Registration (Fax Reply)

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

Register before **23 Juni 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 23 June 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

F06-110622

Organisational information

Organiser	ECPE e.V. 90443 Nuremberg, Germany www.ecpe.org
Chairman	Prof. Hans-Günter Eckel, Universität Rostock Dr. Stefan Zeltner Fraunhofer IISB Erlangen Dipl.-Ing.(FH) Jochen Koszescha ECPE e.V.
Organisation	Ingrid Bollens, ECPE e.V. +49 (0)911 / 81 02 88 – 10 ingrid.bollens@ecpe.org
Workshop venue	Commundo Tagungshotel Ismaning Seidl-Kreuz-Weg 11 85737 Ismaning/Munich Germany

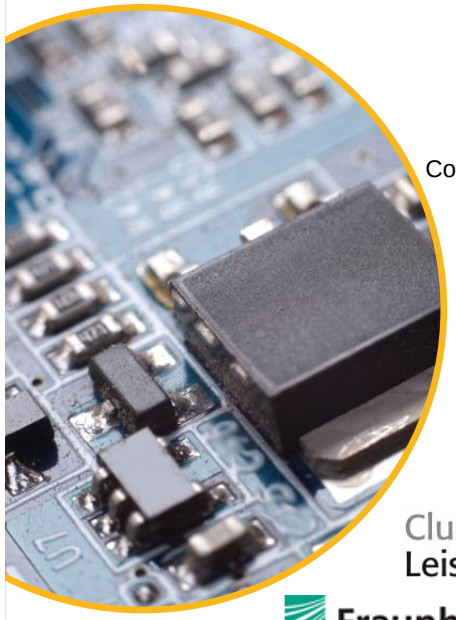
Further information (hotel list and maps) will be provided after registration.

ECPE
European Center for
Power Electronics e.V.

ECPE Workshop

Electronics around the Power Switch:

Gate Drivers, Sensors and Control



29 - 30 June 2011
Commundo Tagungshotel
Ismaning-Munich
Germany

in cooperation with

Cluster Leistungselektronik
Fraunhofer IISB
Universität Rostock
Traditio et Innovatio
EPE EUROPEAN POWER ELECTRONICS AND DRIVES

ECPE Workshop

Electronics around the Power Switch: Gate Drivers, Sensors and Control

29 - 30 June 2011
Munich, Germany

The goal of this workshop is to present the actual status of electronic devices and circuits around the power switches which are necessary to realize the complete power stage.

Besides the power switches itself, the gate driver is the component, which has the strongest impact on the performance and the reliability of the power stage and requires power semiconductor and electronic circuit know how. So a lesson about the switching behaviour of IGBTs and diodes lays the basis to understand the demands on the gate drive. It is followed by presentations over different approaches and necessary components and functionality of IGBT and MOSFET gate drivers and the philosophy behind them. Driver cores allow the adaption to application specific demands while plug-and-play drives promise a short development time. Also some commercial available ready for use solutions will be presented and discussed.

For low to medium power and voltage, intelligent power modules with integrated drivers offer an interesting solution for fast and low-risk developments, but shift know-how and added value from the inverter to the module manufacturer.

For current sensing, open- and close-loop magnetic as well as shunt sensors are available, including ICs for AD conversion and potential isolation. Potential-free and quasi potential free voltage sensors are discussed as well as measurement systems for laboratory use.

An outlook on hardware for inverter control, especially full FPGA integrated solutions, completes this seminar.

The workshop is chaired by Prof. H.-G. Eckel (University Rostock) and Dr. S. Zeltner (Fraunhofer IISB Erlangen) and J. Koszescha (ECPE). All presentations and discussions will be in English.

There will be a tabletop exhibition in the frame of the workshop.

Programme

Wednesday, 29 June 2011

10:00	Start of Registration / Welcome Coffee
10:30	**Welcome, Opening** H.G. Eckel, Universität Rostock S. Zeltner, Fraunhofer IISB Erlangen T. Harder, ECPE e.V.
	Introduction
10:45	**Power Semiconductor Fundamentals – What happens inside the IGBT during switching?** H.G. Eckel, Universität Rostock
11:15	**Switching Behaviour of Power Switches (IGBT, MOSFET)** R. Bayerer, Infineon Technologies
11:45	**Principles of Low-Loss Gate Driver Circuits** S. Zeltner, Fraunhofer IISB Erlangen
12:15	**Discussion**
12:30	Lunch
	The Potential of Gate Drivers
13:30	**Concept for a Digital Adaptive Gate Unit** L. Dang Hung, A. Mertens, University of Hannover
14:00	**Intelligent Digital Gate Driver** R. Hemmer, InPower
14:30	**Skiip IV: Integration of a new Digital Driver Concept** A. Winterholler, Semikron Elektronik
15:00	**HVDC IGBT Driver as Simple and Reliable as Possible** M. Billmann, Fraunhofer IISB Nuremberg
15:30	**Discussion**
15:45	Coffee Break
	Auxiliary Functions related to Gate Drivers
16:15	**Extended Functionality in Gate Drivers for Traction Applications** L. Montoya, ABB Switzerland
16:45	**Switching Optimization and Protection using Active Clamping** S. Pawel, CT-Concept Technologie
17:15	**High Frequency Transformers for Signal and Power Isolation of Gate Drives** K. McGivern, Bicron Electronics
17:45	**Smart Gate Drivers – Protection and Level Shifting** U. Kirchenberger, L. Salati, STMicroelectronics
18:15	**Discussion**
18:30	**End of 1st Day**
19:30	Dinner

Programme

Thursday, 30 June 2011

8:25	Start of 2nd Day
8:25	**Wrap up of 1st workshop day**
	Sensors & Measurements
8:30	**Voltage, Current and Temperature Measurement Concepts Enabling Intelligent Gate Drives** Y. Lobsiger, ETH Zurich
9:00	**Current Sensors with Magnetic Probe** D. Steuer, Vacuumschmelze
9:30	**Magneto Resistive Current Sensors with very high Bandwidth** S. Scherner, G. von Manteuffel, Sensitec
10:00	**Discussion**
10:15	Coffee break
10:45	**Shunts – Current Sensors with a high Potential of Integration** U. Schwarzer, Infineon Technologies
11:15	**Measurement of Low and High Voltages with Sigma Delta approach** J.O. Krah, Cologne University of Applied Science
11:45	**Advance Methods of Temperature Measurement of Power Switches** E. Hoene, Fraunhofer IZM Berlin
12:15	**Discussion**
12:30	Lunch
	Conditioning of Sensor Signals / Control Concepts for High Integration
13:30	**Realisation of the Control of a three Level Inverter within a FPGA** J.O. Krah, Cologne University of Applied Science
14:00	**Direct Digital Current Control, an Alternative to PWM Control** A. Ackva, University of Applied Science Würzburg-Schweinfurt
14:30	**Case Study: Power Management Solutions** H. Werner, Lattice Semiconductor
14:50	**Galvanic isolated Measurement and Command of Signals** B. Strzalkowski, Analog Device
15:20	**Case Study: Wireless Voltage Probe for Accurate Voltage Measurement on High and Transient Reference Voltages** Y. Lobsiger, ETH Zurich
15:40	**Final Discussion**
16.00	End of Workshop