

TECHNICAL PROGRAM

(Version: October 6, 2011)



33rd International Telecommunications Energy Conference

9 - 13 October 2011
The Netherlands

Session 1 Plenary 1

Room: Plenary Room

Chairman: Dick Vleeskruijer, Ben Klaassens, Ron Ottenhoff

8:45 1-1 Welcome

Äuthor : Dick Vleeskruijer, Conference Chairman - INTELEC2011, The Netherlands

8:55 1-2 Conference Introduction: Challenges of ICT Energy Industry - High Efficiency, High Density, Smart Application

Äuthor : Chen Yue - Huawei Energy Solution, China

9:10 1-3 Opening Address: Lithium ion batteries as key component for energy storage in automotive and stationary applications

Äuthor : Martin Winter - University of Muenster, Germany

Co Author(s) : Passerini, Stefano

9:40 1-4 From Battery Modeling to Battery Management

Äuthor : P.H.L. Notten (Keynote speaker) - Eindhoven University of Technology, The Netherlands

Co Author(s) : D. Danilov

Session 2 Batteries 1

Room: Waterkant

Chairman: Peter Notten

10:35 2-1 A Genetic Algorithm Based Battery Model for Stand Alone Radio Base Stations Powering

Äuthor : G. Fabbri - University of Coimbra, Portugal

Co Author(s) : M. Paschero, A.J.M. Cardoso, C. Boccaletti, F.M. Frattale Mascioli

10:55 2-2 Accelerated Ageing Testing and Cycle Life Prediction of Supercapacitors for Alternative Battery Applications

Äuthor : Masatoshi Uno - Institute of Space and Astronautical Science (ISAS), Japan

Co Author(s) : Koji Tanaka

11:15 2-3 Development of Large Capacity Stationary Lithium-ion Battery System for ICT backup system

Äuthor : Takashi Matsushita - NTT Facilities, Inc., Japan

Co Author(s) : Riichi Kitano, Kaho Yabuta, Tomonobu Tsujikawa, Takefumi Isobe, Masayasu Arakawa, Takashi Kofuse

11:35 2-4 Lithium-ion (Li-ion) battery technology evolves to serve an extended range of telecom applications

Äuthor : Joel Brunarie - Saft Batteries, France

Co Author(s) : Anne-Marie Billard, Stuart Lansburg, Mathieu Belle

11:55 2-5 Sodium-Nickel Batteries for Telecom Applications: Design, Performance and Field Operational Overview

Äuthor : Silvio Restello - Fiamm SpA, Italy

Co Author(s) : Giuseppe Lodi, Emiliano Paolin

Session 3 Green Energy

Room: 10

Chairman: Leendert Lam

- 10:35 3-1 Power Quality with Green Energy, DDC, and Inductively Powered EV's**
 Äuthor : John T. Boys - University of Auckland, New Zealand
 Co Author(s) : Josh R. Lee
- 10:55 3-2 Novel Total Site Management concept improves radio base station sites energy efficiency**
 Äuthor : Mervi Suni - Nokia Siemens Networks, Finland
 Co Author(s) : Jaakko Aho
- 11:15 3-3 Effect of Minimizing Input Capacitance in VSI-Based Renewable Energy Source Converters**
 Äuthor : J. Puukko - Tampere University of Technology, Finland
 Co Author(s) : L. Nousiainen, T. Suntio
- 11:35 3-4 Wind experience from Tanzania**
 Äuthor : Kent Westergren - Ericsson AB, Sweden
 Co Author(s) : Lars E Humla
- 11:55 3-5 Feasibility study of wind potential for Murchehkhort-Isfahan in Iran**
 Äuthor : Hossein Bungypoorfard - Material and Energy Research Centre (MERC), Iran
 Co Author(s) : Arash Hadadian, Mohamed Amini, Mojtaba Ezheian

Session 4 Disaster Management

Room: 11

Chairman: Alexis Kwasinski

- 10:35 4-1 Effects of Notable Natural Disasters from 2005 to 2011 on Telecommunications Infrastructure: Lessons from on-site Damage Assessments**
 Äuthor : Alexis Kwasinski - University of Texas at Austin, USA
- 10:55 4-2 Earthquake Performance of Telecommunications Infrastructure in Christchurch 2010 / 2011**
 Äuthor : Colin Foster - Chorus (A Telecom NZ Business), New Zealand
- 11:15 4-3 DC Power and the Christchurch Earthquakes**
 Äuthor : Simon Sloane - Eaton, New Zealand
- 11:35 4-4 Risk assessment of scheduled outage and total power revolution of NTT**
 Äuthor : Yukihiko Morooka - NTT Operation and Services Headquarters, Japan
 Co Author(s) : Kazuaki Ikeda, Satoshi Iwai, Masayoshi Ootsubo, Masanaka Makino, Kimio Nakamura
- 11:55 4-5 The Restoration of Telecom Power Damages by The Great East Japan Earthquake**
 Äuthor : Takaaki Adachi - NTT Facilities, Inc., Japan
 Co Author(s) : Yoshitaka Ishiyama, Yoshinori Asakura, Kimio Nakamura

