

International Conference and Exhibition

30TH
EDITION

SIA POWERTRAIN ROUEN 2018

The New Compression Ignition Engine, Electrification
and Sustainable Fuels for Passenger Cars and
Commercial Vehicles

16 - 17 MAY
2018

PARC DES EXPOSITIONS
ROUEN, FRANCE

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INTRODUCTION



Dr Noureddine Guerrassi

Chief Engineer Advanced Injection &
Combustion Engineering -
Delphi Technologies



Dear Colleagues,

The automotive sector is experiencing an unprecedented transition towards **new forms of mobility that include a massive integration of digital culture, hybridization, electrification and the creation of new mobility services**. The scientific community is driving intense research into electricity storage capability, hydrogen fuel cells..., whilst maintaining their focus on internal combustion engines, hybridization and sustainable fuels for passenger cars, commercial vehicles, off-road and industrial applications.

In this context, the internal combustion engine still has a great potential. In particular, Diesel technology remains an attractive powertrain option, both for Total Cost of Ownership and for meeting the challenging fleet CO₂ emissions targets. Furthermore, its high fuel economy enables a long range between refueling stops, thus representing the best available solution for high annual mileage and heavy goods transportation vehicles. As a result of continuous improvements in efficiency and emissions, Diesel technology will still have a key role to play in future sustainable mobility. **Progress is foreseen in many areas such as ancillary electrification, combustion efficiency, thermal management, waste heat recovery, mechanical friction, exhaust after-treatment, hybridization and transmissions.**

In addition, the integration of the different powertrain sub-systems and the shift to real driving test conditions is increasing system complexity. This requires a global system approach and recourse to more virtual development processes in order to provide affordable and efficient powertrain solutions.

The 30th SIA Powertrain Conference on New Compression Ignition Engine, Electrification & Sustainable Fuels for Passenger Cars & Commercial Vehicles to be held in Rouen, France on May 16-17, 2018, intends to address many of these established and new topics. Reflecting the ongoing focus shift in transportation decarbonisation to a well-to-wheel basis, new topics will be introduced on alternative powertrain energy types (sustainable liquid and gaseous fuels) and fuel cells. **The conference will support the automotive community in providing an overall picture of state-of-the-art technologies and by anticipating future development challenges.** This congress is recognized by the automotive stakeholders as an exceptional and unique technical event showing continuous growth in the number of participants and exhibitors. The 29th edition of the conference in Versailles in June 2017 was again a great success with 590 participants, 58 technical presentations and 24 exhibitors.

The Organizing Committee cordially invites you to take advantage of this internationally renowned event in powertrain R&D knowledge and experience exchange.

We look forward to seeing you in Rouen this year either as a conference speaker, exhibitor or attendee!

Yours sincerely,

Dr Noureddine Guerrassi

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COMMITTEES

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Noureddine Guerrassi, DELPHI TECHNOLOGIES

Chairmen

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PANEL SESSION'S PARTICIPANTS



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Chief Technology Officer.
French Automotive
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President



Christian CHAPELLE
Groupe PSA
SVP - Powertrain &
Chassis Engineering



Philippe DIVRY
AB Volvo
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LOCAL COMPANIES VISITS

15 MAY AFTERNOON & 18 MAY MORNING

We are glad to invite you to visit our partners' facilities the day before the SIA POWERTRAIN Congress and the day after.

Please select the visit you wish to attend when registering on our website.



CERTAM - Aerothermic and Internal Combustion Engine Technological Research Centre

Come & Test the PEMSLabs « Plug'n & Roll » System

Resulting from a CERTAM development and supported by the CARNOT ESP Institute, the PEMSLAB is a multigas and particle measurement solution under real driving conditions...

Plug'n Roll is a concept for faster implementation than conventional PEMs, not limited to the 5 regulated pollutants to meet the needs of automobile industry for the engine development. The FTIR spectrometric measurement technology makes it possible to measure all the chemical species emitted by the engines, allowing a great deal of flexibility in R&D projects (spectra replay, post-analysis identification of other compounds). Virtually limitless autonomy by the choice of a thermal group to power the PEMSLAB avoiding the constraints related to batteries.

