

Registration (Fax Reply)

To: ECPE e.V.
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Register before **26 February 2009**

Participation fee:

- .. €350.00 for industry
- .. €260.00 for university members
The fee includes dinner, lunch, coffee/soft drinks and a CD with the seminar presentations. A printed version of the workshop handout is available on request (€42.00).
- .. €80.00 for students (shortened seminar package)

With the confirmation of seminar registration you will receive the invoice.

In case of cancellation after 26 February 2009 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

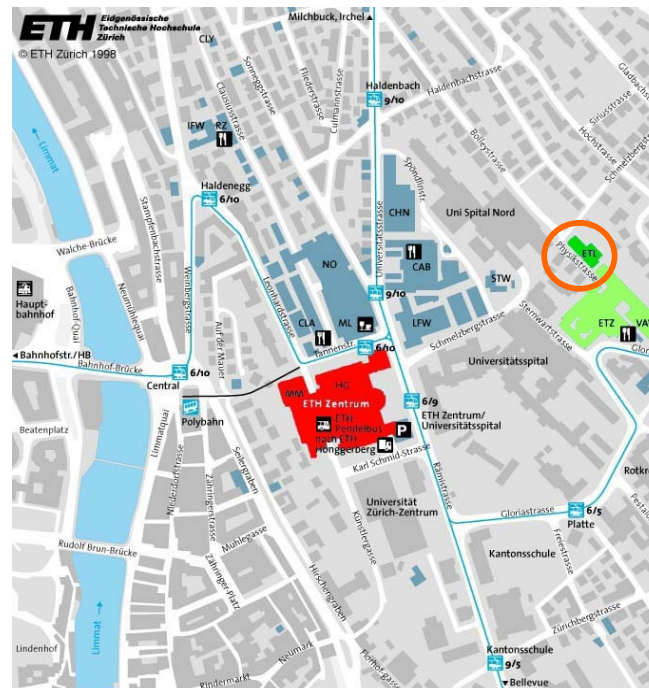
Organisational information

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

General Chair: Prof. Dr. J.W. Kolar, ETH Zurich
Industrial Co-Chair: Dr. M. Weinhold, Siemens
Technical Chair: Dr. J. Biela, ETH Zurich

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

Place of seminar: ETH Zurich (Eidgenössische
Technische Hochschule Zürich)
Physikstrasse 3, Room ETL E11
8092 Zurich, Switzerland



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



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

ECPE Workshop

**Research Challenges
and Visions on
Megawatt Power Electronics
and Smart Grids**

**5 – 6 March 2009
at ETH Zurich
Switzerland**

in cooperation with

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich



SIEMENS

Introduction

Research Challenges and Visions on Megawatt Power Electronics and Smart Grids

5 - 6 March 2009
ETH Zurich, Switzerland

Ensuring efficient and highly reliable energy supply in an environmentally compatible and economically viable manner is of utmost importance to a modern society and its prosperous future development. Outstanding controllability, flexibility and versatility, clearly identifies electrical energy as a key enabler and research vector in this area. There, large scale integration of distributed and clean but statistically fluctuating renewable sources into the existing complex infrastructure will be one of the huge challenges and will heavily rely on novel solutions for energy storage, transmission, and power electronic conversion as well as on an immediate parallelism of energy and information flow. Fascinatingly, this could transform today's mostly unidirectional and passive electricity networks into a highly interactive, highly dynamic, self optimizing power grid providing outstanding energy security and a wide variety of energy related services to modern economy.

The Workshop will give an overview of latest high power electronics and high power semiconductor technologies and will discuss research initiatives and visions of leading universities and research centers including the US NSF Sponsored FREEDM Systems ERC, the E.ON ERC and the EU UNIFLEX-PM research group. Accordingly, bright new horizons of research and potentially transformative technologies to be implemented in future industry systems will be identified.

The seminar is organized by Prof. Dr. J.W. Kolar and Dr. J. Biela (both ETH Zurich, Switzerland) and Dr. M. Weinhold, Siemens Energy Sector. All presentations and discussions will be in English.

Programme

Thursday, 5 March 2009

Venue of Dinner Talk:

Hotel "Zurichberg", Orelistrasse 21
CH-8044 Zurich, phone: +41 (0)44 2683535

18:30 **Welcome Address, Opening**
J.W. Kolar, T. Harder

18:35 **Integrated Energy Systems**
M. Weinhold, Siemens (D)

19:00 **The Future Renewable Electric Energy
Delivery and Management (FREEDM)
Systems Center**

A. Huang, NC State University, USA

19:25 **SiC Power Semiconductors –
Future Perspectives**
A. Hefner, NIST, USA

19:50 Dinner

Friday, 6 March 2009

7:45 – 8:00 h **Registration**
ETH Zurich, Physikstrasse 3
Room ETL E 11
8092 Zurich

8:00 h **Opening, Welcome Address**
T. Harder, J.W. Kolar

Industry Perspective of High Power Electronics Systems - Chair: J. Biela

8:15 h **Trends in High Power Electronics
Energy Systems**
P. Steimer, ABB Switzerland (CH)

8:45 h **High Power Electronics and Energy
Management**
L. Schmitt, Alstom Power (F)

9:15 h **A Modular Multilevel Converter for HVDC
Applications**
H. Gambach, Siemens (D)

9:45 h **Future power electronics applications in
T&D - How to build more R&D on best
practices from other sectors?**
R. Critchley, Areva (GB)

10:15 **Coffee break**

Programme

Future High Power Semiconductors

Chair: T. Harder

10:45 **Future Technology Developments in
High Power Semiconductor Devices**
M. Rahimo, ABB Switzerland (CH)

11:15 **Future High Power Semiconductors**
G. Miller, Infineon Technologies (D)

11:45 **SiC Power Semiconductors – Perspectives
and Challenges for Applications in Energy
Distribution and Supply**
P. Friedrichs, SiCED (D)

12:15 h **Lunch**

University Research in High Power Electronics

Chair: M. Weinhold

13:30 **High Power Converter Technologies for
Drives and DC to DC Converters**
R.W. De Doncker, RWTH Aachen University -
E.ON ERC (D)

14:00 **Medium-Voltage Power Converters and
Motor Drives**
H. Akagi, Tokyo Inst. of Technology (JP)

14:30 **Fault Tolerant Power Conditioning in
Transmission and Distribution**
S. de Haan, Delft Univ. of Technology (NL)

15:00 **Towards a 30kV / 100ns SiC-JFET/Si-
MOSFET Supercascode Switch for High-
Frequency Converter Systems of Future
Smart Grids**
J. Biela, ETH Zurich (CH)

15:30 h **Coffee break**

Distributed Generation / Renewable Energy

Chair: J.W. Kolar

16:00 **Grid Integration of Wind Power**
T. Ahndorf, Technical University Munich (D)

16:30 **Energy Storage**
H.-P. Nee, KTH School of Engineering (SE)

17:00 **Advanced Power Converters for Universal
and Flexible Power Management in Future
Electricity Networks**
P. Wheeler, University of Nottingham (GB)

17:30 **End of Workshop**