VERSAILLES 2015
International conference & Exhibition

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

Versailles, France
MAY 27 & 28, 2015

PROGRAMME
SIA POWERTRAIN
CONFERENCES

networking
industrial focus
high level presentations
human-scale congress
students forum
knowledge
topics diversity
community spirit

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SIA POWERTRAIN | The low CO₂ spark ignition engine of the future and its hybridization
Since the creation of automobiles, their propulsion has been dominated by internal combustion engines, controlled either through spark or compression ignition. However, the last few years have seen the emergence of alternative technologies, mostly based on hybridization or even full electrification of the motive power.

Worldwide environmental concerns have seen more and more stringent CO₂ emission regulations and the targets are increasingly difficult to achieve. Similarly, regulation of conventional IC engine pollutants [NOx, PM, HC and CO] has continued to be tightened, both through reduced emissions levels and by the adoption of new test cycles and procedures which are more and more severe.

Whilst important progress can still be made with the spark ignition engine by itself, which has seen significant evolution in the last decade, the key to meeting future challenges will be the successful combination of electrification with IC engine technology. By 2025, it is forecast that internal combustion engines will still power around 90% of the vehicle market, but it is expected that approximately 50% of these will have some level of electrification (Hybridization). Joint development of both thermal and electric vehicle technologies will therefore be decisive to making this large deployment become a reality.

WHAT’S NEW FOR THIS EDITION?

► New content, more focus

► SIA has decided to merge two successful events
The «Spark Ignition Engine» conference, formerly held in Strasbourg, and the one-day conference dedicated to powertrain electrification, which used to be organized with the support of IFP Energies Nouvelles.

► New recurrence
SIA POWERTRAIN conferences are now the biggest gathering of experts in the powertrain field; there is now an SIA POWERTRAIN conference every year at the end of May (Diesel and Spark Ignition engines, alternately)

► New exciting venue
SIA organization teams always strive to host attendees in the best possible way and we think the famous royal city of Versailles will be the perfect place for this event. Versailles region is also well-known as the prime area for French automotive research and development.

AND WE WILL IMPROVE THE KEY FACTORS OF OUR SUCCESS

► International representation with more than 400 participants
► Parallel sessions to cover all aspects of the Spark Ignition Powertrain field
► Panel discussion with executive participants from the automotive industry
► Several special moments dedicated to discussions and networking
► Students Forum to make the automotive industry an attractive environment for future engineers
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COMMITTEES

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Christophe Charial | PSA Peugeot Citroën
Pierre Duret | IFP School
Federico Millo | Politecnico di Torino
Amin Velji | Karlsruhe Institute of Technology

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Marc Sens | IAV
Philippe Souhaite | PSA Peugeot Citroën
Ulrich Spicher | MOT GmbH

CONTACT
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79 rue Jean-Jacques Rousseau – 92158 Suresnes Cedex – France
Tel: +33 (0)1 41 44 93 74 – pauline.senis@sia.fr
VERSAILLES 2015 | International conference & Exhibition  
SIA POWERTRAIN | The low CO₂ spark ignition engine of the future and its hybridization

PROGRAMME  
WEDNESDAY, MAY 27TH

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00</td>
<td>ATTENDEES REGISTRATION</td>
</tr>
<tr>
<td>09:00</td>
<td>Opening Address - Chairmen</td>
</tr>
</tbody>
</table>
| 09:20  | Keynote speech#1  
2050 Energy and Transport Technology Transition: a French Case Study  
Dr Emmanuel Hache, Economic Engineer | IFP Energies Nouvelles |
| 09:40  | Keynote speech#2  
A Thermodynamic Comparison of SI-engine Combustion Systems  
Dr Frank Altenschmidt, Development Engineer | Daimler |
| 10:00  | Keynote speech#3  
In a Hybridized Future with Alternative Fuels: Is the SI Engine the Winning Concept?  
Dr Martin Wirth, Technical Specialist SI Engine Technologies & Strategy | Ford |
| 10:30  | COFFEE BREAK                                                        |
| 11:00  | HYBRID STRATEGIES  
Denis Levasseur | Renault  
Vanessa Picron | Valeo  
12V Electric Network, the First Step for Hybrid Functions  
S. Potteau, Y. Wu, J. Chicot, Y. Jin, B. Rouleau, P. Maurel, D. Taccoen, K. Surbled | Valeo |
| 11:30  | Experimental Validation of Stop & Start Sailing Strategy for Real-world Driving Cycles  
F. Di Gennaro, G. Brunetti, M. Cisternino | General Motors Powertrain  
F. Millo, R. Fusco | Politecnico di Torino |
| 12:00  | Small Gasoline Direct Fuel Injection Two-stroke Engines for Range Extender Applications  
P. Duret | IFP School  
S. Venturi | IFP Energies Nouvelles |
| 12:30  | Advanced Plasma and Variable Spark Ignition System  
P. Kruger | North West University South Africa |
| 13:00  | LUNCH BREAK                                                        |