Session 5 Opening Poster Session

Room: Plenary Room

Chairman: Dushan Boroyevich, Ben Klaassens

- 13:30 5-1 Opening Poster Session**
 Äuthor : - ,

Session 6 DC Converters 1

Room: Waterkant

Chairman: Mohamed Orabi

14:30 6-1 Practical use of DC/DC-Converters

Äuthor : Dipl.-Ing. Florian Boess - RECOM Electronic GmbH, Germany

14:50 6-2 Single-Switch Cell Voltage Equalizer Based on Multi-Stacked SEPICs for Series-Connected Energy Storage Cells

Äuthor : Masatoshi Uno - Institute of Space and Astronautical Science (ISAS), Japan

Co Author(s) : Koji Tanaka

15:10 6-3 Series-Parallel Connected 10W/cm³ Dc-dc Converter for Advanced High-Density Converter Design

Äuthor : Yusuke Hayashi - NTT Facilities, Inc., Japan

Co Author(s) : Masato Mino

Session 7 Power Management 1

Room: 10

Chairman: Grover Torrico

14:30 7-1 PUE: The Green Grid metric for evaluating energy efficiency in DC (Data Center). Measurement method using the Power Demand

Äuthor : Enrique Jaureguialzo - Chloride Emerson Spain, Spain

14:50 7-2 Overview and Design Aspects of Data- and Telecommunication Power System to Meet Latest Efficiency and Power Saving Standards and Regulations

Äuthor : Rais Miftakhutdinov - Texas Instruments Inc., USA

15:10 7-3 Datacenter Power Architecture: IBA versus FPA - System Engineering and Analysis on Central-Office Datacenter Power

Äuthor : Maurizio Salato - V•I Chip Inc., a VICOR Company, USA

Session 8 Wireless Power 1

Room: 11

Chairman: Stan Valtchev

14:30 8-1 Wireless charging technology using magnetically coupled resonators

Äuthor : Yong-Hae Kim - ETRI, Korea

Co Author(s) : Seung-Youl Kang, Sanghoon Cheon, Myung-Lae Lee, Taehyoung Zyung

14:50 8-2 Detection of a metal obstacle in wireless power transfer via magnetic resonance

Äuthor : Hiroki Kudo - Corporate Research & Development Center, Toshiba Corporation, Japan

Co Author(s) : Kenichiro Ogawa, Noriaki Oodachi, Noritaka Deguchi, Hiroki Shoki

15:10 8-3 Basic Study on Reduction of Reflected Power Using DC/DC Converters in Wireless Power Transfer System via Magnetic Resonant Coupling

Äuthor : Yusuke Moriwaki - The University of Tokyo, Japan

Co Author(s) : Takehiro Imura, Hori Yoichi

Session 9 DC Converters 2

Room: Waterkant

Chairman: Don Davidson

15:55 9-1 A Novel Multi-Input DC-DC Converter with High Power Efficiency

Äuthor : Masayuki Suetomi - Nagasaki University, Japan

Co Author(s) : Hirofumi Matsuo, Ken Hirakida, Ryota Nakashima, Ryota Hamaguchi, Yoichi Isizuka, Wengzong Lin

- 16:15 9-2 10-MHz DC/DC Converter based on GaN HEMT for RF applications**
 Äuthor : F. Gamand - Institute of Electronics, Microelectronics and Nanotechnologies (IEMN), France
 Co Author(s) : V. Di Giacomo, C. Gaquière
- 16:35 9-3 A Comparison Between Bond Graphs Switching Modelling Techniques Implemented on a Boost DC-DC Converter**
 Äuthor : Antonios Markakis - University of Reading, UK
 Co Author(s) : William Holderbaum, Ben Potter
- 16:55 9-4 Generation of New Nonisolated High Voltage Gain DC-DC Converters**
 Äuthor : R. P. Torrico-Bascopé - Federal University of Ceará - UFC, Brazil
 Co Author(s) : L. F. Costa, G. V. Torrico-Bascopé