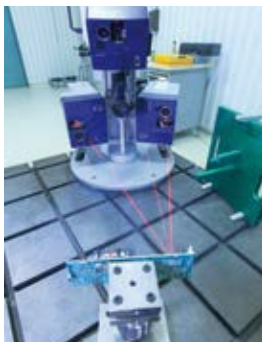


IRSEEM - Embedded Electronic Systems Research Institute

Visit of the 3 main Research Platforms:

- > Hybrid and Electric Vehicle Platform
- > Autonomous Navigation Platform
- > EMC Mechatronics Microelectronics Platform

IRSEEM's activity units join their competences in electronics, automation, signal and image processing, networks and telecommunication within partner-oriented research programs in order to come up with innovative and sustainable answers to the challenge of electronic embedded systems, as they are more and more present in surrounding objects and projects, whether it be automobile, aeronautics or space.



CEVAA - Testing and Expertise Center

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The CEVAA is expert in Vibration, Acoustic and Reliability based on 20 years of automotive experience.

The laboratory has an experimentation center and a simulation/calculation division. This dual competence within the same lab grants CEVAA a huge legitimacy in the resetting of calculations/tests. The laboratory carries out this type of study to support their clients - partners in their development phases with the willingness to bring solutions and a valuable addition to the research of a technological break as leitmotiv.

Visiting CEVAA will be the occasion to discover their technological methods such as their semi-anechoic chambers, dynamic analysis lab, laser vibrometry and materials laboratory.

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The site's activity is based on five engine families, including the F4 petrol and V9X and R9M diesel, sold under the market name Energy dCi 130, and two gearbox families (J and P). In 2011, the site manufactured 1.3 million of these products.

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PROGRAMME 16 MAY 2018

07:30 > Attendees Registration & Coffee in the Exhibition

OPENING PLENARY SESSION

08:30 > Welcome Introduction

Société des Ingénieurs de l'Automobile

08:35 > Opening Address by the Conference Chair

Noureddine GUERRASSI, *Delphi Technologies*

08:45 > The Energy Mix and its Impact on Multiple Automotive Topics

Jean-Luc BROSSARD, R&D Director, *PFA - French Automotive Industry & Mobilities*

09:00 > Impacts of Emission from Car Exhaust on Air Quality

Barbara D'ANNA, Research Director, *CNRS - French National Centre for Scientific Research*

09:15 > Technology Neutrality

Colette GENIN, Directrice Conseil, *Taddeo - Technologies & Mobility*

09:30 > Alternative Fuels for Sustainable Mobility

Agnès DUMESGES, VP Product Marketing, *Total*

09:45 > Future Evolutions of Diesel Engine Technology and its Powertrain Trends Influencing CO₂ Emissions in Europe

Vijay SUBRAMANIAN, Associate Director - EMEA, *IHS MARKIT* & Gaetano DE PAOLA, Advanced Diesel Engine Projects Manager, *IFPEN*

