Short-from Timetable (Power Engineering, Electrical Engineering, Catering, Social Events, Other)

<table>
<tr><th>May 11, 2015 (Monday)</th><th>May 12, 2015 (Tuesday)</th><th>May 13, 2015 (Wednesday)</th></tr>
<tr><td colspan="3">May 11-13, 2015 (All days); 8:00-18:00; Hall in front of Rooms 114, 115, and 116 – Posters of absent authors (different topics) and Exhibition</td></tr>
<tr><td colspan="2">8:00-9:00, Hall in front of Rooms 114…116, Registration</td><td rowspan="2">8:00-12:00
Room 115
D3-F0-115
Workshop 1 and regular session "Smart Grids 2"</td></tr>
<tr><td colspan="2" rowspan="2">8:30-12:00
Room 115
D1-F0-115
Plenary session</td></tr>
<tr><td>8:00-9:00
Hall in front of rooms 114, 115 and 116
Registration</td><td rowspan="2">8:00-12:00
Room 116
D3-F0-116
Regular session "Educational Topics and Selected Topics on Control" and Workshop 2</td></tr>
<tr><td>9:00-12:00
Room 115
D2-F0-115
Keynote session 21</td><td>9:00-12:00
Room 116
D2-F0-116
Keynote session 22</td></tr>
<tr><td colspan="2">12:00-13:00
Restaurant-bistro on the 1st floor
Lunch</td><td>12:00-13:00
Restaurant-bistro on the 1st floor
Lunch</td></tr>
<tr><td>13:00-15:00
Room 115
D1-F1-115
Regular session "Renewable Energy Sources and Technology"</td><td>13:00-15:00
Room 116
D1-F1-116
Regular session "Electrical Machines and Adjustable Speed Drives 1"</td><td>13:00-15:00
Room 115
D2-F1-115
Regular session "Power Engineering 2 - Maintenance of Power Systems"</td><td>13:00-15:00
Room 116
D2-F1-116
Regular session "Smart Grids 1"</td><td>13:00-15:00
Room 115
D3-F1-115
Regular session "Smart Grids 3"</td><td>13:00-15:00
Room 116
D3-F1-116
Regular session "Electrical Machines and Adjustable Speed Drives 2"</td></tr>
<tr><td colspan="2">15:00-15:30, Room 114
Coffee Break</td><td colspan="2">15:00-15:30, Room 114
Coffee Break</td><td colspan="2">15:00-15:30, Room 114
Coffee Break</td></tr>
<tr><td>15:30-18:00
Room 115
D1-F2-115
Regular session "Power Engineering 1 - Relay protection and automation"</td><td>15:30-18:00
Room 116
D1-F2-116
Regular session "Power Electronics, Systems and Applications 1"</td><td>15:30-18:00
Room 115
D2-F2-115
Regular session "Power Engineering 3 - Power Networks and Lines"</td><td>15:30-18:00
Room 116
D2-F2-116
Regular session "Power Electronics, Systems and Applications 2 and Selected Topics on Electrical Machines"</td><td>15:30-18:00
Room 115
D3-F2-115
Regular session "Power Engineering 4 - System Management and Optimization", Closing Ceremony</td><td>15:30-18:00
Room 116
D3-F2-116
Regular session "Power Electronics, Systems and Applications 3"</td></tr>
<tr><td colspan="2">18:00-19:00 Free time</td><td colspan="2">18:30-19:00 Free time</td><td colspan="2" rowspan="2"></td></tr>
<tr><td colspan="2">19:00-22:00
Welcome Party
Restaurant-bistro on the 1st floor</td><td colspan="2">18:30-20:00 Bus City Tour
and 20:00-23:00 Gala Dinner
LIDO Recreation Centre (76 Krasta Street)</td></tr>
</table>

Conference Venue

The conference will be held in the new building of the Faculty of Power and Electrical Engineering of Riga Technical University (Latvia, Riga LV1048, Azenes str. 12/1, Room 114, 115, 116 and the hall near these rooms), as well as in the restaurant-bistro on the first floor.

Registration

Registration for the conference will take place on May 11-12, 2015 (Monday and Tuesday) from 8:00 to 9:00. The registration desk will be located in RTU-EEF hall in front of the rooms 114, 115 and 116.

Exhibition

The exhibition will be held in the hall in front of the Rooms 114, 115 and 116. The following exhibitors will participate:

- **Latvenergo AS** - the leading Latvian producer of electrical and thermal energy – its power plants provide approximately 90% of all electricity generated in the country, satisfying more than a half of the electricity demand in Latvia. The total electric capacity of the Latvenergo AS generation facilities is 2569 MWel, while the thermal capacity of the thermal energy generating facilities is 1857 MWth. Latvenergo Group, in cooperation with the Latvian Academy of Sciences and higher educational institutions, regularly participates in various projects to promote science and education.
- **ABB** - a leader in electrical power and automation technologies with a significant market share in these sectors, who works in the Latvian market since 1992. ABB mission - as one of the world's leading engineering companies, we help our customers to use electrical power effectively and to increase industrial productivity in a sustainable manner.
- **OPAL-RT TECHNOLOGIES** - the leading developer of open Real-Time Digital Simulators and Hardware-In-the-Loop testing equipment for electrical, electro-mechanical and power electronic systems. OPAL-RT Simulators are used by engineers and researchers at leading manufacturers, utilities, universities and research centers around the world.
- **YE International** has 3 main focuses: electronic components, tools and measurement devices; data communication network materials and equipment; telecommunication components, enclosures, cables, racks. This company is also official distributor of RS catalogue in Latvia, providing rich assortment for selection of electronic components and devices. Moreover, YEint represents measurement devices of Japanese company Fujikura, FLIR thermo cameras, and professional tools of Prof'sKit.
- **Baltelectron** - supplier of electronic components from world-known producers, providing individual approach to each client. It is the official distributor of Farnell catalogue in Latvia with the next-day supplies. Baltelectron is also the official dealer of single-board computer Raspberry Pi. Company offers special prices for more than 3000 manufacturer's products from all over the world.

Lunches

Lunches will be served in buffet style in the restaurant-bistro on the first floor from 12:00 to 13:00.

Coffee Breaks

Coffee Breaks will take place in Room 114 from 15:00 to 15:30.

Welcome Party

Welcome reception will be organized in buffet style. Musical performance will be provided by RTU string ensemble “Gaiva” and laureate of international competitions Madara Dziedātāja.

Bus City Tour

All participants are welcome to explore our wonderful city by Riga City Tour buses. Tour will be on both sides of the Daugava River and will take around one hour (from 18:30 to 20:00) with the starting stop at the conference venue and final stop at the Lido Recreation Centre. The audio guide texts, heard through the headphones, have been recorded by native speakers in nine languages: English, German, Russian, Finnish, Swedish, Norwegian, French, Spanish, Italian and Latvian.

Gala Dinner

The Gala Dinner will be organized in LIDO Recreation Centre (Krasta street 76, Riga) on Tuesday (May 12, 2015) from 20:00 to 23:00. The Centre was opened at the end of 1999 and since then has become a visiting card of Riga and Latvia. It is one of the most attractive public catering enterprises in Latvia and one of the most favorite places of family recreation in Riga. The Centre is characterized by a Latvian interior decoration, tasty and various national dishes and LIDO beer. The Gala Dinner will be organized in buffet style. Pleasant atmosphere will be provided by music band “Vecpilsētas muzikanti” and RTU folk dance group “Vektors”. Gala Dinner includes also the best papers award ceremony, when the most successful reports will be distinguished, as well as announcement of the next edition of CPE-POWERENG conference.

Instruction for Presenters of Papers

Authors are kindly requested to meet their session chairman in the session room 15 minutes before the scheduled time in order to download their presentation to the computer. They have to provide the session chairman with a PowerPoint or PDF presentation, as well as a short (10-line maximum) printed bio. Authors must assure that all fonts needed are embedded in their presentation files. The files can be downloaded to the computer from a USB key or a CD-ROM. The use of the author’s computer will not be allowed, in order for sessions to run smoothly. The length of the presentation is restricted to 15 minutes, including questions. The authors are strongly advised to keep their oral presentation within 12 minutes (10...12 slides) leaving 3 minutes for discussion.

