“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 Direction Injection System has lead to reduced driving emissions
• Jaguar Land Rover explain how they achieve accurate measurement of the flows induced by fuel injection in a GDI engine
HOW TO BOOK YOUR PLACE

FEES AND CHARGES

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

<table>
<thead>
<tr>
<th>Delegate Type</th>
<th>STANDARD RATE</th>
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</thead>
<tbody>
<tr>
<td>Member, IMechE/supporting organisation</td>
<td>£660 + VAT = £792</td>
</tr>
<tr>
<td>Non-member</td>
<td>£840 + VAT = £1008</td>
</tr>
<tr>
<td>Student/Retired</td>
<td>£330 + VAT = £396</td>
</tr>
<tr>
<td>Networking Dinners</td>
<td>£45 + VAT = £54</td>
</tr>
</tbody>
</table>

THREE WAYS TO BOOK

1. Online: www.imeche.org/fuelsystems2018
2. Email: 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.

SPECIAL REQUIREMENTS

Please inform us of any special requirements, e.g. dietary or access, on the relevant section of the booking form or email eventenquiries@imeche.org.

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 refund of the fee paid. The Institution is not responsible for any loss or damage as a result of a substitution, alteration or cancellation/postponement of an event. The Institution shall assume no liability whatsoever if this event is cancelled, rescheduled or postponed due to a fortuitous event. Act of God, unforeseen occurrence or any other event that renders performance of this conference impracticable, illegal or impossible. For the purposes of this clause, a fortuitous event shall include, but not be limited to: war, fire, labour strike, extreme weather or other emergency.

Please note that while speakers and topics were confirmed at the time of publishing, circumstances beyond the control of the organisers may necessitate substitutions, absences 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 organizers 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

Bco Venue St Paul’s - 200 Aldersgate
St Pauls
London
EC1A 4HD

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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

The Institution of Mechanical Engineers organises over 120 events a year, including free-to-attend lectures as well as conferences, seminars, annual lunches and dinners. Please visit www.imeche.org/events for the complete list of events.

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22 NOVEMBER 2018, BRISTOL

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www.imeche.org/annualdinner
FUEL SYSTEMS: ENGINES
INJECT YOUR IDEAS, FUEL YOUR TECHNOLOGY

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

Propulsion System Fuels Group
Conference

More details available at
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 Bouffier
Kautex Textron GmbH & Co

