

13<sup>th</sup> EAEC European  
Automotive Congress



VALENCIA

EAEC 2011

The Automobile in the Second Decade: Sharing all Energy Solutions

# Final Programme and Exhibition Catalogue

Valencia, 13 June - 16 June 2011



Organized by:



[WWW.EAEC2011.COM](http://WWW.EAEC2011.COM)

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UNIVERSITAT  
POLITÈCNICA  
DE VALÈNCIA

Universitat Politècnica de València

# Innovation to serve society

The Universitat Politècnica de València is a prestigious public institution providing modern and flexible degrees tailored to the needs of society. It is **the only Spanish technological university** ranked as one of the **top universities** worldwide in the Academic Ranking of World Universities (ARWU) published by the University of Jiao Tong in Shanghai.

We offer our students all types of resources and services: classrooms, libraries, laboratories, state-of-the-art computer equipment, wireless network, 28,000 computers, email account from the first day, classes in Spanish, Valenciano and English, scholarships and grants provided by the university itself so that no one is deprived of the opportunity to study, and much more.

More information:

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[www.upv.es](http://www.upv.es)

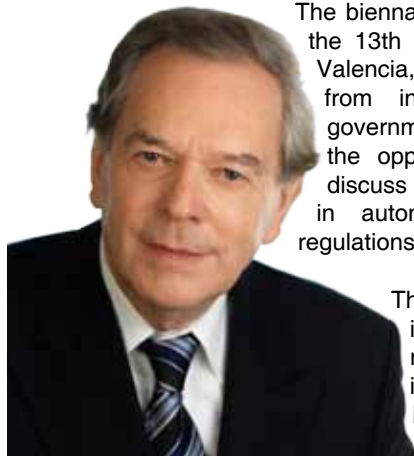


**Brigadier ret. Prof. Günter Hohl**  
EAEC President

Dear Participants of the EAEC 2011 Congress,

On behalf of the European Automobile Engineers Cooperation EAEC, it is a great pleasure and a privilege to invite and welcome you to the EAEC 2011 Congress in Valencia 13 – 16 June 2011, which is being organized by the Spanish Society of Automotive Engineers (STA). In this respect I would like to express my warm thanks to our colleagues in STA for hosting this important European event.

EAEC was founded more than 25 years ago as the European wing of FISITA, the worldwide Federation of national Automotive Engineer Societies



The biennial EAEC Congresses, like the 13th EAEC Congress here in Valencia, give representatives from industry, academia and governmental organizations the opportunity to present and discuss the latest developments in automotive technology and regulations.

The European automotive industry and the related research and education institutions still play an important role in the global automotive world.

Of course the European automotive community is in competition but also in cooperation with other production countries in Asia and America.

By using limited resources responsibly and protecting our environment, European automobile and component manufacturers as well as research institutions have the challenge of satisfy environmental demands and sustainable mobility.

I firmly believe that this Congress will be an important step in the sustainable development of automotive technology and environmental protection, contributing to a happy and prosperous world.

I wish our Spanish friends in STA a successful Congress.

Brigadier ret. Prof. Günter Hohl  
EAEC President

**Mr. Boronat**

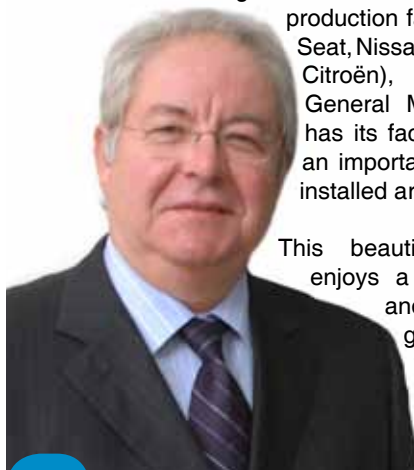
EAEC 2011 Congress Chairman & STA President

Dear participants,

The Spanish Society of Automotive Engineers (STA) is proud to organize the 13th EAEC European Automotive Congress 2011, which will take place from June 13 th to June 16th 2011 in Valencia, Spain.

The biennial EAEC Congresses provide excellent opportunities for automotive experts to present the latest developments and to exchange information in the field of automotive technology and related industries.

In reference to the automotive industry in Spain, some of the global automotive manufacturers have production facilities in Spain, such as Seat, Nissan, Renault, PSA (Peugeot, Citroën), Iveco, Volkswagen, General Motors and Ford, which has its facilities in Valencia, where an important supplier consortium is installed around the factory.



This beautiful Mediterranean city enjoys a mild temperate climate and offers a wealth of gastronomical delights, festivals and cultural events. It is especially known the "City of Arts and Sciences in

Valencia", the 32nd America's Cup in 2007 and the Formula 1 "Grand Prix of Europe" held since 2008. Furthermore, Valencia is one of the main trading and industrial centres of the Mediterranean. It has also become a European Congress Centre as well as an important focal point for international business and trade fairs. Valencia is a cosmopolitan city and is ideal for commerce and cultural exchange.

This edition of the Congress hopes to improve actual energy solutions, reflecting the actual industrial situation, with a wide participation in the topic of Powertrain and Green Technologies. The STA wishes that the EAEC 2011 Congress be a success and therefore is working to achieve it.

Rafael Boronat  
STA President

## STA – SOCIEDAD DE TÉCNICOS DE AUTOMOCIÓN

**www.stauto.org**

The Spanish Society of Automotive Engineers, STA, was founded in 1947 by Wilfredo P. Ricart, and it is one of the founding members of FISITA.

The STA is a nationwide ASSOCIATION, product, technology and production-oriented, bringing together all the automotive industry's related parties, be it through formation, profession or hobby, as well as those companies and institutions related to this industry.

STA is a meeting Platform among automotive engineers and technicians for exchanging

experiences and promote new initiatives.

The aim of STA is to stimulate the progress of the automotive along with the needs of the Society while promoting the technological advances of the automotive industry. To achieve this goal, STA offers a wide range of activities and services, such as:

- Technological formation and Project Management
- Conferences, Seminars, Courses, Panel Discussions
- Masters, technical courses
- Assessment
- Collaboration with Universities
- Congresses
- Barcelona International Motorshow Awards to the best technological innovations in the automotive industry.

## EAEC – European Automotive Engineers Cooperation

**www.eaec.net**

EAEC (European Automobile Engineers Cooperation) is a cooperation of the European automotive engineers societies, responding to the need for more specific cooperation among the European societies within the core of FISITA.

EAEC was founded in 1985 and has 24 Member Societies

The purpose of the EAEC is:

- Forge closer links between the European automotive engineer societies.
- Advance the common aims and objectives of the Member Societies and through them to provide impetus to the advancement of engineering science and practice in the field of automotive engineering
- Act as a focus for the interchange of professional engineering knowledge and opinion among the Member Societies in particular and in general, within the framework of Europe and specifically through FISITA members.
- Foster and support progressive attitudes towards the promotion of the indigenous automobile industry and its professional engineers and other interested parties

## FISITA - Fédération Internationale des Sociétés d'Ingénieurs des Techniques de l'Automobile

**www.fisita.com**

The Fédération Internationale des Sociétés d'Ingénieurs des Techniques de l'Automobile (FISITA) was founded in Paris in 1948 with the purpose of bringing engineers from around the world together in a spirit of cooperation to share ideas and advance the technological development of the automobile.

FISITA is the umbrella organisation for the national automotive societies in 37 countries around the world. Its member societies represents more than 163,000 automotive engineers around the globe.

FISITA's mission is to help create efficient, affordable,

safe and sustainable automotive transportation.

Fisita Works to:

- Promote active co-operation and information exchange between all member societies and between FISITA and member societies, enabling each to deliver added value to its individual members.
- Provide leadership to industry, academia and society on global technical issues concerning automotive technology.
- Support the continuing professional development of automotive engineers.
- Support the education, training and international experience of students and young engineers.
- Raise FISITA's profile among engineers, auto industry leaders and decision-makers concerned with automotive mobility.
- Ensure an effectively managed organisation with sufficient and sustainable resources.



## SPONSORS

### Platinum



The Universitat Politècnica de València (UPV) is a public educational institution that offers modern, flexible degrees that are designed to meet the demands of society, as well as PhD programmes and master's degrees that are subject to demanding educational quality control systems. It is the only Spanish technological university ranked as one of the top universities worldwide in the Academic Ranking of World Universities (ARWU), published by the University of Jiao Tong in Shanghai. Additionally, the UPV has three fully equipped campuses: Vera (inside the city of Valencia), Alcoy and Gandia, offering all types of resources and services.

The UPV is also one of the best starting points for beginning a career in research in both public centers and innovation departments in companies. Internationally, it is the leading university in technological research in numerous areas, and it is one of the top three Spanish universities in terms of R&D research cooperation agreements with companies. Additionally, it is on the leading edge in terms of patents and technology licensing. Moreover, in the past five years, the UPV has shown steady growth of over 10% annually.

The Polytechnic City of Innovation is the UPV's most ambitious project, a 140,000 m<sup>2</sup> scientific park located on the Vera campus which brings together 1,600 researchers and 400 support staff. It houses the most advanced technological institutes and centres and is an incubator of technology-based companies and various R&D+i laboratories of large organizations.

### Silver



The Valencia Foundation for Quality is a public foundation of Generalitat Valenciana dependent on the Ministry of Industry, Trade and Innovation. Its mission is to disseminate and promote the culture of Quality, Innovation and Excellence among organizations in the Valencian Community as well as promoting information and support on the road to improvement. Within this framework, its main objectives are to develop a culture of Excellence in management of companies in the Valencian Community and the promotion of differentiation, creativity and innovation. Also contributing to ensuring customer satisfaction and achieving the satisfaction of human capital of Valencian companies. Its board is composed of some thirty major companies in the Valencian economy, of which around 20% belong to the automotive sector.



The Colegio Oficial de Ingenieros Industriales de la Comunidad Valenciana (COIICV) is formed in 1951 with the aim of reconciling the protection of the profession with the interests of industrial engineers. The College assumes the representation of the profession in any field of action and becomes an organization able to cover the needs and concerns of this group of professionals. Today, It represents more than four thousand of professionals and its competence covers all the Region of Valencia with provincial demarcation in Valencia, Castellón and Alicante. The COIICV offers an extensive program of activities aimed at informing and training of industrial engineers in different fields. It also provides them with working tools to improve their professional activities. In addition, the College manages with its services the incorporation of these highly skilled professionals in key sectors for the development of society and economy of Valencia. More information at [www.iicv.net](http://www.iicv.net)



The Institute is a research center promoted by some of the most important automotive industries of the region, working in the automotive sector, through national and international projects, within the following areas:

1. Product Design supporting a wide range of services for the design of new products with an extensive use of CAD/CAM/CIM systems.
2. Manufacturing with high-speed machines and robot arms. In addition, the research is focused on thermoplastic matrix composites (GREEN-COMPOSITE). In this sense, the Institute hosts COMPO-Networking, an association of some of the most important European producers of polymer materials.
3. Robotics and Automation: industrial solutions in terms of monitoring, diagnostics, control and communication systems, in addition to teleoperation and remote control systems, sensor fusion, smart sensors, etc. for mobile robots and vehicles.
4. New Energy Research using solar panels and photoemitting devices based on semiconductor materials.
5. Information Technologies: knowledge management and information auditing, standardization and e-learning, multimedia development, user-friendly interfaces based on virtual reality; design and implementation of Human Machine Interfaces (HMI) including functionality, ergonomics and usability.

## Gold



Ford of Spain, located in the Valencian town of Almussafes, is a subsidiary of Ford Motor Company. The site is one of Ford's biggest sites in the entire world with an extension of 2.7 million square meters of land and over 600.000 square meters of buildings. The Valencia plant manufactures petrol engines for an array of different vehicles and brands of the Ford Group and currently builds the Ford Fiesta 5 door and the Ford Focus in the versions of 4 & 5 doors. Since it was launched, in 1976, the company has built over 10 million vehicles and more than 12 million engines. Ford of Spain has developed over the years into the largest exporter, in financial terms, of the Valencia Community with over eighty two per cent of all the production having external markets as destinations. Last year, Ford of Spain produced a total of 183.446 engines and 300.347 vehicles at the Almussafes production plant. As part of the ONE FORD global strategy, Valencia has been granted the production of the all new Ford C-MAX, exclusively for Europe as well the US market and will be Ford's first European plant to build Hybrid Electric and Plug-in Hybrid Electric vehicles.

