TECHNICAL PROGRAM OF IEEE VPPC 2010

Table of contents

Organizing Committee **5**
VPPC Steering Committee **7**
Welcome from the Conference General Chair **9**
Welcome from the VTS President **10**
Welcome from the PELS President **11**
Carbon Care Program **12**
Maps of "Lille Grand Palais" **13**
Schedule at a Glance **14**
Plenary Speakers **16**
Tutorials **25**
Wednesday September 1st 2010 ..... **26**
Thursday September 2nd 2010 ..... **41**
Friday September 3rd 2010 ..... **57**
Technical Visits **67**
Social Events **69**
Sponsors & Exhibits **70**
Author Index **71**

Organizing Committee

GENERAL CHAIR
Prof. Alain BOUSCAYROL
University of Lille, L2EP
MEGEVH Network
France

CO-CHAIR
Prof. Daniel HISSEL
University of Franche-Comté, FEMTO-ST
MEGEVH Network
France

CO-CHAIR
Dr. Rochdi TRIGUI
INRETS, LTE,
MEGEVH Network
France

HONORARY CHAIR
Prof. C.C. CHAN
University of Hong Kong,
& Harbin Institute of Technology
China

PROGRAM CHAIR
Prof. Christophe ESPANET
University of Franche-Comté, FEMTO-ST
MEGEVH Network
France

- **Ms. Anne-Laure ALLEGRE** — Low carbon event
  Univ. of Lille, MEGEVH,
- **Dr. Keyu CHEN** — Promotion network
  Univ. of Lille, MEGEVH

- **Dr. Yuan CHENG** — Proceeding
  Harbin Institute of Tech., MEGEVH
- **Dr. Sébastien DELPRAT** — Technical track
  Univ. of Valenciennes, MEGEVH
- **Ms. Marion DELAVAUX** — Low carbon event
  Univ. of Lille
- **Dr. Frédéric GILLON** — Logistics
  Ecole Centrale of Lille
- **Dr. Frédéric GIRAUD** — Visio conference
  Univ. of Lille
- **Prof. Thierry-Marie GUERRA**
  Univ. of Valenciennes, MEGEVH
- **Prof. Nadir IDIR** — Photos
  Univ. of Lille
- **Mr. Bruno JEANNERET** — Reviewing system
  INRETS, MEGEVH
- **Dr. Xavier KESTELYN** — Volunteer coordination
  Arts & Métier Paris Tech.
- **Prof. Betty LEMAIRE-SEMAIL** — Treasurer
  Univ. of Lille
- **Mr. Tony LETROUVE** — Awareness forum
  Univ. of Lille, PSA, MEGEVH
- **Dr. Walter LHOMME** — Website
  Univ. of Lille, MEGEVH
- **Dr. Xavier MARGUERON** — Social events
  Ecole Centrale of Lille
- **Ms. Emmanuelle PAGEAU** — Communication
- *Univ. of Lille,*
- **Mr. Olivier PAPE**
  Nexter System, MEGEVH
- **Prof. Marie-Cécile PERA** — VPPC paper prize
  Univ. of Franche-Comté, MEGEVH
- **Prof. Eric SEMAIL** — Technical visits
  Arts & Métier Paris Tech.
- **Mr. Jean-François SERGENT** — Low carbon event
  Univ. of Lille
- **Mr. Sajjad Ali SYED**
  Univ. of Lille
- **Dr. Emmanuel VINOT** — Technical track
  INRETS, MEGEVH
- **Mr. Zhenwei WU** — Booklet
  Univ. of Franche-Comté, MEGEVH

And the valuable participation of Dr. **Stéphane CAUX** (INP Toulouse, MEGEVH network, France) and Prof. **Claude MARCHAND** (University of Paris XI, MEGEVH network, France) as Technical Chairs.

VPPC Steering Committee

Prof. Ali EMADI, Illinois Institute of Technology, USA
Representative, IEEE Power Electronics Society
Prof. John SHEN, University of Central Florida, USA
Representative, IEEE Power Electronics Society
Prof. John ECONOMOU, Cranfield University, UK
Representative, IEEE Vehicular Technology Society
Prof. Mehrdad (Mark) EHSANI, Texas A&M University, USA
Representative, IEEE Vehicular Technology Society
Prof. Babak FAHIMI, University of Texas at Arlington, USA
General Chair, VPPC 2007
Prof. C. C. CHAN, University of Hong-Kong / Harbin Institute of Technology, China, General Chair, VPPC 2008
Prof. Chris MI, University of Michigan-Dearborn, USA
General Chair, VPPC 2009

VPPC Advisory Committee

The VPPC steering committee and:

Prof. Jiabin WANG, University of Sheffield, UK
Program Chair, VPPC 2006
Prof. Chunbo ZHU, Harbin Institute of Technology, China
Program Chair, VPPC 2008
Prof. Fang Z. PENG, Michigan State University, USA
Program Chair, VPPC 2009

VPPC Promotion Network

Argentina
Prof. Cristian DE ANGELO, Universidad Nacional de Río Cuarto
Mr. Luis Ignacio SLIVA, Universidad Nacional de Río Cuarto
Belgium
Prof. Johan GYSELINCK, Université Libre de Bruxelles
Mr. Jean-Marc TIMMERMANS, Vrije Universiteit Brussel
Brazil
Prof. Cursino JACOBINA, University of Campina Grande
Canada
Dr. Sheldon WILLIAMSON, University of Concordia (Montreal)
Dr. Loic BOULON,University of Trois Rivières
China
Prof. Ming CHENG, Southeast University
Dr. Changhong LIU, Shanghai Jiaotong University
Dr. Yuan CHENG, Harbin Institute of Technology
Mr. Guoliang WU, Harbin Institue of Technology
Mr. Minmin ZHANG, Shanghai Jiaotong University
Denmark
Dr. Peter OMAND RASMUSSEN, Aalborg University

Dr. Zhu FAN, Technical University of Denmark
Mr. Jinchao LIU, Technical University of Denmark

Finland

Dr. Jussi SUOMELA, Aalto University

Germany

Dr.Gert-Helge GEITNER,Technical University of Dresden
Mr. Dominik BUECHERL, Technical University of Munich

India

Dr. Mummadi VEERACHARY, Indian Institute of Technology Delhi

Iran

Prof. Farzad Rajaie SALMASI,University of Tehran
Dr. Naderi PEYMAN, Islamic Azad University

Ireland

Dr. John HAYES, University College Cork
Mr. Ian WINNIG, Cork City Council
Ms. Aoife FOLEY, University College Cork

Italy

Prof. Massimo CERAOLO,University of Pias
Dr. Federica GROSSI, University of Modena and Reggio Emilia

Japan

Prof. Shigeyuki MINAMI, Osaka City University
Mr. Nam KANGHYUN, Hori Laboratory, University of Tokyo
Mr. Ryo MINAKI, Hori Laboratory, University of Tokyo

Korea

Dr. Dong-Wook YOO,Korea Electrotechnology Research Institute

New Zealand

Prof. Udaya MADAWALA, University of Auckland
Dr. Duleepa THRIMAWITHANA, University of Auckland

Portugal

Prof. José Carlos QUADRADO, Institute of Engineering of Lisbon
Mr. João Pedro TROVÃO, Polytechnic Institute of Coimbra
Mr. Pedro Rocha ALMEIDA, University of Porto

Spain

Prof. Josep Balcells SENDRA, Polytechnic University of Catalonia
Dr. Lucia GAUCHIA, University Carlos III of Madrid

Sweden

Dr. Oskar WALLMARK, Royal Institute of Technology (KTH)
Mr. Jens GROOT,Chalmers University of Technology

The Netherlands

Dr. John KESSELS, TNO
Dr.Theo HOFMAN, Technical University of Eindhoven
Mr. Mark VERBAKEL, ATC

United Kingdom

Prof. Z. Q. ZHU, University of Sheffield
Mr. Kevin DYKE, University of Manchester

USA

Dr. Yimin GAO, Texas A&M University
Dr. Kevin BAI, University of Michigan-Dearborn
Dr. Zareh SOGHOMONIAN, BMT Syntek Technologies

Welcome from the Conference General Chair

Alain BOUSCAYROL
Professor
University of Lille,
MEGEVH network, France
alain.bouscayrol@univ-lille1.fr

On behalf of the organizing committee of the 6th IEEE Vehicle Power and Propulsion Conference (VPPC), it is a great pleasure to welcome you for a major event dedicated to **clean technology for future transportation systems**.
The conference is held in Lille, Northern France, September 1-3, 2010, within the framework of MEGEVH, French national network on HEVs. VPPC 2010 is organized in a **carbon care philosophy** in order to reduce the conference ecological footprint. The CO2 emissions associated with the travel of attendees will be compensated by funding carbon reduction projects.

This year, we received **418 submissions from 37 countries**, and 330 were accepted. The conference will feature 3 plenary sessions, 5 tutorials, 30 oral sessions (180 presentations), and 3 dialogue sessions (150 posters), an awareness forum and 2 technical visits. More than 350 people are registered. The regular papers will be included in IEEE Xplore and extended papers could be submitted to a special section of IEEE Transactions on Vehicular Technology and also to IEEE Transactions on Power Electronics.

I would like to thank the plenary speakers, tutorial instructors, special session organizers, technical chairs and reviewers who are at the core of the scientific quality of the conference. I would like to thank the steering committee, advisory committee and promotion network for their valuable support and advice. I would like to thank our institutional and industrial sponsors for their financial support.
Finally, I would like to express my gratitude to all the **IEEE VPPC 2010 team**, including our students' volunteers, for its enthusiasm and hard work in order to improve all the aspects of the conference and put together a memorable event.

I hope you will enjoy this event, by friendship, passionate and scientific discussions, in order to **contribute to more environmental friendly vehicles**. I also hope you can benefit of the French way of life and culture while attending the conference.

Warmest Regards

Prof. Alain Bouscayrol
General Chair of IEEE VPPC 2010

Welcome from the VTS President

Jae Hong LEE
Professor
Dept. of Electrical Eng. and Computer Science
Seoul National University, Korea
jhlee@snu.ac.kr

On behalf of the Board and members of the IEEE Vehicular Technology Society, it is my pleasure to welcome you to VPPC 2010 in Lille, France.

VTS celebrated its 60th birthday last year. Since the 'Vehicular and Railroad Group' was first formed 61 years ago by members of the IRE, which merged to form the IEEE, VTS has had its unifying theme of 'mobility.' Recent progress in hybrid and electric vehicles requires increased research and innovation in power propulsion. As a new initiative, VTS has commissioned a number of courses for its members. One of the first course DVDs distributed at VPPC 2010 is on grounding for hybrid vehicles.

Recently the Transactions on Vehicular Technology, a VTS journal, publishes more papers on advanced transportation systems than before. Indeed it is currently collecting papers for a special section on them.

Organizing a large conference like VPPC requires a major endeavor which involves a committed team of volunteers. I would like to thank General Chair Alain Bouscayrol and his team for their great efforts as well as the VPPC committee members who have contributed a lot to grow the conference since its beginning as two sessions at VTC seven years ago.

I wish you a most enjoyable conference and stay in Lille.

Prof. Jae Hong Lee
President, IEEE Vehicular Technology Society

Welcome from the PELS President

Deepak DIVAN
Professor
Georgia Institute of Technology, USA
d.divan@ieee.org

On behalf of the IEEE Power Electronics Society, I would like to welcome you to the IEEE VPPC 2010 Conference in Lilly, France. We stand at an important crossroads today. Our society's dependence on fossil fuels for energy has allowed phenomenal growth and prosperity for billions of people. However, the consumption of natural resources and the resulting carbon emissions are unsustainable. Increasing carbon dioxide levels are leading to climate change and global warming. Yet, many of the sustainable solutions also increase the price of energy, reducing the pace of economic growth and putting the poor and emerging nations at a disadvantage. It is no surprise that Kyoto and Copenhagen have not resulted in binding and universally acclaimed agreements.

What we need are solutions that improve sustainability and reduce our dependence on fossil fuels, and do so at lower cost than business as usual. Electrification of the light automotive fleet is rapidly approaching price parity, and can move us a long way towards achieving the goal. Critical technologies include batteries, power converters, and a charging infrastructure that can scale affordably and sustainably. VPPC attendees have been on the forefront of these critical technologies for many years. It is through such an international exchange of ideas that progress is achieved. It is absolutely critical that we help achieve, through our research, a transition of vehicular energy requirements from fossil fuels to carbon-free energy.

The IEEE Power Electronics Society has long provided a venue for researchers globally to showcase their work in areas that are relevant to automotive power electronics, efficient energy conversion, motion control, energy storage, and grid interface issues. Please enjoy the VPPC 2010 conference, and continue to be an active member of IEEE PELS and the VPPC community.

Prof Deepak Divan
President, IEEE Power Electronics Society

Carbon Care Program

The objective: How to reduce the impact on the climate of the conference and its organization?

- Reduction of the greenhouse gas emissions: The first way to reduce this impact is to endeavour to reduce the greenhouse gas emissions.
  - *Transports*: unique ticket for transport, taxi-bike ...
  - *Lunches*: local products, selective sorting...
  - *Communications*: recycled paper, collection of

- Estimation of the greenhouse gas emissions The second step consists in estimating with simple tools the total greenhouse emissions of the conference (transport, accommodation ...), expressed in equivalent tons CO_2.

- Mitigation of the greenhouse gas emissions According to equivalent ton CO_2 price, the cost of the total greenhouse emissions of the conference can be calculated. This money will be used to finance local and international projects which aim at reducing greenhouse emissions
  - *Local project*: Tree plantation in the Lille Metroppole
  - *International project*: Reforestation of forest affected by wildfires in Argentina (Chubut Province,

For more information, let's visit the "carbon care" stand in the conference location

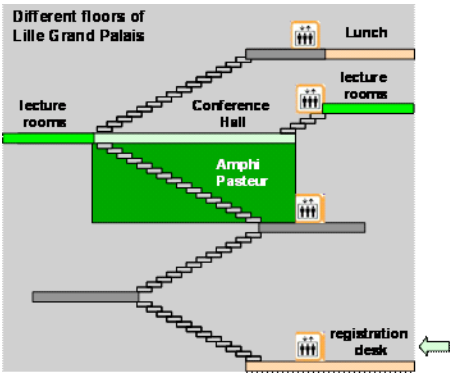
- Take part in the game "Clim City" to reduce greenhouse emissions in a town!
- Put your ideas to reduce greenhouse emissions every day on the "Idea Tree"

- It is also possible to buy organic cotton tee-shirts, with ideas to reduce greenhouse emissions written on their back. The money will be used to finance the local and international projects.

This booklet is written with "Ecofont" (font with holes into the letters), which has allowed saving 25% ink during the printing.

Maps of "Lille Grand Palais"

Lille Grand Palais, 1, Boulevard des Cités-Unies, 59000 Lille, France

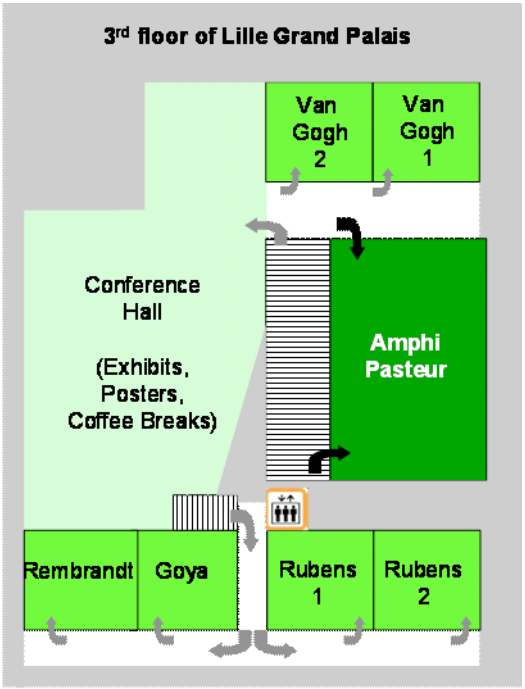


Keynote sessions:
Amphi Pasteur

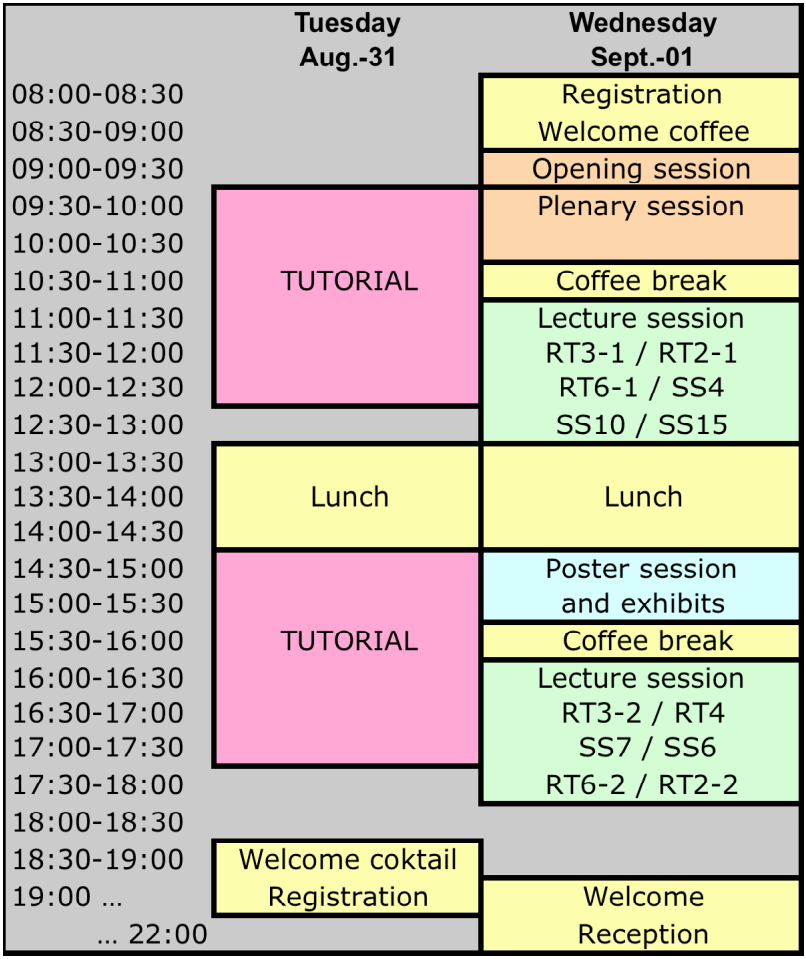
Lecture sessions:
lecture rooms

Dialog sessions:
Conference Hall

Exhibit:
Conference Hall



Schedule at a Glance



RT = Regular Track and SS = Special Session

RT1 - Advanced Vehicles
RT2 - Energy Storage Components / Systems
RT3 - Modeling, Analysis, Dynamics and Control
RT4 - Vehicular Electric Power Systems and Loads
RT5 - Vehicular Electronics
RT6 - Vehicular Power Electronics and Motor Drives

