermo),         // Charging Stations: Comparison Between Matching Maximum         Università di Palermo), Massimo Caruso (University of Palermo), Antonino Imburgia (University of Palermo), Michela Longo (Politecnico di Milano), nettino (University of Palermo), Giuseppe Salvo (University of Palermo), Ciro         rging         va (Politecnico di Milano), Michela Longo (Politecnico di Milano), Dario tà di Palermo),         ystems under Dynamic Partial Shading - Recurrent Scan and Track         Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco Ogliari (Politecnico di Milano), R Varun Arvind (Politecnico di Milano),         COFFEE BREAK
Date:         21 Nove           TRACK:         Rene           14:20-14:40         14:40-15:00           15:00-15:20         15:20-15:40           15:40-16:00         16:00-16:20           TRACK Rene         16:20-16:40	ember 2016       - PM         ewable Energy Visions         ID: 344 Sensitivity Analysis of a Bidirectional Wir         Alicia Triviño (Universidad de Málaga), JOSE AGUAE         Foiadelli Politecnico di Milano),         ID: 352 Day-Ahead Forecasting for Photovoltaic F         Mohammed Omar (Politecnico di Milano), Alberto Dol         Mussetta* (Politecnico di Milano), Emanuele Giovann         ID: 362 Economic Evaluation of PV System for EN         Orientation and Storage System Employment         Rosario Miceli* (University of Palermo), Fabio Viola (         Oscar Di Tommaso (University of Palermo), Giuseppe Sc         Spataro (University of Palermo),         ID: 364 CO2 Reduction Exploiting RES for EV Cha         Rosario Miceli* (University of Palermo),         ID: 364 CO2 Reduction Exploiting RES for EV Cha         Rosario Miceli* (University of Palermo),         ID: 347 A Novel MPPT Algorithm for Photovoltic S         Method         Alberto Dolara* (Politecnico di Milano), Emanuele Giovanni         Wussetta (Politecnico di Milano), Emanuele Giovanni         Wussetta (Politecnico di Milano), Emanuele Giovanni         ID: 14 Energy Management of Photovoltaic/Wind         Djamila REKIOUA* (University of Bejaia), Chafiaa Se	HALL: GALLERY HOSPITALITY SUITE 18 SESSION CHAIR: Fabio Viola         Beless Charger for EV       OO (University of Malaga), Michela Longo* (Politecnico di Milano), Federica         Power Using Artificial Neural Networks Ensembles         ara (Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco i Ogliari (Politecnico di Milano), Fabio Viola (Università di Palermo),         // Charging Stations: Comparison Between Matching Maximum         Università di Palermo), Massimo Caruso (University of Palermo), Antonino Imburgia (University of Palermo), Michela Longo (Politecnico di Milano), nettino (University of Palermo), Giuseppe Salvo (University of Palermo), Ciro         rrging         na (Politecnico di Milano), Michela Longo (Politecnico di Milano), Dario tà di Palermo),         rystems under Dynamic Partial Shading - Recurrent Scan and Track         Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco Ogliari (Politecnico di Milano), R Varun Arvind (Politecnico di Milano),         COFFEE BREAK         SESSION CHAIRS: Youcef Soufi, Jin Yang         Pumping System with Battery Storage         rir (Université de Bejaia), Seddik Bacha (G2elab INP Grenoble France),
Date:         21 Nove           TRACK:         Rene           14:20-14:40         14:40-15:00           15:00-15:20         15:20-15:40           15:40-16:00         16:00-16:20           TRACK Rene         16:20-16:40           16:40-17:00         16:40-17:00	ember 2016       - PM         ewable Energy Visions         ID: 344 Sensitivity Analysis of a Bidirectional Wir         Alicia Triviño (Universidad de Málaga), JOSE AGUAE         Foiadelli Politecnico di Milano),         ID: 352 Day-Ahead Forecasting for Photovoltaic F         Mohammed Omar (Politecnico di Milano), Alberto Dol         Mussetta* (Politecnico di Milano), Emanuele Giovanni         ID: 362 Economic Evaluation of PV System for EN         Orientation and Storage System Employment         Rosario Miceli* (University of Palermo), Fabio Viola (         Oscar Di Tommaso (University of Palermo), Antonino         Pietro Romano (University of Palermo), Giuseppe Sc         Spataro (University of Palermo),         ID: 364 CO2 Reduction Exploiting RES for EV Cha         Rosario Miceli* (University of Palermo),         ID: 364 CO2 Reduction Exploiting RES for EV Cha         Rosario Miceli* (University of Palermo),         ID: 364 CO2 Reduction Exploiting RES for EV Cha         Rosario Miceli* (University of Palermo),         ID: 347 A Novel MPPT Algorithm for Photovoltic S         Method         Alberto Dolara* (Politecnico di Milano), Emanuele Giovanni         Emergy Modelling         ID: 14 Energy Management of Photovoltaic/Wind         Djamila REKIOUA* (University of Bejaia), Chafiaa Se         ID: 18 Desi	HALL: GALLERY HOSPITALITY SUITE 18 SESSION CHAIR: Fabio Viola         Belss Charger for EV         DO (University of Malaga), Michela Longo* (Politecnico di Milano), Federica         Power Using Artificial Neural Networks Ensembles         ara (Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco i Ogliari (Politecnico di Milano), Fabio Viola (Università di Palermo),         V Charging Stations: Comparison Between Matching Maximum         Università di Palermo), Massimo Caruso (University of Palermo), Antonino Imburgia (University of Palermo), Michela Longo (Politecnico di Milano), nettino (University of Palermo), Giuseppe Salvo (University of Palermo), Ciro         rging         ta (Politecnico di Milano), Michela Longo (Politecnico di Milano), Dario tà di Palermo),         Systems under Dynamic Partial Shading - Recurrent Scan and Track         Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco Ogliari (Politecnico di Milano), R Varun Arvind (Politecnico di Milano),         OFFEE BREAK         SESSION CHAIRS: Youcef Soufi, Jin Yang         Pumping System with Battery Storage         rir (Université de Bejaia), Seddik Bacha (G2elab INP Grenoble France),         or Grid Inverter Application Controled by PIC24FJ128GA010
Date:         21 Nove           TRACK:         Rene           14:20-14:40         14:40-15:00           15:00-15:20         15:20-15:40           15:20-15:40         15:40-16:00           16:00-16:20         TRACK Rene           16:20-16:40         16:40-17:00           17:00-17:20         17:00-17:20	<ul> <li>ember 2016 - PM</li> <li>ewable Energy Visions</li> <li>ID: 344 Sensitivity Analysis of a Bidirectional Wirk Alicia Triviño (Universidad de Málaga), JOSE AGUAL Foiadelli Politecnico di Milano),</li> <li>ID: 352 Day-Ahead Forecasting for Photovoltaic F Mohammed Omar (Politecnico di Milano), Alberto Dol Mussetta* (Politecnico di Milano), Emanuele Giovanni</li> <li>ID: 362 Economic Evaluation of PV System for EV Orientation and Storage System Employment Rosario Miceli* (University of Palermo), Fabio Viola ( Oscar Di Tommaso (University of Palermo), Antonino Pietro Romano (University of Palermo), Giuseppe Sc Spataro (University of Palermo), Giuseppe Sc Spataro (University of Palermo), ID: 364 CO2 Reduction Exploiting RES for EV Cha Rosario Miceli* (University of Palermo), Morris Brenr Zaninelli (Politecnico di Milano), Fabio Viola (Universi ID: 347 A Novel MPPT Algorithm for Photovoltic S Method Alberto Dolara* (Politecnico di Milano), Sonia Leva (F Mussetta (Politecnico di Milano), Emanuele Giovanni</li> <li>ID: 14 Energy Management of Photovoltaic/Wind Djamila REKIOUA* (University of Bejaia), Chafiaa Se</li> <li>ID: 18 Design of a Half-Bridge Bootstrap Circuit for Mohannad Mnati* (Ghent University),</li> <li>ID: 60 Small Scale DFIG Test Rig Facilities Impler NUR SARMA* (The University of Manchester), Sinisa</li> </ul>	HALL: GALLERY HOSPITALITY SUITE 18 SESSION CHAIR: Fabio Viola         eless Charger for EV       DO (University of Malaga), Michela Longo* (Politecnico di Milano), Federica         Power Using Artificial Neural Networks Ensembles         ara (Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco i Ogliari (Politecnico di Milano), Fabio Viola (Università di Palermo),         // Charging Stations: Comparison Between Matching Maximum         Università di Palermo), Massimo Caruso (University of Palermo), Antonino Imburgia (University of Palermo), Michela Longo (Politecnico di Milano), nettino (University of Palermo), Giuseppe Salvo (University of Palermo), Ciro         rrging       Da (Politecnico di Milano), Michela Longo (Politecnico di Milano), Dario tà di Palermo),         rystems under Dynamic Partial Shading - Recurrent Scan and Track         Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco Ogliari (Politecnico di Milano), R Varun Arvind (Politecnico di Milano),         COFFEE BREAK         SESSION CHAIRS: Youcef Soufi, Jin Yang         Pumping System with Battery Storage         rir (Université de Bejaia), Seddik Bacha (G2elab INP Grenoble France),         ro Grid Inverter Application Controled by PIC24FJ128GA010         menting Vector Control Using Industrial Converters         Durovic (The University of Manchester),
Date:         21 Nove           TRACK:         Rene           14:20-14:40         14:40-15:00           15:00-15:20         15:20-15:40           15:20-15:40         15:40-16:00           16:00-16:20         TRACK Rene           16:20-16:40         16:40-17:00           17:00-17:20         17:20-17:40	ember 2016       - PM         ewable Energy Visions         ID: 344 Sensitivity Analysis of a Bidirectional Wir         Alicia Triviño (Universidad de Málaga), JOSE AGUAE         Foiadelli Politecnico di Milano),         ID: 352 Day-Ahead Forecasting for Photovoltaic F         Mohammed Omar (Politecnico di Milano), Alberto Dol         Mussetta* (Politecnico di Milano), Emanuele Giovann         ID: 362 Economic Evaluation of PV System for EV         Orientation and Storage System Employment         Rosario Miceli* (University of Palermo), Fabio Viola (         Oscar Di Tommaso (University of Palermo), Giuseppe Sc         Spataro (University of Palermo),         ID: 364 CO2 Reduction Exploiting RES for EV Cha         Rosario Miceli* (University of Palermo),         ID: 364 CO2 Reduction Exploiting RES for EV Cha         Rosario Miceli* (University of Palermo),         ID: 364 CO2 Reduction Exploiting RES for EV Cha         Rosario Miceli* (University of Palermo),         ID: 364 CO2 Reduction Exploiting RES for EV Cha         Rosario Miceli* (University of Palermo),         ID: 364 CO2 Reduction Exploiting RES for EV Cha         Rosario Miceli* (University of Palermo),         ID: 364 CO2 Reduction Exploiting RES for EV Cha         Rosario Miceli* (University of Palermo),         ID: 364 CO2 Reduction Exploiting RES for EV Cha	HALL: GALLERY HOSPITALITY SUITE 18 SESSION CHAIR: Fabio Viola         BESSION CHAIR: Fabio Viola         Beless Charger for EV         OO (University of Malaga), Michela Longo* (Politecnico di Milano), Federica         ower Using Artificial Neural Networks Ensembles         ara (Politecnico di Milano), Giulia Magistrati ( Politecnico di Milano), Marco i Ogliari ( Politecnico di Milano), Fabio Viola (Università di Palermo),         (Charging Stations: Comparison Between Matching Maximum         Università di Palermo), Massimo Caruso (University of Palermo), Antonino         Imburgia (University of Palermo), Michela Longo (Politecnico di Milano), nettino (University of Palermo), Giuseppe Salvo (University of Palermo), Ciro         riging         ta (Politecnico di Milano), Michela Longo (Politecnico di Milano), Dario tà di Palermo),         ta (Politecnico di Milano), Michela Longo (Politecnico di Milano), Dario tà di Palermo),         ta (Politecnico di Milano), Michela Longo (Politecnico di Milano), Dario tà di Palermo),         ta (Politecnico di Milano), Michela Longo (Politecnico di Milano), Marco Ogliari (Politecnico di Milano), Giulia Magistrati (Politecnico di Milano), Marco Ogliari ( Politecnico di Milano), Revarun Arvind ( Politecnico di Milano),         COFFEE BREAK         SESSION CHAIRS: Youcef Soufi, Jin Yang         Pumping System with Battery Storage

