2nd
# I&CPS

Industrial and
Commercial
Power Systems
Europe

18th
# EEEIC

International
Conference on
Environment and
Electrical Engineering

# 2018

## FINAL PROGRAM 2018

**CAMPUS OF THE**
**UNIVERSITY OF PALERMO**
June 12th | 15th

www.eeeic.net

# WELCOME MESSAGE FROM **GENERAL CHAIRS**

*Dear colleagues ,*

On behalf of the organizing committee, we are honored and delighted to welcome you to the **18th IEEE International Conference on Environment and Electrical Engineering** in Palermo, Italy. We truly believe we have chosen a venue that will guarantee a successful technical conference amid the culture and scenery of this beautiful City.

We would like to acknowledge the technical sponsorships of three IEEE International Societies: the Electromagnetic Compatibility Society (EMC), the Industrial Application Society (IAS), and the Power and Energy Society (PES). We would also like to express our sincere gratitude to IAS for the generous financial support.

For the second year, we also have the privilege to host the **2nd edition of the Industrial & Commercial Power System Europe Conference**. The Industrial & Commercial Power System Department is one of the four department of IAS, whose scope is the advancement of the theory and practice of engineering as it relates to design and management of electrical power systems. These joined conferences have become one of the major events of the IEEE in Europe, and currently represent one of the largest gatherings of researchers and industry professionals in the world.

With more than 500 attendees from all around the world, our conference represents a unique opportunity for researchers, academics, engineers, and experts to present and exchange the latest information on the exciting and stimulating fields of electrical technology, energy, environmental engineering, smart grid, building automation, storage, e-mobility, etc.

Our technical program is rich and varied, with numerous technical oral sessions, as well as poster sessions each day.

We know that the success of a conference ultimately depends on the many people who have worked in planning and organizing both the technical program and supporting social arrangements. We therefore recognize the hard work of all the Chairs involved in the organization of a successful conference.

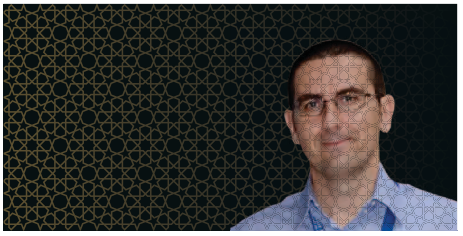
We hope that all the attendees will have a memorable and enjoyable time in this cosmopolitan city.

# WELCOME MESSAGE FROM **GENERAL CHAIRS**

Energy engineering with all its interests and applications, is nowadays one of the most continuously evolving field of research.
The union of power systems with communication systems is transforming our systems: smart buildings, smart grids, smart mobility, smart cities. The systems are becoming safer and more efficient. To avoid adverse effects on environment represents a formidable challenge for scientists and engineers who are constantly called to provide economic and sustainable solutions for technological progress.

In this framework, the conference sessions will cover fundamental aspects of
• sustainable and renewable energy production
• energy storage
• smart grids management
• smart buildings
• energy conversion
• sustainable transport systems
• EMC control in lightning and grounding systems
• novel materials and nanotechnology.

Palermo, the conference venue, is the one of the most beautiful and important cities in the world, capital and heart of the incredible kingdom of Federico II, with a history rich in centuries of contamination and culture, unique in the world. It's a city immersed in the perfumes of the Mediterranean, with an ancient university and it is one of the most active cultural centers.But it is also a thriving cosmopolitan business capital with more than 26 centuries of history and heritage. Furthermore, food and wine are excellent because there are masters of culinary art.
We are sure that all the participants will have a memorable and enjoyable time in Palermo.



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# WELCOME MESSAGE FROM **LOCAL CHAIRS**

*Dear Attendees,*
on behalf of the Organizing Committee we are glad and honoured to welcome Authors and Participants to the 18th IEEE International Conference on Environment and Electrical Engineering and to the 2nd IEEE Industrial and Commercial Power Systems Europe Conference which take place in Palermo (Italy).
First of all we would like to acknowledge the University of Palermo for hosting all the conference's sessions, guaranteeing both historical and contemporary locations, perfect synthesis of ancient and modern; the plenary session will be held at Palazzo Chiaramonte – Steri, one of the most important historical palaces in Palermo, in the old city and house of the Rector's office; all technical session will be held at the Campus of University of Palermo, in a modern and innovative building, heart of the student's life.
The rich and intensive scientific program will be joined by an interesting social program.

A walk tourist tour will allow to discover Palermo's cultural riches, in particular Arab-Norman monuments designated as UNESCO World Heritage Site; a welcome cocktail will give the opportunity to enjoy "Palazzo Fatta", an ancient residence, and his charming terrace; a gala dinner in a fascinating and delightful site: the Botanical Garden of the University of Palermo, an "en plein air museum".
Our acknowledgements to the General Chairs, for having contributed with their experience in the supervision of all aspects of the Conference, and to all Colleagues and to the Local Organizing Committee who have contributed in the Conference's organization and will provide for managing the event.
We sincerely wish that all participants will enjoy the Conference, taking the chance to exchange technical and scientific experiences in a profitable and stimulating way, and experiencing Palermo, its history, its monuments, its atmosphere, its sun and food; a multicultural city whose history teaches that a dialogue between peoples and a peaceful coexistence are possible.
Wishing a pleasant and memorable stay in Palermo, we look forward to meeting you during the event.

*Sincerely*

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# WELCOME MESSAGE FROM **TP CHAIRS**

Dear authors and attendees of the **18th IEEE International Conference on Environment and Electrical Engineering**, and of the **2nd edition of the IEEE Industrial and Commercial Power Systems Europe Conference**: welcome!!!
This year conference again received the technical co-sponsorship of three worldwide renowned IEEE societies: Electromagnetic Society (EMC), Industrial Application Society (IAS), and Power and Energy Society (PES), along with the technical and the financial support of the IEEE Italy Section.
The Organizing Committee has planned and designed this edition with in mind the goal to ensure enriching technical and professional networking opportunities.
Four days of technical multi-track oral and poster sessions include the presentations of top-rated peer-reviewed papers by experts of Universities and the Industry. Special sessions have brought in a record number of technical papers on important and current topics. Poster Sessions for PhD students and undergraduate students have been arranged to encourage their active participation to the conference.
We would like to sincerely welcome you to IEEE EEEIC18 and I&CPS Europe Conference and look forward to meeting you during the event, which we hope will be a memorable experience.

*Enjoy the conference! Best Regards*

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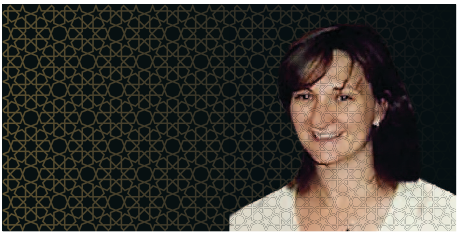

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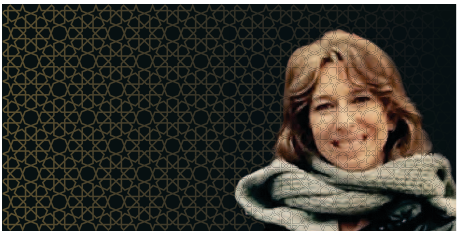

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EEEIC is an international forum for the exchange of ideas and information on energy systems both today and in the future. The conference provides a unique opportunity for industry to interact directly with university researchers, manufacturers and distributors of energy equipment and to discuss a wide variety of topics related to energy systems and environmental issues. The conference is technically and financially sponsored and organized by IEEE Italy Section.

The scope of the Conference is to promote a forum, where researchers and engineers involved with electrical power systems may exchange their experiences and present solutions found for present and future problems. The conference offers prominent academia and industrial practitioners from all over the world the forum for discussion about the future of electrical energy and environmental issues and presents a base for identifying directions for continuation of research.

The Conference has been technically co-sponsored by IEEE since 2008. Accepted and orally presented papers are submitted to IEEE Xplore, and will also be submitted for indexing through INSPEC®, EI's engineering information index, COMPENDEX®, and ISI Thomson's scientific and technical proceedings®, ISTP®/ISI proceedings. The conference proceedings have been indexed by Scopus since 2010 and by Web of Science (Thomson Reuters) since 2013.

EEEIC 2017 is the 17th annual conference, making it one of the largest, longest-running, professional networking and educational event of its kind in Europe. The 17th edition will be held Milan, Italy. Since 2015 the conference is fully sponsored by IEEE.

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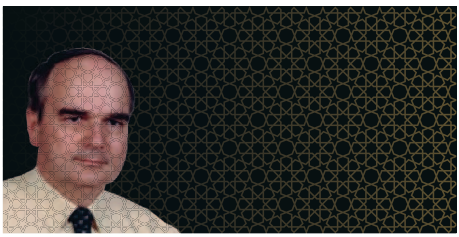

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## SPONSORS & PARTNERS

**ENEA** is the name for Italian National Agency for New Technologies, Energy and Sustainable Economic Development. Itis the second major Italian research organization, with around 2700 staff employees distributed in its 9 research centers all over the national territory. The Agency's activities are mainly focused on Energy Efficiency, Renewable Energy Sources, Nuclear Energy, Climate and the Environment, Safety and Health, New Technologies, Electric System Research.

This activity has received funding from the European Institute of Innovation and Technology (EIT), a body of the European Union, under the Horizon 2020, the EU Framework Programme for Research and Innovation

**ABB** is a pioneering technology leader that is writing the future of industrial digitalization. For more than four decades, we have been at the forefront, innovating digitally connected and enabled industrial equipment and systems. Every day, we drive efficiency, safety and productivity in utilities, industry, transport and infrastructure globally. With a heritage spanning more than 130 years, ABB operates in more than 100 countries and employs around 132,000 people.

**AEIT** Society For Information and Communications Technology (AICT). The "AEIT – Italian Association of Electrical, Electronics, Automation, Information and Communication Technology" was established on 1 January 1897 with the original name of "Italian Electrical Association" and from 1 November 2013, following a referendum social, assumed the current name. Then AIIT – the Italian Association of Telecommunications Engineers, founded in 1962 merged into AEIT . Since 1910, per Royal Decree, AEIT received the recognition of "non-profit organization".

## PATRONAGE

UNIPA2018
L'UNIVERSITÀ PER LA CULTURA

UNIVERSITÀ DEGLI STUDI DI PALERMO

Città di Palermo

## OFFICIAL BANK

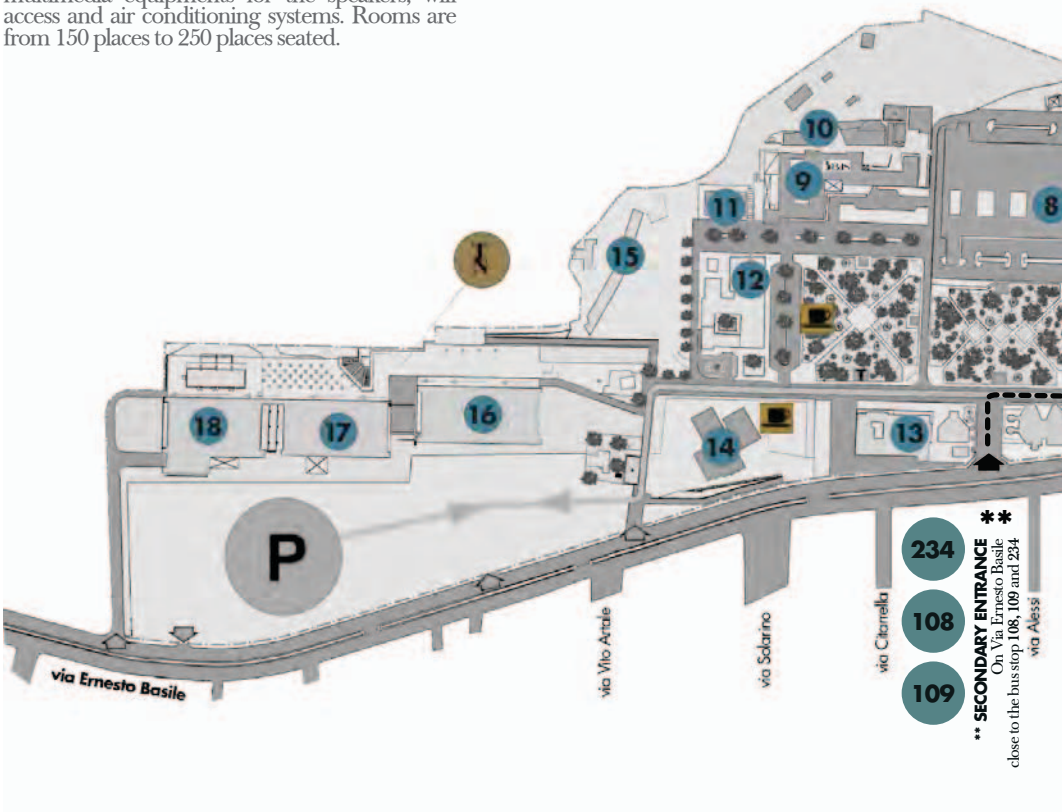
BANCA POPOLARE DI BARI

## CAMPUS OF THE UNIVERSITY OF PALERMO

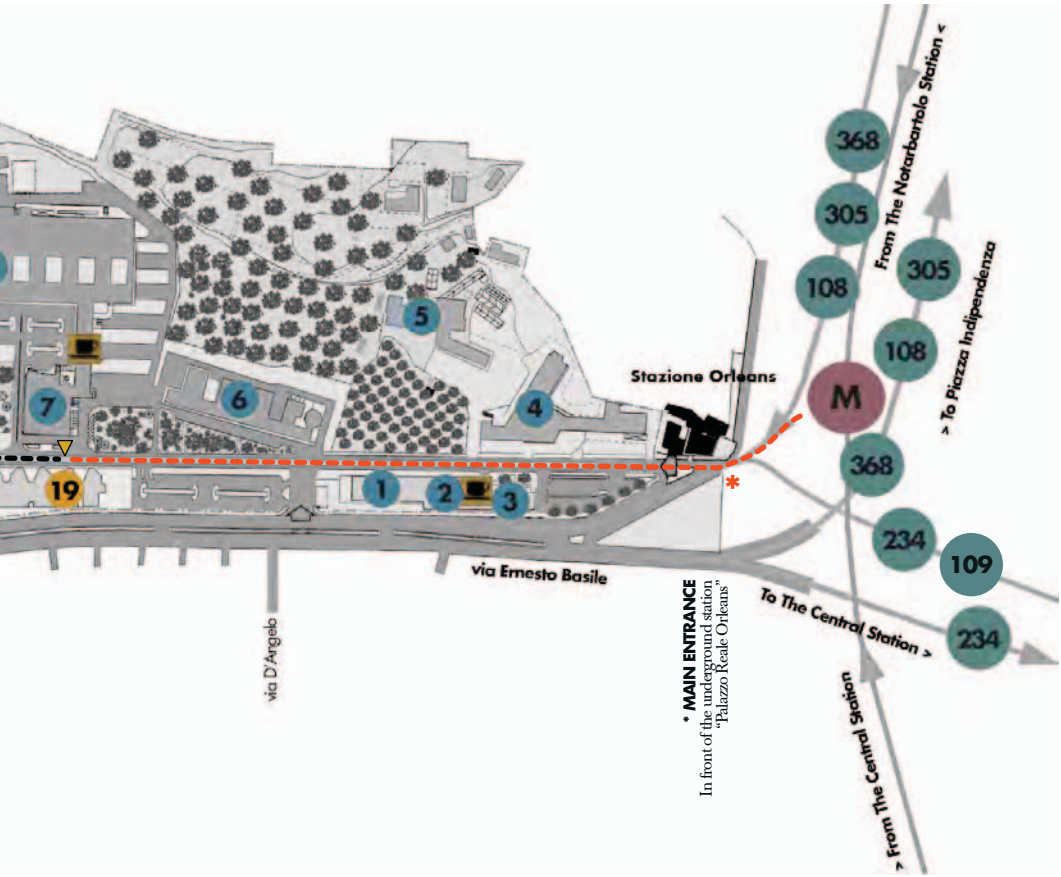
**Viale delle Scienze, Building 19**
**90128 - Palermo, Italy**

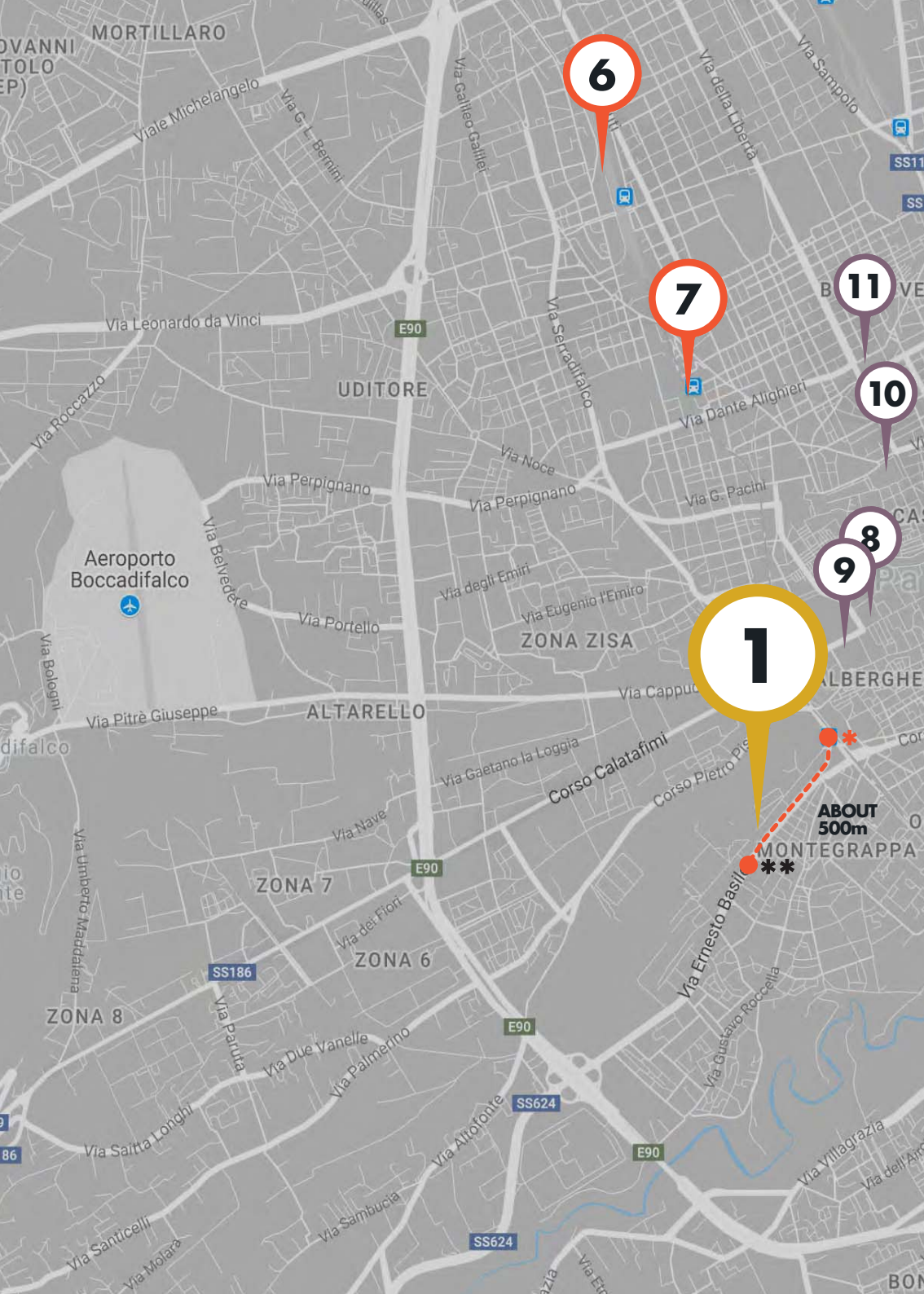
The main conference rooms are located in the University Campus at the teaching complex (Complesso Didattico), **Building 19**.

The Campus of the University of Palermo comprises several departments and is characterized by the presence of beautiful gardens, car parks and various services for students, teachers and guests. The teaching complex is the newest building of the campus, realized in 2003, and offers seven rooms for the conference, with all the multimedia equipments for the speakers, wifi access and air conditioning systems. Rooms are from 150 places to 250 places seated.



PEDESTRIAN PATH FROM THE BUS STOP (About 50m)
PEDESTRIAN PATH FROM THE UNDERGROUND STATION (About 500m)

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ABOUT
500m
MORTILLARO
Viale Michelangelo
Via G. L. Bernini
Via Galileo Galilei
Via della Libertà
Via Sampolo
SS11
Via Leonardo da Vinci
E90
UDITORE
Via Roccazzo
Via Serradifalco
Via Dante Alighieri
Via Noce
Via Perpignano
Via Perpignano
Via G. Pacini
Aeroporto
Boccadifalco
Via Belvedere
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Via Pitrè Giuseppe
ALTARELLO
Via Cappuc
Corso Calatafimi
Corso Pietro Pie
Via Gaetano la Loggia
Via Nave
E90
ZONA 7
Via dei Fiori
ZONA 6
SS186
ZONA 8
Via Paruta
Via Due Vanelle
Via Palmerino
E90
Via Ernesto Basile
Via Gustavo Roccella
MONTEGRAPPA
SS624
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E90
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Via Salita Longhi
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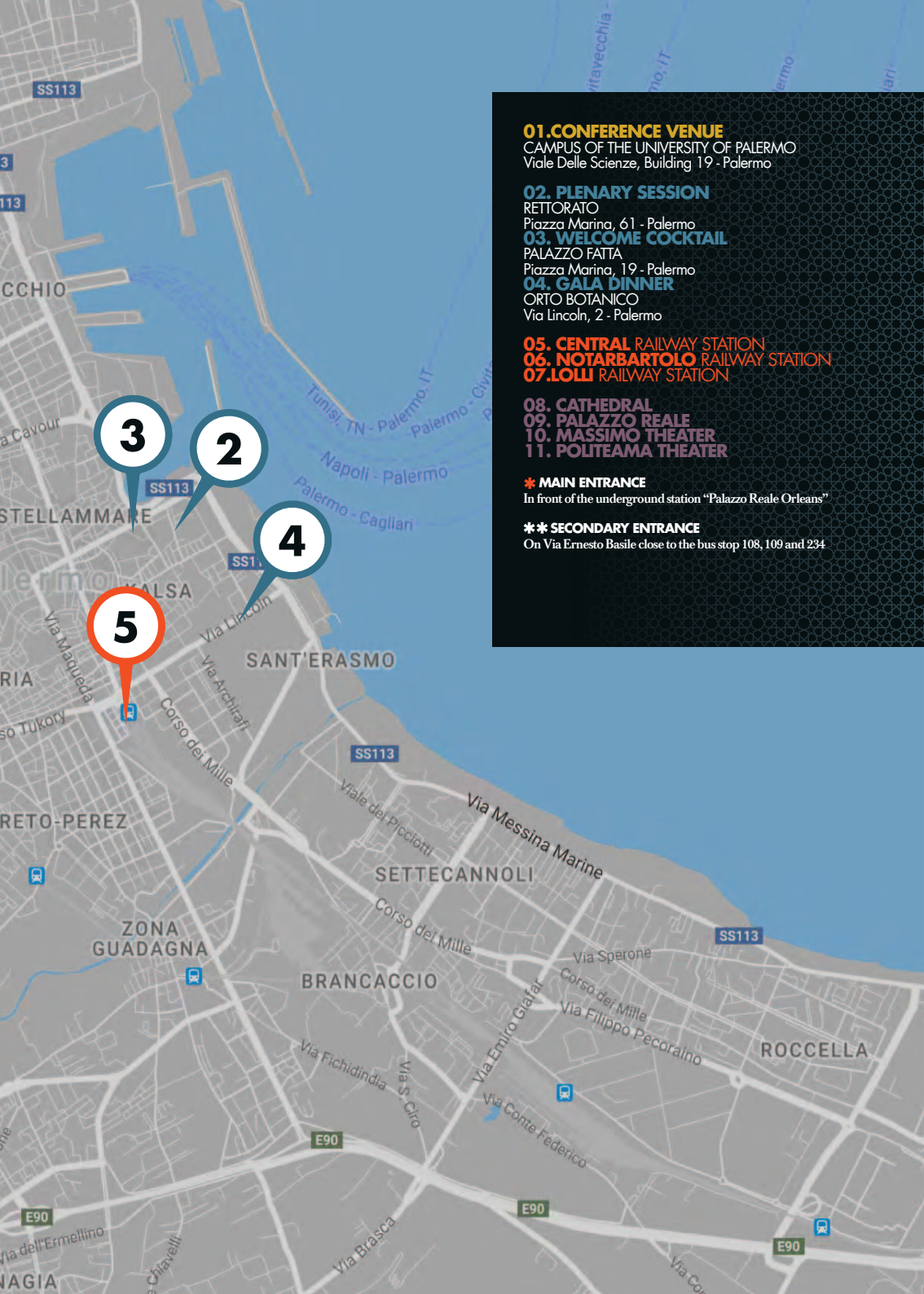



**01.CONFERENCE VENUE**
CAMPUS OF THE UNIVERSITY OF PALERMO
Viale Delle Scienze, Building 19 - Palermo

**02. PLENARY SESSION**
RETTORATO
Piazza Marina, 61 - Palermo
**03. WELCOME COCKTAIL**
PALAZZO FATTA
Piazza Marina, 19 - Palermo
**04. GALA DINNER**
ORTO BOTANICO
Via Lincoln, 2 - Palermo

**05. CENTRAL** RAILWAY STATION
**06. NOTARBARTOLO** RAILWAY STATION
**07.LOLLI** RAILWAY STATION

**08. CATHEDRAL**
**09. PALAZZO REALE**
**10. MASSIMO THEATER**
**11. POLITEAMA THEATER**

* **MAIN ENTRANCE**
In front of the underground station "Palazzo Reale Orleans"

** **SECONDARY ENTRANCE**
On Via Ernesto Basile close to the bus stop 108, 109 and 234

## PLENARY SESSION
### Palazzo Chiaramonte-Steri (1)

Palazzo Chiaramonte-Steri is one of the most important historical palaces in Palermo.
It is located at Piazza Marina, a square in the historic centre of the city, known for the biggest Ficus macrophylla in Europe.
The palace was built starting from 1307 and, originally, was the house of the Chiaramonte family, from which it took the name. In the 15th century the palace became the house of the Sicilian viceroys; later it was home to the Royal Customs and, from 1600 to the end of the 18th century, it housed the Holy Inquisition Tribunal.
Palazzo Chiaramonte-Steri was restored in the 20th century and since 1984 is the most famous building of the University of Palermo, house of the Rector's office and of the famous painting "La Vucciria" by Renato Guttuso.

*www.musei.unipa.it/steri.html*

(1) Palazzo Chiaramonte-Steri

## COCKTAIL
### Palazzo Fatta (2)

Philological and cartographic information, combined with ancient and recent findings in the subsoil adjacent to the area where the palace stands, lead to the hypothesis that part of this is based on very ancient structures that, in all probability, were part of the defense Arab city. After the internal harbor had been built up to the sixteenth century, due essentially to the detritus brought by the Kemonia and Papireto streams, the so-called "Navy Plan" was formed, an urban void that has remained largely unpublished to this day. The first urbanization in the Palazzo area can be dated between the 16th and 17th centuries, when the cartography began to represent some constructions along the western side of the Plan. It was an aggregation of buildings of modest size and architectural quality, which gradually became organized in courtly residences thanks to urban regulations that allowed the acquisition of houses and warehouses for the sole purpose of creating buildings and improving the quality of the city. We know of a seventeenth-century Domus Magna, which had already belonged to noble families and was enlarged several times, which was further enriched in 1731-1733 when the new owner, Lucio Denti of Piraino, Prince of Castellazzo, raised and unified the existing factories; he added on the free head a large terrace on arched portico, able to give the building a strong architectural characterization and a comfortable view of the Navy Floor, a place for party shows, but also for the horrific public executions.
The chronicles of the time refer to how Viceroy was repeatedly invited to attend the street demonstrations. Salvatore Calderone, baron of Baucina, bought the palace in 1769, embellishing it with those works of great value that can still be admired today, especially the dance hall, called "the Gallery".
This was decorated with a basque panel decorated with rococo motifs, large painted overlays within complex golden baroque frames and majolica floors produced in Naples, as well as other rooms, from the living room adjacent to the alcove, also equipped with painted paintings. For the ceiling of the gallery Antonio Manno was called, considered the most successful pupil of Vito D'Anna in those years that failed; he created and signed a striking decorative arrangement composed of the central scene within an elegant stucco and gold frame in which the virtues of the family were exalted, surrounded by compartments with allegorical themes and architectural elements.

The autograph sketch of the work has recently been found, which we know served at Manno to obtain the much desired admission at the Accademia di San Luca in Rome and the subsequent appointment as an Academician. It is due to Francesco and Giovanni Fatta, barons of the Fratta, who came into possession of the building in 1857, the configuration of the current volume, resulting from the completion of the third floor and recomposition according to a unified design of the elevations: iconographies of the mid-nineteenth century show with all evidence the presence of two building units recognizable in autonomous architectural characters. The need for renewal imposed the replacement of shelves, railings, frames, exhibitions and other baroque elements with the simple and pure lines of the neoclassical taste that had long established itself in the city. The new altimetric layout of the square, designed by G. B. F. Basile, forced the closing of the high portico under the terrace. Lastly, Ernesto Basile's interventions of 1908 can be considered significant, both in the reconfiguration of the entrance hall where they can still admire ferrate, posters, stained glass and coffered ceiling, and in the finishes of the large well staircase. Recent restoration interventions have allowed us to rediscover and reproduce the polychrome of the exteriors that the maintenance of a century had hidden, but not canceled: from the white stucco of the upper floors, to the rich gray-blue stucco on the ground floor, to the azure lapis lazuli all The interior of the rosettes that decorate the facade above the terrace are all elements that, with the measured elegance of the shapes, contribute to the qualification of the urban surroundings.

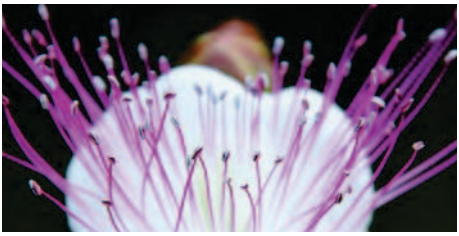
## GALA DINNER
### The Botanical Garden (3)

The Botanical Garden of the University of Palermo is one of the most important academic institutions in Italy.
Considered a huge open-air museum, it boasts over two hundred years of activity that allowed it to be studied in Sicily, Europe and across the Mediterranean sea, of countless plant species, many of which originate in tropical and subtropical regions .
The peculiarity of this Garden is today represented by the great richness of host species that make it a very rich place of different flora expressions.
It is part of the Museum System Services Center of the University of Palermo.

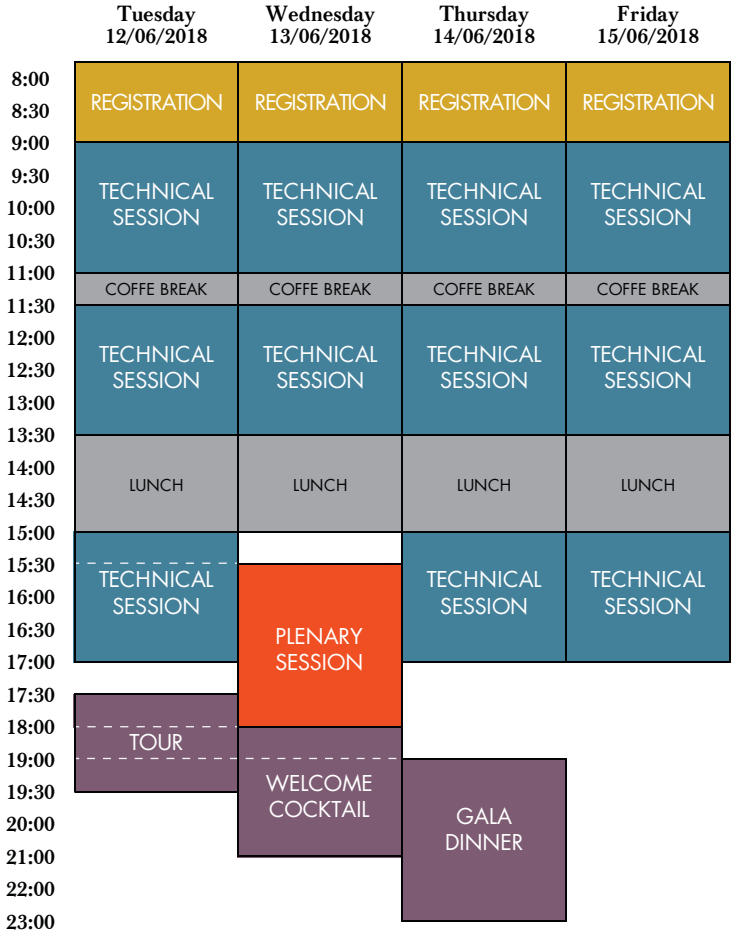
*www.ortobotanico.unipa.it*

(2) Palazzo Fatta

(3) The Botanical Garden



**PROGRAM**
SUMMARY SCHEME



PLENARY SESSION
**TALKS MODERATOR**

MODERATOR
**Professor Osama A. Mohammed Energy**
Systems Research Laboratory
**Department of Electrical and Computer**
**Engineering Florida International University**
Miami, Florida USA
*mohammed@fiu.edu*
*www.energy.fiu.edu*

**Dr. Osama Mohammed** is the Associate Dean of Research and Professor of Electrical and Computer Engineering and Director of the Energy Systems Research Laboratory at Florida International University, Miami, Florida, USA. He received his Master and Doctoral degrees in Electrical Engineering from Virginia Tech in 1981 and 1983, respectively. He has performed research on various topics in computational electromagnetics and energy systems including design optimization and physics based modeling in electric drive systems, electromagnetic signatures, wideband gap devices, power electronics, ship power and energy and other low frequency environments. Professor Mohammed is a world renowned leader and has active research projects in these areas. He also has current research interest in smart grid distributed control and interoperability and energy cyber physical systems for future energy systems applications and transportation electrification.

Professor Mohammed has published nearly 700 articles in refereed journals and other major IEEE refereed international conference records. He also authored a book and several book chapters. Professor Mohammed is an elected Fellow of IEEE and is an elected Fellow of the Applied Computational Electromagnetic Society. Professor Mohammed is the recipient of the prestigious IEEE Power and Energy Society Cyril Veinott electromechanical energy conversion award and the 2012 outstanding research award, and the 2017 outstanding doctoral mentor award from Florida International University. Professor Mohammed has lectured extensively with invited keynote and plenary talks at major research and industrial organizations worldwide.

He has served or currently serving as editor of several IEEE Transactions. He has served as the International Steering Committee Chair for the IEEE (IEMDC), the IEEE Conference on Electromagnetic Field Computation (CEFC), and COMPUMAG. Professor Mohammed has been General Chair of eight major international conferences in his areas of research expertise in addition being general chair for two future IEEE major conferences. He has further been Technical program chair for five major IEEE International Conferences. He has also served on various IEEE Boards, society technical committees, working groups.

**Prof. Massimo Bongiorno**
Full professor
**Chalmers University**

## CHALLENGES AND OPPORTUNITIES IN POWER-ELECTRONIC DOMINATED GRIDS

**Massimo Bongiorno** received the M.Sc. degree in electrical engineering from the University of Palermo, Italy, in April 2002, and the Lic.Eng. and Ph.D. degree from Chalmers University of Technology, Gothenburg, Sweden, in December 2004 and September 2007, respectively. From 2007 to 2010, he was an Assistant Professor at the Department of Electric Power Engineering, Chalmers University of Technology, where he became an Associate Professor in 2010. Since 2015, he has been holding the position of Professor in power electronic applications for power systems. He is the research leader for the profile Electricity for Societal Development within the Chalmers Area of Advance Energy. Since 2018, he is also part-time employed at the ABB Corporate Research Center in Västerås, Sweden. His research interests include application of power electronics in power systems, converters control, power systems dynamics and power quality. He is a Senior Member IEEE and has authored about 100 scientific papers in international journals and conferences.