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BOOK YOUR PLACE AT: www.imeche.org/fuelsystems2018
### TUESDAY 4 DECEMBER 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter(s)</th>
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<tbody>
<tr>
<td>08:30</td>
<td>REGISTRATION AND REFRESHMENTS</td>
<td></td>
</tr>
<tr>
<td>09:00</td>
<td>CHAIR’S OPENING REMARKS</td>
<td>Roy Horrocks, Chair of the Organising Committee</td>
</tr>
<tr>
<td>09:10</td>
<td>KEYNOTE ADDRESS: HEAVY DUTY DIESEL ENGINES, ZERO IMPACT EMISSIONS</td>
<td>Rolf Dreisbach, Manager of Powertrain Development, Calibration and Testing, AVL</td>
</tr>
<tr>
<td>09:40</td>
<td>THE NEW LIEBHERR LI1 COMMON RAIL INJECTOR PLATFORM</td>
<td>Norbert Schöfpänker, Liebherr-Components Deggendorf</td>
</tr>
<tr>
<td>10:00</td>
<td>DFI7: FLEXIBLE INJECTION STRATEGIES FOR IMPROVED PERFORMANCE AND EFFICIENCY</td>
<td>Robert Gibson, Delphi Technologies</td>
</tr>
<tr>
<td>10:20</td>
<td>QUESTION AND ANSWER SESSION</td>
<td></td>
</tr>
<tr>
<td>10:40</td>
<td>NETWORKING REFRESHMENT BREAK</td>
<td></td>
</tr>
<tr>
<td>11:10</td>
<td>DIESEL COMBUSTION CONTROL VIA DIGITAL RATE SHAPING WITH MODERN FUEL INJECTION SYSTEMS</td>
<td>Daniel Neumann, VKA RWTH Aachen; Christian Jorg, Joschka Schaub, Matthias Kotter, Thomas Korfer, FEV Europe; Stefan, Pischinger, FEV Group</td>
</tr>
<tr>
<td>11:30</td>
<td>OPTIMIZATION OF NOZZLE HOLE DIAMETER IN EURO-6 LIGHT DUTY DIESEL ENGINE</td>
<td>Wonkyu Cho, Seungwoo Kang, Choongsik Bae, KAIST, Korea, Republic of (South Korea)</td>
</tr>
<tr>
<td>11:50</td>
<td>TAILOR THE DIESEL FUEL INJECTION SYSTEMS TO FUTURE EMISSIONS AND FUEL CONSUMPTION DEMANDS</td>
<td>Tzvetelin Valentinov Gaydarov, Dr. Jost Weber, DENSO Automotive Germany GmbH; Akitaro Miyata, Daisuke Ishihara, DENSO CORPORATION</td>
</tr>
<tr>
<td>12:10</td>
<td>QUESTION AND ANSWER SESSION</td>
<td></td>
</tr>
<tr>
<td>12:30</td>
<td>NETWORKING LUNCH</td>
<td></td>
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<tr>
<td>13:30</td>
<td>KEYNOTE ADDRESS</td>
<td>Ken Pendlebury, Director, Gasoline Engines, Changan UK</td>
</tr>
<tr>
<td>14:00</td>
<td>MODELLING AND PREDICTION OF CAVITATION EROSION IN GASOLINE DIRECT INJECTION SYSTEMS OPERATED WITH E100 FUEL USING A BAROTROPIC EQUATION OF STATE</td>
<td>Eduardo Gomez Santos, Junmei Shi, Delphi Technologies, Luxembourg; Wolfgang Bauer, ANSYS Germany GmbH; Manolis Gavaises, City University of London, London, UK</td>
</tr>
<tr>
<td>14:20</td>
<td>GDI NOZZLE TOP WETTING ANALYSIS AS A PART OF TIP SOOTING REDUCTION</td>
<td>Peter Tibaut, Gregor Kotnik, Alexander Morozov, Wolfgang Krankenedl, AVL</td>
</tr>
<tr>
<td>14:40</td>
<td>PREDICTIVE ENGINE SIMULATIONS BASED ON A NOVEL DOE/RANS APPROACH WITH COEFFICIENT TABULATION</td>
<td>Daniel Nsikane, Konstantina Vogiatzaki, Robert Morgan, University of Brighton</td>
</tr>
<tr>
<td>15:00</td>
<td>OPTIMIZATION OF A DIRECT INJECTION STRATEGY USING FULLY INTEGRATED CFD DESIGN EXPLORATION</td>
<td>Patrick Niven, Siemens</td>
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<tr>
<td>15:20</td>
<td>QUESTION AND ANSWER SESSION</td>
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<tr>
<td>15:40</td>
<td>NETWORKING REFRESHMENT BREAK</td>
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<tr>
<td>16:10</td>
<td>MEASUREMENT OF THE FLOWS INDUCED BY FUEL INJECTION IN A GDI ENGINE</td>
<td>Blane Scott, Chris Willman, Prof. Richard Stone, University of Oxford; David Richardson, Jaguar Land Rover</td>
</tr>
<tr>
<td>Time</td>
<td>Session/Activity</td>
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<tr>
<td>16:30</td>
<td>EXPERIMENTAL INVESTIGATION OF WATER INJECTION AND STRATEGIES FOR GASOLINE ENGINES</td>
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<td></td>
<td>Maike Sophie Gern, Malte Kauf, Roland Baar, Technische Universitat Berlin, Germany</td>
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<tr>
<td>16:50</td>
<td>QUESTION AND ANSWER SESSION</td>
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<tr>
<td>17:10</td>
<td>CHAIR’S CLOSING REMARKS</td>
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<tr>
<td>18:00</td>
<td>END OF CONFERENCE DAY ONE</td>
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<tr>
<td>18:30</td>
<td>DRINKS RECEPTION</td>
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<td>19:30</td>
<td>DINNER</td>
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**WEDNESDAY 5 DECEMBER 2018**

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

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 TRENDS 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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