



3<sup>rd</sup>

International Conference



# AUTOMOTIVE POWER ELECTRONICS

March 25 & 26, 2009

Cœur Défense • PARIS, France

in collaboration with



Moving forward together  
Progressons ensemble



# Context and Objectives

SIA is launching the 3rd edition of APE “Automotive Power Electronics” Conference. With more than 200 international automotive experts coming from 12 countries in the last edition, APE conference is becoming a unique event in this field. A “must-be-there” meeting for those people who are responsible for automotive power electronics, a key technology for the reduction of CO2 emissions by automobiles.

Only a global mobilization involving all levels of the supply chain, including leading research laboratories in this field and industrial suppliers, will result in significant and lasting progress. This specific approach of APE has been recognized by the community to be efficient and very attractive.

The power level of this application field ranges from 100W to 100kW, covering nearly all the function in a vehicle. The constraints on cost, quality, and compactness - much higher than in others industrials domains - requires dedicated and innovative solutions. Therefore, APE is an outstanding opportunity to prepare for future technologies adapted to mass production, most of which remain to be invented.

## ■ APE will offer in one location

- A conference with high level scientific and technical conferences, and panel discussions
- A meeting providing both an update and a prospective outline in the field of tomorrow’s automotive power electronics
- A unique platform for top-level engineers with representatives from universities, research centers, and industry
- An exhibition covering a wide range of products and services in the field of automotive power electronics.
- A poster session to exchange and build future cooperation

In summary, APE provides an exclusive moment of conviviality, networking and knowledge sharing among automobile engineers and specialists in the field of power electronics.

### Conference Chairman:

*Dominique LHOTELLIER – Renault, France*

### ORGANISING COMMITTEE

### Chairman :

*G rard-Marie MARTIN – VALEO, France*

*Christian BALLE – RENAULT, France*

*Joseph BERETTA – PSA Peugeot Citro n, France*

*Guillaume DEVAUCHELLE – VALEO, France*

*Dominique LHOTELLIER – Renault, France*

*G rard-Marie MARTIN – VALEO, France*

*Louis Claude VRIGNAUD – CONTINENTAL AUTOMOTIVE France*

### Relationships with Academic Laboratories:

*Joeri VAN MIERLO – EPE, Belgium*

*G rard COQUERY – INRETS, France*

The Soci t  des Ing nieurs de l'Automobile (the French Society of Automobile Engineers) is a society officially considered as serving the public interest. Its purpose is to represent technical excellence in the automobile industry through its expert and knowledge sharing networks. The SIA draws its members from the ranks of automobile engineers and technicians and all those active in promoting automotive engineering. SIA has 2 000 members and a network of over 8 000 engineers, technicians and research workers behind it.

SIA

79 rue Jean-Jacques Rousseau - 92158 Suresnes Cedex • France

Tel: +33 1 41 44 93 70 • Fax: +33 1 41 44 93 79

www.sia.fr

# Programme committee and Partners

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*Thomas KEIM – MIT, US*

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*Yves STRICOT – FCI, France*

*Joeri VAN MIERLO – EPE, Belgium*

*Eckhard WOLFGANG – ECPE, Germany*



# Automotive power electronics programme

March 25, 2009

- 08:30 Participants registration  
 09:00 Opening session  
 09:15 Keynote  
 Status of Freedom Car project  
*L.D. MARLINO - Oak Ridge National Laboratory, USA*  
 09:45 Keynote  
 From charging to motion : the many technical challenges facing EV massive deployment  
*J. PERRIN - Renault*

## Session 1 : Design Tools

- 10:15 Keynote  
 Power mechatronics and hybrid vehicle drives" (tentative title)  
*G. KILLMAN - Toyota*  
 10:45 Compact EMC model of power electronics converter for conducted EMC studies in embedded networks  
*JL. SCHANEN, M. FOISSAC, C. VOLLAIRE - G2ELab, France*  
 11:15 *Exhibition and posters area Visit / Refreshment Break*  
 11:45 Simulation of the micro-hybrid automotive system  
*N. LESTREE, PH. BASTIANI, A. EL HAMDANI, F. BRIAULT - PSA Peugeot Citroën, France*  
 12:15 Electric vehicle powertrain and low-voltage network simulation and optimization  
*N. JANIAUD, P. BASTARD - Renault, France*  
*M. PETIT, G. SANDOU - Supélec, France*  
 12:45 Development of 3D inverter design tool based on multi-physical simulations  
*Y. ZUSHI, H. SHIMIZU - Nissan, Japan*  
 13:15 *Exhibition and posters area Visit / Lunch*  
 14:30 Dedicated Posters Session