All speeches, slides and papers will be in English  
No simultaneous translation
## PROGRAMME

**WEDNESDAY, MAY 27**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenters</th>
<th>Companies</th>
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</thead>
<tbody>
<tr>
<td>14:30</td>
<td><strong>NEW BOOSTING SYSTEMS</strong></td>
<td>Optimized matching Process for EU6c/EU7 Gasoline Engines</td>
<td>A. Rinaldi, H. Tarbousi, J. R. Serrano</td>
</tr>
<tr>
<td>15:30</td>
<td><strong>SPRAY &amp; PARTICULATE EMISSIONS</strong></td>
<td>Condensation and Fouling Assessment in EGR Cooler of GTDI Engines with Different EGR Loop Configurations</td>
<td>Y. Bravo, C. Larrosa, J-M Lujan, M. Rivas-Perea</td>
</tr>
<tr>
<td>16:00</td>
<td><strong>E-supercharging for Heavily Downscaled Gasoline Engines</strong></td>
<td>GDI Spray Evolution and Sizing Characteristics in Flash-Boiling Conditions</td>
<td>L. Postrioti, R. Di Gioia, Magneti Marelli</td>
</tr>
<tr>
<td></td>
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<td>Multi-dimensional Modeling of Soot Formation in DISI Engines Based on Detailed PAH Kinetics and Particle Dynamics Framework</td>
<td>J. Kim, K. Min</td>
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<td>16:30</td>
<td><strong>Coffee Break</strong></td>
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<tr>
<td></td>
<td><strong>Panel Session</strong></td>
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<td>17:00</td>
<td><strong>Moderator:</strong> Laurent Meillaud, Automotive Journal</td>
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<td>18:30</td>
<td><strong>Networking Dinner-Cocktail</strong></td>
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<td>21:30</td>
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## PROGRAMME

**THURSDAY, MAY 28TH**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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</thead>
<tbody>
<tr>
<td>08:30</td>
<td>OPENING</td>
</tr>
<tr>
<td>09:00</td>
<td><strong>HIGH PERFORMANCE POWERTRAIN</strong>&lt;br&gt;Pierre-Yves Geels</td>
</tr>
<tr>
<td>09:30</td>
<td><strong>INTAKE AIR TEMPERATURE REDUCTION ON HIGHLY CHARGED SI ENGINES</strong>&lt;br&gt;V. Bevilacqua, E. Jacobs</td>
</tr>
<tr>
<td>10:00</td>
<td><strong>INTERPRETING AND UNDERSTANDING THE EFFECTIVE COMBUSTION</strong>&lt;br&gt;Pierre Duret</td>
</tr>
<tr>
<td>11:30</td>
<td><strong>DETAILED INVESTIGATION OF KNOCKING COMBUSTION IN SPARK IGNITED ENGINES</strong>&lt;br&gt;P. Priessch, M. Bogensperger, A. Poredos&lt;br&gt;AVL</td>
</tr>
<tr>
<td>12:00</td>
<td><strong>ON THE DUAL NATURE OF KNOCK IN A HIGHLY BOOSTED, DOWNSIZED DISI ENGINE running a Variety of Gasoline and Alcohol based Fuels</strong>&lt;br&gt;K. Giles, C. Brace, A. Lewis, S. Akehurst</td>
</tr>
<tr>
<td>13:00</td>
<td>LUNCH BREAK</td>
</tr>
</tbody>
</table>
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PROGRAMME
THURSDAY, MAY 28TH

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speakers/Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:30</td>
<td><strong>Development Challenges of a Modern Flexfuel Turbocharged DI Engine</strong></td>
<td>F. Gouzonnat, A. Lopez, L. Pottier, D. Juncker</td>
</tr>
<tr>
<td>15:00</td>
<td><strong>Combustion Technology to achieve Engine Thermal Efficiency of 40% for HVs Engine</strong></td>
<td>D. Takahashi, K. Yoshihara, Y. Ohta, H. Nishiura</td>
</tr>
<tr>
<td>15:30</td>
<td><strong>Gasoline Engine 2020: 200 kW/l and 200 g/kWh?</strong></td>
<td>G. Fraidl, P. Kapus M. Neubauer</td>
</tr>
<tr>
<td>16:00</td>
<td><strong>Closing speech</strong></td>
<td>Patrice Marez, Director of Powertrain System Design</td>
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</tbody>
</table>

16:15 | END OF CONFERENCE                                                                                 |                                      |

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.

Students FORUM

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.