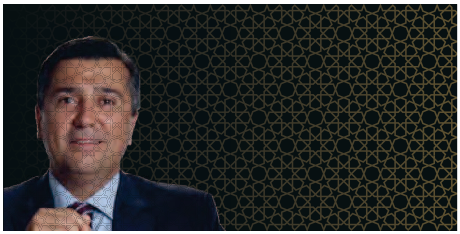
**Eng. Paolo Perani**
Strategic Business Development Manager
**ABB S.p.A.**

## REMOTE MONITORING AND CLOUD BASED SOLUTION: USE CASES AT THE SMART LAB

**Paolo Perani** works in ABB since almost 25 years, after a Doctor Degree in Electrical Engineering from the "Politecnico di Milano" University.
During these years, Paolo has been dealing with low and medium voltage apparatus and switchgear, transformers as well as high voltage devices and robots.
More specifically, his activities were relevant to the application of electrical components in medium voltage distribution networks, as well as generation stations and industrial networks. During his one-year stay in Africa, Paolo developed an experience in medium voltage application in heavy industry and mining applications, while during the years spent on Middle East markets he acquired a distinctive knowledge on Utilities Market as well as the relevant certifications/approval procedures. Paolo is one of the eight members of the Nuclear Experts Team of ABB, dealing with technical and legal aspects of products application in nuclear power plants. In the field of Marine and Offshore, Paolo coordinated the development of new products to satisfy specific applications, thus contributing to make ABB the undisputed market leader in electrical propulsion ships. Over the past 6 years, Paolo developed closed links with the Italian and International Academic world as well as with the technical secondary schools, and since two years, he leads the University Team of ABB Italy. In December 2017, ABB signed the Joint Research Center with Politecnico di Milano, the leading Italian University, and Paolo sits in the steering committee of the JRC. Taking advantage of his industrial and utilities application background, combined with a genuine interest for future technological trends, Paolo developed the Smart Lab, a laboratory aimed at showing and demonstrate the possibilities offered by new technologies in the field of water and electrical distribution networks, energy efficiency, rural electrification, smart and micro grids, home automation and Industry 4.0. The Smart Lab is now included in the list of Italian Excellences of ITA (Italian Trade Agency), is part of the official list of European Laboratories and it has been visited by more than 9000 people in the last 2.5 years, making it the most visited Customer Experience Center of ABB globally. In 2015, Paolo received the "Excellence at work" award by Confindustria Bergamo.

**Eng. Marcelo de Araujo Andrade**
Senior Vice President, R&D
**Prysmian Group**

## THE FUTURE OF POWER AND TELECOM CABLES TECHNOLOGY



After graduating in Mechanical Engineering at Florianopolis, Brazil, **Marcelo joined Prysmian** in 1988. Over the years, Marcelo has held several positions in the Telecom and Energy business segments. This included Research and Development, Quality Assurance, Plant Management and Commercial Sales. Since 2012, as Sr VP R&D, Marcelo has lead the Prysmian Group's worldwide R&D team, developing new products, systems and materials to increase competitiveness and generate innovative technologies.

**Eng. Luigi Michi**
Head of Strategy and Development Division - CEO
**Terna Plus**

## PERSPECTIVE ON THE TRENDS AND CHALLENGES IN THE ELECTRIC SYSTEM

**Luigi Michi**, born in Italy in 1958, is currently Head of Strategy and Development Division in Terna Spa, the Italian Trasmission System Operator, being particularly responsible for regulatory affairs, grid planning and development and market analysis. He is also CEO of Terna Plus Srl, (company group focused on the Non Regulated Activites). He joined the company after a long and intense experience in Enel as Executive Vice President, Head of the Energy Management Business Area, engaged in managing and dispatching the whole Italian generation portfolio, as well as dealing with the trading activities in the European markets, over the last ten years. Before joining the generation industry, starting since 1988, he had been undertaking several activities related to the grid and power transmission line world (design, construction, control). From 1984 to 1987 he joined the ENI group, dealing with turbogas power station designing and job management (turn key contracts).

## TUESDAY
June 12th 2018

12TH
June 2018

| NUMBER AND CODE | NAME AND SURNAME | AFFILIATION | TOPIC |
|---|---|---|---|
| M1-TS1 | *Fabio Massaro*<br>*Rossano Musca* | University of Palermo | Renewable energy sources in power systems, distributed generation - 1 |
| M1-TS2 | *Gianluca Scaccianoce*<br>*Giorgia Peri* | University of Palermo | Electrical and non-electrical interventions for lessenergy consumptions in buildings -1 |
| M1-TS3 | *Domenico Curto* | University of Palermo | Electrical machines and power converters - 1 |
| M1-TS4 | *Massimo Mitolo* | Irvine Valley College | Energy storage for power systems applications - 1 |
| M1-TS5 | *Payman Dehghanian* | George Washington University | Power system stability, security and resiliency - 1 |
| M1-TS6 | *Hesam Khazraj* | Aalborg University | Power systems: transmission grids components and operation - 1 |
| N1-PS | *Luca Pugi* | University of Florence | Poster session 1 |
| N1-TS1 | *Marco Maccioni* | University of Rome La Sapienza | Renewable energy sources in power systems, distributed generation - 2 |
| N1-TS2 | *Gianluca Scaccianoce*<br>*Giorgia Peri* | University of Palermo | Electrical and non-electrical interventions for less energy consumptions in buildings -2 |
| N1-TS3 | *MazaherHajibashi* | Isfahan University of Technology | Regulation and electricity markets - 1 |
| N1-TS4 | *Salvatore Favuzza* | University of Palermo | Power electronics a nd smart grids - 1 |
| N1-TS5 | *Leonardo Sandrolini* | University of Bologna | Environmental phenomena related to the power systems |
| N1-TS6 | *Jaser Sa'ed* | Birzeit University | Power systems: distribution grids components and operation - 1 |
| N1-TS7 | *Giorgio Sulligoi* | University of Trieste | Port electrical systems: analysis, operation and planning |
| A1-PS | *Alessandro Ruvio* | University of Rome La Sapienza | Poster session 2 |
| A1-TS1 | *Diego Arnone* | Engineering Ingegneria Informatica S.p.A. | Energy prosumers flexibility for future smart grids |
| A1-TS2 | *Davide Poli* | University of Pisa | Energy storage for smart grids |

## TUESDAY
June 12th 2018

**12TH**
June 2018

| NUMBER AND CODE | NAME AND SURNAME | AFFILIATION | TOPIC |
|---|---|---|---|
| **A1-TS3** | *Enrico Maria Carlini* | TERNA Rete Elettrica Nazionale S.p.A. | Regional integration: how to get it right? |
| **A1-TS4** | *Massimo Mitolo* | Irvine Valley College | Power electronics and smart grids - 2 |
| **A1-TS5** | *Leonardo Sandrolini*<br>*Giordano Spadacini* | University of Bologna<br>Politecnico di Milano | Electromagnetic compatibility |
| **A1-TS6** | *Mihaela Albu*<br>*Stefano Lauria* | Politehnica University of Bucarest<br>University of Rome La Sapienza | The potential of dc distribution grids |
| **A1-TS7** | *Marco Beccali*<br>*Marina Bonomolo,* | University of Palermo | Systems and technologies for efficient lighting |

## WEDNESDAY
June 13th 2018

**13TH**
June 2018

| NUMBER AND CODE | NAME AND SURNAME | AFFILIATION | TOPIC |
|---|---|---|---|
| **M2-TS1** | *Mariana Florentina Stefanescu* | University Politechnica of Bucharest | Renewable energy sources in power systems, distributed generation - 3 |
| **M2-TS2** | *Gianfranco Rizzo* | University of Palermo | Sustainable energy action plans are effective tools for promoting energy efficiency in towns? |
| **M2-TS3** | *Massimo Bongiorno* | Chalmers University of Technology | Energy storage for power systems application |
| **M2-TS4** | *Sanjeevikumar Padmanaban* | University of Johannesburg | Maintenance, operation and safety in power systems - 1 |
| **M2-TS5** | *Mehdi Bagheri* | Nazarbayev University | Power system stability, security and resiliency |
| **M2-TS6** | *Hesam Khazraj* | Aalborg University | Power systems: transmission grids components and operation - 2 |
| **M2-TS7** | *Ivan Pavic* | University of Zagreb | Sustainable transport system: power infrastructure and electrical vehicles - 1 |
| **N2-PS** | *Federica Foiadelli* | Politecnico of Milan | Poster session 3 |
| **N2-TS1** | *Jaser Sa'ed* | Birzeit University | Electrical machines and power converters |

# TECHNICAL SESSIONS
AND CHAIRS

## WEDNESDAY
June 13th 2018

13TH
June 2018

| NUMBER AND CODE | NAME AND SURNAME | AFFILIATION | TOPIC |
|---|---|---|---|
| N2-TS2 | *Livio De Santoli* | University of Rome La Sapienza | Sustainable energy action plans are effective tools for promoting energy efficiency in towns? - 2 |
| N2-TS3 | *Roberto Napoli* | Politecnico of Turin | Regulation and electricity markets - 2 |
| N2-TS4 | *Leszek S. Czarnecki* | Louisiana State University | Power properties, quality and compensation of ultra-highpower ac arc furnaces |
| N2-TS5 | *Gaetano Zizzo* | University of Palermo | Smart building, lighting, metering, demand side management - 1 |
| N2-TS6 | *Zbigniew Leonowicz* | Wrocław University of Science and Technology | Power systems: distribution grids components and operation - 2 |
| N2-TS7 | *Luigi Martirano*<br>*Mostafa Kermani* | University of Rome La Sapienza | Power systems stability, security and resiliency - 3 |

## THURSDAY
June 14th 2018

14TH
June 2018

| NUMBER AND CODE | NAME AND SURNAME | AFFILIATION | TOPIC |
|---|---|---|---|
| M3-TS1 | *Giorgio Graditi*<br>*Marialaura Di Somma* | ENEA | Models and methods for efficient energy management of distributed energy resources under the concept of local energy systems |
| M3-TS2 | *Luca Pugi* | University of Florence | Sustainable transport systems: power infrastructure and electrical vehicles -2 |
| M3-TS3 | *Vladimir Tanasiev* | University Politechnica of Bucharest | Blockchain for energy and i nternet of things solutions |
| M3-TS4 | *Mariana-Florentina Stefanescu* | University Politechnica of Bucharest | Renewable energy sources in power systems, distributed generation - 4 |
| M3-TS5 | *Jose Luiz Barbosa* | Federal Institute of Goias | Smart buildings, lighting, metering, demand side management - 2 |
| M3-TS6 | *Sonia Leva*<br>*Francesco Grimaccia* | Poliecnico of Milan | O&M and long-term performance control of pv systems |
| M3-TS7 | *Daniele Valerini* | ENEA | Advanced materials for extreme conditions and circular economy. Perspectives from the extreme and supermat projects - 1 |
| N3-PS | *Paolo Perani* | ABB | Poster session 4 |

# THURSDAY
June 14th 2018

**14TH**
June 2018

| NUMBER AND CODE | NAME AND SURNAME | AFFILIATION | TOPIC |
|---|---|---|---|
| **N3-TS1** | *Giorgio Graditi*<br>*Marialaura Di Somma* | ENEA | Models and methods for efficient energy management of distributed energy resources under the concept of local energy systems |
| **N3-TS2** | *Mariano Gallo* | Università degli Studi del Sannio | Transport systems and sustainable mobility |
| **N3-TS3** | *Eleonora Riva Sanseverino*<br>*Maria Luisa Di Silvestre* | University of Palermo | Power systems: micro-grids components and operation - 1 |
| **N3-TS4** | *Anton Bubenchikov* | OmTSU | Renewable energy sources in power systems, distributed generation - 5 |
| **N3-TS5** | *Sergey Karabanov* | Ryazan State Radio Engineering | Materials: nanotechnology for renewable energy, novel materials for energy harvesting |
| **N3-TS6** | *Fabio Bisegna*<br>*Massimo Borra* | Sapienza University of Rome<br>INAIL | Engineering solutions for the assessment of photobiological risk from uv radiation |
| **N3-TS7** | *Antonio Rinaldi* | ENEA | Advanced materials for extreme conditions and circular ecnonomy, perspectives from the extreme and supermat projects - 2 |
| **A3-TS1** | *Abouzar Estebsari* | Politecnico di Torino | ICT for smart grids |
| **A3-TS2** | *Laurent Canale* | CNRS | Lighting systems, environment and applications |
| **A3-TS3** | *Pietro Colella* | Politecnico of Turin | Maintenance, operation and safety in power systems - 2 |
| **A3-TS4** | *ZbigniewLeonowicz* | Wrocław University of Science and Technology | Electrical machines and power converters - 3 |
| **A3-TS5** | *Guido Ala*<br>*Enrico Telaretti* | University of Palermo | Energy storage for power systems applications - 3 |
| **A3-TS6** | *Luca Pugi*<br>*Michela Longo* | University of Florence<br>Politecnico of Milan | Smart energy management in the transportation sector and e-mobility |
| **A3-TS7** | *Quoc Tuan Tran* | CEA-INES | Advanced integration of micro-grid technologies and market models in the distribution network |

# TECHNICAL SESSIONS
AND CHAIRS

## FRIDAY
June 15th 2018

15TH
June 2018

| NUMBER AND CODE | NAME AND SURNAME | AFFILIATION | TOPIC |
|---|---|---|---|
| M4-TS1 | *Roberto Faranda* | Politecnico di Milano | Electrical machines and power converters - 4 |
| M4-TS2 | *Osama Mohammed* | Florida International University | Power system stability, security and resiliency - 4 |
| M4-TS3 | *Massimo Mitolo* | Irvine Valley College | Power systems: micro-grids components and operation - 2 |
| M4-TS4 | *Gaetano Zizzo* | University of Palermo | Power systems: transmission grids components and operation - 3 |
| M4-TS5 | *Mostafa Kermani* | Sapienza University of Rome | Energy storage for power systems application - 4 |
| M4-TS6 | *Jose Luiz Barbosa* | Instituto Federal de Goiás (IFG) | System modelling and optimization - 1 |
| M4-TS7 | *Guido Ala* | University of Palermo | Grounding |
| N4-TS1 | *Osama Mohammed* | Florida International University | Measurements |
| N4-TS2 | *Tomasz Kisielewicz* | Sapienza University of Rome | Power system stability, security and resiliency - 5 |
| N4-TS3 | *Renata Varfolomejeva* | Riga Technical University | Education in electrical engineering |
| N4-TS4 | *Zbigniew Leonowicz* | Wrocław University of Science and Technology | Power system: transmission grids components and operation - 4 |
| N4-TS5 | *Mariano Anderle* | Italian Embassy in Hanoi | Italy-vietnam: bilateral research experiences on energy, ICT and environment -1 |
| N4-TS6 | *Jose Luiz Barbosa* | Instituto Federal de Goiás (IFG) | System modelling and optimization |
| N4-TS7 | *Leonardo Sandrolini* | University of Bologna | Circuits, sensors, actuators, electromagnetic compatibility - 1 |
| A4-TS1 | *Enrico Telaretti* | University of Palermo | Renewable energy sources in power systems, distributed generation - 6 |
| A4-TS2 | *Guido Ala*<br>*Graziella Giglia* | University of Palermo | Circuits, sensors, actuatores, electromagnetic compatibility -2 |
| A4-TS3 | *Silvano Vergura* | University of Bari | Monitoring, diagnosis and reliability of renewable energy sources |

## FRIDAY
June 15th 2018

**15TH**
June 2018

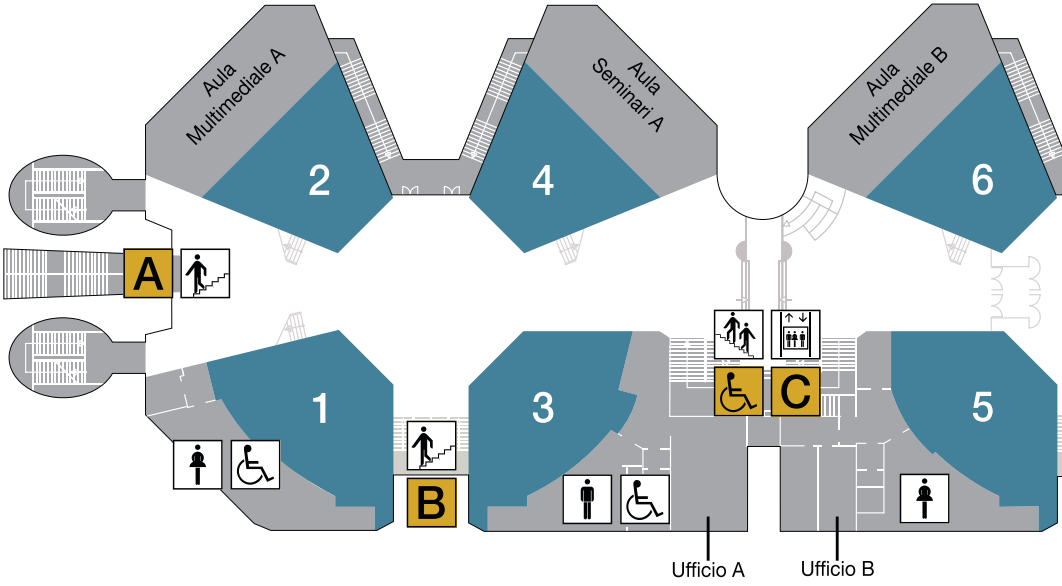
| NUMBER AND CODE | NAME AND SURNAME | AFFILIATION | TOPIC |
|---|---|---|---|
| **A4-TS4** | *Renato G. Procopio* | University of Genova | Advanced control methods for power systems |
| **A4-TS5** | *Mariano Anderle* | Italian Embassy in Hanoi | Italy-vietnam: bilateral research experiences on energy, ict and environment - 2 |

## SATURDAY & SUNDAY
June 11th, 13th, 14th, 15th, 16th 2018

**11.13.14.15.16TH**
June 2018

| NUMBER AND CODE | NAME AND SURNAME | AFFILIATION | TOPIC |
|---|---|---|---|
| **RS** | *Zbigniew Leonowicz* | Wrocław University of Science and Technology | Chaired Remote Session |

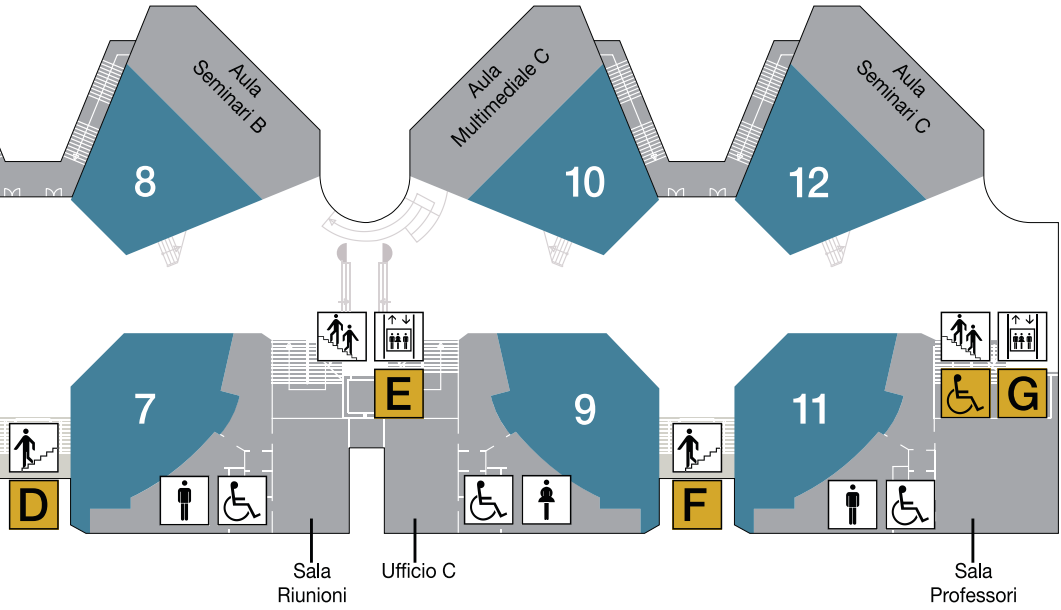
# MEETING ROOMS




Rooms from 1 to 12

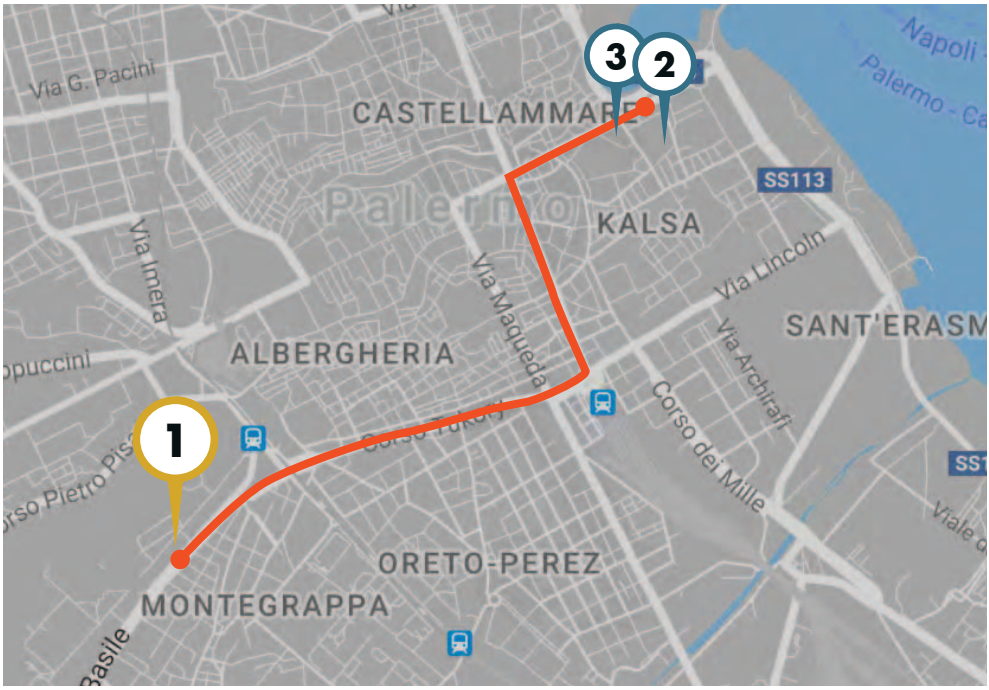
Stairs and Lift Lobbies

Toilettes




The rooms 6, 7, 8, 9, 10, 11 and 12 are reserved for the EEEIC oral sessions.
The poster session will take place in the octagonal areas between the rooms.

## PLENARY SESSION AND WELCOME COCKTAIL




FROM
**CAMPUS OF THE UNIVERSITY OF PALERMO**
TO
**PIAZZA MARINA**

**01. CAMPUS OF THE UNIVERSITY OF PALERMO**

**02. PLENARY SESSION**
Palazzo Chiaramonte-Steri

**03. WELCOME COCKTAIL**
Palazzo Fatta

## INSTRUCTIONS FOR THE ORAL PRESENTATIONS

PRESENTATION TIME: Presentation time is critical; each paper is allocated about 15 minutes for technical sessions, including time for questions, session-chair introductions, and any set up that is not completed in advance. We recommend that the presentation of your slides leave minutes for introduction by the session chair and questions from the audience. To achieve appropriate timing, organize your slides around the points you intend to make, using no more than one slide per minute. A reasonable strategy is to allocate about 2 minutes per slide when there are equations or important key points to make, and one minute per slide when the content is less complex. Be prepared to begin your presentation as soon as the prior presenter has finished; it is important to keep on schedule.

PRIOR TO YOUR PRESENTATION: Come to the room during the break immediately prior to your session and upload your presentation to the computer in the room. Note: the presentation computer has ONLY a USB port; there is no CD-ROM or other disc drive. You must also meet with your Session Chair at this time so that your Session Chair is aware that you are present; your Session Chair may also have last-minute instructions for your presentation.

EQUIPMENT PROVIDED: All lecture rooms will be equipped with a computer, a video projector, and in some of them a microphone. Each computer will have a USB port; there will be no other equipment available. Each computer will have a recent version of the Windows OS installed as well as Acrobat Reader software. While PowerPoint will also be provided, presenters are strongly urged to use PDF for their presentations to avoid issues with fonts and other problems. Remember to embed all your fonts into your PDF presentation. Keep in mind that some of the oral presentations will be given in halls that are quite large. When preparing your slides, make sure that they will be legible for the entire audience (i.e., use fonts of sufficient size).

## INSTRUCTIONS FOR POSTER PRESENTATIONS

DIMENSIONS: For your poster, a board will be provided; the board is oriented in a “portrait” format, for containing A0 posters (84,1 × 118,9 cm). Push tacks or Velcro fasteners will be provided at the conference to mount your poster to the board.

ORGANIZING YOUR POSTER: Poster sessions are a good medium for authors to present papers and meet with interested attendees for in-depth technical discussions. In addition, attendees find the poster sessions a good way to sample many papers in parallel sessions. Thus it is important that you display your message clearly and noticeably to attract people who might have an interest in your paper. Carefully and completely prepare your poster well in advance of the conference. Try tacking up the poster before you leave for the conference to see what it will look like and to make sure that you have all of the necessary pieces.

The title of your poster should appear at the top in CAPITAL letters about 25mm high. Below the title, put the author(s)’ name(s) and affiliation(s). The flow of your poster should be from the top left to the bottom right. Use arrows to lead your viewer through the poster. Use color for highlighting and to make your poster more attractive. Use pictures, diagrams, cartoons, figures, etc., rather than text wherever possible. Try to state your main result in 6 lines or less, in lettering about 15mm high so that people can read the poster from a distance. The smallest text on your poster should be at least 9mm high, and the important points should be in a larger size.

PRESENTING YOUR POSTER: Prepare a short presentation of about 5 or 10 minutes that you can periodically give to those assembled around your poster throughout the poster session. If you need extra presentation materials, such as a video display or computer, you are required to bring them yourself; note that any equipment used in the poster area should be battery-operated, since power will not be provided on the floor. Each poster session is 2 hours long; a presenter must be present at your poster during the entirety of the session. If possible, more than one author should attend the session to aid in presentations and discussions, and to provide the presenters with the chance to rest or briefly view other posters.

PRIOR TO YOUR PRESENTATION: Please put up your poster during the break before your session starts, and take it down immediately after your session ends. Please go to the poster session 30 minutes before the session starting.

EQUIPMENT PROVIDED: Push tacks or Velcro fasteners will be provided at the conference to mount your poster to the board. No printers are available on site.

**Important note:** *all the accepted papers have been assigned as an oral presentation in a Technical Session or a poster presentation in a Poster Session. Please consider that papers are scheduled into oral and poster sessions based on thematic coherence and not by paper quality. In either case, the full paper appears in IEEE Xplore, and there is no indication in Xplore as to whether the paper was presented orally or as a poster.*

TECHNICAL SESSION 1 **(M1-TS1)**

## RENEWABLE ENERGY SOURCES IN POWER SYSTEMS, DISTRIBUTED GENERATION - 1

Session Chairs: **Fabio Massaro, Rossano Musca**
University of Palermo

**Tuesday | June 12th | 2018 | 9:00 – 11:00**
Venue: **Room 6**

**M1-TS1 63** **A THEORETICAL PRE-ASSESSMENT OF SOLAR PHOTOVOLTAIC ELECTRICAL PRODUCTION FOR COMMERCIAL RETAIL CENTERS**
**Jan-Harm Pretorius, Dirk van Vuuren, Annlize Marnewick**
University of Johannesburg,

**M1-TS1 129** **SUSTAINABLE OUTREACH AND LIFELONG ADVOCACY TO REKINDLE HOPE**
**John Mark Napao**
University of the Philippines Diliman, Philippines

**M1-TS1 236** **EFFECT OF PRE-TREATMENT OF LAYERED CARTONS ON THE QUALITY OF PYROLYTIC CARBON INTENDED FOR THERMAL USE**
**Jana Růžičková(1), Petr Pavlík(2), Helena Raclavská(1), Marek Kucbel(1), BarboraŠvédová(1), Veronika Sassmanová(2), Konstantin Raclavský(1), Hana Škrobánková(1)**
(1) ENET VSB- TU OSTRAVA; (2) VSB- TU OSTRAVA

**M1-TS1 590** **A MODIFIED MULTIDIMENSION DIODE MODEL FOR PV PARAMETERS IDENTIFICATION USING GUARANTEED CONVERGENCE PARTICLE SWARM OPTIMIZATION ALGORITHM**
**Pedro Bento, Hugo Nunes**
University of Beira Interior

**M1-TS1 718** **A SMART GRID IN PONZA ISLAND: BATTERY ENERGY STORAGE MANAGEMENT BY ECHO STATE NEURAL NETWORK**
**Rodolfo Araneo, Antonello Rosato, Massimo Panella, Rosa Altilio**
Sapienza University of Rome

TECHNICAL SESSION 2 **(M1-TS2)**

## ELECTRICAL AND NON-ELECTRICAL INTERVENTIONS FOR LESSENERGY CONSUMPTIONS IN BUILDINGS -1

Session Chairs: **Gianluca Scaccianoce, Giorgia Peri**
University of Palermo

**Tuesday | June 12th | 2018 | 9:00 – 11:00**
Venue: **Room 7**

**M1-TS2 211** **A CASE-STUDY OF GREEN ROOF MONITORING: THE BUILDING OF COUNCIL FOR AGRICULTURAL RESEARCH AND ECONOMICS IN BAGHERIA (PA), ITALY**
**Gianluca Scaccianoce, Maria La Gennusa**
Università degli Studi di Palermo-DEIM

**M1-TS2 220** **STUDY OF INFLUENCE OF THE LED TECHNOLOGIES ON VISUAL AND SUBJECTIVE/INDIVIDUAL ASPECTS**
**Laura Cirrincione, Gianluca Scaccianoce**
University of Palermo

**M1-TS2 273** **THE ROLE OF TRANSPORTATION AND ITS INVOLVED SOURCES OF ENERGY IN THE ENVIRONMENTAL ASSESSMENT OF MARBLE PRODUCING SITES**
**Cinzia Capitano (1), Giorgia Peri(1), Gianfranco Rizzo(1), Concettina Marino (2), Antonino Nucara(2)**
(1) University of Palermo - DEIM; (2) MediterraneanUniversity of Reggio Calabria

**M1-TS2 302** **REDUCING ELECTRIC AND THERMAL ENERGY NEEDS IN BUILDINGS BY USING INNOVATIVE ENVELOPE MATERIALS LABORATORY RESULTS OF BIO-COMPOSITES EMBODYING TOMATO PLANT STEMS**
**Maria La Gennusa, Giorgia Peri, Gianfranco Rizzo, Joan Rieradevall**
(1) Università degli Studi di Palermo-DEIM; (2) UniversitatAutònoma de Barcelona

**M1-TS2 515** **DYNAMIC INTERACTION BETWEEN A WIND-PHOTOVOLTAIC-BATTERY-HEAT PUMP HYBRID TRIGENERATION SYSTEM AND A RESIDENTIAL LOAD AND THE ELECTRIC VEHICLE CHARGING**
**Domenico Mazzeo, Giuseppe Oliveti, Nicoletta Matera**
University of Calabria

**M1-TS2 530** **PASSIVE COOLING TECHNIQUES FOR LESS ENERGY CONSUMPTION IN BUILDINGS. A COMPARATIVE STUDY ON GREEN SURFACES**
**Natale Arcuri, Marida Bevacqua, Giovanna Grossi**
(1) University of Calabria (UNICAL); (2) Università degli Studi di Brescia

TECHNICAL SESSION 3 **(M1-TS3)**

## ELECTRICAL MACHINES AND POWER CONVERTERS - 1

Session Chair: **Domenico Curto**
University of Palermo

**Tuesday | June 12th | 2018 | 9:00 – 11:00**
Venue: **Room 8**

**M1-TS3 31** **CONFIGURATIONS OF MODIFIED SEPIC CONVERTER WITH SWITCHED INDUCTOR MODULE (MSCSI) FOR PHOTOVOLTAIC APPLICATION: PART-II**
**Kiran Maroti Pandav(1), Sanjeevikumar Padmanaban(1), Dan Ionel(2), Pierluigi Siano(3), Zbigniew Leonowicz(4)**
(1) University of Johannesburg; (2) University of Kentucky; (3) University of Salerno; (4) Wroclaw University of Science and Technology

**M1-TS3 215** **IMPACT OF NUMBER OF ROTOR SLOTS ON PERFORMANCE OF THREE-PHASE AND SINGLE-PHASE INDUCTION MACHINES**
**Martin Mach (1),Radoslav Cipin(1), Marek Toman(1), Vitezslav Hajek(2)**
(1) Brno University of Technology; (2) Faculty of Electrical Engineering and Communication

**M1-TS3 269** **THREE-PHASE INTERLEAVED MULTI LLC RESONANT CONVERTER WITH FULL BRIDGE RECTIFIER FOR HV APPLICATIONS**
**Mohamed Salem(1), Vigna Vigna K. Ramachandaramurthy(2), Sanjeevikumar Padmanaban(3),Frede Blaabjerg(4)**
(1) UNITEN; (2) Universiti Tenaga Nasional; (3) University of Johannesburg; (4) Aalborg University

**M1-TS3 378** **ANALYSIS AND MEASUREMENTS OF NEW DESIGNED RELUCTANCE SYNCHRONOUS ROTOR**
**Pavol Rafajdus**
University of Zilina

**M1-TS3 543** **ENERGY HARVESTING DEVICE WITH MAGNETO-STRICTIVE MATERIAL**
**Domenico Curto, Alessia Viola, Marco Trapanese**
University of Palermo

TECHNICAL SESSION 4 **(M1-TS4)**

## ENERGY STORAGE FOR POWER SYSTEMS APPLICATIONS - 1

Session Chair: **Massimo Mitolo**
Irvine Valley College

**Tuesday | June 12th | 2018 | 9:00 – 11:00**
Venue: **Room 9**

**M1-TS4 72** **LINEAR BATTERY AGING MODEL FOR INDUSTRIAL PEAK SHAVING APPLICATIONS**
**Rodrigo Martins(1), Petr Musilek(1), Holger Hesse(2), Johanna Jungbauer(3), Thomas Vorbuchner(2), Andreas Jossen(2)**
(1) University of Alberta; (2) Technical University of Munich; (3) Smart Power; (4) Aalborg University

**M1-TS4 84** **A TURBINE ENERGY STORAGE UTILIZATION EVALUATE METHOD IN THERMAL POWER UNIT**
**Qingru Cui(1), Yanqiu Zheng(2), Yaohan Wang(2), Deliang Zeng(2)**
(1) National Energy Investment Corporation; (2) North China Electric Power University

**M1-TS4 123** **ALTERNATIVE EFFICIENCY TEST PROTOCOL FOR LITHIUM-ION BATTERY**
**Massimiliana Carello, Alessandro Ferraris, Andrea Giancarlo Airale, Santo Scavuzzo, Roberto Guerrieri**
Politecnico di Torino

**M1-TS4 150** **VOLTAGE AND FREQUENCY REGULATION IN MARINE VESSEL'S ELECTRICAL POWER SYSTEM**
**Giovani Giulio Vieira, Mauricio Salles, Renato Machado Monaro**
University of Sao Paulo

**M1-TS4 152** **COMPARISON OF SUPERCAPACITOR AND FLYWHEEL ENERGY STORAGE DEVICES BASED ON POWER CONVERTERS AND SIMULINK REAL-TIME**
**Bartosz Kedra(1), Robert Małkowski(2)**
(1) Institute of Power Engineering; (2) Gdańsk University of Technology

**M1-TS4 162** **THE INFLUENCE OF ENERGY STORAGE TO THE DISTRIBUITON SYSTEM CONSIDERING RES GENERATING OPPORTUNITIES**
**Renata Varfolomejeva(1), Aleksandrs Gavrilovs(2), Lubov Petrichenko(1)**
(1) Riga Technical University; (2) JSC Sadalestikls

**M1-TS4 241** **DETAILED MODELLING OF A BATTERY ENERGY STORAGE SYSTEM IN AN ENERGY-INTENSIVE ENTERPRISE**
**Jevgenijs Kozadajevs, Renata Varfolomejeva, Dmitrijs Boreiko, Ivars Zalitis, Aleksandrs Dolgicers**
Riga Technical University

