International Conference and Exhibition

SIA POWERTRAIN // VERSAILLES 2017

The low CO₂ spark ignition engine of the future and its hybridization

VERSAILLES, FRANCE
June 7 & 8, 2017
ENGINEERING SERVICES FROM A TO Z

FROM POWERTRAIN TO COMPLETE VEHICLE

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The automotive industry is entering one of the most exciting periods in its history: driving aids, high-tech embedded systems, connected cars, large-scale hybridization... in an ultra-competitive environment.

Automotive powertrains, especially gasoline, are first in line to benefit from these opportunities but also to meet future challenges: provide global solutions at reasonable costs and provide performance benefits with increasing respect for environmental issues. Implementing overall powertrain optimization strategies plus hybrid energy distribution will also confirm transmissions’ key role.

In this context, the 2017 SIA Powertrain Congress in Versailles will address “The low CO₂ gasoline engine of the future and its hybridization.” The gasoline engine, hybrid or not, has a major role to play: it supports the international development of the automotive industry by meeting most global market needs, it now offers leading performance through downsizing, and its strong synergy with hybridization helps optimize benefits vs. costs.

The 2015 edition was a fantastic success: more than 400 participants, 50 technical papers, from more than 18 countries. Be part of this adventure and the Gasoline Powertrain revolution. **Join us for this 2017 edition!**
WE ARE SHAPING MOBILITY FOR TOMORROW

How will people travel in the future, and how will goods be transported? What resources will we use, and how many will we need? The passenger and freight traffic sector is developing rapidly, and we provide the impetus for innovation and movement. We develop components and systems for internal combustion engines that operate more cleanly and more efficiently than ever before. We are also pushing forward technologies that are bringing hybrid vehicles and alternative drives into a new dimension – for private, corporate, and public use. The challenges are great. We deliver the solutions.

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### Programme // 7 June 2017

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<tr>
<td>07:30</td>
<td><strong>Attendees Registration - Breakfast in the Exhibition</strong></td>
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<tr>
<td>08:30</td>
<td>Opening address by the Conference Chairmen</td>
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<tr>
<td></td>
<td>Philippe BERNET</td>
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<td>Erwann SAMSON</td>
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<tr>
<td>08:45</td>
<td>Global Energy Demand from Road Transportation Vehicles – A View by 2030 by the PFA &amp; BIPE</td>
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<td>Catherine GIRARD</td>
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<tr>
<td>09:00</td>
<td>Renewable fuels: a natural way for green ICE enabling a circular economy</td>
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<td>Dario SACCO</td>
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<tr>
<td>09:15</td>
<td>The SI Engine: at the end of its development?</td>
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<td>Frank ALTENSCHMIDT</td>
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<tr>
<td>09:30</td>
<td>Consideration of Powertrain Rational Evolution through Electrification</td>
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<td>Masaaki KUBO</td>
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<td>09:45</td>
<td>Technology Trends For Gasoline Injection Systems</td>
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<td></td>
<td>Philippe BERCHER</td>
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<tr>
<td>10:00</td>
<td>The transformation of powertrain with electrification</td>
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<td>Michel FORISSIER</td>
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<tr>
<td>10:15</td>
<td>Panel Discussion with the Keynote Speakers</td>
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<td>10:30</td>
<td><strong>Coffee Break</strong></td>
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<tr>
<td>11:00</td>
<td>Combination of Variable Compression Ratio and Early Intake Valve Closing as a Basis for Future Highly Efficient Gasoline Engines</td>
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<td>M. Sens, M. Guenther, U. Walther, S. Nicklitzsch, J. Mueller</td>
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<td>Predictive and Optimal Control for Connected Hybrid Vehicle</td>
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<td>M. Sans</td>
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<td></td>
<td>Optimisation of Low Pressure EGR to Reduce BSFC on a 3-Cylinder Gasoline Turbocharged Direct</td>
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<td>S. Petrovic, C. Vigild, J. Groeger, K. Grieser, A. Kuske</td>
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<td>11:30</td>
<td>AVL Dual Mode VCSTM - The Modular and Cost Efficient CO₂ Reduction</td>
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<td>K. Arens, Th. Weiß, M. Heller</td>
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<td>Online Optimal Control of a Plug-in Hybrid Electric Vehicle with Adaptive Battery Discharge Management</td>
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<td>T. Miro Padovani, A. Ketfi-Cherif</td>
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<td>11:45</td>
<td>LP EGR mixing under RDE extended conditions: analysis of key parameters influencing condensation</td>
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<td>I. Vidal, A. Sotelo, I. Gonzalez, X. Perez</td>
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<tr>
<td>12:00</td>
<td>VCR-VVA-High Expansion Ratio: A Very Effective Way to Miller-Atkinson Cycle</td>
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<td>V. Collee, C. Constensou</td>
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<tr>
<td>12:30</td>
<td><strong>Lunch Break</strong></td>
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<tr>
<td>TIME</td>
<td>SESSION</td>
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<td>------</td>
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</table>
| 14:00 | Investigation of Combustion Engine Concepts for the use in an Electrifed Powertrain  
V. Bevilacqua | Porsche Engineering |
| 14:30 | A Modular Base Engine Architecture for Mild Hybrid Applications  
P. Grzeschik, J. Scharf, A. Uhligmann, M. Souren, M. Plettenberg, J. Lehmann, A. Balazs | FEV |
| 15:00 | 200kW/l: Modular Engine Family Stretch for Highest Commonality and Performance  
M. Neubauer, P. Kapus, D. Hilbert, W. Schoeffmann | AVL |
| 15:30 | Extremely Downsized Gasoline Demonstrator Vehicle  
M. Bassett, J. Hall, T. Cains | MAHLE Powertrain |
| 15:30 | Experimental Investigation of Ethanol Blends in a DISI-Engine in Transient Operation with Regard to Particle Emissions and Mixture Formation  
A. Heinz, H. Karlsruhe, J. Pfeil, C. Disch, T. Koch | KIT |
| 15:30 | A Novel Low-Temperature Plasma Ignition System Applied to a GHP Engine  
Y. Moriyoshi, T. Kuboyama, O. Matsumoto | University of Applied Sciences Esslingen |
| 15:30 | The Future for the Connected Drivetrain Systems  
S. Shepherd | Drive System Design |
| 16:00 | COFFEE BREAK |
| 16:30 | PANEL SESSION  
Christian CHAPELLE - Head of Powertrains and Chassis | Groupe PSA |
| 16:30 | Anthony HARPER - Research Director | Jaguar Land Rover |
| 16:30 | Helmut LIST - President | AVL |
| 16:30 | Robert MEYER - Vice President Corporate Strategy/Cooperations | BMW |
| 18:30 | COCKTAIL DINNER IN THE EXHIBITION |
## PROGRAMME // 8 JUNE 2017

