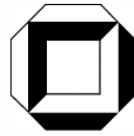


November 28 & 29, 2007



Universität Karlsruhe (TH)
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THE SPARK IGNITION ENGINE OF THE FUTURE

TECHNOLOGIES TO MEET THE CO₂ CHALLENGE

International Conference
INSA de Strasbourg, France



PROGRAMME



Context and Objectives

The Société des Ingénieurs de l'Automobile (SIA) and The Institute for Reciprocating Engines of Universität Karlsruhe (TH) are pleased to present the conference **"The Spark Ignition Engine of the Future : Technologies to meet the CO2 challenge"** on November 28 & 29 , 2007 in Strasbourg.

Whereas the most recent Diesel engines have become well known for their advantages in high efficiency and low CO2 emissions, the gasoline engine is still the benchmark for its refinement and ultra low pollutant emissions. The main challenge for future gasoline engines, and spark ignition engines in general, is therefore to make significantly progress in fuel efficiency and reduction of CO2 emissions, whilst keeping their NVH and ultra low pollutant emissions advantage.

To this end, a resurgence of the spark ignition engine, with diverse technologies and fuels is expected over the coming years, as a new generation of spark ignition engines will be introduced to meet the CO2 challenge. Technologies such as downsizing are already under development and offer great potential for increased power density and improved thermal efficiency of the gasoline engine. Furthermore, combining technologies such as turbo charging, direct injection and new valve actuation technologies is providing opportunities for gasoline engines to reduce the gap in fuel efficiency and CO2 emissions compared to their Diesel counterparts. Apart from conventional concepts, new combustion processes such as Controlled Auto-Ignition (CAI) or Homogeneous Charge Compression Ignition (HCCI) could offer further potential to improve the efficiency and lower engine out emissions. Other avenues for efficiency improvements and CO2 reductions for spark ignition engines could come from different fuel types and technologies which have been explored over the years, such as gaseous fuels, flex-fuels and bio-fuels.

This new SIA international congress is intended to provide the opportunity for experts from the automotive industry (OEMs and their suppliers), the oil industry, research laboratories and universities to exchange opinions and information on the potential of the future spark ignition engine to meet the low CO2 challenge.

Chairmen of the Conference:

Pierre DURET – IFP School/SIA, France

Ulrich SPICHER – University of Karlsruhe, Germany

Organising Committee

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THE SPARK IGNITION ENGINE OF THE FUTURE

8:30	Participants registration	
9:00	Welcome opening U. SPICHER – University of Karlsruhe, Germany P. DURET - IFP School, France	
9:30	Keynote opening : "SI Engines, Yesterday, today and tomorrow" J. WILLAND - Volkswagen AG, Germany	
10:00	Highlights on the new European emissions regulation on light vehicles C. DELARUE – Renault, France	
10:30	Short term measures for the reduction of fuel consumption of spark ignition engines Objectives in the areas of thermodynamics, engine mechanics, and calibration K. VENTKER, F. MAASSEN, O. LANG, R. WEINOWSKI - FEV Motorentechnik, Germany	
11:00	Exhibition Visit / Refreshment Break	
	SESSION 1: Combustion and new processes (1) Amin VELJI – University of Karlsruhe, Germany - Pierre DURET – IFP School, France	
11:30	Cost efficient CO2 solutions with high fun to drive G.K. FRAIDL, P.E. KAPUS, M. NEUBAUER - AVL List GmbH, Austria	
12:00	Gasoline direct injection engines: potential and demands H. KUBACH, U. SPICHER – University of Karlsruhe, Germany	
12:30	Natural gas engine for HD applications B. LOMBARD – Volvo Powertrain, France	
13:00	Exhibition Visit / Lunch	
	SESSION 2: Combustion and new processes (2) Jean Paul FAYOLLE – Volvo Powertrain, France Wilfried NIETSCHKE – IAV, Germany	SESSION 2 bis: New direct injection systems Thomas ROELLE – IAV, Germany Steffen LUPP – Robert Bosch, Germany
14:30	Analysis of destructive abnormal combustion appearing at high load and low engine speed on high performance gasoline engines F. VANGRAEFSCHÈPE – IFP, France	Bridging the ring gap with pressure and holes The approach to an affordable injector for future gasoline direct injection systems U. SPICHER, A. VELJI, A. KNEIFEL - IfKM, University of Karlsruhe, Germany J. PAPE, O. TREMMEL, J. STEGEMANN - IAV GmbH, Germany
15:00	Turbocharged in-line 4 cylinder MCE-5 VCR SI MPFI engine. V. RABHI - MCE-5 Development SA, France	A cost optimized engine management system for stratified SI Engines W. PIOCK – Delphi Powertrain Systems, Luxembourg
15:30	LIF for OH imaging in the negative valve overlap of a HCCI combustion engine A. BERTSSON - Chalmers University of Technology, Sweden	Gasoline direct injector with a fast solenoid actuator with multipole technology. F. MOERTL , Compact Dynamics GmbH , Germany
16:00	Exhibition Visit / Refreshment Break	
	SESSION 3: Air management, EGR, boosting and after treatment(1) Pierre Yves GEELS – AVL, France Walter PIOCK - Delphi Powertrain Systems, Luxembourg	SESSION 3 bis: Knocking and NVH Ulrich SPICHER – University of Karlsruhe, Germany Philippe BERNET – Renault, France
16:30	Cooled EGR for a turbo SI engine to reduce knocking and fuel consumption S. POTTEAU - Valeo Engine Management System, France	Knocking diagnostics in the combustion chamber of turbocharged PFI SI engine S.S.MEROLA, B.M.VAGLIECO – Istituto Motori, Italy
17:00	Using EGR in turbo charged gasoline engines for replacing fuel enrichment - potentials, challenges, solutions M. SENS – IAV, Germany	Effects of new spark ignition engine concept on the acoustics S. HEUER – FEV Motorentechnik, Germany
17:30	Influence of manifold thermal inertia on emission conversion: modelling and experiments G. MONTENEGRO, A. ONORATI - Department of Energetics, Politecnico di Milano, Italy V. LEROY - Faurecia Exhaust Systems, France	Simplified tools for simulating powertrain NVH, to the benefits of SI innovation L. POLAC – Renault, France
18:00	Exhaust Purification System for spray guided gasoline direct injection engines S. ECKHOFF, T. FRANKE, S. PHILIPP, W. MÜLLER, G. CARELLI , Umicore, Italy	
18:30	End of conference day 1	
19:30	Visit of the famous Christmas Market, at the foot of the Cathedral	
20:30	Gala Diner in one of the oldest Brasserie of Strasbourg	

