

PROGRAMME





ROUEN 2014

International Conference and Exhibition

SIA POWERTRAIN

The clean compression ignition engine of the future

Rouen, Normandy - France INSA | May 21 & 22, 2014















La conférence est cofinancée par l'Union Européenne. L'Europe s'engage en Haute-Normandie

avec le FEDER











EXECUTION 2012





WELCOME

Dear Colleagues,

The Compression Ignition Engine has undergone major technological evolutions in the last 20 years, with the introduction of numerous innovations in the market place. High pressure fuel injection, electronic control, exhaust gas recirculation and turbo-charging are all key technologies which have been launched whilst engine design and the materials used have also evolved. In more recent times particulate filters, NOx after-treatment and hybridization have begun to emerge.

Upcoming Light Duty Compression Ignition Engine regulations in Europe intend to include more transient testing in real urban driving conditions, which will require further development and understanding of how the Compression Ignition Engine can maintain its leading position with regards to fuel economy. The Clean Compression Ignition Engine Conference intends to give powertrain developers and researchers the opportunity to obtain an overall picture of state-of-the-art technologies and look ahead to future tasks and challenges.

The upcoming edition of the International Compression Ignition Engine Conference will be held on the 21st and 22nd May 2014 in Rouen, France. This will be the 26th International Conference and Exhibition organised by the power-train section of the SIA. This unique event facilitates the exchange of technical information between scientists and engineers active in varying areas of Diesel powertrain technology. The last edition of the conference (2012) was a great success:

- More than 40 presentations
- International representation with 330 participants
- > 30 exhibiting companies
- Panel discussion with executive participants from the automotive industry
- > Vehicle technology demonstrations
- > Banquet in city of Rouen
- > Visit to local vehicle manufacturing sites and research laboratories
- International press presence

The 2014 edition will include an additional forum in the afternoon of May 22^{nd} , where students & industrial representatives will come together enabling the young engineers to obtain key information as they set-off on a career in the automotive industry.

It is therefore a real honour for us to welcome you to this unique event and we are convinced that the interesting conference discussions will bring a common understanding of future challenges.

"We look forward to meeting you in Rouen in May 2014"

71. Caromera

Conference General Chair

Noureddine GUERRASSI, Chief Engineer

Advanced Injection & Combustion Engineering - DELPHI





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CONTACT

Pauline SENIS - Event Project Manager / Société des Ingénieurs de l'Automobile Tel: +33 (0)1 41 44 93 74 / pauline.senis@sia.fr





VELCOME O STUDENTS

As usual, one of the first purposes of SIA is to make automotive industry attractive for young people and students. That's why we invite them to attend the congress and meet the experts and the companies that will be glad to share their knowledge and display their new technologies.

Student registration fees:

40 € VAT exc*



We will forward it to the interesting companies present among the exhibitors. You may meet your future employer! contact pauline.senis@sia.fr to register





*You must be or become SIA member before your registration (membership fee: $20 \in VAT$ inc. / year)



>>> TECHNICAL VISITS,

MAY 20TH

laboratories

The afternoon before the conference, SIA organise two visits for the attendees. If you want to visit one of these sites, please send an e-mail to pauline.senis@sia.fr

LIMITED REGISTRATION. for only 40 people



CORIA, CERTAM and ESIGELEC

Discover three laboratories located in the Madrillet Technology Centre, close to the conference venue.

The first aim of this centre is to bring together on one site, higher education and research establishments, technical centres and businesses in order to generate and encourage innovation, technology transfers and the creation of businesses.

Renault Cléon plant



You will visit the new 2.3 dCi engine assem-

(Less CO₂ emission - Twin turbo - Downsizing)





Diesel Powertrain for passenger cars: what will be the mainstream in 2020?

