

Registration (Fax Reply)

To: ECPE e.V.
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Please **e-mail** a scanned copy of the completed form or
send a fax to: +49 (0)911 / 81 02 88 – 28

Register before **27 April 2011**

Participation fee:

- ☐ €530,- * for industry
- ☐ €395,- * for universities/institutes
- ☐ €120,- * for students (shortened workshop package)

The fee includes dinner, lunch, coffee/soft drinks and a CD with the workshop presentations. A printed version of the workshop handout is available on request (€42,-*).

With the confirmation of registration you will receive the invoice. (* plus VAT) In case of cancellation after 27 April 2011 or non-attendance 50 % of the participation fee are payable.

Three participants from each ECPE member company free of charge. Allocation in sequence of registration.

Sender:

Title, given name, name

Company, department

Full address

Phone, fax

E-mail

Date, signature

Organisational information

Organiser ECPE e.V.
90443 Nuremberg, Germany
www.ecpe.org

Chairman Prof. Axel Mertens,
Prof. Bernd Ponick
Leibniz Universität Hannover
Dipl.-Phys. Thomas Harder
ECPE e.V.

Organisation Ingrid Bollens, ECPE e.V.
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Workshop venue Bucerius Law School
Jungiusstrasse 6
20355 Hamburg, Germany



Further information (hotel list and maps) will be provided after registration.



Programme

ECPE Workshop

eDrives: Motor - Converter Interactions

3 - 4 May 2011

Bucerius Law School,
Hamburg, Germany

in cooperation with



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102
1004
Leibniz
Universität
Hannover



ECPE Workshop

eDrives: Motor – Converter Interactions

3 - 4 May 2011
Hamburg, Germany

The eDrives workshop is focussing at the interface between the electric motor and the related power electronics discussing the interactions between these two parts of a modern and efficient electric drive.

Today, electric drives are gaining increasing importance which can be seen in the following trends:

- improving system efficiency by “electronic motors” (e.g. variable speed motor drives)
- electrification of cars: hybrid and electric vehicles
- substitution of combustion motors and hydraulic systems by electric drives.

The 1st day is dealing with the basic characteristics and performance of different eMotor types and the interaction with the related converter discussing the impact of power electronics and control strategy on the behavior of the motor.

A special session is dedicated to the thematic area of sensorless control where we highlight different concepts.

The 2nd day has a strong focus on automotive applications of electric drives starting with a session on motor - converter integration. Here we will address the question what the drivers for motor-converter integration are - in industrial and automotive applications. Furthermore, we will discuss whether we can adapt the drives which are available from industrial applications or whether we have to design new electric motors for electric vehicles.

The workshop is chaired by Prof. A. Mertens and Prof. B. Ponick (Leibniz University Hannover) and T. Harder (ECPE). All presentations and discussions will be in English.

Programme

Tuesday, 3 May 2011

10:00 Start of Registration / Welcome Coffee

10:30 **Welcome, Opening**
A. Mertens, B. Ponick, Leibniz University Hannover
T. Harder, ECPE e.V.

Introduction

10:45 **Characteristics and Interactions of Different Types of Motors and Converters**
A. Mertens, B. Ponick, Leibniz University Hannover

Impact of Power Electronics on the eMotor and Remedial Strategies

11:25 **Bearing Currents: Modelling and Prediction**
M. Kriese, B. Ponick, Leibniz University Hannover

11:45 **Voltage Stress and Dimensioning of Isolation for Converter Fed eMotors**
M. Kaufhold, Siemens A&D

12:15 **Discussion**

12:30 Lunch

13:30 **Strategies to Reduce dV/dt at the Inverter Terminals**
T. Koeneke, A. Mertens, Leibniz University Hannover

Sensorless Control

13:50 **Sensorless Control of PM Synchronous Machines at Low and Zero Speed using Signal Injection Techniques**
P. Landsmann, R. Kennel, TU Munich

14:20 **Sensorless Control of PM Synchronous Machines by Evaluation of dI/dt Measurements**
M. Schroedl, Vienna University of Technology

14:50 **Discussion**

15:05 Coffee Break

15:35 Case Study: **Sensorless Control in Traction Drives**
A. Steimel, Ruhr University Bochum

15:55 Case Study: **Sensorless Control in Industrial Drives**
M. Hinkkanen, J. Luomi, Aalto University

16:15 Case Study: **Winding Fault Detection Using Data from Sensorless Control**
Ch. Gerada, University of Nottingham

16:35 **Discussion, End of 1st day (17:00 h)**

19:30 Dinner at four-masted sailing ship "Mare Frisium", pier: Sandtorhoeft, 20457 Hamburg

Programme

Wednesday, 4 May 2011

8:30 Start of 2nd Day

8:30 **Wrap up of 1st workshop day**

Motor-Converter Integration

8:35 **Mechatronic Integration: Integration of eMotor and Converter in the Drivetrain of Hybrid and Electric Cars**
M. Hofmann, Fraunhofer IISB Erlangen

9:15 **EfA – Motor Converter Integration for Mild Hybrid Automotive Application**
J. Engstler, Liebherr Elektronik

9:45 **Fraunhofer System Research for Electromobility: Concept of a Wheel Hub Drive with Integrated Converter**
A. Kock, Fraunhofer IFAM

10:15 **Discussion**

10:30 Coffee break

eDrives for Electric Vehicles

11:00 **High Performance Electric Drive for Hybrid Electric Cars**
A. Vezzini, drivetek

11:30 **DYNAX – A Compact eMotor for eMobility**
B. Hoffmann, Compact Dynamics

12:00 **The influence of magnetic topology of permanent magnet synchronous motors on the thermal design of power electronics**
A. Gause, AMK Arnold Müller

12:30 **Discussion**

12:45 Lunch

Industrial Applications, Efficiency and Standards

13:45 **New IEC Efficiency Standards for eMotors/eDrives**
A. De Almeida, University of Coimbra

14:15 **Industrial Applications of High-Performance eDrives**
M. Björkman, Vacon

14:45 **Ultra-High Speed Drive Systems**
C. Zwyssig, Celeratron

15:15 **Final discussion**

15:30 End of Workshop