EPE Newsletter June 2010

Newsletter contents

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1. EPE-PEMC 2010, 6-8 September 2010, Ohrid, Republic of Macedonia – Register now!

14th International Power Electronics and Motion Control Conference

A number of Special Sessions will be organized at EPE-PEMC 2010 in Ohrid, Macedonia (S sessions in the provisional programme):

1. Sensorless Control of PM Synchronous Motors at Low Speed and Standstill
2. Real Time Simulations for Power Electronics and Machines Control
3. PM Linear Drives and Actuators
4. Numerical Methods in Power Electronics and Electrical Engineering
5. E-learning and Modern Education Methods in Education of Power Electronics and Motion Control
6. Power Electronics and Energy Storage for e-Mobility
7. Power Distribution and Energy Management Systems: Smart Solution and Methods
8. Leading-Edge Trend of Railways – Eco-Friendliness and Standardization
9. Distributed Generation Systems: Architectures, Topologies and Control
10. Smart Drives
11. Electrical Motor Drives for Electro Mobility
12. Distribution Systems and Green Energy 1
13. Distribution Systems and Green Energy 2
14. Wind Energy Conversion Systems 1
15. Wind Energy Conversion Systems 2
16. Wireless Power Transmission

Numerous technical sessions for lecture and dialogue presentation have been selected as well (L sessions in the provisional programme)

1. Semiconductor Devices and Packaging
2. Power Converters
3. Control of Power Converters
4. Electrical Machines and Actuators
5. Motion Control, Robotics, Adjustable Speed Drives
6. Application and Design of Power Electronic Systems
7. Measurements, Sensors and Observing Techniques
8. Electromagnetic Compatibility
9. Power Electronics in Transportation
10. Mechatronic Systems
11. Power Electronics in Electrical Energy Generation, Transmission and Distribution
12. Renewable Energy Sources

13. Active Filtering and Unity Power Factor Correction Circuits
14. Education
15. Related Topics

http://www.epe-pemc2010.com

2. EPE 2011: 30 August to 2 September 2011, Birmingham, United Kingdom - Call for papers– Website for upload synopses opens on 1 September 2010

Receipt of synopses: 1st of November 2010
Notification of provisional acceptance: 1st of March 2011
Receipt of full typescript for final review: 1st of June 2011
http://www.epe2011.com

3. Position of PostDoc in Electromechanics, Advanced computer assisted design of electromagnetic converters at Eindhoven, University of Technology, Nederlands

The Department of Electrical Engineering is one of the nine departments of the Eindhoven University of Technology and provides undergraduate and MSc programs in Electrical Engineering. The mission of the chair Electromechanics and Power Electronics (EPE) is research, education and the transfer of knowledge on advanced methods and tools to enhance the analysis, design and multi-objective optimization of innovative electromagnetic actuation and conversion structures and cyclically switched networks. The group maintains an internationally respected research centre with a state-of-art infrastructure. In the field of electromechanics the focus point of the group are electric machines for the more-sustainable society and highprecision actuators.

Project
In the last decade contactless energy transfer systems (CETS) based on magnetic coupling have been fundamentally researched and developed since nowadays numerous devices apply this technology that is gaining a foothold in industrial applications. In robotics and flexible assembly systems, inductive transfer of electric energy is one way to substitute the energy cables. Recently, these CETS are being attached to a linear servo machine to supply energy to the translator. As there are no more restrictions by cables, the machines become more flexible in their movements but in the same time the complexity of the linear actuator increases and drastically limits the force density.
The fundamental research challenge is a complete re-think of the linear actuator design to integrate the functions of contactless energy transfer and a long-stroke actuator in a single system. Novel actuator topologies will be designed for generating the required contactless forces for the large stroke and acceleration (in one degree of freedom), hence, a lot of research effort will be undertaken in the electromagnetic and thermal design of the entire system. Extensive application of the fundamental theory of electromagnetism and electromechanics will be required for developing the required methods and tools for the analysis and optimization of the Linear Synchronous Motor (LSM) with integrated CETS. This will be investigated both by using analytical methods and numerical modeling.
Furthermore this project will require a mechatronic research approach in which electromechanics and power electronics are combined with other engineering disciplines such as electromagnetism, thermodynamics, material science, mechanics, and analog and digital electronics for control purposes.
State-of-the-art analysis, synthesis, design and optimization facilities will be extensively used and this will result in numerous new concepts, where the most promising design will be demonstrated by a prototype LSM-CET. The fundamental technical work will diminish existing technology barriers and breakpoints of the multifunctional integrated designs. This will improve the understanding of the limitations of these electromagnetic actuators on the achievable force density and will identify critical integration issues, which will be illustrated by a detailed design study and prototype of the LSM-CET integrated actuator.