Moderator: Laurent Meillaud



John FuerstPresident Diesel Systems
business unit, Delphi



Jürgen Gerhardt Senior Vice President System Engineering, Bosch Diesel Systems



Gaspar Gascon-Abellan Senior Vice President Head of Powertrain engineering, Renault



Patrice Marez Powertrain system design director, PSA Peugeot Citroën



Jean-Yves PaulinVice President Powertrain Engine systems, Continental Automotive

Other participants may join the discussion

The updated programme is available on www.sia.fr



> PROGRAMME, MAY 21ST

08:00	ATTENDEES REGISTRATION WELCOME BREAKFAST			
09:00	Opening Address Noureddine Guerrassi General Chair			
09:30	Keynote speech #1 Pierre Macaudière, Engine Functionnal Design M	anager / Senior Scientist Aftertreatement System I	Design PSA Peugeot Citroën, France	
10:00	Keynote Speech #2 Evangelos Karvounis, Global Manager Diesel Sys	tems, Ford Research & Advanced Engineering Fo o	rd, Germany	
10:30		COFFEE BREAK		
	FUTURE DIESEL POWERTRAIN Amin Velji KIT Federico Millo Politecnico di Torino	AIR AND EGR MANAGEMENT SYSTEMS Dominique Petitjean Honeywell Bianca Maria Vaglieco Istituto Motori	ADVANCED ENGINE CONTROL Carlos Guardiola Universitat Politècnica de València - CMT Motores Termicos Thomas Rölle IAV	
11:00	PassCar-Diesels Go West - Road- map to Clean Diesel Applications Complying w/ Future Requirements J. Gerhardt Robert Bosch, Germany	Low Pressure EGR Loops: What are the Stakes, and the Next Generation of those Systems? S. Potteau, G. Hodebourg, V. Huet, S. Leroux, K. Surbled Valeo, France	Model-Based Exhaust Manifold Temperature (T3) Observer for Future Diesel Programs S. Petrovic, D. Roettger Ford, Germany B. Fulton, M. van Nieuwstadt Ford, USA	
11:30	SULEV Emissions for PC Diesel? – An integrated approach for lowest emissions A. Beichtbuchner, L. Buergler, R. Cerna, M. Weissbäck AVL, Austria	Potential of Miller Cycle in Reactivity Controlled Compression Ignition Combustion A. Garcia, E. Belarte, J. Benajes, S. Molina Universitat Politècnica de València / CMT Motores Termicos, Spain I. Balloul Volvo, France	Model Based Control: Implementation of this Cost Saving Technology on Complex Engine Systems P. Fussey Ricardo, UK	
12:00	Vehicle Level Parameter Sensitivity Studies for a 1.5L Diesel Engine Powered Passenger Car with Various Boosting Systems P. Wetzel, B. Biller, P. Chandras, S. Keidel, Leaton, USA	Effects of the Intake Air Heating on a Euro 5 Diesel Engine under -7°C Ambient Temperature, during the Warming Up Period in a New Euro- pean Driving Cycle Z. Soukeur, J. Borges-Alejo Valeo, France H. Climent, J-M. Luján, B. Pla Universi- tat Politècnica de València / CMT Motores Termicos, Spain	Development and Assessment of a Fully-physical 0D Fast Running Model of a E6 Passenger Car Diesel Engine for ECU Testing on a Hardware-in-the- loop System A. Ruggiero, I. Montalto, K. Mustafaj, E. Pau- tasso, P. Poletto, E. Servetto Fiat Group, Italy	
12:30	LUNCH BREAK			