SS1 - Storage Energy Management in Electric Vehicles
SS2 - Adv. Control of El. Machines for Automotive Appl.
SS3 - Smart Grids to Support Electric Vehicles
SS4 - Electric Drives for EVs and PHEVs
SS5 - Diagnostics of Fuel Cell Vehicles

Thursday Sept.-02	Friday Sept.-03	
Welcome coffee	Welcome coffee	08:00-08:30
Plenary session	Plenary session	08:30-09:00
		09:00-09:30
Poster session and exhibits	Poster session and exhibits	09:30-10:00
		10:00-10:30
Coffee break	Coffee break	10:30-11:00
Lecture session SS16 / RT1 RT6-3 / SS5 SS8 / SS1-1	Lecture session SS11 / RT3-4 RT5 / SS2 SS14 / SS12	11:00-11:30 11:30-12:00 12:00-12:30 12:30-13:00
Lunch	Lunch	13:00-13:30 13:30-14:00 14:00-14:30
Forum and exhibits	TECHNICAL VISITS	14:30-15:00 15:00-15:30
Coffee break		15:30-16:00
Lecture session RT3-3 / RT6-4 SS1-2 / SS13 SS9 / SS3		16:00-16:30 16:30-17:00 17:00-17:30 17:30-18:00
Steering committee meeting		18:00-18:30 18:30-19:00
Gala Dinner		19:00 … … 22:00

RT = Regular Track and SS = Special Session

SS6 - EMR and other Graphical Descriptions
SS7 - Power electronics for fuel cell vehicles
SS8 - EMI/EMC for vehicular systems
SS9 - New vehicle education programs
SS10 - Adv. Cont. on Multi-Source for Auto. Appl.
SS11 - Sustainability of new propulsion technologies
SS12 - Energy storage modules for vehic. syst.
SS13 - EVT and similar concepts for HEV appl.
SS14 - Multiphase drives for veh. power and propulsion
SS15 - Railways applications
SS16 - French Framework on Vehicle research

Plenary Speakers

OUTLOOK OF ELECTRIC VEHICLES AND SMART GRIDS

Prof. C.C. CHAN, FIEEE, FIET, FREng
President, World Electric Vehicle Association
Academician, Chinese Academy of Engineering
Fellow, Royal Academy of Engineering, U.K.
Honorary Professor, University of Hong Kong
ccchan@eee.hku.hk

Biography of the Speaker

Prof. C. C. Chan holds BSc, MSc, PhD, HonDSc, HonDTech degrees. He has had over 50 years academic and industrial experience. He is currently the Honorary Professor and the former Head of the Department of Electrical and Electronic Engineering, the University of Hong Kong. He is the Founding President of the International Academy for Advanced Study. He served as Visiting Professor of a number of well-known universities around the world, including MIT, University of California Berkeley, University of Cambridge, etc. He is Co-founder and President of the World Electric Vehicle Association, the President of the Electric Vehicles Association of Asia Pacific, and Past President of the Hong Kong Institution of Engineers. He serves as Senior Consultant to governments and industries worldwide. Prof. Chan is a Fellow of the Royal Academy of Engineering, U.K., the Chinese Academy of Engineering, the Ukraine Academy of Engineering Sciences, IEEE, IET and HKIE. He received the IEE International Lecture Medal in 2000 and delivered lectures on electric vehicles worldwide. He was selected as one of Asia's Best Technology Pioneers by Asiaweek; named as "Father of Asian Electric Vehicles" by Magazine Global View; He authored and coauthored 11 books, over 300 technical papers and holds 9 patents. His mission is to promote the global collaboration for the advancement of science and technology for global sustainable development.

Abstract

The success of promotion of electric and hybrid vehicles lies on three goodness factors: 1. Good product: high performance at reasonable; 2. Good infrastructure: efficient and user friendly; and 3. Good business model: innovative business model that can leverage the initial cost of batteries to integrate the interest of stake holders. In this connection, proper technical and commercial roadmaps are essential. This keynote speech will discuss the state of the art and key technologies of electric and hybrid vehicles, hence the technical and commercial roadmaps. The new DNA for electric vehicles to enable become smart electric vehicles will be explored. The evolution of smart grid and the interaction of electric vehicles and smart grids will be reviewed. The recent development of electric vehicles in USA, Japan and China will also be briefly compared.

VEHICULAR COMMUNICATIONS FOR ADVANCED VEHICLES

Prof. Jae Hong LEE
President, Vehicular Technology Society
Seoul National University, Korea
Email: jhlee@snu.ac.kr

Biography of the Speaker

Prof. Jae Hong Lee received his Ph.D. degree from the University of Michigan at Ann Arbor, in 1986. He was with AT&T Bell Labs, Whippany, NJ, from 1991 to 1992. Since 1987, he has been with Seoul National University, Seoul, Korea. His research interests include MIMO, OFDM, and cooperative diversity for wireless communications. He published over 70 peer reviewed journal papers and holds nearly 30 patents. His laboratory was designated as a National Research Laboratory by the Ministry of Science and Technology of Korea in 2001. He has served as president of Institute of Electronics Engineers of Korea and Korean Society of Broadcast Engineers. He was elected to the Board of IEEE VTS in 2006 for which he is President for 2010. He was elected to a member of the National Academy of Engineering of Korea in 2004.

Abstract

Fast developing electronics and information technology enables the implementation of various concepts of advanced vehicles such as Advance Safety Vehicle (ASV), Advanced Intelligent Vehicle (AIV), and Advanced Driver Assistant System (ADAS). Integrated service platform for advanced vehicles will be facilitated by vehicular communications such as V2V (vehicle to vehicle) and V2I (vehicle to infrastructure).

ELECTRIC VEHICLES, EMISSIONS AND THE SMART GRID

Prof. Deepak DIVAN
President, IEEE Power Electronics Society, Georgia Tech (USA)
d.divan@ieee.org

Biography of the Speaker

Prof. Deepak Divan (Fellow '98) is currently Professor in the School of Electrical and Computer Engineering and Founding Director of the Intelligent Power Infrastructure Consortium (IPIC) at Georgia Tech. He is Founder, Chairman and Chief Innovation Officer for Innovolt, Inc, and is on the Board of Directors of Asian Electronics ltd, a company traded on the Mumbai Stock Exchange From 1995-2004, he was Chairman and CEO/CTO of Soft Switching Technologies, a company in the industrial power quality market. He is a Fellow of the IEEE and was the recipient of the 2006 IEEE

William E Newell Award for contributions in power electronics. He is President of the IEEE Power Electronics Society for 2009 and 2010. He has over 200 papers and 28 issued and 4 pending patents. His research interests are in the application of power electronics for power quality, power reliability, utility and industrial applications.

Abstract

As the world moves towards increasing sustainability and lower carbon emissions, it is becoming increasingly clear that the future is likely to be increasingly electrified. Adding a variable renewable energy generation mix and the loading of an electrified transportation fleet onto an already straining power grid will create unprecedented problems. A smart grid, infused with intelligence, communications and dynamic control capability, can provide a cost-effective approach to achieving this objective. This paper will present smart grid solutions that can help in achieving low overall carbon emissions with an electrified automotive fleet.

Technical challenge of hybrid and plug-in hybrid vehicles

Dr François BADIN
IFP New Energy
francois.badin@ifpenergiesnouvelles.fr

Biography of the Speaker

Dr. Francois Badin was a researcher at the Transports and Environment Lab. (LTE) of the INRETS for 22 years, he was senior researcher, in charge of electric and hybrid vehicle activities. Since 2008, he has been Expert Director in the field of Hybrid Vehicles at IFP New Energy.
François Badin has a Scientific Doctorate in Environmental Engineering from the University of Chambéry, France and a five-year Engineering Degree in thermo-dynamic processes from the National Institute of Applied Sciences (INSA) in Lyon, France.
François Badin's research is in the field of evaluation and optimization of electric and hybrid drivelines. This research concerns both experiments and simulations and is applied to the case of light duty vehicles, buses and trucks. François Badin has been in charge of various experiments carried out on roads, chassis dynamometers, engine test benches and battery test benches.
François Badin has been involved in the realization of simulation software in the field of electric and hybrid vehicles and real time applications for the control of a specific high dynamic engine test bench which associated real time simulation with component testing, in hardware in the loop concept. François Badin has also been involved in specific applications, dedicated to optimal energy management in the vehicles and on the HIL high dynamic engine test bench.

Abstract

Electrifying the propulsion systems of vehicles provides a number of functions that can help reduce energy consumption. This is achieved by optimizing the operating conditions of the internal combustion engine and by recovering a variable fraction of the available energy during braking, in hybrids that we will never be connected to the grid. The simplest systems, which make it possible to eliminate idling, yield fuel savings of 5 to 7% in the standardized European cycle. The most complex systems, which provide more functions, lead to savings of up to 40% in urban conditions.
Electrification also allows the creation of additional functions, of benefit to the users of the vehicle or to the community, such as all-electric range and connection to the grid for plug-in hybrids.
The implementation of these functions will require the addition of electric machine(s) that will be coupled to the engine in various architectures - series, parallel, series-parallel, through the road...
We will briefly describe in the presentation these architectures, their specificities, together with their potential and drawbacks for the case of light duty vehicles applications.

ELECTRIC VEHICLE PROGRAM OF THE RENAULT-NISSAN ALLIANCE

Dr. Jérôme Perrin,
Director Advanced Projects for CO2 and Environment
RENAULT (France)
jerome.perrin@renault.com

Biography of the Speaker

Dr. Jérôme Perrin is engineer from the Ecole Polytechnique, Paris, and doctor in physics from the University of Paris – Denis Diderot (1983). Until 1996 he has been researcher in the CNRS (French Scientific National Research Center) in the fields of plasma physics and chemistry, and plasma-materials interactions. In 1997 he joined the Balzers & Leybold group - which eventually became Oerlikon - as director for the development of plasma-assisted deposition and etching industrial equipment for flat panel display and solar panel manufacturing. In 2001 he became R&D program director in the industrial gas company Air Liquide for gas analysis, gas-surface chemistry, and new energy technologies. During this period he has chaired the French national R&D on hydrogen and fuel cells of the ANR (National Research Agency). Then in 2007 he joined Renault as director of R&D and advanced engineering projects for the reduction of vehicle energy consumption, CO2 and pollutants emissions and global environmental impact; towards future electric mobility. He is also in charge of the relationship with Nissan on these subjects. Since 2009 he is chairing the steering committee of the French national R&D program on ground transport vehicles of the ANR.

Abstract

As car transportation is presently one of the major contributors to the net worldwide CO2 emission, hence a significant part of the problem of global warming, the Renault-Nissan Alliance considers it must be part of solution. Fully electric vehicles (EV) is the only true rupture which can eventually result in a true zero CO2 emission from well to wheel with carbon-free electricity either from renewable or nuclear sources. The technology of Li-ion batteries is now mature enough to provide more than twice the autonomy available 20 years ago, and the EV and battery cost reduction roadmap combined with temporary government incentives allows to propose a total cost of ownership smaller for an EV than for a conventional thermal engine car. From these considerations the Alliance has engaged a drastic move towards mass market of EV's with five Renault and Nissan cars commercialized from 2010 to 2012, and more than 50 public-private partnerships to promote the deployment of a recharging infrastructure.

R&D is addressing several challenges and new horizons : further progress in battery specific energy, robustness versus temperature variation and fast charging, electronic active balancing and control; fast charging and wireless charging as new options in addition to conventional slow charge, or battery exchange; new concept of efficient and low cost electric motors; reduction of on-board electric consumers especially in heating and air conditioning; original zero emission range extender; and a convenient set of communication and energy services in relation with public and domestic infrastructures in a vehicle-to-ome or vehicle–to-grid approach.

ELECTRICAL PROPULSION SYSTEM: A PERMANENT INNOVATION CHALLENGE FOR ALSTOM

Ing. Alain JULLIEN
Alstom Transport, PRIMES platform (France)
alain.jullien@transport.alstom.com

Biography of the Speaker

Ing. Alain Jullien is currently director for Development and Industrial Relationship – Innovation & Research Group.

Electronic engineer, with more than 39 years spend in railways business, he began is career in research with the challenge to design first chopper in 1970. After different jobs like Quality manager, Sourcing director, Head of technology, International sales he has been responsible to implement research strategy on the site of Tarbes from the last ten years. In 2001, he has been in charge to organize PEARL cooperative lab, and is President of the innovative platform PRIMES.

He is well known in France for its feeling on Mechatronics strategy. Also coordinator of all electronic federating program within aerospace Valley

Abstract

The trend for system traction drives is dictated by the requirements of better operational conditions for trains and global comfort for passengers.

This analysis is strongly depending on the market segment but they are some common trends:

- In general, price of new traction drive must be more and more competitive.
- Reliability of new technologies must improve the reliability of previous generation
- Maintenance must be ease and manage (e maintenance)
- There is a global request to optimize energy efficiency
- Life cycle cost is now a key parameter to be considered

Segment by segment, there are some specificities that can be summarized in the following table:

Segment & Product	Key Drivers	Some tentative trends
For all segments	1) Acquisition cost equal or lower 2) Better reliability (Increased MTBF) 3) Easier maintenance 4) Better energy efficiency 5) Lower Life Cycle Cost	1) New Active Components Introduction = SiC 2) Breaktrough in Passive Components 3) e-diagnostic
TRAMWAY	Mass/volume reduction	Synergy with automotive & industrial (600V regulated bus) Energy management with ESC (Braking Rheostat suppression)
METRO	Volume reduction Electric braking improvement	Synergy with automotive & industrial (600V regulated bus) Full integration on boggie (inverter -motor)
REGIONAL	Weight reduction	New architectures including motor Passive cooling system
TGV/AGV	Weight reduction Power increase	e-transfo Higher bus voltage Higher isolation of motors
LOCO	Power increase	Higher bus voltage Higher isolation of motors
Auxiliaries	Global Integration in the car Noise reduction	New electrical and physical architecture Extended passive cooling

In PRIMES (Platform for Research in power Integration, Management of Energy and Storage), power technologies are developed and tested to meet the requirements described in the above table.
The presentation will detail two technologies that have a very high application potential: wide band gap semiconductors and passive cooling.

E-MOBILITY DEVELOPMENT OF TOYOTA

Mr. Taiyo KAWAI
General Manager of Fuel Cell System Development Div., Project General Manager of R&D Management Div., TOYOTA MOTOR CORPORATION (Japan)
kawai@taiyo.tec.toyota.co.jp

Biography of the Speaker

Mr. Kawai is the general manager of Fuel Cell System Development Division and the project general manager of R&D Management Division of Toyota Motor Corporation. He joined his current division in 2001. Prior to that, he was in charge of engine R&D and management of advanced R&D. He joined Toyota Motor Corporation in 1978 after receiving a Master's degree in mechanical engineering from Tokyo Institute of Technology.

Abstract

In this keynote presentation, Mr. Taiyo Kawai will describe Toyota's views on e-mobility mentioning the development of HV, PHV, EV and FCHV.

DOE VEHICLE TECHNOLOGIES R&D ON HYBRID ELECTRIC SYSTEMS

David HOWELL and James MILLER
Office of Vehicle Technologies, United States Department of Energy
james.miller@anl.gov

Biography of the Speaker

Dr James Miller is a senior technical advisor at the US Department of Energy's Argonne National Laboratory, currently on assignment at DOE Headquarters in support of the battery R&D program. He has over 33 years of research experience at Argonne in transportation technologies, including advanced batteries for electric and hybrid vehicles, hydrogen storage materials, and fuel cells for automotive applications and distributed power. He served as Associate Director of Argonne's Chemical Technology Division, and has been Argonne's Electrochemical Technology Program Manager since 1999. He has served on numerous advisory committees for the National Academy of Sciences, the National Research Council, the International Council on Clean Transportation, and the Department of Energy. He holds a B.S. degree in physics from the University of Missouri, M.S. and Ph.D. degrees in physics from the University of Illinois, and an MBA degree from the University of Chicago.

Abstract

This keynopte presents an overview of R&D activities funded by the Hybrid Electric Systems Team at the Vehicle Technologies Program Office of the U.S. Department of Energy (DOE). DOE has supported, over the long term, the development of advanced automotive technologies that could achieve significant improvements in fuel economy without compromising safety, environmental effects, performance, or affordability. DOE-sponsored R&D projects address the technical barriers that impede the market introduction of hybrid and electric vehicles. The effort also leverages resources and expertise from automobile manufacturers, technology developers, small

businesses, national laboratories, and universities. The Hybrid Electric Systems team's R&D focuses on the modelling, development, and evaluation of advanced hybrid (HEV), electric (EV), and plug-in hybrid electric vehicle (PHEV) systems. It also funds the FreedomCAR and Fuel Partnership, the 21st Century Truck Partnership, and battery manufacturing and transportation electrification projects under the American Reinvestment and Recovery Act. The program includes electrical energy storage R&D which consists of a developer program – conducted in coordination with battery developers and original equipment manufacturers, applied battery research – which targets cross-cutting barriers for HEV, PHEV, and EV batteries; and a focused fundamental research program which addresses critical problems of chemical instabilities for advanced batteries and researches promising new materials. A second program area includes advanced power electronics and electric motors R&D which addresses the issue of electric and electronic devices delivering the battery power to the vehicle's power control circuits, charging circuits, electric motors, and other related components. A third program area is vehicle and systems simulation and testing, which include system-level simulations to help specify the necessary performance characteristics of the hardware and to predict overall vehicle efficiency and performance for a given configuration, as well as laboratory on on-road testing of vehicle systems. The paper also describes DOE's related R&D coordination efforts with other agencies.

THE EUROPEAN GREEN CAR INITIATIVE AND EU RESEARCH POLICIES FOR GREENER ROAD TRANSPORT

Ing. Maurizio MAGGIORE
Scientific Officer, DG RTD - Surface transport Unit H2, European Commission
Maurizio.MAGGIORE@ec.europa.eu

Biography of the Speaker

Ing. Maurizio Maggiore is urrently working at the European Commission, Directorate General for Research and Technology Development, Surface Transport Unit, he is responsible for all automotive and maritime projects dealing with electric drives and fuel cells. He is also responsible for the technical content of the Green Car Initiative. In the past he has also been responsible for Aftertreatment and Light structures projects in the Road sector.

Born in Como, Italy, he earned a Degree in aerospace engineering at Milan Polytechnic in 1985, after which he joined Agusta, the Italian helicopter manufacturer. He worked there for 15 years, initially in the Advanced Design Dept, and later in the Research Coordination office, mostly managing EU-funded cooperative research projects in different areas such as aerodynamics, interior and exterior noise, concurrent engineering, training, gearbox design.

A fervent supporter of the need to increase the awareness of technology in the general public, after more than 20 years as a part time freelance science and technology journalist, in 2000 he was asked to contribute to starting a technology divulgation magazine, acting as the Chief editor for mechanical technologies before joining the Commission in 2002.