TECHNICAL SESSION 5 **(M1-TS5)**

## POWER SYSTEM STABILITY, SECURITY AND RESILIENCY - 1

Session Chair: **Payman Dehghanian**
George Washington University

**Tuesday | June 12th | 2018 | 9:00 – 11:00**
Venue: **Room 10**

**M1-TS5 12** **COMPARATIVE IMPLEMENTATION OF NUMERICAL INTEGRATION METHODS FOR TRANSIENT STABILITY CONSTRAINED OPTIMAL POWER FLOW**
**Francisco Arredondo(1), Edgardo Daniel Castronuovo, Pablo Ledesma, Zbigniew Leonowicz(2)**
(1) Carlos III University of Madrid; (2) Wroclaw University of Science and Technology

**M1-TS5 48** **A FRAMEWORK FOR EVALUATION OF POWER GRID RESILIENCE, CASE STUDY: SOUTH AUSTRALIAN BLACKOUT IN 2016**
**Pouya Jamborsalamati(1), Mojtaba Moghimi(2), M. J. Hossain(1), Rasoul Garmabdari(2), Junwei Lu(2), Georgios Konstantinou(3)**
(1) Macquarie University; (2) Griffith University; (3) UNSW Australia

**M1-TS5 57** **AN ADAPTIVE FAULT CLASSIFICATION APPROACH USING DIGITIZED FUZZY LOGIC (DFL) BASED ON PHASE AND NEUTRAL CURRENTS**
**Sunny Katyara(1),Zbigniew Leonowicz(2), Lukasz Staszewski(2), Faheem A. Chachar(1), Sachanand Solanki(1)**
(1) Sukkur IBA University; (2) Wroclaw University of Science and Technology

**M1-TS5 99** **ANALYSIS OF THE POWER SYSTEM DAMAGE HAZARD FROM THE POINT OF VIEW OF THE GAS SUPPLY SYSTEM**
**Laila Zemite(1), Ilmars Bode(2), Namejs Zeltins(1), Antons Kutjuns(1), Ansis Zbanovs(1)**
(1) Riga Technical University; (2) AS Gaso

**M1-TS5 141** **IMPACT OF DISTRIBUTED GENERATION ON POWER FLOWS ALONG PARALLELLY OPERATED MV FEEDERS**
**Roman Vykuka, Miloslava Tesarova**
University of West Bohemia

**M1-TS5 600** **SELECTION OF SUITABLE FEEDFORWARD NEURAL NETWORK BASED POWER SYSTEM STABILIZER FOR ROBUST EXCITATION CONTROL SYSTEM**
**Jamshed Ahmed(1), Aslam Pervez(2), Madad ALi Shah(1), Sohail Ahmed(1), Jahangeer Soomro(1), Fayyazuddin Muhammad(1)**
(1) Sukkur IBA University; (2) Quest Pakistan

TECHNICAL SESSION 6 **(M1-TS6)**

## POWER SYSTEMS: TRANSMISSION GRIDS COMPONENTS AND OPERATION - 1

Session Chair: **Hesam Khazraj**
Aalborg University

**Tuesday | June 12th | 2018 | 9:00 – 11:00**
Venue: **Room 11**

**M1-TS6 135** **HVDC UNSOLVED ISSUES: A REVIEW**
**Giovanni Rinzo, Gianni Pedrazzoli, Antonio Chiarelli**
University of Padova

**M1-TS6 187** **INVESTIGATION OF DC-DC BOOST CONVERTER FOR RELIABILITY OF OPERATIONAL PLANNING**
**HesamKhazraj, Mani Ashouri, FilipeFaria da Silva, Claus LethBak**
Aalborg University

**M1-TS6 421** **INFLUENCE OF BARRIER POSITION ON THE DIELECTRIC STRENGTH FOR TRANSFORMER OIL UNDER AC VOLTAGE**
**Ahmed Abo Sharaf**
MTC

**M1-TS6 522** **POTENTIAL APPLICATION OF THE ADVANCED CONDUCTORS IN A TRANSMISSION LINE PROJECT**
**Svetlana Beryozkina**
American University of the Middle East

**M1-TS6 581** **ENVIRONMENTAL IMPACT ANALYSIS OF ELECTRIC POWER LINES**
**IoannisGonos(1), AntoniosKladas(1), DimitriosLabridis(2), PantelisMikropoulos(2), Stavros Koulouridis(3),EleftheriaPyrgioti(3), Georgios Kyriakou(4), Anastasia Safigianni(4)**
(1) National Technical University of Athens; (2) Aristotle University of Thessaloniki;
(3) University of Patras; (4) Democritus University of Thrace

**M1-TS6 733** **LOSS OF FIELD PROTETION OF SYNCHRONOUS GENERATOR IN A REALISTIC FRAMEWORK USING RTDS**
**Abbas Hasani(1), FarhadHaghjoo(1), FilipeFaria da Silva(2), Claus LethBak(2)**
(1) Shahid Beheshti University; (2) Aalborg University

**M1-TS6 827** **PLIABILITY ASSAY OF CONVENTIONAL GAS INSULATED TRANSMISSION LINE AND FLEXIBLE GAS INSULATED TRANSMISSION LINE REGARDING HORIZONTAL DIRECTIONAL DRILLING BASED UNDERGROUND CABLE LAYING FOR METROPOLITAN AREAS**
**Muhammad Alvi**
University of Engineering and Technology

**M1-TS6 222** **OFF-GRID SYSTEM EVALUATION IN THE DISTRIBUTION NETWORK**
**Renata Varfolomejeva(1), AleksandrsGavrilovs(2)**
(1) Riga Technical University; (2) JSC Sadalestikls

## POSTER SESSION 1 **(N1-PS)**

Session Chair: **Luca Pugi**
University of Florence

**Tuesday | June 12th | 2018 | 11:30 – 13:30**
Venue: **Ballroom**

**N1-PS 20** **ENHANCED BACK EMF SENSORLESS CONTROL FOR PERMANENT MAGNET SYNCHRONOUS MOTORS**
**Luca Pugi(1), Emanuele Grasso(2), Stefano Fabbri(1)**
(1) University of Florence; (2) Saaland University

**N1-PS 356** **STRATEGIC BEHAVIOR OF A DISTRIBUTION COMPANY IN THE WHOLESALE ENERGY MARKET: A RISK-BASED STOCHASTIC BI-LEVEL MODEL**
**Salah Bahramara(1), Pouria Sheikhahmadi(1), Maziar Yazdani Damavandi(2), MiadrezaShafie-khah, (2), João Catalão(3)**
(1) Azad University; (2) UBI; (3) Univeristy of Porto

**N1-PS 425** **A PRACTICAL INTEGRATED FAULT LOCATION METHOD FOR ELECTRICAL POWER DISTRIBUTION NETWORKS**
**Alireza Bahmanyar(1), AbouzarEstebsari(2)**
(1) Iran University of Science and Technology; (2) Politecnico di Torino

**N1-PS 442** **MAROV MODEL OF RENEWABLE RESOURCES FOR RELIABILITY ASSESSMENT OF DISTRIBUTION SYSTEMS**
**Hesamkhazraj(1), Filipe Faria da Silva(1),Claus Leth Bak(1), Mazaher Hajibashi(2)**
(1) AAlborg University; (2) Isfahan University of Technology

**N1-PS 473** **INCLUDING THE CONSTRAINTS THAT HAVE LESS THAN ONE HOUR CHARACTERISTICS IN AN HOURLY BASED GENERATION SCHEDULING REGIME**
**Mazaher Hajibashi(1), Hassan Gharibpour(2), Iman Rahmati(2), Hesam khazraj(3), Claus Leth Bak(3)**
(1) Isfahan University of Technology; (2) Iran Grid Management Company; (3) AAlborg University

**N1-PS 486** **SENSITIVITY ANALYSIS IN SWITCHES AUTOMATION BASED ON ACTIVE RECONFIGURATION TO IMPROVE SYSTEM RELIABILITY CONSIDERING THE PRESENCE OF RES AND ESSS**
**Sérgio Santos**
University of Beira Interior

**N1-PS 525** **TRANSFER MATRIX-BASED DIFFERENTIAL PROTECTION OF TRANSMISSION LINES**
**Hesam Khazraj(1), Mani Ashouri(1), Athanasios Stamatopoulos(1)(2), Filipe Faria da Silva(1), Claus Leth Bak(1)**
(1) AAlborg University; (2) Banedanmark

**N1-PS 558** **THE IMPACT OF WIND GENERATION ON THE SPOT MARKET ELECTRICITY PRICING**
**Tatjana Makalska(1), Renata Varfolomejeva(2), Romans Oleksijs(2)**
(1) AS Latvenergo; (2) Riga Technical University

**N1-PS 596** **POWER MANAGEMENT STRATEGY FOR STANDALONE PV APPLICATIONS WITH HYBRID ENERGY STORAGE SYSTEM**
**Pedro Bento(1), João Faria(1)**
(1) University of Beira Interior

**N1-PS 621** **RTDS DEMONSTRATION OF HARMONIC AMPLIFICATION IN UNDER SEA/GROUND CABLES OF OFFSHORE WIND FARMS**
Bakhtyar Hoseinzadeh(1), M. Hadi Amini(2), Kianoosh G. Boroojeni, (3)Claus Leth Bak(1)
(1) AAU; (2) CMU; (3) FIU

**N1-PS 634** **CHANCE CONSTRAINED OPTIMAL POWER FLOW USING THE INNER-OUTER APPROXIMATION APPROACH**
Erfan Mohagheghi(2), Abebe Geletu(1), Nils Bremser(1),
Mansour Alramlawi(1), Aouss Gabash(1) , Pu Li(1)
(1) Ilmenau University of Technology; (2) Technische University of Ilmenau

**N1-PS 667** **A NEW APPROACH FOR DYNAMIC ENERGY STORAGE SYSTEM**
João Bárbara, José Pombo, João Fermeiro, Silvio Mariano, Maria Rosario
UBI

**N1-PS 676** **A PROTOTYPE OF WIRELESS SENSOR FOR DATA ACQUISITION IN ENERGY MANAGEMENT SYSTEMS**
Massimiliano Luna(1), Giuseppe La Tona(1), Maria Carmela Di Piazza(1), Marcello Pucci(1),
Angelo Accetta(1), Davide Taibi(1), Calogero Vetro(2), Riccardo La Grassa(2)
(1) CNR; (2) University of Palermo

**N1-PS 709** **MULTI-OBJECTIVE FUZZY MODEL FOR OPTIMAL SITING AND SIZING OF DG UNITS TO REDUCE LOSSES USING GENETIC ALGORITHM**
Babak Mohamadi Kalesar(1), Javad Behkeshnoshahr(1), Mostafa Kermani(2), Farhadahbab(1)
(1) Ardabil Province Electricity Distribution Company (APED Co.); (2) Sapienza University of Rome

**N1-PS 41** **MARKET TRANSPARENCY FOR THE ARCHITECTURE OF FREQUENCY AND VOLTAGE CONTROL UNDER THE WEB-OF-CELLS POWER GRID STRUCTURE**
Viktorija Bobinaite(1), Marialaura Di Somma(2), Giorgio Graditi(2), Irina Oleinikova(1)
(1) Institute of Physical Energetic; (2) ENEA

**N1-PS 232** **ELECTROMAGNETIC AND THERMAL ANALYSIS OF HIGH VOLTAGE THREE-PHASE UNDERGROUND CABLES USING FINITE ELEMENT METHOD**
Stefania Conti, Emanuele Dilettoso, Santi Rizzo
DIEEI - University of Catania

**N1-PS 231** **STEADY-STATE ELECTRICAL MODELING OF LED AND CF BULB LAMPS UNDER VARIABLE VOLTAGE ON THE MAINS**
Angelo Raciti, Santi Rizzo, Giovanni Susinni
University of Catania

TECHNICAL SESSION 7 **(N1-TS1)**

## RENEWABLE ENERGY SOURCES IN POWER SYSTEMS, DISTRIBUTED GENERATION - 2

Session Chair: **Marco Maccioni**
University of Rome La Sapienza

**Tuesday | June 12th | 2018 | 11:30 – 13:30**
Venue: **Room 6**

**N1-TS1 68** **INVESTMENT RISK ANALYSIS OF ELECTRICITY GENERATION FROM VINASSEBIODIGESTION IN THE FREE CONTRACTING ENVIRONMENT**
**Luane Pinto(1),Daywes Neto(2), Elder Geraldo Domingues(3)**
(1) Instituto Federal de Educação, Ciência e Tecnologia de Goiás; (2) Federal University of Goiás; (3) Nucleous of Experimental and Technological Research and Study Group (NExT)

**N1-TS1 140** **EVALUATION OF A STATE OBSERVER FOR FREQUENCY ESTIMATION IN A GRID TIED PHOTOVOLTAIC INVERTER**
**Ana Cabrera-Tobar(1), Joaquín Carrasco(2), Mike Barnes(2), Oriol Gomis Bellmunt(3)**
(1) University Politecnica de Catalunya; (2) University of Manchester; (3) CITCEA UPC

**N1-TS1 251** **EVALUATION OF BATTERY ENERGY STORAGE SYSTEMS IN DISTRIBUTION GRID**
**Lubov Petrichenko(1), Renata Varfolomejeva(1), Aleksandrs Gavrilovs(2), Antans Sauhats(1), Roman Petrichenko(1)**
(1) Riga Technical University; (2) JSC Sadalestikls

**N1-TS1 344** **STATISTICAL ANALYSIS OF PROSUMER BEHAVIOR IN A REAL DISTRIBUTION NETWORK OVER TWO YEARS**
**Marco Maccioni(1), Tommaso Bragatto(1), Fabio Massimo Gatta(1), Alberto Geri(1), Regina Lamedica(1), Alessandro Ruvio(1), Marco Paulucci(2), Massimo Cresta(2)**
(1) Sapienza University of Rome; (2) A.S.M. Terni S.p.A.

**N1-TS1 539** **MAXIMUM POWER POINT TRACKING OF PHOTOVOLTAIC POWER SYSTEM WITH ADAPTIVE FUZZY TERMINAL SLIDING MODE CONTROLLER**
**Gelareh Javid(1), Djaffar OuldAbdeslam(1), Dirk Benyoucef(2)**
(1) University of Haute Alsace; (2) Furtwangen University

**N1-TS1 647** **RAMPING BEHAVIOUR ANALYSIS OF WIND PLANTS**
**Sambeet Mishra, MadisLeinakse, Ivo Palu, Jako Kilter**
Tallinn University of Technology

TECHNICAL SESSION 8 **(N1-TS2)**

## ELECTRICAL AND NON-ELECTRICAL INTERVENTIONS FOR LESSENERGY CONSUMPTIONS IN BUILDINGS - 2

Session Chairs: **Gianluca Scaccianoce, Giorgia Peri**
University of Palermo

**Tuesday | June 12th | 2018 | 11:30 – 13:30**
Venue: **Room 7**

**N1-TS2 37** **NUMERICAL INVESTIGATION OF A MULTI-FUNCTIONAL SOLAR PASSIVE SYSTEM LOCATED IN SHIRAZ, IRAN: NATURAL VENTILATION AND HEATING**
**Farivar Fazelpour(1), Mohsen Khosravi, Alireza Tajeddin, Marc A. Rosen(2)**
(1) Islamic Azad University, South Tehran Branch;
(2) Faculty of Engineering and Applied Science, University of Ontario Institute

**N1-TS2 38** **DSF ENERGY PERFORMANCE ASSESSMENT CONSIDERING DIFFERENT CLIMATIC REGIONS OF IRAN AND DESIGN PARAMETERS**
**Farivar Fazelpour, Elin Markarian, NiloufarZiasistani**
Islamic Azad University, South Tehran branch

**N1-TS2 462** **PV DRIVEN HEAT PUMPS FOR THE ELECTRIC DEMAND-SIDE MANAGEMENT: EXPERIMENTAL RESULTS OF A DEMONSTRATIVE PLANT**
**Roberto Bruno, Natale Arcuri, Cristina Carpino**
University of Calabria

**N1-TS2 544** **ENERGY SAVING OPTIMIZING THE VENTILATION CONTROL IN A BIG SHOPPING CENTER**
**Domenico Curto, Vincenzo Franzitta, Francesco Montana**
University of Palermo

**N1-TS2 662** **ENERGY EFFICIENCY IMPROVEMENTS IN ITALIAN HISTORICAL BUILDINGS: THE CASE STUDY OF ASCOLI PICENO**
**Graziano Marchesani, Roberta Cocci Grifoni, Enrica Petrucci, Simone Tascini, Diana Lapucci, Mariano Pierantozzi**
University of Camerino

TECHNICAL SESSION 9 **(N1-TS3)**

## REGULATION AND ELECTRICITY MARKETS - 1

Session Chair: **Mazaher Hajibashi**
Isfahan University of Technology

**Tuesday | June 12th | 2018 | 11:30 – 13:30**
Venue: **Room 8**

**N1-TS3 79** **A COMPARATIVE STUDY ON THE BIDDING BEHAVIOR OF PAY AS BID AND UNIFORM PRICE ELECTRICITY MARKET PLAYERS**
**Mazaher Hajibashi(1), Gholamreza Yousefi(1), Habib Gharagozloo(2), Hesam Khazraj(3), Claus Leth Bak(3), Filipe Faria da Silva(3)**
(1) Isfahan University of Technology; (2) Iran Grid Management Company; (3) AAlborg University

**N1-TS3 97** **SOME NEW DEVELOPMENTS OF FORECASTING IN POWER MARKET**
**Hanlin Liu(1), Shixiang Lu(2), Huakun Que(2), Guoying Lin(2), Chengjin Ye(1), Yi Ding(1)**
(1) Zhejiang University; (2) Electric Power Research Institute of Guangdong Power Grid Co., Ltd.

**N1-TS3 277** **COORDINATED CONTROL MECHANISM FOR VOLTAGE STABILITY UTILIZING AGGREGATION OF REACTIVE POWER COMPENSATION TECHNIQUES**
**Jibran Ali**
University of Genoa

**N1-TS3 702** **A POWER LAW BEHAVIOR IN THE INCENTIVIZED ITALIAN PHOTOVOLTAIC MARKET**
**Domenico Curto(1), Vincenzo Franzitta(1), Alessia Viola(2)**
(1) University of Palermo; (2) Federal University of San Pulo

**N1-TS3 812** **DETECTING UNAVAILABLE BALANCING ENERGY BIDS DUE TO RISK OF INTERNAL CONGESTIONS**
**Carolin Guntermann(1), Nina Wahl Gunderson(2),EivindLindeberg(2), Martin Håberg(3)**
(1) RWTH Aachen; (2) Statnett; (3) Norwegian University of Science and Technology

**N1-TS3 817** **NEURAL NETWORK APPROACHES TO ELECTRICITY PRICE FORECASTING IN DAY-AHEAD MARKETS**
**Rodolfo Araneo, Massimo Panella, Antonello Rosato, Rosa Altilio**
Sapienza University of Rome

**N1-TS3 835** **ANALYZING THE INTERACTION BETWEEN EMISSION TRADING SYSTEMS AND ELECTRICITY MARKET**
**Morteza Samadi(1), Rasool Heydari(2)**
(1) Tarbiat Modarres University, Tehran, Iran; (2) Aalborg university

TECHNICAL SESSION 10 **(N1-TS4)**

## POWER ELECTRONICS AND SMART GRIDS - 1

Session Chair: **Salvatore Favuzza**
University of Palermo

**Tuesday | June 12th | 2018 | 11:30 – 13:30**
Venue: **Room 9**

**N1-TS4 55** **AN INNOVATIVE METHOD FOR DETECTION OF THE VOLTAGE IN OVERHEAD LINE SYSTEMS**
**Erwin Burkhardt**
TU Dortmund University, Institute of High Voltage Engineering

**N1-TS4 299** **CANDIDATE INTERLEAVED DC-DC BUCK CONVERTERS FOR ELECTROLYZERS: STATE-OF-THE-ART AND PERSPECTIVES**
**Vittorio Guida, DamienGuilbert, Bruno Douine**
GREEN Lab., UnivLorraine

**N1-TS4 391** **PREDICTIVE CONTROL OF A 27-LEVEL ASYMMETRIC MULTILEVEL CURRENT SOURCE INVERTER**
**Javier Munoz**
Universidad de Talca

**N1-TS4 433** **SIGNAL PROPERTIES OF PWM MODULATIONS – QUALITY OF OUTPUT SIGNAL REFERENCED TO CLASSICAL D/A SIGNAL RECONSTRUCTION SOLUTIONS**
**Zbigniew Staroszczyk**
Warsaw University of Technology

**N1-TS4 487** **DC-BUS CAPACITOR SIZING IN THE BACK-TO-BACK CONVERTER**
**Jan Knobloch, Ondrej Rubes, Radoslav Cipin**
Brno University of Technology

**N1-TS4 636** **DYNAMIC WIRELESS CHARGING OF ELECTRIC VEHICLES: MULTI-CHANNEL MODELING**
**Anvar Khamitov, Batyrbek Alimkhanuly, Aidana Kalakova, Miras Maksut, Maxim Lu, Mehdi Baghéri, Alex James**
Electrical and Computer Engineering Department, Nazarbayev University

**N1-TS4 703** **CIRCULATING CURRENT ELIMINATION OF GRID-CONNECTED MODULAR MULTILEVEL CONVERTERS (MMCS)**
**Jafar Adabi(1), Edris Pouresmaeil(2), Majid Mehrasa(3), Joao Catalao(4)**
(1) Babol Noshirvani University of Technology; (2) Aalto University; (3) C-MAST / UBI; (4) FEUP

TECHNICAL SESSION 11 **(N1-TS5)**

## ENVIRONMENTAL PHENOMENA RELATED TO THE POWER SYSTEMS

Session Chair: Leonardo Sandrolini
University of Bologna

Tuesday | June 12th | 2018 | 11:30 – 13:30
Venue: Room 10

**N1-TS5 51** **HARMONIC SPECTRUM ESTIMATION OF THE DOUBLE FED INDUCTION GENERATORS (DFIG) CONNECTED TO GRID BASED ON NONPARAMETRIC ALGORITHM OF MULTI-TAPER**
Javad Behkesh Noshahr
APED Co.

**N1-TS5 132** **NUMERICAL MODELLING OF INTERFERENCE FROM AC POWER LINES ON BURIED METALLIC PIPELINES IN PRESENCE OF MITIGATION WIRES**
Andrea Cristofolini, Arturo Popoli, Leonardo Sandrolini
University of Bologna

**N1-TS5 291** **THE IMPACT OF LIGHTING FLUCTUATIONS ON ANTHROPOLOGICAL ASPECTS**
Jevgenijs Kuckovskis(1), Kristina Berzina(1), Inga Zicmane(2), Prof. Andrew Podgornov(1), Anastasija Zhiravecka(1), NatalijaBerzina-Novikova(3)
(1) Riga Technical University; (2) RTU FPEE; (3) Riga Stradina University

**N1-TS5 324** **INDIRECT LIGHTNING PERFORMANCE OF LOW VOLTAGE LINES**
Alberto Borghetti(1), Lo Piparo, Giovanni Battista(2), Fabio Napolitano(1), Carlo Alberto Nucci(1), Juan Diego Rios Penaloza(1), Fabio Tossani(1)
(1) University of Bologna; (2) La Sapienza University of Roma

**N1-TS5 598** **THE ENERGY MARKET IMPACT OF CLIMATE CHANGE ON ELECTRICITY GENERATION IN EUROPE**
Michele Fiorelli
University of Palermo

**N1-TS5 745** **ENVIRONMENTAL PHENOMENA FROM THE APPLICATION OF ELECTROHYDRAULIC EFFECT FOR WASTEWATER TREATMENT**
Tatiana Golubeva, Sergey Konshin, SamalAbdreshova, BirlesbekAliyarov, ShabdenBahtaev
Almaty University of Power Engineering and Telecommunications

**N1-TS5 824** **AVALANCHE INHIBITION IN ULTRA-DILUTE SF6-N2 MIXTURES SUBJECTED TO CROSSED FIELDS**
Mustafa Sezai Dincer(1), Suleyman SungurTezcan(2),Hıdır Duzkaya(2)
(1) Near East University; (2) Gazi University

TECHNICAL SESSION 12 **(N1-TS6)**

## POWER SYSTEMS: DISTRIBUTION GRIDS COMPONENTS AND OPERATION - 1

Session Chair: Jaser Sa'ed
Birzeit University

Tuesday | June 12th | 2018 | 11:30 – 13:30
Venue: Room 11

**N1-TS6 13** **ELECTRIC ARC FURNACE POWER QUALITY ANALYSIS BASED ON A STOCHASTIC MODEL**
**Dariusz Grabowski, Janusz Walczak, MaciejKlimas**
Silesian Univerity of Technology

**N1-TS6 89** **THREE-PHASE GRID SUPPORTIVE DEMAND SIDE MANAGEMENT WITH APPLIANCE FLEXIBILITY MODELLING**
**Niels Blaauwbroek**
Eindhoven University of Techno

**N1-TS6 146** **OPTIMIZATION OF MEASUREMENT EQUIPMENT PLACEMENT IN DISTRIBUTION NETWORKS BY GENETIC ALGORITHMS**
**Valentin Ilea(1), Cristian Bovo(1), Milos Subasic(2)**
(1) Politecnico di Milano; (2) ABB

**N1-TS6 278** **OPTIMAL VOLTAGE CONTROL USING A MODIFIED LINE DROP COMPENSATION METHOD IN REAL DISTRIBUTION SYSTEMS**
**Mihai Gavrilas, Bogdan Constantin Neagu, Gheorghe GhiocelMatei**
Gheorghe Asachi Technical University of Iasi

**N1-TS6 354** **ZONING EVALUATION FOR VOLTAGE CONTROL IN SMART DISTRIBUTION NETWORKS**
**Anna Rita Di Fazio(1), Mario Russo(1), Michele De Santis(2)**
(1) Università di Cassino e del Lazio Meridionale; (2) Università Niccolò Cusano

**N1-TS6 575** **TWO-STAGE CLUSTERING FOR PROFILING RESIDENTIAL CUSTOMER DEMAND**
**Susanna Mocci, Fabrizio Pilo, Giuditta Pisano, Matteo Troncia**
University of Cagliari

**N1-TS6 775** **CROSS-BONDING OF MV CABLE LINES FOR ENERGY LOSSES DECREASE**
**Krzysztof Dobrzynski, Klucznik Jacek, Zbigniew Lubosny, Agata Szultka, Robert Malkowski**
Gdansk University of Technology

TECHNICAL SESSION 13 **(N1-TS7)**

## PORT ELECTRICAL SYSTEMS: ANALYSIS, OPERATION AND PLANNING

Session Chair: **Giorgio Sulligoi**
University of Trieste

**Tuesday | June 12th | 2018 | 11:30 – 13:30**
Venue: **Room 12**

**N1-TS7 395** **OPTIMAL OPERATION OF PV-BATTERY-DIESEL MICROGRID FOR INDUSTRIAL LOADS UNDER GRID BLACKOUTS**
**Mansour Alramlawi, Aouss Gabash, Erfan Mohagheghi, Pu Li**
Ilmenau University of Technology

**N1-TS7 445** **A RISK PREDICTION ASSESSMENT METHOD OF THE SHIP MICRO-GRID**
**Pengfei Zhi(1), Wanlu Zhu(1), Bowen Xing(2), Zhiyu Zhu(1)**
(1) Jiangsu University of Science and Technology; (2) Shanghai Ocean University

**N1-TS7 499** **TN-GROUNDING SYSTEMS FOR THE EMERGING COLD IRONING: MULTIPLE GROUNDED SYSTEM VS ISLAND SYSTEM**
**Giuseppe Parise(1), Regina Lamedica(1), Luigi Martirano(1), Luigi Parise(1), Alessandro Ruvio(1), Benjamin Chavdarian(2), Chun-Lien Su(3)**
(1) Sapienza University of Roma; (2) Port of Long Beach; (3) National Kaohsiung Marine University

**N1-TS7 604** **MODELING AND ANALYSIS OF THE PORT OF TRIESTE ELECTRICAL DISTRIBUTION SYSTEM**
**Daniele Bosich, Riccardo Faraone, Giorgio Sulligoi**
University of Trieste

**N1-TS7 656** **GROUNDING STRATEGIES FOR HIGH VOLTAGE SHORE CONNECTION OF LARGE PASSENGER VESSELS**
**Eirill Mehammer, Ole Edvard Kongstein, Arne Petter Brede**
SINTEF Energy Research

**N1-TS7 707** **FRAMEWORK PROPOSAL TO SUPPORT GRID-CONNECTED MICROGRID OPTIMAL PLANNING**
**Pedro Machado, Luiz Edival Souza, Roberto Netto**
UNIFEI

**N1-TS7 742** **ROBUST ACTIVE FRONT END APPROACH IN CRANE APPLICATIONS FOR PORT COMPETITIVENESS**
**Sasa Sladic(1), D. Kolich(1), R. Zigulic(1), D. Bosich(2)**
(1) University of Rijeka; (2) University of Trieste

**N1-TS7 870** **OPTIMIZATION OF PEAK LOAD SHAVING IN STS GROUP CRANES BASED ON PSO ALGORITHM**
**Mostafa Kermani(1), Giuseppe Parise(1), Luigi Martirano(1), Benjamin Chavdarian(2)**
(1) Sapienza University of Rome; (2) Port of Long Beach

## POSTER SESSION 2 **(A1-PS)**

Session Chair: **Alessandro Ruvio**
Sapienza University of Rome

**Tuesday | June 12th | 2018 | 14:30 – 16:30**
Venue: **Ballroom**

**A1-PS 33** **A SELECTIVE RECTIFIER FOR RF ENERGY HARVESTING UNDER NON-STATIONARY PROPAGATION CONDITIONS**
**Alex Mouapi, Nadir Hakem, Gaelle Vanessa Kamani,**
(1) Universite du Quebec en Abitibi-Temiscamingue (UQAT); (2) University of Greenwich

**A1-PS 85** **EXPERIMENTAL IMPROVEMENTS CONCERNING THE THERMAL MANUFACTURING PARAMETERS OF A NEW METAL OXIDE VARISTOR MATERIAL**
**Bogdan Filip(1), Flaviu Frigura-Iliasa(1), Doru Vatau(1), Mihaela Frigura-Iliasa(1), Petru Andea(1), Florin Balcu(2)**
(1) Politechnica University Timisoara;
(2) National Institute for Research and Development in Electrochemistry and Condens

**A1-PS 91** **EFFECTS OF SUBMARINE TRANSMISSION GRID EXTENSIONS BETWEEN THE GREEK ISLANDING REGION AND THE MAINLAND**
**Eleni Zafeiratou**
UCL, Energy Institute

**A1-PS 224** **ELECTRICAL FAULT DETECTION USING MACHINE LEARNING ALGORITHM FOR CENTRIFUGAL WATER PUMPS**
**Sanjeevikumar Padmanaban(1), Ranganatha Chakravarthy H.S. (2), Arunshankar V.K(3), Umashankar Subramaniyan(3), Zbigniew Leonowicz(4), Patrick Wheeler(5)**
(1) University of Johannesburg; (2) Robert Bosch Engineering and Business Solution;
(3) VIT University; (4) Wroclaw University of Science and Technology; (5) Nottingham University

**A1-PS 279** **IMPLEMENTING DYNAMIC NETWORK RECONFIGURATION WITH RENEWABLES CONSIDERING FUTURE GRID TECHNOLOGIES: A REAL CASE STUDY**
**Sérgio Santos(1), Joao Catalao(2), Desta Zahlay Fitiwi(3), Marco Cruz(4), José Pogeira(2)**
(1) University of Beira Interior; (2) FEUP; (3) C-MAST/UBI; (4) UBI

**A1-PS 288** **OPTIMIZATION OF ENERGY MANAGEMENT FOR RESIDENTIAL HOUSES WITH PHOTOVOLTAIC PANELS AND FUEL CELLS**
**Zolboo Damiran, Leehter Yao**
National Taipei University of Technology

**A1-PS 336** **CORRELATION BETWEEN CHEMICAL ALTERATIONS AND ENERGETIC PROPERTIES IN TORREFIED BIOMASS**
**Leonel Nunes(1), Radu Godina(2), J.C.O. Matias(3)**
(1) Univeristy of Aveiro; (2) University of Beira Interior; (3) UA

**A1-PS 345** **ANALYSIS OF WIND LOADING ON PHOTOVOLTAIC PANELS MOUNTING BRACKETS**
**Luiz Guilherme Ferreira**
Instituto Federal de Educação, Ciencia e Tecnologia de Goias

**A1-PS 347** **CONTAINING LOSS RISK IN A LOW INERTIA GB POWER SYSTEM**
**Marcel Nedd**
University of Strathclyde

**A1-PS 411** **ROLE OF DISTRIBUTED ENERGY STORAGE SYSTEMS IN THE QUEST FOR CARBON-FREE ELECTRIC DISTRIBUTION SYSTEMS**
**Sérgio Santos**
University of Beira Interior

**A1-PS 583** **SMART CITY AND CULTURAL HERITAGE: RESILIENCE TROUGHT CROWSOURCHING INVOLVEMENT**
**Alessia D'Angelo(1), Luciano Ricciardi(2), Luca Gugliermetti(2)**
(1) Sapienza University of Roma; (2) Freelancer

**A1-PS 683** **PROPOSAL CRITERION & METHOD TO ESTIMATE BATTERY SOC IN SPACECRAFT APPLICATION**
**Aissa Boutte**
Spacecraft Development Center, Algerian Space Agency

**A1-PS 788** **MARKET BASED ELECTRICITY EXCHANGE SYSTEM FOR FUTURE POWER BALANCING**
**Kenji Tanaka**
University of Tokyo

**A1-PS 503** **VOLTAGE/VAR CONTROL WITH REACTIVE POWER INJECTION IN DISTRIBUTION NETWORKS USING A PROPER METAHEURISTIC APPROACH**
**Bogdan Constantin Neagu, Mihai Gavrilas, Gheorghe Ghiocel Matei**
Gheorghe Asachi Technical University of Iasi

**A1-PS 337** **PINUS PINASTER AND EUCALYPTUS GLOBULUS ENERGETIC PROPERTIES AND ASH CHARACTERIZATION**
**Leonel Nunes(1), Radu Godina(2), J.C.O. Matias(3)**
(1) Univeristy of Aveiro; (2) University of Beira Interior; (2) UA

**A1-PS 429** **TRADE-OFF SOLUTIONS BETWEEN ECONOMY AND CO2 EMISSIONS FOR THE OPERATION OF A DISTRIBUTED ENERGY SYSTEM LOCATED IN ITALY**
**Marialaura Di Somma, Ilaria Bertini, Giorgio Graditi, Luigi Mongibello, Giovanni Puglisi,**
ENEA

**A1-PS 658** **EFFECT OF INTEGRATING PHOTOVOLTAIC SYSTEMS ON ELECTRICAL NETWORK LOSSES CONSIDERING LOAD VARIATION**
**Jaser Sa'ed(1), Mohammad Amer(1), Ahmed Bodair(1), Ahmad Baransi(1), Salvatore Favuzza(2), Gaetano Zizzo(2)**
(1) Università di Cassino e del Lazio Meridionale; (2) University of Palermo

TECHNICAL SESSION 14 **(A1-TS1)**

## ENERGY PROSUMERS FLEXIBILITY FOR FUTURE SMART GRIDS

Session Chair: **Diego Arnone**
Engineering Ingegneria Informatica S.p.A.

**Tuesday | June 12th | 2018 | 15:00 – 17:00**
Venue: **Room 6**

**A1-TS1 312** **INTEGRATING EU MARKET PLACE WITH MARKET PLAYER PLATFORMS USING LIGHTWEIGHT WEB-BASED APIS - FLEXICIENCY EU MARKET PLACE**
**Anton Zvonko Gazvoda(1), Matjaž Branko Jurič(1), Daniele Porcu(2)**
(1) University of Ljubljana; (2) Enel

**A1-TS1 355** **SMART GRID AND MICROGRID COOPERATION IN A REAL DISTRIBUTION NETWORK UNDER EMERGENCY CONDITIONS**
**Marco Maccioni(1), Tommaso Bragatto(2), Fabio Massimo Gatta(1), Alberto Geri(1), Massimo Cresta(2), Marco Paulucci(2), Federico Carere(1), Stefano Lauria(1)**
(1) Sapienza University of Rome; (2) A.S.M. Terni S.p.A.