POSTER SESSION-1 (21 November 2016 MONDAY, 12:20-14:20) HALL: GALLERY BREAKOUT AREA
TRACK SESSION CHAIRS: Okan Ozgonenel, Samir Moulahoum, Nobumasa Matsui
ID: 185 Identification of Suitable Nodes for The Placement Of Reactive Power Compensators Isaiah ADEBAYO* (Tshwane University of Technology), Abdul-Ganiyu Jimoh (Tshwane University of Technology), Adedayo Yusuff (Tshwane University of Technology),
ID: 110 Development of Impact-Based Piezoelectric Road Energy Harvester for Practical Application Chan Ho Yang* (Hanyang University), Min Sik Woo (Hanyang University), Yewon Song (Hanyang University), Jong Hyuk Eom (Hanyang University), Seong Kwang Hong (Hanyang University), Gyeong Ju Song (Hanyang University), Jeong Hun Kim (Hanyang University), Tae Hyun Sung (Hanyang University), Ji Young Choi (Korea Institute of Civil Engineering and Building Technology), Seung Ki Ryu (Korea Institute of Civil Engineering and Building Technology),
ID: 134 Designing a Road Energy Harvester With Multiple Piezoelectric Cantilever Beams and a Single Tip Mass Yewon Song (Hanyang University), Chan Ho Yang (Hanyang University), Sung Joo Hwang (Hanyang University), Jeong Hun Kim (Hanyang University), Tae Hyun Sung* (Hanyang University),
ID: 46 High-Step-Up Flyback-Forward Asymmetrical DC-DC Converter for Photovoltaic Power System with Active Clamping Circuit Zhengzhao He* (Aston University), Wenping Cao (Aston University), Zhengyu Lin (Aston University), Yihua Hu (Liverpool University),
ID: 71 Analysis of output power fluctuations of small scale PV and Wind Power systems Alo Allik* (Estonian University of Life Sciences), Andres Annuk (Estonian University of Life Sciences),
ID: 237 Image Features for Pixel-wise Detection of Solar Photovoltaic Arrays in Aerial Imagery Using a Random Forest Classifier Jordan Malof* (Duke University), Alexander Serrano (The Cooper Union), Hetian Wu (The Cooper Union), Sam Keene (The Cooper Union), Kyle Bradbury (Duke University), Leslie Collins (Duke University), Richard Newell (Duke University),
ID: 77 Comparison of Modular Multilevel and Neutral-Point-Clamped Converters for Medium-Voltage Grid-Connected Applications Hafiz Abu Bakar Siddique* (RWTH Aachen University), Abishek Rajaraman Lakshminarasimhan (RWTH Aachen University), Charles I. Odeh (RWTH Aachen University), Rik W. De Doncker (RWTH Aachen University),
ID: 83 Reliability study of a photovoltaic system using Stochastic Petri Nets ismahan MAHDI* (University of Boumerdes Algeria), Becharia NADJI (UMBB),
ID: 73 An Evolutionary Computing Approach for Estimating Global Solar Radiation Rami AL-HAJJ* (American University of the Middle East), Ali Assi (Lebanese International University), Farhan Batch (MEU University),
ID: 106 Efficient MPPT Control for Fast Irradiation Changes and Partial Shading Conditions on PV Systems Balaji Veerasamy* (Jimma Institute of Technology), Amruth Telkar (Jimma Institute of Technology), Ganesan Ramu (Jimma Institute of Technology), Takaharu Takeshita (Nagoya Institute of Technology),
ID: 118 Single Diode Model Parameters Analysis of Photovoltaic Cell Md Tofael Ahmed* (University of Evora),
ID: 152 Optimisation and Financial Viability of Landfill Gas to Electricity Projects in South Africa SANJEETH SEWCHURRAN* (University of Kwazulu Natal), Innocent Davidson (Durban University of Technology),
ID: 153 Guiding Principles for Grid Code Compliance of Large Utility Scale Renewable Power Plant Intergration onto South Africa's Transmission/Distribution Networks SANJEETH SEWCHURRAN* (University of Kwazulu Natal), Innocent Davidson (Durban University of Technology),
ID: 44 Development of Axial Flux PM Generator for Direct Driven Micro Wind Turbine Tareq El-Hasan* (Zarqa University),
ID: 131 Matrix Converter Based Wind Generation System with Low Voltage Ride Through Capability Catarina Lemos (Instituto Superior Tecnico), Sonia Pinto* (INESC-ID), José Silva (INESC-ID),
ID: 145 Control of a New Structure of Twin Wind Turbine Ibrahim Guenoune (Ecole Centrale de Nantes / University of Tlemcen), Franck PLESTAN* (Ecole Centrale de Nantes), Ali Chermitti (University of Tlemcan),
ID: 240 Control of multi-Level Voltage Source Converters Integrating a Wind Turbine System into the Grid ESTER HAMATWI* (University of Kwazulu-Natal), Innocent Davidson (Durban University of Technology), Michael Gitau (University of Pretoria),
ID: 290 Power Quality Control in Grid-interactive Micro-power Systems Ahsan Shahid* (University of Illinois at Chicago),
ID: 123 Static Voltage Stability Analysis of Eskom Eastern Grid Oluwafemi Oni* (University of Kwazulu-Natal), Innocent Davidson (Durban University of Technology), Nishant Parus (Eskom Holdings SOC Ltd),
ID: 135 New Measurement Technique for Modular Multilevel Converter with IGBT Open-Circuit Failure Detection and Tolerance Control for Three-Level Submodule Ahmed Sallam (Alexandria University), Ragi Hamdy* (Alexandria University), Mohamed Zakaria (Alexandria University), Ahmed Hossam (Alexandria University),
ID: 45 Reactive Power Compensation in Wind Power Plant With Short Circuit in Power Plant Line via UPFC shahin fouladi panah* (Islamic Azad University), Gadir Azizi Ghannad (Islamic Azad University), Touhid Fouladi Panah (Tejarat Consultant ENGS),
ID: 58 Improvement in the ATO Efficiency of the Magnetic Levitation Propulsion System Using a Linear Induction Motor

Seok Young Lee (Konkuk University), Park Sang uk\* (Konkuk University), Chan Yong Zun (Konkuk University), Jae Hyuk Choi (Konkuk University), Jae Won Lim (Korea Institute of Machinery&Materials), Hyung Su Mok (Konkuk University),