## Silver



The Valencian Automotive Cluster –AVIA- was born in 2003 in response to changing business, both in the World Economy and the Automotive Industry. Companies, from different productive sectors, all of them related with automotive industry, join forces in order to face new business and economic challenges. From the beginning, the aim of AVIA is to strengthen and develop the industrial network of the Automotive Industry in the Region of Valencia. Its purpose is to work for the Valencian automotive companies in order to face a more global and competitive market. AVIA currently counts with 55 companies from different automotive sub-sectors; Ford as the reference company; REDITA, Automotive Technological Network; CRIA, Network Center of R&D in the automotive engineering from the Universidad Politécnica de Valencia and the FDI, Developments and Innovation Foundation. It also counts with the support of the regional institutions, Dirección General de Industria e Innovación de la Generalitat Valenciana. Between all of them, more than 87% turnover from the Valencia Region automotive sector is represented, involving 15.000 employments.



REDITA (Automotive Technological Network of the Valencia Region) is the association of 8 private Technological Centers (AIDIMA, AIDO, AIMME, AIMPLAS, IBV, ITE, ITENE, ITI) that have decided to sum up their teams and their facilities to reach a common goal: offering high level innovation projects and services to the Automotive Industry. Created in January 2007, REDITA has since then been the main technological partner of the Valencian Automotive Industry. Its main task consists of meeting the Industry innovation needs with the Technological Centers offer, in order to ensure future competitiveness of the regional Automotive Industry. Further on, REDITA has evolved into a national and European player, leading and participating in Spanish and European projects that put this Technological Network on the edge of automotive innovation in domains such as electrical vehicle charging infrastructure and energy consumption management, plastic and metallic materials, composites, nanotechnology, logistics and packaging, laser technology, artificial vision applications, ergonomics, end user acceptance valuation, embedded applications, virtual reality technology and 3D visualization.



Since becoming a standalone company in 1999, Tenneco (NYSE: TEN) has grown to become one of the world's leading designers, manufacturers and distributors of emission control and ride control products and systems for the automotive original equipment market and the aftermarket. The company is well-balanced across product lines, markets served and geographic regions. Using a combination of leading-edge technology, manufacturing expertise and dedication to customer service, Tenneco has entered new markets to solidify its leadership in the global automotive supply industry. The company is well positioned to capture significant revenue growth going forward as the result of stricter light and commercial vehicle emission regulations being implemented in most markets worldwide over the next five years. Tenneco operates more than 80 manufacturing facilities on six continents and 14 engineering centers. The company has 21,000 employees worldwide.

With the collaboration of:



## Technical Committee

### Powertrain and Green Technologies

#### Chairman

Francisco Payri  
CMT - Motores Térmicos

#### Experts

Andrés Font  
Daimler AG

Hans-Peter Lenz

Jose Maria Desantes  
CMT - Motores Térmicos

Jose Miguel Salavert  
CMT - Motores Térmicos

Santi Castellà  
SEAT

### New Control Systems and Materials

#### Chairman

Vicente Díaz  
STA, Universidad Carlos III de Madrid

#### Experts

Beatriz López  
Universidad Carlos III de Madrid

M<sup>a</sup>Jesús López  
Universidad Carlos III de Madrid

Vijayakumar Sahadevan  
ATKINS Limited

Oluremi Olatunbosun  
University of Birmingham

### Vehicle Dynamics

#### Chairman

Lluís Roger  
STA-ST Dinámica, Nissan

#### Experts

Gilles Schaefer

Gunther Buschmann  
CONTINENTAL

Hans Juergen-Goerich  
Porsche

Jordi Ferran  
SEAT

Manfred Plöchl

### Manufacturing & Process Innovation

#### Chairman

Joan Vivancos  
Univ. Politècnica de Catalunya

#### Experts

Antonio Ades  
FORD

Ferran March  
SEAT

Jaume Roquet  
DELPHI

Josep Tornero  
IDF

Vicente Porcar  
NISSAN -MOTOR IBERICA, S.A.

### Safety & Human Factors

#### Chairman

Juan Dols  
STA-ST PMR, UPV

#### Experts

Francisco Aparicio  
INSIA

Herman Steffan  
Tu Graz

Javier Luzón  
SEAT

Luis Montoro  
FESVIAL

## Organising Committee



Rafael Boronat  
STA President  
EAEC President

Jose Font  
STA Vice President  
EAEC Director

Francisco Gonzalez  
STA Vice-President  
EAEC Organization Director

Maite Garcia  
STA Director  
EAEC Business Director

Anna Gonzalez  
Logistics & Supplies Director

Marc Tornero  
Logistics Support

Carles Solé  
Logistics Support

M<sup>a</sup>Felisa Quintanillas  
Logistics Support

Vicente Pons  
Logistics Support



## Honorary Committee



**Brigadier ret. Prof. Günter Hohl**  
EAEC President



**Rafael Boronat**  
STA President



**José Font**  
STA VicePresident



**Antonio Ades**  
FORD ESPAÑA  
Managing Director



**Carmelo Anaya**  
TENNECO AUTOMOTIVE  
Plant Manager



**Bruno Broseta**  
Generalitat Valenciana  
Regional Secretary of Industry



**Julià Climent**  
Generalitat Valenciana  
Industry Director



**Juan Juliá Igual**  
Universitat Politècnica de València  
Rector



**Ján Lesinsky**  
SAITS Slovenska  
President



**Miguel Martínez**  
ETSII (UPV)  
Director



**Enrique Masiá**  
EPSA (UPV Alcoi)  
Director



**Carlos Moliner**  
REDITA.  
Red Tecnológica de Automoción  
Manager



**Luis Montoro**  
FESVIAL. Fundación Española para la Seguridad Vial  
President



**Daniel Moragues**  
IMPIVA  
Director



**Esteban Morcillo**  
Universitat de València  
Rector

**Justo Nieto**  
Fundación Globalidad y Microeconomía  
President



**Alfonso Novo**  
Ayuntamiento de Valencia  
Councillor for Traffic



**Emilio Orta**  
AVIA, Valencian Automotive Cluster  
President



**Maya Tomás**  
Fundación Valenciana de la Calidad  
Quality Coordinator



**Josep Tornero**  
Instituto de Diseño y Fabricación.  
Sector de Automoción.  
Director



**Javier Turégano**  
Colegio Oficial de Ingenieros Industriales de la Comunidad Valenciana  
Dean

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## Programme Overview

### MONDAY

ROOM > 1 2 3 4 5 6 7 8

19:00 - 20:30

WELCOME CEREMONY

### TUESDAY

ROOM > 1 2 3 4 5 6 7 8

09:00 - 09:45

OPENING CEREMONY

09:45 - 13:00

PLENARY SESSIONS

13:00 - 14:30

LUNCH BREAK

14:30 - 16:00

Electric Drives

Powertrain Performance

Powertrain Performance

Passenger Cars

Suspension

Human Factors and Safety

Vehicle Safety

Production Technology

16:00 - 16:30

COFFEE BREAK

16:30 - 18:00

Electric Drives

Powertrain Performance

Powertrain Performance

Passenger Cars

Suspension

Human Factors and Safety

Vehicle Safety

Production Technology

### WEDNESDAY

ROOM > 1 2 3 4 5 6 7 8

09:00 - 11:00

Hybrid Drives

Powertrain Performance

Powertrain Performance

Buses and Trucks

Suspension

Human Factors and Safety

Vehicle Safety

Production Processes

11:00 - 11:30

COFFEE BREAK

11:30 - 13:00

Powertrain Performance

Powertrain Performance

Noise Vibration and

New Materials

Brakes

PMR Safety

Vehicle Safety and Accident Analysis and Reconstruction

13:00 - 14:30

LUNCH BREAK

14:30 - 16:00

Powertrain Performance

Powertrain Performance

Powertrain Performance

New Materials

Tyres

Steering Systems

Vehicle Safety

Supply Chain and Logistics

16:00 - 16:30

COFFEE BREAK

16:30 - 18:00

Fuels and Lubricants and Environment and Vehicle Recycling

Powertrain Performance

TIC Systems

New Vehicle Systems

Tyres

Steering Systems

Vehicle Safety

Flexible Processes and New Quality Inspection Technologies

20:00

GALA DINNER

### THURSDAY

ROOM > 1 2 3 4 5 6 7 8

09:00 - 11:00

Powertrain Performance

Hybrid Drives

Stability

Advanced Dynamic Vehicle Control

New HMI Technologies and Haptic Technologies

New Quality Inspection Technologies

11:00 - 11:30



COFFEE BREAK

11:30 - 13:00

CLOSING PLENARY SESSION & PRESENTATION OF FISITA

13:00 - 14:00

FAREWELL LUNCH

 Powertrain and Green Technologies  
 New Control Systems and Materials  
 Vehicle Dynamics

 Manufacturing and Process Innovation  
 Safety and Human Factors



## Technical Programme

Tuesday, 14 June, 2011

### 09.00 – 09.45 Opening Ceremony

- Rafael Boronat, Congress Chairman; President, STA
- Günter Hohl, President, EAEC
- Ted Robertson, President, FISITA
- Juan Juliá, Rector, Universitat Politècnica de València
- Rita Barberá, Major, Ajuntament de València
- Jesús Candil, Industrial Development General Director, Ministerio de Industria, Turismo y Comercio

### 09.45 – 13.00 Plenary Session



Carlos Moliner,  
Manager, REDITA



Emilio Orta,  
President, AVIA (Valencian  
Automotive Cluster)



Giovanni Cipolla,  
Diesel AE & Hybrid Director,  
General Motors Powertrain  
Europe



Prof. Dr.-Ing Martin Eigner  
Catedrático de Desarrollo Virtual  
de Productos Departamento de  
Mecánica y Procesos

### 11.10 - 11.40 Exhibition Opening

Tuesday, 14th June, 2011

**14.30 - 16.00 (Room 1)**  
**A2: Powertrain and Green Technologies, Electric Drives**

#### EAEC2011\_A09

**Heating Concepts for Vehicles with Electric Powertrain**

Günter Eberspach, Leonhard Wlser, Uwe Kohle, J. Eberspacher GmbH & Co. KG, Klaus Beetz, Eberspacher catem GmbH & Co. KG, GERMANY

#### EAEC2011\_A22

**Electric Drive Acoustics — Mercedes-Benz E-Cell and F-Cell Cars**

Christoph Meier, Daimler AG, GERMANY

**14.30 - 16.00 (Room 2)**

**A3: Powertrain and Green Technologies, Powertrain Performance**

#### EAEC2011\_A25

**Investigation of the Influence of Engine Parameters on the Diesel Combustion Noise**

Ousmane Thiam, Shanjin Wang, Franck Levy, Renault SAS, Jean-Bernard Blaisot, Université de Rouen, FRANCE

#### EAEC2011\_A30

**HCCI-Combustion in the Z Engine**

Timo Janhunen, Aumet Oy, FINLAND

#### EAEC2011\_A46

**Literature Review on the Convective Heat Transfer**

**Measurements in Spark Ignition Engines**

Joachim Demuynck, Michel De Paepe, Roger Sierens, Jeroen Vancoillie, Sebastian Verhelst, Ghent University, BELGIUM

**14.30 - 16.00 (Room 3)**

**A3: Powertrain and Green Technologies, Powertrain Performance**

#### EAEC2011\_A11

**Prediction of the Wall Film Formation and Performance of an Engine Operated with the Ethanol Blend E85**

Thomas Launer, Michael Heiss, Simon Fisher, Vienna University of Technology, AUSTRIA  
Marcus Klein, GM Europe Engineering – Powertrain, GERMANY

#### EAEC2011\_A13

**Efficiency Comparison between Hydrogen, Methanol and Gasoline on a Production-Type Four-Cylinder Engine**

Jeroen Vancoillie, Sebastian Verhelst, Joachim Demuynck, Roger Sierens, Ghent University, BELGIUM

E. Rusu, V. Pantile, University Politehnica Bucharest, ROMANIA

#### EAEC2011\_A19

**The Influence of the Use of Biodiesels of the Transient Behavior of Solenoid-Operated Injectors in Common Rail Systems**

F. Javier Salvador, J.M. Desantes, R. Payri, J. Martínez-López, Technical University of Valencia,

SPAIN

**14.30 - 16.00 (Room 4)**

**B1: New Control Systems and Materials, Passenger Cars**

#### EAEC2011\_B19

**Concept for a Modular Race-Car-Frame for Conventional, Hybrid and Electrical Applications**

Ralf Stetter, Markus Till, Peter Eckart, Hochschule Ravensburg-Weingarten, GERMANY