Session 10 Power Management 2

Room: 10

Chairman: Didier Marquet

- 15:55 10-1 Incorporating Experts Knowledge in RTU Placement Procedure Using Fuzzy Sets Theory - A Practical Approach**
 Äuthor : Payman Dehghanian - Sharif University of Technology, Iran
 Co Author(s) : Ali Asghar Razi Kazemi, Ghasem Karami
- 16:15 10-2 A Probabilistic Approach for Remote Terminal Unit Placement in Power Distribution Systems**
 Äuthor : Ali Asghar Razi Kazemi - Sharif University of Technology, Iran
 Co Author(s) : Payman Dehghanian, Ghasem Karami
- 16:35 10-3 Affects of TCSC Usages on Distance Protection and Voltage Profile of a System; A Novel**
 Äuthor : Saeed Jahdi - City University London, UK
 Co Author(s) : Loi Lei Lai
- 16:55 10-4 Control and Optimisation of Power Consumption in Radio Base Stations**
 Äuthor : G. Fabbri - University of Coimbra, Portugal
 Co Author(s) : A. J. M. Cardoso, C. Boccaletti, A. Girimonte

Session 11 Wireless Power 2

Room: 11

Chairman: John Boys

- 15:55 11-1 Variable Position Wireless Power Transmitter through Multiple Cooperative Flux Generators**
 Äuthor : J. Schwannecke - Access Business Group Intl, LLC, USA
 Co Author(s) : A. E. Umenei, T. Leppien, D. Baarman
- 16:15 11-2 Wireless Energy Transfer Efficiency Enhancement for Mobile Receiver Devices**
 Äuthor : Hatef Dabbaghian Moqadam - University of Tabriz, Iran
 Co Author(s) : Sina Abedini Dereshgi, Ali Pour Mohammad Qoli Vafa, Aslan Nouri Moqadam
- 16:35 11-3 Analysis and Design Considerations for a Contactless Power Transfer System**
 Äuthor : S. Chopra - Delft University of Technology, The Netherlands
 Co Author(s) : P. Bauer

16:55 11-4 An Instantaneous Regulation for the Wired and Wireless Super-Resonant Converters

Äuthor : Stanimir Valtchev - Universidade Nova de Lisboa, Portugal

Co Author(s) : Rui Medeiros, Svilen Valtchev

Tuesday, October 11, 2011

Session 12 Plenary 2

Room: Plenary Room

Chairman: Chris Seyer, Lars Björkström

- 8:30 12-1 **The Essence of Three-Phase PFC Rectifier Systems**
Äuthor : Kolar, Johann W. (Keynote speaker) - ETH Zürich, Switzerland
Co Author(s) : Friedli, Thomas
- 9:00 12-2 **Advances Towards Fully Integrated, Single Chip Power Management**
Äuthor : Ashraf W. Lotfi (Invited speaker) - Enpirion Inc., USA
- 9:25 12-3 **Module-Level DC/DC Conversion for Photovoltaic Systems**
Äuthor : H.J. Bergveld (Invited speaker) - NXP Semiconductors, The Netherlands
Co Author(s) : D. Büthker, C. Castello, T.S. Doorn, A. de Jong, R. van Otten, K. de Waal

Session 13 Converters 1

Room: Waterkant

Chairman: Johann Kolar

- 10:15 13-1 **A Novel Output Voltage Regulation Strategy for the Primary Side of Flyback Converter**
Äuthor : Masayuki Suetomi - Nagasaki University, Japan
Co Author(s) : Satoshi Inada, Tomonari Kuriaki, Yoichi Ishizuka, Masahito Jinno, Wengzong Lin, Hirofumi Matsuo
- 10:35 13-2 **An Investigation into the Use of Active Snubbers to Improve Light-Load Converter Efficiency**
Äuthor : Mohammadjavad Baei - University of Western Ontario, Canada
Co Author(s) : Gerry Moschopoulos
- 10:55 13-3 **Realization and Comparison of a New Push-pull Direct-connected Multiple-input Converter Family for Distributed Generation Applications**
Äuthor : Sheng-Yang Yu - University of Texas at Austin, USA
Co Author(s) : Alexis Kwasinski
- 11:15 13-4 **Stability and Transient Performance Assessment in a COTS-Module-Based Distributed DC/DC System**
Äuthor : S. Vesti - Universidad Politécnica de Madrid, Spain
Co Author(s) : J.A. Oliver, R. Prieto, J.A. Cobos, T. Suntio
- 11:35 13-5 **Multi-state Commutation Cells to Increase Current Capacity of Multi-Level Inverters**
Äuthor : René P. T. Bascopé - Federal University of Ceará - UFC, Brazil
Co Author(s) : João A. F. Neto Grover, V. T. Bascopé
- 11:55 13-6 **New Converter Circuitry for High Voltage Applications Using Switched Inductor Multilevel Converter**
Äuthor : Mostafa Mousa - South Valley University, Egypt
Co Author(s) : Mahrous E. Ahmed, Mohamed Orabi

Session 14 Photovoltaic

Room: 10

Chairman: Manfred Schlenk

10:15 14-1 The Non Ideality Effect of Optimizing the P&O MPPT Algorithm for PV Battery Charger Applications

Äuthor : Hamdy Radwan - South Valley University, Egypt

Co Author(s) : Emad Abdelkarem, Mahrous Ahmed, Mohamed Orabi

10:35 14-2 Photovoltaic – Mixed Rewards But Still Worthwhile - What are some of the pitfalls?