Abstract

The European Green Car Initiative, which started as part of the recovery package launched by the European Commission in response to the world financial crisis, has gradually taken centre stage in the Commission road research policy. This role has been confirmed by the Council and by the European Parliament, and it is therefore scrutinized for the results it is expected to bring. Electric vehicles are at the heart of this initiative, and the results of the first call confirm the interest of the European industry and of the research community for the development of advanced technologies in the domains of electrochemical storage, electric motors and auxiliaries and innovative vehicle architectures to fully exploit the potential of electrified vehicles.

Tutorials

Be careful! The tutorials will held at the University of Lille 1 (subway line 1, station "Cité Scientifique) and all the other part of the conference will be held at Lille Grand Palais (Lille downtown).

Tuesday August 31 **09:30-12:30** **University of Lille**	**TUTORIALS 1/2** Chairs: Dr. Rochdi Trigui (INRETS, MEGEVH network, France) and Dr Walter Lhomme (University of Lille, MEGEVH network, France)

TUTORIAL 1 **Fuel Cell Systems for Transportation Applications**
Building IUT Amphi 1 Prof. Daniel Hissel Prof. Marie-Cécile Péra; *University of Franche-Comté, MEGEVH network, France*

TUTORIAL 2 **Introduction to Object-Oriented Modelling by means of the Modelica Simulation Language**
Building P2 Room 116 DI Dr. Dragan Simic, DI (FH) Thomas Bäuml, DI Markus Einhorn; *AIT Austrian Institute of Technology, Austria*

Tuesday August 31 **14:30-17:30** **University of Lille**	**TUTORIALS 2/2** Chairs: Dr Rochdi Trigui, (INRETS, MEGEVH network, France), Dr Keyu Chen (University of Lille, MEGECH network, France) and Prof Nadir Idir (University of Lille, France)

TUTORIAL 3 **Electromagnetic Interference (EMI) in Hybrid Vehicles**
Building IUT Amphi 1 Prof. James Gover; *Kettering University, USA*

TUTORIAL 4 **Batteries for electric and hybrid vehicles. State of the art, Modeling, testing, aging**
Building IUT Amphi 2 Dr. Sebastien Martinet, Dr. Serge Pélissier; *CEA and INRETS, France*

TUTORIAL 5 **Autonomie, a Plug-and-Play Software Architecture**
Building P2 Room 116 Mr. Dominik Karbowski, Mr Sylvain Pagerit, *Argonne National Laboratory, USA*

Wednesday September 1st 2010

Opening session, 09:00-09:30

Wednesday Sept. 1st **09:00-09:30** **Amphi Pasteur**	**OPENING SESSION** Chair: Prof. Alain Bouscayrol (University of Lille, MEGEVH network, France)

Prof. Alain Bouscayrol, VPPC 2010 General Chair
(University of Lille, MEGEVH network, France)

Prof. Daniel Hissel, VPPC 2010 Co-chair
(University of Franche-Comté, MEGEVH network, France)

Dr. Rochdi Trigui, VPPC 2010 Co-chair
(INRETS, MEGEVH network, France)

Prof. C.C. Chan, VPPC 2010 Honorary Chair
(University of Hong Kong, Harbin Institute of Technoly, China)

Prof. Ali Emadi, Chair of the VPPC Steering Committee
(Illinois Institute of Technology, USA)

Prof. Isam Sharour, Research Vice-President Univ. Lille1
(University of Lille 1, France)

Mr. Daniel Percheron, President of the Région Council
(Région Nord-Pas-de-Calais, France) *to be confirmed*

Ms. Anne-Laure Allegre , VPPC 2010 carbon care Chair
(University of Lille, MEGEVH network, France)

Keynote session, 09:30-10:30, Wednesday Sept. 1st

Wednesday Sept. 1st **09:30-10:30** **Amphi Pasteur**	**PLENARY SESSION (1/3)** Chair: Prof. Christophe Espanet (University of Franche-Comte, MEGEVH Network, France)

PL-1-1 **Outlook of electric vehicles and smart grids**
Prof. C.C. Chan, FIEEE, FIET, FREng; University of Hong Kong & Harbin Institute of Technology, *China*

PL-1-2 **Vehicular communications for advanced vehicles**
Prof. Jae Hong Lee, IEEE Vehicular Technology Society President; Seoul National University, *Korea*

PL-1-3 **Electric vehicles, emissions and the smart grid**
Prof. Deepak Divan, IEEE Power Electronics Society President; Georgia Tech, *USA*

Lecture sessions, 11:00-13:00, Wednesday Sept. 1st

Wednesday Sept. 1st **11:00-13:00** **Room Rembrandt**	**REGULAR TRACK 2: ENERGY STORAGE COMPONENTS / SYSTEMS (1/2)** Chairs: Prof. Babak Fahimi (University of Texas at Arligton, USA) and Dr. Philippe Barrade (Ecole Polytechnique Fédérale de Lausane, Switzerland)

RT-2-1-1 **Helpful hints to enhance reliability of DC-DC converters in HEV Applications**
A. H. Ranjbar, B. Fahimi; University of Texas at Arlington, *USA*

RT-2-1-2 **Hybrid supply for automotive application using supercapacitors**
N. Rizoug, G. Feld, B. Barbedette; ESTACA, ENS Cachan, *France*

RT-2-1-3 **Impact of the ageing of supercapacitors in power cycling on the behaviour of HEV applications**
N. Bertrand, O. Briat, H. El Brouji, J-M. Vinassa; University of Bordeaux, *France*

RT-2-1-4 **Real time condition monitoring in Li-ion batteries via Battery Impulse Response**
A. Banaei, B. Fahimi; University of Texas at Arlington, *USA*

RT-2-1-5 **Battery and ultracapacitor combinations - where should the Converter Go?**
J.M. Miller, G. Sartorelli; Maxwell Technologies, *Canada and Switzerland*

RT-2-1-6 **Optimal Management of Electric Vehicles with a Hybrid Storage System**
E. Vinot, R. Trigui, B. Jeanneret; INRETS, *France*

Wednesday Sept. 1st **11:00-13:00** **Amphi Pasteur**	**REGULAR TRACK 3: MODELING, ANALYSIS, DYNAMICS & CONTROL (1/4)** Chairs: Dr. Walter Lhomme (University of Lille, France) and Dr. Andrew McGordon (University of Warwick, UK)

RT-3-1-1 **Estimation of individual in-cynlinder air mass flow via periodic observer in Takagi-Sugeno form**
H. Kerkeni, J. Lauber, T. M. Guerra; Univ Lille Nord de France, UVHC, *France*

RT-3-1-2 **Determining a suitable all electric range for a light weight plug-in HEV**
J. Poxon, A. McGordon, G. Muraleedharakurup, P. Jennings; University of Warwick, *UK*

RT-3-1-3 **Different models of a traction drive for an electric vehicle simulation**
T. Letrouvé, A. Bouscayrol, W. Lhomme , N. Dollinger, F. Mercier Calvairac, University of Lille, PSA Peugeot Citroën, MEGEVH entwork, *France*

RT-3-1-4 **Predictive online control for hybrids: global optimality, robustness and realtime capability**
S. Kutter, B. Bäker; Dresden University of Technology, *Germany*

RT-3-1-5 **Development of software testbed for component sizing of a series armored wheeled HEV**
S.J. Lee, J.C. Kim, H.S. Bae, D.H. Choi, B.H. Cho; Seoul National University, Samsung Techwin, *Korea*

RT-3-1-6 **Hardware-in-the-Loop testing of hybrid vehicle motor drives at Ford Motor Company**
J. Wu, C. Dufour, L. Sun; Ford Motor Company, Opal-RT Technologies, *USA, Canada*

Wednesday Sept. 1st **11:00-13:00** **Room Goya**	**REGULAR TRACK 6: VEHICULAR POWER ELECTRONICS AND MOTOR DRIVES (1/4)** Chairs: Prof. Betty Semail-Lemaire (University of Lille, France) and Prof. Roberto Zanasi (University of Modena and Reggio Emilia, Italia)

RT-6-1-1 **Scalability as a powerful tool in electric drive train simulation**
D. Buecherl, C. Bertram, A. Thanheiser, H.G. Herzog; Technical University of Munich, *Germany*

RT-6-1-2 **Hybrid excitation synchronous motor control with a new flux weakening strategy**
L. Kefsi, Y. Touzani, M. Gabsi; IFP NEW ENERGY, ENS Cachan, *France*

RT-6-1-3 **Experimental investigation of high-flux density magnetic materials for high-current inductors in HEV DC-DC converters**
M. S. Rylko, J. G. Hayes, M. G. Egan; University College Cork, *Ireland*

RT-6-1-4 **Efficiency investigation of high-performance single-phase AC-DC converters for PHEV battery chargers**
F. Musavi, W. Eberle, W. G. Dunford; Delta-Q Technologies Corp., University of British Columbia, *Canada*

RT-6-1-5 **Iron loss of non rare earth traction motor for EVs**
M. Morimoto; Tokai University, *Japan*

RT-6-1-6 **Design of a high-efficiency on-board battery charger for EVs with frequency control strategy**
J.S. Kim, G.Y. Choe , H.M. Jung, B.K. Lee, Y.J. Cho, K.B. Han ; SungKyunKwan University, Samsung Electro-Mechanics, *Korea*

Wednesday Sept. 1st **11:00-13:00** **Room Rubens 1**	**SPECIAL SESSION 4: ELECTRIC DRIVES FOR EVS AND PHEVS** Chairs: Dr. Benjamin Blunier (University of Technology of Belfort-Montbéliard, France) and Dr. Sheldon Williamson (Concordia University, Canada)

SS-4-1 **A novel hybrid excited flux-switching brushless AC machines for EV/HEV applications**
J.T. Chen, Z.Q. Zhu, S. Iwasaki, R. Deodhar; University of Sheffield, IMRA Europe S.A.S., *UK*

SS-4-2 **Efficiency modeling and performance comparison of switched capacitor converter EV/PHEV Drives**
Z. Amjadi, S. Williamson; Concordia University, *Canada*

SS-4-3 **An integrated fast battery charger for EVs**
S. Lacroix, E. Laboure, M. Hilairet; University of Paris 6, *France*

SS-4-4 **Comparison of flux control capability of a series and a parallel double excitation machines**
Y. Amara, G. Barakat, M. Gabsi; University of Le Havre, Ecole Normale Supérieure de Cachan, France

SS-4-5 **Comparative analysis of PSMS Based in-wheel propulsion systems for EV and P-HEV Applications**
M. Jain, T. Rahman, S. Williamson; Concordia University, Infolytica, *Canada*

SS-4-6 **Optimization of the energy consumption of the electric drive for a postal delivery bicycle**
J.M. Timmermans, P. Lataire, J. Van Mierlo; Vrije University of Brussels, *Belgium*

Wednesday Sept. 1st **11:00-13:00** **Room Rubens 2**	**SPECIAL SESSION 10: ADVANCED CONTROL OF MULTI-SOURCE FOR AUTOMOTIVE APPLICATIONS** Chairs: Dr. Mohamed Becherif (University of Technology of Belfort-Montbeliard, France) and Prof. M. H. E. Benbouzid (University of Brest, France)

SS-10-1 **Advantages of variable DC bus voltage for Hybrid Electrical Vehicle**
M. Becherif, M.Y. Ayad; University of Technology of Belfort Montbéliard, *France*

SS-10-2 **Sampled-data energetic management of a fuel cell/supercapacitor system**
F. Tiefensee, M. Hilairet, D. Normand-Cyrot, O. Bethoux; University of Paris-Sud, *France*

SS-10-3 **On the transition improvement of EV/HEV induction motor propulsion densor fault-tolerant controller**
B. Tabbache, M.E.H. Benbouzid, A. Kheloui; University of Brest, Polytechnic Military Academy, *Algeria*

SS-10-4 **Two motors drive system topologies with five-Leg Inverter**
E.C. dos Santos, C.B. Jacobina, O.I. da Silva, A.M.N. Lima; Federal University of Campina Grande, IFET Recife, *Brazil*

SS-10-5 **Nonlinear modeling of Pancake DC limited angle torque motor based on LuGre friction model**
F. Ahmed, S. Laghrouche, University of Technology of Belfort-Montbeliard, *France*

SS-10-6 **A new energy control strategy for a through the road parallel hybrid electric motorcycle**
B. Asaei, M. Habibidoost; University of Tehran, *Iran*

Wednesday Sept. 1st **11:00-13:00** **Room Van Gogh 1**	**SPECIAL SESSION 15: RAILWAYS APPLICATIONS** Chairs: Prof. Michel Hecquet (Ecole Centrale de Lille, France) and Dr. Daniel L. Cadet (Alstom Transport SA, France)

SS-15-1 **Causal-based generation of velocity reference for automatic subways**
J.N. Verhille, R. Bearee, A. Bouscayrol; Siemens Transportation Systems, University of Lille, *France*

SS-15-2 **Sizing of a hybrid locomotive based on accumulators and ultracapacitors**
A. Jaafar, B. Sareni, X. Roboam, M. Thiounn-Guermeur; University of Toulouse, SNCF, *France*

SS-15-3 **PMSM and inverter sizing compromise applied to flywheel for railway application**
M. Sough, D. Depernet, F. Dubas, B. Boualem, C. Espanet ; University of Franche-Comte, Alstom, *France*

SS-15-4 **Experimental set-up to test the power transfer of an innovative subway using supercapacitors**
A. Bouscayrol, W. Lhomme, C. Demian, A.L. Allegre, E. Chattot, S. El Fassi; University of Lille, Siemens Transportation Systems, *France*

SS-15-5 **A novel slip control method considering axle-weight transfer of electric locomotive**
M. Yamashita, T. Soeda; Railway Technical Research Institute, Japan Freight Railway Company, *Japan*

SS-15-6 **Hybrid modeling and applications of virtual metro systems**
W. Wang, M. Cheng, W. Hua, W. Zhao, S. Ding, Y. Zhu; Southeast University, *China*

Dialog session, 14:30-15:30, Wednesday Sept. 1st

Wednesday Sept. 1st **14:30-15:30** **Conference Hall**	**DIALOG SESSION (1/3)** Chairs: Dr. Federica Grossi (University of Modena and Reggio Emilia, Italy) and Dr. Aoife Folley (University College Cork, Ireland)

DI-1-1 **A series-parallel hybrid electric powertrain for industrial vehicles**
S. Grammatico, A. Balluchi, E. Cosoli; University of Pisa, Pure Power Control s.r.l, Dana Italia s.p.a, *Italia*

DI-1-2 **Development and validation of emissions and fuel economy test procedures for heavy duty HEV**
Q. Kongjian, O. Minggao, L. Qingchun, F. Maodong, G. Jidong, G. Junhua; Tsinghua University Beijing, China Automotive Technology and Research Center Tianjin, *China*

DI-1-3 **Emissions and fuel consumption on road test from diesel and hybrid buses under real road conditions**
J. Merkisz, J. Pielecha; Poznan University of Technology, *Poland*

DI-1-4 **Improvement of energy density of H2 generator system using sodium borohydride for Fuel Cell HEV**
N. Hoshi, S. Murooka, M. Cao, A. Yoshizaki, K. Hirata; Tokyo University of Science, Tokyo Metropolitan College of Industrial Technology, Hydric Power Systems, *Japan*

DI-1-5 **Conceptual design of a pure electric vehicle**
C. Weissinger, D. Buecherl, H.G. Herzog; Technical University of Munich, *Germany*

DI-1-6 **Development of short-range frequent-recharging small EV equipped with non-contact inductive power supply system and LiFePO4 Lithium-ion battery**
F. Yoshiad, S. Ito, Y. Kamiya, Y. Daishao, K. Abe, S. Takahashi, M. Kono, H. Matsuo; Waseda University, Mitsui Eng. & Shipbuilding, Elexcel Corporation, DC Power, *Japan*

DI-1-7 **Stochastic analysis on the energy constraint of V2G frequency regulation**
S. Han, S. H. Han, K. Sezaki; The University of Tokyo, Konkuk University, *Japan*

DI-1-8 **An improved ampere-hour method for battery state of charge estimation based on temperature, Coulomb efficiency model and capacity loss model**
G. Wu, R. Lu, C. Zhu, C.C. Chan; Harbin Institute of Technology, *China*

DI-1-9 **Analysis of operation modes for a neighborhood EV with power sources hybridization**
J.P. Trovão, P.G. Pereirinha, H.M. Jorge; Polytechnic Institute of Coimbra, University of Coimbra, INESC-Coimbra, APVE, *Portugal*

DI-1-10 **Buck-boost equalizer for supercapacitor modules**
S. Zhang, R. Lu, J. Sun; Harbin Institute of Technology, *China*

DI-1-11 **Car and renewable energy storage accumulators active life extension and minimization of hazardous waste eco-Impact**
O. Ustun, Istanbul Technical Universty, *Turkey*

DI-1-12 **Evaluation of the benefits of using dual-source energy storage in hybrid electric vehicles**
A. Lajunen; Aalto University, *Finland*

DI-1-13 **Grid-connected EV charger station based on Lithium Polymer battery energy storage system**
D.Y. Jung, Y.H. Ji, C.Y. Won, T.K. Lee, S.W. Lee, K.D. Seo; University of Sungkyunkwan, Hankyong National Universuty, EN technologies Inc. SK Ventium, *Korea*

DI-1-14 **Impedance measurements and fuzzy logic method to assess SOC and SOH of Lithium-ion cells**
A. Zenati, Ph. Desprez, H. Razik, S. Rael; SAFT, University of Lyon, INPL/ENSEM/GREEN, *France*

DI-1-15 **Mathematical modeling of aging factors for Li-ion battery cells**
H. Al Jed, A. Mieze, J.M. Vinassa, R. Simon; EIGSI, University of Bordeaux 1, La poste, *France*

DI-1-16 **Modeling of an hybrid solar car with a lithium-ion battery**
L. Ménard, S. Astier, G. Fontès, J.M. Blaquière, C. Turpin, F. Gailly; University of Toulouse, *France*

DI-1-17 **Backstepping control design of a supercapacitor storage subsystem for traction applications**
M. A. Leblanc, P. Sicard, W. Lhomme; Université du Québec Trois-Rivières, University of Lille, *Canada, France*

DI-1-18 **A chassis dynamometer lab. for Fuel Cell HEV and the hydrogen consumption measurement system**
M. Chen, Z. Jin, Q. Lu, X. Ye, M. Fang, K. Qin; Tsinghua University, China Automotive Technical & Research Center, *China*

DI-1-19 **Development of design tool for hybrid power systems of hybrid electric military combat vehicles**
D.H. Choi, S.J. Lee, B.H. Cho, Y.G. Yoon; Seoul National University, Samsung Techwin, *Korea*

DI-1-20 **Dynamic analyses and parametrics studies simulation method for drivability control of a double transition shifting process**
D. Wu, Y.P. Chang; Oakland University, *USA*

DI-1-21 **Fast multi objective optimization of an automotive PMSM using mixed BEM with genetic algorithms**
S. Touati, R. Ibtiouen, O. Touhami, A. Djerdir; Nuclear research centre of BIRINE, Ecole Nationale Polytechnique d'Alger, University of Technology of Belfort-Montbeliard, *France*