#### EAEC2011\_B20

**Modelling and Flatness-Based Control of a R2S™ Turbocharger**

R. Christmann, O. Weber, BorgWarner Turbo Systems Engineering, S. Liu, University of Kaiserslautern, GERMANY

**14.30 - 16.00 (Room 5)**

**C1: Vehicle Dynamics, Suspension**

#### EAEC2011\_C02

**Advanced State and Parameters Estimation for an Active Suspension System**

Stijn De Bruyne, Herman Van der Auwerker, Jan Anthonis, LMS International, BELGIUM

#### EAEC2011\_C13

**A Neural Network based Inverse Model for a Magnetorheological (MR) Damper**

A. Khalil, B.L. Boada, V. Diaz, M.J.L. Boada, Universidad Carlos III de Madrid, SPAIN

#### EAEC2011\_C16

**Investigation of a Completely Semi-Active Suspension System for Full Spring Mounted Tractors**

Jan Krueger, Stephan Hammes, Henning Meyer, University of Technology Berlin, GERMANY

**14.30 - 16.00 (Room 6)**

**E2: Safety and Human Factors, Human Factors and Safety**

#### EAEC2011\_E02

**A Future Vision on Pedestrian Friendly Frontal Car Design**

Roger Trullols, Henrico Puttenstein, Mario Hurtado, Teresa Angulo, SEAT S.A, SPAIN

#### EAEC2011\_E04

**Lane Keeping Ability of Normal Drivers Depending on Selectively Varied Yaw Rate Deviation in Braking Manoeuvres**

Daniel Simmermacher, Hermann Winner, Technische Universität Darmstadt, GERMANY

#### EAEC2011\_E13

**Evolution of Front car Occupants Injuries in Frontal Impacts Considering the Improvements of Passive Safety Technologies**

Thierry Hermitte, Maxime Labrousse, Nicolas Bertolon, Anne Guillaume, PSA Peugeot Citroën – Renault, Véronique Hervé, European Centre of Studies on Safety and Risk Analysis, FRANCE

**14.30 - 16.00 (Room 7)****E1: Safety and Human Factors, Vehicle Safety****EAEC2011\_E53****Automotive Intelligence During Vehicles Lifetime**

Ralph Schröder, FSD  
Fahrzeugsystemdaten GmbH,  
GERMANY

**EAEC2011\_E06****Research on Airbag Related Injuries**

Arturo Davila, Mario Nombela,  
Applus+IDIADA, SPAIN

**EAEC2011\_E07****Shape Memory Alloys Open New Possibilities in Automotive Safety Systems**

Viorel Gheorghita, Paul  
Gümpel, Joachim Strittmatter,  
University of Applied Sciences,  
Thomas Heitz, Mathias Senn,  
ThyssenKrupp Presta AG, Joachim  
Strittmatter, WITg Institut für  
Werkstoffsystemtechnik Thurgau an  
der Hochschule Konstanz

**14.30 - 16.00 (Room 8)****D1: Manufacturing and Process Innovation, Production Technology****EAEC2011\_D04****Improved Scratch Resistance on Plastic Surfaces Through the Development of Coatings Using a Molecular Self-Assembly Nanotechnology**

C. Losada, F. Martí, Instituto  
Tecnológico del Plástico, E.  
Campos-Gomez, Interquímica  
Rioja, J. Gomez, Avanzare  
Innovacion Tecnológica S.L., SPAIN

**EAEC2011\_D14****Environmentally Friendly Modern Coatings for Plastics Cromatipic® Two Layer Decorative Coating for Automotive Interior and Exterior Parts**

Jaume Amigó, Monica Arranz,  
Jerome le Pennec, Sidasa Units  
Coating Group, Angel Barrero, Elisa  
Ubeda, Tratamientos Tecnológicos  
del Plástico, SPAIN

**16.30 - 18.00 (Room 1)****A2: Powertrain and Green Technologies, Electric Drives****EAEC2011\_A44****Electric Light Duty Trucks - Requirement Analysis And Electrification Project of Idiada**

Salvador Ruiz, Klaus Kersting,  
Applus+ IDIADA, SPAIN

**EAEC2011\_A50****Sizing of Passive Cell Balancing System Based on Experimental Test**

M.Oyarbide, H.Macior,  
R.Aizpurua, O.Miguel, Centre for  
Electrochemical Technologies,  
J.M.Canales, A.Etxebarria, Higher  
Polytechnic School of Mondragón,  
SPAIN

**16.30 - 18.00 (Room 2)****A3: Powertrain and Green Technologies, Powertrain Performance****EAEC2011\_A55****On-Board Emission and Fuel Consumption Comparison of Two Flex Fuel Cars and a Gasoline Direct Injected One Fuelled with Gasoline and Ethanol Blends**

Guido Lenaers, Luc Pelkmans,  
Flemish Institute for Technological  
Research, BELGIUM

**EAEC2011\_A12****The Influence of the Internal Exhaust Gas Recirculation on the Combustion Characteristics in a Gasoline Homogeneous Charge Compression Ignition Engine**

Radu Cosgarea, Aleonete Mihai,  
Cofaru Corneliu, Transylvania  
University, Christoph Dahnz, Amin  
Velji, Ulrich Spicher, Transylvania  
University of Brasov, ROMANIA

**EAEC2011\_A27****Integrated Modular Maneuver and Road Based Optimization Environment Regarding a Novel Approach for Development and Validation of CO2- Emission Reducing Vehicle Operating Strategies**

A. Albers, J. Schröter, M. Behrendt,  
Institute of Product Engineering at  
KIT, GERMANY

**16.30 - 18.00 (Room 3)****A3: Powertrain and Green Technologies, Powertrain Performance****EAEC2011\_A01****Optimization of Scavenging and Combustion within Advanced Internal Combustion Engines with Concentric Cam Systems Using Combined 1D/3D Simulation**

C. stan, M. Göldner, West  
Saxon University of Zwickau,  
A. Stapelmann, J. Meusel,  
ThyssenKrupp Presta, GERMANY

**EAEC2011\_A04****The Modern Diesel Engine - Valuable Assistant for E-Cars Concerning Low CO2 Mobility**

Th. Körfer, C. Severin, L. Henning,  
A. Kolbeck, H. Bush, B. Kinno, FEV  
Motorentechnik, GERMANY

**EAEC2011\_A16****Reduction of CO2 by Integrated Optimisation of Diesel Combustion and Aftertreatment Technology**

Brian Cooper, Gareth Jones;  
Mathew Keenan, Philip Hore,  
Ricardo, U.K

**16.30 - 18.00 (Room 4)****B1: New Control Systems and Materials, Passenger Cars****EAEC2011\_B23****Emotria: Three Wheel Electric Utility Scooter**

Florencio Gabriel Cuervo, Velmus  
Idi, SPAIN

**EAEC2011\_B25****A New Algorithm For Vehicle Drive off Management in Manual Transmission Vehicles**

Matteo Santamarina, Claudio  
Masiero, Iolanda Montalto,  
Alessandro Riegel, Ferdinando De  
Cristofaro, Nando Vennetilli, Fiat  
Powertrain Technologies S.p.A,  
Alessandro Casavola, University of  
Calabria, ITALY

**16.30 - 18.00 (Room 5)****C5: Vehicle Dynamics, Advanced Dynamic Vehicle Control****EAEC2011\_C37****Introduction to Idiada's Torque Vectoring Technology for Electric Vehicles**

Jonathan Webb, Sandro  
Boltshauser, Quentin Jouanny,  
Applus+IDIADA, SPAIN

**EAEC2011\_C44****Metamodel Optimized for the Design of the ABS, ASR, ESP, and Traction Control of a Motor Vehicle**

María-Isabel Sánchez-Segura,  
Vicente Díaz-López, Daniel García-  
Pozuelo, Arturo Mora-Soto,  
Universidad Carlos III de Madrid,  
SPAIN

**EAEC2011\_C43****Structural Frame Development of a Prototype Car With High Energetic Performance**

Gennaro Scarselli, Teresa  
Donateo, Raffaele Luperto,  
University of Salento, ITALY

**16.30 - 18.00 (Room 6)****E2: Safety and Human Factors, Human Factors and Safety****EAEC2011\_E14****Quantification of Drivers Metal Workload During Outdoor Testing Using Heart Rate Variability**

Saskia Monsma, HAN University of  
Applied Sciences, NETHERLANDS  
Shrey Sultania, Indian Institute of  
Technology, INDIA

**EAEC2011\_E35****Reasonability of the Drive Power of Passenger Cars Available in Europe in 2010**

Christoph Buksnowitz, Wolfgang  
Hirschberg, Graz University of  
Technology, AUSTRIA

**EAEC2011\_E22****Objective Evaluation and Development of Automotive Seating Comfort**

Ralf Stetter, Hochschule  
Ravensburg-Weingarten,  
GERMANY

**16.30 - 18.00 (Room 7)****E1: Safety and Human Factors, Vehicle Safety****EAEC2011\_E11****Automotive Crash Absorbers Weight Reduction: A Combined Shape and Size Optimization Approach**

Luca D'Agostino, Luca Splendi,  
Andrea Baldini, University of  
Modena and Reggio Emilia, Patrizio  
Moruzzi, Ferrari s.p.a., ITALY

**EAEC2011\_E15****Nonlocal Failure Criterion for Laminated Glass under Impact Loading**

Cristian Jimenez, Charles Thibaud,  
Jianbo Cai, ESI GmbH, SPAIN  
Helge Liebertz, Volkswagen,  
Thomas Pyttel, FH Friedberg,  
GERMANY

**16.30 - 18.00 (Room 8)****D1: Manufacturing and Process Innovation, Production Technology****EAEC2011\_D17****Mobi\_One Project - An Electromobility R&D Platform for the Euro-Region, Galicia - North Portugal.**

F.Sánchez, A. Paul, D.Sánchez,  
M.Segovia, R.Blanco, J.L.Díez,  
Galician Automotive Technology  
Centre, SPAIN

## Technical Programme

### EAEC2011\_D22

**Microfinish With Films Improves Surface Quality With High Shape Accuracy**

Sebastian Goeke, Kai-Uwe Paffrath, Dirk Biermann, Institute of Machining Technology, GERMANY

**Wednesday, 15th June, 2011**

**09.00 - 11.00 (Room 1)**

**A1: Powertrain and Green Technologies, Hybrid Drives**

### EAEC2011\_A26

**Influence of Advanced Ice on Optimised Hybrid Vehicle Performance**

Harry Watson, Sunil Adhikari, Saman Halgamuge, University of Melbourne, AUSTRALIA

### EAEC2011\_A24

**Enhancing Hybrid Vehicle Performances With Limited CO2 Overcost Thanks to an Innovative Strategy**

Anthony Da Costa, Guillaume Aix, IFP Énergies nouvelles, FRANCE

**09.00 - 11.00 (Room 2)**

**A3: Powertrain and Green Technologies, Powertrain Performance**

### EAEC2011\_A21

**Development of NOX Fast Estimate Using NOX Sensor**

J.M. Desantes, J.M. Luján, C. Guardiola, D. Blanco-Rodriguez, Technical University of Valencia, SPAIN

### EAEC2011\_A47

**Normal Modes Analysis of an Exhaust System Using Neural Networks**

F.J. Asensio, J. Biera, J.L. Olazagoitia, Automotive Technological Innovation Centre of Navarre, SPAIN

### EAEC2011\_A48

**Numerical Investigation of an Innovative Lowpressure Direct-Injection System for Hydrogen Engines**

Stefano Frigo, Stefania Zanforlin, Roberto Gentili, University of Pisa, ITALY

### EAEC2011\_A59

**Novel Approach for Processing PWM Fan-Outs**

**of Sensor Information in Low Cost Powertrain Control Architecture**

Anand Patidar, Vishwas Vaidya, Tata Motors, INDIA

**09.00 - 11.00 (Room 3)**

**A3: Powertrain and Green Technologies, Powertrain Performance**

### EAEC2011\_A28

**Pollutant Emissions from Di Diesel Engine Starting With Different Biodiesel Blends**

Octavio Armas, María Dolores Cardenas, Carmen Mata, University of Castilla-La Mancha, SPAIN

### EAEC2011\_A40

**Algae Bioigas at the Romanian Black Sea Shore for Commercial Vehicle Engines**

Ruxandra-Cristina Stanescu, Anghel Chiru, Sorin Sacareanu, Daniel Buzea, Ionut-Tudor Soare, Transilvania University of Brasov, ROMANIA

