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CONGRÈS INTERNATIONAL ET EXPOSITION INTERNATIONAL CONFERENCE AND EXHIBITION

MOTORISATION DIESEL, FACE AU DÉFI DE LA COMPÉTITIVITÉ

DIESEL ENGINES, FACING THE COMPETITIVENESS CHALLENGES



26 & 27 MAI 2010
MAY 26 & 27, 2010
ROUEN, FRANCE

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ORGANISATEUR / ORGANIZER



La Société des Ingénieurs de l'Automobile rassemble, en France et à l'étranger, tous les ingénieurs, spécialistes et passionnés de l'industrie automobile qui souhaitent partager informations et connaissances et progresser ensemble dans leur expertise et leur efficacité personnelle. S'appuyant sur ses Sections Techniques et Régionales, la SIA est un laboratoire permanent d'idées et un lieu privilégié pour débattre librement des enjeux de l'automobile et de ses évolutions. Ses publications, ses formations, les événements scientifiques et techniques qu'elle organise témoignent de sa vitalité et de son professionnalisme et offre à tous ses membres la possibilité de trouver les informations, conseils et compétences dont ils ont besoin. Forte de ses 2000 membres et de son réseau de 8000 ingénieurs, la SIA représente l'industrie automobile française au sein des fédérations automobiles européennes (EAEC) et mondiales (FISITA).

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The Société des Ingénieurs de l'Automobile (the French Society of Automobile Engineers) is a society officially considered as serving the public interest. Its purpose is to represent technical excellence in the automobile industry through its expert and knowledge sharing networks. The SIA draws its members from the ranks of automobile engineers and technicians and all those active in promoting automotive engineering. SIA has 2 000 members and a network of over 8 000 engineers, technicians and research workers behind it.

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Delphi Corp. is a leading global supplier of electronics and technologies for autos, commercial and other vehicles. With more than 100,000 employees at 270 locations and 24 engineering centers in 32 countries, Delphi brings the power of innovation to a wide range of products and services that add value for car makers and car drivers alike. Delphi delivers real-world innovations that make products smarter and safer as well as more powerful and more efficient. For more information on Delphi, visit www.delphi.com.



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D2T Powertrain Engineering is a worldwide supplier for powertrain development and calibration, test bed engineering and equipment. With our state-of-the-art automation, simulation and calibration tools, developed in cooperation with major OEMs, D2T is strongly involved in hybrid and electrical powertrain design and validation. D2T is the a subsidiary of IFP.

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AVL is the world's largest privately owned company for development, simulation and testing technology of powertrains (combustion engines, hybrids, transmissions, electric drive, batteries and software) for passenger cars, trucks and large engines.

Le Moteur Moderne, is the French partner to the engine and automotive industry.

Engine Instrumentation and Test Systems: provides all the instruments and systems required for engine and vehicle testing.

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Gaétan MONNIER – D2T
Olivier PAJOT – PSA Peugeot Citroën
Philippe PINCHON – IFP
Thomas RÖLLE – IAV
Remy SCHMITT – Robert Bosch*

TABLE RONDE / PANEL SESSION



Christian CHAPELLE

Christian CHAPELLE is Vice President for Powertrain and Chassis engineering, in the Manufacturing and Component Division of PSA Peugeot Citroën group.

Mr. CHAPELLE has more than 20 years experience in the field of internal combustion engines, primarily in Diesel engine development. He started his career as an engineer in the advanced engineering department, and then became project leader for the 1.4l and 1.6l HDi engines.

Mr. CHAPELLE moved to Peugeot Motorcycles as engine manufacturing director in 2002.

Mr. CHAPELLE came back in the automotive division in 2005, as Diesel engineering director. From 2008 to mid 2009, he was program director for powertrains, until his current position as VP for powertrain and chassis engineering.

Mr. CHAPELLE has gained a mechanical engineer degree from INSA Lyon in 1984, with IFP School specialization in 1987.

PSA PEUGEOT CITROËN



Odile DESFORGES

Born in 1950 in Rouen (France), Odile DESFORGES graduated from the Paris Ecole Centrale Engineering school in 1973. She began her career as Research Officer at the Transport Research Institute. She joined the Renault Group in 1981, with the Automobile Division Planning Department before becoming Product Engineer on the R19, then Product Engineer for the C segment (1983-1985). She moved to Purchasing in 1986 as Head of the Exterior Equipment department and was appointed Director, Body Hardware Purchasing, in 1992, for the joint Renault Volvo Purchasing Organization then, in 1994, for Renault only. In March 1999, she became Executive Vice President of the Renault VI-Mack Group, in charge of 3P (Product Planning, Product Development, Purchasing Project). In January 2001, she was appointed President of the Volvo Group's 3P Business Unit.

