

# FUEL SYSTEMS: ENGINES: INJECT YOUR IDEAS, FUEL YOUR TECHNOLOGY

4-5 December 2018, Etc Venues, St Pauls, London

**“THE AUTOMOTIVE INDUSTRY MUST CONTINUE TO MEET THE DEMANDS OF THE MODERN ENVIRONMENTAL AGENDA. TO EXCEL, MANUFACTURERS MUST RESEARCH AND DEVELOP FUEL SYSTEMS THAT GUARANTEE THE BEST ENGINE PERFORMANCE, ENSURING MINIMAL EMISSIONS AND MAXIMUM FUEL ECONOMY.”**

The next conference in this prestigious series on Fuel Systems Engines will focus on the latest technology for fuel systems. Attend to hear the state-of-the-art in system design, characterisation, measurement and modelling of diesel, gasoline and hybrid engines.

Join to address all the key topics from fundamental fuel spray theory, component design, to effects on engine performance, fuel economy and emissions.

Benefit from high level, peer-reviewed technical presentations that will enable your organisation to enhance the performance of your engines while reducing emissions and minimising costs. Join the discussion on the next generation of engine technologies.

## TECHNICAL ADVISORY COMMITTEE:

Roy Horrocks

**Chair of the organising committee**

Ian Williams, Senior Engineering Manager Powertrain Engineering

**Denso International Europe**

Christophe Cardon, Diesel Injectors and SCR Chief Engineer

**Delphi**

Richard Cornwell, Team Leader Diesel EPD/Technical Specialist

**Ricardo**

Ian Larbey, Team Leader Diesel Systems

**Robert Bosch**

Richard Judge, Chief Engineer Medium Duty

**Delphi**

Maria Isabel Segura Carrasco, Lead Engineer, Fuel Injection Systems

**AVL**

Manolis Gavaises, Chair in Fluid Dynamics, School of Mathematics, Computer Science and Engineering

**City University, London**

## ATTEND THIS CONFERENCE TO:

- Hear about latest developments for internal combustion and hybrid engines
- Explore the latest strategies to maximise engine performance while reducing emissions
- Learn about the cutting-edge designs and materials that are enabling greater engine efficiency
- Ensure greater accuracy for simulating and measuring key elements of your engine prototypes
- Consider current international approaches to fuel systems evolution
- Engage with international key players sector including academics, researchers, design engineers from automotive, commercial vehicle and motorsports industries.

## KEY PROGRAMME HIGHLIGHTS:

- **AVL** explain how they have achieved zero impact emissions for their heavy duty diesel engines
- **Kautex Textron VmbH & Co** share flexible strategies for improving engine performance and efficiency
- **VKA RWTH Aachen** and **FEV Group** outline their latest predictive engine simulations based on novel DoE/RANS
- **DENSO Corporation** reveal how their Gasoline Direct Injection System has led to reduced driving emissions
- **Jaguar Land Rover** explain how they achieve accurate measurement of the flows induced by fuel injection in a GDI engine

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[WWW.IMECHE.ORG/FUELSYSTEMS2018](http://WWW.IMECHE.ORG/FUELSYSTEMS2018)

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## HOW TO BOOK YOUR PLACE

### FEES AND CHARGES

Registration fees include entry to the sessions, refreshments and a copy of the conference proceedings.

Delegate Type	STANDARD RATE
Member, IMechE/supporting organisation	£660 + VAT = £792
Non-member	£840 + VAT = £1008
Student/Retired	£330 + VAT = £396
Networking Dinners	£45 + VAT = £54

### THREE WAYS TO BOOK

- 1 Online:  
[www.imeche.org/fuelsystems2018](http://www.imeche.org/fuelsystems2018)
- 2 Email:  
[eventenquiries@imeche.org](mailto:eventenquiries@imeche.org)
- 3 Phone:  
+44 (0)20 7973 1251

Please read the information listed below as each booking is subject to the Institution's standard terms and conditions.

#### CONDITIONS OF BOOKING

Completed application forms should be returned to the address above, along with the correct payment. Attendance at the event will be confirmed on receipt of the full balance. All participants are advised to bring a copy of their confirmation with them on the day, to ensure the fastest possible entry.