10:00 > Panel Discussion with the Keynote Speakers

10:30 > COFFEE BREAK IN THE EXHIBITION // TEST-DRIVE

NEW ENGINE TECHNOLOGY #1

Pierre DURET - *IFP-School*
Ali MOHAMMADI - *Toyota*

RDE TESTS & CALIBRATION #1

Juergen MANNES - *IAV*
Hans NUGLISCH - *Continental*

EXHAUST AFTERTREATMENT #1

Bertrand DEMORTIER - *Continental*
Michael WEISSBÄCK - *AVL*

WASTE HEAT RECOVERY

Geoffroy MARTIN - *Mov'eo*
Gaëtan MONNIER - *IFP Energies Nouvelles*

11:30 > The new RENAULT 200hp 2.0L Diesel engine evolution

C. Bergeris, E. Blanchard, *Renault*

Model Based Engine Calibration for RDE

Y. Murata, Y. Nishio & Y. Yamaya, *Honda*

High Performance Commercial Vehicle Adblue Compact Mixer

E. Alano, *Faurecia*

Waste heat recovery potential in a complete truck simulation environment

F. Galuppo, T. Reiche, *AB Volvo*
V. Lemort, *University of Liège*
P. Dufour, M. Nadri, *University of Lyon*

12:00 > New 1.5L Blue HDI Engine

F. Coudrain, J-P. Chemisky, *Groupe PSA*

Tomorrows Emission Calibration Environment - "Simulated Real World Driving meets engine test-bench"

J. Gerstenber, S. Tafel, S. Sterzing-Oppel, B. Seidel, C. Fischer, *Bosch*

DiNOx Dual : optimal NOx aftertreatment in all driving conditions

P. Galabert, J. Op De Beeck, *Plastic Omnium*

Development of an ORC Turbine for Waste Heat Recovery in the Coolant of Automotive Engines

A. Leroux, G. Henry, A-C. Mintsas, *Enogia*
P. Leduc, P. Smague, *IFP Energies Nouvelles*

12:30 > Asymmetric inlet valve opening to reduce NOx and soot from a High-Speed Light-Duty Diesel Engine

F. Leach, M. Davy, *University of Oxford*
A. Weall, B. Cooper, *Jaguar Land Rover*

On Board Fast Measurement of RDE Vehicle Emission

M. Duckhouse, M. Peckham, H. Bradley, M. Irwin, *Cambustion*

Gaseous Ammonia Mixer Optimization for SCR Systems: A Combined Experimental and Numerical Approach

P. Schiffman, O. Laget, M. Lecompte, *IFP Energies Nouvelles*

Rankine cycle, from thermodynamic equation to road test

T. Fouquet, J. Roussilhe, *Faurecia*

13:00 > LUNCH BREAK IN THE EXHIBITION // TEST-DRIVE

FUEL INJECTION SYSTEMS

Thomas KÖRFER - *FEV*
Marc LEJEUNE - *AB VOLVO*

EXHAUST AFTERTREATMENT #2

Olivier IMBERDIS - *IAV*
Philippe PELLETIER - *Renault*

SUSTAINABLE ENERGY POWERTRAIN #1

Nadim ANDRAOS - *FEV*
Philippe CHINA - *Total*

POWERTRAIN EFFICIENCY IMPROVEMENT

Philippe BERNET - *Renault*
Kyoungdoug MIN - *Seoul National University*

14:30 > Next Generation of Fuel Injection Systems for Passenger Car and Commercial Vehicles

G. Meissonnier, C. Daveau, N. Guerrassi, P. Bercher, M. Graham, *Delphi Technologies*

Electrical enhanced aftertreatment system to address passenger cars real life emissions

