

Registration (Fax Reply)

To: ECPE e.V.
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Register before **17 February 2010**

Participation fee:

- €480,-* for industry
 - €380,-* for universities
- The fee includes the tutorial dinner, lunch, coffee/soft drinks and handouts.

With the confirmation of tutorial registration you will receive the invoice. (* plus 19 % VAT); In case of cancellation after 17 February 2010 or non-attendance 50 % of the participation fee are payable.
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

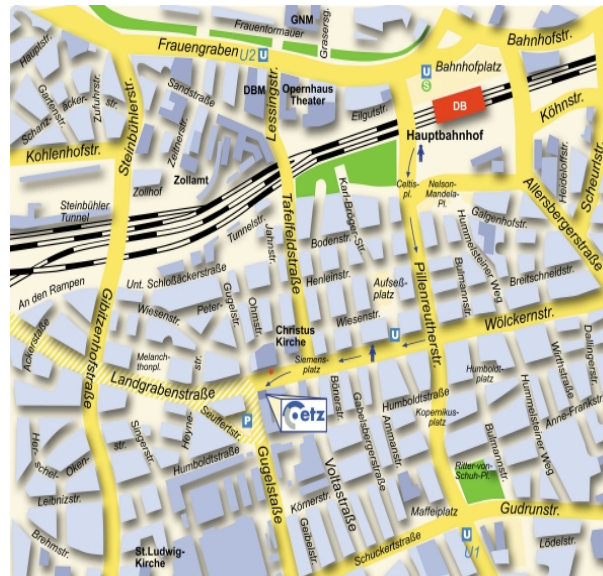
Organisational information

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

Course instructor: Dr. Jelena Popović-Gerber
(ECPE/TU Delft)
Dr. Uwe Scheuermann
(Semikron)

Organisation: Ingrid Bollens, ECPE e.V.
+49 (0)911 / 81 02 88 – 10
ingrid.bollens@ecpe.org

Place of tutorial: 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 Electronics Packaging

**25 - 26 February 2010
at ECPE (etz-building)
Nuremberg, Germany**

Introduction

ECPE Tutorial “Power Electronics Packaging”

25 - 26 February 2010
Nuremberg, Germany

In addition to the conventional electronics packaging functions, in Power Electronics one has to deal with further requirements such as handling high voltages and currents and removing the dissipated heat.

After a short introduction to power electronics for non-electrical engineers, the tutorial starts with the presentation of the basic features of power electronics packaging including functions, materials and thermal management as one of the key issues.

The packaging of components and modules as well as the converter level packaging is covered starting from low power discrete and monolithic solutions up to hundreds of kW converters. Power electronics packaging is discussed in a system environment focussing on cooling techniques and thermal interface materials.

Since there is a dominant impact of packaging on the reliability of components and systems, one session is devoted to failure mechanisms and reliability testing.

The current drivers in power electronic systems are power density, manufacturability, reliability and costs. The shortcomings and bottlenecks of state-of-the-art packaging will be discussed and the emerging interconnection and integration technologies that aim to address these challenges will be reviewed.

This tutorial is aimed at engineers who are engaged in power electronics and want to improve their knowledge and understanding of power electronics packaging including ongoing developments and future trends.

The course instructors are Dr. Jelena Popović-Gerber (ECPE/TU Delft), Dr. Uwe Scheuermann (Semikron, Nuremberg) and Thomas Harder (ECPE, Nuremberg). All presentations and discussions will be in English.

Programme

Thursday, 25 February 2010

09:30 *Start of registration*

09:45 Welcome, Opening
T. Harder, ECPE e.V.

Introduction and Basics

10:00 **Introduction to Power Electronics**
U. Scheuermann

10:30 **Basic Packaging Parts and Functions, Power Electronics vs. Microelectronics Packaging**
J. Popović-Gerber

11:15 **Basics of Thermal Management**
U. Scheuermann

12:00 **Packaging Materials: Electrically Insulating and Conductive Materials**
J. Popović-Gerber

12:45 *Lunch*

13:45 **Basic Interconnection Technologies (wire bonding, soldering, pressure contact)**
U. Scheuermann

Components and Modules

14:30 **Low Power Packaging and Discrete Power Semiconductors**
T. Harder

15:15 *Coffee Break*

15:45 **Power Modules**
U. Scheuermann

16:45 **Passive Components Packaging**
J. Popović-Gerber

17:15 **Thermal Interface Materials & Applications**
J. Popović-Gerber

17:45 **End of 1st Day**

19:30 *Dinner*

Programme

Friday, 26 February 2010

08:30 *Wrap up 1st Day, Discussions*

Converter Level Packaging:

09:00 **Low and Medium Power Systems (Monolithic, PCB, IMS)**
J. Popović-Gerber

09:45 **High Power Systems**
U. Scheuermann

10:30 *Coffee Break*

Reliability

11:00 **Failure Mechanisms**
J. Popović-Gerber

11:30 **Lifetime and Reliability Testing**
U. Scheuermann

12:30 *Lunch*

Advanced Technologies and System Integration

13:30 **System Integration (chip level, PCB level, passives and system level)**
J. Popović-Gerber

14:30 **Advanced Interconnection Technologies**
U. Scheuermann

15:00 *Wrap up, Final discussions*

15:30 End of Tutorial