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#### Cancellation

For a refund (minus £25+VAT admin charge), cancellations must be received at least 30 days prior to the event. Replacement delegates are welcome at any time. The Institution reserves the right to cancel any event. In this case, the full fee will be refunded unless a mutually convenient transfer can be arranged. In the event that the Institution postpones an event for any reason and the delegate is unable or unwilling to attend on the rescheduled date, they will receive a full

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Please note that while speakers and topics were confirmed at the time of publishing, circumstances beyond the control of the organisers may necessitate substitutions, alterations or cancellations of the speakers and/or topics. The Institution reserves the right to alter or modify the advertised speakers and/or topics if necessary without any liability to you whatsoever. Any substitutions or alterations will be updated on the event's webpage as soon as possible.

#### LIABILITY

The organisers do not accept liability for any injuries or losses of any nature incurred by delegates and/or accompanying persons, nor for loss or damage to their luggage and/or personal belongings.

#### CONFERENCE VENUE

Etc Venues St Paul's  
200 Aldersgate  
St. Pauls  
London  
EC1A 4HD

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22 NOVEMBER 2018, BRISTOL

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[www.imeche.org/annualdinner](http://www.imeche.org/annualdinner)



### VEHICLE THERMAL MANAGEMENT SYSTEMS CONFERENCE AND EXHIBITION - VTMS 14

5-6 June 2019, London

The latest research and technological advances in the field of heat transfer, energy management, thermal comfort and the integration of all thermal systems within the vehicle.

[www.imeche.org/vtms](http://www.imeche.org/vtms)

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# FUEL SYSTEMS: ENGINES INJECT YOUR IDEAS, FUEL YOUR TECHNOLOGY

Institution of  
**MECHANICAL  
ENGINEERS**

**4-5 December 2018**  
Etc Venues, St Pauls, London

Propulsion System Fuels Group  
**Conference**

More details available at  
[www.imeche.org/fuelsystems2018](http://www.imeche.org/fuelsystems2018)