### 08:00 > WELCOME COFFEE IN THE EXHIBITION

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<th>MICRO &amp; MILD HYBRIDS</th>
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<th>BOOSTING TECHNOLOGIES</th>
<th>VIRTUAL ENGINE DESIGN</th>
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<tbody>
<tr>
<td>Pierre Yves Geels</td>
<td>Rémy Schmitt</td>
<td>Gunther Fraidl</td>
<td>Kyeongdoug Min</td>
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<td>AVL &amp; Sebastien Potteau</td>
<td>Bosch</td>
<td>AVL &amp; Groupe PSA</td>
<td>Seoul National University &amp; Jean Sebastien Roux</td>
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<td>EMC</td>
<td>Groupe PSA</td>
<td>IFPEN</td>
<td>Honeywell</td>
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### 08:30 > Next Gen 48 Volt Hybrids by New Architectures and Connectivity

- Improved MPI Engine (Combustion Efficiency & PN): Engine Basis for "Massive" Hybridization?
  - C. Genin | Continental Automotive
- VNT Turbocharger for Gasoline “Miller” Engines
  - R. Aymanns, D. Luckmann | FEV

### 09:00 > 12+12V and 12+48V Hybridization: A Modular Approach and Transmission Impacts

- Realising Direct Injection Mixture Formation Benefits with a Dual Port Fuel Injection (PFI) System
  - A. Kevric, P. Richardson, H. Kaneta | DENSO International
  - M. Iwamuro, T. Mizobuchi, H. Shibata | DENSO Corporation
- AC Cooler for Electrical Supercharger Compressed Air
  - E. Droulez | Valeo
- Numerical Study on the Particle Number Emission of Different Charge Motion and Injection Strategies in a DI-SI Engine at High Engine Load
  - D. Notheis, A. Velji, T. Koch, M. Bertsch | KIT

### 09:30 > Versatile Selectable e-Machine Configuration Increases the Performance Potential for a Low Cost Electric Hybrid Transmission

