EPE Newsletter April 2008

Newsletter contents

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1. EPE-PEMC 2008, Poznan, 1-3 September 2008 – !!On-line registration open !!

On-line registration is available on http://www.epe-pemc2008.put.poznan.pl

The final programme will be available very soon. Already defined are the keynote speakers:

1. Thomas G. HABETLER, Georgia Institute of Technology, Atlanta
2. Marcel JUFER, Ecole Polytechnique Fédérale de Lausanne
3. Johann W. KOLAR, Swiss Federal Institute of Technology Zurich (ETH)
4. Atsuto KAWAMURA, Yokohama National University

Furthermore, 14 special sessions are planned:

Special session 1.
APPLICATIONS OF NONLINEAR DYNAMICS AND CHAOS TO POWER ELECTRONICS AND DRIVES
Chairmen: Bruno ROBERT, Luis BENADERO

Special session 2.A
ENERGY MANAGEMENT AND POWER CONTROL OF HYBRID POWER SYSTEMS:
Design of the control system
Chairman: Bruno FRANCOIS, Benoit ROBYNS, Eric MONMASSON

Special session 2.B
ENERGY MANAGEMENT AND POWER CONTROL OF HYBRID POWER SYSTEMS:
Economic constraints and new architectures
Chairman: Bruno FRANCOIS, Benoit ROBYNS, Eric MONMASSON

Special session 3.
CONTROL PROBLEMS OF DRIVE SYSTEMS WITH ELASTIC JOINTS
Chairman: Teresa ORŁOWSKA-KOWALSKA

Special session 4.
SENSORLESS CONTROL OF PERMANENT MAGNET SYNCHRONOUS MOTORS AT LOW SPEED AND STANDSTILL
Chairman: Manfred SCHROEDL

Special session 5.
SENSORLESS CONTROL OF INDUCTION MOTOR
Chairman: Zbigniew KRZEMIŃSKI

Special session 6.
WIND TURBINE GENERATING SYSTEM
Chairman: Shoji NISHIKATA

Special session 7.
FUEL CELL SYSTEMS: MODELIZATION AND APPLICATIONS
Chairman: Abdellatif MIRAOUI

Special session 8.
MODERN EDUCATIONAL METHODS FOR POWER ELECTRONICS AND MOTION CONTROL
Chairmen: Pavol BAUER, Viliam FEDAK

Special session 9.
ANALYSIS AND DESIGN OF ELECTRICAL DRIVES USING FIELD-CIRCUIT MODELS
Chairman: Andrzej DEMENKO

Special session 10.
MICRO-ELECTRO-MECHANICAL SYSTEMS AND THEIR COMPUTER MODELLING
Chairman: Sławomir WIAK

Special session 11.
INTEGRATION TECHNOLOGIES IN POWER CONVERTERS
Chairman: Toshihisa SHIMIZU

Special session 12.
PRESENT STATE AND FUTURE OF SILICON CARBIDE POWER SEMICONDUCTOR DEVICES
Chairman: Zbigniew LISIK

Special session 13.
MICROGRID AND POWER QUALITY
Chairman: Jaeho CHOI

Special session 14.
UTILITY APPLICATION AND POWER GENERATION
Chairman: Noriyuki KIMURA

Contacts:
Poznan University of technology
Faculty of Electrical Engineering
EPE-PEMC 2008
Conference Secretariat
60-965 Poznan, Piotrowo 3A, Poland

Phone: + 48 61 665 2627, 2737
Fax: +48 61 665 2563
e-mail: pemc@put.poznan.pl
http://www.epe-pemc2008.put.poznan.pl

2. Renewable Energy and Power Electronics at the University of Agder, Southern Norway – three new posts

1. Full professor in Renewable Energy, distributed generation and interfaces to the power grid.
2. PhD-fellowship in End Use of Photovoltaic Technology, power electronics interface.
3. PhD-fellowship in End Use of Photovoltaic Technology, field measurements, modeling and simulation.

The yearly salary for the PhD-fellowships is about Euro 43000 (for up to four years). The application deadline is 30. April. For more information about the posts and how to apply, contact Prof. Ole-Morten Midtgård, email: olemm@uia.no, tel: +47 37253238. See also www.uia.no/stilling.

3. Professors in Sustainable Power Systems and Professor in Power Electronics at Chalmers University of Technology, Sweden

Application deadline: May 9. Reference number 2008/79 (Sustainable Power Systems) and 2008/80 (Power Electronics)

The characteristics of the electric power system will change in the coming decades. Integration and energy efficiency will be keywords in the transformation. Renewable energy resources are critical to meet increasing power demands without increasing the consumption of limited resources. Integration of renewable energy resources and new consumption patterns will therefore put new requirements on the operation and design of the electric power systems. Conversion utilising power electronics is expected to increase. There will be an increase of automatization and computer-based security systems will be generally used. The use of electricity as energy carrier in other technical systems is also expected to expand, e.g. in vehicle applications and in other types of "smaller systems". This results in a growing need of competence in power systems and power electronics.