# November 22, 2016

Date: 22 Nov	ember 2016 HALL:			
08:30–17:00	Registration			
Date: 22 Nov	ember 2016 - AM			
KEYNOTE	KEYNOTE HALL: GALLERY SEMINAR SUITES			
09:00-09:45	Prof. Adel Nasiri, <b>"DC UPS and Load Leveling for Pulse Loads"</b> Chairs: Rosario Miceli, Yousuke Nozaki, Samir Moulahoum			
09:45-10:30	Dr. Yousuke Nozaki, <b>"Photovoltaic power systems deployment for half a century and our technical contribution in Asia"</b> Chairs: Noriyuki Kimura, Ramazan Bayindir, Nobukazu Hoshi			
10:30-11:00	COFFEE BREAK			
KEYNOTE	HALL: GALLERY SEMINAR SUITES			
11:00-12:00	Prof. Rosario Miceli, <b>"Fault tolerant inverter operation"</b> <b>Chairs:</b> Adel Nasiri, H. Ibrahim Bulbul, Takaharu Takeshita			
12:00-13:00	LUNCH BREAK			
12:20-14:20	Poster Session			

ORAL PRESENTATIONS			
Date: 22 Nove	ember 2016 - PM HALL: GALLERY SEMINAR SUITES - I		
<b>TRACK: Ener</b>	gy Transformation from Renewable Energy System (RES) to Grid SESSION CHAIRS: Tahir Yavuz, Hiroyuki Haga		
14:20-14:40	ID: 23 Increasing Efficiency of an Existing Francis Turbine by Rehabilitation Process Deniz Sarper Semerci* (Baskent University), Tahir Yavuz (Baskent University),		
14:40-15:00	<b>ID: 54 Fault Diagnosis of Photovoltaic Modules Using AC Impedance Spectroscopy</b> Suguru Osawa* (Tokyo University of Science), Takuma Nakano (Tokyo University of Science), Shunya Matsumoto (Tokyo University of Science), Noboru Katayama (Tokyo University of Science), Yusuke Saka (Fuji Furukawa Engineering & Construction Co.Ltd.), Hiroki Sato (Fuji Furukawa Engineering & Construction Co.Ltd.),		
15:00-15:20	ID: 35 Placement of FACTS Devices for Congestion Management- A Review madhavi gupta* (IFTM University),		
15:20-15:40	ID: 37 Automated Test Chamber for Indoor Photovoltaics Yannick Verbelen* (Vrije Universiteit Brussel),		
15:40-16:00	ID: 39 A comparative study of voltage gain tolerance in conventional and three-level LLC converters against circuit variation Hiroyuki Haga* (Shindengen Electric Manufacturing Co.), Hidenori Maruta (Nagasaki University), Fujio Kurokawa (Nagasaki University),		
16:00-16:20	COFFEE BREAK		
TRACK: Ener	gy Transformation from Renewable Energy System (RES) to Grid SESSION CHAIRS: William Hung , S. S. Dash		
16:20-16:40	ID: 231 Optimal Location Identification Of FACTS Devices Through Genetic Algorithm And The Network Structural Characteristics Techniques Isaiah ADEBAYO* (Tshwane University of Technology), M. Arun Bhaskhar (Tshwane University of Technology), Adedayo Yusuff (Tshwane University of Technology), Abdul-Ganiyu Jimoh (Tshwane University of Technology),		
16:40-17:00	ID: 122 Power Management of Grid Connected Hybrid Microgrid with Dual Voltage Source Inverter RAM YALLAMILLI* (Indian Institute of Technology Madras),		
17:00-17:20	ID: 230 Analysis and Experimental Investigation for Grid-Connected 10 kW Solar PV System in Distribution Networks PADUCHURI CHANDRA BABU NAIDU* (MITS), Dr.S.S DASH (SRM University), DR.RANJAN KUMAR BEHERA (IIT-PATNA), Dr.C SUBRAMANI (SRM University), Ramazan Bayindir (Gazi University),		
17:20-17:40	ID: 21 WindWEC: Combining Wind and Wave Energy, Inspired by Hywind and Wavestar Madjid Karimirad* (MARINTEK),		
17:40-18:00	ID: 276 Modeling and Simulation of a Static VAR Compensator based on FC-TCR Ali KOSE (Gazi University), Erdal Irmak* (Gazi University),		

Date: 22 Nov	ember 2016 - PM	HALL: GALLERY SEMINAR SUITES - II
TRACK: Rene	ewable (Green) Energy Systems and Sources (RESSs)	SESSION CHAIRS: Zhengyu Lin, Kazuhiro Kajiwara
14:20-14:40	ID: 48 The Investigation of a Segment Multi-Chamber Os Mohammad Shalby (University of Technology Sydney ), Pau of KwaZulu Natal),	cillating Water Column in Physical Scale Model Walker (University of Technology Sydney), David Dorrell* (University
14:40-15:00	ID: 52 Development of Magnetic Assist System in Flywh Jun-ichi Itoh (Nagaoka University of Tec.), Takumi Masuda* University of Technology), Tsuyoshi Nagano (Nagaoka University of Technology), Noboru Yamada (Nagaoka University of Technology),	eel Energy Storage System for Power Load-Leveling (Nagaoka University of Technology), Daisuke Sato (Nagaoka ersity of Technology), Takeo Suzuki (Nagaoka University of ology),
15:00-15:20	ID: 57 Suppression of Short-circuit Current in Halt Seque Regeneration Mode Tsuyoshi Nagano* (Nagaoka University of Technology), Jun	nce to StopTwo-level Inverter connected to PMSM during
15:20-15:40	ID: 62 Design of Swarm Intelligence Based Optimal Cont System Mehmet SENOL* (Istanbul Gelisim University), Haluk GOZD Ari (Çankırı Karatekin University),	roller to Direct Matrix Converter Used In Renewable Energy E (Gazi University), Cengiz Taplamacioglu (Gazi University), Murat
15:40-16:00		
16:00-16:20	CO	FEE BREAK
TRACK: Win	d Energy Conversion Systems	SESSION CHAIRS: AbdelGhani AISSAOUI, Brahim Metidji
16:20-16:40	ID: 181 Power Flow Control in Grid Connected Wind Farm Mohamed Benchagra* (University Hassan 1er),	n
16:40-17:00	ID: 244 Unity Power Factor Standalone Wind Battery Cha Brahim metidji* (IGEE), Rebiha metidji (LTII),	irger
17:00-17:20	ID: 33 Reliability optimization of wind farms considering Nacef TAZI* (University of Technology of Troyes),	) constraints and regulations
17:20-17:40	ID: 26 Wind Energy Potential and Economic Analysis of omar charrouf* (kasdi merbah university), achour betka (univ amar golea (university of Biskra),	WECS in Four Selected Locations in Algeria ersity of Biskra), abdelmalik taleb-ahmed (university of valenciennes),
17:40-18:00		

Date: 22 Nove	lovember 2016 - PM HALL: GALLERY	( SEMINAR SUITES - III
<b>TRACK: Cont</b>	Control Techniques for RESs SESSION CHAIRS: Mariacristina I	Roscia, Alfonso Damiano
14:20-14:40	0 ID: 182 CFD vs. XFOIL of Airfoil Analysis at Low Reynolds Numbers ONUR GUNEL* (Yildirim Beyazit University), Tahir Yavuz (Baskent University), EMRE KOC (Bas	kent University),
14:40-15:00	<ul> <li>ID: 148 Improving Power Generation Capability of The Surface Mounted Permanent Magnet</li> <li>Resonant Converter</li> <li>Muhammet Biberoglu* (Yalova University), Levent Ovacik (Istanbul Technical University),</li> </ul>	et Generator Using Series
15:00-15:20	ID: 313 The Design, Control and Dynamic Performance of an Interior Permanent Magnet S Wind Power System Olusegun Solomon* (Olriz Center),	ynchronous Generator for
15:20-15:40	<ul> <li>ID: 140 Expanding ZVS Range for Dual Active Bridge DC-DC Converter Using Three-level</li> <li>Topology</li> <li>Yoshiki Ikai* (Tokyo University of Science), Nobukazu Hoshi (Tokyo University of Science),</li> </ul>	Neutral-point-clamped Inverter
15:40-16:00	0	
16:00-16:20	0 COFFEE BREAK	
<b>TRACK: Sma</b>	mart Grid Systems and Security SESSION CHAIRS: Se	eref Sagiroglu, Huiqing Wen
16:20-16:40	<ul> <li>ID: 107 Surface Polarization Effect and Recovery Process of Crystalline-Si Photovoltaic M</li> <li>Simone Casula (Sardegna Ricerche), Malgorzata Gawronska (Sardegna Ricerche), Carla Sanna</li> <li>Damiano* (University di Cagliari),</li> </ul>	lodules (Sardegna Ricerche), Alfonso
16:40-17:00	0 ID: 29 An Investigation into the Technical Impacts of Microgeneration on UK-Type LV Distr Donald Azuatalam* (University of Sydney), Obinna Unigwe (University of Edinburgh), Pairach Kitv	r <b>ibution Networks</b> worawut (PEA Thailand),
17:00-17:20	ID: 157 A Comparison between Silicon Carbide Based Current Source Rectifier and Voltag Applications in Community DC Microgrid qianqian jiao* (UW-Milwaukee), Rasoul Hosseini (UW-Milwaukee), Robert Cuzner (UW-Milwaukee)	e Source Rectifier for
17:20-17:40	<ul> <li>ID: 306 Big Data Issues in Smart Grid Systems</li> <li>Seref SAGIROGLU* (Gazi University), Ramazan Terzi (Gazi University), yavuz canbay (gazi university),</li> </ul>	ersity), ILHAMI COLAK (Nisantasi
17:40-18:00	0 ID: 42 Sag-Tension Calculation Program for Power Substations Jorge Quintana* (Electrical Research Institute), Victor Garza (Electrical Research Institute),	