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Technical Program

May 11, 2015 (Monday)

May 11, 2015 (Monday); 8:30-12:00; Room 115 – D1-F0-115
Plenary session
Session Chairs:
Prof. Ilya Galkin, Riga Technical University, Latvia
Dr. Dmitri Vinnikov, Tallinn University of Technology, Estonia

8:30-8:35 Welcome address by Conference's Organizers
Prof. Ilya Galkin, Riga Technical University, Latvia

8:35-9:20 Welcome address by RTU rector and invited lecture “Research on Power and Industrial Electronics in the Institute of Industrial Electronics and Electrical Engineering of RTU during the last 15 years”
Prof. Leonids Ribickis Riga Technical University, Latvia

9:20-9:30 Welcome address by Latvenergo AS
Māris Balodis, Latvenergo AS, director for research and development, Latvia

9:30-10:15 Keynote 1A: "Analysis and Prediction of Electricity Consumption Using Smart Meter Data"
Olegs Linkevics, Latvenergo AS, Latvia

10:15-10:45 Welcome address by ABB Baltic States and Keynote 1B: “ABB – the leader in power and automation”
Bo Roger Vilhelm Henriksson, Managing Director, ABB Baltic States, Finland

10:45-11:55 Keynote 1C: "Research Challenges and Future Perspectives of Solid-State Transformer Technology"
Prof. Johann W. Kolar, Swiss Federal Institute of Technology, Switzerland

11:55-12:00 Announcements
Prof. Ilya Galkin, Riga Technical University, Latvia

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May 11, 2015 (Monday); 13:00-15:00; Room 115 – D1-F1-115
Regular session "Renewable Energy Sources and Technology"
Session chairs:
Lauri Kütt, Aalto University, Finland
Oļegs Linkevičs, Latvenergo AS, Latvia

LF-002224, “Integration of Renewable Energy for the Harmonic Current and Reactive Power Compensation"
Dr. Edris Pouresmaeil, Univ. of Southern Denmark, Denmark
Mr. Hamid Reza Shaker, Univ. of Southern Denmark, Denmark
Mr. Majid Mehrasa, Babol (Noshirvani) University of Technology, Iran
Mr. Mohammadamin Shokridehaki, Univ. Beira Interior, Portugal
Mr. Eduardo Rodrigues, Univ. Beira Interior, Portugal
Prof. João P. S. Catalão, Univ. Beira Interior, Portugal

LF-003093, "Supraharmonics (2 to 150 kHz) and multi-level converters"
Prof. Antonio Moreno-Munoz, University of Cordoba, Spain
Dr. Aurora Gil de Castro, University of Cordoba, Spain
Dr. Sarah Rönnberg, Luleå University of Technology, Sweden
Prof. Math Bollen, Luleå University of Technology, Sweden
Prof. Enrique Romero-Cavadal, University of Extramadura, Spain

LF-003417, "Impact of Wind Farms Capacity Factor and Participation in Frequency Support – Reliability Analysis"
Dr. Ayman Bakry Taha Attya, University of Strathclyde, United Kingdom
Mr. Bharath Subramanian, Technical University of Darmstadt, Germany

LF-003735, "Utilization of latent heat of 330 kV autotransformer for space and water heating in substation Imanta"
Mr. Roman Olekshii, Latvenergo AS, Latvia
Mr. Oļegs Linkevičs, Riga Technical University, Latvia
Mr. Nikolajs Kukļa, “Augstsprieguma tīkls” Ltd., Latvia

LF-003972, "Automotive waste heat harvesting for electricity generation using thermoelectric systems – an overview"
Dr. Lauri Kütt, Aalto University, Finland
Prof. Matti Lehtonen, Aalto University, Finland

LF-005266, "Enhanced Frequency Support from DFIGs in Areas with Low X/R Ratio"
Mr. Alexandros Tsoupos, Masdar Institute of Science and Technology, United Arab Emirates
Mr. Lukasz Huchel, Masdar Institute of Science and Technology, United Arab Emirates
Mr. Ines Garcia Vega, Masdar Institute of Science and Technology, United Arab Emirates
Mr. Maksymilian Klimontowicz, Masdar Institute of Science and Technology, United Arab Emirates

LF-006149, "Smart meters as enablers for feedback information induced energy efficiency and demand response"
Mr. Uldis Bariss, Riga Technical University, Latvia
Mr. Aris Dandens, Riga Technical University, Latvia
Prof. Dagnija Blumberga, Riga Technical University, Latvia

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May 11, 2015 (Monday); 13:00-15:00; Room 116 – D1-F1-116
Regular session "Electrical Machines and Adjustable Speed Drives 1"
Session chairs:
Prof. Anastasia Zhiravetska. Riga Technical University, Latvia
Prof. Alecksey Anuchin, Moscow Power Engineering Institute, Russian Federation

LF-001341, "Implementation of Different Magnetic Materials in Outer Rotor PM Generator"
Mr. Oleg Kudrjavtsev, Tallinn University of Technology, Estonia
Dr. Aleksander Kilk, Tallinn University of Technology, Estonia
Dr. Toomas Vaimann, Aalto University, Finland
Prof. Anouar Belahcen, Aalto University, Finland
Dr. Ants Kallaste, Tallinn University of Technology, Estonia

LF-003719, "Preliminary Design of Reluctance Synchronous Machines Using Simplified Magnetic Circuit Analysis"
Mr. Thomas Hubert, TH Nuernberg, Germany
Mr. Michael Reinlein, TH Nuernberg, Germany
Prof. Andreas Kremser, TH Nuernberg, Germany
Prof. Hans-Georg Herzog, TU Muenchen, Germany

LF-003611, "Design and Dynamic Study of a 6 kW External Rotor Permanent Magnet Brushless DC Motor for Electric Drive Trains"
Prof. Durmus Uygun, Gediz University, Turkey
Prof. Selim Solmaz, Gediz University, Turkey

LF-002054, "Overview of the Power Transformer Park and Diagnostic Methods in Latvia"
Mr. Gints Poiss, Riga Technical University, Latvia
Prof. Sandra Vitolina, Riga Technical University, Latvia

LF-001791, "Telemetry in Diagnosis of Asynchronous Motors"
Dr. Adam Decner, Institute of Electrical Drives and Machines KOMEL, Poland
Mr. Tomasz Jarek, Institute of Electrical Drives and Machines KOMEL, Poland

LF-003425, "Monitoring of Electro-mechanical System "Diesel - Synchronous Generator""
Prof. Alexander Gasparjan, Latvian Maritime Academy, Latvia, Latvia
Prof. Alexander Terebkov, Latvian Maritime Academy, Latvia, Latvia
Prof. Anastasia Zhiravetska, Riga Technical University, Latvia

LF-005576, "A Data Fusion Approach to Bearing Fault Detection and Diagnosis"
Dr. George Georgoulas, Technological Educational Institute of Epirus, Greece
Prof. George Nikolakopoulos, Lulea University of Technology, Sweden
Dr. Mohammed Obaid Mustafa, Lulea University of Technology, Sweden

LF-003786, "Turn to turn Fault analysis of Three Phase PMSG for different Rotor Air Gap"
Mr. Sanket Parashar, Iit-Bhu,Varanasi, India
Dr. Rakesh Srivastava, Iit-Bhu,Varanasi, India

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May 11, 2015 (Monday); 15:30-18:00; Room 115 – D1-F2-115
Regular session "Power Engineering 1 - Relay protection and automation"
Session chairs:
Prof. Antans Sauhatas, Riga Technical University, Latvia
Dr. Bertil Berggren, ABB Corporate Research, Sweden

LF-001767, "Using Spectral Analysis and Modal Estimation for Identifying Electromechanical Oscillations"
Dr. Jukka Turunen, Statnett SF and Aalto University Department of Electrical Engineering and Automation, Finland
Mr. Janne Seppänen, Fingrid Oyj, Finland
Mr. Antti-Juhani Nikkilä, Fingrid Oyj, Finland
Prof. Liisa Haarla, Fingrid Oyj and Aalto University Department of Electrical Engineering and Automation, Finland

