INNOVATIONS IN FUEL ECONOMY AND SUSTAINABLE ROAD TRANSPORT.

8-9 November 2011
Pune, India

Book now:
www.imeche.org/events/C1321
How can you achieve good fuel economy efficiently and affordably?

The automotive industry in India is one of the largest in the world and is responsible for one of the world’s fastest growing passenger car markets. This international conference, to be held in Pune, India, will bring together an international assembly of senior industry representatives, to provide a unique forum for the latest research and technological advances in low-carbon technology for road transport that can help towards achieving stringent emissions standards and continual improvements in fuel economy efficiency in an expanding Indian market.

The programme of technical papers from industry and academia and senior panel discussion session will discuss the latest developments and research of leading organisations. The conference will examine advances in powertrain, alternative fuels, lightweight vehicles, electric vehicles and hybrid vehicles.

### CHAIRMAN’S MESSAGE

As chairman of the first Indian conference on Innovations in Fuel Economy and Sustainable Road Transport put on by the Institution of Mechanical Engineers, I would like to encourage your participation by outlining the conference aims, and giving you the programme details.

India is one of the major growth markets, alongside China and South America, for road transport. In parallel with this are the external pressures of fuel price rises and global warming. This is therefore a propitious time to be looking at the technologies, powertrains and alternative fuels that will ensure the growth of road transport in India is economic and sustainable without increasing global warming.

The conference includes papers from European, Indian and Malaysian authors, and starts with a Keynote Address by Dr Tim Leverton of Tata Motors on “Challenges of Sustainable Road Transport in an Expanding Indian Market” and a panel discussion on day 2.

There will be ample opportunity during the refreshment breaks and the conference banquet to meet and network with industry experts and colleagues. If you work in or are associated with fuel economy and sustainability for road transport, I should like you to join me for this first IMechE fuel economy conference in Pune, India.

### THIS EVENT WILL ATTRACT:

An international community of Automotive Engineers, Design Engineers, Automotive Manufacturers, Low Carbon Specialists, Academics and Students

### ATTENDING WILL HELP YOU:

- Maximise powertrain performance for a low carbon agenda
- Understand the latest developments in alternative fuels
- Examine the future landscape for the implementation and development of electric vehicles
- Discuss recent innovations in hybrid vehicle technology
- Explore how you can achieve lightweight vehicles for lower emissions
- Network with key industrial peers to improve business opportunities
## 8 November 2011

### Session 1: Hybrid and Electric Vehicles

**11:00 Lithium-Ion Pack Thermal Modelling and Evaluation of Indirect Liquid Cooling for Electric Vehicle Battery Thermal Management**  
S Chacko and S Charmer, Tata Motors European Technical Centre, Vehicle Integration, UK

**11:30 Premium Luxury Hybrid Vehicles**  
MJ Richardson, MJ Dowson, NC Taylor, Jaguar & Land-Rover Hybrid Group, Gaydon, UK

**12:00 Performance of an Electric Vehicle Conversion at the University of Nottingham, Malaysia**  
M Emriandiri, D Isa, R Arehli, Department of Electrical & Electronic Engineering, University of Nottingham Malaysia, Malaysia

**12:30 Lunch and Exhibition**

### Session 2: Hybrid and Electric Vehicles

**13:30 A Tata Motors Perspective for Sustainable Transportation and the Development of the Tata Vista EV**  
J Richmond, Tata Motors European Technical Centre, Advanced Engineering Department, UK

**14:00 Powertrain Cooling Concept Selection Process for Hybrid Electric Vehicles**  
N Dutta, C Rouaud, Ricardo UK; M Masera, F Beuzelin, CAV Hughes, Tata Motors European Technical Centre, Vehicle Thermal Integration, UK

**14:30 Regenerative Braking System Evaluation on a Full Electric Vehicle**  
J Hartley, RG McLellan, Tata Motors European Technical Centre, UK; AJ Day, IF Campean, University of Bradford, UK

**15:00 Refreshment Break**

### Session 3: Fuels

**15:30 Demonstrating the Fuel Economy Potential of Passenger Car Motor Oils**  
H Ma, R Dixon, R Mainwaring, Shell Global Solutions, UK