Date: 22 Nov	ember 2016 - PM HALL: GALLERY HOSPITALITY SUITE 18	
TRACK: Rene	ewable Energy Research and Applications for Industries SESSION CHAIRS: Khaled H. Ahmed, Milijana Odavic	
14:20-14:40	ID: 125 A Simulated Analysis of Zigzag-type DMFC Characteristics upon Varying the Electrode Form and Size Hiroaki Nagahama* (Tokyo University of Science),	
14:40-15:00	ID: 198 Evaluation of different maximum power point tracking techniques based on practical meteorological data Xingshuo Li (XJTLU), Huiqing Wen* (XJTLU), Yihua Hu (Liverpool Univeristy),	
15:00-15:20	ID: 195 A Reliability Evaluation Method for Distribution Networks Considering Passive Islanding Detection Failure YingHui NIE* (Southeast University), Wei Gu (Southeast University), JunPeng Zhu (Southeast university),	
15:20-15:40	ID: 256 Development of Composites Materials Based on Porous Microfibrous Carbon and Zinc Oxide for Energy Storage Applications Tarik Bordjiba* (Université 8 mai 1945), Bilel Bouguerne (Université 8 mai 1945), Ourida Mahmoudi (Université 8 mai 1945), Youcef Guetteche (Université 8 mai 1945), Ahcene Lemzadmi (Université 8 mai 1945)	
15:40-16:00	ID: 284 Off Grid PV System For Hydrogen Production Using Methanol Electrolysis With an Optimal management strategy Hammou TEBIBEL* (Centre de Développement des Energies Renouvelables),	
16:00-16:20	COFFEE BREAK	
16:00-16:20 TRACK; HVD	COFFEE BREAK C Transmission Systems SESSION CHAIRS: Khaled H. Ahmed, Grain Adam	
16:00-16:20 TRACK; HVD 16:20-16:40	COFFEE BREAK C Transmission Systems C Transmission Systems D: 36 Design and Loss Analysis of a Medium-Voltage DC-DC Converter Intended for Offshore Wind Farms Takushi Jimichi* (Mitsubishi Electric Corporation), Murat Kaymak (RWTH Aachen University), Rik W. De Doncker (RWTH Aachen University),	
16:00-16:20 TRACK; HVD 16:20-16:40 16:40-17:00	COFFEE BREAK           C Transmission Systems         SESSION CHAIRS: Khaled H. Ahmed, Grain Adam           ID: 36 Design and Loss Analysis of a Medium-Voltage DC-DC Converter Intended for Offshore Wind Farms           Takushi Jimichi* (Mitsubishi Electric Corporation), Murat Kaymak (RWTH Aachen University), Rik W. De Doncker (RWTH Aachen University),           ID: 143 Harmonic Distortion of LCC-HVDC and VSC-HVDC Link in Eskom's Cahora Bassa HVDC Scheme           Oluwafemi Oni* (UNIVERSITY OF KWAZULU-NATAL), Innocent Davidson (Durban University of Technology),	
16:00-16:20 <b>TRACK; HVD</b> 16:20-16:40 16:40-17:00 17:00-17:20	COFFEE BREAK           COFFEE BREAK           C Transmission Systems           SESSION CHAIRS: Khaled H. Ahmed, Grain Adam           ID: 36 Design and Loss Analysis of a Medium-Voltage DC-DC Converter Intended for Offshore Wind Farms           Takushi Jimichi* (Mitsubishi Electric Corporation), Murat Kaymak (RWTH Aachen University), Rik W. De Doncker (RWTH Aachen University),           ID: 143 Harmonic Distortion of LCC-HVDC and VSC-HVDC Link in Eskom's Cahora Bassa HVDC Scheme           Oluwafemi Oni* (UNIVERSITY OF KWAZULU-NATAL), Innocent Davidson (Durban University of Technology),           ID: 169 Grid Support Functionalities based on Modular Multilevel Converters with Synchronous Power Control           Cristian Verdugo* (Universitat Politècnica de Catalunya), Jose Ignacio Candela (Universitat Politècnica de Catalunya), Pedro Rodriguez (Abengoa Research),	
16:00-16:20 <b>TRACK; HVD</b> 16:20-16:40 16:40-17:00 17:00-17:20 17:20-17:40	COFFEE BREAK           COFFEE BREAK           C Transmission Systems           SESSION CHAIRS: Khaled H. Ahmed, Grain Adam           ID: 36 Design and Loss Analysis of a Medium-Voltage DC-DC Converter Intended for Offshore Wind Farms           Takushi Jimichi* (Mitsubishi Electric Corporation), Murat Kaymak (RWTH Aachen University), Rik W. De Doncker (RWTH Aachen University),           ID: 143 Harmonic Distortion of LCC-HVDC and VSC-HVDC Link in Eskom's Cahora Bassa HVDC Scheme           Oluwafemi Oni* (UNIVERSITY OF KWAZULU-NATAL), Innocent Davidson (Durban University of Technology),           ID: 169 Grid Support Functionalities based on Modular Multilevel Converters with Synchronous Power Control           Cristian Verdugo* (Universitat Politècnica de Catalunya), Jose Ignacio Candela (Universitat Politècnica de Catalunya), Pedro Rodriguez (Abengoa Research),           ID: 235 Controlled Transition Bridge Multilevel Converter           Grain Adam* (University of Strathclyde),	

Date: 22 November 2016 - PM HALL: GALLERY HOSPITALITY SUITE 17		
<b>TRACK : Ren</b>	wewable (Green) Energy Systems and Sources (RESSs) SESSION CHAIRS: Grain Adam, Parnjit Damrongkulkamjorn	
14:20-14:40	ID: 126 Design of Multiple Airfoil HAWT Blade using MATLAB Programming Farhan Javed* (DTU), Salman Javed (DTU), Taha Bilal (DTU), Vikas Rastogi (DTU),	
14:40-15:00	ID: 129 Optimal Sizing for Stand Alone Power Generating System with Wind-PV-Hydro Storage by Mixed-Integer Linear Programming Surachai Waiwong (Kasetsart University), Parnjit Damrongkulkamjorn* (Kasetsart University),	
15:00-15:20	ID: 136 Waste tea derived activated carbon/polyaniline composites as supercapacitor electrodes Isil Gurten Inal* (Ankara University), Yavuz Gokce (Ankara University), Zeki Aktas (Ankara University),	
15:20-15:40	ID: 161 A Distributed Controller for DC Microgrids Stability Enhancement Marzieh Karami* (University of Wisconsin-Milwaukee), Robert Cuzner (University of Wisconsin-Milwaukee),	
15:40-16:00		
16:00-16:20	COFFEE BREAK	
TRACK: Rene	ewable (Green) Energy Systems and Sources (RESSs) SESSION CHAIRS: Nobumasa Matsui, Erdal Irmak	
16:20-16:40	ID: 346 A Review of Data Mining and Solar Power Prediction Mehmet Yesilbudak* (Nevsehir Haci Bektas Veli University), Medine Colak (Gazi University), Ramazan Bayindir (Gazi University),	
16:40-17:00	ID: 332 Implementation of Hybrid Energy Storage Systems to Compensate Microgrid Instability in the Presence of Constant Power Loads Ramazan Bayindir (Gazi University), Eklas Hossain* (Oregon Tech), Ron Perez (2University of Wisconsin-Milwaukee),	
17:00-17:20	ID: 275 The Analysis of Wind Speed Potential and Energy Density in Ankara Orhan KAPLAN (Gazi University), Murat Temiz* (Gazi University Faculty of Technology Department of Electrical & Electronic Engineering),	
17:20-17:40	ID: 80 Stability Analysis of an Offshore Wind Farm Connected to Turkish Electricity Transmission System Şevki Demirbas* (Gazi University), Ramazan Bayindir (Gazi University), ahmet ova (Turkish ElectricityTransmission Company), Umut Cetinkaya (Turkish ElectricityTransmission Company), Merden Yesil (Turkish ElectricityTransmission Company),	
17:40-18:00	ID: 321 DESIGN AND APPLICATION OF A NOVEL SINGLE INPUT – MULTI OUTPUT DC/DC CONVERTER Naki Guler (Gazi University), Erdal Irmak* (Gazi University)	