LF-002747, "Security Assessment of Several Distance Protection Algorithms Based on the Wavelet Transform"
Dr. Siniša Zubić, ABB Corporate Research Center Krakow, Poland
Dr. Przemyslaw Balcerek, ABB Corporate Research Center Krakow, Poland

LF-004588, "DC Grid Control Through the Pilot Voltage Droop Concept - Mitigating Consequences of Time Delays"
Dr. Bertil Berggren, ABB Corporate Research, Sweden
Dr. Ritwik Majumder, ABB Corporate Research, Sweden
Mrs. Kerstin Linden, ABB Power Systems, Sweden

LF-005959, "Improved Algorithm of the Earth Fault Distance Measuring Units"
Prof. Tatjana Lomane, Riga Technical University, Latvia
Ms. Viktorija Aditaja, Riga Technical University, Latvia

LF-002569, "Basic Principles of Process Implementation on Voltage Level Changing in the Distribution Networks"
Prof. Svetalana Guseva, Riga Technical University, Latvia
Dr. Olegs Borscevskis, Riga Technical University, Latvia
Dr. Nikolajs Breners, Riga Technical University, Latvia

LF-003379, "Experience of transformer's inrush current modeling for the purposes of relay protection"
Mr. Jevgenijs Kozadajevs, Riga Technical University, Latvia
Prof. Aleksandrs Dolgicers, Riga Technical University, Latvia

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May 11, 2015 (Monday); 15:30-18:00; Room 116 – D1-F2-116
Regular session "Power Electronics, Systems and Applications 1"
Session chairs:
Dr. Alexander Suzdalenko, Riga Technical University, Latvia
Dr. Tanel Jalakas, Tallinn University of Technology, Estonia

LF-001627, "Zero-voltage implementation of a virtual infinite capacitor"
Mr. Guy Yona, Technion - Israel Institute of Technology, Israel
Prof. George Weiss, Tel-Aviv University, Israel

LF-000353, "Analysis of a Reconfigurable Fibonacci Switched Capacitor Converter with a Multiphase Balanced Switching"
Mr. Abduvakhit Junussov, Nazarbayev University, Kazakhstan
Prof. Alex Ruderman, Nazarbayev University, Kazakhstan

LF-005126, "Full Soft-Switching High Step-Up Current-Fed DC-DC Converters with Reduced Conduction Losses"
Mr. Roman Kosenko, Tallinn University of Technology, Estonia
Dr. Oleksandr Husev, Tallinn University of Technology, Estonia
Mr. Andrii Chub, Tallinn University of Technology, Estonia

LF-005061, "Investigation of Radiated Emissions of an Galvanically Isolated qZS DC-DC Converter"
Dr. Tanel Jalakas, Tallinn University of Technology, Estonia
Mr. Marek Jarkovoi, Tallinn University of Technology, Estonia
Dr. Indrek Roasto, Ubik Solutions, Estonia
Prof. Alexander G. Garganeev, National Research Tomsk Polytechnic University Tomsk, Russian Federation
Dr. Janis Zakis, Riga Technical University, Latvia

LF-000647, "Multi-Module DC-DC Converter Using Current-Mode Control And Networked Control Systems For Transmission Line"
Mr. Paul Fauchet, Shanghai Jiaotong University, China
Prof. Muhammad Mansoor Khan, Shanghai Jiaotong University, China
Mr. Hu Tao, Shanghai Jiaotong University, China

LF-001023, "Practical Engineering Approach to Natural Voltage Balancing Analysis in Multilevel Converters with Balance Booster"
Mr. Radkhan Sarmukhanov, Nazarbayev University, Kazakhstan
Prof. Yakov Familiant, Nazarbayev University, Kazakhstan
Prof. Alexander Ruderman, Nazarbayev University, Kazakhstan

LF-003905, "Assessment of SiC Diode Performance in Non-Isolated Converters for LED Lighting Applications"
Mr. Olegs Tetervenoks, Riga Technical University, Latvia
Prof. Ilya Galkin, Riga Technical University, Latvia

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May 12, 2015 (Tuesday)

May 12, 2015 (Tuesday); 9:00-12:00; Room 115 – D2-F0-115
Keynote session 21
Session chairs:
Prof. Antans Sauhatas, Riga Technical University, Latvia
Prof. Vaclav Kus, University of West Bohemia, Czech Republic

9:00-10:00 Keynote 21A "Big Data: What, Why, When and How"
Dr. Mladen Kezunovic, Texas A&M University, Texas, USA

Abstract: After 130 years of the development, power systems are at cross roads. The originally envisioned concept of centralized bulk generation, highly available transmission system, radial distribution system and passive load does not seem to be sustainable. The highly variable renewable sources, heavily utilized transmission, distribution with bidirectional flows and loads/microgrids that can act as a resource are recognizable trends for the future. This talk focuses on the role of Big Data in managing and controlling future power system, which will be characterized with “explosion” of data and unprecedented computational and communication capabilities to automatically extract the knowledge. This talk will reflect on unique impacts from different data sources that range from field measurements obtained through substation/feeder intelligent electronic devices such as Digital Protective Relays (DPRs), Digital Fault Recorders (DFRs), Phasor Measurement Units (PMUs), etc. to other data sets obtained from specialized commercial and/or government/state databases: weather data of different types, lightning detection data, seismic data, fire detection data, etc. Due to the massive amount of such data (terabytes) available in real time and through historical records, processing and management of such data requires revisiting data correlation and feature extraction strategies already developed in the Big Data industries such as banking, insurance and health care. This talk will focus on the differences between the Big Data properties in the power industry where the temporal and spatial properties, as well as correlation to the power system and component models are necessary for an efficient data uses.

10:00-11:00 Keynote 21B "Maximizing Renewable Energy Sources Penetration in European Islands"
Prof. João P. S. Catalão, University of Beira Interior, Portugal

Abstract: The usually small and weak electrical grids present obstacles to maximum Renewable Energy Sources (RES) penetration in island regions, associated with the technical limitations and difficulties to manage power fluctuations. The need to have back-up conventional power systems on standby for when wind is dropping and stops blowing or when the sun does not shine, even simply due to clouds passing overhead, is an important cost that has to be supported by local utilities. Besides, high percentage penetration of intermittent RES generated electricity induces stability problems in the islands electrical systems. Indeed, rapid reductions in the power output from RES must be managed with appropriate control or energy storage systems to maintain constant power output. In this context, enhanced forecasting, operations and planning tools can contribute to increase RES penetration. The proficiency of such tools is reinforced if they are combined with uncertainty and risk management methods. This Keynote Speech addresses the effects of large-scale integration of RES on the optimal operation and planning of insular power systems, proposing efficient measures, solutions and tools towards the development of a sustainable and smart grid, all under the EU-funded FP7 project SiNGULAR (a 5.2 million euro project involving 11 industry partners). The goal is the generation of effective solutions and information so that the integration of insular and highly variable energy resources is maximized. The optimal forecasting, operation and planning tools have been applied in

different insular electrical grids in five countries across Europe for extensive demonstration, allowing the development of generalized guides of procedures and grid codes.

11:00-12:00 Keynote 21C "Introduction to the SET-Plan and the Needed European Research
on Smart Grids"
Dr. Luciano Martini, RSE, Italy

Abstract: The Strategic Energy Technology plan (SET-Plan) aims to help achieving Europe 2020 and 2050 targets and visions on greenhouse gas emissions, renewables and energy efficiency by increasing research, reducing costs and improving performance of existing technologies, encouraging their commercial implementation, and, in the longer term, supporting the deployment of more efficient new low carbon technologies. In this context, the electricity grid can play an important role and therefore, a suitable portfolio of innovative technologies needs to be researched, developed and deployed in order to preparing the European electricity networks to enable the ambitious agenda adopted by the European Member States. Apart from introducing some of the most relevant initiatives for the achievement of the SET-Plan ambitious goals, namely the European Industrial Initiatives (EII), the European Technology Platforms (ETP), and the European Energy Research Alliance (EERA), this keynote speech will present goals and activity of the EERA Joint Research Programme (JP) on Smart Grids (SG). By means of an extended cross-disciplinary cooperation involving, at present, 36 research organizations from 17 different European countries with different and complementary expertise and facilities, the EERA JP SG aims at addressing in a medium- to long-term research perspective, the most critical areas directly relating to the effective acceleration of smart grid development and deployment. This represents a new and more effective way of working at European level in order to tackle with the complexity of the research smart grid challenges. The research activity of the JP SG, covering active distribution network, integrating distributed generation from renewable energy sources, load management issues, electrical storage systems, and transmission networks, is hence reported and discussed.