She moved back to Renault in March 2003 as Senior Vice President, Purchasing, and Chairman and CEO of the Renault Nissan Purchasing Organization. At the same time she became a member of the Renault Management Committee.

From March 1st, 2009 Odile DESFORGES is appointed Executive Vice President, Engineering and Quality and a member of the Group Executive Committee. She reports to Patrick Pélata, Chief Operating Officer.





DELPHI
Innovation for the Real World

John FURST

John FURST is General Manager, Delphi Diesel Engine Management Systems, for the company's Powertrain division.

FURST started his career in valve train process engineering with GM in 1983. His most recent assignments were product line executive for gas engine management systems, as well as product line executive, gas and diesel controllers. In these concurrent assignments, he was responsible for introducing new technologies and managing growth with customers on a global basis.

FURST has a strong engineering and technical experience. He has held several other leadership assignments in powertrain product and manufacturing engineering; as well as positions in the company's global operations, including manufacturing, finance, advanced development, and sales. He speaks several languages and has worked in both the United States and overseas operations.

FURST earned a bachelor's degree in mechanical engineering from the University of Nebraska and an MBA from the University of Chicago.



Juergen GERHARDT

Juergen GERHARDT works with Robert Bosch GmbH, Stuttgart since 1984. He has been in charge of different tasks in the development of Gasoline Engine Management Systems, including system development, application & calibration as well as in the product development.

From '95 up to now, he was in charge of different management tasks in series and advanced engineering within the Gasoline Systems division. From 2003, he was Senior Vice President Gasoline System Engineering, responsible for system engineering of Powertrain and Gasoline Systems for both advanced engineering and series production, and since 2008, he is Senior Vice President Diesel System Engineering, responsible for system engineering of both advanced engineering and series production as well as calibration and world-wide technical centers.



Helmut LIST

Helmut List is Chairman and CEO of AVL List GmbH. AVL is the world's largest privately owned and independent company for the development of powertrain systems with internal combustion engines as well as instrumentation and test systems and employs in its worldwide network around 4,300 people.

List holds a wide range of industrial and public positions at national, European and international level. He is Vice-Chairman of European Road Transport Research Advisory Council (ERTRAC), Honorary Consul of the Republic of Korea for Styria, an honorary professor at the Universities of Tongji and Jilin in China and chairman of the University Board of the Technical University Graz. He is an SAE Fellow and an associate member of the National Academy of Engineering and Technology. He has received numerous national and international awards and honors.



■ CONTEXTE ET OBJECTIFS

Le marché des véhicules (automobiles et poids lourds) traverse aujourd'hui un contexte économique en mutation. Les enjeux liés au réchauffement climatique ne pourront pas être totalement pris en compte sans envisager dans le futur des évolutions significatives de la mobilité individuelle notamment dans les pays émergents. Ce contexte représente une opportunité pour tous les ingénieurs et les scientifiques impliqués dans la recherche de solutions innovantes, techniquement, économiquement et adaptées aux nouveaux marchés. Les enjeux pour les générations futures sont conséquents et le secteur du transport et donc l'automobile sont directement concernés.

En affichant des consommations de carburant faibles et en surmontant ses principaux défauts, le moteur diesel est considéré, notamment en Europe, comme l'un des convertisseurs basses émissions de CO₂ de l'avenir. Ces progrès se sont toutefois effectués au prix d'une complexité technologique toujours croissante, en particulier pour réduire les émissions de polluants sans sacrifier les avantages de rendement inhérent au diesel. De nouvelles approches vont être nécessaires pour poursuivre le développement de ces moteurs en contribuant au respect croissant de l'environnement et au meilleur rapport entre le coût et la valeur pour le client y compris dans les marchés automobiles hors de l'Europe. Ces approches pourront s'appuyer sur plus de synergies entre les motorisations diesel automobile et poids lourd, ainsi que sur une évolution, voire même une redéfinition de la taille des motorisations et de leurs performances, sur de nouveaux cycles thermodynamiques et de nouveaux procédés de combustion,...