POSTER SESSION-1 (22 November 2016 TUESDAY, 12:20-14:20) HALL: GALLERY BREAKOUT AREA
TRACK SESSION CHAIRS: Kazuhiro Kajiwara, Harun Turker, Massimo Caruso
ID: 61 Performance Improvement of Direct Torque Control for Doubly Fed Induction Generator with 12 Sector Methodology Alaa AlQuteimat* (Technical University of Berlin), Uwe Schaefer (Technical University of Berlin), alessandro roccaforte (Politecnico di Torino),
ID: 272 Application of Vanadium Redox Flow Battery to Grid Connected Microgrid Energy Management Jongwoo Choi* (ETRI), Wan-Ki Park (Electronics and Telecommunications Research Institute), Ilwoo Lee (Electronics and Telecommunications Research Institute),
ID: 366 Speed Control of Tubular Linear Induction Motors for Industrial Automated Applications Rosario Miceli* (University of Palermo), Giovanni Agnello (University of Palermo), Massimo Caruso (University of Palermo), Vincenzo Di Dio (University of Palermo), Claudio Nevoloso (University of Palermo), Ciro Spataro ("University of Palermo),
<b>ID: 175 Fast Convergence and Linear Modeling of Adaptive Cascaded Delayed Signal Cancellation -PLL</b> Yingpin Wang* (South China University of Technology), Yunxiang Xie (South China University of Technology), Zhiwu Zeng (South China University of Technology), Xiaoyu Zhang (South China University of Technology), Lanfang Li (Electric Power Research Institute Guangdong power grid co.), Xiaogang Xu (Electric Power Research Institute Guangdong power grid co.),
ID: 177 Online Evaluation Tool for Potential Application and Recommendation of Electric Vehicles Ourania Kontopoulou* (Ruhr-University Bochum), Philip Dost (Ruhr-University Bochum), Philipp Spichartz (Ruhr-University Bochum), Christoph Degner (Ruhr-University Bochum), Constantinos Sourkounis (Ruhr-University Bochum),
ID: 91 Voltage Stability Index - A Review madhavi gupta* (IFTM University),
ID: 100 Simple PWM strategy of a Matrix Conveter for Reducing Output Voltage Harmonics Kazuki Nohara* (Nagoya Institute of Technology), Takaharu Takeshita (Nagoya Institute of Technology),
ID: 199 Modeling and Analysis of Coordinated Control Strategies in AC Microgrid Huiqing Wen* (XJTLU), Huan Yu (XJTLU), Yihua Hu (Liverpool Univeristy),
ID: 201 Low-Voltage Distribution Network Reconfiguration Consiering High Penetration of Electric Vehicles - A UK Case Study Zhi Qiao (Aston University), Jin Yang* (Aston University),
ID: 295 Analyzing the Influences of High Frequency Transformers Utilized in Parallel Resonant Converters Muhammet Biberoglu* (Yalova University), Taha Gücin (University of Yalova), Bekir FINCAN (Istanbul Technical University),
ID: 318 Review of Electric Motors for Grid Connected Integrated Battery Chargers in Electric Vehicle Applications Harun TURKER* (Haute École d'Ingénierie et d'Architecture de Fribourg / TH Smart Grid Expertise & Consulting),
ID: 319 Design Optimization of an Interior Permanent Magnet Synchronous Machine (IPMSM) for Electric Vehicle Application Harun TURKER* (Haute École d'Ingénierie et d'Architecture de Fribourg / TH Smart Grid Expertise & Consulting),
ID: 283 Performance of a V-trough photovoltaic system Wisam Al-Shohani* (University of Birmingham), Raya AL-Dadah (University of Birmingham), Saad Mahmoud (University of Birmingham), Abdulmaged Algareu (University of Birmingham),
ID: 160 Single-phase Power Conditioning System with Slew-Rate Controlled Synchronizer for Renewable Energy System in Microgrid Sewan Heo* (Electronics and Telecommunications Research Institute), Wan-Ki Park (Electronics and Telecommunications Research Institute), Ilwoo Lee (Electronics and Telecommunications Research Institute),
ID: 351 Modeling of a Multi-Megawatt Grid Connected PV System with Integrated Batteries Dan lonel* (University of Kentucky), Vandana Rallabandi (Univeristy of Kentucky), Oluwaseun Akeyo (University of Kentucky),
ID: 367 Experimental Characterization of a Wind Generator Prototype for Sustainable Small Wind Farms Rosario Miceli* (University of Palermo), Massimo Caruso (University of Palermo), Antonino Oscar Di Tommaso (University of Palermo), Giuseppe Ricco Galluzzo (University of Palermo), Ciro Spataro ("University of Palermo), Fabio Genduso (University of Palermo), Fabio Viola (Università di Palermo),
ID: 194 Lead-acid battery behavior study and modelling based on the Kinetic Battery Model Approach Abdou Tankari Mahamadou* (University of Paris Est Creteil), Nouhou Bako Zeinabou (University of Paris Est Creteil), Lefebvre Gilles (University of Paris Est Creteil), Amadou S.H. Maiga (EITER Laboratory),
ID: 173 Managed Hybrid Power Supply System for Telecom Equipment Dipanka Sarmah* (Centre for Development of Telematics), Amit Karna (Centre for Development of Telematics), Sridharan B (Centre for Development of Telematics),
ID: 252 Optimal Load Balancing Strategy for Hybrid Energy Management System in DC Microgrid with PV, Fuel Cell and Battery Storage Sneha Mane* (VJTI),
ID: 109 PCA analysis of distributed temperature sensing data from an asphalt field J. Birgitta Martinkauppi* (University of Vaasa), Anne Makiranta (University of Vaasa), Erkki Hiltunen (University of Vaasa),

POSTER SESSION-1 (22 November 2016 TUESDAY, 12:20-14:20) HALL: GALLERY BREAKOUT AREA		
TRACK SESSION CHAIRS: Kazuhiro Kajiwara, Harun Turker, Massimo Caruso		
D: 363 PV Systems in the Vertical Walls: a Comparison of Innovative Structures osario Miceli* (University of Palermo), Gianluca Acciari (University of Palermo), Alessandro Busacca (University of Palermo), Antonino Imburgia Jniversity of Palermo), Antonino Madonia (University of Palermo), Eleonora Riva Sanseverino (University of Palermo), Pietro Romano (Universit f Palermo), Giuseppe Schettino (University of Palermo), Ciro Spataro ("University of Palermo), Fabio Viola (Università di Palermo), Ganesh auba (DNVGL), Saverio Guarino (University of Palermo), Antonino Parisi (University of Palermo),		
ID: 163 A non-intrusive magnetic energy scavanger for renewable power generation state monitoring Wei Jiang (Yangzhou University), Jingying LU (Yangzhou University), Fulong Li* (Aston University), Seiji Hashimoto (Yangzhou University), Zhengyu Lin (Aston University),		
D: 178 LCL-Filter design for a battery charger based on buck converter (DCDC converter) Frol Sanal* (Power Systems Technology and Power Mechatronics), Philip Dost (Ruhr-University Bochum), Constantinos Sourkounis (Ruhr- Jniversity Bochum),		
ID: 338 Application of Regression Models on Hydropower Plants Richard Kyung* (CRG),		
ID: 56 Available Transfer Capability Calculation Using PTDF and Implementation of Optimal Power Flow in Power Markets Arun Bhaskar Mayilvaganan* (Tshwane University of Technology), Jimoh Adisa A (Tshwane University of Technology),		
ID: 269 Optimal Tracking, Modeling and Control of Aerogenerator Based on PMSG Driven by Wind Turbine SAAD LADIDE*(Université Caddi Ayyad), Hicham HIHI (Université Caddi Ayyad),		
D: 180 Model for Smart Appliances toward Smart Grid into Smart City Mariacristina Roscia* (University of Bergamo), Cristian Lazaroiu (Politechnic University of Bucharerst)		
ID: 372 Sliding Mode torque control of an induction motor for automotive application with sliding Mode flux observer Rosario Miceli* (University of Palermo), Salvatore Alagna (University of Palermo), Giovanni Cipriani (University of Palermo), Mattia Corpora (University of Palermo), Vincenzo Di Dio (University of Palermo)		
ID: 368 Lead Acetate Based Hybrid Perovskite through Hot Casting for Planar Heterojunction Solar Cells WONGYU CHOI* (Donkook University),		

# November 23, 2016

Date: 23 Nove	vember 2016 HALL:	
08:30-17:00	Registration	
ORAL PRESE	ENTATIONS	
Date: 23 Nove	rember 2016 - AM HALL: GALLERY SEMINAR SUITES - I	
TRACK: Rene	newable (Green) Energy Systems and Sources (RESSs) SESSION CHAIR: Lisa Bosman, Mangal Dhend	
09:00-09:20	ID: 164 Difficulties and Recommendations for More Accurately Predicting the Performance of Solar Energy Systems during the Snow Season Lisa Bosman* (College of Menominee Nation), Seth Darling (Argonne National Laboratory),	S
09:20-09:40	ID: 192 Hybrid Renewable Energy System based on Intelligent Optimization Techniques Katheryn Donado Mercado (Universidad del Norte), Christian G. Quintero M.* (Universidad del Norte),	
09:40-10:00	ID: 184 Research of Several Reference Current Extracting Methods in Time Domain Lanfang Li (Electric Power Research Institute Guangdong power grid co.), Yingpin Wang* (South China University of Technology), Xiaogang Xu (Electric Power Research Institute Guangdong power grid co.), Yunxiang Xie (South China University of Technology), Zhiwu Zeng (South China University of Technology), Xiaoyu Zhang (South China University of Technology),	
10:00-10:20	ID: 263 Fault Diagnosis Methodology in Smart Grid with Distributed Energy Generation Mangal Dhend* (AISSMS College of Engg), Rajan Chile (SGGS College of Engineering and technology),	
10:20-10:40	ID: 336 Thermodynamic Analysis of Alane and Borane Clusters for Hydrogen Storage Richard Kyung* (CRG),	
10:40-11:00	COFFEE BREAK	
TRACK: Nove	rel Energy Conversion Studies for RESs SESSION CHAIR: Takaharu Takeshita, Melike Ayaz	
11:00-11:20	ID: 203 Solution to Network Usage Allocation Problem in Power Networks Akintunde Alayande* (Tshwane University of Technology), Abdul-Ganiyu Jimoh (Tshwane University of Technology), Adedayo Yusuff (Tshwane University of Technology),	
11:20-11:40	ID: 213 MATLAB Simulink modeling of Photovoltaic Cells for understainding shadow effect Masud Rana Rashel* (University Of Evora),	
11:40-12:00	ID: 238 A BLDC Motor Drive with Four Switch Three Phase Inverter Şafak Ekmen* (Istanbul Technical Unversity), Bekir Fincan (Istanbul Technical University), Murat Imeryuz (Istanbul Technical University),	
12:00-12:20	ID: 245 A New Approach of Optimum Energy Scheduling of Emergency Generators Using Linear Programing in a Lau Hospital Yuji Mizuno* (Nagasaki Institute of Applied Science), Nobumasa Matusi (Nagasaki Institute of Applied Science), Yoshito Tanak (Nagasaki Institute of Applied Science), Fujio Kurokawa (Nagasaki University),	ı <b>rge</b> ıka
12:40-14:00	LUNCH BREAK	
12:20-14:20	Poster Session	