**A1-TS1 364** **FLEXIBILITY SERVICES TO POWER SYSTEMS FROM SMART RURAL MICROGRID PROSUMERS**
**Giuseppe Paternò(1), Marilena Lazzaro(1), Tommaso Bragatto(2), Francesca Santori(2), Marco Paulucci(2), Fabio Massimo Gatta(3), Alberto Geri(3), Stefano Lauria(3), Marco Maccioni(3)**
(1) Engineering Ingegneria Informatica S.p.A.; (2) A.S.M. Terni S.p.A.; (3) Sapienza University of Rome

**A1-TS1 365** **INNOVATIVE REDOX FLOW BATTERY SYSTEMS FOR THE IMPLEMENTATION OF FLEXIBLE MICROGRIDS**
**Giuseppe Paternò(1), Alessandro Rossi(1), Alessandra D'Epifanio(2), Barbara Mecheri(2), Silvia Licoccia(2), István Szatmári(3), Bálint Péceli(3)**
(1) Engineering Ingegneria Informatica S.p.A.;
(2) Università degli Studi di Roma "Tor Vergata"; (3) EVOPRO INNOVATION KFT

**A1-TS1 389** **DEMAND PROJECT: A PEAK LOAD SHAVING STRATEGY FOR END-USER CONSUMERS**
**Salvatore Favuzza, Mariano Ippolito, Fabio Massaro, Eleonora Riva Sanseverino, Enrico Telaretti, Gaetano Zizzo**
University of Palermo

**A1-TS1 485** **CONVERTING DATA CENTRES IN ENERGY FLEXIBILITY ECOSYSTEMS**
**Tudor Cioara(1), Terpsi Velivassaki(2), Massimo Bertoncini(3), Artemis Voulkidis(4), Ariel Oleksiak(5), Nicolas Saintherant(6), Vasiliki Georgiadou(7), Ionut Anghel(1), Maria Adele Paglia(8), Claudia Pop(1)**
(1) Technical University of Cluj-Napoca; (2) Singularlogic; (3) Engineering;
(4) Power Operations Ltd.; (5) PSNC; (6) Qarnot Computing; (7) Green IT Amsterdam; (8) ENEL

**A1-TS1 532** **THE NEW PROSUMER TASKS IN THE ENERGY MANAGEMENT OF BUILDINGS**
**Francesco Muzi(1), Luigi Calcara(2), Massimo Pompili(2), Silvia Sangiovanni(2)**
(1) University of L'Aquila; (2) Sapienza University of Rome

**A1-TS1 629** **ENERGY EXCHANGE STRATEGY FOR LOCAL ENERGY MARKETS WITH HETEROGENEOUS RENEWABLE SOURCES**
**Borislava Spasova**
Keio University

TECHNICAL SESSION 15 **(A1-TS2)**

## ENERGY STORAGE FOR SMART GRIDS

Session Chair: **Davide Poli**
University of Pisa

**Tuesday | June 12th | 2018 | 15:00 – 17:00**
Venue: **Room 7**

**A1-TS2 127** **THE REGENERATIVE BRAKING FOR A L7E RANGE EXTENDER HYBRID VEHICLE**
**Massimiliana Carello, Alessandro Ferraris, Andrea Giancarlo Airale, Shuang Xu, Alessandro Messana**
Politecnico di Torino

**A1-TS2 283** **EXPERIMENTAL ANALYSIS OF NMC LITHIUM CELLS AGING FOR SECOND LIFE APPLICATIONS**
**Giovanni Lutzemberger(1), Massimo Ceraolo(1), Romano Giglioli(1), Mohadeseh Meskinfam Langroudi(1), Davide Poli(1), Natascia Andrenacci(2), Manlio Pasquali(2)**
(1) University of Pisa; (2) ENEA

**A1-TS2 317** **INTELLIGENT CONTROL FRAMEWORK FOR ENERGY STORAGE MANAGEMENT ON MVDC POWER SYSTEMS**
**Osama Mohammed**
Florida International University

**A1-TS2 372** **PARTICIPATION OF BATTERY ENERGY STORAGE SYSTEMS IN THE ITALIAN BALANCING MARKET: MANAGEMENT STRATEGIES AND ECONOMIC RESULTS**
**Michele Benini, Silvia Canevese, Diego Cirio, Antonio Gatti**
RSE SpA

**A1-TS2 397** **OPTIMIZATION OF BESS CAPACITY UNDER A PEAK LOAD SHAVING STRATEGY**
**Jaser Sa'ed(1), Salvatore Favuzza(2), Fabio Massaro(2), Enrico Telaretti(2)**
(1) Birzeit University; (2) University of Palermo

**A1-TS2 724** **MULTIOBJECTIVE INTELLIGENT ENERGY MANAGEMENT OPTIMIZATION FOR GRID-CONNECTED MICROGRIDS**
**Kutaiba El-Bidairi**
UTAS/AMC

**A1-TS2 272** **PLUG-IN ELECTRIC VEHICLES SMART CHARGING IN ITALY: CONTROL SYSTEM ARCHITECTURE AND FIELD TEST RESULTS**
**Alessandro Di Giorgio(1), Letterio Zuccaro(1), Giovanni Coppola(2), Federico Caleno(2)**
(1) Sapienza University of Rome; (2) Enel X

TECHNICAL SESSION 16 **(A1-TS3)**

# REGIONAL INTEGRATION: HOW TO GET IT RIGHT?

Session Chair: **Enrico Maria Carlini**
TERNA Rete Elettrica Nazionale S.p.A.

**Tuesday | June 12th | 2018 | 15:00 – 17:00**
Venue: **Room 8**

**A1-TS3 44** **THE RELIABILITY AND MAINTAINABILITY ANALYSIS OF TRANSMISSION TRANSFORMERS IN SOUTH AFRICA**
**Jan-Harm Pretorius, Phaladi Molabe**
University of Johannesburg

**A1-TS3 167** **A POWER SECTOR IN TRANSITION UNDERSTANDING TRANSITION TOWARDS A CLEANER GRID AND HOW DISTRIBUTED ENERGY RESOURCES AFFECT THE DESIGN AND OPERATION OF ELECTRIC POWER SYSTEMS**
**Fabio Massaro(1), Enrico Maria Carlini(2), Robert Schroeder(3), Jens Møller Birkebæk(4)**
(1) University of Palermo; (2) TERNA SPA;
(3) European Network of Transmission System Operators;
(4) Nordic Regional Security Coordinator

**A1-TS3 182** **SEASONAL ADEQUACY RISKS**
**Robert Schroeder(1), Enrico Maria Carlini(2), Silvia Moroni(2)**
(1) European Network of Transmission System Operators; (2) TERNA SPA

**A1-TS3 184** **OPEN-PHASE RESONANCE IN SHUNT-COMPENSATED AC CABLE LINES**
**Francesco Palone(1), Luca Buono(1), Stefano Lauria(2), Marco Maccioni(2), Fabio Massimo Gatta(2), Alberto Geri(2)**
(1) TERNA SPA; (2) Sapienza University of Rome

**A1-TS3 239** **REGIONAL COORDINATION OF POWER SYSTEM OPERATIONS**
**Jens Møller Birkebæk(1), Enrico Maria Carlini(2), Silvia Moroni(2)**
(1) Nordic Regional Security Coordinator; (2) TERNA SPA

**A1-TS3 635** **FACTORS AFFECTING THE SINGLE-ENDED TRAVELLING WAVE-BASED FAULT LOCATION IN HV LINES**
**Gianluigi Gemelli, Federico Falorni**
TERNA SPA

**A1-TS3 112** **REVIEW OF TECHNOLOGIES OF INTELLIGENT TRANSMISSION LINES AND THEIR APPLICATIONS IN SMART GRID**
**Junhui Zhao(1), Jindong Yang(2), Hongwen Liu(2), Wei Ma(3)**
(1) West Haven, CT USA; (2) Yunnan Power Supply Company, Yunan, China;
(3) Chongqing University of Science and Technology Chongqing, China

**A1-TS3 4** **FUTURE STATE VISUALIZATION IN POWER GRID**
**Kiamran Radjabli**
Utilicast

TECHNICAL SESSION 17 **(A1-TS4)**

## POWER ELECTRONICS AND SMART GRIDS - 2

Session Chair: **Massimo Mitolo**
Irvine Valley College

**Tuesday | June 12th | 2018 | 15:00 – 17:00**
Venue: **Room 9**

**A1-TS4 88** **CONTROLLING THD AND SELECTIVE HARMONIC IN MULTI-LEVEL INVERTERS USING MULTI-CARRIER PWM SWITCHING**
**Reza Farid Ghasemnia(1), Mohamadreza Faridghasemnia(2), Zahra Arabkhazaeli(3)**
(1) MAPNA Group, Karaj, Iran; (2) Sapienza University of Rome;
(3) Scientific Consultation, T. F. Bina Ltd., Tehran, Iran

**A1-TS4 301** **SIGMA-DELTA BASED MODULATION METHOD FOR MATRIX CONVERTERS**
**Simone Orcioni, Giorgio Biagetti, Paolo Crippa, Laura Falaschetti, Claudio Turchetti**
Università Politecnica delle Marche

**A1-TS4 416** **CONTROL OF MODULAR MULTILEVEL CONVERTERS (MMCS) UNDER LOADING VARIATIONS IN DISTRIBUTED GENERATION APPLICATION**
**Majid Mehrasa(1), Edris Pouresmaeil(2), Joao Catalao(3), Radu Godina(4), Eduardo Rodrigues(4)**
(1) C-MAST / UBI; (2) Aalto University; (3) FEUP; (4) UBI

**A1-TS4 661** **EXTENDING THE POWER RANGE OF A SOLAR INVERTER**
**Vincenzo Di Dio, Valeria Boscaino, Giovanni Cipriani**
University of Palermo

**A1-TS4 842** **AN ELECTRIC VEHICLE BATTERY CHARGER BASED ON ZETA CONVERTER FED FROM A PV ARRAY**
**Alia Khatab**
AASTMT and Staffordshire University

TECHNICAL SESSION 18 **(A1-TS5)**

# ELECTROMAGNETIC COMPATIBILITY

Session Chairs: **Leonardo Sandrolini, Giordano Spadacini**
University of Bologna, Politecnico di Milano

**Tuesday | June 12th | 2018 | 15:00 – 17:00**
Venue: **Room 10**

**A1-TS5 10** **3-AXIAL EMC FIELD PROBE DESIGN USING HEXAGONAL SHAPED ULTRA WIDE- BANDWIDTH FRACTAL DIPOLE ANTENNA FOR THE FREQUENCY RANGE OF 0.5 TO 12 GHZ**
**Sarang Patil**
Sinhgad Institute

**A1-TS5 186** **ELECTROMAGNETIC INTERFERENCE ISSUES OF A WIRELESS POWER TRANSMISSION CONVERTER**
**Hesam khazraj(1), Filipe Faria da Silva(1), Claus Leth Bak(1), Mazaher Hajibashi(2)**
(1) AAlborg University; (2) Isfahan University of Technology

**A1-TS5 264** **SUPRAHARMONICS IN EUROPEAN AND NORTH AMERICAN LOW-VOLTAGE NETWORKS**
**Aurora Gil de Castro(1), Sarah Ronnberg(2)**
(1) UCO; (2) Lulea University of Technology

**A1-TS5 785** **RADIATED WIDEBAND IEMI IN THE SMART GRID: COUPLING MODEL AND WORST-CASE ANALYSIS**
**Tao Liang, Giordano Spadacini, Flavia Grassi, Sergio A. Pignari**
Politecnico di Milano

**A1-TS5 877** **STUDY OF THE CONDUCTED EMISSIONS OF AN SMPS POWER CONVERTER FROM 2 TO 150 KHZ**
**Leonardo Sandrolini, Gaetano Pasini**
University of Bologna

TECHNICAL SESSION 19 **(A1-TS6)**

## THE POTENTIAL OF DC DISTRIBUTION GRIDS

Session Chairs: **Mihaela Albu (1) Stefano Lauria (2)**
(1) Politehnica University of Bucharest
(2) University of Rome La Sapienza
**Tuesday | June 12th | 2018 | 15:00 – 17:00**
Venue: **Room 11**

**A1-TS6 93** **LOCAL DC DISTRIBUTION SYSTEM IN PRESENCE OF RES AND STORAGE DEVICES: MULTIPORT CONVERTERS APPLICATION**
**Simone Negri(1), Enrico Tironi(1), Giovanni Ubezio(2)**
(1) Politecnico di Milano; (2) Energy Components and Consulting S.r.l.

**A1-TS6 154** **INTERCONNECTING NEIGHBORS' BUILDINGS: ADVANTAGES OF ENERGY DISTRICTS REALIZED THROUGH PRIVATE DC LINES**
**Fabio Bignucolo, Massimiliano Coppo, Roberto Caldon**
University of Padova

**A1-TS6 557** **PHYSICAL EMULATION FOR THE INTEGRATION OF WAVE, WIND AND PV CONVERTERS IN A DC MICROGRID. PANTELLERIA ISLAND CASE.**
**Giovanni Bracco(1), Michele Pastorelli(1), Giuliana Mattiazzo(1), Alexandru Badarau(2), Liviu Kreindler(2), Razvan Magureanu(2), Mihaela Albu(2)**
(1) Politecnico di Torino; (2) Politechnica University of Bucharest

**A1-TS6 570** **ADAPTIVE DISTRIBUTED EMS FOR SMALL CLUSTERS OF RESILIENT LVDC MICROGRIDS**
**Irina Ciornei(1), Mihaela Albu(1), Mihai Sanduleac(1), Enrique Rodriguez-Diaz(2), Remus Teodorescu(2), Josep M. Guerrero(2)**
(1) Politechnica University of Bucharest; (2) Aalborg University

**A1-TS6 622** **ELECTRICAL STORAGE INTEGRATION INTO A DC NANOGRID TESTBED FOR SMART HOME APPLICATIONS**
**Maria Carmela Di Piazza, Massimiliano Luna, Marcello Pucci, Giuseppe La Tona, Angelo Accetta**
Consiglio Nazionale delle Ricerche (CNR)

**A1-TS6 650** **PLANNING STUDIES FOR THE GABON-CONGO INTERCONNECTOR: STATIC AND DYNAMIC TRANSFER LIMITS**
**Marco Maccioni(1), Fabio Massimo Gatta(1), Alberto Geri(1), Stefano Lauria(1), Stefano Galantino(2), Aristide Ngari(3), Jean-Marie Iwandza(4)**
(1) Sapienza University of Rome; (2) Studio Ing. G. Pietrangeli S.r.l.;
(3) Ministère de l'Energie et des Ressources Hydrauliques;
(4) Ministère de l'Energie et de l'Hydraulique

**A1-TS6 90** **EVALUATION OF VARIOUS FAULT DETECTION METHODS IN NON ISOLATED SINGLE SWITCH DC-DC CONVERTERS**
**Haidar Samet, Ramin Qaedi**
Shiraz University

TECHNICAL SESSION 20 **(A1-TS7)**

## SYSTEMS AND TECHNOLOGIES FOR EFFICIENT LIGHTING

Session Chairs: **Marco Beccali, Marina Bonomolo**
University of Palermo

**Tuesday | June 12th | 2018 | 15:00 – 17:00**
Venue: **Room 12**

**A1-TS7 295** **ENVIRONMENTAL AND ENERGY PERFORMANCE OF PUBLIC LIGHTING INSTALLATIONS: RESULTS OF A MEASUREMENT CAMPAIGN**
**Chiara Aghemo(1), Anna Pellegrino(2), Dario Fisanotti(2), Gabriele Piccablotto(3), Rossella Taraglio(3)**
(1) Politecnico di Torino, Department of Energy /.TEBE Research Group;
(2) Politecnico di Torino, Department of Energy;
(3) Politecnico di Torino, LAMSA, Department of Architecture and Design

**A1-TS7 311** **A NOVEL METHODOLOGY TO OPTIMISE VISUAL COMFORT AND ENERGY PERFORMANCE FOR TRANSPARENT ADAPTIVE FAÇADES**
**Luigi Giovannini(1), Fabio Favoino(2), Anna Pellegrino(1), Valerio Roberto Maria Lo Verso(3), Valentina Serra(3), Michele Zinzi(4)**
(1) Politecnico di Torino, Department of Energy; (2) Eckersley O'callaghan Ltd;
(3) Politecnico di Torino, Department of Energy /.TEBE Research Group;
(4) ENEA - Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile

**A1-TS7 313** **THE ENERGY PERFORMANCE FOR LIGHTING IN BUILDINGS ACCORDING TO THE NEW FPREN 15193-1:2017: APPLICATION TO A SAMPLE OFFICE BUILDING**
**Anna Pellegrino(1), Valerio Roberto Maria Lo Verso(2), Chiara Aghemo(2)**
(1) Politecnico di Torino, Department of Energy;
(2) Politecnico di Torino, Department of Energy /.TEBE Research Group

**A1-TS7 470** **DEFINITION AND ASSESSMENT OF A BAC FACTOR FOR ESTIMATING ELECTRICAL CONSUMPTION OF OUTDOOR LIGHTING**
**Marco Beccali, Marina Bonomolo, Gaetano Zizzo**
DEIM University of Palermo

**A1-TS7 488** **DYNAMIC LIGHTING STRATEGIES WITH LOAD SHIFTING PURPOSES TO REDUCE PEAK ELECTRICAL DEMAND**
**Marco Beccali(1), Laura Bellia(2), Marina Bonomolo(1), Francesca Fragliasso(2), Gennaro Spada(2), Gaetano Zizzo(1)**
(1) DEIM University of Palermo; (2) DII-University of Naples "Federico II"

**A1-TS7 537** **ON THE VALIDITY OF DAYLIGHT FACTOR FOR EVALUATING THE ENERGY PERFORMANCE OF BUILDING**
**Alessandro Mangione(1), Benedetta Mattoni(1), Fabio Bisegna(1), Michele Zinzi(2), Domenico Iatauro(2)**
(1) Sapienza University of Rome;
(2) ENEA - Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile

TECHNICAL SESSION 21 **(M2-TS1)**

## RENEWABLE ENERGY SOURCES IN POWER SYSTEMS DISTRIBUTED GENERATION - 3

Session Chair: **Mariana Florentina Stefanescu**
University Politechnica of Bucharest

**Wednesday | June 13th | 2018 | 09:00 – 11:00**
Venue: **Room 6**

**M2-TS1 21** **ANALYSIS AND PERFORMANCE OPTIMISATION OF A PV ELECTRIC OUTPUT INTEGRATED WITH AN AIRFLOW WINDOW FOR HIGH AND LOW SOLAR RADIATION SEASONS**
**Mohamed Samy**
Beni-Suef University

**M2-TS1 73** **CHEMICAL ANALYSIS AND CHEMICAL EXERGY OF THE FUEL OBTAINED FROM MUNICIPAL WASTE**
**Alexandru Dobrovicescu, Mariana Florentina Stefanescu**
University Politechnica of Bucharest

**M2-TS1 145** **WATER APPLICATION SYSTEM ON THE SURFACE OF PHOTOVOLTAIC PANELS TO IMPROVE ENERGY EFFICIENCY**
**Licínio de Santos(1), Calebe Matias(2), Dayane Martins Salles(2), Jose Domingos(2), Elder Geraldo Domingues3), Aylton José Alves(2), Sérgio Botelho de Oliveira(2)**
(1) Instituto Federal de Educação; (2) Federal Institute of Goias; (3) Nucleous of Experimental and Technological Research and Study Group (NExT)

**M2-TS1 350** **COORDINATED OPERATION OF XILUODU PLANT AND HYDROPOWER PLANTS IN RECEIVING POWER GRIDS**
**Jianjian Shen, Xiufei Zhang, Rui Cao, Qianqian Shen**
Dalian University of Technology

**M2-TS1 765** **INVESTIGATION OF A DC MICROGRID'S OPERATION INCORPORATING RENEWABLE ENERGY SOURCES AND BATTERIES**
**Eleni Bouloukosta, Athanasios Karlis**
Democritus University of Thrace

**M2-TS1 502** **APPLICATION OF A PARALLEL VIRTUAL INFINITE CAPACITOR TO DC-LINK VOLTAGE FILTERING FOR A DOUBLY FED INDUCTION WIND GENERATOR**
**Shuyue Lin(1), Xin Tong(1), Xiaowei Zhao(1), George Weiss(2)**
(1) University of Warwick; (2) Tel Aviv University

**M2-TS1 5** **ADVANCED SOLAR ENERGY SYSTEMS WITH THERMOELECTRIC GENERATORS**
**Mikel Larranaga Aizpurua, Zbigniew Leonowicz**
Wrocław University of Science and Technology

TECHNICAL SESSION 22 **(M2-TS2)**

## SUSTAINABLE ENERGY ACTION PLANS ARE EFFECTIVE TOOLS FOR PROMOTING ENERGY EFFICIENCY IN TOWNS?

Session Chair: **Gianfranco Rizzo**
University of Palermo

**Wednesday| June 13th | 2018 | 09:00 – 11:00**
Venue: **Room 7**

**M2-TS2 256** **EXERGY ANALYSIS OF ENERGY SYSTEMS IN BUILDINGS. METHODS AVAILABLE AND LESSONS LEARNED**
**Gianpiero Evola(1), Luigi Marletta(1), Lamberto Tronchin(2), Kristian Fabbri(2)**
(1) University of Catania; (2) University of Bologna

**M2-TS2 271** **INTEGRATED METHODS FOR ESTABLISHING THE SUSTAINABILITY OF URBAN POLICIES: APPLYING ECOLOGICAL FOOTPRINT (EF) TO THE MUNICIPAL SOLID WASTE (MSW) MANAGEMENT**
**Maria La Gennusa(1), Giorgia Peri(1), Patrizia Ferrante(1), Concettina Marino(2), Antonino Nucara(2)**
(1) University of Palermo-DEIM; (2) Mediterranean University of Reggio Calabria

**M2-TS2 319** **INTEGRATION OF THERMAL AND VISUAL COMFORT I N THE RETROFIT OF EXISTING BUILDINGS. TRANSFORMATION OF AN OFFICE BUILDING INTO A NZEB**
**Ilaria Ballarini, Giovanna De Luca, Argun Paragamyan, Anna Pellegrino, Vincenzo Corrado**
Politecnico di Torino

**M2-TS2 361** **ENERGY NETWORK MODELLING APPROACHES FOR MULTI-SCALE BUILDING PERFORMANCE OPTIMIZATION**
**Lamberto Tronchin(1), Massimiliano Manfren(2)**
(1) University of Bologna; (2) University of Southampton

**M2-TS2 410** **WATER-ENERGY RELATED ASPECT OF EXTENSIVE GREEN ROOFS: THE ROLE OF EVAPOTRANSPIRATION**
**Piero Bevilacqua, Francesca Principato, Natale Arcuri, Mario Maiolo, Patrizia Piro**
University of Calabria (UNICAL)

**M2-TS2 497** **INTEGRATION OF SOCIAL SCIENCE IN ENGINEERING RESEARCH FOR SMART CITIES: THE ITALIAN CASE OF THE RES NOVAE PROJECT**
**Alfredo Sguglio, Roberto Bruno, Natale Arcuri**
University of Calabria (UNICAL)

**M2-TS2 591** **A GENERAL APPROACH FOR RETROFIT OF EXISTING BUILDINGS TOWARDS NZEB**
**Livio De Santoli(1), Davide Garcia(1), Daniele Groppi(1), Luca Stabile(2), Marco Dell'Isola(2), Giorgio Ficco(2), Aldo Russi(2), Gaspare Giovinco(2), Francesca Romana d'Ambrosio(3), Gennaro Cuccurullo(3), Andrea Frattolillo(4), Boris Igor Palella(5), Laura Bellia(5), Giuseppe Riccio(5)**
(1) Sapienza University of Roma; (2) University of Cassino and Southern Lazio;
(3) University of Salerno; (4) University of Cagliari; (5) University of Neaples "Federico II"

TECHNICAL SESSION 23 **(M2-TS3)**

## ENERGY STORAGE FOR POWER SYSTEMS APPLICATION -2

Session Chair: **Massimo Bongiorno**
Chalmers University of Technology

**Wednesday | June 13th | 2018 | 09:00 – 11:00**
Venue: **Room 8**

**M2-TS3 268** **VALUATION OF ENERGY STORAGE OPERATION IN AN AC POWER FLOW MODEL**
**Zora Luburić(1), Hrvoje Pandzic(2), Miguel Carrión(3), Tomislav Plavsic(4)**
(1) FER, Zagreb; (2) University of Zagreb; (3) University of Castilla-La Mancha;
(4) Croatian TSO, HOPS

**M2-TS3 343** **GREY WOLF OPTIMIZER BASED BATTERY ENERGY STORAGE SYSTEM SIZING FOR ECONOMIC OPERATION OF MICROGRID**
**Shivashankar Sukumar(1), Marayati Marsadek(2), Agileswari K. Ramasamy(2), Hazli Mokhlis(3)**
(1) University Tenega Nasional; (2) UNITEN; (3) University of Malaya

**M2-TS3 371** **ECONOMIC VIABILITY OF RESIDENTIAL PV SYSTEMS WITH BATTERY ENERGY STORAGE UNDER DIFFERENT INCENTIVE SCHEMES**
**Georgios Christoforidis(1), Grigoris Papagiannis(2), Georgios Kryonidis(2), Eleftherios Kontis(2), Angelos Nousdilis(2), Ioannis Panapakidis(3)**
(1) Western Macedonia University of Applied Sciences; (2) Aristotle University of Thessaloniki;
(3) Technological Educational Institute of Thessaly

**M2-TS3 420** **DSO AND AGGREGATOR SHARING CONCEPT FOR DISTRIBUTED BATTERY STORAGE SYSTEM**
**Mirna Gržanić, Tomislav Capuder**
University of Zagreb

**M2-TS3 143** **PRIMARY FREQUENCY CONTROL IN A POWER SYSTEM WITH BATTERIES AND ENERGY RECOVERY**
**Valentin Boicea, Mihai Sanduleac, Lucian Toma, Alexandru Mandiş**
Universitatea Politechnica din Bucuresti

TECHNICAL SESSION 24 **(M2-TS4)**

## MAINTENANCE, OPERATION AND SAFETY IN POWER SYSTEMS - 1

Session Chair: **Sanjeevikumar Padmanaban**
University of Johannesburg

**Wednesday| June 13th | 2018 | 09:00 – 11:00**
Venue: **Room 9**

**M2-TS4 36** **REVISTA ON DESIGN OF SIMULATION KIT FOR TESTING LOCAL CONTROL CABINET IN GAS INSULATED SWITCHGEAR**
**Sanjeevikumar Padmanaban(1), Sagar Mahajan Bhaskar(1), Pierluigi Siano(2), Aishwarya Taur(3), Luigi Martirano(4)**
(1) University of Johannesburg; (2) University of Salerno; (3) MIT; (4) Sapienza University of Rome

**M2-TS4 102** **EXPERIMENTAL STUDY ON ELIMINATION OF PARTIAL DISCHARGE EFFECT ON DETECTION OF RADIAL DEFORMATION OF HIGH VOLTAGE TRANSFORMER WINDING USING ELECTROMAGNETIC WAVES**
**Hossein Karami, Gevork B. Gharehpetian, Maryam A. Hejazi, University of Kashan, Yaser Norouzi**
Amirkabir University of Technology (AUT)

**M2-TS4 105** **AN EFFICIENT APPROACH FOR FAULT DETECTION AND FAULT TOLERANT CONTROL OF WIND TURBINES**
**Ali Abdo**
Birzeit University

**M2-TS4 405** **ARC FLASH RISK ASSESSMENT USING METHODOLOGY FMECA**
**Jan Pígl**
Eaton Corporation

**M2-TS4 746** **ELECTRIC POWER EFFECT ON THE FORMATION AND DISAPPEARANCE OF GAS BUBBLES IN THE OZONE TREATMENT OF LIQUIDS**
**Tatiana Golubeva, Samal Abdreshova, Birlesbek Aliyarov, Sergey Konshin, Shabden Bahtaev , Inkar Duisenbek**
Almaty University of Power Engineering and Telecommunications

**M2-TS4 768** **SOME REMARKS ON THE ACCURACY OF ENERGY METERS**
**Romuald Masnicki**
Gdynia Maritime University

**M2-TS4 793** **APPLICATION OF GIS PARTIAL DISCHARGE ON-SITE DETECTION AND DIAGNOSIS IN EAST CHINA POWER GRID**
**Kai Gao(1), Fulin Wu(2)**
(1) State Grid Shanghai Electric Power Research Institute;
(2) Xi'an University of posts and telecommunications

TECHNICAL SESSION 25 **(M2-TS5)**

## POWER SYSTEM STABILITY, SECURITY AND RESILIENCY

Session Chair: **Mehdi Bagheri**
Nazarbayev University

**Wednesday| June 13th | 2018 | 09:00 – 11:00**
Venue: **Room 10**

**M2-TS5 66** **ASSESSMENT OF STATIC STABILITY OF POWER SYSTEM OF THE BALTIC STATES IN VIEW OF THE PLANNED SYNCHRONIZATION WITH NETWORKS OF WESTERN EUROPE TO 2030**
**Inga Zicmane, Kristina Berzina, Sergey Kovalenko, Aleksejs Sobolevskis**
Riga Technical University

**M2-TS5 242** **ANALYSIS OF THE SENSITIVITY OF EXTENDED KALMAN FILTER BASED INERTIA ESTIMATION METHOD TO THE ASSUMED TIME OF DISTURBANCE**
**Samuele Grillo, Davide del Giudice**
Politecnico di Milano

**M2-TS5 259** **INERTIA ESTIMATION OF EQUIVALENT AREAS BY A PMU-BASED APPROACH FOLLOWING PERTURBATIONS**
**Guido Moraes, Alberto Berizzi**
Politecnico di Milano

**M2-TS5 261** **DYNAMIC ANGLE INSTABILITY SIMULATION FRAMEWORK BASED ON REFERENCE MODEL PLATFORM**
**Igor Ivankovic(1), Igor Kuzle(2), Ninoslav Holjevac(2)**
(1) Croatian Transmission System Operator Ltd;
(2) University of Zagreb Faculty of Electrical Engineering and Computing

**M2-TS5 292** **THE MATHEMATICAL MODELLING OF THE SYNCHRONIZATION PROCESS OF AUTONOMOUS POWER SUPPLY SYSTEM WITH RENEWABLE ENERGY SOURCES**
**Jevgenijs Kuckovskis(1), Kristina Berzina(1), Elena Ketnere(1), Inga Zicmane(2), Aleksandrs Mesnajevs(1)**
(1) Riga Technical University; (2) RTU FPEE

**M2-TS5 773** **DETECTION AND CLASSIFICATION OF TRANSMISSION LINE FAULTS USING MODIFIED F-SVM**
**Jai Prakash Keshri, Harpal Tiwari**
MNIT Jaipur

TECHNICAL SESSION 26 **(M2-TS6)**

## POWER SYSTEMS: TRANSMISSION GRIDS COMPONENTS AND OPERATION - 2

Session Chair: **Hesam Khazraj**
Aalborg University

**Wednesday| June 13th | 2018 | 09:00 – 11:00**
Venue: **Room 11**

**M2-TS6 523** **AN ADAPTIVE ALGORITHM FOR FAULT IDENTIFICATION IN TRANSMISSION LINES BY SHORT-TIME FOURIER TRANSFORM FUNCTION**
**Hesam khazraj(1), Babak Yousefi Khangah(2), Mani Ashouri(1), Athanasios Stamatopoulos(3), Filipe Faria da Silva(4), Claus Leth Bak(4)**
(1) AAlborg University; (2) Tabriz University; (3) Banedanmark & Aalborg University; (4) AAU

**M2-TS6 734** **SYNCHRONOUS GENERATOR LOSS OF FIELD PROTECTION BY USING ROTOR ANGLE VARIATIONS**
**Abbas Hasani(1), Farhad Haghjoo(1), Filipe Faria da Silva(2), Claus Leth Bak(2)**
(1) Shahid Beheshti University; (2) AAU

**M2-TS6 650** **PLANNING STUDIES FOR THE GABON-CONGO INTERCONNECTOR: STATIC AND DYNAMIC TRANSFER LIMITS**
**Marco Maccioni(1), Fabio Massimo Gatta(1), Alberto Geri(1), Stefano Lauria(1), Stefano Galantino(2), Aristide Ngari(3), Jean-Marie Iwandza(4)**
(1) Sapienza University of Rome; (2) Studio Ing. G. Pietrangeli S.r.l.;
(3) Ministère de l'Énergie et des Ressources Hydrauliques;
(4) Ministère de l'Énergie et de l'Hydraulique

**M2-TS6 652** **CALCULATION OF VOLTAGE UNBALANCE IN TRANSMISSION SYSTEMS DUE TO AC RAILWAY OPERATION: A SIMPLIFIED METHODOLOGY USING NETWORK'S ADMITTANCE MATRIX**
**Athanasios Stamatopoulos(1), Hesam khazraj(2), Filipe Faria da Silva(3), Claus Leth Bak(3), Henrik Vikelgaard(4)**
(1) Banedanmark & Aalborg University; (2) AAlborg University; (3) AAU; (4) Banedanmark

TECHNICAL SESSION 27 **(M2-TS7)**

## SUSTAINABLE TRANSPORT SYSTEM: POWER INFRASTRUCTURE AND ELECTRICAL VEHICLES - 1

Session Chair: **Ivan Pavic**
University of Zagreb

**Wednesday| June 13th | 2018 | 09:00 – 11:00**
Venue: **Room 12**

**M2-TS7 398** **ANALYSING AND MODELLING USERS' BEHAVIOR TOWARDS ELECTRIC VEHICLES IN IMMATURE MARKETS: THE ARGENTINA CASE STUDY**
**Stefano De Luca, Roberta Di Pace, Facundo Storani**
University of Salerno

**M2-TS7 408** **OPTIMAL MULTI-OBJECTIVE ALLOCATION OF FAST CHARGING STATIONS**
**Gian Giuseppe Soma, Fabrizio Pilo, Gianni Celli, Gabriele Monni**
University of Cagliari

**M2-TS7 443** **A DYNAMIC MODEL AND ANALYSIS OF PEM FUEL CELLS FOR AN ELECTRIC BICYCLE**
**Tankut Yalcinoz**
University of Stuttgart

**M2-TS7 669** **OPACITY AND NOX SENSING ON A DIESEL ENGINE WITH ADBLUE INJECTED IN A SCR SYSTEM**
**William Dorado-Chiliquinga, Danny Oña-Quishpe, Juan Castro-Clavijo, Ricardo Urrutia-Goyes**
Universidad de las Fuerzas Armadas ESPE

**M2-TS7 783** **DECENTRALIZED MASTER-SLAVE ARCHITECTURE OF BATTERY SWAPPING STATION'S COMMUNICATION AND CONTROL**
**Ivan Pavic**
University of Zagreb

**M2-TS7 789** **DEVELOPMENT OF AN ELECTRICAL MODEL FOR MULTIPLE TRAINS RUNNING ON A DC 4TH RAIL TRACK**
**Hammad Alnuman, Dan Gladwin, Martin Foster**
University of Sheffield

## POSTER SESSION 3 **(N2-PS)**

Session Chair: **Federica Foiadelli**
Politecnico of Milan

**Wednesday | June 13th | 2018 | 11:30 – 13:30**
Venue: **Room Ballroom**

**N2-PS 29** **AN IMPROVED GRID-INTERFACED PV-ASSISTED BSS FOR GRID SUPPORT**
**Satabdy Jena(1), Pierluigi Siano(2), Gayadhar Panda(3)**
(1) IIT DELHI; (2) University of Salerno; (3) NIT Meghalaya

**N2-PS 573** **STUDY OF CASCADED H-BRIDGE INVERTER SWITCHING ON SMALL SCALE PV SYSTEM UNDER PARTIAL SHADING CONDITIONS**
**Hugo Suhana**
Bandung Institute of Technology, Bandung, Indonesia

**N2-PS 589** **DAILY OPERATION OPTIMIZATION FOR GRID-CONNECTED HYBRID SYSTEM CONSIDERING SHORT-TERM ELECTRICITY PRICE FORECAST**
**Pedro Bento**
University of Beira Interior

**N2-PS 623** **PHOTOVOLTAIC ARRAY MODELLING AND BOOST-CONVERTER CONTROLLER-DESIGN FOR A 6KW GRID-CONNECTED PHOTOVOLTAIC SYSTEM - DC STAGE**
**Noureddin Motan, Muhammad Abu-Khaizaran, Mahran Quraan**
Birzeit University