An industrial consortium (ABB, Göteborg Energi, Svenska Kraftnät and Vattenfall) together with Chalmers University of Technology has formed the initiative "Coordinated Sustainable Electrical Systems" to meet these challenges and to support the supply of competence in this field. Based on this initiative, we are now announcing two professor positions, one in "Sustainable Power Systems" and one in "Power Electronics", at the Division of Electric Power Engineering in the Department of Energy and Environment.

The subject area of the Sustainable Power System position comprises electric power systems, characterised by its inherent properties and by the joint action of its parts and components under static as well as dynamic conditions. Also operation, maintenance and control of the system as well as of its components are included. An area of special importance is the adaptation of the power system to a sustainable society e.g. by integration of renewable power production. The holder of this position is expected to be responsible for developing and managing the Division of Electric Power Engineering.

The subject area of the Power Electronics position comprises components and systems for conversion of electric energy. Core areas are: modelling and function of converters and power electronic components, EMI/EMC, design of power electronic components, calculation and minimization of losses, as well as materials related problems. Important areas of application are, for low voltage, telecom and vehicle systems, and for high voltage, electricity production from renewable energy resources, and electric power transmission and distribution. Further important applications areas are drive systems for trains as well as for electric and electric hybrid vehicles. Competence in some of the following associated fields is considered as an additional qualification: hardware design, digital control, automatic control, electric machines, electric power systems and high voltage engineering. Applicants, who have developed expertise in the core areas, but who do not yet fulfil all requirements for a full professor position, are also encouraged to apply.

Applicants considered for the position shall be able to take a leading position in developing the subject area and also to take an active role in developing research and education in general, including active supervision of doctoral and master students. Developing and delivering courses on the Bachelors and Masters levels is also part of the programme for the positions. Part of the research within the department is experimental, making experience of supervising experimental research considered as an additional qualification.

At present, the Division of Electric Power Engineering has 20 employees, with one professor, one associate professor and 10 Ph.D. students. The division has a well-equipped research lab.

Besides scientific qualifications, emphasis is placed on skills in leadership as well as on the ability to co-operate with industry and with adjacent research areas. The applicant should also have documented pedagogical experience from undergraduate, graduate and postgraduate levels. Proved ability to attract external funding is also of significant importance. Chalmers places particular attention on recruitment of co-workers with high social competences and capability in fostering a stimulating work environment.

Further information can be obtained from the Head of the Department, Professor Lennart Vamling:
lennart.vamling@chalmers.se, +46-31-7723021 (phone and mobile)

http://chalmersnyheter.chalmers.se/chalmers03/english/eng_vacanciesarticle.jsp?article=11148

4. Three open posts at CERN in the domain of electrical distribution and power electronics.

1. Senior Electrical Engineer in the Technical Support Department (TS), Electrical Engineering Group (EL) / Ingénieur supérieur (Electricité) dans le Département Support Technique (TS), Groupe Ingénierie Electrique (EL)
TS-EL-2008-15-LD https://ert.cern.ch/browse_www/wd_pds?p_web_page_id=6185

2. Electrical Engineer in the Technical Support Department (TS), Electrical Engineering Group, High Voltage Section (HT) / Ingénieur (Electricité) dans le Département Support Technique (TS), Groupe Ingénierie Electrique (EL), Section Haute Tension (HT)
TS-EL-2007-88-LD https://ert.cern.ch/browse_www/wd_pds?p_web_page_id=6001

3. Engineer (Power electronics) in the Accelerators and Beams Department (AB), Power Converter Group (PO), Pulsed and High-Voltage Converters Section (PH) / Ingénieur (Electronique de puissance) dans le Département Accélérateurs et Faisceaux (AB), Groupe Convertisseurs de Puissance (PO), Section Convertisseurs Pulses & Convertisseurs Haute Tension
AB-PO-PH-2008-17-LD https://ert.cern.ch/browse_www/wd_pds?p_web_page_id=6220

5. Industrial/Ph.D. Course in "Power Electronics for Renewable Energy Systems – in theory and practice" , 13-15 May 2008 (Date change!), Aalborg University by Remus Teodorescu, Aalborg University, Marco Liserre Polytechnic of Bari and Pedro Rodriguez, Technical University of Catalonia.

The objectives of this course are to learn about the grid converter structures and control for both single-phase (micro generation like PV) and three-phase

(wind turbines) systems. Compliance requirements with the recent grid codes standards in terms of power quality, fault-ride-through, robust P-Q control,

grid monitoring and islanding detection are covered in detail. Valuable hands-on experience is provided in the state-of-the-art Green Power Laboratory with experiments (ca 50% of course time) including control of grid converters including current control, harmonic compensation, grid synchronization, sag detection.
hree-phase grid converters controlled by DSPACE.