Date: 23 Nove	ember 2016 - PM	HALL: GALLERY SEMINAR SUITES - I
<b>TRACK: Nove</b>	I Energy Conversion Studies for RESs	SESSION CHAIRS: Zhengyu Lin, Orhan Kaplan
14:20-14:40	ID: 170 A Common-Mode Leakage Current Mit T-type- NPC-MLI bharatiraja C* (SRM University - kattangulathur C (Gazi University), Mohd Tariq (NTU Singapore),	igation for PV- Grid Connected Three-Phase Three-Level Transformerless ampus), Munda Lange (Tshwane University of Technology), Ramazan Bayindir
14:40-15:00	ID: 197 Unified Harmonics Based Method to R Haochen Shi (XJTLU), Huiqing Wen* (XJTLU), J	educe Reactive Power of the Dual Active Bridge Converter ie Chen (XJTLU), Yihua Hu (Liverpool Univeristy),
15:00-15:20	ID: 208 A Modified MPPT Algorithm with Integ Fulong Li (Aston University), Muhannad Alsharee University),	rated Active Power Control for PV-Battery Systems (Aston University), Zhengyu Lin* (Aston University), Wei Jiang (Yangzhou
15:20-15:40	ID: 278 Automatic voltage and reactive power Riccardo Campaner (University of Trieste), Mass Centre (ERC) UCD School of Electrical), Giorgio	control in distribution systems: dynamic coupling analysis miliano Chiandone* (University of Trieste), Federico Milano (Electricity Research Sulligoi (University of Trieste),
15:40-16:00	ID: 20 Research and Development of High-Eff Missions at Osaka Institute of Technology Hirokazu Tahara* (Osaka Institute of Technology)	iciency and High-Performance Electric Rocket Engines for Future Space
16:00-16:20	COFFEE BREAK	

Date: 23 Nove	ember 2016 - AM HALL: GALLERY SEMINAR SUITES - II	
TRACK: Cont	rol Techniques for RESs SESSION CHAIRS: Youcef Soufi, Quan Li	
09:00-09:20	ID: 259 A New Method for Tracking the Global Maximum Power Point for Grid-Connected PV System under Partially Shaded Conditions Murat ÜNLÜ* (Kocaeli University), Sabri ÇAMUR (Kocaeli University), Ersoy BEŞER (Kocaeli University), Birol ARİFOĞLU (Kocaeli University),	
09:20-09:40	ID: 286 Effectively Paralleling GaN FETs to achieve Ultra-high Efficiency in an Isolated DC-DC Converter Rakesh Ramachandran* (University of Southern Denmark), Morten Nymand (University of Southern Denmark),	
09:40-10:00	ID: 359 Optimal control based RST controller for Maximum Power Point Tracking of Wind Energy Conversion System Youcef Soufi* (University Larbi Tébessi), Sami Kahla (Centre de Recherche en Technologies Industrielles CRTI), Bechouat Mohcene (Department of Electronic and Telecommunication),	
10:00-10:20	ID: 87 A Study on Undesired Case of Unlicensed PV Power Plants in Turkey with regard to DSO Atakan Akgün* (Enerjisa-Başkent EDAŞ), Seyit Cem Yılmaz (Enerjisa-Başkent EDAŞ), Mahmut Erkut Cebeci (EPRA),	
10:20-10:40	ID: 171 Design of ZVS based High Gain DC-DC Converter for PV Applications Manoj B Anurag (IIT Bhubaneswar), Sai Thrinath Gunda (IIT Bhubaneswar), Srinivas Karanki* (IIT Bhubaneswar), Ram Yallamilli (Indian Institute of Technology Madras),	
10:40-11:00	COFFEE BREAK	
TRACK: Rene	wable (Green) Energy Systems and Sources (RESSs) SESSION CHAIRS: Fabio Viola, Aristides Kiprakis	
11:00-11:20	ID: 113 Maximizing Investment Value of Small-Scale PV in a Smart Grid Environment Jeremy Every* (University of Technology Sydney), Li Li (University of Technology Sydney), David Dorrell (University of KwaZulu Natal), Youguang Guo (University of Technology Sydney),	
11:20-11:40	ID: 41 Optimal Operational State Scheduling of Wind Turbines for Lower Battery Capacity in Renewable Power Systems in Islands Jeonghun Song* (Seoul National University), Seung Jin Song (Seoul National University), Si-Deok Oh (Blue Economy Strategy Institute Co. Ltd.), Yungpil Yoo (Blue Economy Strategy Institute Co. Ltd.),	
11:40-12:00	ID: 68 Policies and Strategies for Renewable Energy Development in Indonesia Yogi Alwendra* (Center for Data and Information Technology of Indonesian Ministry of Energy and Mineral Resources-PUSDATIN ESDM), Oetomo Winarno (Center for Energy Policy Studies Institute of Technology Bandung (ITB)), Sugeng Mujiyanto (PUSDATIN ESDM),	
12:00-12:20	ID: 232 Wind Energy Allocation Strategies for Long-Term Contracts in Open Energy Markets Genaro Longoria* (TSSG), Lei Shi (TSSG), Alan Davy (TSSG), Dingde Jiang (Northeastern University),	
12:40-14:00	LUNCH BREAK	
12:20-14:20	Poster Session	

Date: 23 Nove	ember 2016 - PM HALL: GALLERY SEMINAR SUITES - II	
<b>TRACK: Rene</b>	wable (Green) Energy Systems and Sources (RESSs) SESSION CHAIRS: Haruhi Eto, Medine Colak	
14:20-14:40	ID: 358 Interior Permanent Magnet Synchronous Motors: Impact of the Variability of the Parameters on their Efficiency Rosario Miceli (University of Palermo), Massimo Caruso (University of Palermo), Antonino Oscar Di Tommaso (University of Palermo), Claudio Nevoloso (University of Palermo), Ciro Spataro* ("University of Palermo), Fabio Viola (Università di Palermo),	
14:40-15:00	ID: 49 Wells Turbine with Booster - Effect of Guide Vanes on the Performance- Miah Md Ashraful Alam* (National Institute of Technology), Manabu Takao (National Institute of Technology), Akiyasu Takami (National Institute of Technology), Yoichi Kinoue (Saga University), Shiya Okuhara (National Institute of Technology), Toshiaki Setoguchi (Saga University),	
15:00-15:20	ID: 150 Improving Long Line Stability by Integrating Renewables Using Static Synchronous Generators Mostafa Abdollahi* (Universitat Politècnica de Catalunya (UPC) · BarcelonaTech), Jose Ignacio Candela (Universitat Politècnica de Catalunya), Joan Rocabert (Universitat Politècnica de Catalunya (UPC) · BarcelonaTech), Raul S. Muñoz (Universitat Politècnica de Catalunya (UPC) · BarcelonaTech), Juan R. Hermoso (Universitat Politècnica de Catalunya (UPC) · BarcelonaTech),	
15:20-15:40	<b>ID: 221 Synchronous Power Controller Merits for Dynamic Stability Improvement in Long Line by Renewables</b> Mostafa Abdollahi* (Universitat Politècnica de Catalunya (UPC) · BarcelonaTech), Jose Ignacio Candela (Universitat Politècnica de Catalunya), Joan Rocabert (Universitat Politècnica de Catalunya (UPC) · BarcelonaTech), Raul S. Muñoz (Universitat Politècnica de Catalunya (UPC) · BarcelonaTech), Juan R. Hermoso (Universitat Politècnica de Catalunya (UPC) · BarcelonaTech),	
15:40-16:00	ID: 40 Wind Power Electrical Systems Integration and Technical and Economic Analysis of Hybrid Wind Power Plants Tahir Yavuz (Baskent University), Özhan KIYMAZ* (AVİKON),	
16:00-16:20	COFFEE BREAK	