L'édition 2008 du traditionnel congrès SIA sur le moteur diesel s'est, pour la première fois, tenue à Rouen et a enregistré une participation record. Ce nouveau lieu et un programme remarquablement centré sur les problématiques environnementales de notre époque ont été les clés de ce succès. Pour poursuivre dans cette direction, en y associant la notion de compétitivité, la nouvelle édition sera l'occasion de faire l'état des lieux, de présenter les derniers développements et innovations de rupture qui contribueront à faire encore progresser le moteur diesel. En effet tous ces progrès ne pourront se faire qu'en prenant en compte les contraintes environnementales avec des exigences clients croissantes en termes de coûts d'acquisition et d'usage du véhicule.

La SIA a choisi d'organiser à Rouen, l'édition 2010 de son traditionnel congrès diesel en partenariat avec le pôle de compétitivité MOV'EO, Universität Karlsruhe, University of London et Politecno di Torino. Ce congrès international sera une formidable opportunité pour les experts de l'industrie automobile, du poids lourd et du véhicule industriel, des équipementiers associés, de l'industrie pétrolière, des laboratoires de recherche et des universités d'échanger leurs points de vue et informations sur les évolutions de la motorisation Diesel pour répondre aux défis environnementaux et technico-économiques du futur.

■ CONTEXT AND OBJECTIVES

The vehicles' market (cars and trucks) is today crossing an economic context in mutation. Stakes linked to global warming will not be able to be completely taken into account without thinking in the future significant evolutions of individual mobility notably in the emergent countries. This context represents an opportunity for all engineers and scientists involved in the research of innovative resolutions, technically, economically and adapted to the new markets. Stakes for the future generations are following and the area of the transport and therefore the car are directly concerned.

By showing weak consumption of combustibile and overcoming its main defects, the diesel engine is considered, notably in Europe, as one of the low CO₂ emitting converter of the future. This progress was nevertheless made at the cost of an always growing technological complexity, particularly to reduce the pollutants emissions without sacrificing the advantages of inherent high efficiency of the diesel.

New approaches are going to be necessary to follow the development of these engines by contributing to the growing environment respect and in the best report between the expense and the value for the customer including in the automotive markets out of Europe. These approaches will be able to lean on more synergies between diesel automotive and trucks powertrains, as well as on an evolution, even a redefining of the size of motorization and of their performances, on new thermodynamics cycles and of new techniques of combustion, ...

The 2008 edition of the traditional SIA congress on diesel engines was held, for the first time, in Rouen and recorded a high participation. This new place and a program remarkably centered on environmental problems of our epoch were the keys of this success. To continue in this direction, by linking it the notion of competitiveness, new edition will be opportunity to make appraisal, to introduce the last developments and innovations of break which will contribute to make develop the diesel engine. In effect all this progress will be able to be made only by taking into account environmental pressures with customers requirements growing in terms of costs of acquiring and usage of the vehicle.

SIA has chosen to organize in Rouen the edition 2010 of its traditional diesel congress in partnership with the Mov'eo cluster, Universität Karlsruhe, University of London and Politecno di Torino. This international congress will be a tremendous opportunity for the experts of car industry, heavy duty and industrial vehicle, linked equipment manufacturers, oil industry, research laboratories and for universities to exchange their points of view and information on evolutions of Diesel engines in order to answer to the environmental and technico- economic challenges of future.

MERCREDI 26 MAI / WEDNESDAY MAY 26

8:45 **Accueil / SIA Welcome Opening**
Discours de bienvenue / Welcoming Address

9:00 Discours d'ouverture / Keynote Address
Marc DUVAL-DESTIN - PSA Peugeot Citroën