## Session 2 : Robust Design

- 15:00 Keynote  
 Multi-energy domain and mixed-signal design platform for power devices, components and modules  
*G. WACHUTKA - Technische Universität München, Germany*  
 15:30 Robustness validation for automotive electrical/electronic modules - A joint SAE and ZVEI initiative  
*F. KIEL - Valeo, France*  
*C. E. MICHAELS - SAE International, USA*  
*R. WINTER - ZVEI, Germany*  
 16:00 How to implement a fault tolerant and reliable automotive power management system in short circuit operation by using smart power MOTM STM technology  
*L. ROMEO, R. CRISAFULLY, D. PATTI, S. RUSSO - ST Microelectronics, Italy*  
 16:30 *Exhibition and posters area Visit / Refreshment Break*  
 17:00 Conducted EMI modeling of an electrical vehicle drive system  
*D. LABROUSSE, B. REVOL, F. COSTA - Satie, ENS Cachan, France*  
*S. GUIGNOT, B. PLIQUET - Renault, France*  
 17:30 Reliability of power modules in hybrid vehicles  
*A. CHRISTMANN, M. THOBEN, M. KRYSZTOF - Infineon, Germany*  
 18:00 Traffic mission profile for "intelligent" testing on power traction components to designing and build in reliability test platform for fast introduction of fully new technology  
*G. COQUERY - Inrets, France*  
 18:30 *End of the day*  
 18:30 *Cocktail and networking party*

The organisers reserve the right to make changes to the programme should they be deemed necessary

# Automotive power electronics programme

March 26, 2009

## Session 3 : Mechatronic Integration

- 08:30 Keynote  
Quality and reliability requirements for power electronics hardware  
*W. WONDRAK - Daimler*
- 09:00 Keynote  
Tools dedicated to the electromagnetic modelling of power structures  
*E. CLAVEL, V. ARDON - G2ELab, France*  
*E. VIALARDI, M. LIONET - Cedrat, France*
- 09:30 Polymer bonded soft magnetics for EMI-filter applications  
*S. EGELKRAUT, M. RAUCH, A. SCHLETS, M. MÄRZ - University of Erlangen-Nuremberg, Germany*
- 10:00 DC/DC converter with improved rectification for higher efficiency  
*M. SALITERNIG - Continental, Germany*
- 10:30 *Exhibition and posters area Visit / Refreshment Break*
- 11:00 Innovative connectivity for double side cooling and connection of power dice in the context of automotive power mechatronic packaging for a 100kVA inverter  
*JM. MORELLE - Valeo, France*  
*L. DUPONT - INRETS - LTN, France*
- 11:30 Power under the hood  
*R. BREDTMANN, K. OLESEN, F. OSTERWALD - Danfoss, Germany*  
*R. EISELE - University of Applied Sciences, Germany*
- 12:00 Perspectives of inverter integration in vehicle powertrains  
*A. SCHMIDHOFER, J. STARZINGER - Magna Steyr, Germany*  
*M. MÄRZ, B. ECKARDT - IISB, Germany*  
*Y. TADROS - Daimler, Germany*
- 12:30 *Exhibition and posters area Visit / Lunch*
- 13h45 Dedicated Posters Session
- 14:00 Heatpipes for automotive power electronics cooling - results from the EU project HOPE  
*K. KRIEGEL, A. MELKONYAN, J. OTTO - Siemens AG, Germany*
- 14:30 A novel multiple DC inputs direct electric power converter  
*K. YOSHIMOTO, K. MAIKAWA, S. SATO, M. ARIMITSU - Nissan, Japan*
- 15:00 Novel power semiconductor device packaging for use in HEV, PHEV, EV and FCV power electronics applicationsV.  
*WEISGERBER, R. J. CAMPBELL, M. B. HAYES - Delphi, Luxemburg*

## Session 4: Semiconductors

- 15:30 Keynote  
Semiconductors trends in electric and hybrid vehicles  
*J. LANGHEIM, H. SAX, N. ABBATE, JB. QUOIRIN - ST Microelectronics, France*
- 16:00 IGBT- Chips in harsh operating conditions  
*U. KNIPPER, G. WACHUTKA - Institute for Physics of Electrotechnology, Germany*  
*F. PFIRSCH, T. RAKER, J. NIEDERMEYR - Infineon, Germany*
- 16:30 FMEA and lifetime estimation of power MOSFETs for ABS systems  
*A. TESTA, S. DE CARO, S. PANARELLO, S. PATANÈ - University of Messina, Italy*  
*R. LETOR, S. RUSSO, D. PATTI - STMicroelectronics, Italy*
- 17:00 Power MOSFET working in switching operating mode: study and analysis of the device's switching time considering different operation conditions  
*G. CONSENTINO - ST Microelectronics, Italy*
- 17:30 *End of conference*