Äuthor : Dan McMenamin - Dan McMenamin and Associates, Inc., USA

10:55 14-3 Appearance of a RHP-Zero in VSI-Based Photovoltaic Converter Control Dynamics

Äuthor : L. Nousiainen - Tampere University of Technology, Finland

Co Author(s) : J. Puukko, T. Suntio

11:15 14-4 Development of Fault Detection System in PV system

Äuthor : Toyonari Shimakage - NTT Facilities, Inc., Japan

Co Author(s) : Kojiro Nishioka, Hiroshi Yamane, Masashi Nagura, Mitsuru Kudo

Session 15 HV DC Grids

Room: 11

Chairman: Ulrich Boeke

10:15 15-1 Pre roll-out field test of 400 VDC power supply - The new alliance of Edison and Tesla towards energy efficiency

Äuthor : Didier Marquet - France Telecom, France

Co Author(s) : Olivier Foucault, Jaqueline Acheen, Jean François Turc, Marek Szpek, Joël Brunarie

10:35 15-2 Grounding concept considerations and recommendations for 400VDC distribution system

Äuthor : Keiichi Hirose - NTT Facilities, Inc., Japan

Presented by : Marek Szpek - Emerson Network Power , Sweden

Co Author(s) : Toshimitsu Tanaka, Tadatoshi Babasaki, Sylvain Person, Olivier Foucault, BJSonnenberg, Marek Szpek

10:55 15-3 380/400V DC Powering Option – An Independent Review

Äuthor : Frank Bodi - Silcar Pty Ltd, Australia

Co Author(s) : Ee Hui Lim

11:15 15-4 Flatnessbased feed-forward control of an HVDC power transmission network

Äuthor : C. Schmuck - Max-Planck-Institute for Dynamics of Complex Technical Systems, Germany

Co Author(s) : F. Woittennek, A. Gensior, J. Rudolph

11:35 15-5 Verification of 380 Vdc Distribution System Availability Based on Demonstration Tests

Äuthor : Masatoshi Noritake - NTT Facilities, Inc., Japan

Co Author(s) : Tomohito Ushirokawa, Keiichi Hirose, Masato Mino

11:55 15-6 Transient Response of Novel P-I-D Digital Control Switching Power Supply for HDVC System

Äuthor : Fujio Kurokawa - Nagasaki University, Japan

Co Author(s) : Ryuya Yoshida, Koji Murata, Yuichiro Shibata, Yoshihiko Yamabe, Kazuma Hamawaki, Tsukasa Takahashi, Kouta Bansho, Toru Tanaka, Keiichi Hirose

Session 16 Energy Harvesting

Room: 8/9

Chairman: Alain Schievink

10:15 16-1 Modeling and Simulation of MEMS Energy Harvester

Äuthor : Vinod Rajendran - Saveetha Engineering College, India

Co Author(s) : PraveenkumarSukumar, Dr.L.Sujatha

10:35 16-2 Modified Parallel SSHI AC-DC Converter for Piezoelectric Energy Harvesting Power Supplies

Äuthor : Loreto Mateu - Fraunhofer Institute for Integrated Circuits IIS, Germany

Co Author(s) : Lars Lühmann, Henrik Zessin, Peter Spies

10:55 16-3 New ASIC Architecture Development for Energy Harvesting

Äuthor : Divya Reddy - Texas Tech University, USA

Co Author(s) : Nirbhay S Beniwal, Stephen B Bayne

11:15 16-4 Tuning techniques for kinetic MEMS energy harvesters

Äuthor : Georgi Todorov - Technical University of Sofia, Bulgaria

Co Author(s) : Todor Todorov, Stanimir Valtchev, Ivan Ivanov

Session 17 Control

Room: 10

Chairman: Istvan Nagy

11:35 17-1 The Control Method of 3-Phase PWM Converter for 3-Phase 3-Wired Imbalanced AC Voltages

Äuthor : Takayanagi Atsushi - Kyosan Electric Mfg. Co., Ltd., Japan

Co Author(s) : Yuzurihara Itsuo, Okano Tsuyoshi

11:55 17-2 Control of Three-Phase Voltage Source Inverter for Renewable Energy Applications