10:00 Discours d'ouverture / Keynote Address
G. CIPPOLA - General Motors

10:30 **Pause / Coffee break**

	SESSION 1A New Diesel Engine Concepts G. MONNIER • B. DEMORTIER	SESSION 1B Thermo-Fluidynamic optimization F. MILLO • J. GALINDO	SESSION 1C Alternative Combustion Systems A. BOUKHALFA • P. PINCHON
11:00	Les contextes normatif et économique, stimulateurs du développement technologique du moteur Diesel. <i>Normative and economical contexts, drivers of the technological development of the diesel engine.</i> J-C. RICAUD - Le Moteur Moderne, France	Concept innovant de balayage via un système de distribution variable pour moteur Diesel : une voie prometteuse pour le downsizing. <i>Innovative VVA scavenging concept for Diesel engine: a promising way for downsizing.</i> G. BRESSION, O. BAUDRAND - IFP, France	<i>Potential of continuous rate-shaping for passenger car Diesel engines.</i> O. PREDELLI, M. BRAUER, P. ROLKE, A. REMPEL, M. GUSTKE - IAV, Germany
11:30	<i>3 cylinder HSDI downsizing concept.</i> P. RAGOT, P. MALLET, J. ROZEN - Renault, France M. HOWLETT, W. SCHNIDER, N. AUSSER-HOFER, P. BARTSCH, M. WEISSBAECK, O. SOUSTELLE - AVL, Austria	Récupération d'énergie sur véhicule industriel par cycle de rankine : approche, contraintes et modélisation. <i>Rankine cycle for waste heat recovery on commercial trucks: approach, constraints and modelling.</i> N. ESPINOSA, B. LOMBARD - Renault Trucks, France L. TILMAN, V. LEMORT - University of Liège, Belgium	Influence de la géométrie de la buse, de l'EGR et du calage de l'injection sur la combustion de type PCCI dans un moteur de poids lourd. <i>Influence of nozzle geometry, EGR and injection timing on PCCI combustion in a heavy duty diesel engine.</i> J. BENAJES, R. NOVELLA, S. ARTHOZOUL, J.M. DESANTES, S. MOLINA, J. LOPEZ - Universidad Politécnica de Valencia, Spain B. LOMBARD - Volvo, France
12:00	Optimisation moteur diesel sur chaîne traction hybride. <i>Diesel engine optimization for hybrid drive train.</i> Olivier COPPIN - PSA Peugeot Citroën, France	La combustion HCCI dans le moteur Z. <i>HCCI-combustion in the Z engine.</i> T. JANHUNEN - Aumet Oy, Finland	Étude des variations cycle à cycle d'un moteur Diesel fonctionnant avec une stratégie de combustion à faibles émissions de NOx. <i>Study of cycle-to-cycle variations for Diesel engines operating with low-NOx combustion strategies.</i> C. LEFEBVRE-MOURAD - MOT, Germany D. ESCUDIE - University of Lyon, CNRS INSA-Lyon, France U. WAGNER - KIT, Germany
12:30	Cocktail / Lunch break		
	SESSION 2A Innovative Injection Systems T. RÖLLE • O. PAJOT	SESSION 2B NOX Aftertreatment S. ZIDAT • F. DIONNET	SESSION 2C Combustion Fundamentals D. ARCOUMANIS • G. COMA
14:30	<i>Light duty common rail injection technology for high efficiency clean Diesel engines.</i> N. GUERRASSI, P. BERCHER, D. GEURTS, G. MEISSONNIER, N. MILOVANOVIC - Delphi, France	Concept de post-traitement Euro 6 + à émissions de CO ₂ et coûts optimisés. <i>CO₂st optimized EATing for EU6+.</i> F. SCHRADER, L. KRÄMER - IAV, Germany	Tabulation chimique avancée pour simulation moteur: application à une machine à compression rapide. <i>Advanced detailed chemistry tabulation for engine simulations: application to a rapid compression machine.</i> G. LODIER, P. DOMINGO, G. LARTIGUE, V. MOUREAU, L. VERVISCH - CORIA, CNRS, INSA of Rouen, France
15:00	Améliorations du système d'injection Diesel en vue des normes Euro 6 et futures. <i>Diesel fuel injection system improvements for Euro 6 and beyond.</i> L. PASSILLY, F. ATZLER, K. WENZLAWSKI - Continental Automotive, Germany	Développement d'outil spectroscopique de laboratoire pour la simulation du comportement d'un substrat monolithique: exemple du procédé SCR. <i>Spectroscopic tools at the laboratory scale useful for simulating the behaviour of a depollution monolithic block: an example of the SCR process.</i> P. BAZIN, M. DATURI, I. MALPARTIDA, O. MARIE - University of Caen, CNRS, France X. JEANDEL - Renault, France	Influence de grilles de turbulence sur l'aérodynamique interne – applications à la combustion HCCI. <i>Grid turbulence influence on internal aerodynamic. HCCI combustion applications.</i> S. POUNKIN, K-H. TRAN, P. GUIBERT, C. MORIN, G. LEGROS - University Pierre et Marie Curie, France

15:30 Approche système pour une réduction efficace des émissions du moteur Diesel automobile. *NOx reduction potential using LNT catalyst: use of approach system and modeling for design and prediction.* Outils de deuxième génération pour la modélisation de la préparation du mélange dans les moteurs Diesel. *Comprehensive systems approach for efficient emissions reduction on diesel engines for passenger cars.* **L. REBOUAH, C. TUNETIER, P. DARCY, D. DIPENTA, K. BENCHERIF** - Renault, France *Second generation modelling tools of mixture preparation in diesel engines.* **V. EBRAHIMIAN, C. HABCHI, R. LUGO** - IFP, France
Robert Bosch, France **B. CUENOT** - CERFACS, France

16:00 **Pause / Coffee break**

16:30 Table ronde / Panel Session

Quel futur pour le moteur Diesel ? Which future for the Diesel engine?