**N2-PS 759** **ASSESSMENT OF THE ECONOMIC VIABILITY OF MARKET-BASED FLEXIBILITY PROVISION FOR CONGESTION MANAGEMENT IN DISTRIBUTION GRIDS**
**Marius Sieberichs, Kim Taylor**
Institut für elektrische Anlagen und Energiewirtschaft RWTH Aachen

**N2-PS 865** **SORTING AND SIZING OF THE ENERGY STORAGE SYSTEMS DEPENDING ON USING LOCATION CONDITIONS**
**Ramazan Bayindir(1), Tohid Harighi(1), Leili Eslam Jamalgolzari(2), Amir Harighi(3)**
(1) Gazi University; (2) Shahid Madani University; (3) Islamic Azad University Khoy Branch

**N2-PS 265** **IMPACT OF PHOTOVOLTAIC GENERATORS ON THE THREE PHASE SHORT CIRCUIT OPERATING CONDITIONS**
**Luisa Alfieri(1), Antonio Bracale(2), Pierluigi Caramia(2), Guido Carpinelli(3), Annarita Di Fazio(4)**
(1) University of Naples Federico II; (2) University of Naples Parthenope;
(3) UNINA; (4) University of Cassino and Southern Lazio

**N2-PS 524** **WORKFUNCTION DETERMINATION OF TRANSPARENT CONTACT FOR A:SI/C-SI HETEROJUNCTION SOLAR CELLS**
**Laura Iancellotti(1), Eugenia Bobeico(1), Marco Della Noce(1), Ilaria Matacena(2), Paola Delli Veneri(1)**
(1) ENEA; (2) University of Naples Federico II

**N2-PS 65** **SECURITY AND RELIABILITY ASSESSMENT OF OVERHEAD LINES AMPACITY FORECASTING**
**Igor Albizu**
University of Basque Country

**N2-PS 409** **QUALITATIVE AND QUANTITATIVE FMECA ON 220 KV POWER TRANSFORMERS**
**Mohamed Khalil**
Doble Power Test

**N2-PS 185** **ONLINE SYNCHROPHASOR-BASED DYNAMIC STATE ESTIMATION USING REAL-TIME DIGITAL SIMULATOR**
**Hesam khazraj(1), Adeyemi Charles Adewole(2), Udaya Annakkage(2), Filipe Faria da Silva(3), Claus Leth Bak(3), Athula Rajapakse(2)**
(1) AAlborg University; (2) University of Manitoba; (3) AAU

**N2-PS 878** **IMPROVEMENT OF LIGHTNING PERFORMANCE OF OVERHEAD POWER LINES BY ADDITION OF UNDERBUILT GROUND WIRES**
**Rodolfo Araneo(1), Salvatore Celozzi(1), Giampiero Lovat(1), Jose Antonio Marinho Brandao Faria(2), Amedeo Andreotti(3), Luigi Verolino(3)**
(1) Sapienza University of Rome;
(2) Instituto de Telecomunicacoes Instituto Superior Tecnico Universidade de Lisboa;
(3) University of Naples Federico II

**N2-PS 413** **AN OPTIMIZATION ALGORITHM FOR CHARGING STATIONS ACTUALLY INSTALLED IN NORTH ITALY**
**Michela Longo(1), Paolo Maffezzoni(1), Xiaochun Lu(2), Luca Daniel(3), Nina Lutz(3)**
(1) Politecnico di Milano; (2) Beijing Jiaotong University; (3) Massachusetts Institute of Technology

**N2-PS 333** **CHARACTERIZATION AND POSSIBLE USE TO FLY ASHES FROM ANTHRACITE COMBUSTION IN A THERMAL POWER PLANT**
**Leonel Nunes(1), Radu Godina(2), J.C.O. Matias(3)**
(1) Univeristy of Aveiro; (2) University of Beira Interior; (3) UA

**N2-PS 306** **AN ADAPTATIVE OCV AND SCC-BASED MAXIMUM POWER POINT TRACKING METHOD FOR PHOTOVOLTAIC PANELS IN THE PARTIAL SHADING CONDITIONS**
**Mariusz Ostrowski**
Wrocław University of Science and Technology

**N2-PS 287** **ENVIRONMENTAL LIFE CYCLE ASSESSMENT AND TECHNO-ECONOMIC ANALYSIS OF PHOTOVOLTAIC (PV) AND PHOTOVOLTAIC/THERMAL (PV/T) SYSTEMS**
**M. A. Parvez Mahmud, Nazmul Huda, ShahjadiHisanFarjana, Candace Lang**
Macquarie University

**N2-PS 615** **DESIGN AND MODELLING OF A 6KW GRID-CONNECTED PHOTOVOLTAIC SYSTEM - AC STAGE**
**Noureddin Motan, Muhammad Abu-Khaizaran, Jaser Sa'ed**
Birzeit University

**N2-PS 869** **ELF SHIELDING OF FINITE-SIZE FINITE-THICKNESS SCREENS AGAINST MAGNETIC FIELDS**
**Rodolfo Araneo, Salvatore Celozzi, Giampiero Lovat, Paolo Burghignoli**
Sapienza University of Rome

TECHNICAL SESSION 28 **(N2-TS1)**

## ELECTRICAL MACHINES AND POWER CONVERTERS

Session Chairs: **Vincenzo Di Dio, Giovanni Cipriani**
University of Palermo

**Wednesday| June 13th | 2018 | 11:30-13:30**
Venue: **Room 6**

**N2-TS1 14** **MODELLING MUTUAL INTERACTIONS OF TRACTION SYSTEMS WITH ON BOARD ODOMETRY SYSTEMS**
**Luca Pugi**
University of Florence

**N2-TS1 35** **MODIFIED CUK DC-TO-DC CONVERTER WITH TWO SWITCHED INDUCTOR MODULE (MCCSI) CONFIGURATIONS FOR PHOTOVOLTAIC APPLICATION: PART-II**
**Kiran Maroti Pandav(1), Sanjeevikumar Padmanaban(1), Pierluigi Siano(2), Prof. Frede Blaabjerg(3), Dan Ionel(4)**
(1) University of Johannesburg; (2) University of Salerno;
(3) Aalborg University; (4) University of Kentucky

**N2-TS1 284** **EFFECT OF ANGLES OF HARMONIC COMPONENTS OF BACK TO BACK CONVERTER OF DISTRIBUTED GENERATION RESOURCES ON CURRENT BEHAVIOR OF DISTRIBUTION NETWORKS**
**Babak Mohamadi Kalesar(1), Javad Behkesh Noshahr(1), Mostafa Kermani(2), Hesam Bavandsavadkoohi(3), Farhad Ahbab(1)**
(1) Ardabil Province Electricity Distribution Company (APED Co.);
(2) Sapienza University of Rome; (3) Barez automation control systems & electronic industries

**N2-TS1 813** **SENSORLESS CONTROL OF BRUSHLESS DC MOTOR BY ZERO-CROSSING DETECTION PULSE GENERATION WITH ADAPTIVE POWER FACTOR CONTROL TECHNIQUE**
**Farhan Ahmad, Mukul Pandey, Mohammad Zaid**
Aligarh Muslim University

**N2-TS1 841** **A REDUCED COST WIND ENERGY CONVERSION SYSTEM BASED ON PERMANENT MAGNET SYNCHRONOUS GENERATOR WITH A PARALLEL CONNECTED AC-DC BUCK-BOOST CONVERTER**
**Noha Abdelkhalek**
Arab Academy for Science, Technology & Maritime Transport

**N2-TS1 109** **EXTERNAL LOAD CHARACTERISTIC OF SYNCHRONOUS GENERATOR WITH WOUND EXCITATION AND PERMANENT-MAGNET EXCITING CORES**
**Nobuyuki Naoe, Akio Imazawa**
Kanazawa Technical College

TECHNICAL SESSION 29 **(N2-TS2)**
## SUSTAINABLE ENERGY ACTION PLANS ARE EFFECTIVE TOOLS FOR PROMOTING ENERGY EFFICIENCY IN TOWNS? - 2

Session Chair: **Livio De Santoli**
University of Rome La Sapienza

**Wednesday | June 13th | 2018 | 11:30-13:30**
Venue: **Room 7**

**N2-TS2 235** **OUTDOOR MEAN RADIANT TEMPERATURE ESTIMATION: IS THE BLACK-GLOBE THERMOMETER METHOD A FEASIBLE COURSE OF ACTION?**
**Concettina Marino, Antonino Nucara, Matilde Pietrafesa, Erika Polimeni**
Mediterranean University of Reggio Calabria

**N2-TS2 267** **COMPOSITE INDICATORS FOR SMART CAMPUS: DATA ANALYSIS METHOD**
**Laura Pompei(1), Benedetta Mattoni(1), Fabio Nardecchia(1), Alberto Fichera(2), Antonio Gagliano(2), Arturo Pagano(2), Fabio Bisegna(1)**
(1) Sapienza University of Roma; (2) University of Catania

**N2-TS2 304** **RECENT DEVELOPMENTS IN HEAT PUMP TECHNOLOGY TO ACHIEVE THE GOALS OF SUSTAINABLE ENERGY AND CLIMATE ACTION PLANS**
**Luigi Schibuola, Massimiliano Scarpa, Chiara Tambani**
University IUAV of Venice

**N2-TS2 321** **INNOVATIVE HYBRID ENERGY SYSTEMS FOR HEADING TOWARDS NZEB QUALIFICATION FOR EXISTING BUILDINGS**
**Davide Garcia**
Sapienza University of Roma

**N2-TS2 369** **A FULL AUTOMATIC PROCEDURE FOR THE EVALUATION OF RETROFIT SOLUTIONS OF AN OFFICE BUILDING TOWARDS NZEB**
**Cristina Cornaro**
University of Rome Tor Vergata

**N2-TS2 453** **EVALUATION OF THE ENERGY AND ENVIRONMENTAL PAYBACK TIME FOR A NZEB BUILDING - AN ITALIAN CASE STUDY**
**Francesco Asdrubali (1), Luca Evangelisti (1), Claudia Guattari (1), Gianluca Grazieschi (2)**
(1) University of Rome 3; (2) Università Niccolo Cusano

**N2-TS2 500** **OPTIMAL DESIGN OF PCM IN INTERNAL WALLS FOR NZEB BUILDINGS**
**Domenico Mazzeo(1), Piero Bevilacqua(2), Nicoletta Matera(2), Natale Arcuri(2), Piercarlo Romagnoni(1), Giuseppe Oliveti(2)**
(1) University of Venice; (2) University of Calabria

**N2-TS2 684** **BUILDING ENERGY SIMULATION FOR NEARLY ZERO ENERGY RETROFIT DESIGN: THE MODEL CALIBRATION**
**Alessandro Prada(1), Paolo Baggio(1), Adriana Angelotti(2), Ilaria Ballarini(3), Francesco Bosco(4), Cristina Cornaro(5), Vincenzo Corrado(3), Giovanna De Luca(3), Maricla Martire(2), Livio Mazzarella(2), Martina Pasini(2)**
(1) Università di Trento; (2) Politecnico di Milano;(3) Politecnico di Torino; (4) Sapienza University of Roma; (5) University of Rome Tor Vergata

**N2-TS2 821** **APPLICATION OF A GEOGRAPHICAL INFORMATION SYSTEM TO PLAN ENERGY POLICY AT A NEIGHBORHOOD SCALE**
**Antonio Gagliano(1), Alberto Fichera(1), Arturo Paganoa(1), Francesco Nocera(1), Rosaria Volpe(1), Fabio Bisegna(2)**
(1) University of Catania; (2) Sapienza University of Roma

TECHNICAL SESSION 30 **(N2-TS3)**

## REGULATION AND ELECTRICITY MARKETS - 2

Session Chair: **Roberto Napoli**
Politecnico of Turin

**Wednesday| June 13th | 2018 | 11:30-13:30**
Venue: **Room 8**

**N2-TS3 49** **CONTROLLED LOAD AS ONE OF THE WAYS OF PROVIDING SAVINGS IN THE ELECTRICITY MARKET**
**Antans Sauhats, Sergey Kovalenko, Inga Zicmane**
Riga Technical University

**N2-TS3 94** **DYNAMIC ECONOMIC DISPATCH FOR A WIND AND RUN-OF-THE-RIVER HYDROPOWER INTEGRATED SYSTEM: AN IWO IMPELEMENTATION**
**Fatemeh Marzbani(1), Haidar Samet(2)**
(1) American University of Sharjah; (2) Shiraz University

**N2-TS3 183** **LOCAL DYNAMIC FUSION FOR 24-HOUR LOAD PATTERN PREDICTION IN POWER SYSTEM**
**Stanisław Osowski, Krzysztof Siwek**
Warsaw University of Technology

**N2-TS3 351** **A CAPACITY MECHANISM DESIGN FOR DISTRIBUTION NETWORK EXPANSION PLANNING**
**Manuel Alvarez, Sarah Ronnberg, Math Bollen**
Lulea University of Technology

**N2-TS3 816** **A DAY-AHEAD JOINT ENERGY AND UNCERTAINTY RESERVE MARKET CLEARING MODEL TO MANAGE VRE UNCERTAINTY**
**Shaghayegh Zalzar**
Politecnico di Torino

**N2-TS3 830** **STOCHASTIC PAYMENT COST MINIMIZATION IN ENERGY MARKETS WITH HIGH PENETRATION OF RENEWABLES**
**Bahareh Bizhaniaram(1), Alireza Nouri(2)**
(1) Alzahra University; (2) University College Dublin

TECHNICAL SESSION 31 **(N2-TS4)**
## POWER PROPERTIES, QUALITY AND COMPENSATION OF ULTRA-HIGHPOWER AC ARC FURNACES

Session Chair: **Leszek S. Czarnecki**
Louisiana State University

**Wednesday| June 13th | 2018 | 11:30-13:30**
Venue: **Room 9**

**N2-TS4 248** **COMPENSATION OF VARIATIVE TAP IN THE DIFFERENTIAL PROTECTION OF ELECTRICAL ARC FURNACE**
**Haidar Samet (1), Teymoor Ghanbari (1), Mahdi Khosravi (1), Darioush Daryabar (2)**
(1) Shiraz University; (2) Mobarakeh Steel Company

**N2-TS4 249** **IMPLEMENTATION OF ROGOWSKI COIL BASED DIFFERENTIAL PROTECTION ON ELECTRIC ARC FURNACE TRANSFORMERS OF MOBARAKEH STEEL COMPANY: DESIGN STEP**
**Haidar Samet(1), Teymoor Ghanbari(1), Mohammad Amin Jarrahi(1), Dariush Daryabar(2)**
(1) Shiraz University; (2) Mobarakeh Steel Company

**N2-TS4 480** **FLICKER MEASUREMENTS, CALCULATION AND MITIGATION IN THE SLOVENIAN HIGH VOLTAGE NETWORK**
**Milos Maksic(1), Leopold Herman(2), Bostjan Blazic(2), Igor Papic(2)**
(1) EIMV; (2) University of Ljubljana

**N2-TS4 517** **EFFECTIVENESS OF HARMONIC FILTERS OF AC ARC FURNACES AT UNEASY MODE OF OPERATION**
**Venkata Gadiraju, Leszek Czarnecki, Aditi Shinde**
Louisiana State University

**N2-TS4 519** **CONSIDERATIONS ON DIRECT BALANCING OF ULTRA-HIGH POWER AC ARC FURNACES IN UNEASY STATE**
**Leszek Czarnecki, Ikenna Ezeonwumelu**
Louisiana State University

**N2-TS4 576** **WHY THE ELECTRIC ARC NONLINEARITY IMPROVES THE POWER FACTOR OF AC ARC FURNACES?**
**Leszek Czarnecki, Motab Almousa, Venkata Gadiraju**
Louisiana State University

**N2-TS4 585** **SUPERIOR TECHNOLOGY TO ENSURE EAF GRID FLICKER COMPLIANCE**
**Nikola Laketic(1), Aki Leinonen(2)**
(1) Avalon Partners d.o.o; (2) Merus Power Dynamics Oy

**N2-TS4 607** **ELECTRICAL EFFICIENCY OF ARC FURNACES CONSIDERING THE ELECTRIC ARC´S GENERATED CURRENTS**
**Fernando Martell**
Centro de Investigaciones en Optica

**N2-TS4 674** **ANALYSIS OF THE CURRENTS PHYSICAL COMPONENTS ALONG A COMPLETE HEAT PROCESS IN A REAL ELECTRIC ARC FURNACE**
**Alfredo Izaguirre**
Instituto Tecnologico de Estudios Superiores de Monterrey

TECHNICAL SESSION 32 **(N2-TS5)**

## SMART BUILDING, LIGHTING, METERING, DEMAND SIDE MANAGEMENT - 1

Session Chair: **Gaetano Zizzo**
University of Palermo

**Wednesday| June 13th | 2018 | 11:30-13:30**
Venue: **Room 10**

**N2-TS5 26** **PROBABILISTIC DATA-BASED MODELS FOR A RELIABLE ENERGY MANAGEMENT**
**Francesca Jung**
University of Bremen

**N2-TS5 76** **INDOOR AIR-TEMPERATURE FORECAST FOR ENERGY-EFFICIENT MANAGEMENT IN SMART BUILDINGS**
**Alessandro Aliberti(1), Francesca Maria Ugliotti(1), Lorenzo Bottacciol(1), Giansalvo Cirrincione(2), Anna Osello(1), Enrico Macii(1), Edoardo Patti(1), Andrea Acquaviva(1)**
(1) Politecnico di Torino; (2) University of Picardie Jules Verne

**N2-TS5 134** **A LOW-COST INTERNET OF THINGS INTEGRATION PLATFORM FOR A CENTRALIZED SUPERVISING SYSTEM OF BUILDING TECHNOLOGY SYSTEMS IN HOSPITALS**
**Alberto Prudenzi**
University of l'Aquila

**N2-TS5 240** **THE DAILY REPRESENTATIVE LOAD CURVE (DRLC): A USEFUL TOOL TO ANALYZE THE DEMAND IN LARGE GRIDS**
**F. Baena, P. G. Vidal, F.J. Muñoz, G. Almonacid**
Universidad de Jaén

**N2-TS5 258** **CO-SIMULATION OF THE DIFFERENT PARAMETERS AFFECTING LIGHTING CONDITIONS AND USER PREFERENCES IN WORKING ENVIRONMENTS**
**Varvara Katsanou**
Aristotle University

**N2-TS5 310** **INTEGRATION OF REAL-INTELLIGENCE IN ENERGY MANAGEMENT SYSTEMS TO ENABLE HOLISTIC DEMAND RESPONSE OPTIMIZATION IN BUILDINGS AND DISTRICTS**
**Ander Romero(1), Tasos Tsitsanis(2), Pablo De Agustín(1)**
(1) TECNALIA RESEARCH & INNOVATION; (2) HYPERTECH S.A.

**N2-TS5 362** **TRADING FRAMEWORK FOR DEMAND RESPONSE AGGREGATORS USING INFORMATION-GAP DECISION THEORY TO ADDRESS UNCERTAINTY AND RISK-MANAGEMENT**
**Morteza Vahid-Ghavidel(1), Behnam Mohammadi-ivatloo(1), Nadali Mahmoudi(2), Miadreza Shafie-khah(4), Gerardo Osório(4), João Catalão(5)**
(1) University of Tabriz; (2) University of Queensland; (3) UBI;
(4) University of Beira Interior; (5) Univeristy of Porto

**N2-TS5 441** **SMART ENERGY MANAGEMENT OF RAILWAY STATION**
**Simone Franzò(1), Michela Longo(1), Vito Manfredi Latilla(1), Gianluca Antonucci(2), Centostazioni**
(1) Politecnico di Milano; (2) Centostazioni

TECHNICAL SESSION 33 **(N2-TS6)**

## POWER SYSTEMS: DISTRIBUTION GRIDS COMPONENTS AND OPERATION - 2

Session Chair: **Zbigniew Leonowicz**
Wrocław University of Science and Technology

**Wednesday| June 13th | 2018 | 11:30-13:30**
Venue: **Room 11**

**N2-TS6 111** **DISTRIBUTION SYSTEM STATE ESTIMATOR BASED ON A LINEARIZED THREE-PHASE POWER FLOW**
**Krizell Joy Aligam, Justin Migo Dolot, Emilou Flores, Jordan Rel Orillaza**
University of the Philippines Diliman

**N2-TS6 159** **DESIGN AND VALIDATION OF A STATIC-COMMUTATED DEVICE FOR LV ACTIVE USER VOLTAGE REGULATION**
**Giovanni Mercurio Casolino, Biagio Di Nitto, Mario Russo**
Università degli Studi di Cassino e del Lazio Meridionale

**N2-TS6 334** **IMPACT OF THE STOCHASTIC BEHAVIOUR OF DISTRIBUTED ENERGY RESOURCES ON MV/LV NETWORK RELIABILITY**
**Mike Brian Ndawula(1), Ignacio Hernando-Gil(1), Sasa Djokic (2)**
(1) University of Bath; (2) University of Edinburgh

**N2-TS6 422** **OPTIMAL COMBINING SCHEME TO REDUCE POWER LOSS IN DISTRIBUTION SYSTEM BY CONSIDERING CARBON EMISSION**
**Hongwei Tang(1), Xianhu Wang(1), Guanglong Xie(2), Mengshuang Feng(2)**
(1) China Agricultural University; (2) State Grid (Suzhou) City & Energy Research Institute

**N2-TS6 659** **ANALYSIS OF BAD DATA DETECTION CAPABILITIES THROUGH SMART METER BASED STATE ESTIMATION**
**Marco Pau, Ferdinanda Ponci, Antonello Monti**
RWTH Aachen University

**N2-TS6 645** **WEIBULL DISTRIBUTION MODEL FOR THE CHARACTERIZATION OF AGGREGATE LOAD PATTERNS**
**Muhammad Umar Afzaal(1), Malik Intisar Ali Sajjad(1), Luigi Martirano(2)**
(1) University of Engineering & Technology of Taxila; (2) Sapienza University of Rome

TECHNICAL SESSION 34 **(N2-TS7)**

## POWER SYSTEMS STABILITY, SECURITY AND RESILIENCY - 3

Session Chairs: **Luigi Martirano, Mostafa Kermani**
University of Rome La Sapienza

**Wednesday| June 13th | 2018 | 11:30-13:30**
Venue: **Room 12**

**N2-TS7 250** **ELECTRIC INFRASTRUCTURES EQUALIZED TO STRATEGIC FOR DISASTER RECOVERY IN EMERGENCIES**
**Giuseppe Parise, Luigi Martirano, Luigi Parise**
Sapienza University of Roma

**N2-TS7 276** **MESHED OPERATION OF DISTRIBUTION NETWORK SYSTEMS: ENABLING INCREASED UTILIZATION OF VARIABLE RES POWER**
**Sérgio Santos(1), Joao Catalao(2), Desta Zahlay Fitiwi(3), Marco Cruz(3)**
(1) University of Beira Interior; (2) FEUP; (3) UBI

**N2-TS7 286** **CONTRIBUTION OF HVDC SYSTEMS IN INCREASING THE ELECTRICAL NETWORK INERTIA: A CASE STUDY**
**Alessio Clerici(1), Riccardo Chiumeo(2), Chiara Gandolfi(2), Roberto Zuelli(2), Francesco Castelli Dezza(1)**
(1) Politecnico di Milano; (2) RSE spa; (3) UBI

**N2-TS7 359** **POWER SYSTEMS' RESILIENCE AGAINST ICE SLEEVES: AN ASSESSMENT METHODOLOGY TESTED IN THE SMART CITY VIZZE PROJECT**
**Davide Falabretti, Maurizio Delfanti, Marco Merlo**
Politecnico di Milano

**N2-TS7 494** **FREQUENCY CONTROL WITH FLEXIBLE DEMAND AND STORAGES TO SUPPORT LARGE RENEWABLE ENERGY GENERATION**
**Ana Turk, Monika Sandelic Jayakrishnan Radhakrishna Pillai, Sanjay Chaudhary**
Aalborg University

**N2-TS7 714** **SMART APPLICATION OF ENERGY MANAGEMENT SYSTEMS FOR DISTRIBUTION NETWORK RELIABILITY ENHANCEMENT**
**Mike Brian Ndawula, Pengfei Zhao, Ignacio Hernando-Gil**
University of Bath

TECHNICAL SESSION 35 **(M3-TS1)**
## MODELS AND METHODS FOR EFFICIENT ENERGY MANAGEMENT OF DISTRIBUTED ENERGY RESOURCES UNDER THE CONCEPT OF LOCALENERGY SYSTEMS

Session Chairs: **Giorgio Graditi, Marialaura Di Somma**
ENEA
**Thursday | June 14th | 2018 | 09:00 – 11:00**
Venue: **Room 6**

**M3-TS1 52** **NEW BUSINESS MODELS AS DRIVERS OF DISTRIBUTED RENEWABLE ENERGY SYSTEMS**
**Ambrosio Liceaga**
Institute of Smart Cities

**M3-TS1 230** **SHORT-TERM FORECASTING OF DISTRICT HEATING DEMAND**
**Roman Petrichenko, Dmitry Sobolevsky, Antans Sauhats**
Riga Technical University

**M3-TS1 282** **OPTIMAL ENERGY MANAGEMENT SYSTEM APPLIED TO COMMERCIAL SELF-CONSUMPTION SOLUTIONS**
**Alaia Sola Saura, Lucia Igualada, Cristina Corchero**
IREC

**M3-TS1 341** **COMPARISON BETWEEN MULTISTAGE STOCHASTIC OPTIMIZATION PROGRAMMING AND MONTE CARLO SIMULATIONS FOR THE OPERATION OF LOCAL ENERGY SYSTEMS**
**Stefano Lilla, Camilo Orozco, Alberto Borghetti, Fabio Tossani**
University of Bologna

**M3-TS1 352** **OPTIMAL PLANNING OF LOW CARBON MICROGRIDS USING PRIMARY ENERGY SAVINGS AS A CONSTRAINING FACTOR: THE CASE OF AN INDUSTRIAL RETROFIT**
**Francesco Carducci(1), Gabriele Comodi(1), Andrea Bartolini(1), Antonio Giovannelli(2)**
(1) UniversitaPolitecnicadelle Marche; (2) Loccioni Group

**M3-TS1 417** **OPTIMAL DESIGN OF DER FOR ECONOMIC/ENVIRONMENTAL SUSTAINABILITY OF LOCAL ENERGY COMMUNITIES**
**Federica Foiadelli(1), Giorgio Graditi(2) ,Marialaura Di Somma(2), Salvatore Nocerino(1)**
(1) Politecnico di Milano; (2) ENEA

**M3-TS1 491** **A REAL-LIFE APPLICATION OF AN EFFICIENT ENERGY MANAGEMENT METHOD FOR A LOCAL ENERGY SYSTEM IN PRESENCE OF ENERGY STORAGE SYSTEMS**
**Daniele Menniti, Anna Pinnarelli, Nicola Sorrentino, Pasquale Vizza, Giovanni Brusco, Alessandro Burgio**
University of Calabria

TECHNICAL SESSION 36 **(M3-TS2)**

# SUSTAINABLE TRANSPORT SYSTEMS: POWER INFRASTRUCTURE AND ELECTRICAL VEHICLES -2

Session Chair: **Luca Pugi**
University of Florence

**Thursday| June 14th | 2018 | 09:00 – 11:00**
Venue: **Room 7**

**M3-TS2 19** **WIRELESS POWER TRANSFER FOR STATIC RAILWAY APPLICATIONS**
**Luca Pugi, Alberto Reatti, Fabio Corti**
University of Florence

**M3-TS2 110** **EVALUATION OF STORAGE CAPACITY OF ELECTRIC VEHICLES FOR VEHICLE TO GRID CONSIDERING DRIVER'S PERSPECTIVE**
**Masayuki Endo**
The University of Tokyo

**M3-TS2 125** **ENVIRONMENTAL PERFORMANCE OF A COMPLETE RAILWAY SIGNALLING SOLUTION**
**Marie Stauffenegger, Véronique Andriès, Mélanie Bordignon, Manuelle Diemer, Brice Ah-Tiane**
Alstom

**M3-TS2 199** **DESIGN AND IMPLEMENTATION OF AN ADVANCED VEHICLE-TO-VEHICLE (V2V) POWER TRANSFER OPERATION USING COMMUNICATIONS**
**Seyedfoad Taghizadeh(1) , Pouya Jamborsalamati(1), M. J. Hossain(1), Junwei Lu(2)**
(1) Macquarie University; (2) Griffith University

**M3-TS2 377** **SELF-CONSUMPTION FOR A NANOGRID WITH PHOTOVOLTAIC AND VEHICLE-TO-HOME TECHNOLOGIES**
**Francesco Giordano, Filippo Spertino, Paolo Di Leo, Alessandro Ciocia, Silvio Vaschetto**
Politecnico di Torino

**M3-TS2 580** **CONTRIBUTION TO RANGE EXTENSION OF ELECTRIC VEHICLES VIA DYNAMIC INDUCTIVE ENERGY TRANSFER AND THE USAGE OF THE WASTE HEAT FOR THE TEMPERING SYSTEM**
**Mike Böttigheimer**
University of Stuttgart

TECHNICAL SESSION 37 **(M3-TS3)**
## BLOCKCHAIN FOR ENERGY AND INTERNET OF THINGS SOLUTIONS FOR SMART CITIES
Session Chair: **VladimirTanasiev**
University Politechnica of Bucharest

**Thursday | June 14th | 2018 | 09:00 – 11:00**
Venue: **Room 8**

**M3-TS3 402** **INTEGRATION OF BIM SOLUTIONS AND IOT IN SMART HOUSES**
**Gabriela Nicoleta, Stefan Pluteanu, Vladimir Tanasiev**
University Politechnica of Bucharest

**M3-TS3 471** **HIDDEN MARKOV MODEL FOR INTERNET OF THINGS DATA ANALYSIS**
**Vladimir Tanasiev**
University Politechnica of Bucharest

**M3-TS3 482** **IOT FOR RESIDENTIAL ENERGY APPLIANCES**
**NegreaLiviu Andrei**
UniversitateaPolitechnicaBucuresti

**M3-TS3 526** **ENABLING NEW TECHNOLOGIES FOR DEMAND RESPONSE DECENTRALIZED VALIDATION USING BLOCKCHAIN**
**Tudor Cioara(1), Massimo Bertoncini(2), Dimosthenis Ioannidis(3), Vincenzo Croce(2), IonutAnghel(1), Konstantinos Votis(3), Luigi D'Oriano(4), DimitriosTzovaras(3),Claudia Pop(1)**
(1) Technical University of Cluj-Napoca; (2) Engineering Ingegneria Informatica S.p.A;
(3) Centre for Reasearch and Technology Hellas / Information Technologies Institute;
(4) Energyatwork

**M3-TS3 32** **A MINIATURE RECTIFIER DESIGN FOR RADIO FREQUENCY ENERGY HARVESTING APPLIED AT 2.45 GHZ**
**Alex Mouapi(1), Nadir Hakem(1), Gaelle Vanessa Kamani(2), Nahi Kandil(1)**
(1) Universite du Quebec en Abitibi-Temiscamingue; (2) University of Greenwich

**M3-TS3 695** **AN ENERGY BLOCKCHAIN, A USE CASE ON TENDERMINT**
**Giuseppe Sciumè**
Universirty of Palermo

**M3-TS3 761** **TRUST BUT ALSO VERIFY: QUESTIONING THE WARRANTIES PROVIDED BY SMART CONTRACTS**
**Lucas Leger, Fabien Imbault**
CNAM

**M3-TS3 828** **ENERGY MANAGEMENT INFORMATION SYSTEMS FOR ENERGY EFFICIENCY**
**Luigi Martirano(1), Luigi Borghi(2), Michele Liziero(3), Loredana Cristaldi(4), Giacomo Grigis(5) Luca Mongiovi(6), Emanuele Nastri(7), Enrico Tironi(4)**
(1) Sapienza University of Roma; (2) Didelme Sistemi srl; (3) Energy Team S.p.A. ;
(4) Politecnico di Milano; (5) Schneider Electric S.pA; (6) Freelance;
(7) Ministero Sviluppo Economico

TECHNICAL SESSION 38 **(M3-TS4)**
## RENEWABLE ENERGY SOURCES IN POWER SYSTEMS, DISTRIBUTED GENERATION - 4

Session Chair: **Mariana-Florentina Stefanescu**
University Politechnica of Bucharest

**Thursday| June 14th | 2018 | 09:00 – 11:00**
Venue: **Room 9**

**M3-TS4 34** **FREQUENCY ESTIMATION OF MULTIFREQUENCY SIGNALS BASED ON THE 3-POINT AND 4-POINT SPECTRUM INTERPOLATION FOR SHORT MEASUREMENT TIME IN PV SYSTEMS**
**Dariusz Kania, Józef Borkowski, Janusz Mroczka**
Wrocław University of Science and Technology

**M3-TS4 296** **WIND POWER GENERATOR MODEL BASED ON LS-SVM FOR UNBALANCED THREE-PHASE DISTRIBUTION SYSTEM POWER FLOW STUDIES**
**JarevDivinagracia, Russel John Gallano**
University of the Philippines Diliman

**M3-TS4 357** **A SINGLE SYNCHRONOUS CONTROLLER FOR HIGH PENETRATION OF RENEWABLE ENERGY RESOURCES INTO THE POWER GRID**
**Majid Mehrasa(1), EdrisPouresmaeil(2), Joao Catalao(3)**
(1) C-MAST / UBI; (2) Aalto University; (3) FEUP

**M3-TS4 440** **MULTI-CRITERIA PLANNING TOOL FOR A NET ZERO ENERGY VILLAGE**
**Pio Lombardi**
Fraunhofer Institute for Factory Operation

**M3-TS4 735** **AN EFFICIENT FAULT TOLERANT CASCADED STEP-UP / STEP-DOWN CONVERTER FOR SOLAR PV MODULES**
**Saima Siouane(1), Ehsan Jamshidpour(2), Slavisa Jovanovic(3), Philippe Poure(1)**
(1) Université de Lorraine, France; (2) Icube / ECAM Strasbourg; (3) Nil

**M3-TS4 538** **ASSESSMENT OF EXOGENOUS VARIABLES ON INTRA-DAY SOLAR FORECASTING MODELS**
**Gabriel Paiva(1), Marco Mussetta(2), Sonia Leva (2), Sérgio Pimentel (3)**
(1) Federal University of Goias; (2) Politecnico di Milano; (3) EMC/UFG

**M3-TS4 533** **STABILITY ANALYSIS AND OPTIMAL ENERGY MANAGEMENT OF A STAND-ALONE HYBRID MICRO-GRID**
**Alberto Dolara, Francesco Grimaccia, Sonia Leva, Marco Mussetta, Emanuele Giovanni Ogliari**
Politecnico di Milano

TECHNICAL SESSION 39 **(M3-TS5)**

## SMART BUILDINGS, LIGHTING, METERING, DEMAND SIDE MANAGEMENT - 2

Session Chair: **Jose Luiz Barbosa**
Federal Institute of Goias

**Thursday | June 14th | 2018 | 09:00 – 11:00**
Venue: **Room 10**

**M3-TS5 28** **STATISTICAL DATA-DRIVEN REGRESSION METHOD FOR URBAN ELECTRICITY DEMAND MODELLING**
**Nina Voulis**
Delft University of Technology

**M3-TS5 367** **A PROTOTYPE BUILDING ENERGY MANAGEMENT SYSTEM WITH PV GENERATION AND BATTERY STORAGE**
**Grazia Barchi(1), Giordano Miori(1), David Moser (1), Sotiris Papantoniou(2)**
(1) Eurac Research; (2) Schneider Electric

**M3-TS5 380** **LIGHTING SIMULATION AND VALIDATION FOR HIGH POWER LED MATRIX LUMINAIRE**
**Jose Luiz Barbos, Ana Clara O. F. Barbosa, Rafael da Silva Ferraz, Wesley Calixto,**
Federal Institute of Goias

**M3-TS5 535** **PERFORMANCE ANALYSIS OF LONTALK BUILDING AUTOMATION PROTOCOL**
**Muhammad Akhtar**
Riphah International Universit

**M3-TS5 545** **IMPROVEMENT OF ENERGY EFFICIENCY FOR INDOOR LIGHTING IN A BIG SHOPPING CENTRE**
**Domenico Curto, Marco Trapanese, Alessia Viola**
University of Palermo