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May 12, 2015 (Tuesday); 9:00-12:00; Room 116 – D2-F0-116
Keynote session 22
Session chairs:
Prof. Ilya Galkin, Riga Technical University, Latvia
Dr. Dmitri Vinnikov, Tallinn University of Technology, Estonia

9:00-10:00 Keynote 22A "Next-Generation Smart Grids: Completely Autonomous Power Systems (CAPS)"
Prof. Qing-Chang Zhong, University of Sheffield, Sheffield, United Kingdom

Abstract: Power systems are going through a paradigm change from centralised generation, to distributed generation, and further on to smart grids. A huge number of renewable energy sources, electric vehicles, and storage systems etc. are being connected to power systems. Moreover, various loads are being required to take part in demand response and to improve energy efficiency. These make it impossible to control and operate power systems in the conventional way, because of the difficulties in modelling the huge number of players in the system and in identifying a suitable mechanism to operate the system. In this lecture, we will present the architecture and its associated distributed control strategy for the next-generation smart grids, based on the inherent synchronisation mechanism of conventional synchronous generators. Inverters will be operated to behave like synchronous generators and rectifiers will be operated to behave like synchronous motors. Moreover, the dedicated synchronisation units, often phase-locked-loops, which are deemed to be a must-have component in grid-tied converters, will be removed. As a result, this architecture unifies the interface of all the different players with the transmission and distribution network so that the majority of the players, including all conventional power plants, new add-ons of suppliers and most loads, will be able to synchronise with each other to achieve autonomous operation and maintain system stability, without the need of a dedicated communication network. Most of the players will follow the same mathematical model of synchronous machines and hence the operation and analysis of the system is simplified considerably.

10:00-11:00 Keynote 22B "High-Efficiency Silicon Carbide Power Electronics: Today and Tomorrow"
Prof. Hans-Peter Nee, Royal Institute of Technology, Stockholm, Sweden

Abstract: With the silicon carbide (SiC) power devices available today it has been shown that converter efficiencies exceeding 99.5 percent are possible. The main ideas behind such designs are discussed along with examples of converters. Module parasitics are problematic, and often parallel-connection of discrete devices provides superior performance compared to modules. New improved module designs with lower parasitic inductances are necessary for SiC power devices. With existing technology, however, products in different application areas can be developed. For this purpose, the reliability of SiC devices, packages, and systems must be investigated. An attempt to foresee new devices, modules and their applications is also made.
Keynote 22C "Practical use of wide bandgap semiconductors in power module implementations"

11:00-12:00 Keynote 22C “Practical use of wide bandgap semiconductors in power module implementations”
Dr. Lee Empringham, University of Nottingham, Nottingham, United Kingdom

Abstract: As the desire for increased power density and reduced losses pushes the switching speed of modern power devices to ever increasing levels, Low level interactions with parasitic elements within the power module become increasingly more important together with increased potential for Electro-magnetic Interference. The standard ‘add more

devices' approach to building high current power modules restricts the potential gains which are promised from modern wide bandgap power devices in that, increasing power module sizes increases parasitic component values and the potential for EMI emissions. This speech will highlight the problems with present power module approaches with respect to the use of high speed devices and will outline a modular approach to the design and construction of high power converters which also addresses the increasingly important EMI issues of modern power converters.

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May 12, 2015 (Tuesday); 13:00-15:00; Room 115 – D2-F1-115
Regular session "Power Engineering 2 - Maintenance of Power Systems"
Session chairs:
Prof. Janis Gerhards, Riga Technical University, Latvia
Prof. Vaclav Kus University of West Bohemia, Czech Republic
Dr. Svetlana Beryozkina, Riga Technical University, Latvia

LF-000124, "Grounding System Impedance Measurement Using Shifted Frequency Method"
Mr. Vojin Kostić, Electrical Engineering Institute Nikola Tesla, University of Belgrade, Serbia
Prof. Nebojša Raičević, Faculty of Electronic Engineering, University of Nis, Serbia

LF-002704, "The Effects of Connecting High Amounts of Nonlinear Appliances to the Supply Network"
Mr. Jan Pikous, University of West Bohemia, Czech Republic
Prof. Vaclav Kus, University of West Bohemia, Czech Republic

LF-003328, "Investigation of transient processes of overvoltages in transformer neutral"
Mrs. Ugnė Ilioitienė, Kaunas University of Technology, Lithuania
Mrs. Arnolda Rožanskienė, Kaunas University of Technology, Lithuania
Ms. Dovilė Sakauskaitė, Kaunas University of Technology, Lithuania
Mr. Vidmantas Tička, Kaunas University of Technology, Lithuania

LF-000663, "Advancements in building lightning protection zone estimation"
Mr. Viesturs Zimackis, Riga Technical University, Latvia
Prof. Sandra Vitolina, Riga Technical University, Latvia

LF-003565, "Hydrophobicity transfer mechanism evaluation of field aged composite insulators"
Mr. Nikolaos Mavrikakis, Technological Educational Institute of Crete, Greece
Prof. Kiriakos Siderakis, Technological Educational Institute of Crete, Greece
Mrs. Despoina Kourasani, Technological Educational Institute of Crete, Greece
Mrs. Maria-Anna Pechynaki, Technological Educational Institute of Crete, Greece
Prof. Emmanuel Koudoumas, Technological Educational Institute of Crete, Greece

LF-003638, "Cable diagnostics methods for determining degradation caused by renewable energy production"
Mr. Ivar Kiitam, Tallinn University of Technology, Estonia
Dr. Paul Taklaja, Tallinn University of Technology, Estonia
Mr. Jaan Niitsoo, Tallinn University of Technology, Estonia
Prof. Petri Hyvönen, Aalto University, Finland

LF-006033, "System Problems of Power Supply Reliability Analysis Formalisation"
Prof. Boris Papkov, Niznegorodskij Technical University, Russian Federation
Prof. Janis Gerhards, Riga Technical University, Latvia
Prof. Anatolijs Mahnitko, Riga Technical University, Latvia

LF-005053, "Defining membership functions in power equipment state assesment problem"
Mrs. Alexandra Khalyasmaa, Ural Federal University named after the first President of Russia B. N. Yeltsin, Russian Federation
Mr. Stepan Dmitriev, Ural Federal University named after the first President of Russia B. N. Yeltsin, Russian Federation
Mr. Sergey Kokin, Ural Federal University named after the first President of Russia B. N. Yeltsin, Russian Federation
Mr. Daniil Glushkov, Ural Federal University named after the first President of Russia B. N. Yeltsin, Russian Federation

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May 12, 2015 (Tuesday); 13:00-15:00; Room 116 – D2-F1-116
Regular session "Smart Grids 1"
Session chairs:
Dr. Luciano Martini, RSE, Italy
Dr. Irina Oleinikova, Institute of Physical Energetics, Latvia

LF-001503, "Future control architecture and emerging observability needs"
Mr. Andrei Morch, SINTEF Energy Research, Norway
Mr. Sigurd Hofsmo Jakobsen, SINTEF Energy Research, Norway
Mr. Klaas Visscher, Tno, Netherlands
Dr. Mattia Marinelli, DTU, Risø Campus, Denmark

LF-001546, "Market Design for Electricity Ensuring Operational Flexibility"
Dr. Artjoms Obusevs, Institute of Physical Energetics, Latvia
Prof. Irina Oleinikova, Institute of Physical Energetics, Latvia

