

Registration (Fax Reply)

To: ECPE e.V.
Att.: Ingrid Bollens
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Register before **23 September 2009**

Participation fee:

Adv. PE Pack 30 Sep. 2009	Mech. Syst. 01 Oct. 2009	Both Work- shop Days	
" 350.00 € *	" 350.00 € *	" 590.00 € *	Industry
" 260.00 € *	" 260.00 € *	" 440.00 € *	University
" 80.00 € *	" 80.00 € *	" 140.00 € *	Students

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

With the confirmation of registration you will receive the invoice (* plus VAT).

In case of cancellation after 23 September 2009 or non-attendance 50 % of the participation fee is 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 Nürnberg, Germany
www.ecpe.org

Chairmen: Prof. Dr. B. Allard, INSA de Lyon
- SEEDS ISP3D
Dr. G.-M. Martin, MOVEO/Valeo
T. Harder, ECPE

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

Place of workshop: Paris, France



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

Announcement



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

Workshops

Advanced Power Electronics Packaging 30 September 2009

Mechatronic System Integration 1 October 2009

Paris, France
in cooperation with



Programme

Advanced Power Electronics Packaging

Wednesday, 30 September 2009
9.00 – 17.00 h

According to Rao R. Tummala the major functions of electronic packaging cover the signal and power distribution, heat dissipation (cooling) as well as mechanical, chemical and electromagnetic protection. This basic packaging definition holds for power electronics as well but in this field packages have to be designed for higher voltages and currents while the heat removal (thermal management) is the key challenge. In microelectronics packaging the most important figure of merit is the wiring (I/O) density while in power electronics power density is key.

Advanced power electronics packaging developments and trends will be presented and discussed in this 1st part of the two-day workshop with focus on the low-power side. For power discretes low-profile chipscale packages will be presented. The challenges and limits of System-on-Chip (SoC) and System-in-Package (SiP) integration will be discussed. On module and board level, 3D packaging approaches enabling the integration of power and control will be presented.

Prof. Dr. B. Allard (INSA de Lyon – SEEDS ISP3D) will chair the workshop together with Thomas Harder (ECPE). All presentations and discussions will be in English.

Topics:

- **Basic Packaging Functions, Thermal Management and Reliability**
- **Power Discretes**
 - Chip level interconnection: soldering and sintering; bond wires, clips and ribbons
 - Solderable metallisations, power bumping and balling
 - Power BGAs and CSPs, low profile packages

Programme

- **System-on-Chip (SoC) vs System-in-Package (SiP)**
 - SoC: integrated passives, power supply on chip
 - SiP: leadframe-based and substrate based technologies
- **Module and Board Level Packaging**
 - PCB based integration technologies, passive integration
 - Chip embedding (e.g. Chip-in-Polymer)
 - 3D Packaging approaches
- **Power Electronics Packaging Roadmap**

19:30 Joint Dinner

Mechatronic System Integration

Thursday, 1 October 2009
8.30 – 17.00 h

Key driver for Mechatronic System Integration are the severe space, weight and also cost restrictions in emerging applications e.g. in automotive and aerospace. Classic power electronics in the cabinet designs cannot be transferred but power electronics has to be integrated in the mechanical system to optimise the use of space, to avoid expensive cables and fault-prone connectors and to reduce EMI filter complexity. On the other side, the power electronics components and assemblies are exposed to extreme loads in terms of temperature, temperature cycling and vibration. The thermal design of the overall system is very important in power mechatronics taking into account the requirements on reliability and lifetime. Mechatronic integration means that mechanics, power electronics, sensors and control have to form a single functional unit. Traditional interfaces between electronics and mechanics must be dissolved. However, the great challenge with any approach of mechatronic integration is that it must be effective, not only with respect to system size, but also in terms of system costs, functionality, manufacturability, testability and reliability.

Programme

Dr. G.-M. Martin (Valeo) who is heading the Mechatronics activities in the French automotive cluster MOVEO will chair the workshop together with Thomas Harder (ECPE). All presentations and discussions will be in English.

Topics:

- **Design Challenges for Power Mechatronics**
 - Mechanical and Electrical Co-Design
 - Virtual Prototyping / Multi-Physics Simulation
- **Key Technologies for Power Mechatronic Integration**
 - 3D Integration Technologies using Solder-based Interconnection Technologies
 - PCB-based Integration of Power Electronic Systems for Automotive Electronics
 - Double-Sided Cooling in Automotive Power Electronics
- **Mechatronic System Integration**
 - Mechatronic System Integration in Automotive
 - Mechatronic System Integration in Aerospace (More-Electric-Aircraft)
 - Mechatronic System Integration in Industrial Drives
- **Reliability**
 - High Temperature and Harsh Environment
 - Reliability of Ag Sintering vs. Soldering

17:00 End of Workshop