**M3-TS5 660** **OPTIMAL SCHEDULING OF ELECTRIC HEAT PUMPS COMBINED WITH THERMAL STORAGE FOR POWER PEAK SHAVING**
**Marco Pau,(1), Jacopo Vivian(2), Francesco Cunsolo(3),FerdinandaPonci(1), Antonello Monti(1)**
(1) RWTH Aachen University; (2) Universita' degliStudi di Padova; (3) Politecnico of Turin

**M3-TS5 664** **A MICROFORECASTING MODULE FOR ENERGY CONSUMPTION IN SMART GRIDS**
**Sergio Bruno, Gabriella Dellino, Massimo La Scala, Carlo Meloni**
DEI - Politecnico di Bari

**M3-TS5 686** **DEMAND RESPONSE IN GREECE: AN INTRODUCTORY MOBILE APPLICATION**
**Ioanna-Mirto Chatzigeorgiou**
Aristoteles University of Thessaloniki

TECHNICAL SESSION 40 **(M3-TS6)**

## O&M AND LONG-TERM PERFORMANCE CONTROL OF PV SYSTEMS

Session Chairs: **Sonia Leva, Francesco Grimaccia**
Politecnico of Milan

**Thursday| June 14th | 2018 | 09:00 – 11:00**
Venue: **Room 11**

**M3-TS6 247** **OPTIMAL NUMBER AND LOCATION OF THE REQUIRED MEASUREMENT UNITS FOR FAULT DETECTION OF PV ARRAYS**
**Haidar Samet, Dariush Keihanasl, Teymoor Ghanbari.**
Shiraz University

**M3-TS6 338** **OPERA PROJECT: ANALYTIC PLATFORM BASED ON BIG DATA (B.D.) & BUSINESS INTELLIGENT (B.I.) TO IMPROVE THE O&M IN PV GENERATORS**
**Guillermo Almonacid-Olleros, P. G. Vidal, Juan I. Fernández-Carrasco, G. Almonacid**
University de Jaén

**M3-TS6 366** **TOWARDS A SINGLE BALANCING MARKET FOR EUROPE: IMBALANCE COSTS FOR A 1MW PV PLANT IN ITALY AND SPAIN**
**Alessandro Burgio(1), Daniele Menniti(1), Nicola Sorrentino(1), Anna Pinnarelli(1), Luca Mendicino(1), Angel Bayod(2), Jose Maria Yusta Loyo(2)**
(1) University of Calabria; (2) University of Zaragoza

**M3-TS6 385** **DUBIO: A FULLY AUTOMATIC "DRONES &CLOUD BASED" INFRARED MONITORING SYSTEM FOR LARGE-SCALE PV PLANTS**
**Marco Colaprico(1), Maria Francesca De Ruvo(1), Giuseppe Leotta(2), Fabrizio Bizzarri(2),Silvano Vergura(3), Francesco Maria Marino(3)**
(1) Spinoff APIS; (2) ENEL; (3) Politecnico di Bari

**M3-TS6 448** **CASE STUDIES ON POSSIBLE FAILURES IN PV POWER PLANTS**
**Roberto Faranda, Hossein Hafezi, Sonia Leva**
Politecnico di Milano

**M3-TS6 490** **IMPACT OF CELL MICROCRACKS SIZE AND SPATIAL DISTRIBUTION ON OUTPUT POWER OF PV MODULES**
**Sonia Leva, Alberto Dolara, Giampaolo Manzolini, Alessandro Niccolai**
Politecnico di Milano

**M3-TS6 559** **TECHNICAL AND ECONOMICAL TOOL FOR PV PLANT MONITORING**
**Alessandro Niccolai, Francesco Grimaccia, Sonia Leva,**
Politecnico di Milano

TECHNICAL SESSION 41 **(M3-TS7)**
## ADVANCED MATERIALS FOR EXTREME CONDITIONS AND CIRCULAR ECONOMY. PERSPECTIVES FROM THE EXTREME AND SUPERMAT PROJECTS - 1

Session Chair: **Daniele Valerini**
ENEA
**Thursday | June 14th | 2018 | 09:00 – 11:00**
Venue: **Room 12**

**M3-TS7 903** **THE SUPERMAT EUROPEAN VIRTUAL CENTER ON EXTREME MATERIALS**
**Antonio Rinaldi**
ENEA, Italy

**M3-TS7 873** **ZIRCONIUM PEROWSKITE COATINGS OBTAINED BY COMBINATORIAL EB-PVD PROCESS**
**Arcadii Sobetkii(1), Albert I. Tudor(1), Cristina F. Rusti(1), Radu R.Piticescu(1), Antonio Rinaldi(2), Daniele Valerini(2)**
(1) National R&D Institute for Nonferrous and rare Metals-IMNR, Romania
(2) ENEA, Italy

**M3-TS7 904** **INCREASING THE LIFETIME OF CUTTING TOOLS THROUGH CRMS-FREE SURFACE COATINGS**
**Antonella Rizzo**
ENEA, Italy

**M3-TS7 905** **COATING FOR EXTREME APPLICATIONS**
**Maria Luisa Grilli**
ENEA, Italy

**M3-TS7 906** **THE EFFECT OF IRON ON THE CORROSION OF ALTINICU AND ALTINICUFE EQUI-MOLAR COMPOSITION HIGH ENTROPY ALLOYS**
**Eva Fazakas (1,4), J. Miklós-Kovács(2), A. Vida (1,2,3)**
(1) Bay Zoltán Nonprofit Ltd. for Applied Research, Hungary
(2) Eötvös University Budapest, Hungary
(3) Wigner Research Centre for Physics, Hungary
(4) Budapest University of Technology and Economics, Hungary

**M3-TS7 907** **THE EIT RAWMATERIALS**
**Floriana La Marca**
EIT RawMaterials GmbH, CLC-South, Italy

**M3-TS7 908** **THE NETWORK OF INFRASTRUCTURES EXTREME**
**Daniele Valerini**
ENEA, Italy

**M3-TS7 909** **MATHCALC MODELLING OF THERMAL INDUCED STRUCTURE MODIFICATIONS IN HIGH ENTROPY ALLOYS**
**Radu Robert Piticescu(1), Dumitru Mitrica(1), Vasile Soare(1), Florin Stoicu(1), Viorel Badilia (1), Antonio Rinaldi (2)**
(1) National R&D Institute for Nonferrous and rare Metals-IMNR, Romania
(2) ENEA, Italy

POSTER SESSION 4 **(N3-PS)**

## PHD STUDENTS SPECIAL SESSION

Session Chair: **Paolo Perani**
ABB

Thursday| June 14th | 2018 | 14:30-16:30
Venue: **Ballroom**

**N3-PS 67** **HUMAN RESPONSE TO THE INDOOR ENVIRONMENT A REVIEW OF HUMAN SENSITIVITY MODELS**
**Michele Rocca**
University of Pisa

**N3-PS 71** **MEASURE OF VISUAL FATIGUE AS A LINK BETWEEN VISUAL ENVIRONMENT AND VISUAL AND NON-VISUAL FUNCTIONS OF VDT USERS**
**Merve Öner**
University of Pisa

**N3-PS 80** **ENERGY COST OPTIMIZATION AND DER SCHEDULING FOR UNIFIED ENERGY MANAGEMENT SYSTEM OF RESIDENTIAL NEIGHBORHOOD**
**Mohammad Sohrab Hasan Nizami(1), M. J. Hossain(1), Khizir Mahmud(1), Jayashri Ravishankar(1),**
(1) Macquarie University; (2) University of New South Wales

**N3-PS 107** **A HOME-TO-HOME ENERGY SHARING PROCESS FROM THE EXCESS ENERGY OF THE DOMESTIC PEAK LOAD MANAGEMENT SYSTEM**
**Khizir Mahmud(1), Mohammad Sohrab Hasan Nizami(2), M. J. Hossain(2), Jayashri Ravishankar(1),**
(1) University of New South Wales; (2) Macquarie University

**N3-PS 216** **IMPEDANCE MEASUREMENT OF MUSCULAR TISSUE DURING ELECTROPORATION PROCEDURE**
**Veronika Novotná, Dalibor Cervinka**
Brno University of Technology

**N3-PS 219** **HOSTING CAPACITY ANALYSIS: A REVIEW AND A NEW EVALUATION METHOD IN CASE OF PARAMETERS UNCERTAINTY**
**Mina Mirbagheri, Marco Merlo, Davide Falabretti, Valentin Ilea,**
Politecnico di Milano

**N3-PS 254** **AUTONOMOUS TRACKING CONTROLLER FOR PHOTOVOLTAIC SYSTEMS USING GLOBAL POSITIONING SYSTEM**
**Kamil Plachta**
Wrocław University of Science

**N3-PS 266** **ALGORITHM FOR IM OPTIMAL FLUX DETERMINATION RESPECTING NONLINEARITIES AND THERMAL INFLUENCES**
**Marek Toman, RadoslavCipin, Martin Mach, Pavel Vorel**
Brno University of Technology

**N3-PS 298** **CELL BATTERY EMULATOR FOR HARDWARE-IN-THE-LOOP BMS TEST**
**Luca Buccolini, Simone Orcioni, Sauro Longhi, Massimo Conti**
Università Politecnica delle Marche

**N3-PS 316** **TECHNIQUES TO INCREASE THE EFFICIENCY OF SMALL HYDRO POWER PLANTS WITH INDUCTION MACHINE**
Ondrej Rubes, Dalibor Cervinka
Brno University of Technology

**N3-PS 360** **COMPARISON OF THE BASIC CONTROL TECHNIQUES OF INDUCTION MACHINES**
Jiri Ctibor
Brno University of Technology

**N3-PS 512** **FLEXIBLE GENERAL BRANCH MODEL UNIfiED POWER FLOW ALGORITHM FOR FUTURE FLEXIBLE AC/DC NETWORKS**
Abraham Alvarez Bustos, Behzad Kazemtabrizi,
Durham University

**N3-PS 518** **CONTINGENCY RANKING IN POWER SYSTEMS VIA RELIABILITY RATES**
Carlos Ferrandon-Cervantes, Behzad Kazemtabrizi, Matthias Troffaes,
Durham University

**N3-PS 592** **ENERGY CONSUMPTION PREDICTION OF ELECTRIC VEHICLES BASED ON BIG DATA APPROACH**
Seyed Mahdi Miraftabzadeh, Michela Longo, Federica Foiadelli
Politecnico di Milano

**N3-PS 807** **MICROGRIDS TECHNOLOGIES IN FUTURE SEAPORTS**
Nor BaizuraAhamad, Josep M. Guerrero, Juan C. Vasquez
University of Aalborg

**N3-PS 837** **AN MILP MODEL FOR SHORT-TERM PEAK SHAVING OPERATION OF CASCADED HYDROPOWER PLANTS CONSIDERING UNIT COMMITMENT**
Chengguo Su, Chuntian Cheng
Dalian University of Technology

TECHNICAL SESSION 42 **(N3-TS1)**
# MODELS AND METHODS FOR EFFICIENT ENERGY MANAGEMENT OF DISTRIBUTED ENERGY RESOURCES UNDER THE CONCEPT OF LOCAL ENERGY SYSTEMS

Session Chairs: **Giorgio Graditi, Marialaura Di Somma**
ENEA
**Thursday | June 14th | 2018 | 11:30 – 13:30**
Venue: **Room 6**

**N3-TS1 237** **AN OPTIMIZATION MODEL FOR POLYGENERATION MICROGRIDS WITH RENEWABLES, ELECTRICAL AND THERMAL STORAGE: APPLICATION TO THE SAVONA CAMPUS**
**Stefano Bracco, Massimo Brignone, Federico Delfino, Giulio Ferro, Fabio Pampararo, Michela Robba, Mansueto Rossi**
University of Genoa

**N3-TS1 244** **STORAGE OPERATION IN TRAMWAY SYSTEMS DELIVERING GRID SERVICES**
**Giovanni Lutzemberger, Davide Fioriti, Romano Giglioli, Davide Poli,**
University of Pisa

**N3-TS1 245** **OPTIMAL SIZING OF A STORAGE SYSTEM COUPLED WITH GRID CONNECTED RENEWABLE GENERATION RESPECTING DAY-AHEAD DISPATCH PROFILE**
**Federico Silvestro(1), Stefano Massucco(1), Paola Pongiglione(1), Matteo Saviozzi(1), Francesco Baccino(2), Pietro Serra(2)**
(1) Università di Genova; (2) ABB

**N3-TS1 396** **STRATEGIC SCHEDULING IN SMART GRIDS**
**Alireza Nouri(1), Alireza Soroudi(2), andrewkeane(1)**
(1) University College Dublin; (2) School of Electrical & Electronic Engineering

**N3-TS1 403** **HYBRID CONTROL METHOD FOR GRID-CONNECTED PHOTOVOLTAIC CONVERTER**
**Mohammad Amin Jarrahi(1), Farzad Roozitalab(2), Gen Li(2)**
(1) Shiraz University; (2) Politecnico di Milano

**N3-TS1 508** **OPERATION OPTIMIZATION OF DISTRIBUTED ENERGY SYSTEMS IN AN ENERGY COMMUNITY**
**Bing Yan(1), Marialaura Di Somma(2), Giorgio Graditi(2), Peter Luh(1)**
(1) University of Connecticut; (2) ENEA

**N3-TS1 260** **THE TIME RESOLUTION OF THE LOAD PROFILE AND ITS IMPACT ON A PHOTOVOLTAIC-BATTERIES SYSTEM**
**Alessandro Burgio(1), Daniele Menniti(1), Anna Pinnarelli(1), Nicola Sorrentino(1), Pasquale Vizza(1), Nedim Tutkun(2)**
(1) University of Calabria; (2) Dzce University

TECHNICAL SESSION 43 **(N3-TS2)**

## TRANSPORT SYSTEMS AND SUSTAINABLE MOBILITY

Session Chair: **Mariano Gallo**
Università degli Studi del Sannio

**Thursday| June 14th | 2018 | 11:30 – 13:30**
Venue: **Room 7**

**N3-TS2 69** **ELECTRIFICATION OF PUBLIC TRANSPORT IN EUROPE: VISION AND PRACTICE FROM THE ELIPTIC PROJECT**
**Maria Vittoria Corazza(1), Yannick Bousse(2), Gerhard Sessing(3), Diego Salzillo Arriaga(3)**
(1) Sapienza University of Rome; (2) UITP; (3) Siemens

**N3-TS2 137** **HIGH DENSITY - HD USING ERTMS: THE ITALIAN SOLUTION FOR THE RAILWAY TRAFFIC MANAGEMENT**
**Andrea Romano (1), Alice Consilvio (2)**
(1) NITEL; (2) University of Genoa

**N3-TS2 138** **THE CURRENT AND FUTURE ROLE OF CARSHARING IN PALERMO: ANALYSIS OF COLLECTED DATA AND RESULTS OF A CUSTOMER SATISFACTION SURVEY**
**Marco Migliore**
University of Palermo

**N3-TS2 139** **A FLEXIBLE MOBILITY SYSTEM BASED ON CHIP ARCHITECTURES: THE NETCHIP RESEARCH PROJECT**
**Mariano Gallo(1), Silvia Ullo(1), Pietro Amenta(1), Giovanni Palmieri(1), Antonella Ferrara(2), Michele Ferrucci(3), Mariarosaria Russo(4), Marco De Angelis(5)**
(1) Universita' del Sannio; (2) Università di Pavia;
(3) CIRA - Centro ItalianoRicercheAerospaziali; (4) KES S.r.l.; (5) ConsorzioiCampus

**N3-TS2 198** **PASSENGERS' SATISFACTION IN THE CASE OF ENERGY-SAVING STRATEGIES: A RAIL SYSTEM APPLICATION**
**Luca D'Acierno, Marilisa Botte**
Federico II University of Naples

**N3-TS2 431** **A SOFTWARE VALIDATION FOR DC ELECTRIFIED TRANSPORTATION SYSTEM: A TRAM LINE OF ROME**
**Alessandro Ruvio, Regina Lamedica, Marco Maccioni, Alberto Geri, Fabio Massimo Gatta, Silvia Sangiovanni**
Sapienza University of Rome

**N3-TS2 469** **COOPERATIVE-COMPETITIVE PARADIGM IN TRAFFIC SIGNAL SYNCHRONIZATION BASED ON FLOATING CAR DATA**
**Vittorio Astarita, Demetrio Carmine Festa, Vincenzo Giofrè**
Università della Calabria

**N3-TS2 520** **IDLING VEHICLE EMISSIONS AND FUEL CONSUMPTION IN URBAN USE: INFLUENCE OF THE STOP&START TECHNOLOGY**
**Maria Vittoria Prati(1), Maria Antonietta Costagliola(1), Francesca Pagliara(2), Erica Mastantuono(2),**
(1) IstitutoMotori CNR; (2) Università di Napoli Federico II

**N3-TS2 595** **ELECTRIC SHIP PROPULSION IMPROVEMENT BY INCREASING EFFICIENCY OF ADJUSTABLE-SPEED MOTOR DRIVES**
**Maria Carmela Di Piazza(1), Marcello Pucci(1), Massimiliano Luna(1), Angelo Accetta(1), Giuseppe La Tona(1), Andrea Pietra(1)**
(1) CNR; (2) Fincantieri S.p.A.

TECHNICAL SESSION 44 **(N3-TS3)**
# POWER SYSTEMS: MICRO-GRIDS COMPONENTS AND OPERATION - 1

Session Chairs:
**Eleonora Riva Sanseverino, Maria Luisa Di Silvestre**
University of Palermo
**Thursday| June 14th | 2018 | 11:30 – 13:30**
Venue: **Room 8**

**N3-TS3 78** **RTISIM: A NEW REAL-TIME ISOLATED SIMULATOR FOR TURBINE-GOVERNOR SYSTEM OF INDUSTRIAL POWER PLANTS**
**Ali Parizad(1), Hamid Reza Bagahee(2), Gevork B. Gharehpetian(2), Amirnaser Yazdani(3)**
(1) Southern Illinois University Carbondale; (2) AmirkabirUnivrsity of Technol;
(3) Ryerson University

**N3-TS3 339** **OPTIMAL ENERGY OPERATION AND SCALABILITY ASSESSMENT OF MICROGRIDS FOR RESIDENTIAL SERVICES**
**Pengfei Zhao(1), Ignacio Hernando-Gil(1), Han Wu (2)**
(1)University of Bath; (2) Hohai University

**N3-TS3 540** **EFFECT OF INCLUDING TRANSIENT VIRTUAL IMPEDANCE IN DROP CONTROLLED MICROGRIDS**
**Fredrik Göthner**
Norwegian University Science Technology

**N3-TS3 644** **OPTIMAL OPERATION OF PV-DIESEL MICROGRID WITH MULTIPLE DIESEL GENERATORS UNDER GRID BLACKOUTS**
**Mansour Alramlawi, Aouss Gabash, Erfan Mohagheghi, Pu Li**
Ilmenau University of Technology

**N3-TS3 549** **DIRECT AND INDIRECT PREDICTION OF NET DEMAND IN POWER SYSTEMS BASED ON SYNTACTIC FORECAST ENGINE**
**Mehdi Bagheri(1), Kazybek Suieubek(1), Oveis Abedinia(2), Mohammad SalayNaderi(3), Mehdi Salay Naderi(4)**
(1) Nazarbayev University; (2) Budapest University of Technology and Economics;
(3) Islamic Azad University; (4) Amirkabir University of Technology

TECHNICAL SESSION 45 **(N3-TS4)**
## RENEWABLE ENERGY SOURCES IN POWER SYSTEMS, DISTRIBUTED GENERATION - 5

Session Chair: **Anton Bubenchikov**
OmTSU

**Thursday| June 14th | 2018 | 11:30 – 13:30**
Venue: **Room 9**

**N3-TS4 53** **FOOD COURT WASTE IN ENERGY CONVERSION CHAIN**
**IustinaStanciulescu**
University Politechnica of Bucharest

**N3-TS4 116** **TOWER-TYPE FLOW ACCELERATORS FOR A WIND POWER PLANT**
**Anton Bubenchikov, Tatyana Bubenchikova, Elena Artamonova**
Omsk State Technical University

**N3-TS4 163** **OPTIMAL SCHEDULING AND ALLOCATION OF REGULATING CAPACITIES IN SYSTEMS WITH LARGE SHARE OF WIND-POWER GENERATION**
**Dunja Srpak(1), Ladislav Havaš(1),Boštjan Polajžer(2)**
(1) University North; (2) University of Maribor

**N3-TS4 373** **A WIRELESS-WEB-FRAMEWORK FOR REAL-TIME OPTIMAL POWER FLOW IN SUSTAINABLE POWER SUPPLY SYSTEMS**
**Aouss Gabash, Mhd-Rafik Al-Hallak, Mansour Alramlawi, Erfan Mohagheghi, Pu Li**
Ilmenau University of Technology

**N3-TS4 495** **OPTIMAL CONFIGURATION OF SUSTAINABLE POWER SUPPLY NETWORKS WITH EXPORT POWER**
**AoussGabash, Rahaf Murad, Mansour Alramlawi, ErfanMohagheghi, Pu Li**
Ilmenau University of Technology

**N3-TS4 579** **SIMPLE DEAD-BEAT CONTROL ALGORITHM FOR SINGLE PHASE GRID CONNECTED INVERTER FOR DOMESTIC APPLICATIONS**
**Hamdy Ashour(1), Mohamed Maghraby(2), Ahmed Hossam(2)**
(1) Arab Academy for Science and Technology; (2) Alexandria University

**N3-TS4 708** **EFFECT OF VARIABLE SOLAR IRRADIANCE ON THE REACTIVE POWER RESPONSE OF PHOTOVOLTAIC GENERATORS**
**Ana Cabrera-Tobar(1), Mònica Aragüés-Peñalaba(2), Oriol Gomis Bellmunt(2)**
(1) Universitat Politecnica de Catalunya; (2) CITCEA UPC

**N3-TS4 103** **RISK ANALYSIS OF LEVELIZED COST OF ELECTRICITY TO WIND ENERGY IN BRAZIL**
**DaywesNeto(1), Elder Geraldo Domingues(2), Aníbal Almeida(3), Antònio Paulo Coimbra(3)**
(1) Federal University of Goiás;
(2) Nucleous of Experimental and Technological Research and Study Group (NExT);
(3) University of Coimbra

TECHNICAL SESSION 46 **(N3-TS5)**
## MATERIALS: NANOTECHNOLOGY FOR RENEWABLE ENERGY, NOVEL MATERIALS FOR ENERGY HARVESTING

Session Chair: **Sergey Karabanov**
Ryazan State Radio Engineering

**Thursday | June 14th | 2018 | 11:30 – 13:30**
Venue: **Room 10**

**N3-TS5 86** **RESEARCH AND DEVELOPMENT OF A NEW MATERIAL FOR METAL OXIDE VARISTORS**
**Nicolae Tarfulea(1), Flaviu FRIGURA-ILIASA(1), Doru Vatau(1), Mihaela FRIGURA-ILIASA(1), Petru ANDEA(1), Florin Balcu(2)**
(1) Politechnica University Timisoara; (2) National Institute for Research and Development in Electrochemistry and Condens

**N3-TS5 151** **STUDY OF ELECTROMAGNETIC STIRRING OF SILICON MELT BY MATHEMATIC MODELLING**
**Sergey Karabanov(1), Dmitriy Suvorov(1), Dmitry Tarabrin(1), Evgeniy Slivkin(1), Oleg Belyakov(2), Andrey Karabanov(2)**
(1) Ryazan State Radio Engineering; (2) Helios Resource Ltd.

**N3-TS5 414** **DESIGNING AN ENERGY SUPPLY SYSTEM BASED ON DISTRIBUTED GENERATIONS FOR A RAILWAY STATION FAR FROM NETWORK**
**Hossein Toorian, SaberNourian, ElahehEsmaili, Zahra Toorian**
Islamic Azad University

**N3-TS5 479** **DC CONDUCTIVITY MEASUREMENTS OF LIQUID SILICONE RUBBER: INFLUENCE ANALYSIS AND REPEATABILITY**
**Claudius Freye, Frank Jenau**
TU Dortmund University, Institute of High Voltage Engineering

**N3-TS5 593** **A DIFFERENT APPROACH TO RARE-EARTH MAGNET RECYCLING**
**Emir Poskovic, Luca Ferraris, Fausto Franchini, Marco Actis Grande, Enrico Pallavicini**
Politecnico di Torino

**N3-TS5 758** **NONLINEAR MULTI-SCALE DYNAMICS MODELING OF A PIEZOELECTRIC ENERGY HARVESTER**
**Pasquale Montegiglio(1), Claudio Maruccio(1), Giuseppe Acciani(1), Gianluca Rizzello(1), Stefan Seelecke(1)**
(1) Politecnico di Bari; (2) University of Salento; (2) Saarland University

**N3-TS5 767** **IDENTIFICATION OF PIEZOELECTRIC ENERGY HARVESTER PARAMETERS USING ADAPTIVE MODELS**
**Claudio Maruccio(1), Pasquale Montegiglio(2), Giuseppe Acciani(2), Leonarda carnimeo(2)**
(1) University of Salento; (2) Politecnico di Bari

**N3-TS5 871** **THE EFFECT OF IRON ON THE CORROSION OF ALTINICU AND ALTINICUFEEQUI-MOLAR COMPOSITION HIGH ENTROPY ALLOYS**
**Éva Fazakas**
Bay Zoltan Nonprofit Ltd.

TECHNICAL SESSION *47* **(N3-TS6)**
## ENGINEERING SOLUTIONS FOR THE ASSESSMENT OF PHOTOBIOLOGICAL RISK FROM UV RADIATION

Session Chairs: Fabio Bisegna(1), **Massimo Borra**(2)
(1) Sapienza University of Rome (2) INAIL
**Thursday | June 14th | 2018 | 11:30 – 13:30**
Venue: **Room 11**

**N3-TS6 412** **MAXIMUM PERMISSIBLE EXPOSURE IN THE LASER DISPLAY SHOWS**
**Francesco Frigerio**
ICS Maugeri Spa

**N3-TS6 464** **DEVELOPING ANALGORITHM TO ASSESS THE UV ERYTHEMAL DOSE FOR OUTDOOR WORKERS**
**Massimo Borra(1), Carlo Grandi(1), Andrea Militello(1), Chiara Burattini(2), Luca Gugliermetti(2),Fabio Bisegna(2), Alberto Modenese(3), Fabriziomaria Gobba(3)**
(1) INAIL; (2) Sapienza University of Roma; (3) University of Modena and Reggio Emilia

**N3-TS6 466** **PREVENTION OF UV RADIATION HAZARD. STATE OF THE ART AND PERSPECTIVES**
**Massimo Borra(1), Fabio Bisegna(2),francescoLeccese(3),Francesco Asdrubali(4)**
(1) INAIL; (2) Sapienza University of Roma; (3) University of Pisa; (4) University of Rome 3

**N3-TS6 498** **OUTDOOR WORKERS EXPOSED TO UV RADIATION: COMPARISON OF UV INDEX FORECASTING METHODS**
**Francesco Leccese(1), Giacomo Salvadori(1), Davide Lista(1) Chiara Burattini(2)**
(1) University of Pisa; (2) Sapienza University of Roma;

**N3-TS6 507** **WELDING ARC IGNITION AND PHOTOBIOLOGICAL HAZARD EVALUATION**
**Andrzej Rybczyński(1), Agnieszka Wolska(2), Mariusz Wisełka(2), Jolanta Matusiak(3), Tomasz Pfeifer(3)**
(1) GL OPTIC Polska Sp. z o.o. Sp.k;
(2) Central Institute for Labour Protection-National Research Institute;
(3) Instytut Spawa lnictwa

TECHNICAL SESSION 48 **(N3-TS7)**
# ADVANCED MATERIALS FOR EXTREME CONDITIONS AND CIRCULAR ECONOMY. PERSPECTIVES FROM THE EXTREME AND SUPERMAT PROJECTS - 2

Session Chair: **Antonio Rinaldi**
ENEA
**Thursday| June 14th | 2018 | 11:30 – 13:30**
Venue: **Room 12**

**N3-TS7 900** **SOLUTIONS FOR CRITICAL RAW MATERIALS SUPPLY: MAIN ACTIVITIES IN THE SCRREEN PROJECT**
**Giovanni Di Girolamo(1), Stéphane Bourg(2)**
(1) ENEA, Italy; (2) CEA, France

**N3-TS7 876** **AN INTEGRATED CIRCULAR ECONOMY MODEL FOR DECOUPLING EUROPE FROM PLATINUM GROUP METALS SUPPLY RISK IN THE AUTOMOTIVE SECTOR**
**Iakovos Yakoumis(1), Anastasia Moschovi(1), Stamatios Souentie(1), Amal Siriwardana(2)**
(1) Monolithos Catalysts & Recycling Ltd, Greece (2) Tecnalia, Spain

**N3-TS7 901** **STABILITY OF HYDROGENATED GRAPHENE OXIDES UNDER O2 AND H2 EXTREME PRESSURES**
**Francesco Buonocore(1), Andrea Capasso (2**
(1) ENEA, Italy; (2) Yonsei University, Republic of Korea

**N3-TS7 874** **INVERSE STRUCTURAL ANALYSES ON SMALL PUNCH TESTS, WITH MODEL REDUCTION AND STOCHASTIC APPROACH**
**Aram Cornaggia(1), Giuseppe Cocchetti(1), Giulio Maier(1), Vladimir Buljak(2)**
(1) Politecnico di Milano, Italy; (2)University of Belgrade, Serbia

**N3-TS7 875** **OPTIMIZATION OF COMPOSITE AIRCRAFT STRUCTURES WITH REGARD TO QUALITY, COST AND ENVIRONMENTAL FOOTPRINT**
**Spiros Pantelakis, Christos Katsiropoulos, Andreas Loukopoulos**
University of Patras, Greece

**N3-TS7 902** **HI TEMPERATURE LIQUID METAL CORROSION MATERIALS - NEXTOWER PROJECT**
**Peter Dömstedt, Peter Szakalos**
KTH, Sweden

**N3-TS7 879** **ASSESSING SILICON CARBIDE CERAMICS AND COMPOSITES FOR ENERGY-RELATED APPLICATIONS**
**Claudio Mingazzini(1), Cedric Sauder(2), James Braun(2), Martin Steinbrueck(3), Matteo Scafè(1), Antonio Rinaldi(1), Karsten Klemens Hansen(4)**
(1) ENEA, Italy; (2) CEA, France; (3) KIT, Germany; (4) LIQTEC, Denmark

TECHNICAL SESSION 49 **(A3-TS1)**

## ICT FOR SMART GRIDS

Session Chair: **Abouzar Estebsari**
Politecnico di Torino

**Thursday| June 14th | 2018 | 15:00-17:00**
Venue: **Room 6**

**A3-TS1 106** **FAULT DETECTION, ISOLATION AND RESTORATION TEST PLATFORM BASED ON SMART GRID ARCHITECTURE MODEL USING INTERNET-OF-THINGS APPROACHES**
**AbouzarEstebsari, Edoardo Patti, Luca Barbierato**
Politecnico di Torino

**A3-TS1 202** **A COMPARATIVE ANALYSIS OF IMPLEMENTATION PERFORMANCES FOR IMAGE PROCESSING APPLICATIONS USED TO CONTROL ROBOTIC ARMS**
**Radu-Stefan Ricman, Roland Szabo, Aurel Gontean**
Politechnica Univ. Timisoara

**A3-TS1 309** **ELECTRIC VEHICLES CHARGING RESERVATION BASED ON OCPP**
**Simone Orcioni, Luca Buccolini, Adriana Ricci, Massimo Conti**
Università Politecnica delle Marche

**A3-TS1 358** **BENCHMARKING OF PERFORMANCE REQUIREMENTS BETWEEN IEC 61850 AND DNP3 IN REAL-TIME MONITORING CONTEXT**
**Vinicius Villalta, Roberto Netto, Ricardo Elias, BeneditoBonatto**
UNIFEI

**A3-TS1 393** **INFORMATION INTEGRATION ISSUES FOR MONITORING PERFORMANCE METRICS OF A MICROGRID**
**Bruno Pires de Campos(1),Roberto Netto(2), Guilherme Gonçalves Pinheiro(2), Giambattista-Gruosso(3), Paolo Maffezzoni(3)**
(1) Universidade Federal de Itajubá; (2) UNIFEI; (3) Politecnico di Milano

**A3-TS1 493** **FORECASTING BUS LOADS WITH A COMBINED INTELLIGENT PREDICTION SYSTEM**
**Ioannis Panapakidis(1), Georgios Christoforidis(2), Nikolaos Skiadopoulos(1)**
(1) Technological Educational Institute of Thessaly;
(2) Western Macedonia University of Applied Sciences

**A3-TS1 628** **FRACTAL PRODUCTION: REPROGRAMMING INDUSTRY 4.0 AROUND RESOURCES AND ENERGY EFFICIENCY?**
**Raphael Winkler,**
GOLDSTEIN, EU Twinning Expert

TECHNICAL SESSION 50 **(A3-TS2)**

## LIGHTING SYSTEMS, ENVIRONMENT AND APPLICATIONS

Session Chair: **Laurent Canale**
CNRS

**Thursday| June 14th | 2018 | 15:00-17:00**
Venue: **Room 7**

**A3-TS2 178** **LIGHT AND COLOUR: A FACTOR OF SAFETY IN THE EVERYDAY LIFE OF THE ELDERLY**
**Estelle Guerry(1), Georges Zissis(1), Céline Caumon(2), Laurent Canale(3), Elodie Becheras(2)**
(1) LAPLACE; (2) LARA SEPPIA; (3) CNRS

**A3-TS2 406** **STUDY OF THE LEDS SPECTRUMS INFLUENCE ON THE SPIRULINA PLATENSIS GROWTH**
**Urbain Niangoran(1), Laurent Canale(2), Georges Zissis(1), Théodore Haba(3), Feng Tian(4)**
(1) LAPLACE; (2) CNRS; (3) L2IS; (4) State Key Laboratory of Automotive Safety and Energy

**A3-TS2 465** **PHOTOBIOLOGICAL AND CIRCADIAN EFFECTS OF LED DISPLAYS: COMPARISON BETWEEN DIFFERENT LAPTOP CONFIGURATIONS**
**Giacomo Salvadori(1), Chiara Burattini(2), Fabio Bisegna(2), Francesco Leccese(1)**
(1) Sapienza University of Pisa; (2) Sapienza University of Roma

**A3-TS2 496** **SMART CITY ROADWAY LIGHTING SYSTEM EVALUATION FROM DRIVER'S FIELD OF VIEW**
**Mojtaba Navvab(1), Fabio Bisegna(2), Fanco Gugliermetti(2)**
(1) University of Michigan; (2) Sapienza University of Roma

**A3-TS2 513** **IMPEDANCE SPECTROSCOPY AND EVOLUTION OF THE EQUIVALENT ELECTRICAL CIRCUIT MODEL FOR LARGE AREA ORGANIC LIGHT EMITTING DIODES AGED UNDER STRESS**
**Alaa Alchaddoud(1), Laurent Canale(2), Ghassan Ibrahem(3), Georges Zissis(1)**
(1) LAPLACE; (2) CNRS;(3) Albaath University

**A3-TS2 554** **SIMPLIFIED ASSESSMENT OF BLUE LIGHT EMISSIONS BASED ON PHOTOMETRIC MEASUREMENTS: EXAMPLE OF APPLICATION TO LEDS AND FLUORESCENT LAMPS FOR GENERAL LIGHTING SYSTEMS**
**Fabio Fantozzi(1), Michele Rocca(1), Chiara Burattini(2), Luca Gugliermetti(2)**
(1) University of Pisa; (2) Sapienza University of Roma

**A3-TS2 654** **MEASURING THE DRIVER EXPOSURE TO THE LIGHT POLLUTION**
**Catalin GALATANU(1), Laurent Canale(2), Georges Zissis(3), Iulian Gherasim(1), Dorin D. Lucache(1)**
(1) Technical University "Gh.Asachi" from IASI; (2) CNRS; (3) LAPLACE

**A3-TS2 657** **LUMINANCE FIELD OF THE FACADES: FROM AGGRESSIVE TO ATTRACTIVE LIGHTING**
**Catalin Galatanu,**
Technical University "Gh.Asachi" from IASI