M. Capirchia, E. Jean, *Faurecia*

Zero Emission Urban Trucks versus Diesel

T. Justin, *AB Volvo*

Optimization of Powertrain Architectures under Aspects of Fleet Requirements

C. Danzer, R. Troeger, W. Wukisiewitsch, T. Voigt, *IAV*

PROGRAMME 16 MAY 2018

15:00	> RDE Step 2 and beyond - Bosch Diesel FIE System contribution T. Wintrich, M. Krüger, C. Uhr, C. Hinrichsen, D. Naber, S. Rothe, <i>Robert Bosch</i>	1D/3D simulation of urea dosing - Deposit Formation and NOx Reduction in Real Driving J. Wurzenberger, A. Nahtigal, T. Mitterfellner, <i>AVL</i>	eFuels and Electrification: Enablers for Reduction of Well-to-Wheel CO ₂ and local NOx emissions G. Avolio, G. Rosel, J. Grimm, O. Maiwald, R. Bruck, O. Kastner, <i>Continental</i>	Evaluation of Zero Oil Cooling for Improved BTE in a Compression Ignition Engine B. Denton, J. Miwa, C. Bitsis, <i>SouthWest Research Institute</i>
15:30	> Analysis of spray characteristics on a counter-bore fuel injector nozzle for diesel engine application F. Pesce, A. Vassallo, <i>GM</i> R. Payri, J. De la Morena, J. Monsalve-Serrano, V. Pagano, <i>CMT-Motores</i>	Model-Based Exhaust After-treatment Technology Robustness Testing using Monte Carlo Generated RDE Cycles R. King, R. Cantalops-Jimenez, J. Seabrook, A. Ward, R. Sellers, <i>Ricardo</i>	Opportunities and Challenges of e-Fuels in Future Mobility with Combustion Engines and Diesel Fuel Systems B. Becker, R. Marohn, P. Rolke, <i>IAV</i>	Improving passive transmission lubrication efficiency with novel Smoothed Particle Hydrodynamic (SPH) modelling L. Martinelli, M. Hole, <i>Drive System Design</i>
16:00 > COFFEE BREAK IN THE EXHIBITION // TEST-DRIVE				
PANEL SESSION Christophe AUFRERE, Chief Technology Officer, <i>Faurecia & French Automotive Research Committee President</i> Christian CHAPELLE, SVP - Powertrain & Chassis Engineering, <i>Groupe PSA</i> Philippe DIVRY, SVP Group Truck Strategy, <i>AB Volvo</i> Gaspar GASCON ABELLAN, EVP - Product Engineering, <i>Groupe Renault & French Automotive Technologies Committee President</i> Mary GUSTANSKI, Chief Technolgy Officer, <i>Delphi Technologies</i>				
17:00 >				
18:30 > COCKTAIL IN THE EXHIBITION // TEST-DRIVE				
19:30 > GALA DINNER				

PROGRAMME 17 MAY 2018

08:00 > WELCOME COFFEE IN THE EXHIBITION				
	EXHAUST AFTERTREATMENT #3 Jean-Florent GENIES - <i>Groupe PSA</i> Emmanuel JEAN - <i>Faurecia</i>	DIESEL COMBUSTION SYSTEMS Gaetano DE PAOLA - <i>IFP Energies Nouvelles</i> Andy WARD - <i>Ricardo</i>	TURBOCHARGING & EGR Jérôme MORTAL - <i>Jaguar Land Rover</i> Rémy SCHMITT - <i>Robert BOSCH</i>	SUSTAINABLE ENERGY POWERTRAIN #2 Fabrice FOUCHER - <i>University of Orléans</i> Erwann SAMSOM - <i>Groupe PSA</i>
08:30	> Exhaust Aftertreatment Technology Approaches to cover upcoming RDE requirements F. Bunar, M. Diezemann, S. Nippert, R. Scholz, M. Brauer, <i>IAV</i> M. Maalouf, F. Mönkeberg, <i>BASF</i>	Improved soot emissions by piston bowl-shape guided late cycle oxidation in low-swirl heavy-duty diesel engine combustion J. Eismark, <i>AB Volvo</i> M. Andersson, <i>Chalmers University of Technology</i>	Electric boosting architectures comparison for light vehicle diesel engines P. Rathmann, S. Vankayala, E. Bouvier, J-S. Roux, D. Jecquel, P. Davies, D. Zecchetti, <i>Honeywell</i>	Alternative powertrain options for non-road mobile machinery V. Rajamani, G. Topfer, <i>Deutz</i>
09:00	> Future Advanced Diesel Emission Concepts to meet worldwide ultra-low emission standards for global applications T. Körfer, M. Kötter, M. Schönen, M. Laermann, J. Berquez, E. Nadir, H. Hanayli, <i>FEV</i>	Holistic Diesel Combustion System Design – optimizing fuel-air mixing, heat transfer and combustion at low emissions level Anselmi, J. Galpin, G. De Paola, <i>IFP Energies Nouvelles</i> M. Tonetti, G. Rustici, <i>Centro Ricerche Fiat</i>	Switchable Valve Train Components for PC Diesel Engines as Contribution to RDE Legislation Compliance F. Himself, W. Christgen, V. Schmidt, M. Elicker, <i>Schaeffler</i> M. Brauer, R. Pohlke, <i>IAV</i>	Clean and Closed CO ₂ -Cycle-Mobility based on CI-Powertrain applying Sustainable fuels (DME) M. Zubel, B. Heuser, <i>RWTH Aachen</i> W. Willems, <i>Ford</i> J. Weber, <i>Denso Automotive</i>
09:30	> Diesel Exhaust Systems development in regards of RDE challenge B. Bassou, P. Servais, J. Baron, I. Grisstede, C. Tomanik, U. Goebel, <i>Umicore</i>	Introduction to Delphi's DFI7 Dynamic Rate Shaping - One Injector for all Combustion Strategies A. Mercer, K. Sullivan, R. Gibson, S. Tullis, <i>Delphi Technologies</i>	Potential of Variable Valve Train in Partial Load Operation of Diesel Engines P. Maniatis, U. Wagner, T. Koch, <i>Karlsruhe Institute of Technology</i>	Investigation on the effect of engine control parameters to optimize a light duty engine in dual fuel NG/Diesel configuration C. Beatrice, C. Guido, P. Napolitano, V. Fraioli, N. Del Giacomo, <i>Istituto Motori CNR</i>