LF-001031, "The application of the data mining in the integration of RES in the smart grid"
Ms. Itziar Landa, Tecnalia, Spain
Ms. Iraide Unanue, Tecnalia, Spain
Mr. Iñaki Angulo, Tecnalia, Spain
Mr. Alessio Maffei, University of Sannio, Italy
Mr. Seshadhri Srinivasan, University of Sannio, Italy
Ms. Mariarosaria Russo, Kes, Italy
Mr. Camillo Campolongo, Kes, Italy
Mr. Luigi Iannelli, University of Sannio, Italy
Prof. Luigi Glielmo, University of Sannio, Italy

LF-000639, "Regionally-Specific Scenarios for Smart Grid Simulations"
Ms. Marita Blank, OFFIS - Institute for Information Technology, Germany
Ms. Malin Gandor, OFFIS - Institute for Information Technology, Germany
Mrs. Astrid Niesse, OFFIS - Institute for Information Technology, Germany
Mr. Stefan Scherfke, OFFIS - Institute for Information Technology, Germany
Prof. Sebastian Lehnhoff, OFFIS - Institute for Information Technology, Germany
Prof. Michael Sonnenschein, University of Oldenburg, Germany

LF-000531, "Framework for the integration of Active Tertiary Prosumers into a Smart Distribution Grid"
Mr. Joseba Jimeno, Tecnalia, Spain
Mr. Thanasis Tryferidis, Certh, Greece
Mr. Konstantinos Tsatsakis, Hypertech, Greece
Mr. Dimitrios Tzovaras, Certh, Greece
Ms. Nerea Ruiz, Tecnalia, Spain

LF-005207, "A Smart Grid Controller for Low Voltage PV Network"
Mr. Armagan Temiz, TUBITAK, Turkey
Mr. Ozgur Kahraman, TUBITAK, Turkey
Mr. Abdullah Nadar, TUBITAK, Turkey
Dr. Mohammed S. Smiai, KACST, Tunisia
Mr. Shafi S. Almutairi, KACST, Saudi Arabia
Mr. Saad Alshahrani, KACST, Saudi Arabia

LF-006076, "Methods and Instruments for Power Consumption Forecasting in Electric Power Companies"
Dr. Boris Makoklyuev, Energostat Co., Ltd., Russian Federation
Dr. Andrei Polizharov, Energostat Co., Ltd., Russian Federation
Mr. Alexandr Antonov, Energostat Co., Ltd., Russian Federation

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May 12, 2015 (Tuesday); 15:30-18:00; Room 115 – D2-F2-115
Regular session "Power Engineering 3 - Power Networks and Lines"
Session chairs:
Dr. Angelo L'Abbate, RSE SpA, Italy
Dr. Diana Zalostiba, Riga Technical University, Latvia

LF-001295, "A New Approach to Increase the Integration of RES in a Mediterranean Island by Using HTLS Conductors"
Dr. Andrea Puccio, University of Palermo, Italy
Prof. Salvatore Favuzza, University of Palermo, Italy
Dr. Giovanni Filippone, Terna S.p.A., Italy
Prof. Mariano Giuseppe Ippolito, University of Palermo, Italy
Prof. Fabio Massaro, University of Palermo, Italy
Dr. Giuseppe Paternò, University of Palermo, Italy

LF-003131, "Overhead Power Line Design in Market Conditions"
Dr. Svetlana Beryozkina, Riga Technical University (RTU), Latvia
Dr. Lubov Petrichenko, Riga Technical University (RTU), Latvia
Prof. Antans Sauhats, Riga Technical University (RTU), Latvia
Mr. Nauris Jankovskis, Latvenergo AS, Latvia

LF-005657, "Long-term HVDC developments in the European power system: the Baltic case in GridTech analysis"
Dr. Angelo L'Abbate, RSE SpA, Italy
Dr. Francesco Careri, RSE SpA, Italy
Mr. Roberto Calisti, RSE SpA, Italy
Dr. Stefano Rossi, RSE SpA, Italy
Mr. Gianluca Fulli, Ec Jrc Iet, Netherlands

LF-002399, "A Prediction Technique of Power Transformer On Load Tap Changer Maintenance"
Ms. Juthathip Haema, King Mongkut’s University of Technology North Bangkok, Thailand
Dr. Rattanakorn Phadungthin, King Mongkut’s University of Technology North Bangkok, Thailand

LF-003042, "Efficiency Of Static Compensation In Electric Power Network When Supply Non-Linear Load"
Mr. Julian Wosik, Institute of Innovative Technologies, EMAG, Poland
Dr. Marian Kalus, Institute of Innovative Technologies, EMAG, Poland
Dr. Artur Kozlowski, Institute of Innovative Technologies, EMAG, Poland
Prof. Bogdan Miedzinski, Institute of Innovative Technologies, EMAG, Poland

LF-004308, "Impact of Primary Substation and HV Faults on Suburban MV Network Topology and Total Costs"
Dr. Robert J. Millar, Aalto University, Finland
Mr. Bruno J. O. Sousa, Aalto University, Finland
Mr. Atte Pihkala, Helen Networks, Finland
Dr. Eero Saarijärvi, Tekla Oy, Finland
Prof. Matti Lehtonen, Aalto University, Finland

LF-004952, "A Probabilistic Method of Grid Security Assessment in Transmission Grid Planning"
Mr. Philipp Awater, RWTH Aachen University, Germany
Mr. Sven Schäfer, RWTH Aachen University, Germany
Prof. Albert Moser, RWTH Aachen University, Germany

LF-005304, "Study of Wave Processes in Single-Wire Overhead and Cable Power Lines on the Base of Physical Model"
Mr. Daniil Glushkov, Department of High Voltage Technique, Ural Federal University named after the first President of Russia B.N.Yeltsin, Russian Federation

Mr. Alexey Antonov, Department of High Voltage Technique, Ural Federal University named after the first President of Russia B.N.Yeltsin, Russian Federation
Mr. Sergey Kropotuhin, Department of High Voltage Technique, Ural Federal University named after the first President of Russia B.N.Yeltsin, Russian Federation
Mrs. Alexandra Khalyasmaa, Department of Automated Electrical Systems, Ural Federal University named after the first President of Russia B.N.Yeltsin, Russian Federation

LF-006041, "Impact of Limitations of Transmission Line Capacity on Pricing"

Ms. Renata Varfolomejeva, Riga Technical University, Latvia
Ms. Inga Umbrasko, Riga Technical University, Latvia
Prof. Antans Sauhats, Riga Technical University, Latvia
Ms. Zane Broka, Riga Technical University, Latvia

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May 12, 2015 (Tuesday); 15:30-18:00; Room 116 – D2-F2-116
Regular session "Power Electronics, Systems and Applications 2 and Selected Topics on Electrical Machines"
Session chairs:
Prof. Enrique Romero-Cadaval, University of Extremadura, Spain,
Dr. Oleksandr Husev, Tallinn University of Technology, Estonia

LF-003409, "Asymmetric cascaded bridge converter for high voltage, high dynamics power supply: small scale prototype test results"
Mr. Serge Gavin, HES-SO, University of Applied Sciences of Western Switzerland, Switzerland
Prof. Mauro Carpita, HES-SO, University of Applied Sciences of Western Switzerland, Switzerland

LF-002739, "The Benefit of Harmonics Current Using a New Topology of Hybrid Active Power Filter"
Mr. Hussein Al-Bayaty, University of Plymouth, United Kingdom

LF-002321, "Optimized Total Harmonics Distortion PWM and Multi-Carries PWM: Comparison"
Dr. Khoukha Imarazene, Electrical and Industrial System Laboratory, University of Science and Technology Houari Boumediene (U.S.T.H.B), Algeria
Prof. El Madjid Berkouk, High PolyTechnic School Control Process Laboratory, ENP, Algiers, Algeria, Algeria
Prof. Hachemi Chekireb, High PolyTechnic School Control Process Laboratory, ENP, Algiers, Algeria, Algeria

LF-001309, "Research on the variation of inductance of transmitting and receiving coils in the wireless energy transmission system"
Mr. Rodions Saltanovs, RS Factor, Latvia