### EAEC2011\_A93

**SHEL Project: Sustainable Hydrogen Evaluation in Logistics**

Oscar Crespo, Centre for Electrochemical Technologies, SPAIN

**09.00 - 11.00 (Room 4)**

**B2: New Control Systems and Materials, Buses and Trucks**

### EAEC2011\_B07

**Objective Handling Evaluation of Heavy Commercial Vehicles**

Klaus Prenninger, Engineering Center Steyr, AUSTRIA

### EAEC2011\_B09

**Effect of Hybrid Power Systems on Bus Structure and Lateral Acceleration Threshold**

A. Gauchía, E. Olmeda, V. Díaz, B.L.Boada, Universidad Carlos III de Madrid, SPAIN

### EAEC2011\_B10

**Environmental Impact of Aerodynamic Optimizations at Heavy Duty Commercial Vehicles**

Severin Stadler, Mario Hirz, Wolfgang Hirschberg, Graz University of Technology, AUSTRIA

### EAEC2011\_B21

**Reducing Gearbox and Synchronizer Failures in Heavy Commercial Vehicles**

Ajay Dandge, Tata Motors, INDIA

**09.00 - 11.00 (Room 5)**

**C1: Vehicle Dynamics, Suspension**

### EAEC2011\_C27

**Modular Modelling of Vehicles with Innovative Powertrain Systems**

Andrés Eduardo Rojas Rojas, Haymo Niederkofler, Josef Duernberger, Graz University of Technology, AUSTRIA  
Xavier Bas Ferrer, Polytechnical University of Catalonia, SPAIN

### EAEC2011\_C29

**Synthesis of Suspension Systems For Passenger Vehicles With In-Wheel Motors**

Andrés Eduardo Rojas Rojas, Haymo Niederkofler, Graz University of Technology, AUSTRIA

### EAEC2011\_C21

**A Neuro-Fuzzy-Based Controller to Improve the Efficiency of Semi-Active Suspension Depending on Terrain**

Rana R. Farag, Vicente Diaz, Beatriz L. Boada, Maria-Jesus L. Boada, Universidad Carlos III de Madrid, SPAIN

### EAEC2011\_C36

**Front Active Camber Suspension Design and Concept Validation With Virtual Driving Simulator**

Iñaki Iglesias, Adrian Martín, Igor Olavarria, Tecnalia Research & Innovation, Transport Unit, SPAIN

**09.00 - 11.00 (Room 6)**

**E2: Safety and Human factors, Human factors and Safety**

### EAEC2011\_E31

**About the Influence of the Truck on The Driver's Performance**

W. Tengg, H. Weinfurter, C. Prettenhaler, Das Virtuelle Fahrzeug Forschungsgesellschaft mbH, W.Hirschberg, Graz University of Technology, C. Danner, AVL List GmbH, AUSTRIA

### EAEC2011\_E33

**Experimental Research of Differences in Driver's Perception of Objects From The Stationary and Moving Vehicles**

Robert Kledus, Albert Bradác, Marek Semela, Martin Cupal, Brno University of Technology, CZECH REPUBLIC

### EAEC2011\_E20

**Characterization of Driving Styles of Professional Drivers and the Influence of Distraction Based on Non-Intrusive Driving Parameters**

Felipe Jiménez, Juan José Sánchez, Óscar Gómez, Technical University of Madrid, SPAIN

### EAEC2011\_E39

**Road Signs: Static, Variable and Moving**

Antonio Lucas-Alba, University of Zaragoza, Luis Montoro, Mª Teresa Blanch, University of Valencia, SPAIN

**09.00 - 11.00 (Room 7)**

**E1: Safety and Human Factors, Vehicle Safety**

### EAEC2011\_E54

**Challenges and Possibilities for Enhanced Vehicle Flow and Safety and Reduced Fuel Consumption and Emission in Urban TRAFFIC IN WBC Region**

Aleksandra Kostikj, Milan Kjosevski, Faculty of Mechanical Engineering,

### EAEC2011\_E21

**Determining the Material Parameters of a Polyurethane Foam With a Differential Ant-Stigmergy Algorithm**

Jernej Klemenc, Matija Fajdiga, University of Ljubljana, SLOVENIA

### EAEC2011\_E24

**Safety Questions of the Driver in Bus Frontal Collisions**

Mátyás Matolcsy, Scientific Society of Mechanical Engineers, HUNGARY

**09.00 - 11.00 (Room 8)**

**D2: Manufacturing and Process Innovation, Production Processes**

### EAEC2011\_D01

**Honing – The Modern Factor in New Motor Production Lines**

Xavier, Fabio-Antonio, Nagel Maschinen- und Werkzeugfabrik, GERMANY

### EAEC2011\_D15

**Heat Treatment and Grinding of Aluminum Pieces in Body Construction**

Joan C. Casas, SEAT S.A, SPAIN

### EAEC2011\_D08

**Laser Cladding Process Applied to Mould Die Repairing For Automotive Industry**

P. Franconetti, V. Amigó, J. J.



Candel, Technical University of Valencia, SPAIN

#### EAEC2011\_D25

##### Building Virtual Design Validation Process: Case Study of Door Trim

Choi Byoungkook, Jeon Ohhwan, Jang Ikkeun, Jo Hyunkwon, Hanilhehwa co. Ltd., SOUTH KOREA  
Song Byungchul, AVS Engineering, SOUTH KOREA

11.30 - 13.00 (Room 1)

##### A3: Powertrain and Green Technologies, Powertrain Performance

#### EAEC2011\_A18

##### Investigation of The Spray Behaviour of Ultrahigh Pressure Injected Alternative Diesel Fuels

Dennis Backofen, Marco Adam, Helmut Tschöke, Michael König, Jürgen Schmidt, University Magdeburg, GERMANY

#### EAEC2011\_A32

##### Physical Based Real Time System Simulation—Model and Application Workflow

Johann C. Wurzenberger, Sophie Bardubitzki, AVL List GmbH, Roman Heinzle, Industrial Mathematics

Competence Center, Tomaz Katrasnik, University of Ljubljana, AUSTRIA

11.30 - 13.00 (Room 2)

##### A3: Powertrain and Green Technologies, Powertrain Performance

#### EAEC2011\_A15

##### Real-Time Engine Modelling For Engine Downsizing Using an Electric Supercharger

Javier Villegas, Bo Gao, Kamil Svancara, AVL Powertrain UK Ltd, Warren Thornton, Juan Parra, Dynamic Boosting Systems Ltd, UNITED KINGDOM

#### EAEC2011\_A17

##### Experimental Methodologies For a Comprehensive haracterization of Automotive Turbochargers

Francisco Payri, J Galindo, J.R Serrano, M.A Reyes-Belmonte, Technical University of Valencia, SPAIN

11.30 - 13.00 (Room 3)

##### A5: Powertrain and Green Technologies, Noise Vibration and Harshness (NVH)

#### EAEC2011\_A34

##### Techniques for Movement Decomposition of Complex Vibration of Vehicle Body, Systems and Components

Juan J. García, Applus+IDIADA, SPAIN

#### EAEC2011\_A37

##### NVH: Low Background Noise S&R Testing

Damián González, Javier Diéguez, Enrique Torres, Galician Automotive Technology Centre, SPAIN

#### EAEC2011\_A60

##### Description of the Design and Implementation of a Detection System for Noisy Common Rail High Pressure Pumps.

Javier Soto, Francisco Olmeda, Francis Rodríguez, Xavier Boncompagni, Delphi Diesel System, SPAIN

11.30 - 13.00 (Room 4)

##### B3/B4: New Control Systems and Materials, New Materials and New Vehicle Systems

#### EAEC2011\_B12

##### Adaptive Neuronal Control Based On Lazy Learning For Semi-Active Vehicle

#### Suspension Systems

M.J.L. Boada, B.L. Boada, R. Farag, V. Diaz, Universidad Carlos III de Madrid, SPAIN

#### EAEC2011\_B2

##### Brake Squeal – Investigation of Different Brake Pad Materials

Daniel Wallner, Stefan Bernsteiner, Graz University of Technology, AUSTRIA

#### EAEC2011\_B42

##### Design of a Fuel Efficient Prototype's Monocoque

Rogiest, Colomer Romero, Martinez Sanchez, JI, Martinez Sanz AV, Design and Manufacturing Institute of the Universitat Politecnica de Valencia, SPAIN

11.30 - 13.00 (Room 5)

##### C3: Vehicle Dynamics, Brakes

#### EAEC2011\_C25

##### Use of Co-Simulation and Model Order Reduction Techniques in Automotive Industry: Application to an Electric Park Brake (EPB)

Enrique Bernal, Javier Orús, J.M. Rodríguez-Fortún, I. Nadal, Technological Institute of Aragon, SPAIN



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## Technical Programme

T.Putz, RWAutomotive, GERMANY

### EAEC2011\_C33

#### The Contribution of Friction Brakes to Energy Savings and Emission Control

Jürgen Lange, Roland Steege, Axel Stenkamp, TMD Friction Holdings, GERMANY

11.30 - 13.00 (Room 6)

#### E3: Safety and Human Factors, PMR Safety

### EAEC2011\_E17

#### Level of Stresses Transmitted to Children's Trolley For Transportation Vehicles.

Vicente Pons, Juan F.Dols, Technical University of Valencia, Enrique Alcalá, Beatriz Valles, Ángel L. Martín, Technical University of Madrid, SPAIN

### EAEC2011\_E30

#### Kinematics of Children Prams in Emergency Maneuvers of Urban Buses

Enrique Alcalá, Angel Luis Martín, Beatriz Valles, Luis Martínez, Technical University of Madrid, Juan Dols, Vicente Pons, Technical University of Valencia, Juan Angel Terrón, Municipal Transport Company of Madrid, SPAIN

11.30 - 13.00 (Room 7)

#### E2: Safety and Human Factors, Human Factors and Safety

### EAEC2011\_E55

#### Relationship Between Drivers' Character and Their Behaviour When Driving

Felipe Jiménez, Santiago Tapia, Technical University of Madrid, María José Granados, Adelfo Tapia, Esther Sánchez, Verónica Romero, Technical University of Madrid, SPAIN

### EAEC2011\_E40

#### Definiton of a Methodology to Define a Risk Index For Motorcyclists According to Their Exposure

Mario Nombela, Eduard Infantes, Automobile Applied Research Institute, SPAIN

### EAEC2011\_E44

#### The Application of a New Principled Optimal Control for the Dynamic Change of the Road Network Graph Structure and the Analysis of

### Risk Factors

Tamás Péter, Tímea Füle, Zsuzsanna Bede, Budapest University of Technology and Economics, HUNGARY

14.30 - 16.00 (Room 1)

#### A3: Powertrain and Green Technologies, Powertrain Performance

### EAEC2011\_A52

#### Computational Study of Crevice Flow and Soot Entrainment in a Diesel Engine

Shin Mei Tan, Hoon Kiat Ng, Suyin Gan, The University of Nottingham Malaysia Campus, MALAYSIA

### EAEC2011\_A62

#### Kinson Cycle and Very High-Pressure Turbocharging: Increasing Internal Combustion Engine Efficiency and Power While Reducing Emissions

Victor Gheorghiu, Hamburg University of Applied Sciences, GERMANY

14.30 - 16.00 (Room 2)

#### A3: Powertrain and Green Technologies, Powertrain Performance

### EAEC2011\_A03

#### Fuel Saving With Modern Powershift Transmission in City Bus Applications

Joachim Foth, ZF Friedrichshafen, GERMANY

### EAEC2011\_A05

#### Effect of Axial Load on Turbocharger Friction Losses

Michael Deligant, Pierre Podevin, Georges Descombes, Laboratory of Engineering for the Environment, Energy and Health, Thierry Lamquin, Honeywell Turbo Technologies, Fabrice Vidal, PSA PEUGEOT CITROËN, FRANCE

### EAEC2011\_A06

#### Experimental Study of the Surge Behaviour of a Centrifugal Compressor

Chiheb Elkamel, French Environment and Energy Management Agency, Michel TOUSSAINT, Georges DESCOMBES, National Conservatory of Arts and Crafts, Alain LEFEBVRE, Alexandre MARCHAL, RENAULT SAS, FRANCE

14.30 - 16.00 (Room 3)

#### A3: Powertrain and Green Technologies, Powertrain Performance

### EAEC2011\_A14

#### Establishment Methodologies for CFD Analysis Using NX, and Proposed For Re-Design The Car Body For Competition "Shell Eco-Maratón 2010".