PROGRAMME 17 MAY 2018

10:00 > COFFEE BREAK IN THE EXHIBITION // TEST-DRIVE				
	HYBRID POWERTRAIN SYSTEMS Thomas KOCH - KIT Luc MULLER - Schaeffler	NEW ENGINE TECHNOLOGY #2 Martin SACKMANN - Borgwarner Jan MACEK - Czech Technical University	RDE TESTS & CALIBRATION #2 Sebastien POTTEAU - EMC-MTT Daniel ROETTGER - Ford	GASOLINE COMPRESSION IGNITION & DUAL FUEL Omar HADDED - Drive System Design Virginie MOREL - Aramco Overseas
11:00 >	Electrified Diesel Powertrains - Clean Air meets High Efficiency M. Kötter, M. Schönen, J. Schaub, C. Menne, F. Schu, T. Körfer, J. Berquez, FEV	High performance diesel engine beyond 100 kW/lit for E-class PC with quiescent combustion concept H. Ofner, L. Bürgler, M. Wieser, M-S. Gande, AVL S. Bohatsch, H. Person, M. Stenfeldt, Volvo	A Framework for Advanced Powertrain Controls with focus on optimal Real Driving Performance E. Pérez Guzmán, c. Vigild, F. De Smet, D. Röttger, Ford	Advanced Gasoline Fuel on a GCI Vehicle Demonstration as an Enabler for Lowering CO₂ Footprint of Mobility A. Bouet, C. Chaillou, H. Won, Aramco F. Dufour, J. Kermani, IFP Energies Nouvelles
11:30 >	Strategic Benefits of 48V Mild-Hybridisation for Light-Duty Diesel R. Sellers, P. Revereault, Ricardo	Innovative technologies to realise a Diesel system with high efficiency and low emissions S. Visser, B. van Moergastel, O. Hermann, Y. Tarusawa, DENSO E. Neumann, IAV	Engine transient corrections calibration for real driving conditions: a holistic statistical approach D. Taindjis, G. Dober, N. Guerrassi, Delphi Technologies W. Baumann, IAV R. Barr, Technische Universität Berlin	Air reactivity on the demand for Low Temperature Combustion Engine N. Seignour, P. Pinazzi, F. Foucher, PRISME - University of Orléans
12:00 >	Reasonable hybrid entry solutions with E-Clutch N. Funalot, M. Kneissler, M. Baumann, Schaeffler	Lightweight Cylinder Block and Lubrication Circuit Thermal Management Solutions for Low CO₂ Emissions C. Rouaud, S. Porteous, A. Morris, S. Daniels, Ricardo F. Claydon, M. Gambling, GRM Consulting	FEV's virtual development framework - enabler of efficient vehicle calibration by validated simulation of real driving scenarios on engine-in-the-loop test benches P. Gautier, M. Kötter, T. Jung, C. Menne, B. Kinoo, T. Körfer, S. Trampert, FEV	Experimental Study of Load Expansion on Dual fuel premixed compression ignition S. Chu, J. Kang, K. Min, Seoul National University
12:30 >	Optimal Design and Sizing of Through-The-Road Hybrid Vehicle Powertrain B. Kabalan, Y. Cheng, E. Vinois, C. Dumand, R. Trigui, Groupe PSA	Efficient tool chain and development approach of a passenger car diesel engine for improvement of the fuel economy and reduction of emissions beyond Euro 6 legislation under real driving conditions H. Ofner, L. Bürgler, M. Thelliez, M-S. Gande, C. Pötsch, AVL P. Mallet, Renault V. Bony, Continental	RDE Testing Methodology On Hybrid Vehicles A. Valleron, N. Yedikardachian, V-Motech	Dual-mode dual-fuel combustion for low NO_x and soot emissions and high efficiency A. Garcia, J. Benajes, J. Monsalve-Serrano, CMT-Motores I. Balloul, AB Volvo
13:00 > LUNCH BREAK IN THE EXHIBITION // TEST-DRIVE				
	PLENARY SESSION Federico MILLO - Politecnico di Torino // Amin VELJI - KIT			
14:30 >	Life Cycle Assessment by Experts Material and LCA Stéphane MOREL, Renault & Sophie RICHET, Groupe PSA			
15:00 >	Powertrain Efficiency Status and Improvements for Medium Duty Applications Nicolas TOURTEAUX, Chief Engineer Medium Duty, AB Volvo			
15:30 >	Fuel Efficient Powertrains Evolution Outlook Axel PLASSE & Maxime BAYON DE NOYER, Renault			
16:00 >	Closing Remarks by the Conference Chair Nouredine GUERRASSI, Delphi Technologies			
16:15 >	STUDENTS POSTER AWARD CEREMONY!			
16:30 >	END OF THE CONFERENCE			