- Near-Field Velocity Measurement of a Multihole GDI Injector
  - Y. Cao, J-B. Blaisot, S. Idahcen, C. Lacour | Coria
- Enhanced Gasoline Engine Performance with Water Injection: no longer a dream
  - J. Op de Beeck | Plastic Omnium
- Simulation of Fast Transients of GDI Engines using Large-Eddy Simulation
  - S. Jay, A. Poubeau, B. Roux, J. Bohbot, M. Cordier | IFPEN

### 10:00 > COFFEE BREAK & STUDENTS POSTER SESSION

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<tr>
<th>REAL DRIVING EMISSIONS CHALLENGES</th>
<th>GASOLINE AUTO-IGNITION CONCEPTS</th>
<th>KNOCK MITIGATION</th>
<th>ADVANCED TRANSMISSIONS</th>
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<tbody>
<tr>
<td>Jean Christophe Lamodiere</td>
<td>Virginie Morel</td>
<td>Denis Levasseur</td>
<td>Omar Haddeo</td>
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<tr>
<td>Kistler &amp; Philippe Bercher</td>
<td>Aramco &amp; Pierre Duret</td>
<td>Renault &amp; Jean Jacques Milesi</td>
<td>DSD &amp; Pascal Hervert</td>
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<td>Delphi</td>
<td>IFP School</td>
<td>Dynergia</td>
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### 11:00 > Increasing RDE Robustness using Methods of Statistical Learning

- Transition between SI and CAI Operating Modes in an Automotive, Low Cost, Gasoline, 2-Stroke Engine
  - J.J. Lopez, J.V. Benajes, J.J. Lopez | CMT-Motors Térmicos
- A Study on Relationship between Flame Propagation Process and Position of Knocking Occurrence through High-frequency Piston Flame Measurement System
  - S. Cho, C. Song, K. Min | Seoul National University
  - M. Kim | Myeongji University
  - K-P. Ha, B. Kim, I. Suh | Hyundai Motor Group
- E-Clutch as an Enabler for the Hybridisation of Manual Transmissions
  - L. Muller, M. Knüller, T. Eckenhoff | LuK
## Programme // 8 June 2017

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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>11:30</td>
<td>New Modelling Process to Estimate Real-World Emission and Impact Powertrain Design&lt;br&gt;C. Boulanger, J. Baxter</td>
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<tr>
<td>11:30</td>
<td>The Importance of the Injection Strategy on a Light-Duty Gasoline Compression Ignition (GDI) Engine at Low Load: effect of umbrella angle, injections timing and residual nitrogen oxide (NO). The analysis&lt;br&gt;P. M. Pinazzi, F. Foucher</td>
</tr>
<tr>
<td>11:30</td>
<td>Knock Investigation through Optical Diagnostics in a Turbocharged GDI Engine using Fuels with Different Octane Number&lt;br&gt;P. Sementa, F. Catapano, S. Di Iorio, B. M. Vaglieco</td>
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<tr>
<td>11:30</td>
<td>Freewheeling Concept: Hybrid Benefits for Manual Transmission at Low Cost&lt;br&gt;P. Zabala</td>
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<tr>
<td>12:00</td>
<td>Simulation of Real Driving Emissions and Fuel Consumption—Vehicle, Engine and Aftertreatment Modeling in Real-Time&lt;br&gt;C. Potsch, J. Wurzenberger</td>
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<td>12:00</td>
<td>Advancement of GDCI Engine Technology for US 2025 CAFE and Tier 3 Emissions&lt;br&gt;M. Selinau</td>
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<td>12:00</td>
<td>Knock Mitigation Techniques for Highly Boosted Downsized SI Engines&lt;br&gt;V. Doria, A. Stroppiana, M. Ferrera</td>
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<tr>
<td>12:00</td>
<td>Octane-on-Demand as an Enabler for Lowering CO₂ Footprint of Mobility: From Engine Tests to Vehicle Demonstration and Life Cycle Analysis&lt;br&gt;V. Morel, M. Bedon, V. Gordillo</td>
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<td>12:00</td>
<td>TRANSCEND - Ultra-Wide Ratio Hybrid DCT&lt;br&gt;S. Nesbitt</td>
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<td>13:00</td>
<td>LUNCH BREAK &amp; POSTER AWARD CEREMONY</td>
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<td>13:00</td>
<td>NEW ENGINES INTRODUCTION&lt;br&gt;Federico MIllo</td>
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<tr>
<td>14:30</td>
<td>The New Renault 1.0 MPI Engine&lt;br&gt;P. Grataloup, H. Volkaert, O. Chambert, D. Dragne, D. Reverseau, D. Levasseur</td>
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<tr>
<td>15:00</td>
<td>PSA Group’s Proposals to Improve the Engine of the Year 2015 &amp; 2016&lt;br&gt;F. Gouzonnat, S. Dessarthe, N. Goursot, P. Souhaite, S. Izelfinan, S. Le Coq</td>
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<tr>
<td>15:30</td>
<td>Introducing the Ingenium SI Engine: Jaguar Land Rover’s new Four-Cylinder Gasoline Engine&lt;br&gt;M. McAllister, F. Borean</td>
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<td>16:00</td>
<td>Gasoline Powertrains: Fascinating Challenges for Mobility and Environment&lt;br&gt;Patrice MAREZ</td>
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<td>16:30</td>
<td>Conference synthesis &amp; Conclusion by the Conference Chairmen&lt;br&gt;Philippe BERNET</td>
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<td>16:30</td>
<td>Erwann SAMSON</td>
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<td>16:45</td>
<td>END OF CONFERENCE</td>
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</table>
SIA invites students to present their work - results from projects carried out at school/ university or during internships - on posters that will be displayed in the exhibition area.