Äuthor : Suzan Eren - Queen's University, Canada

Co Author(s) : Alireza Bakhshai, Praveen Jain

Session 18 Plenary 3

Room: Plenary Room

Chairman: Norbert Grass, Dushan Borojevich

8:30 18-1 Inductive Components in Power Electronics

Äuthor : Alex Van den Bossche (Keynote speaker) - Ghent University, Belgium

9:00 18-2 Wireless Power for Mobile Devices

Äuthor : Eberhard Waffenschmidt (Invited speaker) - Philips Research Europe, The Netherlands

9:25 18-3 Multimodal Energy Harvesting

Äuthor : Shashank Priya (Invited speaker) - Virginia Tech, Center for Energy Harvesting Materials and Systems (CEHMS), USA

Session 19 Sustainability

Room: Waterkant

Chairman: John Åkerlund

10:15 19-1 Environmental benefits of a universal mobile charger and energy-aware survey on current products

Äuthor : Flavio Cucchiatti - Telecom Italia, Italy

Presented by : Gianluca Griffa - Telecom Italia

Co Author(s) : Luca Giacomello, Gianluca Griffa, Patrizia Vaccarone, Paolo Tecchio, Raffaele Bolla, Roberto Bruschi, Luca D'Agostino

10:35 19-2 Energy and carbon pay back times for renewable power supply systems for Italian RBS off-grid sites

Äuthor : Claudio Bianco - Telecom Italia, Italy

Presented by : Paolo Gemma - Huawei, Italy

Co Author(s) : Aristide Torrelli, Valter Squizzato, Anders S.G. Andrae, Paolo Gemma

10:55 19-3 Evaluation of the environmental aspects to operate offgrid, stand-alone telecommunication systems - A comparison of greenhouse gas emissions of autonomous hybrid systems compared with a conventional diesel generating set

Äuthor : Manuel Nitze - University of Applied Sciences Berlin, Germany

Presented by : Manuel Nitze - University of Applied Sciences Berlin

Co Author(s) : Hans-Peter Glauser

11:15 19-4 Ecoefficiency of Universal Power Supplies for Customer Premises Equipment

Äuthor : Flavio Cucchiatti - Telecom Italia, Italy

Presented by : Luca Giacomello - Telecom Italia

Co Author(s) : Luca Giacomello, Patrizia Vaccarone, Sara Rollino

11:35 19-5 Renewable Energy (Green ICT) Support for Mobile Communications in Africa

Äuthor : Kenneth K Tsivor - Aalborg University, Denmark

Session 20 Control Converters

Room: 10

Chairman: Emanuel Orban, Ding Qingqing

- 10:15 20-1 Novell Photovoltaic DC/DC Converter (Control Aspects)**
 Äutthor : Sergey Ryvkin - Trapeznikov Institute of Control Sciences, Russia
 Co Author(s) : Felix A. Himmelstoss
- 10:35 20-2 A Novel Linear-Nonlinear Technique For Fast Transient Buck Converter**
 Äutthor : Mohamed Saad - South Valley University, Egypt
 Co Author(s) : El-Sayed Hasaneen, Ashraf Lotfi
- 10:55 20-3 An Optimal Control Strategy for Digitally Controlled Single-Phase Power Factor Correction AC-DC Boost Converter**
 Äutthor : Majid Pahlevaninehzad - Queen's University, Canada
 Co Author(s) : Pritam Das, Suzan Eren, Alireza Bakhshai, Praveen Jain
- 11:15 20-4 Digital Fuzzy Logic and PI Control of Phase-Shifted Full-Bridge Current-Doubler Converter**
 Äutthor : Lajos Török - Aalborg University, Denmark
 Co Author(s) : Stig Munk-Nielsen
- 11:35 20-5 Buck-Boost Converter Controlled by Hysteretic PWM Method with Input Voltage Feedforward**
 Äutthor : Tomonori Watanabe - Oita University, Japan
 Co Author(s) : Takashi Nabeshima, Terukazu Sato, Kimihiro Nishijima
- 11:55 20-6 A New Quick Transient Response Digital Control DC-DC Converter with Smart Bias Function**
 Äutthor : Fujio Kurokawa - Nagasaki University, Japan
 Co Author(s) : Junya Sakemi, Akihiro Yamanishi, Hiroyuki Osuga

Session 21 Thermal Systems

Room: 11

Chairman: Frank Bodi

- 10:15 21-1 The TeliaSonera Green Room Concept for high and mid density ICT equipment**
 Äutthor : Svante Enlund - TeliaSonera, Sweden
 Co Author(s) : Dag Lundén
- 10:35 21-2 Thermal Model For Data Centre Cooling**
 Äutthor : S. Le Masson - France Telecom R&D, France
 Co Author(s) : D. Nörtershäuser, B. Deddy, P. Glouannec
- 10:55 21-3 Coordinated system for controlling ICT equipment and CRAC loads in data centers**
 Äutthor : Keigo Matsuo - NTT Energy and Environment Systems Laboratories, Japan
 Co Author(s) : Masato Maruyama, Toshihiro Hayashi, Akira Takeuchi, Ryota Nakamura, Kazuhiro Matsuda, Tetsuya Tominaga
- 11:15 21-4 Flexible two-phase thermosyphon for power electronic cooling**
 Äutthor : Francesco Agostini - ABB Switzerland Ltd., Switzerland
 Co Author(s) : Bruno Agostini