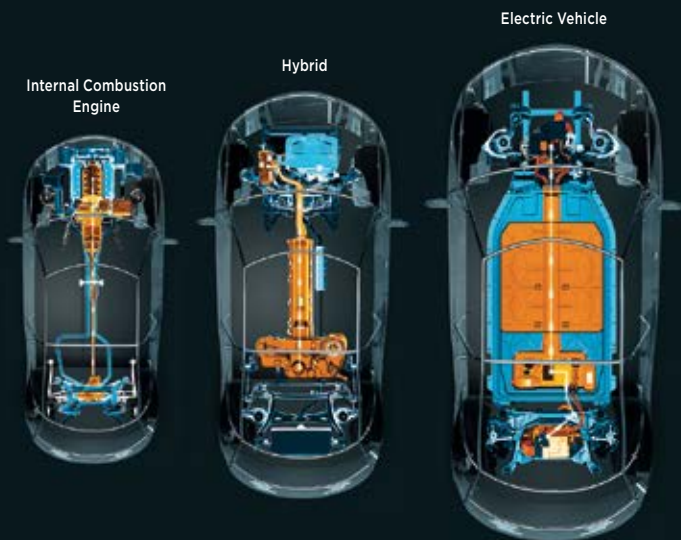
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DEAR STUDENTS!

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One of the missions of SIA is to make automotive industry -attractive for young people and students. That's why we invite you to attend the congress and meet the experts and the companies that will be glad to share their knowledge and display their new technologies.



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17 MAY

STUDENT POSTER SESSION

The French Society of Automotive Engineers and the congress Organising Committee wish to offer the opportunity to all motivated students to display their work - final year projects, for example - on posters which will be displayed at the Congress exhibition area.