**16:00 Biohydro-Fined Diesel (BHD) and Biodiesel (BOD) Production Process and Property Review**  
S Loganathan, Department of Mechanical Engineering, Aarupadai Veedu Institute of Technology, India

**16:30 Comparative Study of NOX Formation from Biodiesel and Diesel**  
C Pisac, R Calay, Y Chen, S Ahmed, University of Hertfordshire, School of Engineering & Technology, UK

**17:00 Day 1 Closing Comments**

**17:30 Conference Dinner**

---

**Sponsorship and Exhibition Opportunities**

Your involvement with our events is an effective way to get into the minds of key decision makers, helping you capture your chosen audience when they are in the frame of mind to do business. Our flexible opportunities allow you to:

- Showcase new products
- Raise awareness of your operation
- Improve perception of your brand
- Influence other organisations’ spending plans

To talk through how to get the best from one of our events, contact Aman Duggal

T +44 (0)20 7973 1309  
sponsorship@imeche.org

---

**Supporting Organisations**

[Logo images representing FISITA, UK Trade & Investment, SAE International, SAE India, and SMMT: Driving the Motor Industry]
UKTI Technology Partnering Event

UK Trade & Investment (UKTI) is arranging a Technology Partnering event in India that will coincide with the conference, and is in active dialogue with major companies in India’s automotive and aerospace sectors to host business exchanges at their offices and introductions to their supply chain. The automotive focus of the event will be in Pune and Mumbai, and the aerospace focus in Bangalore and Mumbai. The target India companies are: Tata and Mahindra & Mahindra (automotive) and Larsen & Toubro, Godrej, HAL and Bharat Electronics (aerospace).

UKTI has worked closely with the Indian companies to identify their business and technology requirements; the UK group will be carefully selected to fully match these needs. To receive further information on becoming a key part of the UK offer that UKTI presents to these influential businesses, contact Annie Jarman: E: info@ukti-events.com T: +44(0)117 933 9546. Places are limited and subject to final confirmation from UKTI.

Automobile Division
Organising Committee:
Prof P White, Coventry University (Chairman)
Ms L Bennett, MIRA
Dr C Brace, University of Bath
Prof R Folkson, Consultant
Mr J Hilton, Flybrid Systems
Mr M Thomas
Mr C Wheelans, Lotus Engineering UK

The Committee would like to thank the following supporters:
Combustion Engines & Fuels Group; Energy, Environment & Sustainability Group
FORWARD THINKING

22 SEPTEMBER 2011
LONDON
THE ELECTRIC VEHICLE REALITY
Looking at the innovation, integration and implementation of EVs, this seminar will provide an update on the latest developments for manufacturers and the supporting infrastructure including consumer affordability and user experience of range and charging patterns.
www.imeche.org/events/S1609

22-23 NOVEMBER 2011
LARSEN & TOUBRO, CHENNAI, INDIA
BULK SOLIDS HANDLING: TECHNOLOGY AND DEVELOPMENT FOR THE 21ST CENTURY
Gain comprehensive insights into the leading-edge technology used to handle bulk materials such as mined ores, stone and coal. Enhance your knowledge of industry best practice and regulatory requirements to help you stay ahead in this competitive market.
www.imeche.org/events/S1615

15-16 MAY 2012
LONDON
10TH INTERNATIONAL CONFERENCE ON TURBOCHARGERS AND TURBOCHARGING
This international conference, the next in the successful and prestigious series held regularly since 1978, will cover all current and novel aspects of turbocharging systems design for boosting solutions for engine downsizing.
www.imeche.org/events/C1340

29-30 NOVEMBER 2011
LONDON
INTERNAL COMBUSTION ENGINES: PERFORMANCE, FUEL ECONOMY AND EMISSIONS
This international bi-annual conference series provides an opportunity to learn about the latest technological developments and advances from the most recent research from industry and academia, with keynote presentations from senior representatives of Nissan, BP and Caterpillar.
www.imeche.org/events/C1328

JOURNALS

Professional Engineering Publishing is the publisher for the Institution of Mechanical Engineers. For more information about our magazines, journals and conference proceedings visit www.uk.sagepub.com/imeche

You may be interested in:
• Journal of Automobile Engineering (Proceedings of the Institution of Mechanical Engineers, Part D)

IMechE members benefit from a significant discount on this publication and others. To find out more contact Subscriptions on +44 (0)1952 214050 or email subscriptions@imeche.org

MEMBERSHIP

Professional registration with us is an internationally recognised benchmark of quality. It opens up avenues of opportunity you never knew existed. New paths, new perspectives; new projects, new partnerships.