TECHNICAL SESSION 51 **(A3-TS3)**

## MAINTENANCE, OPERATION AND SAFETY IN POWER SYSTEMS - 2

Session Chair: **Pietro Colella**
Politecnico of Turin

**Thursday| June 14th | 2018 | 15:00-17:00**
Venue: **Room 8**

**A3-TS3 45** **INCREASING PUMP STATION THROUGHOUT BY INTRODUCING VFD BASED IE4 CLASS SYNCHRONOUS RELUCTANCE MACHINES WITH IMPROVED PUMP CONTROL**
**Jan-Harm Pretorius, Pierre Van Rhyn**
University of Johannesburg

**A3-TS3 87** **STAIR-LIKE MULTIVARIABLE GENERALIZED PREDICTIVE CONTROL OF PULVERIZING SYSTEM IN THERMAL POWER PLANTS**
**Jiansheng Zhang(1), Gang Zhang(2), Yaokui GAO(2), Yong Hu(2)**
(1) ShenhuaGuoneng Group; (2) North China Electric Power University

**A3-TS3 363** **RESISTIVE AND INDUCTIVE INTERFERENCE OF URBAN ROPEWAYS - SIMULATIONS AND MEASURES OF POTENTIAL RISES IN URBAN ROPEWAYS CAUSED BY NEARBY RAILWAY SYSTEMS, HIGH-VOLTAGE SYSTEMS AND SUBWAYS THROUGH INDUCTIVE AND RESISTIVE INTERFERENCES**
**Wolfgang Emmer, Ernst Schmautzer**
Institute of Electrical Power Systems - Graz University of Technology

**A3-TS3 738** **OVERVOLTAGES IN DC URBAN LIGHT RAILWAY SYSTEMS: STATISTICAL ANALYSIS AND POSSIBLE CAUSES**
**Enrico Pons(1), Pietro Colella(1), Roberto Rizzoli(2)**
(1) Politecnico di Torino; (2) Infra.To

**A3-TS3 764** **POWER GRID OPTIMAL OPERATION IN PRESENCE OF DISTRIBUTED GENERATION RESOURCES WITH CONSTANT AND VARIABLE PRODUCTION**
**MohammadaminMoghbeli**
Politecnico di Milano

**A3-TS3 153** **AVOIDING THE HOT SPOT OCCURRENCE IN PV MODULES**
**Pierluigi Guerriero**
University of Naples Federico II

**A3-TS3 210** **FAULT TOLERABILITY OF POWER ELECTRONIC INTERFACES, IMPACT OF GROUNDING ARCHITECTURE**
**MohadesehNaghizadeh, Ebrahim Farjah, Teymoor Ghanbari, Haidar Samet**
Shiraz University

TECHNICAL SESSION 52 **(A3-TS4)**

## ELECTRICAL MACHINES AND POWER CONVERTERS - 3

Session Chair: **ZbigniewLeonowicz**
Wrocław University of Science and Technology

**Thursday| June 14th | 2018 | 15:00-17:00**
Venue: **Room 9**

**A3-TS4 15** **A MODIFIED DIRECT POWER CONTROL SCHEME FOR ROTOR SIDE CONVERTER OF DFIG FOR GRID AND WIND PERTURBATION CONDITIONS**
**Karthik Tamvada(1), Umashankar Subramaniyan(1), Sanjeevikumar Padmanaban(2), Frede Blaabjerg(3), Pierluigi Siano(4), Zbigniew Leonowicz(5)**
(1) VIT University; (2) University of Johannesburg; (3) Aalborg University; (4) University of Salerno; (5) Wrocław University of Science and Technology

**A3-TS4 117** **IMPROVING FAULT TOLERANCE OF MULTIPHASE LCI-FED SYNCHRONOUS MOTOR DRIVES**
**Sobhan Mohamadian(1), Alberto Tessarolo(2)**
(1) Damghan University; (2) University of Trieste

**A3-TS4 419** **IN SITU MEASUREMENTS ON THE ELECTRICAL MOTORS OF HYDRAULIC PUMPS INSTALLED IN A WASTEWATER STATION**
**Alexandru Hedes(1), Alexandru Hedes(1), Marcus Svoboda(2)**
(1) Politechnica University Timisoara; (2) UPT

**A3-TS4 437** **SELF-TUNING SPEED CONTROLLER FOR SERVO MOTOR DRIVE CONSIDERING QUANTIZATION ERROR OF INCREMENTAL ENCODER**
**Seyed Mohammad Dehghan(1) Mahdi Mansourian(2)**
(1) Qom University of Technology; (2) Faratavan Automation Company

**A3-TS4 619** **AN ORIGINAL COMPUTATIONAL METHOD FOR ASSESSING ACTIVE LOSSES INSIDE ASYNCHRONOUS MOTORS**
**Alexandra Popescu, Mihaela FRIGURA-ILIASA, DoruVatau, Flaviu FRIGURA-ILIASA, Lia Dolga, Hannelore Filipescu**
Politechnica University Timisoara

**A3-TS4 815** **DESIGN, BUILDING AND TESTING A HIGH VOLTAGE-LOW CURRENT DRIVE FOR SRMS USED FOR AUTOMOTIVE APPLICATIONS**
**Sorin Cosman, Claudia Martis, Marius Dranca, Raul Nemes**
Technical University of Cluj-Napoca

TECHNICAL SESSION 53 **(A3-TS5)**

## ENERGY STORAGE FOR POWER SYSTEMS APPLICATIONS - 3

Session Chairs: **Guido Ala, Enrico Telaretti**
University of Palermo

**Thursday| June 14th | 2018 | 15:00-17:00**
Venue: **Room 10**

**A3-TS5 275** **SUPERVISORY CONTROL FOR ENERGY STORAGE SYSTEM ONBOARD AIRCRAFT**
**Giacomo Canciello, Alberto Cavallo, Antonio Russo, Beniamino Guida**
Università della Campania "L. Vanvitelli"

**A3-TS5 467** **EVENT SIMULATION FOR AN ELECTRIC PUBLIC TRANSPORTATION SYSTEM USING REAL WORLD DATA**
**Riccardo Barbieri**
Universita degli Studi di Firenze

**A3-TS5 489** **ENERGY STORAGE BY USING HVDC POWER CABLES**
**Guido Ala,Graziella Giglia, Christian Puccio, Elisa Francomano, Marta Paliaga**
University of Palermo

**A3-TS5 550** **IMPACTS OF RENEWABLE ENERGY SOURCES BY BATTERY FORECASTING ON SMART POWER SYSTEMS**
**Mehdi Bagheri(1), Venera Nurmanova(1), Oveis Abedinia(2), Mohammad Salay Naderi(3), Noradin Ghadimi(4), Ardabil Branch(3), Mehdi SalayNaderi(5)**
(1) Nazarbayev University; (2) Budapest University of Technology and Economics;
(3) Islamic Azad University; (4) Young Researchers and Elite Club;
(5) Amirkabir University of Technology

**A3-TS5 562** **INFLUENCE OF THE AGING MODEL OF LITHIUM-ION BATTERIES ON THE MANAGEMENT OF PV SELF-CONSUMPTION SYSTEMS**
**Alberto Berrueta, Julio Pascual, Idoia San Martín, Pablo Sanchis, Alfredo Ursúa**
Public University of Navarra

**A3-TS5 571** **EVALUATION OF THE IMPACT OF THE SIZE OF STORAGE DEVICES IN GRID-CONNECTED MICROGRIDS**
**Pietro Ferraro(1), Emanuele Crisostomi(1), Federico Milano(2)**
(1) University of Pisa; (2) University College Dublin

**A3-TS5 823** **MODELING AND DEVELOPMENT OF THYRATRON TYPE GRID NODE WITH IMPROVED DISCHARGE PARAMETERS FOR SPECIALIZED GAS-DISCHARGE CURRENT INTERRUPTER**
**Sergey Kruglov, Sergey Karabanov, Andrey Serezhin, Nikolay Vereshchagin, Sergey Shatilov, Kirill Agaltsov**
Ryazan State Radio Engineering University

**A3-TS5 447** **ENERGY HUB FUNCTIONING MODEL CONSIDERING PERSPECTIVES FOR DEVELOPMENT OF BIOENERGY IN UKRAINE**
**Yurii Veremiichuk(1), OlenaYarmoliuk(1), Ivan Prytyskach(1), VitaliiOpryshko(1), AnatolijsMahnitko(2), Janis Gerhards(2), Kristina Berzina(2)**
(1) Igor Sikorsky Kyiv Polytechnic Institute; (2) Riga Technical University

TECHNICAL SESSION 54 **(A3-TS6)**

# SMART ENERGY MANAGEMENT IN THE TRANSPORTATION SECTOR AND E-MOBILITY

Session Chairs: **Luca Pugi** (2) **Michela Longo**(2)
(1) University of Florence (2) Politecnico of Milan

**Thursday| June 14th | 2018 | 15:00-17:00**
Venue: **Room 11**

**A3-TS6 24** **ENERGY SIMULATION OF TRAMWAY SYSTEMS, SIMPLIFIED AND EFFICIENT MODELS**
**Luca Pugi, Francesco Grasso, giacomorossi**
University of Florence

**A3-TS6 61** **ONLINE IDENTIFICATION OF THEVENIN EQUIVALENT CIRCUIT MODEL PARAMETERS AND ESTIMATION STATE OF CHARGE OF LITHIUM-ION BATTERIES**
**EdoardoLocorotondo(1), Luca Pugi(1), Lorenzo Berzi(1), Marco Pierini(1), Giovanni Lutzemberger(2)**
(1) University of Florence; (2) University of Pisa

**A3-TS6 62** **ONLINE STATE OF HEALTH ESTIMATION OF LITHIUM-ION BATTERIES BASED ON IMPROVED AMPERE-COUNT METHOD**
**EdoardoLocorotondo(1), Luca Pugi(1),Lorenzo Berzi, Marco Pierini(1), Alessandro Pretto(2)**
(1) University of Florence; (2) University of Pisa

**A3-TS6 64** **CLASS-E RESONANT INVERTER CONTROL STRATEGIES FOR WIDE LOAD VARIATION**
**Fabio Corti(1), Luca Pugi(1), Alberto Reatti(1), Emilio Lorenzani(2), Giovanni Migliazza(2), Marian Kazimierczuk(3)**
(1) University of Florence; (2) University of Modena and Reggio Emilia; (3) Nil

**A3-TS6 327** **GOLD STANDARD TEST DEVICE FOR ELECTRIC VEHICLE GRID INTEGRATION**
**Stephan Ledinger**
AIT

**A3-TS6 501** **USE OF FUEL CELL GENERATORS FOR CELL-PROPELLED TRAINS RENOVATION**
**Michela Longo, Morris Brenna, Federica Foiadelli, Dario Zaninelli**
Politecnico di Milano

**A3-TS6 780** **METHOD OF THE ELECTRICAL NETWORK CONFIGURATION SELECTION**
**Tatjana Lomane, AnatolijsMahnitko, Kristina Berzina, Inga Zicmane,**
Riga Technical University

TECHNICAL SESSION 55 **(A3-TS7)**
## ADVANCED INTEGRATION OF MICRO-GRID TECHNOLOGIES AND MARKET MODELS IN THE DISTRIBUTION NETWORK
Session Chair: **Quoc Tuan Tran**
CEA-INES
**Thursday| June 14th | 2018 | 15:00-17:00**
Venue: **Room 12**

**A3-TS7 98** **INTEGRATION OF SOLAR PV SYSTEMS INTO GRID: FROM IMPACT ANALYSIS TO SOLUTIONS**
**Quoc Tuan TRAN**
CEA-INES

**A3-TS7 119** **GRID-FLEXIBILITY SERVICE PROVISION: A CLUSTERING ALGORITHM FOR DEPLOYING DERS' FLEXIBILITY**
**Simone Minniti, Thai Vo, P.H. Nguyen**
Eindhoven University of Technology

**A3-TS7 192** **ON THE APPLICABILITY OF DISTRIBUTED LEDGER ARCHITECTURES TO PEER-TO-PEER ENERGY TRADING FRAMEWORK**
**Van Hoa NGUYEN(1), Tuan Quoc Tran(2), Yvon Besanger(1), Minh Tri Le(2)**
(1) G2Elab - Grenoble INP; (2) French Alternative Energies and Atomic Energy Commission (CEA)

**A3-TS7 315** **A PROTECTIVE RELAYING SCHEME FOR A MICROGRID WITH HIGH PENETRATION OF PV SYSTEMS**
**Tran The Hoang(1),Tuan Quoc Tran(2),Yvon Besanger(1), Ngoc AnLuu(3)**
(1) G2Elab - Grenoble INP;
(2) French Alternative Energies and Atomic Energy Commission (CEA);
(3) Danang University of Science and Technology

**A3-TS7 325** **REALISTIC VALIDATION FOR DISTRIBUTED CONTROL AND OPTIMIZATION ALGORITHMS IN ELECTRIC POWER SYSTEM**
**Tung Lam Nguyen(1),Efren GuilloSansano(2), Mazheruddin Syed(2), Steven Blair(2), Tuan Quoc Tran(3), Raphael Caire(1),Graeme Burt(2), Luis Reguera(2)**
(1) G2Elab - Grenoble INP; (2) University of Strathclyde; (3) French Alternative Energies and Atomic Energy Commission (CEA)

**A3-TS7 368** **REVIEW OF COMMUNICATION SYSTEMS FOR PHYSICAL LV MICROGRIDS**
**Tam Mai**
Eindhoven University of Technology

**A3-TS7 516** **OPTIMAL ENERGY MANAGEMENT FOR AN ON-GRID MICROGRID BY USING BRAND AND BOUND METHOD**
**Luu Ngoc An**
The University of Da Nang

TECHNICAL SESSION 56 **(M4-TS1)**

## ELECTRICAL MACHINES AND POWER CONVERTERS - 4

Session Chair: **Roberto Faranda**
Politecnico di Milano

**Friday| June 15th | 2018 | 09:00-11:00**
Venue: **Room 6**

**M4-TS1 22** **INVESTIGATION FOR PE RFORMANCES COMPARISON PI, ADAPTIVE PI, AND FUZZY SPEED CONTROL IM FOR CENTRIFUGAL PUMPING APPLICATION**
**Arunshankar VK(1), Umashankar Subramaniyan(1), Sanjeevikumar Padmanaban(2), Paramasivam S(3), Lucian Mihet-Popa(4), Kei Eguchi(5)**
(1) VIT University; (2) University of Johannesburg; (3) Danfoss Drives A/S;
(4) Østfold University College; (5) Fukuoka Institute of Technology

**M4-TS1 388** **OVERVIEW OF RETROFITTING OPTIONS IN LINE-OPERATED INDUCTION MOTORS TO IMPROVE THEIR PERFORMANCE AND RELIABILITY**
**Fernando Ferreira(1), Aníbal Almeida(1), André Silva(1), Victor Aguiar(2), Enrique Quispe (3)**
(1) University of Coimbra; (2) Universidade Federal do Ceará;
(3) Universidad Autónoma de Occidente

**M4-TS1 553** **EVALUATION OF THE OPERATIONAL MODAL RESPONSES IN LINEAR SWITCHED RELUCTANCE ACTUATORS**
**Jose Salvado(1), Maria Rosario(2), António Espírito-Santo(2)**
(1) EST/IPCB; (2)UBI

**M4-TS1 631** **A NOVEL BACK TO BACK INVERTER CONFIGURATION FOR SOLAR WATER PUMPING AND GRID-TIE APPLICATION**
**Jugal Vijay Kumar Parmar(1), Sai Krishna Reddy(1), Swaminathan Balasubramania Sarma(2), Arjun Mudlapur(1), B Venkatesa Perumal(1)**
(1) National Institute of Technology Karnataka; (2) Infineon Technologies India Pvt Ltd

**M4-TS1 760** **INSTANTANEOUS FORCE CONTROL OF A LINEAR SWITCHED RELUCTANCE ACTUATOR**
**Luis Pestana(1), Maria Rosario(2), Silvio Mariano(2)**
(1) Instituto Politécnico de Viseu; (2) UBI

TECHNICAL SESSION 57 **(M4-TS2)**

## POWER SYSTEM STABILITY, SECURITY AND RESILIENCY - 4

Session Chair: **Osama Mohammed**
Florida International University

**Friday| June 15th | 2018 | 09:00-11:00**
Venue: **Room 7**

**CANCELED SESSION**

TECHNICAL SESSION 58 **(M4-TS3)**
## POWER SYSTEMS: MICRO-GRIDS COMPONENTS AND OPERATION - 2
Session Chair: **Massimo Mitolo**
Irvine Valley College

**Friday| June 15th | 2018 | 09:00-11:00**
Venue: **Room 8**

**M4-TS3 115** **A NOVEL SCHEME FOR HARMONIC CURRENT SHARING IN ISLANDED MICROGRIDS**
**Reza Ghanizadeh(1), Gevork B. Gharehpetian(2)**
(1) Islamic Azad University; (2) Amirkabir University of Technology (AUT)

**M4-TS3 314** **TWO-LEVEL FORECAST-BASED ENERGY AND LOAD MANAGEMENT FOR GRID-CONNECTED LOCAL SYSTEMS USING GENERAL LOAD AND STORAGE MODELS**
**Wiebke Heins**
Steinbeis Innovation

**M4-TS3 531** **IMPACT OF FAULTS AND PROTECTION METHODS ON THE DC MICROGRIDS**
**Navid Bayati, Amin Hajizadeh, Mohsen Soltani**
Aalborg University

**M4-TS3 638** **A DECENTRALIZED MODEL FOR COORDINATED OPERATION OF DISTRIBUTION NETWORK AND EV AGGREGATORS**
**Maryam Mohiti(1), Mohammadreza Mazidi(2), Hassan Monsef(1), Amjad Anvari-Moghaddam(3), Josep M. Guerrero(3)**
(1) Tehran University; (2) Yazd University; (3) Aalborg University

**M4-TS3 810** **MODULATED MODEL PREDICTIVE CURRENT CONTROL FOR H-BRIDGE TWO-LEVEL THREE PHASE ACTIVE POWER FILTERS STATCOM**
**Jorge Rodas(1), Marco Rivera(2), Sanjeevikumar Padmanaban(3), Pierluigi Siano(4)**
(1) Facultad de Ingenieria UNA; (2) Universidad de Talca;
(3) University of Johannesburg; (4) University of Salerno

**M4-TS3 838** **FLEXIBLE INDOOR ENVIRONMENTAL QUALITY MONITORING FOR INTEROPERABLE SUBSYSTEMS IN BUILDINGS**
**Krishnanand Radhakrishnan, Hoang Chinh, Sanjib Kumar Panda**
National University of Singapore

TECHNICAL SESSION 59 **(M4-TS4)**
## POWER SYSTEMS: TRANSMISSION GRIDS COMPONENTS AND OPERATION - 3

Session Chair: **Gaetano Zizzo**
University of Palermo

**Friday| June 15th | 2018 | 09:00-11:00**
Venue: **Room 9**

**M4-TS4 121** **CABLE SHEATH CURRENTS AND VOLTAGES IN ESTONIAN TRANSMISSION NETWORK FOR BOTH ENDS BONDED AND CROSS-BONDED CABLE INSTALLATION**
**Triin Kangro**
Tallinn University of Technology

**M4-TS4 156** **PERFORMANCE COMPARISON OF USING ACSR AND HTLS CONDUCTORS FOR CURRENT UPRATING OF 230-KV OVERHEAD TRANSMISSION LINES**
**Somboon Nuchprayoon(1), Artitaya Chaichana(2)**
(1) Chiang Mai University; (2) Electricity Generating Authority of Thailand (EGAT)

**M4-TS4 436** **COMPUTATION OF DYNAMIC LINE RATING OF OVERHEAD TRANSMISSION LINE USING WEATHER FORECAST AND INTERVAL ARITHMETIC**
**Artitaya Chaichana**
Electricity Generating Authority of Thailand (EGAT)

**M4-TS4 528** **HIGH IMPEDANCE DC FAULT DETECTION AND LOCALIZATION IN HVDC TRANSMISSION LINES USING HARMONIC ANALYSIS**
**Bakhtyar Hoseinzadeh(1), Massoud Nessari Ashkzari(2), Claus Leth Bak(3), Frede Blaabjerg(2)**
(1) et.aau.dk, uok.ac.ir; (2) Aalborg University; (3) AAU

**M4-TS4 740** **A COMPARISON OF COMMON POWER FLOW TECHNIQUES OF THE POWER DISTRIBUTION SYSTEM OF TEHRAN METRO USING ETAP (A CASE STUDY)**
**Mohammad Ghiasi (1), Tehran), Sanjeevikumar Padmanaban (2), Esmaeil Ahmadinia (3), Hamid Reza Bagahee (4)**
(1)Tehran Metro, Tehran Urban & Suburban Railway Operation Company (TUSRC)
(2) Dept. of Energy Technology, Aalborg University, Esbjerg
(3) Payame Noor University
(4) Amirkabir Univrsity of Technol

**M4-TS4 54** **AC AND DC SOLUTIONS FOR ELECTRIC VEHICLE MICROGRID: SIZING AND RELIABILITY ANALYSIS**
**Benedetto Aluisio, Maria Dicorato, Imma Ferrini, Giuseppe Forte, Michele Trovato**
Politecnico di Bari

TECHNICAL SESSION 60 **(M4-TS5)**

# ENERGY STORAGE FOR POWER SYSTEMS APPLICATION - 4

Session Chair: **Mostafa Kermani**
Sapienza University of Rome

**Friday| June 15th | 2018 | 09:00-11:00**
Venue: **Room 10**

**M4-TS5 655** **ANALYSIS OF ADVANCED LITHIUM-ION BATTERIES FOR BATTERY ENERGY STORAGE SYSTEMS**
**Jorge Alonso del Valle(1), David Anseán(1), Juan Carlos Viera(1), Víctor García(1), José Luis Antuña(2), Manuela González(1)**
(1) University of Oviedo; (2) DropSens S.L.

**M4-TS5 663** **MARGINAL COSTS OF BATTERY SYSTEM OPERATION IN ENERGY ARBITRAGE BASED ON ENERGY LOSSES AND CELL DEGRADATION**
**Michael Schimpe(1), Cong Nam Truong(1), Maik Naumann(1), Andreas Jossen(1), Holger Hesse(1), Jorn Reniers(2), David Howey(2)**
(1) Technical University of Munich; (2) University of Oxford

**M4-TS5 682** **SCHEDULING OF POWER GENERATION FOR HYBRID SHIPBOARD MICROGRIDS WITH ENERGY STORAGE**
**Muzaidi Othman**
Aalborg University

**M4-TS5 721** **IMPACT OF TIDAL ENERGY ON BATTERY SIZE FOR STANDALONE MICROGRIDS USING FUZZY CONTROLLER AND GREY WOLF ALGORITHM: A CASE STUDY FOR FLINDERS ISLAND, AUSTRALIA**
**Kutaiba El-Bidairi**
UTAS/AMC

**M4-TS5 747** **OPTIMAL OPERATION OF MOBILE ENERGY STORAGE DEVICES TO MINIMIZE ENERGY LOSS IN A DISTRIBUTION SYSTEM**
**Soon-Young Kwon, Jae-Young Park, Youngjin Kim**
Pohang University of Science and Technology

**M4-TS5 776** **SITTING AND SIZING ENERGY STORAGE UNITS BY GENETIC ALGORITHM FOR MITIGATING VOLTAGE DEVIATIONS**
**Robert Małkowski(1), Krzysztof Dobrzynski(1), Klucznik Jacek(2), Katedra Elektroenergetyki(3), Zbigniew Lubosny(1), Agata Szultka(1)**
(1) Gdańsk University of Technology; (2) Politechnika Gdańska; (3) Wydział Elektrotechniki i Automatyki

**M4-TS5 850** **STOCHASTIC LCOE WITH ELECTRICITY STORAGE SYSTEM IN PORTFOLIO SELECTION OF ELECTRICITY GENERATION**
**Jerzy Dzieża**
AGH University of Science and Technology

TECHNICAL SESSION 61 **(M4-TS6)**

## SYSTEM MODELLING AND OPTIMIZATION - 1

Session Chair: **Jose Luiz Barbosa**
Instituto Federal de Goiás (IFG)

**Friday| June 15th | 2018 | 09:00-11:00**
Venue: **Room 11**

**CANCELED SESSION**

TECHNICAL SESSION 62 **(M4-TS7)**

# GROUNDING

Session Chair: **Guido Ala**
University of Palermo

**Friday| June 15th | 2018 | 09:00-11:00**
Venue: **Room 12**

**M4-TS7 322** **PERFORMANCE ANALYSIS OF A COMMUNICATION-SUPPORTED EARTH FAULT PROTECTION SYSTEM OF A MEDIUM VOLTAGE LOOP NETWORK**
**Alberto Borghetti, Fabio Napolitano, Carlo Alberto Nucci, Fabio Tossani, Juan Diego Rios Penaloza**
University of Bologna

**M4-TS7 521** **THE INFLUENCE OF NETWORK ASYMMETRY ON THE SETTINGS AND SENSITIVITY OF EARTH FAULT PROTECTION USING HIGHER HARMONICS**
**Alberto Berrueta, Julio Pascual, Idoia San Martín, Pablo Sanchis, Alfredo Ursúa**
Public University of Navarra

**M4-TS7 673** **COMPUTATION OF TRANSFERRED POTENTIALS FROM GROUNDING GRIDS BY MEANS OF HYBRID METHODS**
**Salvatore Alfonzetti, Giovanni Aiello, Santi Rizzo, Nunzio Salerno**
University of Catania

**M4-TS7 728** **EXPERIMENTAL STUDY ON SINGLE-PHASE GROUNDING FAULT SAFETY CURRENT OF LARGE GENERATOR**
**Guodong Zhang, Lin Gui**
Tsinghua University

**M4-TS7 736** **AN ANALYTICAL PROCEDURE TO IDENTIFY A GLOBAL EARTHING SYSTEM**
**Pietro Colella, Enrico Pons**
Politecnico di Torino

TECHNICAL SESSION 63 **(N4-TS1)**

## MEASUREMENTS

Session Chair: **Osama Mohammed**
Florida International University

**Friday| June 15th | 2018 | 11:30-13:30**
Venue: **Room 6**

**N4-TS1 11** **INTEGRATION OF BLUETOOTH, VEHICLE COUNT DATA AND TRASPORT MODEL RESULTS BY MEANS OF DATAMINING TECHNIQUES. THE APPLICATION TO THE REGIONAL HIGHWAY S.G.C. FI-PI-LI LINKING FLORENCE TO LEGHORN AND PISA**
**Massimiliano Petri(1), Antonio Pratelli(1), Marco Ierpi(2), Michela Di Matteo(2)**
(1) University of Pisa; (2) Tuscany Region

**N4-TS1 379** **A RADIAL BASIS FUNCTION NETWORK APPROACH TO MODEL ERROR IN DISTRIBUTION STATE ESTIMATION**
**Alireza Hassannejad Marzouni(1), Alireza Zakariazadeh(1), Pierluigi Siano(2)**
(1) University of Science and Technology of Mazandaran; (2) University of Salerno

**N4-TS1 572** **ON THE ON-SITE MEASUREMENT OF THE DEGRADATION OF CRISTALLINE SILICON PV MODULES AT PLANT LEVEL**
**Julio Pascual, Alberto Berrueta, Javier Marcos, Miguel Garcia, Luis Marroyo**
Public University of Navarra

**N4-TS1 616** **DESIGN OF OIL-IMMERSED APPARATUS OIL VELOCITY MEASURE SYSTEM BASED ON THE ULTRASONIC WAVE DOPPLER EFFECT**
**Yi Qi Dang, Wen Zhe Chen**
Xi'an jiaotong University

**N4-TS1 642** **AUTONOMOUS ROBOT BASED ENVIRONMENTAL ASSESSMENT AND DENGUE HOTSPOT IDENTIFICATION**
**Sudarshan Sreeram**
Vidya Mandir

**N4-TS1 643** **FAULT TOLERANT CONTROL OF AN INDUSTRIAL MANUFACTURING PROCESS USING IMAGE PROCESSING**
**Ali Abdo(1), Jamal Siam(1), Ahmed Abdou(2), Ashraf Al-Rimawi(1), Hakam Shehadeh(1)**
(1) Birzeit University; (2) Al-Quds University

**N4-TS1 713** **LOW-COST EMBEDDED CONTROL SYSTEM FOR ENVIRONMENTAL MONITORING**
**Beata Palczynska, Dorota Rabczuk**
Gdynia Maritime University

TECHNICAL SESSION 64 **(N4-TS2)**

## POWER SYSTEM STABILITY, SECURITY AND RESILIENCY - 5

Session Chair: **Tomasz Kisielewicz**
Sapienza University of Rome

**Friday| June 15th | 2018 | 11:30-13:30**
Venue: **Room 7**

**N4-TS2 578** **A SECURITY-CONSTRAINED ISLANDING FEASIBILITY OPTIMIZATION MODEL IN THE PRESENCE OF RENWABLE ENERGY SOURCES**
**Valentin Ilea, Cristian Bovo, Claudio Rolandi**
Politecnico di Milano

**N4-TS2 626** **EFFECT OF PROTECTED ON UNPROTECTED CIRCUITS IN CASE OF INDIRECT LIGHTNING FLASHES TO OVERHEAD LINES**
**Tomasz Kisielewicz(1), Giovanbattista Lo Piparo(2), Carlo Mazzetti(2)**
(1) Warsaw University of Technology; (2) Sapienza Università di Roma

**N4-TS2 262** **OPTIMAL OVERCURRENT RELAY COORDINATION IN THE PRESENCE OF INVERTER-BASED WIND FARMS AND ELECTRICAL STORAGE DEVICES**
**Mohammad Sadegh Javadi Estahbanati(1), Ali Esmaeel Nezhad(2), Amjad Anvari-Moghaddam(3), Josep M. Guerrero(3)**
(1) Islamic Azad University; (2) University of Bologna; (3) Aalborg University

**N4-TS2 749** **VOLTAGE STABILITY ASSESSMENT BY HOLOMORPHICALLY ESTIMATING THE BIFURCATION POINT OF ELECTRIC GRIDS**
**Joymala Moirangthem, Krishnanand Radhakrishnan, Sanjib Panda**
National University of Singapore

**N4-TS2 809** **DIAGNOSTICS OF TECHNICAL STATE OF MODERN TRANSFORMER EQUIPMENT USING THE ANALYTIC HIERARCHY PROCESS**
**Dmitry Orlov, Vadim Zinovjevich Manusov**
Novosibirsk State Technical University

**N4-TS2 293** **OPTIMAL DYNAMIC TARIFFS FOR FLEXIBLE RAMP MARKET IN THE PRESENCE OF WIND ENERGY GENERATION**
**Nuno Gonçalo dos Santos(1), Miadreza Shafie-khah(2), Gerardo Osório(3), João Catalão(4)**
(1) FEUP; (2) UBI; (3) University of Beira Interior; (4) Univeristy of Porto

**N4-TS2 308** **FAST PROBABILISTIC LOADFLOW FOR NON RADIAL DISTRIBUTION GRIDS**
**Benjamin Matthiss**
ZSW

TECHNICAL SESSION 65 **(N4-TS3)**

## EDUCATION IN ELECTRICAL ENGINEERING

Session Chair: **Renata Varfolomejeva**
Riga Technical University

**Friday| June 15th | 2018 | 11:30-13:30**
Venue: **Room 8**

**N4-TS3 428** **ADAPTION OF EXTENDED VIRTUAL-REAL LABORATORY FOR EDUCATION IN ELECTRICAL ENGINEERING**
**Laila Zemite, Andrejs Utans, Aleksandrs Dolgicers, Ivars Zalitis**
Riga Technical University

**N4-TS3 96** **STEP RESPONSE MEASUREMENT OF INSULATING LIQUIDS AND THEIR REPRODUCIBILITY**
**Patrick Rumpelt, Erwin BurkhardtFrank Jenau**
TU Dortmund University

**N4-TS3 101** **SIMULATION OF CHARGE CARRIER MOVEMENT FOR EMULATING CONDUCTIVITY MEASUREMENTS OF MINERAL OIL UNDER DC STRESS**
**Patrick Rumpelt(1), Frank Jenau(1), Michael Geissler(2), Ronny Fritsche(2), Hans-Peter Öferting(3), Andreas Küchler(3)**
(1) TU Dortmund University; (2) Siemens;
(3) University of Applied Sciences Würzburg-Schweinfurt

**N4-TS3 209** **3D IMAGE RECONSTRUCTION OF A ROBOTIC ARM IN MATLAB FROM IMAGES ACQUIRED WITH FPGA**
**Radu-Stefan Ricman, Roland Szabo, Aurel Gontean**
Politechnica University Timisoara

**N4-TS3 452** **SECURITY ASSESSMENT MEANS FOR ONE POWER TRANSMISSION SYSTEM INSIDE THE LARGE INTERCONNECTED NETWORK**
**Timurs Kuzņecovs Kuzņecovs(1), Anatolijs Mahnitko(2), Antans Sauhats, Renata Varfolomejeva(3)**
(1) AST; (2) RTU; (3) Riga Technical University

**N4-TS3 730** **BUILDING THE ENGINEERING COMPETENCES BASE THROUGH FORMATIVE ASSESSMENT AND GAMING**
**Catalin Galatanu, Iulian Gherasim**
Technical University "Gh.Asachi" from IASI

TECHNICAL SESSION 66 **(N4-TS4)**

## POWER SYSTEM: TRANSMISSION GRIDS COMPONENTS AND OPERATION - 4

Session Chair: **Zbigniew Leonowicz**
Wrocław University of Science and Technology

**Friday| June 15th | 2018 | 11:30-13:30**
Venue: **Room 9**

**N4-TS4 81** **A LEADER-FOLLOWER APPROACH TO GAS-ELECTRICITY EXPANSION PLANNING PROBLEM**
**Vahid Khaligh(1), Majid Oloomi Buygi(1), Amjad Anvari-Moghaddam(2), Josep M. Guerrero(2)**
(1) Ferdowsi university of Mashhad; (2) Aalborg University

**N4-TS4 126** **SHIP'S ELECTRICAL POWER SYSTEM MODEL FOR INVESTIGATION OF DYNAMIC MODE OPERATION**
**Nikolay Djagarov(1), Zhivko Grozdev(1), Julia Djagarova(2), Ventsislav Varbev(1), Gabriel Predoi (1)**
(1) Nikola Vaptsarov Naval Academy; (2) Technical University of Varna

**N4-TS4 305** **INVESTIGATION OF DYNAMIC MODE OPERATION OF SHIP'S ELECTRICAL POWER SYSTEMS BY SIMULATION**
**Nikolay Djagarov(1), Zhivko Grozdev(1), Ventsislav Varbev(1), Gabriel Predoi(1), Julia Djagarova(2), Milen Bonev(1)**
(1) Nikola Vaptsarov Naval Academy; (2) Technical University of Varna

**N4-TS4 481** **SYNTHETIC LABORATORY IMITATION OF TRANSIENT VOLTAGE STRESSES OF MMC-HVDC LINKS**
**Claudius Freye, Jens Kortenbrede, Lars Vogelsang, Frank Jenau**
TU Dortmund University

**N4-TS4 563** **NEW SINGLE ENDED FAULT LOCATOR FOR HVDC TRANSMISSION LINES**
**Arkadiusz Burek (1), Hans Bjorklund (1), Jacek Rezmer (2), Tomasz Sikorski (2), Przemyslaw Balcerek (1)**
(1) ABB; (2) Wroclaw University of Technology

TECHNICAL SESSION 67 **(N4-TS5)**
## ITALY-VIETNAM: BILATERAL RESEARCH EXPERIENCES ON ENERGY, ICT AND ENVIRONMENT -1

Session Chair: **Mariano Anderle**
Italian Embassy in Hanoi

**Friday| June 15th | 2018 | 11:30-13:30**
Venue: **Room 10**

**N4-TS5 584** **MODELING SOIL EROSION AND SEDIMENT LOAD FOR RED RIVER BASIN (VIETNAM): IMPACT OF LAND USE CHANGE AND RESERVOIRS OPERATION**
**Thinh Le Van(1), Roberto Ranzi(2), Maria Cristina Rulli(3)**
(1) Thuyloi University; (2) Università di Brescia; (3) Politecnico di Milano

**N4-TS5 680** **REVERSE ELECTRODIALYSIS: APPLICATIONS TO DIFFERENT CASE STUDIES**
**Francesco Giacalone, Alessandro Tamburini, Michail Papapetrou, Andrea Cipollina, Giorgio Micale**
University of Palermo