>> PROGRAMME, MAY 21ST

	WORLDWIDE MARKET EVOLUTION Philippe Bernet Renault Giovanni Cipolla IARE	DOWNSIZING AND DOWNSPEEDING Vanessa Picron Valeo Gaetano de Paola IFP Energies Nouvelles	ENERGY RECOVERY AND THERMAL MANAGEMENT Nadim Andraos FEV Luc Herbin Faurecia	
14:00	360 Worldwide Automotive Industry - Diesel N. Meilhan Frost & Sullivan, France	Evaluation of Downsizing and Downspeeding Concepts to reduce Fuel Consumption of Diesel Engines L. de Francqueville, G. De Paola, L. Noel IFP Energies Nouvelles, France	Comparison of High or Low Temperature Working Fluids for Rankine Waste Heat Recovery Systems R. Haller, Y. Glavatskaya, S. Hammi, L. Labaste-Mauhe, B. Nicolas, A. Taklanti Valeo, France	
14:30	The Future Market of Diesel Power- train for Passenger Cars, European and Global M. Costes, J-B. Monteil, J-M. Prillieux, J. Taganza Inovev, France	Downsizing in Diesel Engines – An Experimental Investigation of Base Engine Design concerning the Diesel Combustion System based on Single Cylinder Engine Experiments T. Kaudewitz, M. Frambourg M. Schüttenhelm, A. Mork Volkswagen, Germany H. Oetjens, J. Rohr, C. Severin I IAV, Germany	Influence of Active cooling Thermal Management Valve on Fuels Consumption and Engine Warm-up: Co-simulation and Tests M. Cormerais, T. Marimbordes, Y. Thevenoux Mann-Hummel, France D. Chalet, H. Mezher Ecole Centrale de Nantes, France	
15:00	Tailored Design and Layout for Loss Minimization or Cost-Effective Com- monality of Parts - An Contradictory Conflict B. Werner, T. Körfer, M. Pieper, C. Steffens, R. Vossen FEV, Germany	Comprehensive Approach for Optimal Diesel Engine Downsizing Combining Thermodynamics and Design Assis- tance System V. Dolecek, S. Bogomolov, J. Macek, A. Mikulec, O. Vitek CTU Prague, Czech Republic	Turbocompounding Application for Small Displacement Engines Y. Ismail, P. Menegazzi Valeo, France D. Chalet, P. Chesse Ecole Centrale de Nantes, France	
15:30	COFFEE BREAK			
16:00	PANEL SESSION DIESEL POWERTRAIN FOR PASSENGERS CARS: WHAT WILL BE MAINSTREAM IN 2020? Moderator: Laurent Meillaud			
17:30	EXHIBITION VISIT Refreshment Break			
19:00	SHUTTLE SERVICE From the conference venue to Gala Dinner			
20:00	GALA DINNER			
23:00	SHUTTLE SERVICE From Gala Dinner to the hotels			

> PROGRAMME, MAY 22ND

08:00	WELCOME BREAKFAST			
	EXHAUST AFTER-TREATMENT [1] Christophe Charial PSA Peugeot Citroën Jean-Jacques Basset Renault	INNOVATIVE ENGINE DESIGN Neville Jackson Ricardo Ali Mohammadi Toyota	ENGINE AND POWERTRAIN MANAGEMENT SYSTEMS Jean-Christophe Lamodière Kistler Omar Hadded Tata Motors	
08:30	Future, Upgraded Exhaust Aftertreatment Systems for Automotive Diesel Engines for Proper Compliance with New Regulations T. Körfer, B. Holderbaum, B. Werner FEV, Germany T. Wittka RWTH Aachen University, Germany	Passenger Car Diesel Engine with Steel Piston A. Hollemaert, J-P. Cadalen, P. Gastaldi, Renault, France	In Cylinder Pressure Sensor based Combustion Control B. Varoquie, C. Bouquet, A. Hellemans, E. Walker Continental, France C. Juvenelle Continental, Germany	
09:00	Evaluation of Sulfation and Lean/Rich Desulfation of a NOx Storage Reduc- tion (NSR) Catalyst using an Advanced NSR Model F-A. Lafossas, M. Lida, A. Mohammadi, K. Yoshida Toyota, Belgium & Japan M. Kalogirou, C. Manetas Exothermia, Greece G. Koltsakis, Z. Samaras Aristotle University of Thessaloniki, Greece	Next Trends for Engine Friction Reduction B. Noel Renault, France	Closed Loop Emission Control in Turbocharged Diesel Engines C. Guardiola I Universitat Politècnica de València - CMT Motores Termicos, Spain	
09:30	Assessment of Diagnostic Approaches for NOx Storage Catalysts in View of Future Emission and OBD Legislation F. de Smet, C. Nederlof, M. Schneider, E. Smirnov Ford, Germany	Improvement of Engine NVH for the New Pass-by Noise Regulation S. Wang, G. Nghiem Renault, France	Re-optimization of a Euro 5 Engine on WLTC Cycle using Global Calibration Approach A. Borras Nadal, M. Castagne, F. Nicolas, F. Wahl IFP Energies Nouvelles, France	
10:00		COFFEE BREAK		