## KEY SPEAKERS INCLUDE:

Rolf Dreisbach  
**AVL**

Ken Pendlebury, Director, Gasoline Engines  
**Changan UK**

Nick Powell, Principal  
**Ricardo Strategic Consulting**

Dr. Mark Peckham, Director  
**Cambustion Ltd UK**

Dr. Roman Bouffler  
**Kautex Textron GmbH & Co**



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# PROGRAMME

<b>TUESDAY 4 DECEMBER 2018</b>	
08:30	REGISTRATION AND REFRESHMENTS
09:00	<b>CHAIR'S OPENING REMARKS</b> Roy Horrocks, Chair of the Organising Committee
09:10	<b>KEYNOTE ADDRESS: HEAVY DUTY DIESEL ENGINES, ZERO IMPACT EMISSIONS</b> Rolf Dreisbach, Manager of Powertrain Development, Calibration and Testing, AVL
<b>DIESEL DESIGN</b>	
09:40	<b>THE NEW LIEBHERR L11 COMMON RAIL INJECTOR PLATFORM</b> Norbert Schöfbänker, Liebherr-Components Deggendorf
10:00	<b>DFI7: FLEXIBLE INJECTION STRATEGIES FOR IMPROVED PERFORMANCE AND EFFICIENCY</b> Robert Gibson, Delphi Technologies
10:20	<b>QUESTION AND ANSWER SESSION</b>
10:40	NETWORKING REFRESHMENT BREAK
<b>DIESEL EXPERIMENTAL</b>	
11:10	<b>DIESEL COMBUSTION CONTROL VIA DIGITAL RATE SHAPING WITH MODERN FUEL INJECTION SYSTEMS</b> Daniel Neumann, VKA RWTH Aachen Christian Jorg, Joschka Schaub, Matthias Kotter, Thomas Korfer, FEV Europe Stefan, Pischinger, FEV Group
11:30	<b>OPTIMIZATION OF NOZZLE HOLE DIAMETER IN EURO-6 LIGHT DUTY DIESEL ENGINE</b> Wonkyu Cho, Seungwoo Kang, Choongsik Bae, KAIST, Korea, Republic of (South Korea)
11:50	<b>TAILOR THE DIESEL FUEL INJECTION SYSTEMS TO FUTURE EMISSIONS AND FUEL CONSUMPTION DEMANDS</b> Tzvetelin Valentinov Gaydarov, Dr. Jost Weber, DENSO Automotive Germany GmbH Akitaro Miyata, Daisuke Ishihara, DENSO CORPORATION
12:10	<b>QUESTION AND ANSWER SESSION</b>
12:30	NETWORKING LUNCH
13:30	<b>KEYNOTE ADDRESS</b> Ken Pendlebury, Director, Gasoline Engines, Changan UK
<b>SIMULATION</b>	
14:00	<b>MODELLING AND PREDICTION OF CAVITATION EROSION IN GASOLINE DIRECT INJECTION INJECTORS OPERATED WITH E100 FUEL USING A BAROTROPIC EQUATION OF STATE</b> Eduardo Gomez Santos, Junmei Shi, Delphi Technologies, Luxembourg Wolfgang Bauer, ANSYS Germany GmbH, Manolis Gavaises, City University of London, London, UK
14:20	<b>GDI NOZZLE TOP WETTING ANALYSIS AS A PART OF TIP SOOTING REDUCTION</b> Peter Tibaut, Gregor Kotnik, Alexander Morozov, Wolfgang Krankenedl, AVL
14:40	<b>PREDICTIVE ENGINE SIMULATIONS BASED ON A NOVEL DOE/RANS APPROACH WITH COEFFICIENT TABULATION</b> Daniel Nsikane, Konstantina Vogiatzaki, Robert Morgan, University of Brighton
15:00	<b>OPTIMIZATION OF A DIRECT INJECTION STRATEGY USING FULLY INTEGRATED CFD DESIGN EXPLORATION</b> Patrick Niven, Siemens
15:20	<b>QUESTION AND ANSWER SESSION</b>
15:40	NETWORKING REFRESHMENT BREAK
<b>GASOLINE EXPERIMENTAL</b>	
16:10	<b>MEASUREMENT OF THE FLOWS INDUCED BY FUEL INJECTION IN A GDI ENGINE</b> Blane Scott, Chris Willman, Prof. Richard Stone, University of Oxford David Richardson, Jaguar Land Rover

**For the most up-to-date and detailed programme for the event, please visit:**  
[www.imeche.org/fuelsystems2018](http://www.imeche.org/fuelsystems2018)

- This programme is subject to change.
- The Institution is not responsible for the views or opinions expressed by individual speakers.

# PROGRAMME

16:30	<b>EXPERIMENTAL INVESTIGATION OF WATER INJECTION AND STRATEGIES FOR GASOLINE ENGINES</b> Maike Sophie Gern, Malte Kauf, Roland Baar, Technische Universitat Berlin, Germany
16:50	<b>QUESTION AND ANSWER SESSION</b>
17:10	<b>CHAIR'S CLOSING REMARKS</b>
18:00	END OF CONFERENCE DAY ONE
18:30	DRINKS RECEPTION
19:30	DINNER