Christian CHAPELLE, Vice President for Powertrain and Chassis engineering in the Manufacturing and Component Division - *PSA Peugeot Citroën*

Odile DESFORGES, Executive Vice President, Engineering and Quality, member of the Group Executive Committee - *Renault*

John FUERST, General Manager, Delphi Diesel Engine Management Systems, for the company's Powertrain division - *DELPHI*

Juergen GERHARDT, Senior Vice President Diesel System Engineering - *Robert Bosch*

Helmut LIST, Chairman and CEO - *AVL*

18:00 **Fin des conférences / End of the day**

20:00 **Dîner de Gala / VIP Dinner**

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

JEUDI 27 MAI / THURSDAY MAY 27

	SESSION 3A Air Systems O. HADDED • G. DE PAOLA	SESSION 3B PM Aftertreatment J.J. MILESI • C. BOULY	SESSION 3C Injection Fundamentals A. VELJI • R. SCHMITT
8:30	DIAMS: diagnostics avancés et modélisation de la turbo suralimentation. <i>DIAMS: advanced diagnostics and modelling for turbocharging.</i> F. VIDAL - PSA Peugeot Citroën, France	Filtres à particules sur supports céramiques à base d'oxydes. <i>A review of Diesel particulate filters made of oxide based ceramics.</i> J-J. THERON - <i>Coming, France</i>	Nouveau concept de nez d'injecteur diesel. <i>The multi-slider Diesel injector nozzle concept.</i> M. GAVAISES, D. ARCOUMANIS City University of London, UK
9:00	Etude comparative entre suralimentation et turbo-suralimentation. <i>Supercharged versus turbocharged study.</i> SWRI, USA	Diagnostic embarqué pour filtres à particules. <i>Diesel particulate filters on board diagnostic.</i> S. ZIDAT - <i>Katcon Global, Luxembourg</i>	<i>Etude expérimentale de la cavitation sur modèles 2D et 3D transparents des buses d'injection diesel.</i> Experimental investigation of cavitating flow in 2D and 3D transparent diesel nozzle models. C. MAUGER, M. MICHARD, L. MEES - <i>Laboratoire de Mécanique des Fluides et d'Acoustique, France</i>
9:30	Modélisation de différentes situations anormales du turbo compresseur sur moteurs automobiles. <i>Modelling different turbocharger surge situations in automotive engines.</i> PAYRI, J. GALINDO, ARNAU, LANG - <i>Universidad Politécnica de Valencia, Spain</i>	Etude et développement d'un capteur de particules embarqué. <i>On-board soot sensor study and development.</i> J. LAVY, C-N. MILLET, D. SERRANO - <i>IFP, France</i>	Etude des grandeurs caractéristiques de sprays Diesel par visualisation dans une Machine à Compression Rapide (MCR) transparente. <i>The Diesel spray pattern – visualization and measurement of its characteristics in a transparent rapid compression machine for different fuel properties.</i> B. NICOLAS, J.P. LE RU, F. DIONNET - <i>Centre d'Etude et de Recherche Technologique en Aérothermique et Moteur, France</i> F. DOUCE, P. SCHMELZLE, P. MANUELLI - <i>Total, France</i> S. DEHOUX, P. GASTALDI - <i>Renault, France</i>

- 10:00 Condensation acide dans les systèmes EGR haute et basse pression en utilisant des carburants Diesel et biodiesel.
Acidic condensation in low and high pressure EGR systems using diesel and biodiesel fuels.
G. BOURGOIN - Valeo, France
E. TOMAS - Valeo, Spain
J-M. LUJAN, B. PLA - Universidad Politécnic de Valencia, Spain
- Simulation numérique 3D de la régénération d'un FAP type wall-flow.
3D numerical modeling of wall-flow type DPF regeneration
K. PAJOT, B. DELATTRE - PSA Peugeot Citroën, France
A. RAULOT - AVL, France
A. BEUROTTE, M. BOUSSUGE, L. JEANFAIVRE, S. GAILLIEGUE - MINES ParisTech, France
- Considérations techniques pour les jets diesel Euro 6+.
Some technical basis for Euro 6+ Diesel spray.
J. HELIE - Continental Automotive, France
R. ROTONDI - Continental Automotive, Germany

