

Registration (Fax Reply)

To: ECPE e.V.
Att.: Ingrid Bollens

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Register before **27 November 2008**

Participation fee:

.. €480,-* for industry

.. €380,-* for universities

The fee includes the tutorial dinner, lunch,
coffee/soft drinks and handouts.

With the confirmation of seminar registration you will receive
the invoice. (* plus 19 % VAT); 50 % discount for ECPE
Member Companies

Number of participants is limited to 35 attendees.

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

Course instructor: Prof. Dr. Dieter Silber;
University of Bremen

Organisation: Ingrid Bollens, ECPE e.V.
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ingrid.bollens@ecpe.org

Place of seminar: ECPE e.V. (in etz-building)
Landgrabenstrasse 94
90443 Nuremberg, Germany



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



**ECPE European Center for
Power Electronics e.V.**

ECPE Tutorial

Power Semiconductor Devices & Technologies

**4 – 5 December 2008
at ECPE (etz-building)
Nuremberg, Germany**

Introduction

ECPE Tutorial “Power Semiconductor Devices & Technologies”

4 – 5 December 2008
Nuremberg, Germany

The tutorial starts with the presentation of relevant basic principles of modern power semiconductor devices:

Blocking capability of the devices, unipolar and bipolar current transport and gate control will be discussed. Diodes, MOS transistors (including Cool MOS) and IGBTs will be treated in detail including their dynamical properties, safe operation and temperature limits. As a consequence, the benefits expected from wide band gap semiconductors (SiC, GaN) will be discussed.

This introductory part is also the base for the next part devoted to power device models and the increasing role of virtual prototyping in power electronics.

The following chapters will demonstrate the state-of-the-art and development lines of monolithic smart power devices and intelligent IGBT control circuits. Finally a short overview of hybrid power electronic integration and the most relevant aspects (cooling, reliability and EMC problems) will be presented.

This tutorial is aimed at engineers who are engaged in power electronics and want to improve their knowledge and understanding of power devices including the developments expected in near future.

The course instructor is Prof. Dieter Silber (University of Bremen), Co-instructors are Dr. Peter Tuerkes (Infineon Technologies, Munich) and Dr. Reinhard Herzer (Semikron, Nuremberg).

All presentations and discussions will be in English.

Programme

Thursday, 4 December 2008

- 9:00 *Start of registration*
- 10:00 **Welcome, Opening**
T. Harder, ECPE e.V.
- 10:15 **Introduction:**
What is required from Power Devices?
D. Silber
- 10:45 **Summary of basic Semiconductor and Device Physics**
D. Silber
- 11:30 **Power Diodes**
D. Silber
- 12:00 *Lunch*
- 13:00 **Power MOSFETs and IGBTs I:**
Structures and Static Properties
D. Silber
- 13:45 **Power MOSFETs and IGBTs II:**
Dynamic Properties and SOA
D. Silber
- 14:30 **Wide Bandgap Devices**
D. Silber
- 15:00 *Coffee Break*
- 15:45 **Modelling and Virtual Prototyping I:**
Power Devices
P. Tuerkes
- 16:15 **Modelling and Virtual Prototyping II:**
Influence of Parasitic Elements
P. Tuerkes
- 16:45 **Modelling and Virtual Prototyping III:**
Systems
P. Tuerkes
- 17:30 **End of 1st Day**
- 19:30 *Dinner*

Programme

Friday, 5 December 2008

- 08:30 *Wrap up 1st Day, Discussions*
- 09:00 **Integrated Power Devices Smart Power I:**
System Integration
R. Herzer
- 09:45 **Integrated Power Devices Smart Power II:**
PN-Isolation Technologies
R. Herzer
- 10:30 *Coffee Break*
- 11:00 **Integrated Power Devices Smart Power III:**
SOI Devices
R. Herzer
- 11:45 **Integrated Power Devices Smart Power IV:**
Specific Examples
R. Herzer
- 12:15 *Lunch*
- 13:15 **Power Modules I:** Typical Examples
D. Silber
- 14:00 **Power Modules II:** Parasitics, Thermal Problems, Future Trends
D. Silber
- 14:45 *Wrap up, Final discussions*
- 15:30 **End of Tutorial**