If you are in the business of research, design, development, manufacturing, installation, contracting or teaching, we have a level of membership for you.

To find out more, drop us a line at membership@imeche.org or Tel: +44 (0)20 7304 6999.

The Institution of Mechanical Engineers is the professional body representing over 94,000 mechanical engineers worldwide. As a Learned Society, the Institution seeks to be a source of considered, balanced and impartial information.

Institution of Mechanical Engineers
1 Birdcage Walk
Westminster
London SW1H 9JJ

T +44 (0)20 7222 7899
www.imeche.org

MANUFACTURING EXCELLENCE

Manufacturing Excellence promotes and supports the best of manufacturing in the UK through:
• An in-depth self-assessment of your business with a FREE benchmarking report
• The prestigious Manufacturing Excellence Awards
• Industry events to share best practice methods

Further information is available at www.imeche.org/manufacturingexcellence

PLAY IT BACK

PLAY IT BACK gives you a second chance to catch up with many lectures you have missed, helping you find out the latest advances from the comfort of your desktop.

Selected pay-to-enter events will feature on PLAY IT BACK too (for a nominal fee). To try out this exciting new service, head for www.imeche.org/playitback
**INNOVATIONS IN FUEL ECONOMY AND SUSTAINABLE ROAD TRANSPORT.**

**BOOKING FORM**

One form per person only (forms may be photocopied)

For added convenience, you can also book online at [www.imeche.org/events/C1321](http://www.imeche.org/events/C1321)

### REGISTRATION (PLEASE COMPLETE IN CAPITALS)

<table>
<thead>
<tr>
<th>Family Name</th>
<th>Title (Mr., Mrs., Miss etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Name</td>
<td>Job Title</td>
</tr>
<tr>
<td>Membership No</td>
<td>Institution</td>
</tr>
<tr>
<td>Name of Organisation (for name badge)</td>
<td></td>
</tr>
<tr>
<td>Address for Correspondence</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Town/City</th>
<th>Postcode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>Contact Telephone</td>
</tr>
<tr>
<td>Fax</td>
<td>Email</td>
</tr>
</tbody>
</table>

Do you have any special requirements?

---

### FEES AND CHARGES (PLEASE COMPLETE THE APPROPRIATE BOX)

<table>
<thead>
<tr>
<th>Fee (£)</th>
<th>Fee (INR)</th>
<th>£/INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution of Mechanical Engineers Member</td>
<td>£100.00</td>
<td>725.00</td>
</tr>
<tr>
<td>Member of Supporting Organisations</td>
<td>£100.00</td>
<td>725.00</td>
</tr>
<tr>
<td>Non-Member, Indian National</td>
<td>£75.00</td>
<td>n/a</td>
</tr>
<tr>
<td>Non-Member, Non-Indian National</td>
<td>£250.00</td>
<td>725.00</td>
</tr>
<tr>
<td>Student/Retired Member</td>
<td>£60.00</td>
<td>435.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Extra Items</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Invoice Charging (if applicable)</td>
<td>£10.00</td>
</tr>
</tbody>
</table>

Total: £725.00

---

Please do not send payment separately from this booking form.

By submitting this registration form, you will be indicating your consent to periodically receiving information on our events and publications, unless you indicate an objection to receiving such information by ticking this box.

### PAYMENT DETAILS

Payment must accompany this registration form. Registration will be confirmed only on receipt of full payment.