10:30 **Coffee break**

<p>SESSION 4A Diesel Engine Calibration C. BAILLY • V. PICRON</p>	<p>SESSION 4B Fuels, Lubricants and Materials S. MICHON • M. CHARLET</p>
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- 11:00 Extension du domaine de stabilité de combustion dans un moteur Diesel par l'utilisation d'une méthodologie de calibration influant sur le système de refroidissement moteur.
Engine and combustion stability over extended operating range using engine thermal management in calibration procedure.
R. BURKE, C. BRACE - University of Bath, UK
- Certains effets des carburants sur les fonctionnements à faibles émissions de NOx et de fume dans un moteur Diesel utilisant le « pré-mélange suffisant » pour combustion à allumage par compression.
Some fuel effects on low- NOx, low-smoke operation of a diesel engine using "premixed enough" compression ignition combustion.
G. KALGHATGI, L. HILDINGSSON, A. HARRISON - Shell Global Solutions, UK
B. JOHANSSON - Lund University, Sweden

- 11:30 Simulation système en temps réel – une modélisation intégrée du GMP et du véhicule.
Real time capable system simulation - a fully integrated engine gas path and vehicle model.
J-C. WURZENBERGER, P. BARTSCH - AVL, Austria
T. KATRASNIK - University of Ljubljana, Slovenia
- Effet du taux de compression et de la pression d'injection sur moteur diesel fonctionnant aux esters méthyliques d'huile de graine de coton.
Effect of changing the compression ratio and fuel injection pressure on CI engine using methyl ester of cotton seed oil.
K-N. JANAGARAJAN, S. KUMAR - TATA Motors, India

- 12:00 Calibration véhicule optimisée par simulation en temps réel sur banc d'essai dynamique.
Vehicle calibration optimization using a dynamic test bed with real time vehicle simulation.
G. BURETTE - D2T, France
- Mesures locales de débit d'huile sur moteur Diesel.
Local oil flow measurements in Diesel engine.
A. LE NEGRATE, M. EL FASSI, G. CAVALLARO - PSA Peugeot Citroën, France

- 12:30 Méthodes de calibration avancées appliquées à une formulation carburant éthanol/Diesel innovante.
Advanced calibration method applied with an innovative ethanol/Diesel fuel formulation.
S. MAGAND, B. LECOINTE, M. CASTAGNE, F. CHAUDOYE - IFP, France
- Optimisation de composants élastomères pour répondre aux nouvelles exigences des moteurs Diesel.
Optimization of elastomer components to answer the new diesel engine requirements.
J-P. BRETAUDEAU, B. LEROSIGNOL, Y. RICORDEAU - Hutchinson, France

13:00 **Cocktail / Lunch break**

<p>SESSION 5 Future Engine Technologies N. GUERRASSI • P. BERNET</p>

- 14:30 Potentiel de la technologie multi-air pur d'actionnement electro-hydraulique des soupapes appliquée aux moteurs Diesel pour véhicules Euro 6.
MultiAir electro-hydraulic valve control technology potential on diesel engines for Euro 6 passenger car applications.
M. TONETTI, L. BERNARD, G. CANINO, A. RUGGIERO - FIAT, Italy

- 15:00 Développement de la version Euro 5 du moteur Subaru Boxer Diesel de deuxième génération.
Development of Euro 5-compliant second-generation Subaru Boxer Diesel.
H. SAEKI, K. HARIMA, Y. NAKAJIMA, K. MORIKAWA - Fuji Heavy Industries, Japan

- 15:30 *Closing Address*
Roger DECKERS - Renault

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

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Motorisations Diesel, face au défi de la compétitivité
Diesel Engines, facing the competitiveness challenges

May 26&27, 2010 - INSA of Rouen

Ref: 2010-03

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- I will attend the Gala Dinner
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- By check in Euros made payable to: "Société des Ingénieurs de l'Automobile"
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- Registration fees include participation in the conference, CD of proceedings, book of abstracts, refreshment breaks, lunches and diner.
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- In case of cancellation before May 5, 2010, 30% of the registration fees will be retained by the organisers. After this date, the entire registration fee will be retained. Registered participants not able to attend may nominate a substitute. Written notice must be provided.

INFORMATIONS GÉNÉRALES / GENERAL INFORMATION



LANGAGE OFFICIEL / OFFICIAL LANGUAGE

French and English: simultaneous translation provided



VENUE / ACCESS

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Avenue de l'Université - BP 8
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