11:35 21-5 Significantly Extending the Operational Range of Free Cooling in Radio Base Station Indoor Shelters

Äutthor : Domhnaill Hernon - Bell Labs Ireland, Alcatel-Lucent, Ireland

Co Author(s) : Pedro Silvestre-Castillo, Peter Hayden

11:55 21-6 Patented low-power technology for cooling of central offices applied on a Data Center established in 1985 with 30% reduction of total electricity consumption

Äutthor : Svante Enlund - TeliaSonera, Sweden

Co Author(s) : Dag Lundén

Session 22 Smart Grids 1 / Fuel Cells

Room: 8/9

Chairman: Lars Selberg

10:15 22-1 DC Microgrids in Buildings and Data Centers

Äutthor : Dustin J Becker - Emerson Network Power, USA

Co Author(s) : B.J. Sonnenberg

10:35 22-2 Application of Model-Based Design in Development of Micro-Grid System

Äutthor : Hitoshi Kidokoro - Sojo University, Japan

Co Author(s) : Masatoshi Nakahara, Soichiro Nakamura

10:55 22-3 Smart Energy Solutions Using Fuel Cells

Äutthor : Joe Blanchard - ReliOn, USA

11:15 22-4 Smart Communication Networks Standards for Smart Energy Management

Äutthor : Monontši Nthontho - University of Cape Town, South Africa

Co Author(s) : S.P.Chowdhury, Simon Winberg

11:35 22-5 Transient Droop Control Strategy for Parallel Operation of Voltage Source Converters in an Islanded Mode Microgrid

Äutthor : Mohammad Hassanzahraee - Queen's University, Canada

Co Author(s) : Alireza Bakhshai

11:55 22-6 Fuel Cell Systems Provide Clean Backup Power in Telecom Applications Worldwide

Äutthor : Richard Romer - IdaTech LLC, USA

Session 23 Hybrid Power Systems 1

Room: Waterkant

Chairman: Dong Tan

13:30 23-1 Lithium-ion Batteries in Telecom Hybrid Power Systems

Äutthor : Stephen S. Eaves - Modular Energy Devices Inc., USA

Co Author(s) : Stanley Mlyniec

13:50 23-2 Battery Management for Fuel-Cell/Battery Hybrid Power Supply System

Äutthor : Katsuyuki Sato - Tokyo University of Science, Japan

Co Author(s) : Toshiaki Yachi, Akira Takeuchi, Tadatoshi Babasaki

14:10 23-3 Telepower Cost Benefit Model

Äutthor : Annick Ecker - Silcar Pty Ltd, Australia

Co Author(s) : Frank Bodi

14:30 23-4 Optimal Design of Renewable Hybrid Power Supply Systems

Äuthor : Krzysztof Puczko - Delta Energy Systems Ltd., Poland

14:50 23-5 Power Conditioning and Energy Management in a Renewable Energy Based Hybrid System for Telecommunications

Äuthor : E. Ribeiro - University of Coimbra, Portugal

Co Author(s) : A. J. M. Cardoso, C. Boccaletti

Session 24 Soft Switching

Room: 10

Chairman: Beatriz Borges

13:30 24-1 Zero Voltage Switching Isolated Boost Converter Topology (The Davidson Semi-Resonant Converter)

Äuthor : C. Donovan Davidson - Gleneagles Technologies Ltd., Canada

13:50 24-2 Design of dc-dc Converter with Phase Shift and Duty Cycle Control for Full Range Soft Switching

Äuthor : Hamid Daneshpajoo - Queen's University, Canada

Co Author(s) : Alireza Bakhshai, Praveen Jain

14:10 24-3 A Novel Edge Resonant Switched Capacitor Modular-assisted Soft Switching PWM Boost DC-DC Converter for Telecommunications Energy

Äuthor : Tomokazu Mishima - Kobe University, Japan

Co Author(s) : Yujiro Takeuchi, Mutsuo Nakaoka

14:30 24-4 A Novel Reduction Strategy of Standby Power Loss in the Multi-Oscillated Current Resonant DC-DC Converter Considering Acoustic Noise Compatibility