For more information and registration:

http://www.iet.aau.dk/News/pdf/2008/Folder_Peres_May08.pdf
and:
http://www.iet.aau.dk/News/pdf/2008/Power%20Electronics%20for%20Renewable%20Energy%20Systems%20May08.pdf

6. Industrial/Ph.D. Course in "Control of Microgrids" Friday 16 May 2008, Aalborg UniversityInstitute of Energy Technology Pontoppidanstraede 101, Room 23, DK-9220 Aalborg East, Denmark by Associate Professor, Ph.D. Josep M. Guerrero, UPC Barcelona, Spain

Microgrids are becoming a reality in a scenario in which renewable energy, distributed generation (DG), and distributed storage systems can be conjugated and also integrated into the grid. These concepts are growing up due to not only environmental aspects but also due to social, economical, and political interests. The variable nature of some renewable energy systems such as photovoltaic or wind energy relies on natural phenomenon like sunshine or wind.

Consequently, it is difficult to predict the power that can be obtained through these prime sources, and the peaks of power demand do not coincide necessarily with the generation peaks. Hence, storage energy systems are required if we want to supply the local loads in an uninterruptible power supply (UPS) fashion. Some small and distributed energy storage systems can be used for this purpose, such as: flow batteries, fuel cells, flywheels, superconductor inductors, or compressed air devices.

The DG concept is growing in importance, pointing out that the future utility line will be formed by distributed energy resources and small grids minigrids or microgrids) interconnected between them. In fact, the responsibility of the final user is to produce and storage part of the electrical power of the whole system. This change of paradigm let the microgrid export and import energy to the utility through the point of common coupling (PCC). And, when there is a utility failure, the microgrid still can work as an autonomous grid. As a consequence, these two classical applications: grid-connected and islanded operations can be used in the same application, under the concept of flexible microgrid.

This course introduces the study of the hierarchical control of microgrids for DC and AC electrical systems. Examples of microgrid systems are given and analyzed in detail. Cases of islanded and flexible microgrid hierarchical control are described. Stability analysis and decentralized control issues are presented.

For more information and registration:
http://www.iet.aau.dk/News/pdf/2008/Folder_Control_Microgrids_2008_1.pdf

7. Call for papers for EPE journal, included in ISI and Compendex

EPE Journal is included in the Science Citation Index as well as in the Compendex. Send your best technical papers for publication to bsneyers@vub.ac.be (pdf file, without any mention of authors, full coordinates in the mail message)

http://www.epe-association.org

8. Technically sponsored conferences

NORPIE 2008
9-11 June 2008, Espoo, Finland
Nordic Workshop on Power and Industrial Electronics
Helsinki University of Technology Faculty of Electronics, Communications and Automation Espoo, Finland
Deadline for summaries: February 29, 2008
Contact:
Mrs. Anja Meuronen
Power Electronics
Helsinki University of Technology
02015 TKK, Finland
Phone: +358 90 451 2436
Fax: +358 90 451 2432
anja.meuronen@tkk.fi
The www-pages of Helsinki University of Technology have been renewed beginning of 2008. Because of this www-addresses may still change. Updated information can be found at least from
http://powerelectronics.tkk.fi/current_info/files/norpie2008.pdf

2nd EPE Wind Energy Seminar
The Royal Institute of Technology
23-24 April 2009
Stockholm , Sweden
http://etec.vub.ac.be/EPE/03-EPE-WE-Seminar-2009.htm

September 8-10, 2009 Barcelona, Spain
EPE 2009
Call for papers to be released next May 2008
Deadline for receipt of synopses: November 2008
http://www.epe2009.com

9. ECPE Calendar of Events 2008

Full programmes are available from http://www.ecpe.org/education/seminars_e.php

Date	Location	Event	Topic
27-29 May 2008	Nuremberg (D)	Conference and Exhibition	**PCIM Europe** Conference & Exhibition • ECPE Round Table Discussion on Passives in Power Electronics, PCIM Conference • ECPE Joint Stand, PCIM Exhibition
18-19 June 2008	Itzehoe (D)	ECPE Tutorial	**Reliable Soldering in Power Electronics Manufacturing** (with practical training) Course instructor: Dr. Ahrens, Dr. Poech (FhG ISIT)
25-26 June 2008	Toulouse (F)	ECPE Workshop	**Built-in Reliability into Power Electr. Systems** Techn. Chairman: Prof. E. Wolfgang (ECPE) Co-Chairman: Dr. M. Mermet-Guyennet (PEARL)
7-8 Oct. 2008	Stuttgart (D)	ECPE Seminar	**Automotive Power Electronics (w. EC Projects)** Techn. Chairman: Dr. M. Maerz (Fraunhofer IISB) Co-Chairman: Prof. E. Wolfgang (ECPE)
Oct./Nov. 2008	Nuremberg (D)	ECPE Tutorial	**Power Electronics Packaging** Course instructor: Prof. R. Eisele (UAS Kiel)
Nov. 2008	TBD	ECPE Workshop	**Advanced Cooling Techniques** (1st day) Techn. Chairman: Prof. E. Wolfgang (ECPE) **Power PCBs and Busbars** (2nd day) Techn. Chairman: NN
Nov./Dec. 2008	Nuremberg (D)	ECPE Tutorial	**Power Semiconductor Devices & Technologies** Course instructor: Prof. D. Silber (Univ. Bremen)

Further Power Electronics Events of the Bavarian Cluster: www.cluster-bayern-leistungselektronik.de (in German language).