> PROGRAMME, MAY 22ND

	ADVANCED COMBUSTION AND FUELS Gaëtan Monnier IFP Energies Nouvelles Jan Macek Czech Technical University	EXHAUST AFTER-TREATMENT (2) Christophe Bouly Faurecia François Jaussi Liebherr	FUEL INJECTION AND SPRAYS Rémy Schmitt Robert Bosch Bertrand Demortier Continental
11:00	Research on New Fuels to Unlock the Potential of Future Compression Ignition Engines V. Morel Aramco Fuel Research Center, France N. Jeuland IFP Energies Nouvelles, France	AdBlue Storage and Delivery System for Operation in Winter Conditions J. Op de Beeck, J-F. Bérard, J-B. Lepage, J. Snook, A. Thiaucourt, J-J. van Schaftingen Inergy Automotive Systems, Belgium and France	Correlating the nozzle flow to Spray and Primary Breakup using Visualization and Multi-Phase Simulation M. Lai, X. Xie Wayne State University, USA G. Dober, N. Guerrassi, J. Shi Delphi, Luxembourg J. Wang Argonne National Laboratory, USA
11:30	Beyond Euro VI - An FIE System & Combustion Optimisation Approach N. Keeler, D. Lane, D. Mellors, S. Tullis Delphi, UK	Continental Emitec SCR Dosing System for Passenger Cars P. Barbier Continental, France	Diesel Injector Real Geometry acquired by X-ray Micro-tomography for Detailed In-nozzle CFD Simulations M. Lorenzi, M. Gavaises, N. Mitroglou City University, UK M. Santini, S. Fest-Santini, G.E. Cossali University of Bergamo, Italy
12:00	High Efficiency Diesel Combustion with Low Cooling Heat Loss using Restricted In-Cylinder Flow T. Hashizume, H. Ito, T. Ogawa, T. Tomoda I Toyota, Japan M. Kono I Nippon Soken, Japan K. Inagaki I Toyota Central R&D Labs	Experimental Characterization of SCR DeNOx-systems: Mixing Box Analysis M. Lecompte, S. Raux I IFP Energies Nouvelles, France	Thermal Effects of Fuel Injection on Spray Propagation and Combustion D. Greif, W. Edelbauer, J. Strucl AVL, Austria and Stovenia
12:30	Advanced Engineering Tools and Methodologies for Refined Thermodynamic Performance of Advanced Diesel Engines T. Körfer, B. Holderbaum, H. Rohs, T. Schnorbus, H. Sharareh FEV, Germany	From Detailed to Real-time Exhaust After-treatment Models D. Karamitros, I. Koutoufaris Exothermia, Greece V. Epitropou, K. Karatzas, G. Koltsakis, M. Riga Aristotle University of Thessaloniki, Greece	Analysis of Global Shape and Sizing of Urea-Water Sprays in a Hot Air Flow Tunnel for the Development of SCR Systems L. Postrioti, G. Buitoni Università di Perugia, Italy C. Ungaro Loccioni Mobility, Italy M. Mosser Continental, USA

01:00	LUNCH BREAK

	PLENARY SESSION Pierre Duret IFP School Daniel Roettger Ford
14:30	Delphi New Diesel Common Rail System Family P. Bercher, JL. Beduneau, C. Cardon, G. Meissonnier, HJ. Schiffgens, M. Uberti Bona Delphi, France
15:00	The new RENAULT dCi 140kW 2,3l Diesel Engine G. Ambrosi Renault, France
15:30	Cost Competitive Diesel Aftertreatment Solution to meet Future Emissions Requirements R. Argolini, D. Mercuri, P. Olmo General Motors, Italy

16:00	CLOSING SPEECH Jean-Jacques Basset, Diesel performance expert leader Renault, France
16:15	END OF CONFERENCE



This unique event will bring together more than 400 participants: directors, managers, heads of department, engineers, researchers and technicians. An exceptional line-up of guests and speakers will be present for the occasion.