Date: 23 Nov	ember 2016 - AM HALL: GALLERY SEMINAR SUITES - III	
<b>TRACK: Pow</b>	er Quality Improvement for RES SESSION CHAIR: Samir Moulahoum, Hidenori Maruta	
09:00-09:20	<b>ID: 15 Supervisory Control for Sectored Distributed Generation During Load Shedding in Lebanon's Power Grid</b> Pamela Horkos* (University of Balamand), Maged B. Najjar (University of Balamand), Abdulmenhem Alameddine (University of Balamand), Balamand),	
09:20-09:40	ID: 246 Hybrid Fuzzy Logic-Artificial Neural Network Controller for Shunt Active Power Filter abderrahmen benyamina (Research Laboratory LREA), Samir Moulahoum* (University of Medea), RAMAZAN BAYINDIR (GAZ UNVERSITY), ILHAMI COLAK (Nisantasi University),	
09:40-10:00	ID: 172 Novel Unified Power Quality Conditioner (UPQC) of Two DC Links Connected with Resistor Xiaogang Xu (Electric Power Research Institute Guangdong power grid co.), Yingpin Wang* (South China University of Technology), Lanfang Li (Electric Power Research Institute Guangdong power grid co.), Yunxiang Xie (South China University of Technology), Xiaoyu Zhang (South China University of Technology), Zhiwu Zeng (South China University of Technology),	
10:00-10:20	ID: 218 Current Harmonics Mitigation using Modular Multilevel Converter-based Shunt Active Power Filter Amr Madi (Arab Academy for Science), Mostafa Hamad* (Arab Academy for Science), Khaled Ahmed (University of Aberdeen),	
10:20-10:40	ID: 274 Multilevel converter system for photovoltaic panels Luciano Calaça* (University of Madeira),	
10:40-11:00	COFFEE BREAK	
TRACK: Ener	rgy Savings for Vehicular Technology, Power SESSION CHAIRS: Yoshitaka NAKANISHI, Zhengyu Lin	
11:00-11:20	ID: 320 Parked Electric Vehicle's Cabin Temperature Management Using Photovoltaic Powered Ventilation Mohan Kolhe* (University of Agder (Norway)),	
11:20-11:40	ID: 294 Characteristics evaluation of various types of PV modules in Japan and U.S. Kazuhiko Oda (NTT Facilities), Keiichiro Hakuta* (NTT Facilities), Yosuke Nozaki (NTT Facilities), Yuzuru Ueda (Tokyo University of Science),	
11:40-12:00	ID: 333 Implementation of Unit Commitment Algorithm: A Comprehensive Droop Control Technique to Retain Microgrid Stability Halil bulbul* (Gazi University), Nazmus Sakib (Khulna University of Engineering & Technology), Jakir Hossain (Khulna University of Engineering ), Eklas Hossain (Oregon Tech), Ramazan Bayindir (Gazi University),	
12:00-12:20	ID: 24 Bio-inspired Shaft Seal in Coolant Pump for Electric Vehicles Yoshitaka NAKANISHI* (Unknown), Takuro Honda (Kumamoto university), Yuta NAKASHIMA (Kumamoto University), Keisaku NAKANO (Panasonic Corporation), Kenji KONDO (Panasonic Corporation), Hidehiko HIGAKI (Kyushu Sangyo University),	
12:40-14:00	LUNCH BREAK	
12:20-14:20	Poster Session	

Date: 23 Nove	ember 2016 - PM	HALL: GALLERY SEMINAR SUITES - III
<b>TRACK: Futur</b>	re Challenges and Directions for RESSs	SESSION CHAIRS: Tadashi Suetsugu, Melike Ayaz
14:20-14:40	ID: 343 Hedging Quantity Risks of Power Plants with Standard Power Options haitao xiang* (Tsinghua University), zhe zhou (Tsinghua University),	
14:40-15:00	ID: 19 Electrochemical synthesis and characterization of inexpensive Ni-Cu and Ni-CeO2-Cu as Fuel Cell Electrode to Produce Clean Renewable Energy from Ethanol Sujit Guchhait* (Jadavpur University), Subir Paul (Jadavpur University),	
15:00-15:20	ID: 38 Utilization of waste cooking oil as an alternative fuel for Turkey Ridvan Arslan* (Uludag University), Yahya Ulusoy (Uludag University),	
15:20-15:40	ID: 176 Application of Multi-Port Solid State Transformers for Microgrid-Based Distribution Systems Adel Nasiri* (University of Wisconsin Milwaukee), Mohammad Rashidi (UWMilwaukee-n), Robert Cuzner (UW-Milwaukee),	
15:40-16:00	ID: 254 Basic Characteristics of Active Clamp Resonant SEPIC Circuit Yudai Furukawa (Nagasaki University), Shunsuke Tsuruoka* (Nagasaki University), SATOSHI IKEDA (Panasonic), Fujio Kurokawa (Nagasaki University),	
16:00-16:20	ID: 193 Reliability Analysis of Wave Energy Con Markus Mueller* (University of Edinburgh),	verters
16:00-16:20	COFFEE BREAK	

Date: 23 Nove	ember 2016 - AM HALL: GALLERY HOSPITALITY SUITE 18		
<b>TRACK: Cont</b>	rol Techniques for RESs SESSION CHAIRS: Arif Wani, Daniel Foito		
09:00-09:20	ID: 285 Improving Stability of Switching Power Supply with Digital Peak Current Mode Control Yudai Furukawa (Nagasaki University), Shintaro Nibu* (Nagasaki University), Fujio Kurokawa (Nagasaki University), Ilhami Colak (Nisantasi University),		
09:20-09:40	ID: 348 Control of A Small Wind Turbine System Application Ilhami Colak * (Nisantasi University), Abdelkader Harrouz (University of Draïa), Korhan KAYISLI (Nisantasi),		
09:40-10:00	ID: 361 Experimental Analisys with FPGA Controller-based of MC PWM Techniques for Three-phase Five Level Cascaded H-bridge for PV Applications Rosario Miceli* (University of Palermo), Salvatore Benanti (University of Palermo), Concettina Buccella (University of L'Aquila), Massimo Caruso (University of Palermo), Vincenzo Castiglia (University of Palermo), Carlo Cecati (University of L'Aquila), Antonino Oscar Di Tommaso (University of Palermo), Pietro Romano (University of Palermo), Giuseppe Schettino (University of Palermo), Fabio Viola (Università di Palermo),		
10:00-10:20	ID: 325 Cluster Based Approach For Mining Patterns To Predict Wind Speed Arif Wani* (University of Kashmir),		
10:20-10:40	ID: 63 Local and Centralized control strategy for Capacitor Voltage Balancing of Modular Multilevel Converter Cristian Verdugo* (Universitat Politècnica de Catalunya), Jose Ignacio Candela (Universitat Politècnica de Catalunya), Pedro Rodriguez (Abengoa Research),		
10:40-11:00	COFFEE BREAK		
TRACK: Rene	ewable (Green) Energy Systems and Sources SESSION CHAIRS: Seref Sagiroglu, Rabin Dhakal		
11:00-11:20	ID: 353 MATLAB/GUI Based Wind Turbine Generator Types on Smart Grid Systems Melike Ayaz* (Gazi University), Ilhami Colak (Nisantasi University), Ramazan Bayindir (Gazi University)		
11:20-11:40	ID: 156 Meeting Frequency Response Requirements with Uncertain System Inertia - A UK Perspective K Forkasiewicz* (National Grid), M Coldwel (National Grid)I, A Cross (Aston University), D Strickland (Aston University)		
11:40-12:00	ID: 330 Determining the Most Appropriate Spinning Reserve Depending on Demand Mehmet Rıda TUR* (Mardin Artuklu University), Ali Erduman (Hakkari University), Abdulfetah Shobole (Yildiz Technical University), Mohammed Wadi (Yildiz Technical University),		
12:00-12:20	ID: 55 High Frequency Resonant SEPIC Converter with Small Turn-On Current Noises SATOSHI IKEDA* (Panasonic), Yudai Furukawa (Nagasaki University), Shunsuke Tsuruoka (Nagasaki University), Fujio Kurokawa (Nagasaki University),		
12:40-14:00	LUNCH BREAK		
12:20-14:20	Poster Session		

Date: 23 Nove	ember 2016 - PM	HALL: GALLERY HOSPITALITY SUITE 18
<b>TRACK: Cont</b>	rol Techniques for RESs	SESSION CHAIRS: William Hung, Haruhi Eto
14:20-14:40	ID: 64 Friction welding of lightweight motor shafts for electric vehic Tetsuya Akiyama (Akiyama Manufacturing Co.), Takuro Honda*(Kumamo Yoshitaka NAKANISHI (Kumamoto University),	c <b>les</b> oto University),
14:40-15:00	ID: 78 Distribution Network Reconfiguration in Smart Grid System U Inji Atteya* (Aston University), Nagi Fahmi (Aston University), Dani Strick Hamdy Ashour (Arab Academy for Science and Technology),	Jsing Modified Particle Swarm Optimization dand (Aston University),
15:00-15:20	ID: 96 Conducted Noise Reduction on AC/DC Converter using SiC-N Hidetoshi Tanaka* (Nagoya Institute of Technology), Kazuma Suzuki (Na Wataru Kitagawa (Nagoya Institute of Technology), Takaharu Takeshita	<b>MOSFET</b> agoya Institute of Technology), (Nagoya Institute of Technology),
15:20-15:40	ID: 101 Electric Power Leveling of the Microgrid System with PV Power Generation Estimation and Power Demand Estimation Hiroshi Awata* (Tokyo University of Science),	
15:40-16:00	ID: 127 Comparison of Converter Arrangement of Series and Shunt Masamichi Kano* (Nagoya Institute of Technology), Takuya Maekawa (N (Nagoya Institute of Technology), Yasuyuki Kunii (Chubu Electric Power	Converters in UPFC for Distribution System Control lagoya Institute of Technology), Takaharu Takeshita Co.),
16:00-16:20	COFFEE BREAK	

