

## Registration (Fax Reply)

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

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Registration before **2 June 2010**

### Participation fee:

- €290.00 for industry
- €195.00 for universities
- € 50.00 for students

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

With the confirmation of seminar registration you will receive the invoice. A discount of 50 % is given to ECPE Member Companies.

In case of cancellation after 2 June 2010 or non-attendance 50 % of the participation fee are payable

The number of participants is limited to 35 attendees.

Sender:

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title, given name, name

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company, department

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full address

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phone, fax

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e-mail

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date, signature

## Organisational information

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

Course instructor: Prof. Dr. Eckhard Wolfgang  
Dr. Wolfgang Gerling

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

Place of seminar: Best Western Hotel Genova  
Via Sacchi 14/b  
10128 Torino



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



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

## ECPE Tutorial

### **Robustness Validation: A Paradigm Change in Automotive Electronics Reliability Evaluation**

**9 June 2010  
in Torino, Italy**

In conjunction with the

**1<sup>st</sup> International Congress on  
“Automotive Electronics: Driving  
the Future of Powertrain and  
Electrification”**

## Introduction

# ECPE Tutorial “Robustness Validation: A Paradigm Change in Automotive Electronics Reliability Evaluation”

9 June 2010  
Torino, Italy

The aim of the tutorial is to teach the basics of modern reliability engineering for automotive electronics.

A working group consisting of many OEMs, 1<sup>st</sup> and 2<sup>nd</sup> Tiers under the umbrella of the German ZVEI and the US SIA have worked out the Robustness Validation Process which is documented in several handbooks (<http://www.zvei.org/index.php?id=alias>).

The process is based on the physics-of-failure-concept and the intended mission profile of the electronic system and its components. The mission profile considers the combination of stresses versus time to which the electronic system is subjected during its application period. Thus, especially application oriented end-of-life testing is of dominant interest to assure the required lifetime including a robustness margin.

To provide the reliability of automotive electronics systems by design the basics of appropriate accelerating testing and the building-in reliability philosophy will be explained including examples of simulation and testing.

Course instructors of the tutorial are Prof. Dr. Eckhard Wolfgang, ECPE e.V. and Dr. Wolfgang Gerling, Consultant

All presentations and discussions will be in English.

## Programme

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**Wednesday, 9 June 2010**

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8:30 am *Start of registration*

**08:45 Introduction**

- scope of tutorial
  - content
- E. Wolfgang

**09:00 Definitions**

- reliability
  - robustness validation
- W. Gerling

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10:25 *Coffee break*

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**10:50 Define Application Mission Profile**

E. Wolfgang

**11:35 Virtual Performance Assessment:**

Electrical and Thermal  
E. Wolfgang

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12:20 *Lunch*

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**13:20 Reliability Assessment:**

- Physics of failure
  - SOA
  - Robustness Margin
- W. Gerling

**14:05 Reliability Assessment**

- Examples
  - Building-in Reliability
- E. Wolfgang

## Programme

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14:45 *Coffee break*

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15:10 **Intelligent Testing of Hardware**

E. Wolfgang

15:55 **Robustness Validation:**

History and Process  
W. Gerling

16:40 Summary; Feedback

17:20 *End of Tutorial*

In conjunction with:

**1<sup>st</sup> International Congress on  
“Automotive Electronics: Driving the Future of  
Powertrain and Electrification”**

**10-11 June 2010**

Venue:  
Cascina Medici del Vascello,  
Venaria Reale, Torino

The ECPE Tutorial and the Congress are organized in close connection. Participants of the Tutorial will have the advantage of a reduced congress fee.

For details and registration click the conference website:  
[ATA conference](#)