The proposed posters should address the same topics as the congress.

- Participation to the poster session is free of charge for the students and their supporting lecturer. Both get free access on 8 June from 08:30 to 16:45 (conferences and exhibition included).
- A jury of powertrain experts will proceed to an evaluation of the 6 best posters from 10:00 to 11:00
- An award ceremony will be organized for the winning student[s] at 13:00 in the main conference room
- A trophy and a prize will be offered to the authors of the 3 best posters.

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 face-to-face HR representatives from different companies to discuss your career entry options and their job vacancies covering internships, student jobs, trainee programmes as well as immediate job opportunities.

If you want to participate to the entire congress, we invite you to become a member of the SIA [www.sia.fr/adhesion]. Then, you will enjoy a lower rate to attend more than 50 presentations and to take advantage of the many networking opportunities.

- 48 € VAT only for 2 days of conferences
- Gala dinner is not included

**STUDENT POSTER SESSION
8 JUNE**

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8 JUNE**

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7 & 8 JUNE**

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An exhibition is organized during the 2 days of the congress and will allow companies to present their latest products during this unique event.

EXHIBITORS

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<tr>
<td>• Conference book (Distributed to all attendees)</td>
<td>- SOLD -</td>
<td>950 €</td>
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<td>• Insertion of company booklet in the conference bags*</td>
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<td>• Conference bag with your logo*</td>
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<td>• Lanyards*</td>
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* in 600 ex.

CONTACT: MOLLY BOISSIER • SIA • +33 (O)1 41 44 93 74 – molly.boissier@sia.fr
CONFERENCE VENUE

Palais des Congrès
10 rue de la Chancellerie - Versailles

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By plane
From Roissy CDG Airport, take RER B towards Paris and stop at “Saint-Michel Notre-Dame”. Then, take another train RER C towards Versailles Rive-Gauche. Stop at “Versailles Rive-Gauche”. The Palais des Congrès is 5 min by foot.

By train
From Saint-Lazare station (Paris), take a SNCF train towards Paris “Versailles Rive-Droite”. The Palais des Congrès is 20 min by foot.

MORE INFORMATION ON OUR WEBSITE:

Faurecia is one of the world’s largest automotive equipment suppliers, with three key Business Groups: Seating, Interiors Systems and Clean Mobility. In 2016, the Group posted total sales of €18.7 billion. At December 31, 2016, Faurecia employed 98,700 people in 35 countries at 225 sites and 30 R&D centers. Faurecia is listed on the NYSE Euronext Paris stock exchange and trades in the U.S. over-the-counter (OTC) market.

For more information, visit www.faurecia.com
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Réf: 2017-01

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REGISTER DIRECTLY ON LINE: WWW.SIA.FR

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Registration fees

☐ 1056 € VAT incl. (880 € VAT excl.) - SIA Members
☐ 1188 € VAT incl. (990 € VAT excl.) - Non Members
☐ 954 € VAT incl. (805 € VAT excl.) - Univ, Labs and SMEs/co-authors

Speakers/Press/Committee Member free (one per presentation only)

* Independent SMEs and Labs (< 100 employees) // ** 5+ registrations made in one transaction only.

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