Date: 23 Nove	ember 2016 - AM	HALL: GALLERY HOSPITALITY SUITE 17
TRACK: Energy Savings for Vehicular Technology, Power SESSION CHAIRS: Huiqing Wen, J. Birgitta		
09:00-09:20	ID: 8 An Economic Analysis of a Geothermal Drilling Operation İbrahim Ermiş* (General Directorate of Mineral Research and Exploration),	
09:20-09:40	ID: 10 Alternative Renewable Energy Producing Systems by Utilizing Piezoelectric Transducers Ali Ekber Ozdemir (Ordu University), Sibel Akkaya Oy* (Ordu University),	
09:40-10:00	ID: 11 Usage of Piezoelectric Material and Generating Electricity Sibel Akkaya Oy* (Ordu University), Ali Ekber Ozdemir (Ordu University),	
10:00-10:20	ID: 53 Comparison of Qblade and CFD Results for Small-Scaled Horizontal Axis Wind Turbine Analysis Emre Koc* (Baskent University), Onur Gunel (Yildirim Beyazit University), Tahir Yavuz (Baskent University),	
10:20-10:40	ID: 76 Simulated Thermal Response Test for Ground Heat Storage Hafiz Haq (University of Vaasa), J. Birgitta Martinkauppi* (University of Vaasa), Erkki Hiltunen (University of Vaasa), Timo Sivula (University of Vaasa),	
10:40-11:00	COFFEE BREAK	
TRACK: Control Techniques for RESs SESSION CHAIR: Ridvan Arslan, Harun TURKER		
11:00-11:20	ID: 82 Averaged Model of Modular Multilevel Converter in Rotating DQ frame ashok nampally* (University of Aberdeen), Yashwant Sinha (Robert Gordon University),	
11:20-11:40	ID: 207 Modular Multilevel Converter Modulation Using Fundamental Switching Selective Harmonic Elimination Method ashok nampally* (University of Aberdeen), Yashwant Sinha (Robert Gordon University),	
11:40-12:00	ID: 282 A Signal Reforming Algorithm Based Three-Phase PLL Under Unbalanced Grid Conditions Fahmid Sadeque (Bangladesh University of Engineering and Technology (BUET)), Md. Shamim Reza* (Bangladesh University of Engineering and Technology (BUET)), Md. Maruf Hossain (University of Wisconsin-Green Bay),	
12:00-12:20	ID: 258 Linearized DQ Averaged Model of Modular Multilevel Converter ashok nampally* (University of Aberdeen), Yashwant Sinha (Robert Gordon University),	
12:40-14:00	LUNCH BREAK	
12:20-14:20	Poster Session	

Date: 23 Nov	rember 2016 - PM	HALL: GALLERY HOSPITALITY SUITE 17
<b>TRACK: Dist</b>	ributed Generation Resources	SESSION CHAIR: Subhransu Sekhar Dash
14:20-14:40	ID: 250 Energy Management of Multi-carrier Smart Buildings for Integrating Local Renewable Energy Systems Giuseppe Paternò* (Engineering Ingegneria Informatica S.p.A.), Diego Arnone (Engineering Ingegneria Informatica S.p.A.), Alessandro Rossi (Engineering Ingegneria Informatica S.p.A.), Vincenzo Croce (Engineering Ingegneria Informatica S.p.A.), Salvatore Emma (University of Palermo), Rosario Miceli (University of Palermo), Antonino Oscar Di Tommaso (University of Palermo),	
14:40-15:00	ID: 297 A Modified Module Integrated - Interleaved Boost Converter for Standalone Photovoltaic (PV) Applications Sridhar R* (SRM University), Somashree Pathy (SRM), Dr. C Subramani (SRM University), Nikita Hari (CAMBRIDGE), Dr. S.S Dash (SRM University),	
15:00-15:20	ID: 293 Integration of Renewable Energy Resources in Off Grid System Using Three Port Zeta Converter Ilambirai R.C. (SRM University), Chellamal N (SRM University), Dr.S.S Dash* (SRM University),	
15:20-15:40	ID: 229 Implementation of an Adaptive Control Strategy for Solar Photo Voltaic Generators in Microgrids with MPPT and Energy Storage Rajesh K.S.* (SRM University), Dr.S.S Dash (SRM University), Ramazan Bayindir (Gazi University), Sridhar R ((SRM University), Ragam Rajagopal (VIT),	
15:40-16:00	ID: 271 Decision-Support Model for Battery Energy Storage System Inclusion in Grid-Connected PV Systems for Medium Voltage Applications nisrine kebir* (Mohammedia School of Engineers), Mohamed Maaroufi (Mohammedia School of Engineers),	
16:00-16:20	COFFEE BREAK	

POSTER SESSION-1 (23 November 2016 TUESDAY, 12:20-14:20) HALL: GALLERY BREAKOUT AREA TRACK SESSION CHAIR: V. Fernao Pires, Helmut Weiss, Tadashi Suetsugu ID: 196 Control Method for Flyback based submodule Integrated Converter with Differential Power Processing Structure Guanying Chu (XJLTU), Huiqing Wen\* (XJTLU), Yihua Hu (Liverpool Univeristy), ID: 298 Photovoltaic Cell Electrical Heating System for Removing Snow on Panel Including Verification Agnes Weiss (BG+BRG Leoben), Helmut Weiss\* (Montanuniversitaet Leoben), ID: 307 High Safety Photovoltaic Insular Power Supply System Employing Re-Used Lithium-Ion Cells Agnes Weiss\* (BG+BRG Leoben), Herbert Ziegerhofer (Montanuniversitaet Leoben), ID: 342 Measuring Rain Energy with the Employment of "Arduino" Fabio Viola\* (Università di Palermo), Gianluca Acciari (University of Palermo), Rosario Miceli (University of Palermo), Pietro Romano (University of Palermo), Luca Riggi (University of Palermo), Massimo Caruso (University of Palermo), Giuseppe Schettino (University of Palermo), ID: 337 Absorption Enhancement in the Metamaterials Employing Surface Plasmon Polariton(SPP) Richard Kyung\* (CRG), ID: 345 Study design of photovoltaic pumping system for the water supply of an agricultural diversity Yassaad Abdelbaki\* (abdelbaki), ID: 305 Technical and Economic Prospects for the Site Implementation of a Gravitational Water Vortex Power Plant In Nepal Rabin Dhakal\* (Tribhuvan University), S.J Williamson (University of Bristol), Kshitiz Khanal (Kathmandu University), Binod Babu Kumal (Central Campus Pulchowk), Abhash Acharya (Central Campus Pulchowk), Anil Nepal (Central Campus Pulchowk), Tara Aryal (Central Campus Pulchowk), Laxmi Devkota (Budhi Gandaki Hydro Power Development Committee), ID: 369 Enhanced rate capability and cycle performance of titanium substituted P2-type Na0.67Fe0.5Mn0.5O2 asa cathode for sodiumion batteries Jun-gi PARK\* (Dankook University), ID: 370 Preparation of Lithium-Doped Na2Ti3O7 by solid-state method and its electrochemical performances Da Ye YOON\* (Dankook University), ID: 146 Designing a piezoelectric energy harvester using clicking mechanism Jeong Hun Kim (Hanyang University), Sung Joo Hwang (Hanyang University), Yewon Song (Hanyang University), Chan Ho Yang (Hanyang University), Min Sik Woo (Hanyang University), Gyeong Ju Song (Hanyang University), Tae Hyun Sung\* (Hanyang University), ID: 206 Interfacing of Regulator And Rectifier Unit With Solar Charge Controller For Optimal Utilization of Solar Power On Railway Coaches Dr Amruth Thelkar\* (JIT), Balaji Veerasamy (Jimma Institute of Technology), Tefera Mekonnen (JIT), Mohammed Ahmmed (JIT), Abraham Alem (JIT), Aberra Jote (JIT), ID: 260 Hybrid PV-UPS System with Multilevel Structure of Power Converters and Reliability Improvment V. Fernao Pires\* (ESTSetubal/IPS), Carlos Vieira (ESTSetúbal/IPS), ID: 261 Bidirectional Boost/Buck Quadratic Converter for Distributed Generation Systems with Electrochemical Storage Systems Daniel Foito\* (ESTSetubal - IPS), V. Fernao Pires (ESTSetubal/IPS), Armando Cordeiro (ISEL - IPL), ID: 328 Maximum Power Point Tracker with Solar Prioritizer in Photovoltaic Application Subash Gautam\* (Acme Engineering College), Debendra Bahadur Raut (Acme Engineering College), Rabin Dhakal (Tribhuvan University), Prabesh Neupane (Central Campus), Dhan Prasad Ghale (Tribhuvan University), ID: 329 Management, Optimal Sizing and Technical-Economic Analysis of Batteries for Constant Production in Photovoltaic Systems Harun TURKER\* (Haute École d'Ingénierie et d'Architecture de Fribourg / TH Smart Grid Expertise & Consulting), ID: 4 A Review of Community Electrical Energy Systems D. Strickland (Aston University), M Abedi Varnosfederani (Aston University), J Scott (Aston University), A Duran (EA Technology), P Quintela (e2E) R Bravery (City of Wolverhampton Council), A Corliss (Encraft), K Ashworth (Encraft), S Blois-Brooke (Encraft) ID: 322 JIC (Jubail Industrial College) Green Initiative money benefits Mohammed ALEid\* (Jubail Industrial College), Fouad Zayadin (Jubail Industrial College), Mohammed Abdul Baseer (Jubail Industrial College), Shareef Al-Shekshaky (Jubail Industrial College), Zarshad Zarshad (Jubail Industrial College),

# **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 and candidates for selected papers to be endorsed to IEEE Transactions on Power Electronics, IEEE Transactions on Industrial Applications, International Journal of Renewable Energy Research and Environmental Science and Pollution Research.

## Internet:

Wireless Internet access will be available conference saloon and halls.

# **General Information**

## Venue:

The National Exhibition Centre (NEC), Birmingham, UK

http://www.thenec.co.uk

Address: North Ave, Birmingham B40 1NT, United Kingdom

Phone: +44 121 780 4141

## Welcoming Party (November 20, 2016 Hours: 18:00-20:00)

The National Exhibition Centre (NEC), Birmingham, UK

http://www.thenec.co.uk

Address: North Ave, Birmingham B40 1NT, United Kingdom

Phone: +44 121 780 4141

## Direction:



## Gala Dinner (November 22, 2016 Hours: 19:00-21:30)

Aston Villa Football Club - 1874 Suite

Adress : Aston Villa Hospitality and Events Department

Villa Park, Birmingham, B6 6HE

## www.avfc.co.uk

## The participant will transfer by bus from the National Exhibition Centre at 18:30.