THE SPARK IGNITION ENGINE OF THE FUTURE

SESSION 4: Air management, EGR, boosting and after treatment(2) Michel LIFERMANN – Valeo, France Rémy SCHMITT – Robert Bosch, France		SESSION 4 bis: Simulation Frederic DIONNET – CERTAM, France Omar HADDED – Tata Motors, UK	
9:00	Latest developments of air breathing components in gasoline engines W. WENZEL - BorgWarner, Germany		Advanced 0D/1D modelling of gasoline combustion, pollutant formation and after treatment systems R. WANKER, J. WURZENBERGER - AVL List GmbH, Austria
9:30	Advanced downsizing of SI engines: promising technology for better fuel economy and lower CO2 emissions V. KORTE - MAHLE Powertrain, UK		3D simulation of spark ignition in a GDI engine operating in stratified combustion mode L. DUCHAMPS, R. LAUVERGNE - PSA Peugeot Citroën, France
10:00	Towards the cost reduction of the downsizing approach: combining scavenging with Port Fuel Injection system X. GAUTROT, G. BRESSION, P. LEDUC, A. PAGOT – IFP, France		Driving cycle optimisation - A coupled approach based on engine and catalyst models and dynamic design of experiments R. WASCHECK, S. SCHAUM, T. KWAIST - IAV GmbH, Germany
10:30	Exhibition Visit / Refreshment Break		
SESSION 5: Alternative and New fuels Jürgen WILLAND – Volkswagen AG, Germany Jean-Jacques MILESI – D2T, France			
11:00	Future demands on combustion and fuels of SI engines – New optical measurement applications H. HOFFMEYER - Volkswagen AG, Germany		
11:30	Ethanol-based fuels – an opportunity and a challenge for direct injection of spark ignition engines A. KUFFERATH - Robert Bosch GmbH, Germany		
12:00	E85 :Impact of the fuel properties on "flex fuel" engine tuning B. HAUET, C. JOURON, C. TRAN-DINH, JG. GRAND – Renault, France		
12:30	Exhibition Visit / Lunch		
SESSION 6: New concepts Karim MOKADDEM – PSA Peugeot Citroën, France Charles BAILLY – Le Moteur Moderne, France			
14:00	An advanced gasoline engine concept: combination of direct injection, high compression ratio, HCCI and lean burn with turbo charging and enhanced ignition systems Y. MORIYOSHI – Chiba University, Japan		
14:30	CAI-Engines: modern combustion system to face future challenges G. STAPF, D. SEEBACH, F. FRICKE, S. PISCHINGER - VKA, RWTH-Aachen, Germany		
15:00	A new family of small 4 cylinders gasoline engines D. FOURCHON - PSA Peugeot Citroën, France		
15:30	Conclusion Keynote speech A. DOUAUD - CCFA, France		
16:00	End of Conference		

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

Exhibition and Sponsorship

The congress will be accompanied by an exhibition where companies will be able to present information to the participants, highlight their new products and create new privileged contacts within this unique gathering of targeted decision-makers. The exhibition will be a focal point, attracting professionals, research institutes and engineers from the automotive industry. This offer is limited, and it is highly recommended to reserve your space as early as possible.