LF-000604, "Generator Mode Analysis of Exterior-Rotor PM Synchronous Machine with Gramme's Winding"
Mr. René Nukki, Tallinn University of Technology, Estonia
Mr. Aleksander Kilk, Tallinn University of Technology, Estonia
Mr. Ants Kallaste, Tallinn University of Technology, Estonia
Mr. Toomas Vaimann, Tallinn University of Technology, Estonia
Mr. Kristjan Tiimus, Helicam Service Ltd., Estonia

LF-003557, "A New Topology for Dual Rotor/Stator BLFC Motors Applied to Marine Thrusters"
Prof. Durmus Uygun, Gediz University, Turkey
Prof. Selim Solmaz, Gediz University, Turkey
Mr. Altug Turan, Gediz University, Turkey
Ms. Serife Tozan, Gediz University, Turkey

LF-001996, "An Online Closed-To-Open Position Loop Switch for Stepper Motors in High Reliability Systems"
Dr. Ricardo Picatoste, CERN, Switzerland
Dr. Mark Butcher, CERN, Switzerland
Dr. Alessandro Masi, CERN, Switzerland

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May 13, 2015 (Wednesday)

May 13, 2015 (Wednesday); 8:00-12:00; Room 115 – D3-F0-115
Workshop 1 and regular session "Smart Grids 2"
Session chairs:
Prof. João Catalão, University of Beira Interior, Portugal
Dr. Irina Oleinikova, Institute of Physical Energetics, Latvia

8:00-10:00 Workshop 1 "Electrical Grid Simulator"
Yahia Bouzid, OPAL-RT Technologies, Québec, Canada

Abstract: The studies related to power grids become more complex as the complexity of the grids themselves increases. The evolution of grid technology and especially the integration of renewables into the grid require a better monitoring and control of the numerous components of the grid. The appearance of IEDs (Intelligent Electronic Devices) and ICTs (Information & Communication Technologies) for the grid also tend to make the grid smarter, better controllable, but also more complex, with more sophisticated control algorithms. Moreover, the quality of the delivered energy is now a central issue. Grid stability and resilience have to be qualified in normal and faulty conditions. Engineers and researchers can now have access to powerful tools in order to address efficiently all these issues, thanks to innovative and powerful simulation devices for the grid.

10:00-12:00 Regular session "Smart Grids 2"

LF-001953, "Uncertainty Characterization of Carrier-Based Demand Response in Smart Multi-Energy Systems"
Ms. N. Neyestani, University of Beira Interior, Portugal
Mrs. M.Y. Damavandi, University of Beira Interior, Portugal
Dr. M. Shafie-khah, University of Beira Interior, Portugal
Prof. J.P.S. Catalão, University of Beira Interior, Portugal
Prof. G. Chicco, Politecnico di Torino, Italy

LF-005991, "Technology Comparison of Energy Recuperation Systems for DC Rail Transportation"
Dr. Patrycjusz Antoniewicz, ABB Sp. z o.o., Poland
Dr. Dariusz Swierczynki, ABB Sp. z o.o., Poland
Dr. Wojciech Kolomyjski, ABB Sp. z o.o., Poland
Mr. Przemyslaw Lukasiak, ABB Sp. z o.o., Poland

LF-002194, "Smart and Energy-Efficient Home Implementation: Wireless Communication Technologies Role"
Mr. Tiago D. P. Mendes, Univ. Beira Interior, Portugal
Mr. Radu Godina, Univ. Beira Interior, Portugal
Mr. Eduardo M. G. Rodrigues, Univ. Beira Interior, Portugal
Dr. João C. O. Matias, Univ. Beira Interior, Portugal
Prof. João P. S. Catalão, Univ. Beira Interior, Portugal

LF-000655, "Intelligent System for Automatic Reconfiguration of Distribution Network wih Distributed Generation"
Ms. Ana Paula Mello, Federal University of Pampa, Brazil
Dr. Mauricio Sperandio, Federal University of Santa Maria, Brazil
Dr. Daniel Bernardon, Federal University of Santa Maria, Brazil
Dr. Luciano Pfitscher, Federal University of Santa Catarina, Brazil
Mr. Maicon Ramos, AES Sul Distribuidora Gaúcha de Energia, Brazil
Mr. Daniel Porto, AES Sul Distribuidora Gaúcha de Energia, Brazil

LF-002208, "Optimal Daily Operation of a Smart-Household under Dynamic Pricing considering Thermostatically and Non-thermostatically Controllable Appliances"
Mr. N.G. Paterakis, Univ. Beira Interior, Portugal
Mr. M.F. Medeiros, Univ. Beira Interior, Portugal
Prof. J.P.S. Catalão, Univ. Beira Interior, Portugal
Ms. A. Siaraka, Aristotle University of Thessaloniki, Greece
Prof. A.G. Bakirtzis, Aristotle University of Thessaloniki, Greece
Dr. O. Erdinc, Yildiz Technical University, Turkey

LF-002666, "Practical Use of the Energy Management System with Day-Ahead Electricity Prices"
Mr. Denis Lebedev, Tallinn University of Technology, Estonia
Dr. Argo Rosin, Tallinn University of Technology, Estonia

LF-002259, "Demand Response Driven Load Pattern Elasticity Analysis for Smart Households"
Mr. N.G. Paterakis, Univ. Beira Interior, Portugal
Prof. J.P.S. Catalão, Univ. Beira Interior, Portugal
Dr. A. Tascikaraoglu, University of California, USA
Prof. A.G. Bakirtzis, Aristotle University of Thessaloniki, Greece
Dr. O. Erdinc, Yildiz Technical University, Turkey

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May 13, 2015 (Wednesday); 8:00-12:00; Room 116 – D3-F0-116
Regular session "Educational Topics and Selected Topics on Control"
and Workshop 2
Session chairs:
Prof. João Martins, Universidade Nova de Lisboa, Portugal
Prof. Alecksey Anuchin, Moscow Power Engineering Institute, Russian Federation

8:00-10:00 Regular session "Educational Topics and Selected Topics on Control"

LF-000035, "Modeling and Damping Controller Design for Static VAR Compensator"
Prof. Jawad Faiz, University of Tehran, Iran
Dr. Ghazanfar Shahgholian, Islamic Azad University, Iran

LF-000477, "Forecasting Hot Water Consumption in Dwellings Using Artifitial Neural Networks"
Mr. Linas Gelažanskas, Lancaster University, United Kingdom
Dr. Kelum Gamage, Lancaster University, United Kingdom

LF-005088, "Generating Surface Dynamometer Cards for a Sucker-Rod Pump by Using Frequency Converter Estimates and a Process Identification Run"
Dr. Tuomo Lindh, Lappeenranta University of Technology, Finland
Mr. Jan-Henri Montonen, Lappeenranta University of Technology, Finland
Mr. Maxim Grachev, Lappeenranta University of Technology, Finland
Dr. Markku Niemelä, Lappeenranta University of Technology, Finland

LF-005142, "Simulation of Stochastic Adaptive Algorithms for Embedded Devices of Railway Safety Systems"
Prof. Anatoly Levchenkov, Riga Technical University, Latvia
Dr. Mikhail Gorobetz, Riga Technical University, Latvia

LF-003204, "Real-time Model for Motor Control Coursework"
Prof. Alecksey Anuchin, Moscow Power Engineering Institute, Russian Federation
Mr. Dmitriy Savkin, Moscow Power Engineering Institute, Russian Federation
Ms. Yulia Khanova, Moscow Power Engineering Institute, Russian Federation
Ms. Daria Grishchuk, Moscow Power Engineering Institute, Russian Federation

LF-000337, "Android-Based M-Learning Remote System for Mobile Power Quality Assessment in Large Buildings with Renewable Energies"
Mr. Tiago Cardoso, Universidade Nova de Lisboa, Portugal
Prof. Pedro Pereira, Universidade Nova de Lisboa, Portugal
Prof. Vitor Fernão Pires, Instituto Politécnico de Setúbal, Portugal
Prof. João Martins, Universidade Nova de Lisboa, Portugal

LF-005983, "The saber-tooth curriculum-part two"
Dr. Pēteris Apse-Apsītis, Riga Technical University, Latvia

10:00-12:00 Workshop 2 "Power Electronics HIL testing"
Yahia Bouzid, OPAL-RT Technologies, Québec, Canada

Abstract: As the intermittent renewable energy sources grow more and more, power conversion has become an essential topic in electrical engineering. From small motors to MegaWatt drives, power electronics devices are having more success, because the numerous advantages they provide, especially a better control of machines, but also of HVCD links or compensation devices (FACTS, STATCOM). The use of complex power electronics, sometimes involving hundreds of power switches also implies the design, implementation and testing of very advanced control algorithms. Fortunately, efficient simulation tools help the engineers and researches to design and test such complex systems, in order to improve their quality and reduce their development cost.