DI-1-22 **Mechanism analysis of automobile brake groan based on seven degrees of freedom modal**
X. Meng, Z. Song; Shandong University of Technology, Tongji University, *China*

DI-1-23 **Neural adaptive control strategy for HEV with parallel powertrain**
Y. Gurkaynak, A. Khaligh, A. Emadi; Illinois Institute of Technology, *USA*

DI-1-24 **Statistical analysis based PHEV fleet data study**
Qi. Gong, S. Midlam-Mohler, V. Marano, G. Rizzoni, Y. Guezennec; The Ohio State University, *USA*

DI-1-25 **Torque coordination of clutch, engine and motor during power transition for a hybrid electric bus**
L. Chen, G. Xi, M.M. Zhang; Shanghai Jiao Tong University, *China*

DI-1-26 **Validation of quasi-static series HEV simulation model**
M. Liukkonen, A. Hentunen, J. Suomela; Aalto University, *Finland*

DI-1-27 **Fuel efficient control strategy, based on battery-ultracapacitor system, in Parallel HEVs**
A. Hossein Eghbali, B. Asaei, P. Naderi; University of Tehran, *Iran*

DI-1-28 **Improvement of fuel economy in powershift automated manual transmission through shift strategy optimization**
D.V. Ngo, T. Hofman, M. Steinbuch, A. Serrarens, L. Merkx; Eindhoven University of Technology, Drivetrain Innovations, *Netherlands*

DI-1-29 **Anti-lock and anti-slip braking system, using fuzzy logic and sliding mode controllers**
P. Naderi, A. Farhadi, M. Mirsalim, T. Mohammadi; Islamic Azad University, Shahid Rajaee University, Amirkabir University, *Iran*

DI-1-30 **Estimation of the induction motor parameters of an Electric Vehicle**
J.M. Terras, A. Neves, D.M. Sousa, A. Roque; Instituto Superior Técnico Lisboa, Instituto Politécnico de Setúbal, *Portugal*

DI-1-31 **Neural network setting PID control of HEV electronic throttle**
X. Wu, J. Bing, X. Wang, L. Ye; Harbin University of Science & Technology, *China*

DI-1-32 **Power source to wheel model of a high efficiency fuel cell based vehicle**
J-C Olivier, G. Wasselynck, D. Trichet, B. Auvity, C. Josselt, C. Le-Bozec; Polytechnic School of Nantes University, *France*

DI-1-33 **Design of a linear magnetic-geared free-piston generator for series HEVs**
W. Li, S. Gao, D. Wu, X. Zhang; University of Hong Kong, *China*

DI-1-34 **Different energy managements of Hybrid Energy Storage System using batteries and supercapacitors**
A. L. Allegre , R. , A. Bouscayrol; University of Lille, INRETS, MEGEVH national project, *France*

DI-1-35 **Vehicle development process for EcoCAR: the next challenge competition**
K. Patil, T. Maxwell, S. Bayne, R. Gale; Texas Tech University, *USA*

DI-1-36 **Design and Application of Parallel Hybrid Vehicle Simulation Platform**
X. Ye, Z. Jin, B. Liu, M. Chen, Q. Lu; Tsinghua University, *China*

DI-1-37 **Fuzzy control of PWM converters**
S. El Beid, S. Oubabi; Faculty of Sciences and Technology of Marrakech, *Marroco*

DI-1-38 **Design of switching power converter of PMSM power driver for HEV**
N. Jin, X. Wang; Harbin University of Science & Technology, *China*

DI-1-39 **Electric karting modeling using induction motor in Matlab/Simulink software**
D. Istardi; Batam Polytechnics, *Indonesia*

DI-1-40 **Preliminary design of a series hybrid pneumatic powertrain for a city Car**
R. Hayeri, A. Taghavi, M. Durali; Sharif University of Technology, *Iran*

Lecture sessions, 16:00-18:00, Wednesday Sept. 1st

Wednesday Sept. 1st **16:00-18:00** **Room Rembrandt**	**REGULAR TRACK 3: MODELING, ANALYSIS, DYNAMICS & CONTROL (2/4)** Chairs: Dr. John Kessels (Technische Universiteit Eindhoven, Netherlands) and Prof. Thierry Marie-Guerra (University of Valenciennes and Hainaut-Cambrésis, France)

RT-3-2-1 **Fuel-efficient state of charge control in HEVs**
T. Salcher, L. Neumann, G. Kramer, H.G. Herzog; Technical University of Munich, BMW Group, *Germany*

RT-3-2-2 **Hardware-in-the-Loop verification environment for heavy-duty HEVs**
A. Hentunen, J. Suomela, A. Leivo, M. Liukkonen, P. Sainio; Aalto University, *Finland*

RT-3-2-3 **Modeling storage characteristics of EVs in the Grid**
K. Lipiec, P. Komarnicki; Fraunhofer Institute for Factory Operation and Automation, *Germany*

RT-3-2-4 **Modelling of anisotropic synchronous machine in stator reference frame**
J. Fang, C. Heising, V. Staudt, A. Steimel; Ruhr-University Bochum, *Germany*

RT-3-2-5 **Multi-fidelity simulation modelling in optimization of a submarine propulsion system**
A. Molina-Cristobal, P. R. Palmer, B.A. Skinner, G.T. Parks; University of Cambridge, *UK*

RT-3-2-6 **Formula Zero: development and karts competition driven by PEMFC**
J. Mora ; Foundation Hydrogen Aragon, *Spain*

Wednesday Sept. 1st **16:00-18:00** **Room Van Gogh 2**	**REGULAR TRACK 2: ENERGY STORAGE COMPONENTS / SYSTEMS (2/2)** Chairs: Prof. Marie-Cecile Pera (University of Franche-Comte, France) and Dr. Francois Badin (IFP New Energy, France)

RT-2-2-1 **High power Lithium batteries usage in hybrid vehicles**
M. Ceraolo, G. Lutzemberger, M. Marracci; University of Pisa, *Italia*

RT-2-3-2 **Sizing and experimental characterization of ultra-capacitors for small urban hybrid electric vehicle**
D. Loukakou, H. Gualous, Y. Cheng, C. Espanet, F. Dubas ; University of Franche-Comte, University of Caen, Harbin Institute of Technology, *France, China*

RT-2-2-3 **Parameterization of an electrical battery model for dynamic system simulation in EVs**
M. Einhorn, V.F. Conte, C. Kral, J. Fleig , R. Permann; Austrian Inst. of Tech., Vienna University of Tech., *Austria*

RT-2-2-4 **Buck-boost converters design for ultracapacitors and lithium Battery mixing in HEV Applications**
M.B. Camara, H. Gualous, B. Dakyo, C.Nichita, P. Makany; University of Le Havre, University of Caen, *France*

RT-2-2-5 **Li-ion thermal issues and modelling in nominal and extreme operating conditions for HEV / PHEVs**
E. Prada, R. Mingant, J. Bernard, V. Sauvant; IFP New Energy, *France*

RT-2-2-6 **Temperature effects on fast charging large format prismatic Lithium Iron Phosphate cells**
D.D. Patel, F.P. Tredeau, Z.M. Salameh; University of Massachusetts Lowell, *USA*

Wednesday Sept. 1st **16:00-18:00** **Room Goya**	**REGULAR TRACK 4: VEHICULAR ELECTRIC POWER SYSTEMS AND LOADS** Chairs: Prof. Nadir Idir (University of Lille, France) and Prof. Josep Balcells (Universitat Politecnica de Catalunya, Spain)

RT-4-1 **Modelling and inversion-based control of a magnetorheological vehicle suspension**
H. Sleiman, B. Lemaire-Semail, S.Clénet, J.Lozada; CEA LIST, Arts&Métiers ParisTech, University of Lille, *France*

RT-4-2 **Energy efficiency analysis and comparison of transmission technologies for an EV**
T. Hofman, C.H. Dai; Technical University of Eindhoven, *Netherlands*

RT-4-3 **Modeling of the automotive power supply network with VHDL-AMS**
M. Diebig, S. Frei, H. Reitinger, C. Ullrich; Technical University of Dortmund, AUDI AG, *Germany*

RT-4-4 **Theory of operation, design and simulation of a bidirectional LLC resonant converter for vehicular applications**
G. Pledl, M. Tauer, D. Buecherl; Finepower GmbH, Technical University of Munich, *Germany*

RT-4-5 **Impacts of electric vehicle loads on power distribution systems**
R. Jayakrishnan, P. Bak-Jensen, B. Bak-Jensen; Aalborg University, *Denmark*

RT-4-6 **Implementation of a battery charging system in assisting grid frequency stabilisation through dynamic demand control**
C.Y. Huang, J.T. Boys, G.A. Covic, J.R. Lee, R.V. Stebbing; The University of Auckland, *New-Zeland*

Wednesday Sept. 1st **16:00-18:00** **Room Van Gogh 1**	**REGULAR TRACK 6: VEHICULAR POWER ELECTRONICS AND MOTOR DRIVES (2/4)** Chairs: Dr. Xavier Roboam (University of Toulouse, LAPLACE, France) and Dr. Alireza Khaligh (Illinois Institute of Technology, USA)

RT-6-2-1 **Mitigation of acoustic noise and vibration in PMSM drive using field reconstruction method**
B. Sutthiphornsombat, A. Khoobroo, B. Fahimi; University of Texas at Arlington, *USA*

RT-6-2-2 **Design and implementation of an electric differential for traction applications**
A. Haddoun, M.E.H. Benbouzid, D. Diallo, R. Abdessemed, J. Ghouili, K. Srairi; University of Brest, University of Oum El Bouaghi, University of Paris 11, University of Batna, University of Moncton, University of Biskra, *France, Algeria, Canada*

RT-6-2-3 **Optimal Design of Electrical Drive and Power Converter for Hybrid Electric Powertrain**
Z. Wu, D. Depernet, C. Espanet ; University of Franche-Comte, University of Technology of Belfort-Montbeliard, *France*

RT-6-2-4 **Detection of static sotor eccentricity in PMSM drives using field reconstruction method**
Amir Khoobroo, Babak Fahimi; University of Texas at Arlington, *USA*

RT-6-2-5 **Design and control of the induction motor propulsion of an EV**
B. Tabbache, A. Kheloui, M.E.H. Benbouzid; University of Brest, Polytechnic Military Academy, *France, Algeria*

RT-6-2-6 **Optimal design of a PMSM using concentrated winding for small hybrid vehicle**
H. Mai, R. Bernard, P. Bigot, F. Dubas, D. Chamagne, C. Espanet; University of Franche-Comte, Novelte System, *France*

Wednesday Sept. 1st **16:00-18:00** **Room Rubens 2**	**SPECIAL SESSION 6: EMR AND OTHER GRAPHICAL DESCRIPTIONS** Chairs: Dr. Keyu Chen (University of Lille, MEGEVH Network, France) and Prof. Pierre Sicard (University of Quebec at Trois-Rivieres, Canada)

SS-6-1 **Introduction to the Special Ssession 6: EMR and other Graphical Descriptions**
Dr. K. Chen and Prof. P. Sicard; University of Lille, University of Quebec at Trois-Rivieres, *France, Canada*

SS-6-2 **The Bond Graph, an excellent modelling tool to study abstraction level and structure comparison**
G.H. Geitner; Dresden Technical University, *Germany*

SS-6-3 **The Power-Oriented Graphs technique: system modeling and basic properties**
R. Zanasi; University of Modena e Reggio Emilia, *Italia*

SS-6-4 **An energetic based method leading to merged control loops for the stability of input filters**
P. Barrade, A. Bouscayrol, P. Delarue; EPF Lausanne, University of Lille, *France*

SS-6-5 **Modelling of power split device for heavy-duty vehicles**
S. S. Ali , W. Lhomme , A. Bouscayrol , O. Pape , G. Le Trouhe , University of Lille, Nexter, MEGEVH network, *France*

SS-6-6 **Practical control structure of a heavy duty hybrid EV**
J. Solano-Martinez, D. Hissel, M.C. Péra, M. Amiet, University of Franche Comté, Army General Direction, *France*

Wednesday Sept. 1st **16:00-18:00** **Room Rubens 1**	**SPECIAL SESSION 7: POWER ELECTRONICS FOR FUEL CELL VEHICLES** Chairs: Dr. David Bouquain (University of Technology of Belfort Montbéliard) and Dr. Sheldon Williamson (university of Concordia, Canada)

SS-7-1 **A DSP digital controller design and implementation of high power boost converter in HEVs**
O. Ellabban, O. Hegazy, J. Van Mierlo, P. Lataire; Vrije University of Brussel, *Belgium*

SS-7-2 **On the suitability of Gallium-Nitride (GaN) based automotive power electronics**
S. Dargahi, S. Williamson; Concordia University, *Canada*

SS-7-3 **State-of-the-art of DC-DC converters for Fuel Cell Vehicles**
M. Kabalo, B. Blunier, D. Bouquain, A. Miraoui; University of Technology of Belfort-Montbéliard, *France*

SS-7-4 **Modeling, design and control of a Fuel Cell/ Battery/Ultracapacitor EV Energy Storage System**
S. Kim, S. Williamson; Concordia University, *Canada*

SS-7-5 **Single-stage fuel-cell inverter with new control strategy**
L. Garcia, L. de Freitas, H. Avelar, N. Costa, J. Junior, E. Coelho, V. Farias, L. Freitas; Nucleo de Pesquisas em Eletronica de Potencia, National University of Uberlandia, *Brazil*

SS-7-6 **Hybrid control technique applied in a FC-SC EV**
I. Cervantes, F. Perez-Pinal, A. Mendoza-Torres, J. Leyva-Ramos; IPICyT, *Mexico*

Thursday September 2nd 2010

Keynote session, 08:30-09:30, Thursday Sept. 2nd

Thursday Sept. 2nd **8:30-9:30** **Amphi Pasteur**	**PLENARY SESSION (2/3)** Chair: Dr. Rochdi Trigui (INRETS, MEGEVH Network, France)

PL-2-1 **Technical challenge of hybrid and plug-in hybrid vehicles**
Dr. François Badin, IFP New Energy, *France*

PL-2-2 **Electric Vehicle Program of Renault-Nissan Alliance**
Dr. Jérôme Perrin; Renault-Nissan, *France*

PL-2-3 **Electrical Propulsion System: a permanent innovation challenge for Alstom**
Ing. Alain Jullien; Alstom Transport/PRIMES, *France*

Dialog session, 09:30-10:30, Thursday Sept. 2nd

Thursday Sept. 2nd **9:30-10:30** **Conference Hall**	**DIALOG SESSION (2/3)** Chairs: Dr. Jean-Marc Timmermans (Vrije Universiteit Brussel, Belgium) and Dr. Peyman Naderi (Islamic Azad University, Iran)

DI-2-1 **Development of contact-wire/battery hybrid LRV**
M. Ogasa, Y. Taguchi; Railway Technical Research Institute, *Japan*

DI-2-2 **Electric vehicles and displaced gaseous emissions**
A. Foley, P. Leahy, E. McKeogh, B. O Gallachoir; University College Cork, *Ireland*

DI-2-3 **Experimental investigation on voltage stability in vehicle power nets for distribution management**
T. Kohler, T. Wagner, A. Thanheiser, C. Bertram, D. Buecherl, H.G. Herzog, J. Froeschl, R. Gehring; Technical University of Munich, BMW Group, *Germany*

DI-2-4 **Magnetic design for a 3-phase inductive power transfer system for roadway powered EVs**
M. Budhia, G. Covic, J. Boys, University of Auckland, *New-Zeland*

DI-2-5 **Specialized battery emulator for automotive electrical systems**
T. Baumhöfer, W. Waag, D.U. Sauer, RWTH Aachen University, *Germany*

DI-2-6 **State-of-the-art in EV charging infrastructure**
A.M. Foley, I.J. Winning, B.P. Ó Gallachóir; University College Cork, Cork City Council, *Ireland*

DI-2-7 **Study on resistance setting method for chassis dynamometer test of hybrid electric bus**
F. Maodong, P. Lei, Q. Weigao, Q. Kongjian, G. Junhua; School of Automobile Engineering, China Automotive Technology and Research Center, *China*

DI-2-8 **Eddy current based, contactless position transducer for a gas handle**
A. Van den Bossche, P. Sergeant; Ghent University, *Belgium*

DI-2-9 **Portable vehicular electronic nose system for detection of automobile exhaust**
Q. Wang, K. Song, T. Guo; Harbin Institute of Technology, *China*

DI-2-10 **A bi-directional battery charger for EVs using photovoltaic PCS systems**
G.Y. Choe, J.S. Kim, B.K. Lee, C.Y. Won, T.W. Lee; Sungkyunkwan University, Samsung Electro-Mechanics, *Korea*

DI-2-11 **A study on design of inverter for multi-phase brushless DC ship propulsion motor**
S.J. Park, J.H. Song, H.Y. Choi, M.L. Lee, Y.K. Kong, J.G. Bin; Hyosung Corporation, Agency for Defense Development, *Korea*

DI-2-12 **Advantages of a variable DC-link voltage by using a DC-DC converter in HEVs**
T. Schoenen, M. Kunter, M. Hennen, R. De Doncker; RWTH Aachen University, *Germany*

DI-2-13 **BLDC drive control of electric water pump for automotive application**
J.S. Park, J.H. Choi, B.G. Gu, I.S. Jung; Korea Electronics Technology Institute, *Korea*

DI-2-14 **Control of IPMSM for commercial hybrid vehicle**
B.S. Jun, J.H. Lee, T.K. Lee, C.Y. Won; University of Sungkyunkwan, Hankyong National University, *Korea*

DI-2-15 **Electrical loss minimization strategy for interior permanent magnet synchronous motor drives**
M. Cao, N. Hoshi; Tokyo Metropolitan College of Industrial Technology, Tokyo University of Science, *Japan*

DI-2-16 **Electromagnetic performance analysis of hybrid-excited flux-switching machines for EV**
W. Hua, G. Zhang, M. Cheng; Southeast University, Nanjing, *China*

DI-2-17 **Finite element analysis and experimental studies on hybird magnetic bearing**
L. Song, J. Gao, W. Zhu, Q. Zeng; Harbin Institute of Technology, *China*

DI-2-18 **High torque double-stator switched reluctance machine for EV propulsion**
M. Abbasian, B. Fahimi, M. Moallem; Isfahan University of Technology, University of Texas Arlington, *Iran, USA*

DI-2-19 **Single-phase high power hybrid front-end rectifier with soft-commutation**
G. Lima, L. de Freitas, J. Vieira Jr. , E. Coelho, L. Freitas; Federal University of Uberlândia, *Brazil*

DI-2-20 **Influence of material doping degree on performance of IMCCR used for EV**
C. Junci, L. Weili, Z. Yihuang, H. Feiyang, Z. Xiaochen; Harbin Institute of Technology, *China*

DI-2-21 **Modeling power semiconductor losses in HEV powertrains using Si and SiC devices**
J.K. Reed, J. McFarland, J. Tangudu, E. Vinot, R. Trigui, G. Venkataramanan, S. Gupta, T. Jahns; University of Wisconsin-Madison, INRETS, *USA, France*