<b>WEDNESDAY 5 DECEMBER 2018</b>	
09:00	REGISTRATION AND REFRESHMENTS
09:30	<b>CHAIR'S OPENING REMARKS</b>
09:35	<b>KEYNOTE ADDRESS (GOVERNMENT)</b>
	<b>GASOLINE EXPERIMENTAL</b>
10:05	<b>TRANSIENT EMISSIONS MEASUREMENT FROM A PHEV VEHICLE DURING RDE TESTING</b> Mark Peckham, Matthew Duckhouse, Matthew Hammond, Cambustion Ltd Byro Mason, Edward Winward, Zhijia Yang, Loughborough University
10:25	<b>SPRAY DEVELOPMENT WITH IN-CYLINDER PRESSURE AND PARTICULATE MATTER MEASUREMENTS IN A GDI ENGINE WITH OPTICAL ACCESS: EFFECTS OF FUEL VOLATILITY</b> Safwan Hanis, Joe Camm, Martin Davy, Richard Stone, University of Oxford
10:45	<b>QUESTION AND ANSWER SESSION</b>
11:05	NETWORKING REFRESHMENT BREAK
	<b>FUEL SYSTEMS AND TEST EQUIPMENT</b>
11:35	<b>KEYNOTE SESSION (RICARDO)</b> Nick Powell, Principal, Ricardo Strategic Consulting
12:05	<b>HIGH FREQUENCY RESONANCE IN A TRADITIONAL RATE TUBE MEASUREMENT DEVICE</b> Stefan Stojanovic, Andre Tebbs, Delphi Technologies Stephen Samuel, John Durodola, Oxford Brookes University
12:25	<b>TODAY'S AND NEXT GENERATION PLASTIC FUEL TANKS FOR HYBRID VEHICLE OPERATION - TECHNICAL CHALLENGES AND SOLUTIONS CONCURRING WITH AGGRAVATED MARKET DEMANDS</b> Roman Bouffier, Sebastien Rosenstraeter, Carsten Elsasser, Volker Treudt, Jorach Rainer, Ingo Ley, Kautex Textron GmbH & Co. KG, Germany
12:45	<b>QUESTION AND ANSWER SESSION</b>
13:05	NETWORKING LUNCH
14:05	<b>ASSESSING THE ROLE OF SURFACE TENSION FORCE TO THE SIMULATION OF SUB-GRID SCALE INTERACTION OF TURBULENCE AND CAVITATION UNDER REALISTIC DIESEL INJECTION CONDITIONS</b> Paul McGinn, University of Brighton, United Kingdom
14:25	<b>INVESTIGATION ON THE REMOVAL OF THE CAVITATION EROSION RISK IN A PROTOTYPE CONTROL ORIFICE INSIDE A DIESEL INJECTOR</b> Mark Winterbourn, Maxwell Brunhart, Celia Soteriou, Christian Daveau, Delphi Technologies Manolis Gavaises, Phoivos Koukouvinis, City University
14:45	<b>ON THE EFFECT OF REALISTIC MULTICOMPONENT DIESEL SURROGATES ON CAVITATION AND IN-NOZZLE FLOW</b> Alvaro Vidal, P Koukouvinis, Manolis Gavaises, City University
15:05	<b>QUESTION AND ANSWER SESSION</b>
15:25	<b>CHAIR'S CLOSING REMARKS</b>
15:35	END OF SEMINAR

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## WHO SHOULD ATTEND?

**All engineers, researchers and specialists who are involved in vehicle engine design, development, manufacture, fuels behaviour and testing will benefit from this two day conference, including:**

- Application Development Engineer
- Design Engineer
- Diesel Engineer
- Combustion Systems Engineer
- Fuels Scientist
- Gasoline Engineer
- Fuel Systems Engineer
- Engine Performance Engineer
- Measurement Technologies Specialist
- Powertrain Engineer
- Product Engineer
- Fluid Dynamics Engineer
- Vehicle Simulation Engineer
- Thermofluid Engineer
- Vehicle Application Engineer

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## FEEDBACK FROM PREVIOUS EVENT:

**“THE EVENT ALLOWS FOR EASY NETWORKING AND COMMUNICATION WITH OTHERS”**

Project Engineer - Advanced GDI,  
Stanadyne

**“THE KNOWLEDGE AND INSIGHT I GAINED AT THIS EVENT WAS WORTH MONTHS OF READING”**

Test Development Engineer,  
Delphi Diesel Systems

**“AN EVENT THAT BRINGS ALL THE KEY PLAYERS TOGETHER UNDER ONE ROOF. GOOD OPPORTUNITIES FOR COMMUNICATIONS”**

Manager FIE, AVL

**“A VERY INTERESTING AND THOUGHT PROVOKING EVENT THAT PROVIDES MUCH INSIGHT INTO FUTURE DEVELOPMENTS”**

Director of Quality, Ricardo

**“AN EXCELLENT FORUM IN WHICH TO LEARN THE LATEST CHALLENGES AND TRENTS IN THE ICE WORLD”**

Calibration Manager, Robert Bosch

**“EXCEPTIONAL PRESENTATION BREADTH OF TOPICS MADE FOR ENJOYING TWO DAYS BOTH DURING AND OUTSIDE LECTURES”**

Senior Development Engineer,  
JCB Power Systems

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