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# Exhibition, Sponsoring and Advertising

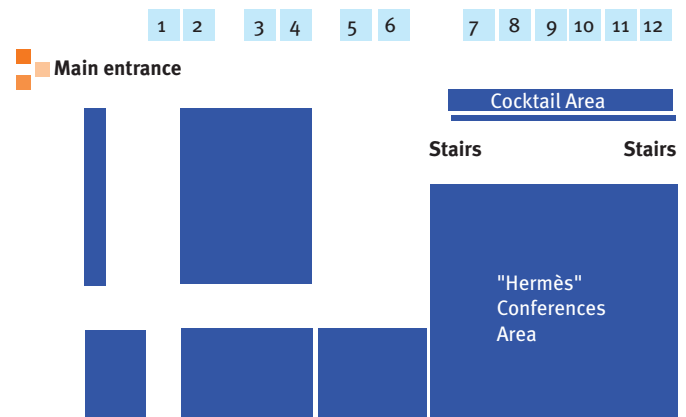
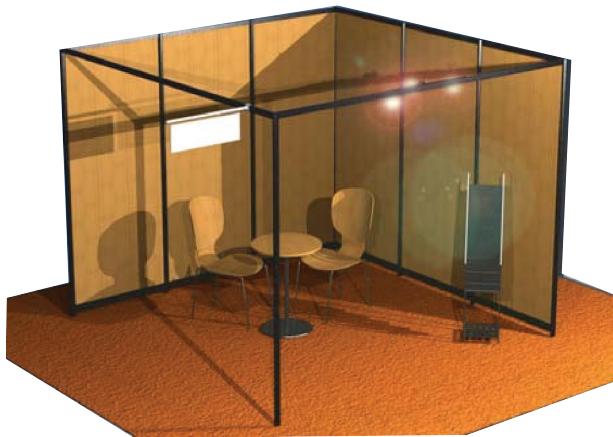
## ■ APE 2009 Posters

A poster area will be specially dedicated to the posters exhibition of more than 20 companies, laboratories and other industries specialized in the Automotive Power Electronics field.

## ■ APE 2009 Exhibition

The congress will be accompanied by an exhibition where companies will be able to present information to the participants, highlight their new products and create new privileged contacts within this unique gathering of targeted decision-makers.

The exhibition will be a focal point, attracting professionals, research institutes and engineers from the electronic and the automotive industries. This offer is limited, and it is highly recommended to book your space as early as possible.



5 m<sup>2</sup> fitted-out stand, including:

- Melamine partitions with aluminium structure
- 1 table + 2 chairs + 1 display rack
- 1 flag sign bearing your company's name
- 3 spotlights on a rail + 1.5 kW power strip
- 1 WIFI Access
- Conference registration for 2 people (access to the conference room, proceedings, breaks, lunches and cocktail)

Booth rate: 1750€ excl. VAT (2093€ VAT incl)

Each additional exhibitor access to the conference: 600€ excl. VAT (717, 60€ VAT incl)

To order any other items, such as audiovisual equipment, furniture and extra fittings, please refer to our supplier:

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## ■ Sponsorship & Advertising

You have also the possibility to maximize your visibility by becoming a sponsor. With a corporate sponsorship, you gain unmatched recognition as an industry leader and generate an abundance of goodwill. Consider this sponsorship opportunity.

Do not miss the opportunity to advertise in the congress documents:  
a portal to leading decision-makers in the automotive industry.

For further information on exhibition and sponsoring opportunities,  
Please contact \_\_\_\_\_

**Emilie BONNET**

Tel: +33 (0)1 41 44 93 75

Email: emilie.bonnet@sia.fr

# Registration form

**Automotive Power Electronics**  
**March 25 & 26, 2009 – Paris La Défense, France**  
**Ref: 2009-01**

## PLEASE COMPLETE AND RETURN THIS FORM TO:

SIA • 79, rue Jean-Jacques Rousseau • F-92158 Suresnes Cedex  
 Tel: +33 (0)1 41 44 93 70 • Fax: +33 (0)1 41 44 93 79  
 REGISTER DIRECTLY ON LINE: [www.sia.fr](http://www.sia.fr)

### ■ Please use **BLOCK CAPITALS** when filling in this form

Mrs <input type="checkbox"/>	Ms <input type="checkbox"/>	Mr <input type="checkbox"/>
Family Name: .....		
First Name: .....		
Company: .....		Department: .....
Position: .....		
Address: .....		
Postcode: .....		City: ..... Country .....
Tel: .....		Fax: .....
Email: .....		
VAT number: .....		