DI-2-22 **Multi-objective optimization of a switched reluctance motor for light electric traction**
D. Ilea, M. Radulescu, F. Gillon, P. Brochet; Technical University of Cluj-Napoca, Ecole Centrale de Lille, *France*

DI-2-23 **Pole-restraining control of active front end for shore-side power supply of ships**
C. Heising, M. Oettmeier, V. Staudt, A. Steimel; Ruhr-University of Bochum, *Germany*

DI-2-24 **Power-electronic based machine emulator for high-power high-frequency drive converter test**
M. Oettmeier, R. Bartelt, C. Heising, V. Staudt, A. Steimel, St. Tietmeier, B. Bock, Ch. Doerlemann; Ruhr-University of Bochum, Scienlab electronic systems GmbH, *Germany*

DI-2-25 **Multiobjective optimal design of a voltage supply inverter fed in-wheel synchronous motor**
C. Versele, O. Deblecker, Z. de Greve, J. Lobry; Faculté Polytechnique de Mons, *Belgium*

DI-2-26 **An automotive thermoelectric-photovoltaic hybrid energy system**
X. Zhang, K.T. Chau, C.C. Chan, S. Gao; The University of Hong Kong, *China*

DI-2-27 **Remedial operation of a fault-tolerant flux-switching permanent-magnet motor for HEV applications**
W. Zhao, M. Cheng, W. Hua, H. Jia, R. Cao, W. Wang; *Southeast University, Jiangsu University, China*

DI-2-28 **Thermal stress analysis for IGBT inverter systems**
V. Delafosse, S. Stanton, K. Karimanal, M. Rosu; Ansys, *France*

DI-2-29 **A new permanent-magnet vernier in-wheel motor for EV**
J. Li, D. Wu, X. Zhang, S. Gao; The University of Hong Kong, *China*

DI-2-30 **Advantages of a new approach for estimating the stator resistance of a PMSM**
S.L. Kellner, B. Piepenbreier; Friedrich-Alexander-University Erlangen-Nuremberg, *Germany*

DI-2-31 **Reluctance torque analysis and reactance calculation of IPM for HEVs Based on FEM**
L. Song, D. Jiang, S. Cui, S. Sheng; Harbin Institute of Technology, *China*

DI-2-32 **EV powertrain simulation to optimize battery and vehicle performances**
N. Janiaud, F.X. Vallet, M. Petit, G. Sandou; SUPELEC, Renault, *France*

DI-2-33 **Method to design the leakage inductances of a multiwinding transformer for a multisource energy management system**
U. Steiger, S. Mariethoz; ETH Zürich, *Switzerland*

DI-2-34 **Predictive adaptive robust control for fuel cells hybrid vehicles**
L.N. Degliuomini, D. Zumoffen, M. Basualdo, D. Feroldi, J. Riera; CAPE-GIAIP, National University of Rosario, University of Barcelona, *Spain*

DI-2-35 **The use of supercapacitors in EV: modeling, sizing and control**
M. Y. Ayad, M. Becherif, S. AitCheikh, M. Wack; University of Technology of Belfort-Montbeliard, *France*

DI-2-36 **Evaluation of performance characteristics of various lithium batteries for use in BEV application**
N. Omar, B. Verbrugge, G. Mulder, P. Van den Bossche, J. Van Mierlo, M. Daowd, M. Dhaens, S. Pauwels; Vrije University of Brussel, Erasmus University College Brussels, VITO, Flanders Drive, *Belgium*

DI-2-37 **Hybridization of an aircraft emergency electrical network: experimentation and benefits validation**
K. Rafal, B. Morin, X. Roboam, E. Bru, C. Turpin, H. Piquet; Warsaw University of Technology, University of Toulouse, *Poland, France*

DI-2-38 **A Review of flux-weakening control in permanent magnet synchronous machines**
D. Lu, N. C. Kar; University of Windsor, *UK*

DI-2-39 **Comparative study of various current controllers for the switched reluctance machine**
X. Rain, M. Hilairet, O. Bethoux; SUPELEC, University of Paris 6, Université of Paris 11, *France*

DI-2-40 **Efficiency of a regenerative direct-drive electromagnetic active suspension**
B. Gysen, T. Van der Sande, J. Paulides, E. Lomonova; Eindhoven University of Technology, *Netherlands*

DI-2-41 **Comparison of control performance of PMSM of different rotor structure**
J. Gao, R. Li, S. Huang, Z. Chen; Hunan University, *China*

DI-2-42 **Maximum torque per ampere and flux-weakening control for PMSM based on curve fitting**
S. Huang, Z. Chen, K. Huang, J. Gao; Hunan University, *China*

Lecture sessions, 11:00-13:00, Thursday Sept. 2nd

Thursday Sept. 2nd **11:00-13:00** **Room Rembrandt**	**REGULAR TRACK 1: ADVANCED VEHICLES** Chairs: Dr. Sébastien Delprat (University of Valenciennes and Hainaut-Cambrésis, France) and Prof. Nobuyoshi Mutoh (Tokyo Metropolitan University, Japan)

RT-1-1 **Fuel cell system integration into a heavy-duty hybrid vehicle: preliminary experimental results**
J. Mulot, F. Harel, S. Begot, D. Hissel, I. Rodel, S. Boblet, M. Amiet; University of Franche-Comte, Panhard General Defense, Helion Fuel Cells, DGA, *France*

RT-1-2 **ARCHYBALD: an hybrid transmission for heavy vehicles**
A.C. Sautter, V. Venaille, G. Le Trouher, J.L. Bouysset, O. Pape; Université de Technologie de Belfort-Montbéliard, Nexter Systems, MEGEVH network, *France*

RT-1-3 **A control analysis of high-peformance hybrid EVs**
J. Sibley, A. Emadi; Illinois Institute of Technology, *USA*

RT-1-4 **Integrated energy and emission management for hybrid electric truck with SCR aftertreatment**
J.T. Kessels, F. Willems, W. Schoot, P. van den Bosch; TNO Science and Industry, Technical University of Eindhoven, *Netherlands*

RT-1-5 **Braking control for front-and-rear-wheel-independent-drive type EVs on low friction coefficient roads**
N. Mutoh, T. Ustunomiya, H. Akashi, S. Tastuoka; Tokyo Metropolitan University, *Japan*

RT-1-6 **System design and optimization of the worlds fastest hydrogen fuel cell vehicle**
E. Hillstrom, K. Ponziani, B. Sinshiemer, C. Bork, M. Canova, Y. Guezennec, G. Rizzoni, M. Procter, Ohio State University, AFCC (Previously Ballard Power Systems), *USA, Canada*

Thursday Sept. 2nd **11:00-13:00** **Room Goya**	**REGULAR TRACK 6: VEHICULAR POWER ELECTRONICS AND MOTOR DRIVES (3/4)** Chairs: Prof. Eric Semail (Arts et Metiers PARISTECH, France) and Prof. Massimo Ceraolo (Università di Pisa, Italia)

RT-6-3-1 **Low cost flux-switching brushless AC machines**
J.T. Chen, Z.Q. Zhu, S. Iwasaki, R. Deodhar; University of Sheffield, IMRA Europe S.A.S., *UK*

RT-6-3-2 **Simulating the RRS James Clark Ross as part of a multiobjective design process**
A. Kwiatkowski, P. Palmer, A. Molina-Cristobal, R. Bridgeman, G. Parks; University of Cambridge, *UK*

RT-6-2-3 **Modeling and simulation of switched capacitor converters for EV energy storage systems**
Z. Amjadi, S. Williamson; Concordia University, *Canada*

RT-6-3-4 **Analysis of average torque in switched reluctance motor with unipolar and bipolar excitations**
X. Liu, Z.P. Pan, Z.Q. Zhu; Zhejiang University, University of Sheffield, *UK*

RT-6-3-5 **An integrated charger for Plug-in HEV based on a special interior permanent magnet motor**
S. Haghbin, M. Alakula, K. Khan, S. Lundmark, M. Leksell, O. Allmark, O. Carlson; Chalmers University of Technology, Lund University, Royal Institute of Technology, *Sweden*

RT-6-3-6 **On braking efficiency of urban electric transportation systems based on power electronics**
P.M. Nicolae, I.D. Nicolae; University of Craiova, *Romania*

Thursday Sept. 2nd **11:00-13:00** **Room Van Gogh 1**	**SPECIAL SESSION 1:STORAGE ENERGY MANAGEMENT IN ELECTRIC VEHICLES (1/2)** Chairs: Dr. Jordi Riera (Universitat Politècnica de Catalunya, Spain) and Dr. Olivier Bethoux (University of Paris Sud 11, France)

SS-1-1-1 **Introduction to Special Session 1:Storage Energy Management in Electric Vehicles**
Dr. Jordi Riera, O. Bethoux; Universitat Politècnica de Catalunya - CSIC, University of Paris Sud 11, *Spain, France*

SS-1-1-2 **Fuel cell electric scooter: considerations toward an optimized architecture**
D. Chrenko, M. Kabalo, F. Gao, B. Blunier, D. Bouquain, A. Miraoui; University of Bourgogne, University of Technology of Belfort-Montbeliard, *France*

SS-1-1-3 **Design of a supercapacitor-battery storage system for a waste collection vehicle**
S. Butterbach, B. Vulturescu, G. Coquery, Ch. Forgez, G. Friedrich; INRETS, Compiegne University of Technology, *France*

SS-1-1-4 **On-line energy management for HEV based on particle swarm optimization**
S. Caux, D. Wanderley-Honda, D. Hissel, M. Fadel; University of Toulouse, University of Franche-Comte, *France*

SS-1-1-5 **Corrective action with power cConverter for faulty multiple fuel cells generator used in transportation**
E. Frappé, A. De Bernardinis, G. Coquery, O. Bethoux, C. Marchand; INRETS, University of Paris 6, University of Paris 11, SUPELEC, *France*

SS-1-1-6 **Model predictive control for power management in hybrid fuel cell vehicles**
C. Bordons, M. A. Ridao, A. Pérez, A. Arce, D. Marcos; University of Seville, *Spain*

Thursday Sept. 2nd **11:00-13:00** **Room Rubens 2**	**SPECIAL SESSION 5: DIAGNOSTICS OF FUEL CELL VEHICLES** Chairs: Dr. Loïc Boulon (Université de Québec à Trois Rivières, Canada) and Dr. Samir Jemei (University of Franche-Comte, France)

SS-5-1 **Diagnosis of a hydrogen/air fuel cell by a statistical model-based method**
A. Zeller, O. Rallières, J. Régnier, C. Turpin; University of Toulouse, *France*

SS-5-2 **Macroscopic modeling of a PEM fuel cell gas supply taking into account the water phenomena**
L. Boulon, K. Agbossou, D. Hissel, A. Bouscayrol, P. Sicard, A. Hernandez, M.C. Péra; Université de Québec à Trois Rivières, Institut de Recherche sur l'Hydrogène, University of Franche-Comte, University of Lille, Escuela Colombiana de Ingenieria Julio Garavito, MEGEVH network, *Canada, France, Colombia*

SS-5-3 **Robust LPV model-based fault diagnosis using relative fault sensitivity signature and residual directions approaches in a PEM Fuel Cell**
S. De Lira, V. Puig, J. Quevedo, A. Husar; Technical University of Catalonia, *Spain*

SS-5-4 **Diagnosis of a Fuel Cell stack using electrochemical impedance spectroscopy and bayesian networks**
S. Wasterlain, V. Puig, D. Candusso, F. Harel, X. François, D. Hissel; University of Franche-Comte, University of Technology of Belfort-Montbéliard, INRETS, France

SS-5-5 **Fuel Cell system improvement for model-based diagnosis Analysis**
M. Batteux, P. Fiani, N. Rapin, P. Dague; Sherpa Engineering, CEA, University of Paris 11, INRIA, *France*

SS-5-6 **Real time model based monitoring of a PEM fuel cell flooding and drying out**
N. Fouquet; PSA Peugeot Citroen, *France*

Thursday Sept. 2nd **11:00-13:00** **Room Rubens 1**	**SPECIAL SESSION 8: EMI/EMC FOR VEHICULAR SYSTEMS** Chairs: Dr. Mathias Enohnyaket (Lulea University of Technology, Sweden) and Prof. Nadir Idir (University of Lille, France)

SS-8-1 **EMI model of an AC/AC power converter**
J. Espina, J. Balcells, A. Arias, C. Ortega, N. Berbel; Polytechnical University of Catalunya, Escola Universitària Salesiana de Sarrià, *Spain*

SS-8-2 **Parameter characterization of low frequency pulsating emissions from space Vector PWM drives**
M. Enohnyaket, K. Hyyppa, J. Delsing; Lulea University of Technology, *Sweden*

SS-8-3 **Correlation between the near magnetic field radiated by an EMI filter and its electric working**
C. Labarre, F. Costa, J. Ecrabey; Ecole des Mines de Douai, ENS Cachan, Schneider Electric, *France*

SS-8-4 **Design of EMI Filters for DC-DC converter**
J. L. Kotny, T. Duquesne, N. Idir; University of Lille, *France*

SS-8-5 **Determination of the high frequency parameters of the power transformer used in railway substations**
H. Ouaddi, G. Nottet, S. Baranowski, L. Kone, N. Idir; Alstom transport, University of Lille, *France*

SS-8-6 **A feedback-type common mode active filter for vehicular induction motor drives**
M.C. Di Piazza, A. Ragusa, G. Vitale; Institute on Intelligent Systems for the Automation, *Italia*

Thursday Sept. 2nd **11:00-13:00** **Amphi Pasteur**	**SPECIAL SESSION 16: FRENCH FRAMEWORK ON VEHICLE RESEARCH** Chairs: Dr. Francois Badin (IFP New Energy, France) and Mr. Daniel Richard (VALEO, France)

SS-16-1 **Land transportation French programme for coordinating research and innovation policy**
B. Duhem, PREDIT, *France*

SS-16-2 **HyHIL: online optimal control of a parallel hybrid with after-treatment constraint integration**
A. Chasse, G. Corde, A. Del Mastro, F. Perez; IFP New Energy, D2T, *France*

SS-16-3 **Lifemit**
P. Desprez, S. Benjamin, F. Jegat, F .Duclaud, J.M. Bourdet, J.L. Bouysset, O. Pape, S.M. Qaisar, D. Dallet, S. Rael, B. Davat; SAFT, L3E-EIGSI, Nexter Systems, ENSEIRB, INP Lorainne, *France*

SS-16-4 **STEEM: ALSTOM and RATP experience of supercapacitors in tramway operation**
J.P. Moskowitz, J.L. Cohuau; Alstom Transport, RATP, *France*

SS-16-5 **ARCHYBALD project on new HEV powertrains**
O. Pape, W. Lhomme, D. Depernet, B. Vulturescu, L. Bregeon; Nexter, University of Lille, University of Technology of Belfort-Montbeliard, INRETS, BATSCAP, MEGEVH network, *France*

SS-16-6 **MICRO stop and start system for microbus**
E. Bourdon; Gruau Microbus, *France*

Awareness forum, 14:30-17:30, Thursday Sept. 2nd

Thursday Sept. 2nd **14:30-15:30** **Room Van Gogh 1**	**ROUND TABLE 1/3** **"FUTURE JOBS IN AUTOMOTIVE ENGINEERING"**

Prof. James gover (session Chair)
(Kettering University, USA)
Dr. Theo Hofman
(Technical University of Eindhoven, Netherland)
Dr. Patrick Bastard,
(Renault, France)
and other panelists

Thursday Sept. 2nd **14:30-15:30** **Room Goya**	**ROUND TABLE 2/3** **"FUTURE URBAN MOBILITY"**

Prof. Ali Emadi (session Chair)
(Illinois Institute of Technology, USA)
Dr. Rochdi Trigui
(INRETS, MEGEVH network, France)

Mr. Jérôme Perrin
(Renault, France)
Prof. Joeri Van Mierlo (to be confirmed)
(VRJE University of Brussel, Belgium)
and other panelists

Thursday Sept. 1st **14:00-16:00** **Room Van Gogh 2**	**ROUND TABLE 3/3** **"ALTERNATIVE TO THE INDIVIDUAL CAR"** (IN FRENCH)

Mr. Sébastien Torro-Tokodi (session Chair)
(Pôle info-déplacement, ADAV - Droit au vélo, France)
Mr. Gilles Laurent
(UVN – Union des voyageurs du nord, France)
Mr. Xavier VAN DER STAPPEN
(Dakar no Oil, Belgium)
and other panelists
Followed by the film of M. VAN DER STAPPEN "Dakar no Oil"

Demonstration and tests of different vehicles (portative bikes, electric bikes, electric scooters, segways, mico-HEVs, EVs...) all along the afternoon, outdoor, in front of "Lille Grand Palais".