Vicente Colomer, Rubén Jacob, Antonio. V. Martínez, Rafael Plá, Technical University of Valencia, SPAIN

### EAEC2011\_A54

#### Full Vehicle Modelling for Cold Start Cycle Fuel Economy and Emissions Prediction

Aditya Dhand, Tolga Cimen, Baekhyun Cho, AVL Powertrain UK Ltd, UNITED KINGDOM

### EAEC2011\_A57

#### Heat Transfer, Pressure Drop and Drain Characteristics of Dimpled-Louver Fin Geometry for Automobile Applications

Hiechan Kang, Hyunsik Oh, Kunsan National University, Sunan Jeong, Taeyun Kong, Halla Climate Control, SOUTH KOREA

14.30 - 16.00 (Room 4)

#### B5: New Control Systems and Materials, TIC Systems

### EAEC2011\_B16

#### E.P.V. Project: ICT tools & EV integration inside Smart grids

Patricio Peral, Sixto Santonja, Energy Technological Institute, Ana G. Bordagaray, Iberdrola S.A., SPAIN

### EAEC2011\_B22

#### The Role of Computer Aided Knowledge to Disclose the Right Power Technology

José Vicente-Gomila, Fernando Palop Marro, Technical University of Valencia, SPAIN

### EAEC2011\_B26

#### Information Technology for Mechatronics - Challenges and Requirements of a Global Commercial Vehicles Manufacturer

Andrés Font, Volker Nast, Frank Schoefer, Daimler AG, GERMANY

14.30 - 16.00 (Room 5)

#### C4: Vehicle Dynamics, Tyres

### EAEC2011\_C03

#### Dynamic Evaluation of Tyres: Support With Objective Testing Procedures

Julio Malagariga, Diego Compadre, Seat S.A, Albert Roda, RDT Ingenieros, SPAIN

### EAEC2011\_C52

#### The Influence of Tyre Characteristics on the Dynamic Performance of Vehicles

Christian Von Glasner, Jörg Ahlgrimm, European Association for Accident Research and Analysis, GERMANY

### EAEC2011\_C09

#### Measurements Stress to the Tyre Patch Contact

Costin Dragomir, Custom Transport Equipment Trailers, ROMANIA

14.30 - 16.00 (Room 6)

#### C2: Vehicle Dynamics, Steering Systems

### EAEC2011\_C01

#### Electrical Single Wheel Steering for Future Suspension Systems

Josef Dürmberger, Haymo Niederkofler, Andrés E. Rojas, Graz University of Technology, AUSTRIA

### EAEC2011\_C05

#### Two Degree of Freedom Yaw Rate Control Based on Reactive Torque for Driver Steering

Ryo Minaki, Toshiyuki Uchida, Yoichi Hori, University of Tokyo, JAPAN

### EAEC2011\_C53

#### Torque Steer Compensation Using Epas

Jens Dornhege, Ford Werke GmbH, GERMANY

14.30 - 16.00 (Room 7)

#### E1: Safety and Human Factors, Vehicle Safety

### EAEC2011\_E28

#### Analysis of Geometric Variables of the Front of the Vehicle in the Pedestrian Protection

David Gallegos, Francisco Liesa, Polytechnical University of Catalonia, SPAIN

### EAEC2011\_E29

#### Development and Testing of an Intelligent Frontal Collision Warning for Motorcycles

F. Biral, University of Trento, Roberto Lot, R. Sartori, University of Padova, A. Borin, G. Rizzi, Yamaha Motor R&D Europe, ITALY

### EAEC2011\_E32

#### Estimate of the Influence on Safety of Vans Renewal in Spain

Felipe Jiménez, Arturo Furones, Francisco Aparicio, Technical University of Madrid, Miguel Aguilar,

Vicente del Pozo, Instituto de Estudios de Automoción, SPAIN

**14.30 - 16.00 (Room 8)  
D4: Manufacturing and Process Innovation, Flexible Process**

**EAEC2011\_D16  
Measuring and Reconstruction Techniques in Vehicle Modification and Adaptation Tasks**

Rudolf Tomic, Ilincic Petar, Sagi Goran, University of Zagreb, CROATIA

**16.30 - 18.00 (Room 1)  
A4/A6: Powertrain and Green Technologies, Fuels and Lubricants and Environment and Vehicle Recycling**

**EAEC2011\_A10  
Lubricity of Engine Oils Due to Aging With Ethanol Combustion Products**

Jech Martin, Thomas Wopelka, Charlotte Besser, Claudia Lenauer, Karoline Steinschütz, ACT research GmbH, Franz Novotny-Farkas, OMV Refining & Marketing GmbH, AUSTRIA

**EAEC2011\_A89  
A Bird's Eye View on End-Of-Life Vehicles Directive in Europe: An Italian Case Study**

Lorenzo Berzi, Massimo Delogu, Alessandro Giorgetti, Marco Pierini, Università degli Studi di Firenze, ITALY

**16.30 - 18.00 (Room 2)  
A3: Powertrain and Green Technologies, Powertrain Performance**

**EAEC2011\_A66  
Blow-By Gases Coalescing Separation.**

Laurent Guerbe, Samuel Bonne, Christophe Guillon, Sogefi Filter Division, FRANCE

**EAEC2011\_A35  
Engine Downsizing Using Electrically Driven Supercharger**

Aditya Dhand, Baekhyun Cho, Javier Villegas, Kamil Svancara, Bo Gao, Martin Wietsch, AVL Powertrain UK Ltd, Warren Thornton, Shahram Etemad, Juan Parra, Dynamic Boosting Systems Ltd, Rob Taylor, Turbocam Europe Ltd, UNITED KINGDOM

**16.30 - 18.00 (Room 3)  
A2/A5: Powertrain and Green Technologies, Electric Drives and Noise, Vibration and Harshness (NVH)**

**EAEC2011\_A91  
Environmental Impact of Electric Vehicles Connected to Grid**

Raúl Rodríguez, Carlos Madina, Eduardo Zabala, TECNALIA R&I, Ana González, Iberdrola S.A., Rosa Mora, Siemens, SPAIN

**EAEC2011\_A92  
Electric Car Operation in Mixed Urban -Regional Areas**

Andreas Daberkow, Sebastian Häußler, Heilbronn University, GERMANY

**EAEC2011\_A94  
Reducing Car-Weight While Maintaining Nvh Performance: An Optimization-Based Method**

Enrico Torricelli, Dari oCosti, Andrea Baldini, University of Modena and Reggio Emilia, Massimo Pettazzoni, Ferrari S.p.a, ITALY

**16.30 - 18.00 (Room 4)  
B4: New Control Systems and Materials, New Control Systems**

**EAEC2011\_B44  
WLIP (White Light Inspection Project): How to Bring Innovation to the Automotive Industry**

Andrés Peñuelas, AGFRA, SPAIN

**EAEC2011\_B06  
Feedback Control Strategies For an Active Engine Mounting Interface – A Self-**

**Sensing Approach**

Martin Zornemann, Roland Kasper, Otto von Guericke University Magdeburg, GERMANY

**EAEC2011\_B28  
Real-Time Management for Sensorless Engine Control and Short Circuit Localizations**

Eric Fitterer, Philippe Briot, PSA Peugeot Citroën, FRANCE

**16.30 - 18.00 (Room 5)  
C4: Vehicle Dynamics, Tyres**

**EAEC2011\_C18  
Tire Strain Fe Analysis For Developing the Intelligent Tire System**

Sun Je Kim, Lim Kyeong Bin, Yoon Yong-San, Korea Advanced Institute of Science and Technology, Noh Kihan, Choi Hyungjeen, Korea Automotive Technology Institute, SOUTH KOREA

**EAEC2011\_C32  
Homologation and Labelling Process Of Tyres With The New Rolling Resistance Regulation: Experiences and Research**

Francisco Liesa, David Gallegos, Polytechnic University of Catalonia, Ignacio Lafuente, Olivier Andrieu, Automobile Applied Research Institute, SPAIN

**16.30 - 18.00 (Room 6)  
C2: Vehicle Dynamics, Steering Systems**

**EAEC2011\_C10  
X-By-Wire Vehicle Prototype: a Tool For Research on**

**Real-Time Vehicle Multibody Models**

Roland Pastorino, Miguel Naya, Alberto Luaces, Javier Cuadrado, University of La Coruña, SPAIN

**EAEC2011\_C12  
Torque Steering System For Electrical and Hybrid Power Trains**

Ralf Stetter, Steffen Bertsch, Peter Eckart, Andreas Paczynski, GERMANY

**EAEC2011\_C54  
CFK Lightweight Components In Steering Columns - Part II**

Thomas W. Heitz, ThyssenKrupp Presta AG, LIECHTENSTEIN  
Anghel Chiru, Transilvania University of Brasov, ROMANIA

**16.30 - 18.00 (Room 7)  
E1: Safety and Human Factors, Vehicle Safety**

**EAEC2011\_E34  
New Challenges in Safety Concerning to the Electric Vehicle**

Javier Ema, Applus +, David Gallegos, Francisco Liesa, Manuel Moreno, Polytechnic University of Catalonia, SPAIN

**EAEC2011\_E38  
Status After The Veronica Projects and In The Light of The 4th European Road Safety Action Programme**

Ralf-Roland Schmidt-Cotta, Continental Automotive GmbH, GERMANY

**16.30 - 18.00 (Room 8)  
D5: Manufacturing and Process Innovation, New Quality Inspection**



**GALA DINNER**  
Wednesday, June 15 at 20.00h

(Price 100 EUR per person including VAT)



## Technical Programme

Thursday, 16th June, 2011

### EAEC2011\_D24

#### Vibration Signals as a Tool For Diesel Engine Diagnostics and Tuning

Lus Tomasz, Mechanical – Electrical Faculty, POLAND

### EAEC2011\_D13

#### Evaluation of Perceived Product Quality for the Integration in Automotive Industry Supply Chain

Pedro Huertas-Leyva, Biomechanics Institute of Valencia, SPAIN

Bastian Quattelbaum, José S Solaz, Robert Schmitt, Laboratory for Machine Tools and Production Engineering, GERMANY

### EAEC2011\_D05

#### W-Lip: White Light Inspectino Project - In-Line Geometric Inspection System For Automotive Industry

Luis Granero, Francisco Díaz, Rubén Domínguez, Josué Jiménez, Technological Institute of Optics, Colour and Imaging, SPAIN

09.00 - 11.00 (Room 1)

#### A3: Powertrain and Green Technologies, Powertrain Performance

### EAEC2011\_A45

#### Investigation On Biodiesel Obtained From Different Feedstocks. Analysis And Engine Performance

Ramon Piloto-Rodriguez, Technical University of Havana, CUBA  
Roger Sierens, Sebastian Verhelst, Ghent University, BELGIUM

### EAEC2011\_A51

#### Towards an Ultra High Efficiency Hydrogen Engine, Comparisons With LPG And Gasoline.

Peter Dennis, Payman Abbasi, Robert Dingli, Michael Brear, Harry Watson, University of Melbourne, Glen Voice, Ford Motor Company, AUSTRALIA

### EAEC2011\_A53

#### Engine Experimental Results With Hydrogen Two-Step

### Direct Injection

Frigo Stefano, Zanforlin Stefania, Gentili Roberto, University of Pisa, ITALY

### EAEC2011\_A56

#### Analysis Of Solar Energy Driven Vehicles and Further Development Opportunities

Illes Lorincz, Szechenyi Istvan University, HUNGARY

09.00 - 11.00 (Room 2)

#### A1: Powertrain and Green Technologies, Hybrid Drives

### EAEC2011\_A29

#### Energy Management And Powertrain Supervisory Control Of a Range Extended Electric Vehicle

B. Heriz, J.Valera, A.Goti, I.Iglesias, A. Peña, Tecnalia Research & Innovation, Transport Unit, SPAIN

### EAEC2011\_A42

#### Development And Build-Up of a Hybrid Commercial Vehicle

Klaus Prenninger, Andreas Eglseer, MAGNA Powertrain, Martin Ackert, Graz University of Technology, AUSTRIA

### EAEC2011\_A61

#### Ultracapacitors: Adding Power To Full and Hybrid EV

David Gutierrez, Laurent Aubouy, Céline Largeot, Mirko Faccini, Jordi Suarez, José Saez, Leitat Technological Centre, SPAIN

09.00 - 11.00 (Room 3)

#### C6: Vehicle Dynamics, Stability

### EAEC2011\_C28

#### Steady-State Directional Control Test – A Comparison Between Electric And Ice Quadricycle Vehicles

Stronati Cristian, Picchio SpA, Antonini Pierluigi, ETA Srl, Longhi Sauro, Marche Polytechnic University, ITALY

### EAEC2011\_C31

#### Multi-Task Integrated Vehicle Dynamics Control

Valentin Ivanov, Klaus Augsburg, Ilmenau University of Technology, GERMANY

Barys Shyrokau, Danwei Wang, Nanyang Technological University, SINGAPORE

Vladimir Vantsevich, Lawrence Technological University, USA

09.00 - 11.00 (Room 5)

#### C5: Vehicle Dynamics, Advanced Dynamic Vehicle Control



AVIA's mission is to promote the competitiveness, increase the dynamism and encourage communication, partnerships, productivity training, research development and innovation among our 56 partners in the Valencian Automotive sector.