Äuthor : Tadahiko Sato - Fuji Electric Co., Ltd., Japan

Co Author(s) : Hirofumi Matsuo, Hiroyuki Ota

14:50 24-5 Power Efficiency Improvement of the Full Bridge Current Resonant DC-DC Converter

Äuthor : Hisatsugu Kato - Nagasaki University, Japan

Co Author(s) : Hirofumi Matsuo, Tsubasa Ito, Shusei Kawazu, Daiki Kawahara, Satoshi Motomura, Ryota Hamaguchie

Session 25 Hybrid Power Systems 2

Room: Waterkant

Chairman: Dan McMenamin

15:35 25-1 The first thousand optimized solar BTS stations of Orange group - A very positive experience full of learning

Äuthor : Didier Marquet - France Telecom, France

Co Author(s) : Marc Aubrée, Stephane Le Masson, Alain Ringnet, Paul Mesguich, Michel Kirtz

15:55 25-2 Grid-Connected PV-Wind-Fuel Cell Hybrid System Employing a Supercapacitor Bank as Storage Device to Supply a Critical DC Load

Äuthor : Roberto Francisco Coelho - Federal University of Santa Catarina, Power Electronics Institute - INEP, Brazil

Co Author(s) : Lenon Schimtz, Denizar Cruz Martins

16:15 25-3 Frequency Control of Standalone Wind Turbine with Supercapacitor: An overview for Application in Rural and Offshore Area

Äuthor : Rahmat Suryana - Al Azhar University of Indonesia, Indonesia

16:35 25-4 Telecom Hybrid Power Battery management in full and partial state of charge

Äuthor : Gery Bonduelle - EnerSys, Switzerland

Co Author(s) : Wayne Coldrick, Dr. Mick Pope

16:55 25-5 Various Approaches to Powering Telecom Sites

Äuthor : Arthur D. Sams - Polar Power Inc., USA

Session 26 Converters 2

Room:

Chairman: Fujio Kurokawa

15:35 26-1 Comparative Analysis of Full Bridge and Half Bridge Current Resonant DC-DC Converter

Äuthor : Hisatsugu Kato - Nagasaki University, Japan

Co Author(s) : Hirofumi Matsuo, Tsubasa Ito, Shusei Kawazu, Diaki Kawahara, Satoshi Motomura, Ryota Hamaguchie

15:55 26-2 High Speed Series Resonant Converter (SRC) Using Multilayered Coreless Printed Circuit Board (PCB) Step-Down Power Transformer

Äuthor : Hari Babu Kotte - Mid Sweden University, Sweden

Co Author(s) : Radhika Ambatipudi, Kent Bertilsson

16:15 26-3 Change of Paradigm in Power Electronic Converters Used in Renewable Energy Applications

Äuthor : T. Suntio - Tampere University of Technology, Finland

Co Author(s) : J. Puukko, L. Nousiainen, T. Messo, J. Huusari

16:35 26-4 Single-Phase Five-Level Inverter with Less Number of Power Elements

Äuthor : Maha G. Elsheikh - South Valley University, Egypt

Co Author(s) : Mahrous E. Ahmed, Emad Abdelkarem, Mohamed Orabi

Session 27 Plenary 4

Room: Plenary Room

Chairman: Steve Vechy, John Parsons

8:30 27-1 Smart Grids - Intelligence for Sustainable Electrical Power Systems

Äuthor : J.G. Slootweg (Keynote speaker) - Eindhoven University of Technology, The Netherlands

Co Author(s) : C.E.P. Jordán Córdova, C. Montes Portela, J. Morren

9:00 27-2 Stand-alone Microgrids

Äuthor : P. Bauer (Invited speaker) - Delft University of Technology, The Netherlands

Co Author(s) : Leake E. Weldemariam, Evert Raijen

9:25 27-3 PEM Fuel Cells for Telecom Applications - From Backup to Continuous Power

Äuthor : Frank de Bruijn (Invited speaker) - Nedstack fuel cell technology, The Netherlands

Session 28 Batteries 2

Room: Waterkant

Chairman: Ole Vigerstol

10:15 28-1 Nickel-Iron - This all but forgotten technology has a very important place to occupy with users that desire very long life and the ability to suffer abuse in their battery systems

Äuthor : Peter J. DeMar - Battery Research and Testing Inc., USA

10:35 28-2 Lithium-ion Batteries Evaluation for Telecommunication's Stationary Applications

Äuthor : M. Fátima N.C. Rosolem - CPqD Foundation, Brazil

Co Author(s) : Alexandre Pinhel Soares, Raul Fernando Beck, Glauco Ribeiro dos Santos, Vitor Torquato Arioli, Kaue Tebaldi Miranda, Rodrigo Samuel Nazari, Marcos Roberto dos Santos