- > free access will be permitted to all the applicant students on 17 May (from 08:30 to 16:30, including access to conference and exhibition)
- > a jury of powertrain experts will proceed to an evaluation of the posters from 11:00 to 13:00
- > an award ceremony will be organized for the winning student(s) at 16:30 in the main conference room
- > a trophy and a prize will be offered



17 MAY

STUDENTS FORUM

Exhibiting companies will welcome you to their booths to -discuss automotive industry's career opportunities and your expectations. You will have the opportunity to meet powertrain experts and company leaders who will tell you what skills are involved to do their jobs. Your resume will be sent to our partner companies, -before the Students Forum, where some of them are looking for interns and young engineers.

More information and registration on :



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We are thrilled to welcome you at the **Parc des Expositions** de Rouen - a place commensurate to the exhibition & the test-drive that will take place during this 2 days congress. The exhibition will take place in the "Skydome" area.

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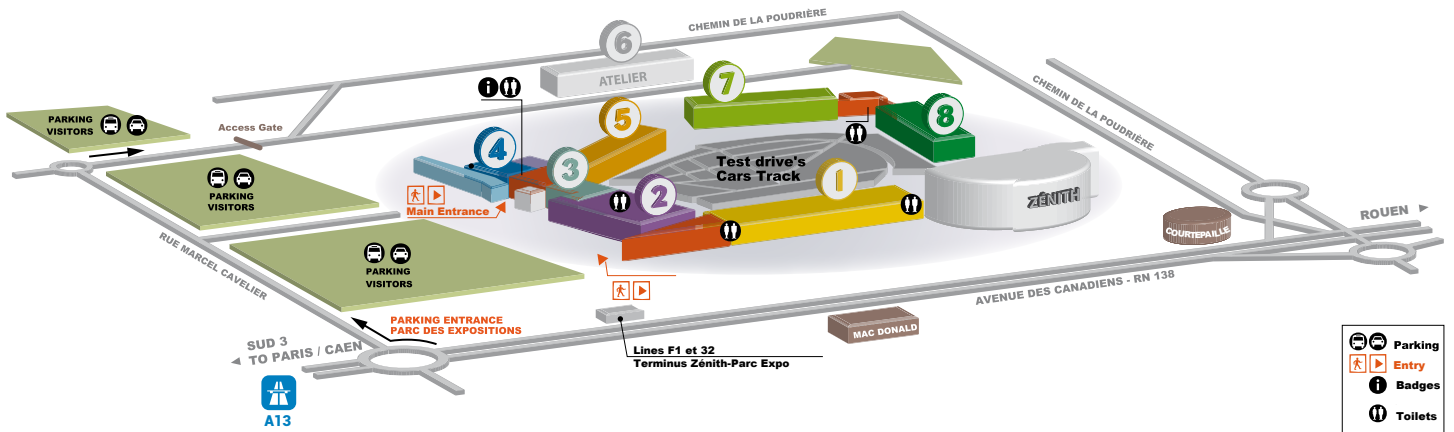
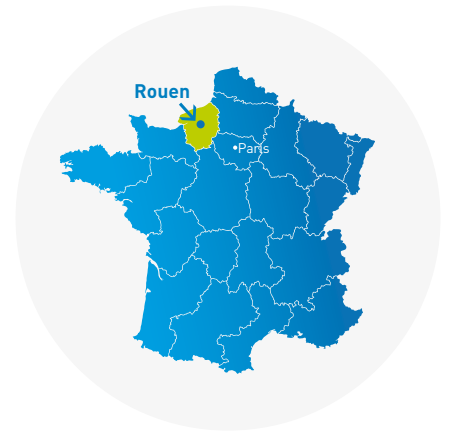
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ACCESS INFORMATION

CONFERENCE VENUE

PARC DES EXPOSITIONS DE ROUEN

46-48 Avenue des Canadiens
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