AVIA commissions, Activities and projects:

#### • R&D

- R&D Think Tank projects

#### • Operations

- Lean Manufacturing  
- Benchmarking  
- "In Company" Workshops

#### • Human Resources

- Specific Management training in leadership and management  
- Job vacancies board

#### • Internationalization

- Co-participation in events and fairs management  
- Internationalization relations



# AVIA

Valencian Automotive Cluster

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**EAEC2011\_C14****An Approach On Traction Control Of 4WD Electric Vehicles Based On Direct Control Of Wheel Hub Motors**

Martin Schünemann, Roland Kasper, Otto von Guericke University Magdeburg, GERMANY

**EAEC2011\_C15****Multi Body Systems Inside FEA For Structural Nonlinearity In Vehicle Dynamics Simulation**

Thomas Wissart, Bernard Voss, Stephane Grosgeorge, Samtech, GERMANY

**EAEC2011\_C20****Identification of Reduced Conceptual Vehicle Models with Enhanced Performance for Advanced Control Design**

Marco Gubitosa, Stijn Donders,

Jan Anthonis, LMS International, BELGIUM

**09.00 - 11.00 (Room 6)****E5/E6: Safety and Human Factors, New HMI Technologies and Haptic Technologies****EAEC2011\_E25****SISCOGA - a Field Operational Test in the North West of Spain on future C2X Applications**

F. Sánchez A. Paul, D. Sánchez, M. Sáez, Galician Automotive Technology Centre, SPAIN

**EAEC2011\_E01****Development Of an Integrated Upper Limb Vehicle Control: Haptic Drive-By-Wire Device**

Marc Dominguis, Jordi Tenas,

Ficosa International, Helios De Rosario, Jose S Solaz, Technical University of Valencia, Juan Gil Jorge, University of Navarra, SPAIN

**09.00 - 11.00 (Room 8)****D5: Manufacturing and Process Innovation, New Quality Inspection Technologies****EAEC2011\_D06****Quality Control Of Car-Bodies Based On Artificial Vision**

Josep Tornero, Leopoldo Armesto, Nicolás Montés, Marta C Mora, Alvaro Herráez, Technical University of Valencia, SPAIN

**EAEC2011\_D11****V-Cycle Development Of a Controller For a Random Load Fatigue Test Bench**

Jesus Alfonso, Isaac Nadal, Jose Manuel Rodriguez-Fortun, Ana Ibañez, Technological Institute of Aragon, Fernando Urzainqui, Caucho Metal Productos S.L., SPAIN

**EAEC2011\_D03****I3D, A System For Real-Time Multi-View 3D Inspection**

Ismael Salvador, Diego Carrion, Juan Carlos Perez-Cortes, Sergio Saez, Technical University of Valencia, SPAIN

**EAEC2011\_D19****Strength Design Evaluation of the Multi-Range Transmission**

Min Gyu, Chul Ki, Jeong Se, Gyeongsang National University, Jong Kyu, Joong Hwan, S&T Dynamics, SOUTH KOREA

**TECHNICAL POSTERS****EAEC2011\_A38****A CFD Study on the Effects of the Valve Lift on the Intake Process**

Victor Iorga-Siman, Tabacu Ion, Adrian Clenci, University of Pitesti, Romania

Victor Iorga-Siman, Adrian Clenci, Podevin Pierre, Delacroix Alain, Conservatoire National des Arts et Métiers Paris, FRANCE

**EAEC2011\_A63****Influences of Alcohol Blends on Combustion and Emissions in a Two-Stroke si Engine**

Mihai ALEONTE, Radu COSGAREA, Corneliu COFARU, "Transilvania" University of Brasov, ROMANIA

Kai BECK, Amin VELJI, Ulrich SPICHER, Karlsruher Institut für Technologie, GERMANY

**EAEC2011\_A64****Performance Variation and Fuel System Behavior of a Port Injection Spark Ignition Engine Using Gasoline-Isobutanol Blends with High Concentration of Alcohol**

Adrian Irimescu, Politehnica University of Timisoara, ROMANIA

**EAEC2011\_A66****Blow-By Gases Coalescing Separation. Performance of Rotating Solution**

GUERBE Laurent, BONNE Samuel, GUILLON Christophe, SOGEFI FILTER DIVISION, FRANCE

**EAEC2011\_A69****Proposal of a Test to Measure Vehicle Noise Emissions in Real Driving Conditions**

Calvo, José- Antonio; Álvarez-Caldas, Carolina; Quesada, Alejandro; San- Román, José-Luis, Mechanical Engineering Department. Universidad Carlos III de Madrid, SPAIN

**EAEC2011\_A72****Development of a Prediction Model of Acoustic Discomfort in Cars for Engine Idle Sounds**

Palomares, Nicolás; Mateo, Begoña; Huertas-Leyva, Pedro; Solaz, José; Díaz, Jaime; De Rosario, Helios; García, Carlos and Laparra, José, Instituto de Biomecánica de Valencia, SPAIN

**EAEC2011\_A74****Expander Selection for Internal Combustion Engines Bottoming with Steam and Organic Rankine Cycle**

H. Santos, J.F.R. Fonseca Pereira, S. Pinheiro, School of Technology and Management, Polytechnic Institute of Leiria, M. Costa, Mechanical Engineering Department, Instituto Superior Técnico, Technical University of Lisbon, PORTUGAL

**EAEC2011\_A77****The Influence of Wave Processes in the Intake Exhaust System to the Volumetric Efficiency of Engines**

Petkovic Snezana, University of Banja Luka, Faculty of Mechanical Engineering, BOSNIA AND HERZEGOVINA

Veinovic Stevan, University of Kragujevac Faculty of Mechanical Engineering, SERBIA

**EAEC2011\_A80****Comparison of Combustion Characteristics of a Diesel Monocylinder Engine, Using Different Fuels**

Chiru Anghel, Sacareanu Sorin, Muntean Alexandru-Bogdan, Stanescu (Dica) Ruxandra, Mechanical Engineering Faculty, "Transilvania" University of Brasov, ROMANIA

**EAEC2011\_A82****A Numerical Study of Boundaries of the Operating Range of the HCCI Combustion**

Kozarac, Darko; Momir Sjerić; Zoran Lulic, University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, CROATIA

**EAEC2011\_A84****Dual Plenum Chamber Variable Intake System to Improve a Four Cylinder SI Automotive Engine Torque**

FONSECA PEREIRA, J.F.R, School of Technology and Management (Leiria), Polytechnic Institute of Leiria, MENDES-LOPES, J.M.C., Instituto Superior Técnico, Technical University of Lisbon, PORTUGAL

**EAEC2011\_A85****Experimental Investigation for assessing the Cold Starting Performance of a Bio-Diesel Fuelled Engine**

Clenci Adrian, Niculescu Rodica, Stroe Sergiu, Iorga-Siman Victor, University of Pitesti, ROMANIA  
Clenci Adrian, Conservatoire National des Arts et Métiers Paris, FRANCE

**EAEC2011\_A96****The Impact of Different Petrol-Ethanol Blends on the Exhaust Emissions from a Modern Light-Duty Petrol Engine**

Bielaczyc, Piotr, Szczotka, Andrzej\*, Woodburn, Joseph, BOSMAL Automotive R&D Institute, POLAND

**EAEC2011\_B13****Development and Optimization for Technical Purposes of "Green Composites" Based on Matrices Derived from Modified Vegetable Oils and Natural Fiber Reinforcements**

Boronat T., Samper M.D., Fenollar O., Balart J., España, J.M., Universitat Politècnica de Valencia, SPAIN

**EAEC2011\_B18****Biodegradable Composite Materials in Technological Applications**

T. Boronat, O. Fenollar, E. Fages, V. Fombuena, G. Abajo, Universidad Politécnica de Valencia, SPAIN

## Technical Posters

### EAEC2011\_B30

#### Study of a Novel Composite Material Coming from Natural Resources Suitable for Automotive Applications

D. Garcia-Sanoguera, L. Sanchez-Nacher, E.Fages, R. Balart, B. Ferrero, Universidad Politécnica de Valencia, SPAIN

### EAEC2011\_B41

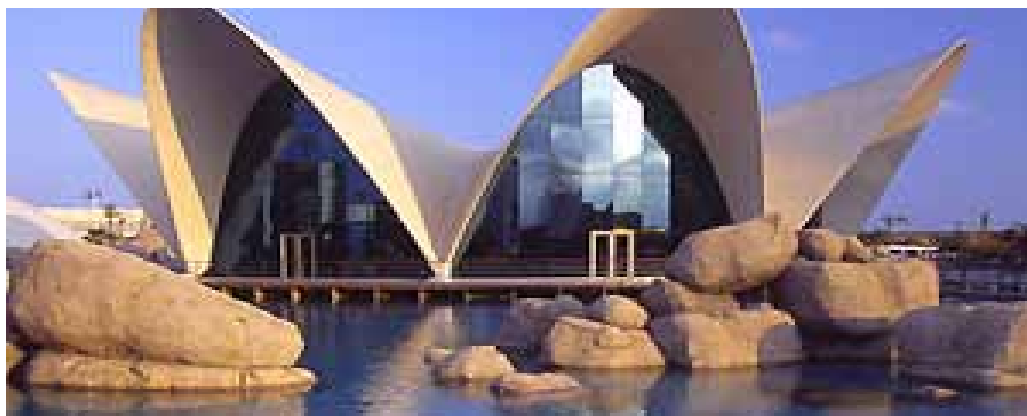
#### Corona Plasma Treatment for Obtaining LDPE film/LDPE Foam Laminates for Automotive Applications

D. Garcia-Sanoguera, L. Sanchez-Nacher, R. Balart, Universidad Politécnica de Valencia, R.Lopez, R. Balart, M. Pascual, Textile Technology Institute (AITE), SPAIN

### EAEC2011\_B43

#### Innovative Air-Conditioning Systems for Conventional and Electric Vehicles

PAYÁ, J., CORBERÁN, J.M., TORREGROSA-JAIME, B., Universidad Politécnica de Valencia, SPAIN  
VASILE-MÜLLER, C., HVAC



Department, National Institute of Applied Sciences (INSA), FRANCE

### EAEC2011\_C38

#### Comparative Analysis of Brake Data of vehicles on Different Brake Roller Testers from Ministry of Transport

C. Senabre, E. Velasco, S. Valero, Miguel Hernández University, SPAIN

### EAEC2011\_E05

#### Compatibility Study in Frontal Collisions Using Sisame Spring-Mass Models

Lim, Jae Moon, Song, Taehan, Lee, Sang In, Department of CAD & Graphics, Daeduk University, Yoon, Yongwon, Kim, Gyu Hyun., KATRI,

TS, Lee, Kwang Won, Korea Technology Finance Corporation, KOREA

### EAEC2011\_E18

#### Overall Evaluation Results on Crash Safety in KNCAP

LEE, Dong Jun, KATRI (Korea Automobile Testing and Research Institute), LIM, Jae Moon, Department of CAD & Graphics, Daeduk University, KOREA

### EAEC2011\_E42

#### Development of Effective Energy Absorber for Pedestrian Safety

Hyuckmoon Gil, Youngsoo Kim, Sunghoon Son, Youngju Seo, SL

Corporation, 1208-6 Sinsang-ri, KOREA

### EAEC2011\_E44

#### The Application of a New Principled Optimal Control for the Dynamic Change of the Road Network Graph

T. Peter, T. Füle, Zs. Bede, Budapest University of Technology and Economics, HUNGARY

### EAEC2011\_E46

#### Evaluation Test Results for Pedestrian Protection in KNCAP

Yun, Yong Won, Korea Automobile Testing and Research Institute, KOREA

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## Closing Plenary Session & Presentation of FISITA Medals

### Closing Plenary Session

- Rafael Boronat, Congress Chairman; President, STA
- José Font, EAEC Congress Vice Chairman
- Antonio Ades, Managing Director, FORD ESPAÑA
- Emilio Orta, President, AVIA, Valencian Automotive Cluster
- Brigadier ret. Prof. Günter Hohl, President, EAEC
- Ted Robertson, President, FISITA
- Ludwig Vollrath, President Elect, EAEC

### Presentation of FISITA Medals

FISITA and STA cordially invite you to join us for the Presentation of the 2011 FISITA Medals to:

**Mr. Carlos Ghosn**

Chairman and Chief Executive Officer, Renault-Nissan Alliance

**Dr. Jack Schmidt**

Formerly of General Motors (posthumous award)



## FAREWELL LUNCH

Thursday, June 16

From 13:00h to 14:00h



### INSTITUTO DE DISEÑO Y FABRICACIÓN SECTOR AUTOMOCIÓN

The Design and Manufacturing Institute, located at the campus of the Technical University of Valencia, is a non-profit research association promoted by some of the most important automotive industries of the region.