**PAYMENT IN RUPEES**

If you wish to pay in rupees, payment can be made by cheque payable to Institution of Mechanical Engineers and crossed ‘A/C pays only’ with your membership number on the reverse (if relevant). Please send the cheque with your completed registration form to following address: IMechE India Branch, A-212 Som Dutt Chambers I, 5 Bhikaji Cama Place, New Delhi – 110066, India. Tel: 91-11-26161219, 26161275/76 Fax: 91-11-26181491. Email: indiachair@imechenetwork.org. Alternatively you can pay by online, see instructions below.

The rupees registration fee is on a fixed exchange rate of 72.5 Indian Rupees to £1 sterling.

Upon receipt you will be sent joining instructions.

**PAYMENT IN STERLING**

If you are paying by sterling please use one of the methods under payment details. Send your completed registration form and payment to us at the following address: Tina Churcher, Institution of Mechanical Engineers, 1 Birdcage Walk, London, SW1H 9JJ or alternatively book online with a credit card.

Please indicate method of payment: Sterling Cheque □ Rupee Cheque □ Credit Card □ BACS □ Invoice □ (see below)

Sterling cheques/drafts need to be drawn from an English bank. A copy of the draft/cheque must accompany this form. It is the delegate’s responsibility to pay any bank charges.

Credit Card: Visa □ MasterCard □ (please note we cannot accept American Express, Diners Club or Maestro)

Card No ____________________________ Valid From ______/____/____ Expiry Date ______/____/____

Name of Cardholder ____________________________________________________________________________

Billing Address of Cardholder (if different from above) _____________________________________________________________

Amount to be Deducted ____________________________ Postcode ____________________________ Signature ____________________________

---

### INVOICE DETAILS (UK DELEGATES ONLY)

Delegates wishing to be invoiced must provide an order number. If your company does not use order numbers please include a formal request for invoicing on your company’s letterhead. A charge of £10 +VAT or 725 INR will be made to cover additional administration costs. Invoices are payable on receipt and no alterations to these terms will be accepted.

<table>
<thead>
<tr>
<th>Order No</th>
<th>Contact Name</th>
<th>Name and Address for Invoicing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tel</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BACS bank transfers can be made to: IMechE Current Account, NatWest Charing Cross Branch.

Sort code: 60-40-05 Acc No: 00817767

A copy of the draft must accompany this form.

---

Please complete and return this form to:

**Event Registrations**

Institution of Mechanical Engineers 1 Birdcage Walk London SW1H 9JJ

Fax +44 (0)20 7222 9881

For registration enquiries call Tina Churcher on +44 (0)20 7973 1258 or email t_churcher@imeche.org

---

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

### Conditions of Booking

Completed application forms should be returned to the address below, 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 is dietary or access, on the relevant section of this form.

### Cancellation

For a refund (minus £25 + VAT admin charge), cancellations must be received at least 14 days prior to the event. Replacement delegates are welcome at any time. The IMechE 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 IMechE postpones an event for any reason and the delegate is unable or unwilling to attend on the rescheduled date, you will receive a full refund of the fee paid.

IMechE is not responsible for any loss or damage as a result of a substitution, alteration or cancellation/postponement of an event. IMechE shall assume no liability whatsoever in the event this conference is cancelled, rescheduled or postponed due to a fortuitous event, Act of God, unforeseen occurrences or any other event that renders performance of this conference impracticable, illegal or impossible. For purposes of this clause, a fortuitous event shall include, but not be limited to: war, fire, labour strikes, 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, alterations or cancellations of the speakers and/or topics. As such, IMechE 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 our web page as soon as possible.

### Supporting Organisations

Members of the following organisations can register at our members’ rates: FISITA, UKTI, SAE International, SAE India, SMMT.

### Venue

This event will be held at Le Meridien, Pune, REM Road, Pune, 411 001, India. Details will be sent upon registration.

### 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.

### Accommodation

We have arranged special discounted rates at local hotels. Full details will be available upon registration.

### Enquiries

For event enquiries please call Louise McKenna on +44 (0)20 7973 1316 or email l_mckenna@imeche.org

The Institution of Mechanical Engineers is a registered charity (No 206882) VAT No GB 239930483