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May 13, 2015 (Wednesday); 13:00-15:00; Room 115 – D3-F1-115
Regular session "Smart Grids 3"
Session chairs:
Prof. Alex Ruderman, Nazarbayev University, Kazakhstan
Dr. Argo Rosin, Tallinn University of Technology, Estonia

LF-004154, "Towards Smart Control and Optimization of Small-Scale Power System"
Prof. Antans Sauhats, Riga Technical University, Latvia
Dr. Olegs Linkevics, Riga Technical University, Latvia
Dr. Renata Varfolomejeva, Riga Technical University, Latvia
Dr. Diana Zalostiba, Riga Technical University, Latvia
Mr. Maris Kunicskis, Latvenergo AS, Latvia
Mr. Maris Balodis, Latvenergo AS, Latvia

LF-002232, "Stability Analysis for Operation of DG Units in Smart Grids"
Dr. Edris Pouresmaeil, Univ. of Southern Denmark, Denmark
Mr. Hamid Reza Shaker, Univ. of Southern Denmark, Denmark
Mr. Majid Mehrasa, Babol (Noshirvani) University of Technology, Iran
Mr. Mohammadamin Shokridehaki, Univ. Beira Interior, Portugal
Mr. Eduardo Rodrigues, Univ. Beira Interior, Portugal
Prof. João Catalão, Univ. Beira Interior, Portugal

LF-001562, "Line Parameter Estimation Based on PMU Application in Power Grid"
Prof. Irina Oleinikova, Institute of Physical Energetics, Latvia
Prof. Anna Mutule, Institute of Physical Energetics, Latvia
Mr. Ervin Grebesh, Institute of Physical Energetics, Latvia
Mr. Aleksands Lvovs, Institute of Physical Energetics, Latvia

LF-005606, "High Power PERFECTGEN for Three Wire DC Microgrid Application"
Prof. Wlodzimierz Koczara, Warsaw University of Technology, Poland
Mr. Tomasz Balkowiec, Warsaw University of Technology, Poland

LF-006068, "Bidirectional DC/AC energy flow measurement"
Dr. Pēteris Apse-Apsitis, Riga Technical University, Latvia
Mr. Ansis Avotins, Riga Technical University, Latvia
Prof. Leonids Ribickis, Riga Technical University, Latvia

LF-000345, "Load shifting for tertiary control power provision"
Mr. Hanmin Cai, Swiss Center for Electronics and Microtechnology (CSEM), Switzerland
Dr. Andreas Hutter, Swiss Center for Electronics and Microtechnology (CSEM), Switzerland
Ms. Elisa Olivero, Swiss Center for Electronics and Microtechnology (CSEM), Switzerland
Prof. Pierre Roduit, HES-SO Valais, Switzerland
Prof. Pierre Ferrez, HES-SO Valais, Switzerland

LF-002968, "Design Considerations of a Battery Pack – DC Grid Interface Converter"
Mr. Kristaps Vitols, Riga Technical University, Latvia

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May 13, 2015 (Wednesday); 13:00-15:00; Room 116 – D3-F1-116
Regular session "Electrical Machines and Adjustable Speed Drives 2"
Session chairs:
Prof. Jan Harm C Pretorius, University of Johannesburg, South Africa
Prof. Sandra Vitolina, Riga Technical University, Latvia

LF-005177, "Equivalent source method and its application for analysis of pulse frequency converters-fed induction motors"
Dr. Jonas Vanagas, Kaunas University of Technology, Lithuania
Dr. Saulius Bugenis, Kaunas University of Technology, Lithuania
Dr. Audrius Jonaitis, Kaunas University of Technology, Lithuania
Dr. Artūras Kalvaitis, Kaunas University of Technology, Lithuania

LF-003727, "Magnetic Flux Distribution between Rotor and Shaft in Two-Pole Induction Machines with Axial Cooling Vents"
Mr. Michael Reinlein, Technische Hochschule Nürnberg, Germany
Mr. Thomas Hubert, Technische Hochschule Nürnberg, Germany
Mr. Tobias Bauer, Siemens AG, Germany
Prof. Andreas Kremser, Technische Hochschule Nürnberg, Germany

LF-002151, "PLC-Based Hardware-in-the-Loop Simulator of a Centrifugal Pump"
Mr. Levon Gevorkov, Tallinn University of Technology, Estonia
Prof. Valery Vodovozov, Tallinn University of Technology, Estonia
Dr. Zoja Raud, Tallinn University of Technology, Estonia
Prof. Tonu Lehtla, Tallinn University of Technology, Estonia

LF-000558, "Utilizing High and Premium Efficiency Three Phase Motors with VFD's In a Public Water Supply System"
Dr. Pierre van Rhyn, University of Johannesburg, South Africa
Prof. Jan Harm C Pretorius, University of Johannesburg, South Africa

LF-002003, "Diagnostic Tests of Permanent Magnet Synchronous Machines"
Mr. Tomasz Jarek, Institute of Electrical Drives and Machines KOMEL, Poland
Dr. Adam Decner, Institute of Electrical Drives and Machines KOMEL, Poland

LF-005827, "Detection of Stator Winding Fault in Induction Motors Using a Motor Square Current Signature Analysis (MSCSA)"
Prof. Victor Pires, Instituto Politécnico de Setúbal, Portugal
Prof. Daniel Foito, Instituto Politécnico de Setúbal, Portugal
Prof. João Martins, Universidade Nova de Lisboa, Portugal
Prof. Armando Pires, Instituto Politécnico de Setúbal, Portugal

LF-000108, "Review of Eccentricity Fault Detection Techniques in IMs Focusing on DFIG"
Prof. Jawad Faiz, University of Tehran, Iran
Mr. S.M Moosavi, University of Tehran, Iran

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May 13, 2015 (Wednesday); 15:30-17:30; Room 115 – D3-F2-115
Regular session "Power Engineering 4 - System Management and Optimization", Closing Ceremony
Session chairs:
Prof. Vladimir Chuvychin, Professor, Latvia
Dr. Anna Mutule, Institute of Physical Energetics, Latvia

LF-000809, "Synchrogenverter – Hybrid Generation System"
Prof. Wlodzimierz Koczara, Institute of Control and Industrial Electronics, Warsaw University of Technology, Poland
Mr. Piotr Szulawski, Institute of Control and Industrial Electronics, Warsaw University of Technology, Poland

LF-003689, "A Fast Approach for Calculating the Available Flexibility of a Residential Distribution Grid"
Mr. Reza Ahmadi Kordkheili, Aalborg University, Denmark
Dr. Birgitte Bak-Jensen, Aalborg University, Denmark
Dr. Jayakrishnan R. Pillai, Aalborg University, Denmark
Mr. Bishnu Prasad Bhattarai, Aalborg University, Denmark

LF-002143, "A New Methodology for Solving the Unit Commitment in Insular Grids including Uncertainty of Renewable Energies"
Mr. G.J. Osório, Univ. Beira Interior, Portugal
Dr. J.M. Lujano-Rojas, Univ. Beira Interior, Portugal
Prof. J.C.O. Matias, Univ. Beira Interior, Portugal
Prof. J.P.S. Catalão, Univ. Beira Interior, Portugal