Lecture sessions, 16:00-18:00, Thursday Sept. 2nd

Thursday Sept. 2nd **16:00-18:00** **Room Rembrandt**	**REGULAR TRACK 3: MODELING, ANALYSIS, DYNAMICS & CONTROL (3/4)** Chairs: Dr. Stéphane Caux (Laplace, University of Toulouse, France) and Mr. Gonzalo Hennequet (Renault, France)

RT-3-3-1 **Multi-objective optimization of HEVs considering fuel consumption and dynamic performance**
S. Buerger, B. Lohmann, M. Merz, B. Vogel-Heuser, M. Hallmannsegger; Technical University of Munich, BMW Group, *Germany*

RT-3-3-2 **Analytical Modeling of static converters for optimal sizing of on-board electrical systems**
H. Nguyen Huu, L. Gerbaud, N. Retiere, J. Roudet, F. Wurtz; INP of Grenoble, University of Grenoble, *France*

RT-3-3-3 **On the integration of optimal energy management and thermal management of hybrid electric vehicles**
J. Lescot, A. Sciarretta, Y. Chamaillard, A. Charlet; IFP New Energy, Institut le Prisme, *France*

RT-3-3-4 **Sensitivity analysis of LuGre friction model for pneumatic actuator control**
A. Mehmood, S. Laghrouche, M. El Bagdouri; University of Technology of Belfort-Montbeliard, *France*

RT-3-3-5 **Optimisation of a multi-speed electric axle as a function of the electric motor properties**
A. Sorniotti, M. Boscolo, A. Turner, C. Cavallino; University of Surrey, Vocis Driveline Controls, Oerlikon Graziano – Automotive, *UK*

Thursday Sept. 2nd **16:00-18:00** **Room Goya**	**REGULAR TRACK 6: VEHICULAR POWER ELECTRONICS AND MOTOR DRIVES (4/4)** Chairs: Prof. Claude Marchand (University of Paris Sud 11, France) and Prof. Z.Q. Zhu (University of Sheffield, UK)

RT-6-4-1 **Comparison of analytical models for predicting electromagnetic performance in SM-PMSM**
L.J. Wu, Z.Q. Zhu, D. Staton, M. Popescu, D. Hawkins; University of Sheffield, Motor Design Ltd, *UK*

RT-6-4-2 **27-Level converter for EVs using only one power supply**
J. Dixon, J. Pereda; *Pontificia Universidad Catolica de Chile, Chile*

RT-6-4-3 **High performance algorithms for the control and load identification of boost DC-DC converters**
H. Kinoshita, K.Z. Liu, A. Zaharin, Y. Yokozawa; *Chiba University, Japan*

RT-6-4-4 **Novel fault diagnostic technique for PMSM using electromagnetic signature analysis**
Y. Da , M. Krishnamurthy, Illinois Institute of Technology, *USA*

RT-6-4-5 **Optimization of linear flux switching permanent magnet motor**
W. Min, J. T. Chen, Z. Q. Zhu, Y.Zhu, G. H. Duan; Tsinghua University, University of Sheffield, *China, UK*

Thursday Sept. 2nd **16:00-18:00** **Room Rubens 1**	**SPECIAL SESSION 1:STORAGE ENERGY MANAGEMENT IN ELECTRIC VEHICLES (2/2)** Chairs: Dr. Olivier Bethoux (University of Paris Sud 11) and Dr. Jordi Riera (Universitat Politècnica de Catalunya, Spain)

SS-1-2-1 **Design methodology of an EV hybrid energy storage unit for improved energy efficiency**
S. Mariethoz, P. Barrade; ETH Zürich, EPF Lausanne, *Switzerland*

SS-1-2-2 **Model-based aging characterization of Li-Ion Batteries in PHEVs using large scale Monte-Carlo vehicle simulations**
A. Di Filippi, S. Stockar, S. Onori, M. Canova, Y. Guezennec; University of Salerno, The Ohio State University, *USA*

SS-1-2-3 **Optimal energy management for a hybrid energy storage system for EVs based on stochastic dynamic programming**
C. Romaus, K. Gathmann, J. Böcker; University of Paderborn, *Germany*

SS-1-2-4 **Energy control for Plug-In HEV with ultracapacitors Lithium-Ion batteries storage system for FIA alternative energy cup race**
F. Luigi Mapelli, D. Tarsitano; Politecnico di Milano, *Italia*

SS-1-2-5 **Optimization of a power electronic structure for hybrid fuel cell/ultracapacitors vehicle**
M. Kamali-Nejad, T. Azib, G. Remy, O. Bethoux, C. Marchand; SUPELEC, University of Paris 6, University of Paris 11, *France*

Thursday Sept. 2nd **16:00-18:00** **Room Van Gogh 2**	**SPECIAL SESSION 3: SMART GRIDS TO SUPPORT ELECTRIC VEHICLES** Chairs: Dr. Ghanim Putrus (Northumbria University, UK) and Dr. Steve Mcdonald (New and Renewable Energy Centre, UK)

SS-3-1 **A Plug-In Hybrid, Blue-Angel III, for vehicle to grid system with a wireless grid interface**
V. Haerri, U. Madawala, D. Thrimawithana, R. Arnold, A. Maksimovic; The University of Applied Science, The University of Auckland, *Switzerland, New-Zeland*

SS-3-2 **Overview of supercapacitor voltage equalisation circuits for an EV charging application**
S. Lambert, V. Pickert, J. Holden, W. Li, X. He; Newcastle University, HILTech Developments, Zhejiang University, *UK, China*

SS-3-3 **Predicting EV impacts on residential distribution networks with distributed generation**
P. Papadopoulos, S. Skarvelis-Kazakos, I. Grau, L. M. Cipcigan, N. Jenkins; Cardiff University, *UK*

SS-3-4 **Vehicle-to-grid systems for frequency regulation in an islanded danish distribution network**
J. Pillai, B. Bak-Jensen; Aalborg University, *Denmark*

SS-3-5 **A new DC micro-grid system using renewable energy and EVs for smart energy delivery**
C. Liu, K.T. Chau, C. Diao, J. Zhong, X. Zhang, S. Gao, D. Wu; The University of Hong Kong, *China*

Thursday Sept. 2nd **16:00-18:00** **Room Van Gogh 1**	**SPECIAL SESSION 9: NEW VEHICLE EDUCATION PROGRAMS** Chairs: Prof. James Gover (Kettering University, USA) and Prof. Theo Hofman (Technical University of Eindhoven, Netherlands)

SS-9-1 **An education program for transportation electrification**
A. Emadi, M. Ehsani; *Illinois Institute of Technology, Texas A&M University, USA*

SS-9-2 **Design of a HEV education program based on corporate needs**
J. Gover, M.G. Thompson, C.J. Hoff; Kettering University, *USA*

SS-9-3 **New educational demands for the future: Automotive Technology - Master of Science**
T. Hofman, M. Steinbuch, A. Mestrom; Technical University of Eindhoven, High Tech Automotive Systems, *Netherlands*

SS-9-4 **Electrical Vehicle Engineering master degree for new developments in automotive industry**
E. Semail, A. Bouscayrol, Z. Moumni, P. Rivière, E. Fortin; ParisTech engineering schools, *France*

SS-9-5 **Education on electrochemical vehicle propulsion: battery systems and hydrogen fuel cells**
S. Moura, J. Siegel, D. Siegel, H. Fathy, A. Stefanopoulou; University of Michigan, *USA*

Thursday Sept. 2nd **16:00-18:00** **Room Rubens 2**	**SPECIAL SESSION 13: EVT AND SIMILAR CONCEPTS FOR HEV APPLICATIONS** Chairs: Dr. Yuan CHENG (Harbin Institute of Technology, China and MEGEVH Network, France) and Dr. John Kessels (Technische Universiteit Eindhoven, Netherlands)

SS-13-1 **Modeling and Control of Power-Split Hybrid Electric Vehicles**
R. Zanasi, F. Grossi; University of Modena e Reggio Emilia, *Italia*

SS-13-2 **A common model validation in the case of the Toyota Prius II**
K. Chen, R. Trigui, A. Bouscayrol, E. Vinot, W. Lhomme, A. Berthon; University of Lille, INRETS, University of Franche-Comte, MEGEVH network, *France*

SS-13-3 **Power-split hybrid transmission energetic and dynamic evaluation program**
P. Pognant-Gros, T. Wasselin, F. Badin; IFP New Energy, *France*

SS-13-4 **Design of a permanent magnet electric variable transmission for HEV applications**
Y. Cheng, C. Espanet, R. Trigui, A. Bouscayrol, S. Cui; Univ. of Franche-Comte, INRETS, Univ. of Lille, Harbin Institute of Technology, MEGEVH network, *France, China*

SS-13-5 **A double-stator PM nrushless machine system for electric variable transmission in HEVs**
Y. Wang, M. Cheng, Y. Fan, K.T. Chau; Southeast University, China University of Petroleum, University of Hong Kong, *China*

Friday September 3rd 2010

Keynote session, 08:30-09:30, Friday Sept. 3rd

Friday Sept. 3rd **8:30-9:30** **Amphi Pasteur**	**PLENARY SESSION (3/3)** Chair: Prof. Daniel Hissel (University of Franche-Comte, MEGEVH Network, France)

PL-3-1 **E-mobility development of Toyota**
Mr. Taiyou Kawai, Project General Manager of R&D Management Div.; Toyota Motor Corporation, *Japan*

PL-3-2 **DOE Vehicle technologies R&D on hybrid electric systems**
Mr. James F. Miller; Office of Vehicle Technologies, United States Department of Energy, *USA*

PL-3-3 **The European Green Car Initiative and EU research policies for greener road transport**
Ing. Maurizio Maggiore, Scientific Officer, DG RTD - Surface transport Unit H2; European Commission, *Italia*

Dialog session, 09:30-10:30, Friday Sept. 3rd

Friday Sept. 3rd **9:30-10:30** **Conference Hall**	**DIALOG SESSION (3/3)** Chairs: Mr. Joao Pedro Trovao (Polytechnic Institute of Coimbra, Portugal) and Mr. Dominik Buecherl (Technical University of Munich, Germany)

DI-3-1 **Minimum-copper-loss control over full speed range of an IPMSM drive for HEV Application**
B. Asaei, B. Rahrovi; University of Tehran, *Iran*

DI-3-2 **Robust control in 4x4 hybrid-converted touring vehicles during urban speed steering maneuvers**
R. Sampaio, M. Becker, V. Lemos, A. Siqueira, J. Ribeiro, G. Caurin; University of Sao Paulo, *Brazil*

DI-3-3 **Stator-flux-oriented control of PMSM with highly-dynamic field-weakening operation**
M. Oettmeier, C. Heising, V. Staudt, A. Steimel; Ruhr-University of Bochum, *Germany*

DI-3-4 **Stator-flux-oriented control with high torque dynamics for IM and PMSM**
M. Spichartz, M. Oettmeier, C. Heising, V. Staudt, A. Steimel; Ruhr-University of Bochum, *Germany*

DI-3-5 **Multilayer framework for vehicle-to-grid operation**
D. Wu, K.T. Chau, S. Gao; The University of Hong Kong, *China*

DI-3-6 **The Interactive effects of multiple EV chargers within a distribution network**
E. Bentley, P. Suwanapingkarl, S. Weerasinghe, T. Jiang, G.A. Putrus, D. Johnston; Northumbria University, *UK*

DI-3-7 **Impact of Plug-in EVs on the supply grid**
J. Balcells, J. García; Polytechnical University of Catalunya, CIRCUTOR SA, *Spain*

DI-3-8 **Loss analysis of Vehicle-to-Grid operation**
S. Gao, K.T. Chau, C.C. Chan, D. Wu; The University of Hong Kong, *China*

DI-3-9 **An improved magnetic-geared permanent magnet in-wheel motor for EVs**
Y. Fan, H. Jiang, M. Cheng, Y. Wang; Southeast University, *China*

DI-3-10 **Evaluation of battery charging algorithms and techniques for Plug-in HEVs**
S. Williamson; University of Concordia, *Canada*

DI-3-11 **Novel control strategy design for a HEV electromagnetic shaft propulsion system**
Y. G. Sahin, A. Erguin, S. Williamson, Kocaeli University; Concordia University, *Turkey, Canada*

DI-3-12 **Comparison of permanent magnet brushless motors for EVs**
C. Yu, X. Zhang, S. Gao, D. Wu; The University of Hong Kong, *China*

DI-3-13 **Power system modeling and performance evaluation of Series/ parallel-type Plug-in HEVs**
K. Ochiai, Y. Wada, Y. Kamiya, Y. Daisho, K. Morita; Waseda University, Japan Automobile Research Institute, *Japan*

DI-3-14 **Control of PEMFC gas supply and prevention of starvation using EMR**
K. Ettihir, L. Boulon, A. Bouscayrol, K. Agbossou; Université de Trois Rivières, Institut de Recherche sur l'Hydrogène, University of Lille, MEGEVH network, *Canada, France*

DI-3-15 **Control strategy with saturation management of a Fuel Cell/ultracapacitors hybrid vehicule**
T. Azib, G. Remy, O. Bethoux, C. Marchand; SUPELEC, University of Paris, University of Paris 11, *France*

DI-3-16 **EMR and inversion-based control of a virtual reality bicycle trainer**
M.A. Leblanc, P. Sicard; Université de Trois Rivières, *Canada*

DI-3-17 **EMR and maximum control structure of EV charging photovoltaic system**
F. Locment, M. Sechilariu; University of Technology of Compiegne, *France*

DI-3-18 **EMR and PSIM simulation: application to a DC/DC converter input filter stability**
P. Delarue, A. Bouscayrol, P. Barrade; University of Lille, EPF Lausanne, *France, Switzerland*

DI-3-19 **EMR of a solid oxide fuel cell for stirling engine combined cycle in high-efficient powertrains**
C. Gay, D. Hissel, F. Lanzetta, M.C. Péra, M. Feidt; University of Franche-Comte, LEMTA, INPL-UHP, *France*

DI-3-20 **Comparison between Forward and Backward approaches for the simulation of an Electric Vehicle**
M. Delavaux, W. Lhomme, A. McGordon; University of Lille, University of Warwick, *France, UK*

DI-3-21 **Modelling, simulation and validation of an electrical zero emission off-Road motorcycle**
T. Bauml; Austrian Institute of Technology, *Austria*

DI-3-22 **Electrical vehicles project: a method to learn power electronics for a non-specialized engineer?**
C. Paugam, A. André, X. Margueron, C. Raibaudo, A. Leblanc, E. Delmotte, P. Besse; Ecole Centrale de Lille, Renault Technocentre, *France*

DI-3-23 **Project-based teaching unit using EMR to design drive controllers**
F. Giraud, A.L. Allegre, A. Bouscayrol, K. Chen, B. Lemaire-Semail, W. Lhomme; University of Lille, *France*

DI-3-24 **Designing and manufacturing of Formula SAE-Hybrid racecar for a new engineering education program.**
I. Chang, N. Kim, D. Lee, S.W. Cha; Seoul National University, *Korea*

DI-3-25 **An optimal fuzzy logic power sharing strategy for Parallel HEVs**
F. Khoucha, M.E.H. Benbouzid, A. Kheloui; University of Brest, Polytechnic Military Academy, *Algeria*

DI-3-26 **Multiple-input DC-DC converter for thermoelectric Photovoltaic hybrid energy system in HEVs**
Y. Fan, L. Ge, W. Hua; Southeast University, *China*

DI-3-27 **Influence of different electrified vehicle concepts and driving cycles on the efficiency of passenger cars**
A. Thanheiser, D. Buecherl, H. Herzog; Technical University of Munich, *Germany*

DI-3-28 **Battery charging system control strategy for Plug-in HEVs**
K.Y. Kim, S.H. Park, S.K. Lee, T.K. Lee, C.Y. Won; University of Sungkyunkwan, National University of HanKyong, *Korea*

DI-3-29 **Analysis and optimization of a novel brushless claw-pole CS-PMSM**
P. Zheng, Q. Wu, J. Bai, W. Shi, Y. Sui; Harbin Institute of Technology, *China*

DI-3-30 **Research on direct torque control for the Electric Variable Transmission**
S. Cui, Q. Xu, Y. Cheng; Harbin Institute of Technology, *China*

DI-3-31 **A combined electric drive and fast battery charger for EVs**
L. De Sousa, B. Silvestre, B. Bouchez; Valeo Engine and Electrical Systems, *France*

DI-3-32 **Modelling of multiphase IM with sinusoidal flux distribution used in naval applications**
C. Heising, J. Fang, R. Bartelt, V. Staudt, A. Steimel; Ruhr-University of Bochum, *Germany*

DI-3-33 **A novel voltage balance method for cascaded H-bridge rectifier**
T. Xinghua, Y. Li, S. Min; Tsinghua University, Naval Engineering University, *China*

DI-3-34 **Magnetic and thermal 3D Finite Element Model of a linear induction motor**
J. Gong, F. Gillon, P. Brochet; Ecole Centrale de Lille, *France*

DI-3-35 **Multi-physics modeling of industrial inductors associated to converters**
G. Parent, M. Hecquet, V. Lanfranchi, M. Bekemans; Ecole Centrale de Lille, University of technology of Compiègne, Alstom Transport, *France, Belgium*

DI-3-36 **Study and implementation of an innovative method of wire diagnosis in the field of transport**
M. Olivas Carrion, F. Auzanneau, C.H. Garih; CEA LIST, DELPHI, *France*

DI-3-37 **Power flow managment strategies for a local DC distribution system of more electric aircraft**
H. Zhang, F. Mollet, S. Breban, C. Saudemont, B. Robyns; Ecole des Hautes Etudes d'Ingenieur, *France*

DI-3-38 **Hybrid electric cars and combustion engine driven cars and their impact on environment**
Paper withdrawn Z. Cerovsky, P. Mindl; Czech Technical University in Prague, *Czech*

DI-3-39 **Optimization of control parameters in parallel HEVs using a hybrid genetic algorithm**
F. Hu, Z. Zhao; Tongji University, *China*

DI-3-40 **Modeling of electric vehicles dynamics with multi-Bond Graphs**
L. Silva, G. Magallan, P. de la Barrera, C. De Angelo, G. Garca, National University of Rio Cuarto, *Argentina*

DI-3-41 **Fuzzy controller for 3-phase induction motor drives**
B.M. Badr, A.M. Eltamaly, A.L. Alolah; King Saud University, *Saudi Arabia*

DI-3-42 **Design and experiment of an axial-axial flux compound-structure PMSM used for propulsion**
J. Zhao, P. Zheng, C. Tong, R. Liu, Q. Wu; Harbin Institute of Technology, *China*

Lecture sessions, 11:00-13:00, Friday Sept. 3rd

Friday Sept. 3rd **11:00-13:00** **Room Rembrandt**	**REGULAR TRACK 3: MODELING, ANALYSIS, DYNAMICS & CONTROL (4/4)** Chairs: Prof. Antonio Sciarretta (IFP New Energy, France) and Dr. Harry Cho (AVL Powertrain UK Ltd, UK

RT-3-4-1 **A model to estimate the effect of DC bus voltage on HEV powertrain efficiency**
M. Thompson, C. Hoff, J. Gover; Kettering University, *USA*

RT-3-4-2 **Study of an optimization criterion of mounting blocks for drivability evaluation of an EV**
B. Eller, J.F. Hetet; Renault SA, Ecole Centrale de Nantes, *France*

RT-3-4-3 **Toward analytical solution of optimal control problems for HEV energy management**
C. Fontaine, S. Delprat, T.M. Guerra; Univ Lille Nord de France, UVHC, *France*

RT-3-4-4 **Systematic development of series-hybrid bus through modelling**
T. Huria, G. Lutzemberger, G. Sanna, G. Pede; University of Pisa, BredaMenarinibus, ENEA, *Italia*

RT-3-4-5 **Fuel economy and performance of advanced and Plug-in HEVs using in-use travel profiles**
M. Earleywine, J. Gonder, T. Markel, M. Thornton; National Renewable Energy Laboratory, *USA*

RT-3-4-6 **Power-cycle-library-based control strategy for Plug-in HEVs**
M. Shams-Zahraei, A.Z. Kouzani; Deakin University, *Australia*

Friday Sept. 3rd **11:00-13:00** **Room Goya**	**REGULAR TRACK 5: VEHICULAR ELECTRONICS** Chairs: Dr. Emmanuel Vinot (INRETS, France) and Prof. Chunbo Zhu (Harbin Institute of Technology, China)

RT-5-1 **A new linear parametrisation for peak friction coefficient estimation in real time**
R. De Castro, R. Esteves Araujo, J. Cardoso, D. Freitas; University of Porto, *Portugal*

RT-5-2 **Robust yaw stability control for EVs based on active steering control**
K. Nam, S. Oh, Y. Hori; University of Tokyo, *Japan*

RT-5-3 **Volterra series estimation of transient soot emissions from a diesel engine**
R. Ahlawat, J. Hagena, Z. Filipi, J. Stein, H. Fathy; University of Michigan, PACCAR Technical Center, *USA*

RT-5-4 **Study on cornering stability control based on pneumatic trail estimation by using dual Pitman arm type steer-by-sire on EV**
R. Minaki, Y. Hori; The University of Tokyo, *Japan*