The Institute constitutes a specialized technological center that conducts research within industries through national and international projects. IDF is a recognized partner for carrying out R&D projects in the following areas:

**Product Design:** supports a wide range of services such as design management, auditing, and evaluation; scenarios and methodologies for creating new products and services, opportunity detections, and visual communication of the product. Extensive use of CAD/CAM/CIM systems is made for the design of new products and prototyping.

**Manufacturing:** high-speed machining using robot arms (CAD/CAM/Robotics) as well as research in molding numerical simulation, monitoring and control for mould filling and resin cure with thermoplastic matrix composites (GREEN-COMPOSITE).

**Robotics and Automation:** industrial solutions in terms of monitoring, diagnostics, control and communication systems, in addition to teleoperation and remote control systems, sensor fusion, smart sensors, etc. for mobile robots and vehicles.

**New Energies:** research area in opto-electronics specializes in the structural, electrical and optical characterization of compound semiconductor materials for optoelectronic applications such as solar panels and photoemitting devices.

**Information Technologies:** knowledge management and information auditing, standardization and e-learning, multimedia development, user-friendly interfaces based on virtual reality; design and implementation of Human Machine Interfaces (HMI) including functionality, ergonomics, and usability.

In terms of training, the Institute runs the Master of Science in Styling and Conceptual Design of Automobiles. And in addition, the Institute hosts COMPO-Networking an association grouping some of the most important European producers of polymer materials.



## VALENCIA

**V**alencia, situated on the Mediterranean coast of eastern Spain, is the capital city of the autonomous region Comunidad Valenciana. For several centuries it was the capital city of the Kingdom of Valencia, part of the confederation of kingdoms of the Spanish Crown. Currently, it has around 810,000 inhabitants.



There are two public universities: the University of Valencia, founded in 1499, and the Polytechnic University of Valencia, focused on technical studies (although including the old Fine Arts School of Valencia).

In addition, there are two small new private universities.

Not many cities are capable of so harmoniously combining a fine array of sights from the distant past with innovative, “avant-garde” architecture now being erected. Valencia, whose founding dates back to 138 BC, is one of these fortunate few.

From the remains of the Roman forum located in today’s “Plaza de la Virgen” - part of the Roman city of Valencia - to the emblematic City of the Arts and Sciences, this town has transformed its landscape over the years while preserving its monuments from the past.

Sightseeing around the city begins in the old quarter. Until the mid-nineteenth century, it was defended by a wall, the inner route of the number 5 bus. Still standing as proof are the graceful “Torres de Serranos”, the spacious “Torres de Quart” and some remains of the wall in the basement of the Valencia institute of Modern Arts.



The Market District took shape around the commercial life of the city’s inhabitants. Accordingly, its two most emblematic buildings are used for trading purposes.

The Gothic building of “La Lonja”, declared by UNESCO as a World Heritage Site, features a beautiful columned room where the old tables on which trading transactions were finalised are still in use today.





On the other side of the Turia's old river-bed lie the nursery gardens, along with the Fine Arts Museum and the modern part of the city. The futuristic face of the city is mirrored on the old river-bed through the Gulliver Children's park

and the leisure and culture complex "Ciutat de les Arts i de les Ciències" (City of Arts and Sciences). Life in the city spreads down to the seafront with the harbour and the beaches of "Las Arenas" and "La Malvarrosa

In 2007 and 2010, Valencia was the Host City of the America's Cup, the most famous sailing race in the world.





## SOCIAL PROGRAMME

### Welcome Ceremony

Monday, June 13  
(Free of charge)

The Official Welcome Reception of EAEC 2011 will be held in the Exposition Palace. All participants of the congress – delegates, exhibitors and accompanying people – are invited to attend the official opening of EAEC congress 2011. You can meet your fellow participants while you enjoy a typical Spanish evening.



### Gala Dinner

Wednesday, June 15 (Price 100 EUR per person including VAT)

The Official Congress dinner of EAEC 2011 will be held at the Mar de Bamboo Restaurant, located at the port of Valencia in the emblematic building Veles e Vents, with views of the Mediterranean.

The application for the banquet can be completed online at: [www.eaec2011.com](http://www.eaec2011.com) as part of the registration process.

Next to the gala dinner building will be an exhibition of classical cars.



## ACCOMPANYING PROGRAMME

### Tour 1: Valencia city sightseeing and Albufera Lake

Tuesday, June 14<sup>TH</sup> at 16:00 h.

Estimated length of the visit: 2 hours (by bus).

The tour will offer an overview of the old and new city. The special tour bus will also drive us to the city surroundings at the Albufera Nature Reserve where a special lake connects to the sea.

Meeting point: 16:00 h at the Conference Building Registration Room. Building 6G, UPV. The visit will finish at Congress hotels.



### Tour 2: Historical Valencia, central market tour and tasting of traditional food

Wednesday, June 15<sup>TH</sup> at 9:30 h.

Estimated length of the visit: 4 hours (by foot).

This visit is focused on the historical city centre and the most outstanding monuments of the city such as the Estación del Norte (North Station), Torres de Serrano y Quart (Serrano and Quart Towers), Mercado Central (the Central Market), la Lonja (the old silk exchange), Plaza Redonda (the Round Square), the Cathedral, Plaza de la Virgen (Virgin Square) and the exterior of the Basilica and the Generalitat Palace.

The visit includes a special tour to the Cathedral and a tasting of traditional Valencian food and drinks such as paella, ham, cheese, wine, etc. at the Central Market of Valencia.

Meeting point: 9:30 h. The Conference Building Registration Room. Building 6G, UPV.





## ACCOMPANYING PROGRAMME

### Tour 3: City of Arts and Science and the Oceanographic Aquarium

Thursday, June 16 at 9:30 h. Estimated length of the visit: 4 hours.

Visit the new landmark of the city, a state-of-the-art architectural and entertainment complex designed by Santiago Calatrava and located on the old Turia riverbed with 5 different areas.

- Umbracle: palm-tree garden covered by a big iron structure, the monumental veranda serves as an entrance to the Complex.
- Palacio de las Artes Reina Sofía (Palace of Arts): the opera house
- Hemisférico: building conceived as a large human eye where there is a planetarium and where IMAX movies and laser shows are shown.
- Museo de las Ciencias Príncipe Felipe (Science Museum): enormous interactive museum.
- Oceanographic Aquarium: the tour will be focused on visiting the area that is considered to be one of the largest and most important marine parks in Europe. Some of the most important ecosystems on the planet are represented: the Mediterranean Sea, wetlands, temperate seas, tropical seas, Patagonia Islands, the Arctic and Antarctic areas, and the oceans.

Meeting point: 9:30 h. The Conference Building Registration Room. Building 6G, UPV.

Transport and tickets to visit the Oceanographic Aquarium are included. Transportation from the UPV to the City of Arts and Sciences is included in the price. The visit through the complex will be on foot.





## TECHNICAL EXHIBITION

### Opening hours

Tuesday, 14 June	8:30 – 18:30
Wednesday, 15 June	8:30 – 18:30
Thursday, 16 June	8:30 – 16:00

### Official Opening

Tuesday, 14 June	11:10
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Coinciding with the 13th EAEC Congress Technical Conferences is EAEC 2011 Exhibition, which draws engineers and researchers of automotive companies and universities from around the world. Visiting the technical exhibition is a great opportunity to complement the conferences by evaluating first-hand the latest developments and the state-of-the art technology.

Apart from that, the exhibition also brings you the chance of networking with other attendees, such as customers or potential customers, suppliers and colleagues and extend your business relationships. The exhibiting companies will show their competences in the field of automotive industry and technology.

## COMPANIES LOCATION



## EXHIBITORS

### ESI GROUP HISPANIA

C/Francisca Delgado, 11 2ª Planta  
28108 Alcobendas – Madrid  
Attn/ Monica Arroyo (mar@esi-group.com)



Today's fast moving automotive industry demands state-of-the-art technology helping car manufacturers and tier suppliers meet ever-stricter regulations and fierce competition.

ESI, world leader in crash simulation, successfully completed the first car crash simulation in 1985. The automotive industry is an exciting field of play for CAE engineers as it combines some of the most diverse and demanding disciplines. ESI supports all the needs of designers, engineers and analysts by offering integrated simulation solutions that radically speed up development cycles thanks to early analysis and testing. This critical capability enables car manufacturers to quickly identify safety and performance issues and to move innovative designs to market faster than ever before.

As safety requirements keep increasing, car designers are asked to save on weight and costs, while rolling out an increasing number of variants. More than ever, the only solution in this context lies in predictive virtual testing where ESI is well entrenched.

Rapid technological innovation has changed the transport sector over the last century, often enabling it to grow faster than overall economic activity. The globalization of production and changes in management strategies has increased the demand for mobility. Further advancements in information and communication technologies, expanded satellite systems and e-commerce will promote increased integration between different modes of transport across borders and across sectors.

### INSTITUTO DE DISEÑO Y FABRICACION (IDF)

Ciudad Politécnica de la Innovación (CPI) · Camino de Vera s/n  
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The Institute is a research center promoted by some of the most important automotive industries of the region, working in the automotive sector, through national and international projects, within the following areas:

Product Design supporting a wide range of services for the design of new products with an extensive use of CAD/CAM/CIM systems.  
Manufacturing with high-speed machines and robot arms. In addition, the research is focused on thermoplastic matrix composites (GREEN-COMPOSITE). In this sense, the Institute hosts COMPO-Networking, an association of some of the most important European producers of polymer materials.  
Robotics and Automation: industrial solutions in terms of monitoring, diagnostics, control and communication systems, in addition to teleoperation and remote control systems, sensor fusion, smart sensors, etc. for mobile robots and vehicles.

New Energy Research using solar panels and photoemitting devices based on semiconductor materials.

Information Technologies: knowledge management and information auditing, standardization and e-learning, multimedia development, user-friendly interfaces based on virtual reality; design and implementation of Human Machine Interfaces (HMI) including functionality, ergonomics and usability.

### APPLUS IDIADA GROUP

E-43710 Santa Oliva (Tarragona) Spain  
T +34 977 166 000  
idiada@idiada.com  
www.idiada.com



With over 25 years' experience, Applus IDIADA is a leading company specializing in providing design, engineering, testing and homologation services to the automotive sector at international level. Applus IDIADA's expertise in both physical and virtual testing results in maximum efficiency in cost and time. Applus IDIADA works in product development for leading international vehicle, system and component manufacturers. The company has a 370-hectare technical centre which includes a modern proving ground and state-of-the-art laboratories. Its crash-test laboratory is one of the only 6 laboratories accredited by Euro NCAP for official testing.

A large team of 1200 engineers drawn from over 25 countries, as well as an international network of subsidiaries and branch offices in 18 countries ensure clients will be given fast and customized services.

### REDITA – RED TECNOLÓGICA DE AUTOMOCIÓN DE LA COMUNITAT VALENCIANA

Dirección: Avda. Leonardo Da Vinci nº48 – Parque Tecnológico de Paterna, 46980 Valencia  
Teléfono: +34 96 136 66 88  
Email: redita@redita.es  
Web: www.redita.es



REDITA (Automotive Technological Network of the Valencia Region) is the association of 8 private Technological Centers (AIDIMA, AIDO, AIMME, AIMPLAS, IBV, ITE, ITENE, ITI) that have decided to sum up their teams and their facilities to reach a common goal: offering high level innovation projects and services to the Automotive Industry.

Created in January 2007, REDITA has since then been the main technological partner of the Valencian Automotive Industry. Its main task consists of meeting the Industry innovation needs with the Technological Centers offer, in order to ensure future competitiveness of the regional Automotive Industry. Further on, REDITA has evolved into a national and European player, leading and participating in Spanish and European projects that put this Technological Network on the edge of automotive innovation in domains such as electrical vehicle charging infrastructure and energy consumption management, plastic and metallic materials, composites, nanotechnology, logistics and packaging, laser technology, artificial vision applications, ergonomics, end user acceptance valuation, embedded applications, virtual reality technology and 3D visualization.