Tasks
As a Postdoc you have to fulfil the following duties:
- perform research at the forefront of electromechanics related to advanced computational methods and tools for the design and optimization of electromagnetic convertors
- publish in renowned scientific journals and conferences
- contribute to the education in both the BSc and MSc programs
- make a significant contribution to acquisition of research grants
- supervise PhD and MSc students and be an inspiring colleague
- maintain and expand contacts with industrial partners

Requirements
We are looking for a candidate who meets the following requirements:
- strong PhD in electromechanics or electromagnetics
- extended experience in computer assisted design of electromagnetic actuators/converters involving numerical and analytical modeling tools, multi-physics analysis and numerical optimization
- prior research work and results related to surrogate modeling techniques and optimization exploiting physical models primarily
- strong inclination towards innovative design solutions, proven by prior research results
- good communication and didactical skills

We offer:
- a full-time temporary appointment for a period of 2 years
- a challenging job in a dynamic and ambitious university and a stimulating internationally renowned research environment
- a gross monthly salary in accordance with the Collective Labor agreement of the Dutch Universities (CAO NU) of at least € 2861 per month (initially, scale 10.4) depending on prior experience. An offer will be based on your knowledge and experience
- moreover 8% bonus share (holiday supplement) and an end year allowance of 8.3% (2009) is provided annually
- a broad, attractive package of fringe benefits (including an excellent technical infrastructure, child care, savings schemes, and excellent sports facilities). For foreign staff, it is possible to apply for a tax break of max. 30% on your salary from the Dutch tax office (the TU/e will help you with the application). This is only for staff who has never previously worked in The Netherlands.

Information
For further information on these vacancies you can contact: Prof.dr E.A. Lomonova (e.lomonova@tue.nl, tel. +31 40 247 3573). For information concerning employment conditions you can contact Ms. F. Verheggen, personnel officer (f.verheggen@tue.nl , tel. +3140 2474796).

Application
If you are interested in this position, please send a detailed curriculum vitae, an application letter motivating why the position is of interest to you and summarizing your views on the research area, a publication list, a copy of your best publication in English and the names of two references, all in electronic form to f.verheggen@tue.nl

4. Industrial and PhD course in Switch-mode audio power amplifiers (class-D) at the Technical University of Denmark, 23 – 27 August 2010 in Copenhagen

Background and aim of the course
Linear (Class A/AB/B) amplification has been the standard for power amplification for many decades. During the last decade, interest in higher efficiency power amplification has increased, particularly in the audio industry.
The major driving force has been the need to provide fresh opportunities in audio design with the advantages that higher efficiency potentially offers, e.g. higher power with increased power density, savings in energy and battery life, potential cost savings and even potential performance improvement in audio reproduction. The interest in this new field is global and includes all major industrial segments, such as consumer electronics, cars, professional, mobile and/or portable audio fields. A paradigm shift seems to be on its way.
This course will present an overview and in-depth study of the current state-of-the-art in a broad perspective and ad-dress many of the new scientific disciplines involved in this emerging field.
Switch-mode audio power amplifiers are in more ways a combination of mixing otherwise complementary scientific fields as power electronics, analogue and digital signal processing, advanced analogue design, EMC and more.
The aim of the course is thus to address a new, complex and challenging era at an early stage.

Place
DTU Electrical Engineering
Technical University of Denmark
Ørsteds Plads - Building 349 - room 025
DK-2800 Kgs. Lyngby
DENMARK
http://www.dtu.dk/centre/ele/English.aspx

Language
English.

Literature
Electronic copies only of slides (PDF-files) will be available on-site. Please bring your own laptop PC.