**N4-TS5 743** **INNOVATIVE MIMO ANTENNAS FOR 5G COMMUNICATION SYSTEMS**
**Paola Pirinoli**
Politecnico di Torino

**N4-TS5 751** **AN EFFECTIVE APPROACH TO ANN-BASED SHORT-TERM LOAD FORECASTING MODEL USING HYBRID ALGORITHM GA-PSO**
**Manh-Hai Pham (1), Thi Anh Tho VU (1), HUYEN DANG (1), The Vinh NGUYEN (2), Duc-Quang NGUYEN (1), Viet Hung PHAM (1), Ngoc Trung NGUYEN (1), Van Duy PHAM (3)**
(1) Electric Power University
(2) Quang Ninh University of Industry
(3) Institute of Energy Science

**N4-TS5 762** **A NOVEL ALGORITHM OF ISLAND PROTECTION FOR DISTRIBUTED GENERATION IN SMART GRIDS**
**Manh-Hai Pham, Ngoc Trung Nguyen, Ngoc Thanh Ngo**
Electric Power University

**N4-TS5 439** **POTENTIAL USE OF RESERVOIRS FOR MITIGATING SALINE INTRUSION IN THE COASTAL AREAS OF RED RIVER DELTA**
**Nguyen Hien**
UNIBS

TECHNICAL SESSION 68 **(N4-TS6)**

## SYSTEM MODELLING AND OPTIMIZATION

Session Chair: **Jose Luiz Barbosa**
Instituto Federal de Goiás (IFG)

**Friday| June 15th | 2018 | 11:30-13:30**
Venue: **Room 11**

**N4-TS6 149** **OPTIMIZED SOLAR SIMULATOR STRUCTURE FOR UNIFORM IRRADIANCE DISTRIBUTION**
**Calebe Matias(1), Licínio de Santos(2), Aylton José Alves(1), Geovanne Furriel(1), Wesley Calixto(1)**
(1) Instituto Federal de Goiás; (2) Instituto Federal de Educação

**N4-TS6 243** **ADAPTIVE PROTECTION ALGORITHMS FOR SMART DISTRIBUTION SYSTEMS: HARDWARE-IN-THE-LOOP TESTING AND VALIDATION**
**Samuele Grillo(1), Enrico Ragaini(2), Mario Bertolo(1)**
(1) Politecnico di Milano; (2) ABB

**N4-TS6 444** **RELATIONSHIP BETWEEN RISK AND SYSTEM COMPLEXITY FROM A CONNECTION BASED METRIC PERSPECTIVE**
**João Ricardo Braga de Paiva(1), Viviane Margarida Gomes(2), Marcio Reis(2), Gabriel Wainer(3), Wesley Calixto(2)**
(1) UFG/IFG; (2) Federal Institute of Goias; (3) Carleton University

**N4-TS6 666** **CONVERSION ERROR OF EXPONENTIAL TO POLYNOMIAL LOAD MODEL CONVERSION**
**Madis Leinakse, Dr. Jako Kilter**
Tallinn University of Technology

**N4-TS6 435** **EXPERIMENTAL VALIDATION OF AN EQUIVALENT DYNAMIC ELECTRICAL MODEL FOR A PROTON EXCHANGE MEMBRANE ELECTROLYZER**
**Damien Guilbert(1), Gianpaolo Vitale(2)**
(1) Université de Lorraine; (2) CNR-ISSIA

TECHNICAL SESSION 69 **(N4-TS7)**

## CIRCUITS, SENSORS, ACTUATORS, ELECTROMAGNETIC COMPATIBILITY - 1

Session Chair: **Leonardo Sandrolini**
University of Bologna

**Friday| June 15th | 2018 | 11:30-13:30**
Venue: **Room 12**

**N4-TS7 128** **TEMPERATURE COMPENSATION METHOD FOR AN OPTICAL DIRECT CURRENT SENSOR USING TWO WAVELENGTHS AND TECHNICAL RIPPLE**
**Florian Leßmann**
TU Dortmund

**N4-TS7 180** **VIBRATIONAL-POWERED VEHICLE'S MESH WIRELESS SENSOR NETWORK: PERFORMANCE EVALUATION**
**Alex Mouapi(1), Nadir Hakem(1), Gaelle Vanessa Kamani(2), Nahi Kandil(1)**
(1) Universite du Quebec en Abitibi-Temiscamingue; (2) University of Greenwich

**N4-TS7 401** **INDUCTION MOLD HEATING: MODELLING AND HARDWARE-IN-THE-LOOP SIMULATION FOR TEMPERATURE CONTROL**
**Mariorosario Prist, Emanuele Pallotta, Paolo Cicconi, Andrea Monteriù, Michele Germani, Sauro Longhi**
Università Politecnica delle Marche

**N4-TS7 560** **RELIABLE WIRELESS DATA TRANSFER IN HIGH EMI ENVIRONMENTS USING LABVIEW**
**Ben Kotze, Abdul Barakzai**
Central University of Technology Freestate

**N4-TS7 574** **ADVANCED APPROACH TO BATTERY IMPEDANCE MEASUREMENT WITH DC CURRENT STEP**
**José Luis Antuña(1), Juan Carlos Viera(2), Francisco Javier Ferrero Martín(2), Manuela González(2), David Hernández Santos(1), Pablo Fanjul Bolado(1), Alejandro Junquera(1)**
(1) DropSens S.L.; (2) University of Oviedo

**N4-TS7 792** **AN EFFICIENT IMPLICIT METHOD FOR TIME DOMAIN ELECTROMAGNETIC NUMERICAL SIMULATIONS**
**Elisa Francomano, Marta Paliaga, Guido Ala, Graziella Giglia**
University of Palermo

**N4-TS7 864** **ASPECTS REGARDING THE DIMENSIONING OF THE ANALOG CIRCUITS WITH MAGNETICALLY COUPLED COILS**
**Ioana-Gabriela Sirbu**
University of Craiova

TECHNICAL SESSION 70 **(A4-TS1)**
## RENEWABLE ENERGY SOURCES IN POWER SYSTEMS, DISTRIBUTED GENERATION - 6

Session Chair: **Enrico Telaretti**
University of Palermo

**Friday| June 15th | 2018 | 15:00-17:00**
Venue: **Room 6**

**A4-TS1 754** **UNIFIED SWITCH FAULT DETECTION FOR CASCADED NON-ISOLATED DC-DC CONVERTERS**
**Ehsan Jamshidpour(1), Philippe Poure(2), Shahrokh Saadate(2)**
(1) Icube / ECAM Strrasbourg; (2) Université de Lorraine

**A4-TS1 756** **PROTECTION SCHEME FOR TRANSMISSION LINES CONNECTED TO WIND FARM BASED ON SUPPORT VECTOR MACHINE**
**Ahmed Hassan**
Helwan University

**A4-TS1 803** **OPTIMAL USING OF WIND POWER PLANTS IN THE SMART GRID CONCEPT FOR TWO-WAY ENERGY FLOW**
**Vadim Zinovjevich Manusov(1), Nasrullo Khasanzoda(1), Boris Palagushkin(2)**
(1) Novosibirsk State Technical Universit; (2) Siberian state University of Water Transport

**A4-TS1 846** **IMPACT OF SERIES RESONANT POWER CONDITIONING SYSTEM LOSSES IN OPTIMAL POWER FLOW**
**Yousef-Khalifa Kawan, Aouss Gabash**
Ilmenau University of Technology

**A4-TS1 847** **ASYMPTOTIC OUTPUT TRACKING IN CONTROL OF A GRID CONNECTED WIND TURBINE BASED ON DOUBLY FED INDUCTION GENERATOR**
**Marwa Hassan**
Sapienza University of Rome

**A4-TS1 867** **MINIMIZING POWER LOSS IN DISTRIBUTION SYSTEM BY OPTIMAL SIZING AND SITTING OF DISTRIBUTED GENERATORS WITH NETWORK RECONFIGURATION USING GREY WOLF AND PARTICLE SWARM OPTIMIZERS**
**Mirna Abu Haggar(1), Eman Beshr(1), Magdy Eteiba(2)**
(1) Arab academy for science and Technology;
(2) Electrical Power Engineering Fayoum University Cairo

TECHNICAL SESSION 71 **(A4-TS2)**

## CIRCUITS, SENSORS, ACTUATORES, ELECTROMAGNETIC COMPATIBILITY -2

Session Chairs: **Guido Ala, Graziella Giglia**
University of Palermo

**Friday| June 15th | 2018 | 15:00-17:00**
Venue: **Room 7**

**A4-TS2 75** **DIRECT EDDY CURRENT METHOD FOR QUALITY TESTING OF CORRODED METAL SAMPLES**
**Valentina Koliskina, Andrei Kolyshkin**
Riga Technical University

**A4-TS2 170** **RESEARCH ON SYNCHRONOUS CONTROL METHOD FOR DUAL-CYLINDER PROPULSION BASED MARINE ELECTRIC STEERING ENGINE**
**Xiao Chen(1), Jinguo Lin(1), Jiangang Ji(1), Bowen Xing(2)**
(1) No. 704 Institute of China Shipbuilding Industry Corporation (CSIC);
(2) Shanghai Ocean University

**A4-TS2 255** **RISK DATA ANALYSIS BASED ANOMALY DETECTION OF SHIP INFORMATION SYSTEM (SIS)**
**Bowen Xing(1), Shouqi Cao(1), Xiao Chen(2)**
(1) Shanghai Ocean University;
(2) No. 704 Institute of China Shipbuilding Industry Corporation

**A4-TS2 449** **AC "BACK TO BACK" SWITCHING PROTECTION IN INDUCTIVE APPLICATION**
**Roberto Faranda(1), Hossein Hafezi(1), Marco Ingrao(2), Massimo Lazzaroni(3)**
(1) Politecnico Di Milano; (2) Tecnomagnete S.p.A.; (3) Università degli Studi di Milano

**A4-TS2 552** **COMPLEX PROJECTIVE SYNCHRONIZATION OF FRACTIONAL COMPLEX SYSTEMS USING NONLINEAR CONTROL METHOD**
**Donato Cafagna(1), Subir Das(2), Vijay Kumar Yadav(2)**
(1) Università del Salento; (2) ndian Institute of Technology

**A4-TS2 568** **MODELLING OF SIC POWER MOSFET IN MATLAB, SIMULINK, AND LTSPICE**
**Marah Alhalabi(1), Anas Al Tarabsheh(2), Abdelrahman Rashed(1), Nusrat Binte Iqbal (1)**
(1) Abu Dhabi University; (2) Electrical Engineering

**A4-TS2 627** **THE NON-DECOULING MODE BASED-ON TO MODEL THE DIFFERENTIAL MODE CURRENT OF A DC-DC CONVERTER**
**Achour Ales**
Ecole Militaire Polytechnique

**A4-TS2 769** **DESIGN AND MULTI-OBJECTIVE OPTIMIZATION OF EMI FILTERS**
**Guido Ala(1), Gianluca Conte(1), Graziella Giglia(1), Elisa Francomano(1), Maria Carmela Di Piazza(2), Massimiliano Luna(2)**
(1) University of Palermo; (2) CNR-ISSIA

TECHNICAL SESSION 72 **(A4-TS3)**

## MONITORING, DIAGNOSIS AND RELIABILITY OF RENEWABLE ENERGY SOURCES

Session Chair: **Silvano Vergura**
University of Bari

**Friday| June 15th | 2018 | 15:00-17:00**
Venue: **Room 8**

**A4-TS3 455** **ANALYTICAL METHODOLOGY FOR RELIABILITY ASSESSMENT AND FAILURE ANALYSIS IN THE POWER DISTRIBUTION SYSTEM OF TEHRAN METRO**
**Mohammad Ghiasi(1), Noradin Ghadimi(2)**
(1) Tehran Metro Operation Company; (2) Islamic Azad University

**A4-TS3 566** **LOW COST AND MODULAR ARCHITECTURE BASED ON MICROCONTROLLER FOR PHOTOVOLTAIC ARRAY MONITORING**
**Jhoan Parra(1), Brian Ospina(1), Martha Orozco(1), Edinson Franco(1), Juan Bastidas(2)**
(1) Universidad del Valle; (2) Universidad Industrial de Santander

**A4-TS3 670** **QUANTIFICATION OF THE DEGRADATION OF PHOTOVOLTAIC MODULES IN A STRING USING SINGLE DIODE MODEL BASED INDICATORS**
**Brian Ospina(1), Jhoan Parra(1), Edinson Franco(1), Martha Orozco(1), Juan Bastidas(2)**
(1) Universidad del Valle; (2) Universidad Industrial de Santander

TECHNICAL SESSION 73 **(A4-TS4)**

## ADVANCED CONTROL METHODS FOR POWER SYSTEMS

Session Chair: **Renato G. Procopio**
University of Genova

**Friday| June 15th | 2018 | 15:00-17:00**
Venue: **Room 9**

**A4-TS4 214** **SOME ANALYTICAL REMARKS ON SLIDING MODE CONTROL FOR MULTI-INPUT MULTI-OUTPUT NONLINEAR SYSTEMS**
**Massimo Brignone, Marco Invernizzi, Damiano Lanzarotto, Alessandro Palmieri**
University of Genova

**A4-TS4 318** **MODEL PREDICTIVE CONTROL FOR PRIMARY REGULATION OF ISLANDED MICROGRIDS**
**Daniele Mestriner, Alessandro Labella, Renato Procopio, Federico Blanco**
University of Genoa

**A4-TS4 320** **STOCHASTIC PREDICTIVE CONTROL OF MULTI-MICROGRID SYSTEMS**
**Najmeh Bazmohammadi(1), Ahmadreza Tahsiri(1), Amjad Anvari-Moghaddam(2), Josep M. Guerrero(2)**
(1) K. N. Toosi University of Technology; (2) Aalborg University

**A4-TS4 329** **ITER FAST DISCHARGING UNITS: A BLACK BOX MODEL APPROACH FOR CIRCUITAL SIMULATIONS**
**Andrea Bonfiglio(1), Alessandro Labella(1), Daniele Mestriner(1), Renato Procopio(1), Francesco Milani(2), Yulong Ye(2)**
(1) University of Genoa; (2) ITER Organization

**A4-TS4 330** **CONTROL AND VOLTAGE STABILITY OF A MEDIUM VOLTAGE DC MICRO-GRID INVOLVING PULSED LOADS**
**Osama Mohammed**
Florida International University

**A4-TS4 834** **CONTEXT-AWARE PLUG-LOAD IDENTIFICATION TOWARDS ENHANCED ENERGY EFFICIENCY IN THE BUILT ENVIRONMENT**
**Krishnanand Radhakrishnan, Hoang Chinh, Sanjib Kumar Panda**
National University of Singapore

TECHNICAL SESSION 74 **(A4-TS5)**
# ITALY-VIETNAM: BILATERAL RESEARCH EXPERIENCES ON ENERGY, ICT AND ENVIRONMENT - 2

Session Chair: **Mariano Anderle**
Italian Embassy in Hanoi
**Friday| June 15th | 2018 | 15:00-17:00**
Venue: **Room 10**

**A4-TS5 171** **TECHNICAL RULES FOR CONNECTING PV SYSTEMS TO THE DISTRIBUTION GRID: A CRITICAL COMPARISON OF THE ITALIAN AND VIETNAMESE FRAMEWORKS**
**Gaetano Zizzo(1), Salvatore Favuzza(1), Eleonora Riva Sanseverino(1), Maria Luisa Di Silvestre(1), Truong Giang Nguyen(2), Manh-Hai Pham(2)**
(1) University of Palermo; (2) Electric Power University

**A4-TS5 383** **BLOCKSEE: BLOCKCHAIN FOR IOT SURVEILLANCE IN SMART CITIES**
**Pierluigi Gallo**
University of Palermo

**A4-TS5 529** **ITALY-VIETNAM SCIENTIFIC COOPERATION IN THE FIELD OF GNSS**
**Matteo Vannucchi(1), Gabriella Povero(1), Tung Ta Hai(2), Hiep Hoang Van(2), Gustavo Belforte(2)**
(1) ISMB; (2) HUST; (3) Politecnico di Torino

**A4-TS5 541** **A RENEWABLE ENERGY MIX TO SUPPLY THE BALEARIC ISLANDS: SEA WAVE, WIND AND SOLAR**
**Domenico Curto, Vincenzo Franzitta, Alessia Viola**
University of Palermo

**A4-TS5 542** **A SUSTAINABLE ENERGY MIX FOR THE AEOLIAN ISLANDS**
**Domenico Curto, Marco Trapanese, Vincenzo Franzitta**
University of Palermo

**A4-TS5 677** **VOLTAGE PROFILE IMPROVEMENT FOR SOC SON'S LOW-VOLTAGE GRID WITH HIGH PENETRATION OF PV SYSTEMS BY OPTIMIZING THE LOCATION OF SVC DEVICES**
**Quynh Tran(1), Eleonora Riva Sanseverino(1) , Maria Luisa Di Silvestre(1), Ninh Nguyen Quang(2), Binh Van(2)**
(1) University of Palermo;
(2) Institute of Energy Science (IES) Vietnam Academy of Science and Technology

**A4-TS5 706** **ELECTROSTATIC AND CAPACITIVE ANALYSIS IN MULTICONDUCTOR SYSTEM BY FINITE ELEMENT AND BALANCE ENERGY METHOD: APPLICATION IN 500KV TRANSMISSION LINE NORTH – SOUTH OF VIETNAM**
**Duc-Quang NGUYEN (1), Thanh-Son TRAN (1), HUYEN DANG (1), Manh-Hai Pham (1), Anh-Tung TRAN (1)**
(1)Electrical Power University

# REMOTE
SESSION

**11**TH | **11:00**

## REMOTE SESSION

Session Chair: **Zbigniew Leonowicz**
Wrocław University of Science and Technology

**Monday| June 11th | 2018 | 11:00**

**RS 602** **IMPROVEMENTS IN TESTING POLE SLIPPING PROTECTION RELAYS (ANSI 78)**
**Ricardo Granizo Arrabé(1), Carlos Platero Dueñas(2), Fernando Alvarez Gómez(1), Eduardo Marchesi(3)**
(1) UPM; (2) Politécnica de Madrid; (3) EUROSMC

**RS 782** **METHODOLOGY FOR COMPUTATION OF ONLINE VOLTAGE STABILITY ASSESSMENT**
**Mazhar Ali(1), Elena Gryazina(1), Konstantin Turitsyn(2)**
(1) Skolkovo Institute of Science and Technology; (2) Massachusetts Institute of Technology

**RS 114** **RELEVENT SUBNETWORK IDENTIFICATION FOR TOPOLOGY ERROR DETECTION IN POWER SYSTEMS**
**Ahmed Kassem**
Faculty of Engineering Alexandria University

**RS 534** **DISTRIBUTED SOLAR SELF-CONSUMPTION AND BLOCKCHAIN**
**Julien Gil(1), Caroline Plaza(1), François De Chezelles(2), Karl Axel Strang(3)**
(1) Sunchain; (2) Talium; (3) Enedis

**RS 70** **SIMULATION OF ELECTRIC FIELD FOR CAVITIES IN XLPE MEDIUM VOLTAGE CABLE THAT CONTRIBUTE TO PARTIAL DISCHARGES**
**Adel El Faraskoury(1), Sobhy Serry(2), Samer Makkawy(2), Waleed Elzanaty(2)**
(1) EHVRC; (2) Port Said University

**RS 843** **POWER QUALITY MANAGEMENT IN AN OFF-GTRID SYSTEM**
**Jakub Kosm**
VSB - Technical University of Ostrava

**RS 83** **IMPROVED UNBALANCED COMPENSATION FOR ENERGY MANAGEMENT IN MULTI-MICROGRID SYSTEM WITH IOT**
**Mojtaba Moghimi, F. H. M. Rafi, Junwei Lu**
Griffith University

**RS 177** **INTEGRATION OF RENEWABLE ENERGIES TO CONVERT UNIVERSITY COMMERCIAL BUILDINGS TO NZEBS**
**Mojtaba Moghimi, Pranitha Muthuraju, Prasad Kaparaju, Sascha Stegen, Junwei Lu**
Griffith University

**RS 108** **NEUTRAL CURRENT COMPENSATION IN A VSG BASED THREE-PHASE FOUR-WIRE MICROGRID SYSTEM**
**Jiannan Liu(1), F. H. M. Rafi(1), M. J. Hossain(1), Junwei Lu(1)**
(1) Griffith University; (2) Macquarie University

## REMOTE SESSION

Session Chair: **Zbigniew Leonowicz**
Wrocław University of Science and Technology

**Monday| June 11th | 2018 | 20:00**

**RS 806** **A GROUNDING FAULT LOCATION METHOD BASED ON STEADY-STATE CURRENT IN NON-SOLID-EARTHED DISTRIBUTION**
**Zili Yin**
State Grid Fujian Electric Power Company

**RS 335** **QUALITATIVE ANALYSIS OF LOW WATTAGE LED LAMPS FOR APPLICATION ON LIGHTING RETROFIT**
**André Martins(1), Jose Domingos(1), Aylton José Alves(1), Luiz Guilherme Ferreira(2), Bethiê de Castro Furtado(3)**
(1) Instituto Federal de Goiás;
(2) Instituto Federal de Educação, Ciencia e Tecnologia de Goias; (3) SENAI

**RS 228** **PREDICTING SYSTEM FOR FLOODED AREAS DEVELOPED WITH MLP-TYPE NEURAL NETWORK**
**Junio Bulhões**
NEXT

**RS 131** **MULTI-LEVEL PHOTOSEDIMENTOMETER FOR AUTOMATIC SEDIMENTATION TEST AND ANALYSIS OF SOIL PARTICLE SIZE**
**Daniel Warles Pereira Martins**
UFG

**RS 147** **EVALUATION OF TECHNOLOGIES TO REDUCE ENERGY AND WATER CONSUMPTION, IN POPULAR HOUSING**
**Leandro Tsuruda**
Federal Institute of Goias

**RS 227** **INDIRECT PREDICTION SYSTEM THAT USES OTHER PREDICTIONS OF CORRELATED VARIABLES**
**Junio Bulhões**
NEXT

**RS 331** **DATA-DRIVEN CONTROL OF WATER RESERVOIRS USING EL NINO SOUTHERN OSCILLATION INDEXES**
**Matteo Giuliani, Andrea Castelletti**
Politecnico di Milano

**RS 303** **ENERGY MANAGEMENT STRATEGY OF MICROGRIDS BASED ON BENDERS DECOMPOSITION METHOD**
**Niloofar Zaree(1), Vahid Vahidinasab(1), Abouzar Estebsari(2)**
(1) Abbaspour School of Engineering Shahid Beheshti University; (2) Politecnico di Torino

## REMOTE SESSION

Session Chair: **Zbigniew Leonowicz**
Wrocław University of Science and Technology

**Wednesday| June 13th | 2018 | 09:00**

**RS 866** **FRAMING THE PRACTICES FOR CIRCULAR ECONOMY BUSINESS MODELS AT MANAGERIAL LEVEL: A CASE ANALYSIS**
**Enes Unal, Andrea Urbinati, Davide Chiaroni**
Politecnico di Milano

**RS 136** **LONGEST HVAC CABLE SYSTEMS: A REVIEW**
**Giovanni Rinzo, Gianni Pedrazzoli**
University of Padova

**RS 614** **RELIABILITY EVALUATION OF THE DISTRIBUTION SYSTEMS USING ANALYTICAL TECHNIQUE**
**Dung Vo Tien(1), Radomir Gono(1), Zbigniew Leonowicz(2)**
**(1) VSB-TUO Ostrava; (2) Wrocław University of Science and Technology**

**RS 223** **CENTRIFUGAL PUMP CAVITATION DETECTION USING MACHINE LEARNING ALGORITHM TECHNIQUE**
**Sanjeevikumar Padmanaban(1), Nabanita Dutta(2), Arunshankar V.K(2), Umashankar Subramaniyan(2), Zbigniew Leonowicz(3), Patrick Wheeler(4)**
(1) University of Johannesburg; (2) VIT University;
(3) Wrocław University of Science and Technology; (4) Nottingham University

**RS 290** **INFLUENCE OF FINISHING AND CONTACT PRESSURE ON THERMAL CONDUCTION OF THERMOELECTRIC GENERATOR**
**Pedro Gomes(1), Wesley Calixto(2), Antônio Arantes(2), Aylton José Alves(2)**
(1) Federal University of Goias; (2) Instituto Federal de Goiás

**RS 348** **INFLUENCE OF INNER SURFACE IN THERMOELECTRIC WASTE HEAT RECOVERY DUCTS**
**Pedro Gomes(1), Antônio Arantes(2), Wesley Calixto(2), Aylton José Alves(2)**
(1) Federal University of Goias; (2) Instituto Federal de Goiás

**RS 832** **A NEURAL NETWORK BASED RESILIENT CONTROL DESIGN FOR DISTRIBUTED POWER SYSTEMS UNDER FAULTS AND ATTACKS**
Ali Reza Abbaspour(1), Arman Sargolzaei(2), Kang Yen(1)
(1) Florida International University; (2) Florida Polytechnic University

**RS 811** **LIGHTNING FLASH DENSITY MAP OF PAKITSAN ON ARC-GIS SOFTWARE®-AN EMPIRICAL APPROACH**
Adnan Ali
NED University of engineering & technology Pakistan

**RS 18** **FAULT DIAGNOSIS ON A WOUND ROTOR INDUCTION GENERATOR USING PROBABILISTIC INTELLIGENCE**
Elsie Swana, Wesley Doorsamy
University of Johannesburg

**RS 270** **SAG ESTIMATION OF REAL TRANSMISSION SYSTEMS FOR FAULTS ALONG THE LINES IN THE PRESENCE OF DISTRIBUTED GENERATION**
Pietro Varilone(1), Paola Verde(1), Pierluigi Caramia(2), Enrica Di Mambro(3)
(1) Università di Cassino e del Lazio Meridionale;
(2) University of Naples Parthenope; (3): TERNA SPA

**RS 42** **ISLANDING AND RESYNCHRONIZATION PROCESS OF A GRID-CONNECTED MICROGRID WITH SERIES TRANSFORMERLESS H-BRIDGE INVERTER INSTALLED AT PCC**
Qusay Salem, Libo Liu, Jian Xie
University of Ulm

# REMOTE
SESSION

**14**TH | **09:00**

## REMOTE SESSION

Session Chair: **Zbigniew Leonowicz**
Wrocław University of Science and Technology

**Thursday| June 14th | 2018 | 09:00**

**RS 281** **DYNAMIC PERFORMANCE ANALYSIS OF A SWITCHED RELUCTANCE GENERATOR 8/6 FOR WIND ENERGY APPLICATION**
**Ghunter Viajante(1), Ricardo Tirone Fidelis(2), Luciano Coutinho(2), Darizon Alves de Andrade(2), José Luis Domingos(1), Eric Chaves(1)**
(1) IFG; (2) UFU

**RS 194** **DEVELOPMENT OF THYRISTORS VOLTAGE REGULATOR OPERATING WITH DIFFERENT LOAD CHARACTERISTICS**
**Michail Petrov(1), Dmitry Panfilov(1), Pavel Rashitov(1), Michail Astashev(1), Alexander Rozhkov(2)**
(1) Moscow Power Engineering Institute; (2) "NRU ""MPEI"""

**RS 25** **CONTROL SYSTEM OPERATION IN THYRISTORS SWITCHED SVCS WITH IMPROVED QUALITY OF REACTIVE POWER**
**Dmitry Panfilov(1), Ahmed ElGebaly(2), Michael Astashev(3), Aleksander Rozhkov(3)**
(1) Moscow Power Engineering Institute; (2) Tanta University;
(3) G. M. Krzhizhanovsky Power Engineering Institute (JSC ENIN)

**RS 456** **DISCRETE WAVELET ANALYSIS OF SUPRA-HARMONIC EMISSIONS IN SMART GRID (PV INVERTER IMPLEMENTATION)**
**Turgay Yalcin(1), Muammer Ozdemir(1), Pawel Kostyla(2), Zbigniew Leonowicz(3)**
(1) Ondokuz Mayis University; (2) Politechnika Wrocławska;
(3) Wrocław University of Science and Technology

**RS 548** **A NOVEL WIND POWER FORECASTING BASED FEATURE SELECTION AND HYBRID FORECAST ENGINE BUNDLED WITH HONEY BEE MATING OPTIMIZATION**
**Mehdi Bagheri(1), Venera Nurmanova(1), Oveis Abedinia(2), Mohammad Salay Naderi(3) , Mehdi Salay Naderi(4), Noradin Ghadimi(3)**
(1) Nazarbayev University; (2) Budapest University of Technology and Economics;
(3) Islamic Azad University; (4) Amirkabir University of Technology

**RS 527** **APPLICATION AND DESIGN OF NEW CONTROLLER BASED ON FUZZY PID AND FACTS DEVICES IN MULTI-MACHINE POWER SYSTEM**
**Mehdi Bagheri(1), Azamat Mukhatov(1), Oveis Abedinia(2), Mohammad Salay Naderi(3), Mehdi Salay Naderi(4), Noradin Ghadimi(3)**
(1) Nazarbayev University; (2) Budapest University of Technology and Economics;
(3) Islamic Azad University; (4) Amirkabir University of Technology

**RS 547** **MULTI-OBJECTIVE SHARK SMELL OPTIMIZATION FOR SOLVING THE REACTIVE POWER DISPATCH PROBLEM**
**Mehdi Bagheri(1), Adilet Sultanbek(1), Oveis Abedinia(2), Mohammad Salay Naderi(3), Mehdi Salay Naderi(4), Noradin Ghadimi(3)**
(1) Nazarbayev University; (2) Budapest University of Technology and Economics;
(3) Islamic Azad University; (4) Amirkabir University of Technology

**RS 458** **SAFETY ANALYSIS OF TN-S AND TN-C-S EARTHING SYSTEM**
**Krishnav Bhatia, Pranav Darji, H. R. Jariwala**
Sardar Valabhbhai National Institute of Technology

**RS 646** **ANALYSIS OF TOUCH VOLTAGE IN TN-S EARTHING SYSTEM**
**Krishnav Bhatia, Pranav Darji, H. R. Jariwala**
**Sardar Valabhbhai National Institute of Technology**

# REMOTE
SESSION

**15**TH | **15:00**

## REMOTE SESSION

Session Chair: **Zbigniew Leonowicz**
Wrocław University of Science and Technology

**Friday| June 15th | 2018 | 15:00**

**RS 814** **ECONOMIC DISPATCH : A MIXED-INTEGER LINEAR PROGRAMMING APPROACH FOR THERMAL GENERATING UNITS**
**Masoud Javadi, Turaj Amraee**
KN Toosi University of Technology

**RS 818** **GENERATION EXPANSION PLANNING CONSIDERING THE UNCERTAINTY OF YEARLY PEAK LOADS**
**Seyyed Ali Rashidaee, Turaj Amraee**
KN Toosi University of Technology

**RS 822** **PREDICTION OF UNPLANNED ISLANDING IN POWER SYSTEMS USING PMU DATA**
**Sadegh Kamali, Turaj Amraee**
KN Toosi University of Technology

**RS 195** **UNIVERSAL PROTECTION SOFTWARE AND ITS APPLICATION IN SMART GRID**
**Salman Rezaei**
Kerman Power Generation Management Co.

**RS 148** **THEORETICAL MODEL FOR THE PROGRESSION OF LEADER STEPPERS IN A THUNDERCLOUD**
**AníbalSeminario-García,Cristina González-Morán, Pablo Arboleya**
University of Oviedo

**RS 719** **EFFECTS OF LONGITUDINAL FAULT ON PILOT ZERO-SEQUENCE DIRECTIONAL COMPONENT IN FOUR PARALLEL TRANSMISSION LINES UNDER DIFFERENT VOLTAGE LEVELS**
**Wen Zhe Chen**
Xi'an jiaotong University

**RS 606** **TIME DOMAIN BASED SECURITY ENHANCEMENT METHODOLOGIES FOR TRANSFORMER DIFFERENTIAL PROTECTION SCHEME**
**Saravanan Balamurugan, Rathinam Ananthanaryanan, Priya Kumari**
SRM Institute of Science and Technology

**RS 779** **INFLUENCE OF PV-SYSTEMS ON SHORT-CIRCUIT CURRENTS IN LOW-VOLTAGE DISTRIBUTION GRIDS IN STRUCTURALLY WEAK AREAS**
**Florian Grumm**
Helmut Schmidt University

**RS 825** **ONLINE NETWORK IMPEDANCE SPECTROMETER FOR THE MEDIUM VOLTAGE LEVEL**
**Michael Jordan**
Helmut Schmidt University

**RS 826** **FUZZY BASED CONTROL APPROACH FOR THREE-PHASE SINGLE-STAGE GRID-CONNECTED BOOST INVERTER**
**Arman Sargolzaei(1), Muhammad Rashid(1), Ali Reza Abbaspour(1), Eric Chan(1), Arash Khalilnejad(2)**
(1) Florida Polytechnic University; (2) Case Western Reserve University

**RS 868** **STOCHASTIC LOAD FREQUENCY CONTROL OF MICROGRIDS INCLUDING WIND SOURCE BASED ON IDENTIFICATION METHOD**
**Mohammad Reza Khalghani(1), Sarika Khushalani-Solanki(1), Jignesh Solanki(1), Arman Sargolzaei(2)**
(1) West Virginia University; (2) Florida Polytechnic University

**RS 16** **LIFE MODELLING OF METAL-OXIDE SURGE ARRESTERS: A COMPARISON OF COMPUTATIONAL TECHNIQUES FOR ANALYSING FAILURE DATA**
**Wesley Doorsamy, Pitshou Bokoro**
University of Johannesburg

# REMOTE
SESSION

**16**TH | **08:00**

## REMOTE SESSION

Session Chair: **Zbigniew Leonowicz**
Wrocław University of Science and Technology

**Saturday| June 16th | 2018 | 08:00**

**RS 172** **A HYBRID PV-BIOMASS GENERATION BASED MICRO-GRID FOR THE IRRIGATION SYSTEM OF A MAJOR LAND RECLAMATION PROJECT IN KINGDOM OF SAUDI ARABIA (KSA) - CASE STUDY OF AL-BAHA AREA**
Mohamed Samy
Beni-Suef University

**RS 6** **OPTIMIZATION OF AN ISOLATED MICROGRID BASED ON PHOTOVOLTAIC FUEL CELL (PV/FC) IN EGYPT**
Mohamed Samy
Beni-Suef University

**RS 164** **OPTIMIZED COORDINATION OF DIRECTIONAL OVERCURRENT RELAYS USING GENETIC ALGORITHM**
Luis Antonio Souza
UFG

**RS 100** **INFLUENCE OF PARTIAL ANISOTROPY OF NON-ORIENTED ELECTRICAL STEEL SHEET ON INDUCTION MOTOR**
Stanislav Rusnok (1), Ondřej Orság (1), Pavel Sobota (1), Pavel Pečínka (1), Petr Kačor (2)
(1) Siemens AG; (2) Technical University of Ostrava

**RS 781** **FROM THE FEASIBILITY STUDY TO THE PLANT MANAGEMENT: THE CASE-STUDY OF A COM-BINED COOLING HEATING POWER PLANT INSTALLED AT THE UNIVERSITY POLYCLINIC CAM-PUS BIO-MEDICO OF ROME**
Emanuele Zennaro
Sapienza University of Rome

**RS 82** **MULTI ENERGY SYSTEM MODELLING AND OPERATION OPTIMISATION FOR UNIVERSITY CAMPUS**
Rasoul Garmabdari, Mojtaba Moghimi, Junwei Lu
Griffith University

**RS 17** **COMPUTATIONAL METHODOLOGY FOR LIGHTNING RISK ASSESSMENT OF SMALL-SCALE ROOFTOP PHOTOVOLTAIC SYSTEMS**
Ishan Holland, Wesley Doorsamy(1), Ken Nixon(2)
(1) University of Johannesburg; (2) University of the Witwatersrand

**RS 233** **ASSESSING THE SIGNIFICANCE OF ELECTRO-THERMAL STRESS ON VARISTOR USING KRUSKAL-WALLIS H-TEST**
Lutendo Muremi, Pitshou Bokoro
University of Johannesburg

**RS 50** **CONTOUR PLOTS-BASED APPROACH FOR RELIABILITY ANALYSIS OF SMALL DATA SETS OF VARISTOR ARRESTER'S FAILURE TIMES**
Pitshou Bokoro, Wesley Doorsamy
University of Johannesburg

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