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Agfra Ingeniería is a company with 30 years of experience in the design and manufacture of machinery, tooling and industrial applications to improve small, medium and large series productions, by gaining control of them and achieving zero defects. In the field of tooling, the company has specialized in dimensional control tooling, welding and watertightness, by making combinations of them with machine vision and the most advanced control technologies. They specialize in the automotive sector and renewable energies. They can design any automatic production system upon customer request. All this process is carried out by their engineering team, which is used to working closely with universities and research centers on R&D&I projects. AGFRA Ingeniería products are certified according to the CE safety norm and their manufacturing processes are ISO 9001 certified by AENOR.

All this has made the AGFRA brand a reliable product which meets the EU quality standards, and therefore they are exporting a large percentage of their production.

**INDUSTRIAS OCHOA**

Cl. Sequia del Quint, parc. 31  
 46190 Ribarroja del Turia (Valencia) Spain  
 Phone: +34 962 77 90 09  
 Fax: +34 962 77 90 05  
[ochoa@ind-ochoa.es](mailto:ochoa@ind-ochoa.es)  
[www.ind-ochoa.es](http://www.ind-ochoa.es)



Industrias Ochoa was founded in 1970. They manufacture technical parts of metal component, as well as stamped, welded and assembled parts. They offer integral engineering services under their philosophy of total quality, innovation and friendly environment. The company holds the Certification ISO 9001, ISO TS 16949, ISO 14001 and ISO 3834-2.

Their main customers belong to diverse sectors, such as automotive, electric, electrical appliances and installations, both at national and international level (the exports account for the 60% of the total production).

Provided with high technology, they design and manufacture tooling (progressive and transfer), as well as special welding tools.

**GALOL**

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 Resp. Departamento PVD  
 Tel. (+34) 962 208 005  
 E-mail: [galol@galol.com](mailto:galol@galol.com)  
<http://www.galol.com>

**TATA MOTORS**

Tata Motors is India's largest automobile company, with consolidated revenues of Rs. 92,519 crores (\$ 20 billion) in 2009-10. Through subsidiaries and associate companies, Tata Motors has operations in the UK, South Korea, Thailand and Spain. Among them is Jaguar Land Rover, the business comprising the two iconic British brands. It also has an industrial joint venture with Fiat in India. With over 5.9 million Tata vehicles plying in India, Tata Motors is the country's market leader in commercial vehicles and among the top three in passenger vehicles. It is also the world's fourth largest truck manufacturer and the second largest bus manufacturer. Tata cars, buses and trucks are being marketed in several countries in Europe, Africa, the Middle East, South Asia, South East Asia and South America. ([www.tatamotors.com](http://www.tatamotors.com))



## TECHNICAL TOURS

### Tour 1 - Visit to the FORD Factory in Almussafes (20 km from Valencia)

Thursday June 16, 2011. 15:00h. Total length of the tour, including bus: 3 hours

The visit will show the whole car manufacturing process. The number of visitors is limited to the capacity of the factory electrical train.



### Tour 2 - Visit to the main UPV facilities related to the automobile industry

Thursday June 16, 2011. The tour will be on foot and the duration will be 2 hours.

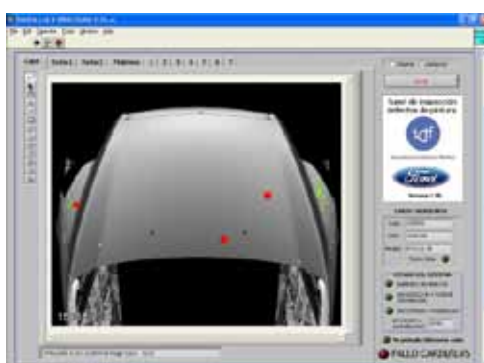
#### CMT (Engine Development)

CMT-Motores Térmicos is a research and educational centre fully involved in the development of the future combustion engine, consisted of more than 100 people. For more than 30 years we have conducted basic research for better understanding the relevant physical processes involved, and applied studies for optimizing the engine behaviour and assisting in its development.

From the deep scientific knowledge to the real-life problems of the automotive industry, we combine experimental tests conducted in our state-of-the-art facilities, and theoretical studies providing relevant technical and scientific results. Our interdisciplinary approach covers different research areas of the combustion engines: Injection / combustion, Air management, Noise control, Thermal management, and Maintenance, and aims at Excellence and Innovation.



#### IDF (Design and Manufacturing Development)



### IBV (Ergonomics and Safety)

The Instituto de Biomecánica de Valencia (IBV – Biomechanics Institute of Valencia) is a technological centre that studies the behavior of the human body and its interaction with products, environments and services. Founded in 1976, the Institute is currently coordinated under the agreement of the Valencian Institute for Small and Medium Industry (IMPIVA) and the Universitat Politècnica de València (UPV).

With the aim to improve competitiveness among the business sector, the IBV promotes people's well-being through the combination of knowledge in areas such as biomechanics, ergonomics and emotional engineering, and its application to diverse sectors.



### LAUPV (Dynamic F1 Simulator)





## GENERAL INFORMATION

### Venue

**Polytechnic University of Valencia**  
**Universitat Politècnica de València**

**Nexus Building (6G).**  
**Camino de Vera, s/n**  
**Valencia – SPAIN**



The Polytechnic University of Valencia attracts the best students and trains professionals with a recognized, prestigious level of excellence that is highly valued by local and international employers.

The relevance of UPV's research outputs underpins the strong international presence of the institution, which has close collaborative links with the best universities in the world. It is an innovative and entrepreneurial University, with effective mechanisms for the dissemination of scientific and technological results, and which excels in the training of researchers and in the creation of technology-based companies.

The University is located to the north of Valencia in a peaceful setting that borders with traditional farmland. It consists of nearly 60 buildings arranged in an orderly manner around the Agora, which is the centre of life on the campus. There are over 108,000 square meters of green spaces that house an open-air museum of sculptures.

### Transport from the Airport

The airport is situated 8 km west of the city, in the city limits of Manises. There is a frequent bus-service from the terminal to the city centre, metro line and taxi-service.

Information phone: +34 961 59 85 00  
Airport website: [www.aena.es](http://www.aena.es)

#### Metro

There are two underground lines which link the airport, the city centre and the port: the line 3 (Rafelbunyol-Aeroport) and the line 5 (Marítim Serrería - Torrent Av. / Aeroport). The station is at the ground floor of the regional flights terminal.

The journey takes around 25 minutes.  
Tickets: 1.70 €.

*[www.metrovalencia.es](http://www.metrovalencia.es) Too see the map follow these steps. Select English - Downloads - "Planos Generales" (General Documents) - Zone map - "Look" (Download)*

#### Taxi

Price: From the airport to the city centre is approximately 18 €.

#### Bus

Stops: Airport departures - Avenida del Cid (across from the Local Police Station) - Calle Bailen - Calle Angel Guimera - Avenida del Cid - Airport departures

Timetable:  
From 6.00 to 22.00. Every 20 minutes.  
Price: 2.5 €.

#### Car Rentals

Available at the airport.

### Transport within Valencia

#### Metro

[www.metrovalencia.es](http://www.metrovalencia.es) For the map, follow the steps mentioned above.

#### Bus

EMT (Valencia Municipal Transport Company) - [www.emtvalencia.es](http://www.emtvalencia.es)

#### Taxis

Spanish - Autotaxis: +34 963 959 560  
- Radio Taxi: +34 963 703 333  
English - 629 055 810

### Entry to Spain

Foreign visitors must have a valid passport (most EU citizens can use their national identity card)

For visitors shorter than a month, visas are not required for citizens of most European countries, the United States, Japan and Israel.

Visas are required for visitors from most Asian countries, and most states of NIS.

Please see [www.maec.es/en](http://www.maec.es/en). Follow these steps: General Information - Consular Services - Consular Services - Nationalities and visas for foreigners.

Delegates requiring an official invitation letter to obtain a visa, should contact the congress secretariat at: [eaec2011@stauto.org](mailto:eaec2011@stauto.org).

This, however, cannot be considered as a commitment on behalf of the organisers to provide any financial support.





## GENERAL INFORMATION

### Climate



Valencia has one of the warmest climates in Europe. It is characterized by a mild, typically Mediterranean climate, with the average annual temperature rising above 17°C. Summers are warm and winters are very mild. During the winter months the temperatures usually do not fall below 10° C. Rainfall is scarce and usually appears in autumn, at the end of winter and in early spring.

### Language



The Congress language will be English and at the opening sessions simultaneous translation will be offered to Spanish. The two official languages spoken in Valencia are Spanish and Valencian.

### Electricity



The electricity is 230 V, 50Hz. Japanese, UK, USA and other visitors: please note that Spain has European/continental-type round 2-pin plugs.

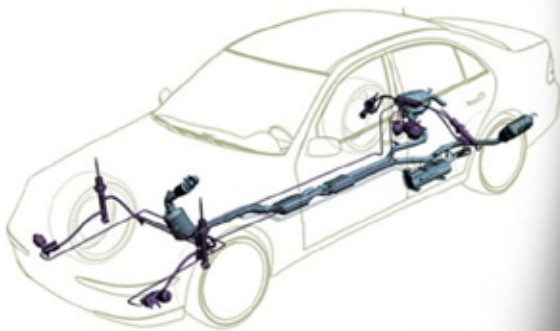
### Time Zone



Spain is in the Central European Time Zone.

### TAX

VAT is currently: 18%



# TENNECO

**Pioneering global ideas for cleaner, quieter, smoother and safer transportation**

### A Global Leader

Since becoming a standalone company in 1999, Tenneco (NYSE: TEN) has grown to become one of the world's leading designers, manufacturers and distributors of emission control and ride control products and systems for the automotive original equipment market and the aftermarket. The company is well-balanced across product lines, markets served and geographic regions.

### Key Facts

- 22,000 employees worldwide
- More than 80 manufacturing facilities on six continents
- 14 engineering centers around the world

### Our Customers

General Motors, Ford Motor Co., Volkswagen, Daimler, Toyota, PSA Peugeot Citroen, BMW AG, Chrysler, Harley-Davidson, Nissan, Honda, Suzuki, Mazda, Renault, Caterpillar, International Truck, Tata Motors, NAPA, TEMOT Autoteile, ADI, Advance Auto Parts, O'Reilly Automotive, Kwik-Fit Europe, Uni-Select, Pep Boys

## ACCOMMODATION

### 5 \*\*\*\*\*

#### HOSPES PALAU DE LA MAR



Navarro Reverter 14, 46004

**Distance from Congress Venue:**

5 minutes walk + 20 minutes by public transport (Bus line 41)

**Single Room: 168€**

**Double Room: 188€**

### 4 \*\*\*\*

#### NH LAS ARTES



Avenida Instituto Obrero 28, 46003

**Distance from Congress Venue:**

10 minutes walk + 15 minutes by public transport (Bus line 40) + 5 minute walk

**Single Room: 79€**

**Double Room: 91€**

#### BARCELÓ



Avenida de Francia 11, 46023

**Distance from Congress Venue:**

15 minutes by public transport (Bus line 40) + 5 minute walk

**Single Room: 67€**

**Double Room: 79€**

### 3 \*\*\*

#### NH CIUDAD DE VALENCIA



Avenida del Puerto 214, 46023

**Distance from Congress Venue:**

5 minute walk + 15 minutes by public transport (Bus line 1) + 5 minute walk

**Single Room: 64€**

**Double Room: 74€**

#### NH EXPRESS LAS ARTES



Avenida Instituto Obrero 26, 46013

**Distance from Congress Venue:**

10 minutes walk + 15 minutes by public transport (Bus line 40) + 5 minutes walk

**Single Room: 64€**

**Double Room: 74€**

## ACCOMMODATION LOCATION



– Welcome Ceremony

– VPU: Polytechnic University of Valencia, Nexus Building (BG)

– Gala Dinner

1 – Hospes Palau de la Mar \*\*\*\*\*

2 – NH Las Artes \*\*\*\*\*

3 – Barceló Valencia \*\*\*\*\*

4 – NH Ciudad de Valencia \*\*\*\*

5 – NH Express Las Artes \*\*\*\*

## Cancellation Policy

Cancellations and refunds of the Accommodation:

- Cancellations or changes of the bookings must be received before 11th May 2011 to get a full refund
- Any cancellations received after this date, reduction of nights booked, or no show will have no refund
- All changes or cancellations must be notified in writing to Ultramar Events
- Refunds will be made after the Congress



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PVP recomendado para Nuevo Ford Focus 5p Trend 1.6 TI-VCT 77 Kw (105cv) con Paquete Interior Trend y Paquete Style Trend, Ford Vectoring Control y Ford Active Grille. Powershift no incluido. IVA, impuesto de matriculación, descuentos promocionales y aportación del concesionario incluidos. Válido en Península y Baleares hasta fin de mes. No válido para empleados y flotas. La versión visionada podría no corresponder con la ofertada.



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