**STUDENTS FORUM: 0 € IF YOU SEND YOUR CV!**

On Thursday 28th of May afternoon: the companies of the exhibition will welcome you in their booth to discuss about the automotive industry careers and your expectations. You will have the opportunity to meet powertrain experts who will tell you how their jobs are like. Your CV will be given to our partner companies before the Students Forum, some of them are looking for interns.

With the support of the IFP School

Contact & registration: Marie-Claude BURAUX • Tel: +33 (0)1 41 44 93 72 – marie-claude.buraux@sia.fr
## EXHIBITION & SPONSORING

<table>
<thead>
<tr>
<th></th>
<th>Standard</th>
<th>Bronze</th>
<th>Silver</th>
<th>Gold</th>
<th>Platinum</th>
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<tr>
<td><strong>RATES (exc. VAT)</strong></td>
<td>2 700 €</td>
<td>4 200 €</td>
<td>6 200 €</td>
<td>10 000 €</td>
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<td>congress website (<a href="http://www.sia.fr">www.sia.fr</a>)</td>
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<td>full page</td>
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<td>Corporate banner in e-mailing campaign</td>
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<td>Company leaflet or goodies enclosed in the conference bag</td>
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<td>Announcement as major sponsor</td>
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<td>Preferential placement in the exhibition area</td>
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<td>Discount on extra badges*</td>
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*As small firms and labs enjoy a lower rate, they can’t benefit from this extra discount

### RATES (Exc. VAT)

<table>
<thead>
<tr>
<th></th>
<th>Back cover</th>
<th>Inside</th>
<th>Inside front cover</th>
<th>Inside back cover</th>
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<tbody>
<tr>
<td>Book of conference</td>
<td>1 300 €</td>
<td>950 €</td>
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<td>1 100 €</td>
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<td>Insertion of leaflet in the conference bags</td>
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<tr>
<td>Cords and badges supply</td>
<td>1 000 €</td>
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<tr>
<td>Conference bags supply</td>
<td>600 €</td>
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**NEW for exhibitors!**

The exhibition will be opened to everybody on May 28th afternoon.
Invite your clients and colleagues...
*it is free of charge!*

Contact pauline.senis@sia.fr for further information about exhibition, sponsoring and advertising opportunities.
VENUE

[ PALAIS DES CONGRÈS ]
10 rue de la Chancellerie - Versailles

PUBLIC TRANSPORTATION

- **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.

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

HOTELS

List of recommended hotels on www.sia.fr
REGISTRATION FORM

Conference “SIA POWERTRAIN | Versailles 2015” - May 27 & 28, 2015
Ref: 2015-04

PLEASE COMPLETE AND RETURN THIS FORM TO:
SIA – 79, rue Jean-Jacques Rousseau – F-92158 Suresnes Cedex / Fax: +33 (0)1 41 44 93 79 / E-mail: pauline.senis@sia.fr

REGISTER DIRECTLY ON LINE: www.sia.fr

Please use BLOCK CAPITALS

M* M* M*  M*  Dipl-Ing  
Family Name: First Name:
Company: Department:
Position:
Address:
Postcode: City: Country:
Tel: Fax:
Email:
VAT number:

Registration fees
☐ 1056 € VAT Incl. (880 € VAT Excl.) - SIA Members
☐ 1188 € VAT Incl. (990 € VAT Excl.) - Non Members
☐ 594 € VAT Incl. (495 € VAT Excl.) - Co-authors’ Researchers’, Labs’ and Small Firms’ (< 100 employees)
☐ 0 € VAT Incl. - Speakers and Chairmen

Preferred rates for students, retired people and groups • For further information: pauline.senis@sia.fr
*Small firms, Researchers and laboratories must not come under the control of big firms (> 100 employees).

Payment (Please precise the invoice address)
☐ By check in Euros made payable to: “Société des Ingénieurs de l’Automobile”
☐ By bank transfer in Euros made payable to: “Société des Ingénieurs de l’Automobile” [please enclose a copy]
IBAN: FR76 30003 03290 0020040139 58 – BIC – Adresse SWIFT: SOGEFRPP
Please, preciser your company name and reference: 2015-04 SIA PWT 2015
☐ By credit card: American Express Diners Visa Eurocard Mastercard

I hereby authorise the organisers to charge my credit card to the amount of €
On my Card n°: Expiration date: / 3 or 4 digit CVV or CVC number (on back or front of credit card):
Cardholder’s name:

Date and signature: Company stamp:

REGISTRATION CONDITIONS
• Registration fees include participation in the conference, proceedings, refreshment breaks, lunches and cocktails.
• 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 27th, 2015, 30% of the registration fees will be retained.
Powertrain Development

CONTINUOUS OPTIMIZING

www.fev.com