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THE SPARK IGNITION ENGINE OF THE FUTURE TECHNOLOGIES TO MEET THE CO2 CHALLENGE

28 & 29 November 2007 – Strasbourg, France

Ref: 2007-01

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- Registration fees include participation in the conference, CD of proceedings, book of conferences, refreshment breaks, lunches, and dinner.
- 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 symposium, we regret that you will not be allowed entry to the symposium.
- When we have received the registration form, we will send you a confirmation letter and an invoice. Please indicate the accounts department address where necessary.
- In case of cancellation before November 5, 2007, 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.

General information

Official language: English: no simultaneous translation

Venue / Access

INSA de Strasbourg, France - 24 boulevard de la Victoire
67084 STRASBOURG Cedex, France - Phone : 0033 (0)3 88 14 47 00
Fax : 0033 (0)3 88 24 14 90 - www.insa-strasbourg.fr

From the train station

5 mn walk from the Tram Station
(rue du Faubourg national).
Tram ligne C (Orange) direction Esplanade.
Stop at "Universités",

From the airport

Take the bus to the Tram station « Baggersee »,
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« Hautepierre Maillon ».
Stop at « Homme de Fer »
Then take the Tram ligne C (orange) direction
« Esplanade », stop at « Universités ».

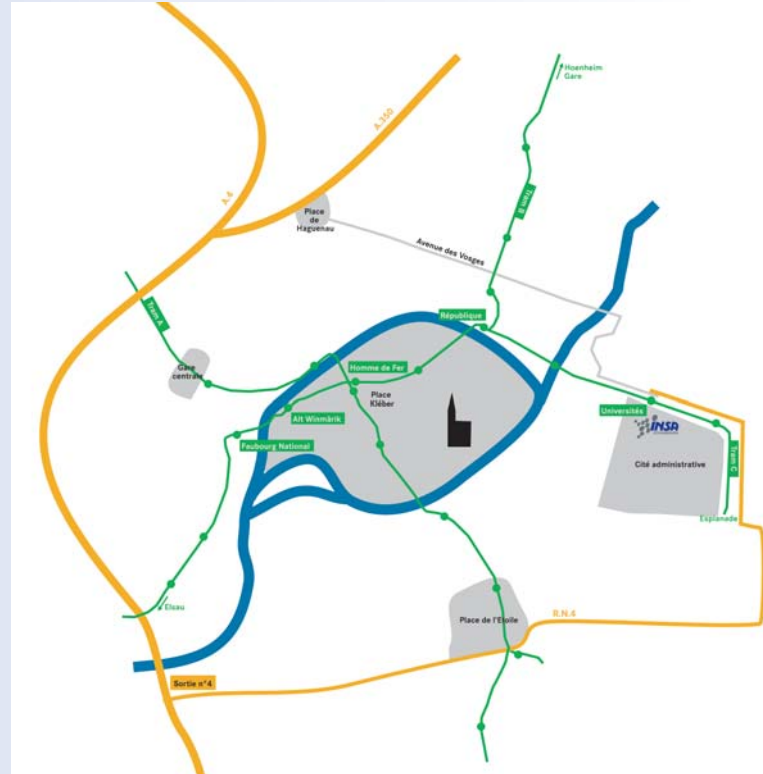
By car

From the south, through A35:

Exit n°4 direction « Place de l'Étoile / Offenbourg Kehl ».
Turn left direction « Esplanade », (rue Alfred Kestler)
After the bridge, 2nd traffic light, turn left
(rue Boston). At the round about, turn first right,
« avenue Charles de Gaulle »
Then, at the 2nd traffic light, turn left in the
« boulevard de la Victoire » Stop at the 24.

From the north, through A4:

Exit « Place de Haguenau » then « avenue des
Vosges ». At the Saint Maurice Church, take the
« rue de l'Observatoire » on your right, then right
in the « boulevard de la Victoire ».



Hotels accommodation

The SIA recommend you to book your room as early as possible, as it is a busy period for hotels.

We have selected a list of the most convenient hotels situated near the "INSA de Strasbourg".
Delegates are encouraged to make their own hotel reservations early, directly with the hotels of their choice

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