LF-002186, "An Innovative Technique for Energy Storage System Management based on Vanadium Redox Batteries"
Mr. E.M.G. Rodrigues, Univ. Beira Interior, Portugal
Mr. G.J. Osório, Univ. Beira Interior, Portugal
Dr. J.M. Lujano-Rojas, Univ. Beira Interior, Portugal
Prof. J.C.O. Matias, Univ. Beira Interior, Portugal
Prof. J.P.S. Catalão, Univ. Beira Interior, Portugal

LF-002313, "Electric Vehicles in the Concept of Smart Cities"
Mrs. Larisa Grackova, Institute of Physical Energetics, Latvia
Prof. Irina Oleinikova, Institute of Physical Energetics, Latvia
Dr. Gaidis Klavs, Institute of Physical Energetics, Latvia

LF-006114, "Flexibility options of Riga CHP-2 plant operation under conditions of open electricity market"
Mr. Maris Kunickis, Latvenergo AS, Latvia
Mr. Maris Balodis, Latvenergo AS, Latvia
Dr. Olegs Linkevics, Riga Technical University, Latvia
Ms. Polina Ivanova, Latvenergo AS, Latvia

LF-001287, "2015-2020. Sicily and Italy as Electricity Hub in the Mediterranean Area for the Development of the European Power Grids Interconnections"
Dr. Giuseppe Paternò, University of Palermo, Italy
Prof. Salvatore Favuzza, University of Palermo, Italy
Prof. Mariano Giuseppe Ippolito, University of Palermo, Italy
Prof. Fabio Massaro, University of Palermo, Italy
Dr. Andrea Puccio, University of Palermo, Italy

LF-000698, "Modified Rotation Method Analyzing Impact of Connection between Power Systems on the Static Stability"
Dr. Sergey Kovalenko, Riga Technical University, Latvia
Prof. Inga Zicmane, Riga Technical University, Latvia
Dr. Georgi Georgiev, Varna Technical University, Bulgaria

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May 13, 2015 (Wednesday); 15:30-17:30; Room 116 – D3-F2-116
Regular session "Power Electronics, Systems and Applications 3"
Session chairs:
Dr. Janis Zakis, Riga Tecnical University, Latvia
Mr. Andrii Chub, Tallinn University of Technology, Estonia

LF-005258, "Design and Comparison of Three-Level Three-Phase T-Source Inverters"
Ms. Tatiana Shults, Tallinn University of Technology, Estonia
Dr. Oleksandr Husev, Tallinn University of Technology, Estonia
Prof. Frede Blaabjerg, Aalborg University, Denmark

LF-005967, "Analysis of Buck Mode Realization Possibilities in the Quasi-Z-Source Series Resonant DC-DC Converter"
Dr. Janis Zakis, Riga Technical University, Latvia

LF-002135, "Operation Strategy and Shoot-Through Indirect Control Method for Three-Phase Z Source Inverters"
Mr. Carlos Roncero-Clemente, Power Electrical and Electronic Systems (PE&ES) University of Extremadura, Spain
Prof. Enrique Romero-Cadaval, Power Electrical and Electronic Systems (PE&ES) University of Extremadura, Spain
Dr. Oleksandr Husev, Department of Electrical Engineering. Tallinn University of Technology, Tallinn, Estonia, Estonia
Dr. Dmitri Vinnikov, Department of Electrical Engineering. Tallinn University of Technology, Estonia
Dr. María Isabel Milanés Montero, Power Electrical and Electronic Systems (PE&ES) University of Extremadura, Spain

LF-005274, "Single-Switch Galvanically Isolated Quasi-Z-Source DC-DC Converter"
Mr. Andrii Chub, Tallinn University of Technology, Estonia
Dr. Dmitri Vinnikov, Tallinn University of Technology, Estonia

LF-005819, "Condition Monitoring for DC-link Capacitors Based on Artificial Neural Network Algorithm"
Mr. Hammam Soliman, Aalborg University, Denmark
Dr. Huai Wang, Aalborg University, Denmark
Mrs. Brwene Gadalla, Aalborg University, Denmark
Prof. Frede Blaabjerg, Aalborg University, Denmark

LF-000884, "Optimal Supercapacitor Energy Storage System Sizing for Traction Substations"
Mr. Ugis Sirmelis, Riga Technical University, Latvia
Dr. Janis Zakis, Riga Technical University, Latvia
Dr. Linards Grigans, Institute of Physical Energetics, Latvia

LF-005878, "Research of Power Electronics Converters for Supercapacitor Storage Devices Used In Industrial Systems"
Mr. Maxim Vorobyov, Riga Technical University, Latvia

LF-005975, "Transformer Based AC Pulse Modulation System for Voltage Stabilization"
Prof. Ivars Rankis, Riga Technical University, Latvia
Mr. Marcis Prieditis, Riga Technical University, Latvia
Mr. Dmitry Shirkin, Riga Technical University, Latvia

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May 11-13, 2015 (All days); 8:00-18:00; Hall in front of Rooms 114, 115, and 116 – Posters of absent authors (different topics)
Session chair:
Prof. Ilya Galkin, Riga Technical University, Latvia

LF-002909, "An Isolated Renewable Energy Source Based Regulated Single Phase Power Supply Using Multilevel Cascaded H-Bridge Converter"
Mr. Mohamed Barara, The Petroleum Institute, Department of Electrical Engineering, United Arab Emirates
Mr. Chimezie Adiuku, The Petroleum Institute, Department of Electrical Engineering, United Arab Emirates
Prof. Khalifa Hasan Alhosani, The Petroleum Institute, Department of Electrical Engineering, United Arab Emirates
Dr. Naji Al sayari, The Petroleum Institute, Department of Electrical Engineering, United Arab Emirates
Prof. Abdul Rhaiman Bieg, The Petroleum Institute, Department of Electrical Engineering, United Arab Emirates
Prof. Mohamed Akherraz, Mohamed V University Agdal, Mohammadia School of Engineers, Department of Electrical Engineering, Morocco
Prof. Ahmed Abbou, Mohamed V University Agdal, Mohammadia School of Engineers, Department of Electrical Engineering, Morocco

LF-004022, "Long-term Generation Expansion Planning under Uncertainties and Fluctuations of Multi-type Renewables"
Dr. Shengyu Wu, State Grid Energy Research Institute, China
Dr. Lu Cheng, State Grid Energy Research Institute, China
Dr. Xiaoqing Yan, State Grid Energy Research Institute, China
Dr. Bo Yuan, State Grid Energy Research Institute, China

LF-000116, "A New Predictive Control Scheme for a VSI with Reduced Common Mode Voltage Operating at Fixed Switching Frequency"
Prof. Marco Rivera, Universidad de Talca, Chile

LF-000248, "Modulated Model Predictive Control (M2PC) with Fixed Switching Frequency for an NPC Converter"
Prof. Marco Rivera, Universidad de Talca, Chile
Mr. Maximiliano Pérez, Universidad de Talca, Chile
Dr. Venkata Yaramasu, Ryerson University, Canada
Dr. Luca Tarisciotti, Nottingham University, United Kingdom
Prof. Pericle Zanchetta, Nottingham University, United Kingdom
Prof. Pat Wheeler, Nottingham University, United Kingdom
Prof. Bin Wu, Ryerson University, Canada

LF-000612, "Real-Time Estimation of Propagation of Cascade Failure using Branching Process"
Ms. Priyanka Dey, VJTI, Mumbai, India
Mrs. Madhavi Parimi, VJTI, Mumbai, India
Mr. Amol Yerudkar, VJTI, Mumbai, India
Dr. Sushama Wagh, VJTI,Mumbai, India

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Prof. Luca Tarisciotti, University of Nottingham, United Kingdom
Prof. Pericle Zanchetta, University of Nottingham, United Kingdom
Prof. Patrick Wheeler, University of Nottingham, United Kingdom

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Prof. Marco Rivera, Universidad de Talca, Chile

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Iqbal Nusya Perdana, BADAK LNG, Indonesia

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Mr. Zhou Xing, National University of Defense Technology, China
Prof. Sun Quan, National University of Defense Technology, China

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Mr. Zhongyi Chen, National University of Defense Technology, China
Mr. Yan Zhang, National University of Defense Technology, China
Prof. Tao Zhang, National University of Defense Technology, China

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