### ■ Registration fees (*Tick as appropriate*)

- 1 028.56 €** VAT Incl. (860 € VAT Excl.) SIA Members
- 1 160.12 €** VAT Incl. (970 € VAT Excl.) Non Members
- 580.06 €** VAT Incl. (485 € VAT Excl.) Researchers, laboratories and small and medium-sized firms (under 100 employees)
- FREE** Speakers (1 per conference), Session Chairmen
- Preferential rates for students, group and retired – For further information, contact us

### ■ Payment

- By check in Euros made payable to: “Société des Ingénieurs de l’Automobile”
- By bank transfer in Euros made payable to: **“Société des Ingénieurs de l’Automobile”** (please attach a copy)  
 IBAN: FR76 30003 03290 00020040139 58 – BIC – Adresse SWIFT: SOGEFRPP
- By credit card:
- American Express       Diners       Visa       Eurocard Mastercard
- I hereby authorise the organisers to charge my credit card to the amount of      €
- On my Card n :      Expiration date : ...../...../.....
- 3 digit CVV or CVC number (on back of credit card): \_ \_ \_ Cardholder’s name:

### ■ Date

Date and signature:

Company stamp:

#### REGISTRATION CONDITIONS

- Registration fees include participation in the conference, CD of proceedings, book of abstracts, refreshment breaks, lunches, cocktail and night tests session
- Where it is not possible to send the payment together with the form, each registration should be accompanied by an official purchase order. Failing reception of an official purchase order or payment on the day of the symposium, we regret that you will not be allowed entry to the symposium.
- When we have received the registration form, we will send you a confirmation letter and an invoice. Please indicate the accounts department address where necessary.
- In case of cancellation before February 27, 2009, 30% of the registration fees will be retained by the organisers. After this date, the entire registration fee will be retained. Registered participants not able to attend may nominate a substitute. Written notice must be provided

# General Information

Official language : English



By foot



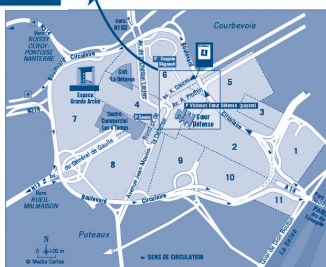
By car

The main station **La Défense Grande Arche** is less than two minutes from the Cœur Défense building and offers several means of transport:

- **Metro line 1** : Château de Vincennes/La Défense Grande Arche and  
**RER A** : Boissy-St-Léger/Marne-La-Vallée - Poissy/Cergy both cross through the historic centre of Paris from East to West and offer countless connections en route to other parts of the city.
- **Tram line T2** : Issy/Val de Seine
- **SNCF rail** : Paris-St-Lazare • St-Nom-La-Bretèche and Versailles-RD/Saint-Quentin-en-Yvelines • La Verrière lines.
- **Numerous bus routes from Paris**  
n° 73: La Défense - Musée d'Orsay  
**from West Paris**  
n° 141, 144, 159, 258, 262, 272, 275, 278, 360 and 378  
**and from the North**  
n° 161, 174 and 178.
- **Take Exit F - Calder-Miro** and follow the arrows by foot to La Défense 4. Then, follow the arrows that lead to the Cœur Défense building.

Access from the Paris ring road:

- **Take the Porte Maillot exit** for La Défense.
- **Take the Avenue Charles de Gaulle** towards Neuilly.
- **Cross the Pont de Neuilly** (Neuilly Bridge), then take Boulevard Circulaire that provides access to all areas of the La Défense business district
- **Take the La Défense 4 exit.**
- **Take Avenue André Gleizes**, turn left on to Avenue André Prothin and make your way to the Cœur Défense building.
- **Follow the signs for Cœur Défense Visitor Parking or Taxi/VIP Access (on request).** From these car parks, take the lift to the Conference level.



## Hotel Accommodation

We have selected a list of the most convenient hotels situated near "Cœur Défense" (5 min. walking). Delegates are encouraged to make their own hotel reservations early, directly with the hotels of their choice

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