RT-5-5 **Development of a non-contact rapid charging inductive power supply for electric-driven vehicles**
K. Kobayashi, N. Yoshida, Y. Kamiya, Y. Daisho, S. Takahashi; Waseda University, *Japan*

RT-5-6 **Analysis and design of a wireless closed-loop ICPT system working at ZVS Mode**
R. Lu, T. Wang, Y. Mao, C. Zhu; Harbin Institute of Technology, *China*

Friday Sept. 3rd **11:00-13:00** **Room Rubens 1**	**SPECIAL SESSION 2: ADVANCED CONTROL OF ELECTRICAL MACHINES** Chairs: Dr. Mickael Hilairet (University Paris South 11, France) and Prof. Xiang Chen (University of Windsor, Canada)

SS-2-1 **A Digital PWM Control for Switched Reluctance Motor Drives**
B. Shao, A. Emadi; Illinois Institute of Technology, *USA*

SS-2-2 **Control strategies for fault tolerant PM drives using series architecture**
M.A. Shamsi-Nejad, B. Nahid-Mobarakeh, S. Pierfederici, F. Meibody-Tabar; INP Lorraine, Nancy University, *France*

SS-2-3 **Optimal control of a high efficiency low distortion 6-level hybrid multilevel motor drive**
S. Mariethoz; ETH Zürich, *Switzerland*

SS-2-4 **Estimation of spring torque in an electronic throttle valve**
N. Rajaei, X. Chen, M. Zheng; University of Windsor, *Canada*

SS-2-5 **Adaptive torque control of PM synchronous motors in automotive applications**
J. Malaizé, W. Dib, S. Toru; IFP New Energy, *France*

SS-2-6 **DSP based SRG load voltage control**
A. Silveira. , D. Andrade, L. Gomes, A. Fleury, C. Bissochi; Federal University of Uberlandia, *Brazil*

Friday Sept. 3rd **11:00-13:00** **Amphi Pasteur**	**SPECIAL SESSION 11: SUSTAINABILITY OF NEW PROPULSION TECHNOLOGIES** Chairs: Dr. Christian Thiel (European Commission, Europe) and Prof. Joeri Van Mierlo (Vrije Universiteit Brussel, Belgium)

SS-11-1 **Life Cycle Assessment of conventional and alternative small passenger vehicles in Belgium**
M. Messagie, F. Boureima, J. Matheys, N. Sergeant, L. Turcksin, C. Macharis, J. Van Mierlo; Vrije University of Brussel, *Belgium*

SS-11-2 **Electric Vehicles as storage devices for supply / demand management**
D. Johnston, E. Bentley, M. Narayana, T. Jiang, P. Suwanapingkarl, G. Putrus; Northumbria University, *UK*

SS-11-3 **Synthesis and validation of representative real-world driving cycles for Plug-In HEVs**
T.K. Lee, Z. Filipi; University of Michigan, *USA*

SS-11-4 **EV charging system with PV grid-connected configuration**
F. Locment, M. Sechilariu, C. Forgez; University of Technology of Compiegne, *France*

SS-11-5 **Virtual battery charging station utilizing power-HIL: application to V2G Impact Analysis**
C. Edrington, O. Vodyakho, B. Hacker, S. Azongha, A. Khaligh, O. Onar; Florida State University, Illinois Institute of Technology, *USA*

SS-11-6 **Fuel cell/battery passive hybrid powertrain with active power sharing capability**
J. Bernard, M. Hofer, U. Hannesen, A. Toth, A. Tsukada, F. Büchi, P. Dietrich; Paul Scherrer Institut, Belenos Clean Power Holding, Swatch Group, *Switzerland*

Friday Sept. 3rd **11:00-13:00** **Van Gogh 1**	**SPECIAL SESSION 12: ENERGY STORAGE MODULES FOR VEHICULAR SYSTEMS** Chairs: Dr. Alireza Khaligh (Illinois Institute of Technology, USA) and Dr. Lucia Gauchia (Carlos III University, Spain)

SS-12-1 **New approach to supercapacitor testing and dynamic modelling**
L. Gauchia, S. Castano, J. Sanz; Carlos III University of Madrid, *Spain*

SS-12-2 **Thermal modelling, simulation and evaluation of a high power battery cell for automotive applications**
D. Simic; Austrian Institute of Technology, *Austria*

SS-12-3 **Energy sources sizing for hybrid Fuel Cell vehicles based on statistical description of driving cycles**
A. Ravey, N. Watrin, B. Blunier, A. Miraoui; University of Technology of Belfort-Montbeliard, *France*

SS-12-4 **An integrated bi-directional converter with multi-level converter and non-inverted buck-boost converter for PHEVs with minimal grid disruptions**
D. Erb, O. Onar, A. Khaligh; Illinois Institute of Technology, *USA*

SS-12-5 **On the feasibility of battery/ultracapacitor energy storage systems for shipboard power systems**
Y. Tang, A. Khaligh; Illinois Institute of Technology, *USA*

SS-12-6 **Classification of duty pulses for energy storage systems in vehicular applications**
A. Devie, M. Montaru, S. Pelissier, P. Venet; INRETS, University of Lyon, CEA/INES, *France*

Friday Sept. 3rd **11:00-13:00** **Room Rubens 2**	**SPECIAL SESSION 14: MULTIPHASE DRIVES FOR VEHICLE POWER AND PROPULSION** Chairs: Prof. Emil Levi (Liverpool John Moores University, UK) and Dr Xavier Kestelyn (Arts et Métiers ParisTech – L2EP, France)

SS-14-1 **A multiphase traction/fast-battery-charger drive for EV and PHEV: solutions for control in traction mode**
A. Bruyère, L. De Sousa, B. Bouchez, P. Sandulescu, X. Kestelyn, E. Semail; Valeo Engine and Electrical Systems, Arts et Metiers ParisTech, *France*

SS-14-2 **A multiphase dual-inverter supplied drive structure for EVs and HEVs**
E. Levi, M. Jones, W. Satiawan; Liverpool John Moores University, *UK*

SS-14-3 **An on-line method for stator fault detection in multi-phase PMSM drives**
F. Meinguet, E. Semail, J. Gyselinck; Universite Libre de Bruxelles, Arts&Metiers ParisTech, *France*

SS-14-4 **High order sliding mode optimal current control of 5-phase under open circuited phase fault conditions**
F. Mekri, J.F. Charpentier, S. Benelghali, X. Kestelyn; Ecole Navale, Arts&Metiers ParisTech, *France*

SS-14-5 **High torque-density 7-Phase induction motor drives for EV applications**
D. Casadei, M. Mengoni, A. Tani, G. Serra, L. Zarri; University of Bologna, *Italia*

SS-14-6 **Multi-star multi-phase winding for a high power naval propulsion machine with low ripple torques and high fault tolerant ability**
F. Scuiller, J.F. Charpentier, E. Semail; Ecole Navale, Arts et Metiers ParisTech, *France*

Technical Visits

Friday Sept. 3rd **14:30-18:00**	**RENAULT CAR FACTORY IN DOUAI** (Limited Number of Visitors)

At Douai 45 minutes far from Lille, Renault Car Factory named Georges Besse, is one of Renault's main bodywork assembly plants, by virtue of its workforce and its production capacities. Car produced in Douai are named Mégane II (hatch, coupé-cabriolet) and Scénic. They represent about 7% of the 2,3 Millions of cars sold by Renault all over the world in 2009.

The buildings occupy a total area of 350 ha, of which 115 ha are covered and 45 ha occupied by buildings.

Factory has obtained ISO 14001 certification in 1999 and has been renewed every year following audits. This clearly reflects the commitment made by the Georges Besse plant to environmental protection. The ISO 14001 standard is based on two fundamental principles: regulatory compliance and continuous improvement. The site's environmental policy is focused on analysis and information, so that it can certify the application of sound ecological practices at any time.

As example, 100% of its waste wax is recovered and re-used in the industrial process, thus generating environmental gains and cost savings.

During visit, you will see sheetmetalworking and assembly areas.

RENAULT

Friday Sept. 3rd **14:30-18:00**	**TRANSPOLE MAINTENANCE SITE FOR AUTOMATIC SUBWAY VAL** (Limited Number of Visitors)

The VAL 206 (Véhicule Automatique Léger / Light Automatic Vehicle) introduced by MATRA transportation in LILLE in 1983 is a fully automated driverless light rail that is monitored from an operation control center. Then SIEMENS Transportation Systems has continuously upgraded and perfected the VAL system, with regular improvements in both comfort and safety (VAL 208, VAL 258, etc) supplies now also OrlyVal, Toulouse, Chicago, Taipeh, Rennes, Turin, Charles-De-Gaule Paris Airport.
"The system features short train interval times (less than a minute), speeds of up to 80 kilometers per hour, and fast acceleration with short braking phases. Flexible division of the cars' interior expands the available space and thereby offers increased passenger capacity. This can be readily adapted to individual customer requirements, enabling the system to be flexibly deployed throughout the world" (text from STS).
(Further explanations in :
http://l2ep.univ-lille1.fr/fileupload/file/theses/Verhille.pdf)

First prototype in 1971 of VAL (Villeneuve d'Ascq Lille)

VAL 206 (Véhicule Automatique Léger) in Lille in 1983 with DC motors

VAL 208 in 2000 with PM in-wheel motors

NeoVAL... the future with SuperCapacitors

Visit the TransPole maintenance site where VAL 206, VAL 208 are maintained in good health with the support of

SIEMENS

Transpole

Social Events

Welcome cocktail and early registration,
Tuesday August 31, 2010, 18:30-20:30
Lille Grand Palais, 1, Boulevard des Cités-Unies, 59000 Lille, France

Welcome reception,
Wednesday September 1, 2010, 19:00-21:00
Lille City Hall, Place Augustin Laurent, 59000 Lille
10 min by walking from the Conference Center
Welcome message of M. Pierre de SAINTIGNON, Vice-Major of Lille

Cultural Tour, Visit of Bruges
Thursday September 2, 2010, 8:30-17:30
The historic city centre is a prominent World Heritage Site of UNESCO. Along with a few other canal-based northern cities, such as Amsterdam, it is referred to as "The Venice of the North".
50 km from Lille, transfer by bus, from 95 € per person
Contact "Perspectives and Organization" for booking
vppc2010@orange.fr, 00 33 (0)3 20 61 20 34

Gala Dinner,
Thursday September 2, 2010,
18:30-23:30
« La Ferme des Templiers »,
57, Route de Pérenchies 59237 Verlinghem
15 min from the Conference center
by BioGas Busses
Historic manor from 14th century,
located in a park of 4 ha

And do not forget!

"Braderie de Lille" – September 4 – 5
The biggest flea market in Europe, one of the most popular annual event in France, more than 1 Million visitors every year!
Music, eating and local beer. Lille downtown only for pedestrians!

Sponsors & Exhibits

List of institutional sponsors

Arts & Métiers, Paris Tech,
Ecole Centrale de Lille
GRAySIMH
INRETS
University of Lille 1
Région "Nord-Pas-de-Calais"
Ville de Lille

List of Industrial sponsors

Alstom
ANSOFT
dSPACE France,
Renault
Siemens Transportation Systems
Valeo

List of Exhibitors

ANSOFT
B2I Automotive
Dakar no Oil
dSPACE France
i-Trans cluster (to be confirmed)
IFP New Energy
Maplesoft
MEGEVH & IEEE
Nexter Systems
Moveo cluster
Opal-RT
National Instruments
Renault
Siemens Transportation Systems
Transpole (to be confirmed)
VdF cluster (to be confirmed)
VPPC carbon care

Author Index

A

Abbasian, M., 43
Abdessemed, R., 38
Abe, K., 32
Agbossou, K., 49, 59
Ahlawat, R., 63
Ahmed, F., 30
AitCheikh, S., 45
Al Jed, H., 33
Alakula, M., 47
Ali, S. S., 40
Allegre, A. L., 31, 35, 60
Allmark, O., 47
Alolah, A. L., 61
Amara, Y., 29
Amiet, M., 40, 46
Amjadi, Z., 29, 47
Andrade, D. A., 64
André, A., 59
Araujo, R. E., 63
Arce, A., 48
Arias, A., 50
Arnold, R., 54
Asaei, B., 30, 34, 57
Astier, S., 33
Auvity, B., 35
Auzanneau, F., 61
Avelar, H. J., 40
Ayad, M. Y., 30, 45
Azib, T., 54, 59
Azongha, S., 65

B

Badin, F., 56
Badr, B. M., 61
Bae, H. S., 28
Bai, J., 60
Bäker, B., 28
Bak-Jensen, B., 38, 55
Bak-Jensen, P., 38
Balcells, J., 50, 58
Baluchi, A., 31
Banaei, A., 27
Barakat, G., 29
Baranowski, S., 50
Barbedette, B., 27
Barrade, P., 39, 54, 59
Barrera, P. M., 61
Bartelt, R., 44, 61
Basualdo, M., 45
Batteux, M., 49
Baumhöfer, T., 42
Bauml, T., 59
Bayne, S., 35
Bearee, R., 30
Becherif, M., 30, 45
Becker, M., 57
Begot, S., 46
Bekemans, M., 61
Benbouzid, M. E. H., 30, 38, 39, 60
Benelghali, S., 66
Benjamin, S., 51
Bentley, E., 58, 64
Berbel, N., 50
Bernard, J., 37, 65
Bernard, R., 39
Berthon, A., 56
Bertram, C., 28, 41
Bertrand, N., 27
Besse, P., 59
Bethoux, O., 30, 45, 48, 54, 59
Bigot, P., 39
Bin, J. G., 42
Bing, J., 35
Bissochi, C. A., 64
Blaquière, M., 33
Blunier, B., 40, 48, 65
Boblet, S., 46
Bock, B., 44
Böcker, J., 54
Bordons, C., 48

Bork, C., 47
Boscolo, M., 53
Boualem, B., 31
Bouchez, B., 60, 66
Boulon, L., 49, 59
Bouquain, D., 40, 48
Bourdet, J. M., 51
Bourdon, E., 51
Boureima, F., 64
Bouscayrol, A., 28, 30, 31, 35, 39, 40, 49, 55, 56, 59, 60
Bouysset, J. L., 46, 51
Boys, J., 38, 42
Breban, S., 61
Bregeon, L., 51
Briat, O., 27
Bridgeman, R., 47
Brochet, P., 44, 61
Bru, E., 45
Bruyère, A., 66
Büchi, F. N., 65
Budhia, M., 42
Buecherl, D., 28, 32, 38, 41, 60
Buerger, S., 52
Butterbach, S., 48

C

Camara, M. B., 37
Candusso, D., 49
Canova, M., 47, 54
Cao, M., 32, 43
Cao, R., 44
Cardoso, J. S., 63
Carlson, Ola., 47
Carrion, M. O., 61
Casadei, D., 66
Castano, S., 65
Caurin, G. A. P., 57
Caux, S., 48
Cavallino, C., 53
Ceraolo, M., 37
Cerovsky, Z., 61
Cervantes, I., 40
Cha, S. W., 60
Chamagne, D., 39
Chamaillard, Y., 52
Chan, C. C., 32, 44, 58
Chang, I., 60
Chang, Y. P., 33
Charlet, A., 52
Charpentier, J. F., 66
Chasse, A., 51
Chattot, E., 31
Chau, K. T., 44, 55, 56, 58
Chen, J. T., 47, 53
Chen, K., 39, 56, 60
Chen, L., 34
Chen, M., 33, 35
Chen, X., 64
Chen, Z., 46
Cheng, M., 31, 43, 44, 56, 58
Cheng, Y., 37, 56, 60
Cheni, J. T., 29
Cho, B. H., 28, 33
Cho, Y-J., 29
Choe, G. Y., 29, 42
Choi, D. H., 28, 33
Choi, H. Y., 42
Choi, J. H., 43
Chrenko, D., 48
Cipcigan, L. M., 55
Clénet, S., 37
Coelho, E. A. A., 43
Cohuau, J-L., 51
Coquery, G., 48
Corde, G., 51
Cosoli, E., 31
Costa, F., 50
Costa, N. M. A., 40
Covic, G., 38, 42
Cui, S., 45, 56, 60

D

Da Silva, O.I., 30
Da, Y., 53
Dague, P., 49

Dai, C. H., 38
Daisho, Y., 32, 58, 63
Dakyo, B., 37
Dallet, D., 51
Daowd, M., 45
Dargahi, S., 40
Davat, B., 51
De Angelo, C. H., 61
De Bernardinis A., 48
De Castro, R., 63
De Doncker, R. W., 42
De Freitas, L., 40, 43
De Lira, S., 49
De Sousa, L., 60, 66
Deblecker, O., 44
Degliuomini, L. N., 45
Del Mastro, A., 51
Delafosse, V., 44
Delarue, P., 39, 59
Delavaux, M., 59
Delmotte, E., 59
Delprat, S., 62
Delsing, J., 50
Demian, C., 31
Deodhar, R., 29, 47
Depernet, D., 31, 39, 51
Desprez, P., 33, 51
Devie, A., 65
Dhaens, M., 45
Di Filippi, A., 54
Di Piazza, M. C., 50
Diallo, D., 38
Diao, C., 55
Dib, W., 64
Diebig, M., 38
Dietrich, P., 65
Ding, S., 31
Dixon, J., 53
Djedir, A., 34
Doerlemann, C., 44
Dollinger, N., 28
Dos Santos Jr, E.C., 30
Duan, G. H., 53
Dubas, F., 31, 37, 39
Duclaud, F., 51
Dufour, C., 28
Duhem, B., 50
Dunford, W.G., 29
Duquesne, T., 50
Durali, M., 36, 37

E

Earleywine, M., 62
Eberle, W., 29
Ecrabey, J., 50
Edrington C. S., 65
Egan, M. G., 28
Eghbali, A. H., 34
Ehsani, M., 55
Einhorn, M., 37
El Bagdouri, M., 53
El Bleid, S., 35
El Brouji, H., 27
El Fassi, S., 31
Ellabban, O., 40
Eller, B., 62
Eltamaly, A. M., 61
Emadi, A., 34, 46, 55, 63
Enohnyaket, M., 50
Erb, D. C., 65
Erguin, A., 58
Espanet, C., 31, 37, 39, 56
Espina, J., 50
Ettihir, K., 59

F

Fadel, M., 48
Fahimi, B., 27, 38, 39, 43
Fan, Y., 56, 58, 60
Fang, J., 36, 61
Fang, M., 33
Farhadi, A., 34
Farias, V. J., 40
Fathy, H. K., 56, 63
Feidt, M., 59
Feiyang, H., 43

Feld, G., 27
Feroldi, D., 45
Fiani, P., 49
Filipi, Z. S., 63, 64
Fleig, J., 37
Fleury, A., 64
Foley, A., 41, 42
Fontaine, C., 62
Fontès, G., 33
Forgez, C., 48, 64
Fortin, E., 55
Fouquet, N., 49
Francois, X., 49
Frappé, E., 48
Frei, S., 38
Freitas, D., 63
Freitas, L., 40, 43
Friedrich, G., 48
Froeschl, J., 41