Course Fee
The course fee is DKK 9,000 which also includes coffee, lunch and course material.
For EU Ph.D. students the course fee will be DKK 2,000.
Registration is binding and no refund is possible.

Laptop PC's
Please bring your own laptop PC (preferably with PSpice evaluation version and Matlab/Simulink rel. 14 installed).
Credits
5 ECTS - upon passing this course (incl. the homework assignment). The Technical University of Denmark (DTU) will send out diplomas.

Registration
Preferably now and not later than July 16 2010 by e-mail to ma@elektro.dtu.dk and/or hw@elektro.dtu.dk
Please note we have only a limited number of seats.

For more information see this link: http://www.elektro.dtu.dk/English/education/courses/au/31359.aspx to the 31359 course on the Electronics Group's homepage.

Organizer and further information

Project secretary
Henriette Wolff
DTU Electrical Engineering
Technical University of Denmark
Ørsteds Plads - Building 349
DK-2800 Kgs. Lyngby
DENMARK
Phone direct: (+45) 4525 3603
Mobile: (+45) 2674 3421
E-mail: hw@elektro.dtu.dk

Professor, Ph.D.
Michael A. E. Andersen
DTU Electrical Engineering
Technical University of Denmark
Ørsteds Plads - Building 349
DK-2800 Kgs. Lyngby
DENMARK
Phone direct: (+45) 4525 3601
Mobile: (+45) 4059 5299
E-mail: ma@elektro.dtu.dk

➢ 5. ICPE'2011-ECCEAsia, 30 May to 3 June 2011, Jeju, Korea

Abstract and Digest Submission December 10, 2010
Notification of Acceptance February 11, 2011
Final Manuscript Submission April 8, 2011
http://icpe2011.org

6. The proceedings of EPE 2009 and PEMC 1998 are available on the database for download, for EPE member

The papers presented at the EPE 2009- and PEMC 1998-conferences have been published in the paper database on the website http://www.epe-association.org. EPE Members have access to all the papers ever published in the EPE Journal, all EPE Conference Proceedings since 1999 and all EPE-PEMC-proceedings since 1998. Are you not member yet, but do you want to have access to this database, as well as have a discount on your EPE 2011 registration fee?
E-mail the EPE secretariat: nlangsbe@vub.ac.be

7. Technically sponsored conferences

1-3 September 2010, Lille, France
VPPC 2010, Vehicle Power and Propulsion Conference – Clean Tech for Transportation
http://www.vppc2010.org

EPE-PEMC 2010, 6-8 September 2010, Ohrid, Republic of Macedonia
http://www.epe-pemc2010.com

Second IEEE Energy Conversion Congress and Exposition on September 12-16, 2010, Atlanta, Georgia, USA
www.ecce2010.org

21st International Conference and Exhibition on Electricity Distribution (CIRED 2011)
Frankfurt (Germany), 6-9 June 2011
http://www.cired2011.org

EPE 2011: Birmingham, 30 August to 2 September 2011
http://www.epe2011.com

➢ 8. ECPE Calendar of Events 2010

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

Date	Location	Event	Topic
27 - 28 July 2010	Erlangen, Germany	ECPE Tutorial	**Thermal Engineer I** (thermal design and verification) Course instructor: Dr. M. Maerz (Fraunhofer IISB)
Sept. 2010	Bordeaux, France	ECPE Tutorial	**Reliability of Power Electronic Systems** Course Instructor: Prof. E. Wolfgang (ECPE)
5 – 6 Oct. 2010	Zurich, Switzerland	ECPE Tutorial	**EMC in Power Electronics** Course Instructor: Dr. E. Hoene (Fraunhofer IZM) Prof. J.L. Schanen (G2ELab)
11 - 15 Oct. 2010	Gaeta, Italy	Symposium	**ESREF 2010** with ECPE Workshop Session 'Reliability´
19 - 20 Oct. 2010	Nuremberg, Germany	ECPE Tutorial	**Thermal Engineer II** (thermal management and reliability) Course Instructor: Prof. E. Wolfgang (ECPE)
TBD	TBD	ECPE Workshop	**MW Drives and Generators**
TBD	TBD	ECPE Workshop	**Smart Power ICs – Devices and Applications**
TBD	TBD	ECPE Workshop	**Parasitic Effects in Power Electronics**