The exhibition will allow you to show-case your company, present your latest products and create privileged contacts within this unique gathering of targeted decision-makers.

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 $^{^*}$ As small firms and labos enjoy a lower rate, they can't benefit from this extra discount

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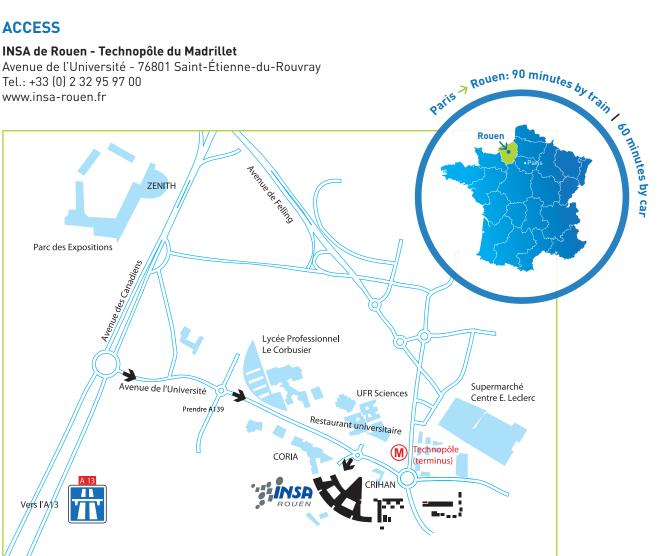
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- Follow A13 / E05 in direction to "ROUEN CAEN SAINT ETIENNE DU ROUVRAY OISSEL".
- Exit #22 "OISSEL SAINT ETIENNE DU ROUVRAY SOTTEVILLE ROUEN". Merge onto E 402 and take the ramp to A150. Continue straight onto D418.
- Exit toward A13/A28/Elbeuf/Caen/Le Mans.
- At the roundabout, take the 1st exit onto D938.
- At the roundabout, take the 1st exit. Continue Straight.
- At the roundabout, take the 2nd exit onto Av. de l'Université
- INSA de Rouen will be on your right.
- P You can park at the UFR des Sciences de l'Université de Rouen, in front of the INSA.

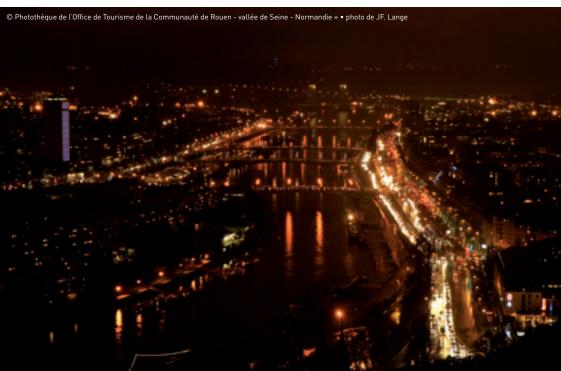
> FROM TRAIN STATION "ROUEN RIVE-DROITE"

- Take the METRO at « Gare-Rue Verte » stop in direction to "Technopole" stop.
- Stop at "Techonopole" which is the end of the line.
- At the roundabout, turn right onto Av. de l'Université and walk 2 min until INSA de Rouen on your left.



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> ROUEN, CAPITAL OF NORMANDY



REGISTRATION FORM

Conference "The Clean Compression Ignition Engine of the Future" - May 21 & 22, 2014 Ref: 2014-02

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 Where it is not possible to send the payment together with the form, each registration should be accompanied by an official purchase order. Failing reception of an official purchase order or payment on the day of the congress, we regret that you will not be allowed entry to the congress.

 When we have received the registration form, we will send you a confirmation message and an invoice. Please indicate the accounts department address where necessary.

 In case of cancellation before April 21th 2014, 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.