G

Gabsi, M., 28, 29
Gailly, F., 33
Gale, R., 35
Gallachoir, B. P. O., 42
Gao, F., 48
Gao, J., 43, 46
Gao, S., 35, 44, 55, 58
Garca, G. O., 61
Garcia, J., 58
Garcia, L. S., 40
Garih, C. H., 61
Gathmann, K., 54
Gauchia, L., 65
Gay, C., 59
Ge, L., 60
Gehring, R., 41
Geitner, G. H., 39
Gerbaud, L., 52
Ghouili, J., 38
Gillon, F., 44, 61
Giraud, F., 60
Gomes, L. C., 64
Gonder, J., 62
Gong, J., 61
Gong, Q., 34
Gover, J., 55, 62
Grammatico, S., 31
Grau, I., 55
Greve, Z., 44
Grossi, F., 56
Gu, B. G., 43
Gualous, H., 37
Guerra, T. M., 27, 62
Guezennec, Y., 34, 47, 54
Guo, T., 42
Gupta, S., 43
Gurkaynak, Y., 34
Gyselinck, J., 66
Gysen, B. L. J., 46

H

Habibidoost, M., 30
Hacker, B., 65
Haddoun, A., 38
Haerri, V. V., 54
Hagena, J. R., 63
Haghbin, S., 47
Hallmannsegger, M., 52
Han, K-B., 29
Han, S., 32
Han, S. H., 32
Hannesen, U., 65
Harel, F., 46, 49
Hawkins, D., 53
Hayeri, R., 36
Hayes, J. G., 28
He, X., 55
Hecquet, M., 61
Hegazy, O., 40
Heising, C., 36, 44, 57, 58, 61
Hennen, M. D., 42
Hentunen, A., 34, 36
Hernandez, A., 49
Herzog, H. G., 28, 32, 36, 41, 60
Hetet, J. F., 62

Hilairet, M., 29, 30, 45
Hillstrom, E., 47
Hirata, K., 32
Hissel, D., 40, 46, 48, 49, 59
Hofer, M., 65
Hoff, C. J., 55, 62
Hofman, T., 34, 38, 55
Holden, J., 55
Hori, Y., 63
Hoshi, N., 32
Hu, F., 61
Hua, W., 31, 43, 44, 60
Huang, C. Y., 38
Huang, K., 46
Huang, S., 46
Huria, T., 62
Husar, A., 49
Hyyppa, K., 50

I

Ibtiouen, R., 34
Idir, N., 50
Ilea, D., 44
Istardi, D., 36
Ito, S. I., 32
Iwasaki, S., 29, 47

J

Jaafar, A., 31
Jacobina, C.B., 30
Jahns, T., 43
Jain, M., 29
Janiaud, N., 45
Jayakrishnan, R., 38
Jeanneret, B., 27
Jegat, F., 51
Jenkins, N., 55
Jennings, P., 28
Ji, Y. H., 33
Jia, H., 44
Jiang, D., 45
Jiang, H., 58
Jiang, T., 58, 64
Jidong, G., 31
Jin, N., 35
Jin, Z., 33, 35
Johnston, D., 58, 64
Jones, M., 66
Jorge, H. M., 32
Josselt, C., 35
Jun, B. S., 43
Junci, C., 43
Jung, D. Y., 33
Jung, H-M., 29
Jung, I. S., 43
Junhua, G., 31, 42
Junior, J. B. V., 40

K

Kabalo, M., 40, 48
Kamali-Nejad, M., 54
Kamiya, Y., 32, 58, 63
Kar, N. C., 45
Karimanal, K., 44
Kefsi, L., 28
Kellner, S. L., 44
Kerkeni, H., 27
Kessels, J. T. B. A., 46
Kestelyn, X., 66
Khaligh, A., 34, 65
Khan, K., 47
Kheloui, A., 30, 39, 60
Khoobroo, A., 38, 39
Khoucha, F., 60
Kim, J. C., 28
Kim, J. S., 29, 42
Kim, K. Y., 60
Kim, N., 60
Kim, S., 40
Kinoshita, H., 53
Kobayashi, K., 63
Kohler, T. P., 41
Kone, L., 50
Kong, Y. K., 42
Kongjian, Q., 31, 42

Kono, M., 32
Kotny, J. L., 50
Kouzani, A. Z., 62
Kramer, G., 36
Krishnamurthy, M., 53
Kunter, M. S., 42
Kutter, S., 28
Kwiatkowski, A., 47

L

Labarre, C., 50
Laboure, E., 29
Lacroix, S., 29
Laghrouche, S., 30, 53
Lajunen, A., 33
Lambert, S., 55
Lanfranchi, V., 61
Lanzetta, F., 59
Lataire, P., 29, 40
Lauber, J., 27
Le Bozec, C., 35
Le Trouher, G., 40, 46
Leahy, P., 41
Leblanc, A., 59
Leblanc, M. A., 33, 59
Lee, B. K., 29, 42
Lee, D., 60
Lee, J. H., 43
Lee, J. R., 38
Lee, K., 60
Lee, M. L., 42
Lee, S. J., 28, 33
Lee, S. K., 60
Lee, S. W., 33
Lee, T. K., 33, 43, 64
Lee, T. W., 42
Lei, P., 42
Leivo, A., 36
Leksell, M., 47
Lemaire-Semail, B., 37, 60
Lemos, V. L., 57
Lescot, J., 52
Letrouvé, T., 28
Levi, E., 66
Leyva-Ramos, J., 40
Lhomme, W., 28, 31, 33, 40, 51, 56, 59, 60
Li, J., 44
Li, R., 46
Li, W., 35, 55
Li, Y., 61
Lima, A. M. N., 30
Lima, G. B., 43
Lipiec, K., 36
Liu, B., 35
Liu, C., 55
Liu, K. Z., 53
Liu, R., 62
Liu, X., 47
Liukkonen, M., 34, 36
Lobry, J., 44
Locment, F., 59, 64
Lohmann, B., 52
Lomonova, E. A., 46
Loukakou, D., 37
Lozada, J., 37
Lu, D., 45
Lu, Q., 33, 35
Lu, R., 32, 63
Lundmark, S., 47
Lutzemberger, G., 37, 62

M

Macharis, C., 64
Madawala, U. K., 54
Magallan, G. A., 61
Mai, H. C. M., 39
Makany, P., 37
Maksimovic, A., 54
Malaizé, J., 64
Mao, Y., 63
Maodong, F., 31, 42
Mapelli, F. L., 54
Marano, V., 34
Marchand, C., 48, 54, 59
Marcos, D., 48

Margueron, X., 59
Mariethoz, S., 45, 54, 64
Markel, T., 62
Marracci, M., 37
Marxwell, T., 35
Matheys, J., 64
Matsuo, H., 32
McFarland, J., 43
McGordon, A., 28, 59
McKeogh, E., 41
Mehmood, A., 53
Meibody-Tabar, F., 64
Meinguet, F., 66
Mekri, F., 66
Ménard, L., 33
Mendoza-Torres, A., 40
Meng, X., 34
Mengoni, M., 66
Mercier Calvairac, F., 28
Merkisz, J., 32
Merkx, L., 34
Merz, M., 52
Messagie, M., 64
Mestrom, A., 55
Midlam-Mohler, S., 34
Mierlo, J. V., 40, 45
Mieze, A., 33
Miller, J. M., 27
Min, S., 61
Min, W., 53
Minaki, R., 63
Mindl, P., 61
Mingant, R., 37
Minggao, O., 31
Miraoui, A., 40, 48, 65
Mirsalim, M., 34
Moallem, M., 43
Mohammadi, T., 34
Molina-Cristobal, A., 36, 47
Mollet, F., 61
Montaru, M., 65
Mora, J., 36
Morimoto, M., 29
Morin, B., 45
Morita, K., 58
Moskowitz, J. P., 51
Moumni, Z., 55
Moura, S. J., 56
Mulder, G., 45
Mulot, J., 46
Muraleedharakurup, G., 28
Murooka, S., 32
Musavi, F., 29
Mutoh, N., 47

N

Naderi, P., 34
Nahid-Mobarakeh, B., 64
Nam, K., 63
Narayana, M., 64
Neumann, L., 36
Neves, A., 35
Ngo, D. V., 34
Nguyen Huu, H., 52
Nichita, C., 37
Nicolae, I. D., 47
Nicolae, P. M., 47
Nobukazu, N., 43
Normand-Cyrot, D., 30
Nottet, G., 50

O

O Gallachoir, B., 41
Ochiai, K., 58
Oettmeier, M., 44, 57, 58
Ogasa, M., 41
Oh, S., 63
Olivier, J. C., 35
Omar, N., 45
Onar, O., 65
Onori, S., 54
Ortega, C., 50
Ouaddi, H., 50
Oubabi, S., 35

P

Palmer, P., 36, 47
Pan, Z. P., 47
Papadopoulos, P., 55
Pape, O., 40, 46, 51
Parent, G., 61
Park, J. S., 43
Park, S. H., 60
Park, S. J., 42
Parks, G., 36, 47
Patel, D. D., 37
Patil, K., 35
Paugam, C., 59
Paulides, J. J. H., 46
Pauwels, S., 45
Pede, G., 62
Pelissier, S., 65
Pera, M. C., 40, 49, 59
Pereda, J., 53
Pereirinha, P. G., 32
Perez, A., 48
Perez, F., 51
Perez-Pinal, F., 40
Permann, R., 37
Petit, M., 45
Pickert, V., 55
Pielecha, J., 32
Piepenbreier, B., 44
Pierfederici, S., 64
Pillai, J. R., 55
Piquet, H., 45
Pled, G., 38
Pognant-Gros, P., 56
Ponziani, K., 47
Popescu, M., 53
Poxon, J., 28
Prada, E., 37
Procter, M., 47
Puig, V., 49
Putrus, G. A., 58, 64

Q

Qaisar, S. M., 51
Qin, K., 33
Qingchun, L., 31
Quevedo, J., 49

R

Radulescu, M. M., 44
Rael, S., 33, 51
Rafal, K., 45
Ragusa, A., 50
Rahman, T., 29
Rahrovi, B., 57
Raibaudo, C., 59
Rain, X., 45
Rajaei, N., 64
Rallières, O., 49
Ranjbar, H., 27
Rapin, N., 49
Ravey, A., 65
Razik, H., 33
Reed, J. K., 43
Régnier, J., 49
Reitinger, H., 38
Remy, G., 54, 59
Retiere, N., 52
Ribeiro, J., 57
Ridao, M. A., 48
Riera, J., 45, 48
Rivière, P., 55
Rizoug, N., 27
Rizzoni, G., 34, 47
Roboam, X., 31, 45
Robyns, B., 61
Rodel, I., 46
Romaus, C., 54
Roque, A., 35
Rosu, M., 44
Roudet, J., 52
Rylko, M. S., 28

S

Sahin, Y. G., 58
Sainio, P., 36
Salameh, Z. M., 37
Salcher, T., 36
Sampaio, R. C. B., 57
Sandou, G., 45
Sandulescu, P., 66
Sanna, G., 62
Sanz, J., 65
Sareni, B., 31
Sartorelli, G., 27
Satiawan, W., 66
Saudemont, C., 61
Sauer, D. U., 42
Sautter, A. C., 46
Sauvant, V., 37
Schoenen, T., 42
Schoot, W. J., 46
Sciarretta, A., 52
Scuiller, F., 66
Sechilariu, M., 59, 64
Semail, E., 55, 66
Seo, K. D., 33
Sergeant, N., 64
Sergeant, P., 42
Serra, G., 66
Serrarens, A., 34
Sezaki, K., 32
Shamsi-Nejad, M. A., 64
Shams-Zahraei, M., 62
Shao, B., 63
Sheng, S., 45
Shi, W., 60
Sibley, J., 46
Sicard, P., 33, 39, 49, 59
Siegel, D. J., 56
Siegel, J. B., 56
Silva, L., 61
Silveira, A. W. F. V., 64
Silvestre, B., 60
Simic, D., 65
Simon, R., 33
Sinshiemer, B., 47
Siqueira, A. A. G., 57
Skarvelis-Kazakos, S., 55
Skinner, B. A., 36
Sleiman, H., 37
Soeda, T., 31
Solano-Martinez, J., 40
Song, J. H., 42
Song, K., 42
Song, L., 43, 45
Song, Z., 34
Sorniotti, A., 53
Sough, M., 31
Sousa, D. M., 35
Spichartz, M., 58
Srairi, K., 38
Stanton, S., 44
Staton, D., 53
Staudt, V., 36, 44, 57, 58, 61
Stebbing, R. V., 38
Stefanopoulou, A. G., 56
Steiger, U., 45
Steimel, A., 36, 44, 57, 58, 61
Stein, J. L., 63
Steinbuch, M., 34, 55
Stockar, S., 54
Sui, Y., 60
Sun, J., 32
Sun, L., 28
Suomel, J., 34
Suomela, J., 36
Sutthiphornsombat, B., 38
Suwanapingkarl, P., 58, 64

T

Tabbache, B., 30, 39
Taghavi, A., 36
Taguchi, Y., 41
Takahashi, S., 32, 63
Tang, Y., 65
Tangudu, J., 43
Tani, A., 66
Tarsitano, D., 54

Tastuoka, S., 47
Tauer, M., 38
Terras, J. M., 35
Thanheiser, A., 28, 41, 60
Thiounn-Guermeur, M., 31
Thompson, M. G., 55, 62
Thornton, M., 62
Thrimawithana, D. J., 54
Tiefensee, F., 30
Tietmeier, St., 44
Timmermans, J. M., 29
Tong, C., 62
Toru, S., 64
Toth, A., 65
Touati, S., 34
Touhami, O., 34
Touzani, Y., 28
Tredeau, F. P., 37
Trichet, D., 35
Trigui, R., 27, 35, 43, 56
Trovao, J. P., 32
Tsukada, A., 65
Turcksin, L., 64
Turner, A., 53
Turpin, C., 33, 45, 49

U

Ullrich, C., 38
Ustun, O., 32
Ustunomiya, T., 47

V

Vallet, F. X., 45
Van den Bosch, P. P. J., 46
Van den Bossche, A., 42
Van den Bossche, P., 45
Van der Sande, T. P. J., 46
Van Mierlo, J., 29, 64
Venaille, V. J., 46
Venet, P., 65
Venkataramanan, G., 43
Verbrugge, B., 45
Verhille, J. N., 30
Versele, C., 44
Vieira Jr, J. B., 43
Vinassa, J. M., 27, 33
Vinot, E., 27, 43, 56
Vitale, G., 50
Vodyakho, O., 65
Vogel-Heuser, B., 52
Vulturescu, B., 48, 51

W

Waag, W., 42
Wack, M., 45
Wada, Y., 58
Wagner, T., 41
Wanderley-Honda, D., 48
Wang, Q., 42
Wang, T., 63
Wang, W., 31, 44
Wang, X., 35
Wang, Y., 56, 58
Wasselin, T., 56
Wasselyncki, G., 35
Wasterlain, S., 49
Watrin, N., 65
Weerasinghe, S., 58
Weigao, Q., 42
Weili, L., 43
Weissinger, C., 32
Willems, F. P. T., 46
Williamson, S., 29, 40, 47, 58
Winning, I. J., 42
Won, C. Y., 33, 42, 43, 60
Wu, D., 33, 35, 44, 55, 58
Wu, G., 32
Wu, J., 28
Wu, L. J., 53
Wu, Q., 60, 62
Wu, X., 35
Wu, Z., 39
Wurtz, F., 52

X

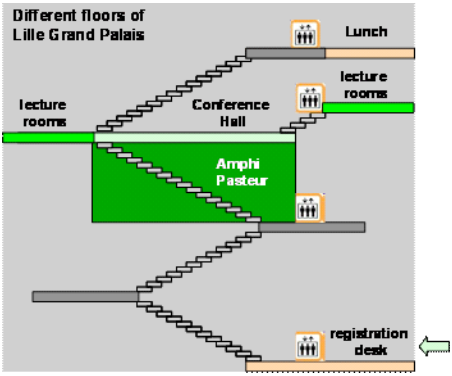
Xi, G., 34
Xiaochen, Z., 43
Xinghua, T., 61
Xu, Q., 60

Y

Yamashita, M., 31
Ye, L., 35
Ye, X., 33, 35
Yihuang, Z., 43
Yokozawa, Y., 53
Yoon, Y. G., 33
Yoshida, F., 32
Yoshida, N., 63
Yoshizaki, A., 32
Yu, C., 58

Z

Zaharin, A., 53
Zanasi, R., 39, 56
Zarri, L., 66
Zeller, A., 49
Zenati, A., 33
Zeng, Q., 43
Zhang, G., 43
Zhang, H., 61
Zhang, M. M., 34
Zhang, S., 32
Zhang, X., 35, 44, 55, 58
Zhao, J., 62
Zhao, W., 31, 44
Zhao, Z., 61
Zheng, M., 64
Zheng, P., 60, 62
Zhong, J., 55
Zhu, C., 32, 63
Zhu, W., 43
Zhu, Y., 31, 53
Zhu, Z. Q., 29, 47, 53
Zumoffen, D., 45

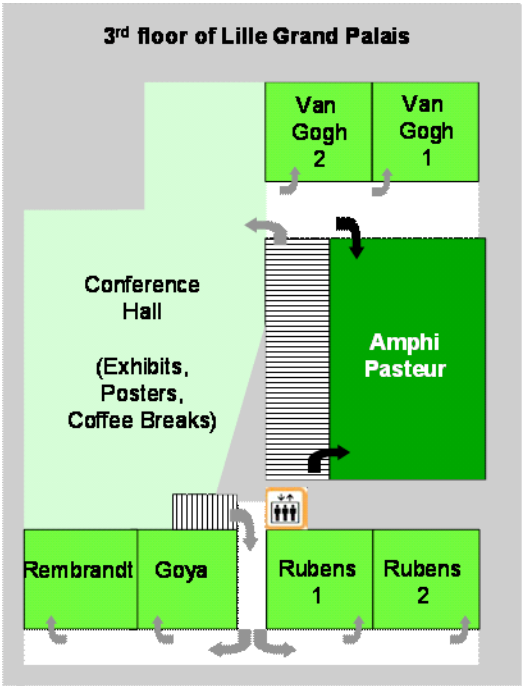


Keynote sessions:
Amphi Pasteur

Lectures sessions:
lectures rooms

Dialog sessions:
Conference Hall

Exhibit:
Conference Hall



IEEE VPPC 2010 is supported by

Région Nord-Pas de Calais

GRAISyHM

Centrale Lille

ALSTOM

Arts et Métiers ParisTech

Valeo

ANSOFT

ANSYS Product Suite

i-trans

Ville de Lille

MEDEE

RENAULT

SIEMENS

Embedded Success dSPACE

IEEE

IEEE VTS Connecting the Mobile World

pels IEEE Power Electronics Society

Université Lille1 Sciences et Technologies

UFC Université de Franche-Comté

INRETS

MEGEVH French network on HEV's