10:55 28-3 An effective method to evaluate the battery life under unreliable mains associated with rigorous high temperature

Äuthor : Qiangxin An - Huawei Technologies Co., Ltd., China

Co Author(s) : Jie Li, Xiangmin Ma, Guangchun Bi, Sen Bian

11:15 28-4 How to get the best performance from lithium cells in Telecommunications battery module

Äuthor : Luca Fulimeni - FAAM S.p.A., Italy

Co Author(s) : Luigi d'Apolito, Paolo Bellesi, Mauro Pecorari, Roberto Ficcadenti, Roberto Isidori

11:35 28-5 The Development of Thin Plate, Pure Lead VRLA Batteries for Telecommunications Applications in Challenging Environments

Äuthor : Shawn Peng - Leoch International Technology Ltd, China

Co Author(s) : Fang Yuan

11:55 28-6 Stationary Lead-Acid Batteries Remote Monitoring System

Äuthor : M. Fátima N.C. Rosolem - CPqD Foundation, Brazil

Co Author(s) : Gilcinea Rangel Pessenti, Raul Fernando Beck, Glauco Ribeiro dos Santos, Vitor Torquato Arioli, Paulo Henrique O. Lopes

Session 29 Converters 3

Room: 10

Chairman: Rob Kersten

- 10:15 29-1 True Bridgeless PFC – Stages with Advanced Current Measuring Circuit**
 Äutthor : Prof. Dr. Manfred Reddig - University of Applied Sciences, Augsburg, Germany
 Co Author(s) : Dr. Wenqi Zhou, Dr. Manfred Schlenk
- 10:35 29-2 Boost and Buck Topology Based Single Phase AC-DC Converters with Low THD and High Power Factor**
 Äutthor : Md. Ashfanoor Kabir - Bangladesh University of Engineering and Technology, Bangladesh
 Co Author(s) : Amina Hasan Abedin, Dhruvo Rahman, Rubiya Binta Mustafiz, M. A. Choudhury
- 10:55 29-3 High Efficiency Telecom Rectifier Designed for Wireless Communication Networks**
 Äutthor : Boning Huang - Huawei Technologies Co., Ltd., China
 Co Author(s) : Grover Torrico, Xiangmin Ma, Yongtao Liang
- 11:15 29-4 Analysis and Design of a Novel Three-Phase Single-Stage Rectifier**
 Äutthor : Mehdi Narimani - University of Western Ontario, Canada
 Co Author(s) : Gerry Moschopoulos
- 11:35 29-5 A High Efficiency High Power Density AC-DC Converter with Holdup Time Extension Capability**
 Äutthor : Masaya Takahashi - Oita University, Japan
 Co Author(s) : Kimihiro Nishijima, Michihiko Nagao, Terukazu Sato, Takashi Nabeshima
- 11:55 29-6 A Novel Bidirectional DC-DC Converter with High Power Efficiency for Isolation in High Voltage DC Power Feeding Systems**
 Äutthor : Masayuki Suetomi - Nagasaki University, Japan
 Co Author(s) : Daisuke Imamichi, Shinji Matsumoto, Daisuke Ueda, Jong-Ruey Yang, Yoichi Ishizuka, Wengzong Lin, Hirofumi Matsuo

Session 30 Smart Grids 2

Room: 11

Chairman: Paul Bauer

- 10:15 30-1 Local Smart Micro-grids**
 Äutthor : Ali Moallem - Queen's University, Canada
 Co Author(s) : Alireza Bakhshai, Praveen Jain
- 10:35 30-2 Modeling, Control and Power Management of Inverter Interfaces Sources in a Microgrid**
 Äutthor : Manohar Chamana - Texas Tech University, USA
 Co Author(s) : Stephen B. Bayne
- 10:55 30-3 Low loss micro grid for RBS sites**
 Äutthor : Lars Efraimsson - Ericsson AB, Sweden
 Co Author(s) : Johan Åhman, Håkan Bringsell
- 11:15 30-4 Open Series Fault Comparison in AC & DC Micro-grid Architectures**
 Äutthor : H.B. Estes - University of Texas at Austin, USA
 Co Author(s) : A. Kwasinski, R.E. Hebner, F.M. Uriarte, A.L. Gattozzi

11:35 30-5 Development of PDC and PDU with Semiconductor Breakers

Äuthor : Kensuke Murai - Nippon Telegraph and Telephone Corporation, Japan

Co Author(s) : Toshimitsu Tanaka, Tadatoshi Babasaki, Yousuke Nozaki

11:55 30-6 Ultrahigh Speed Induction Generators Applied in Disperse Power Plants

Äuthor : Zoltan Varga - Budapest University of Technology and Economics, Hungary

Co Author(s) : Rafael K. Jordan, Istvan Nagy