

INTERNATIONAL CONFERENCE ON VEHICLE AERODYNAMICS 2016: AERODYNAMICS BY DESIGN

Institution of
**MECHANICAL
ENGINEERS**

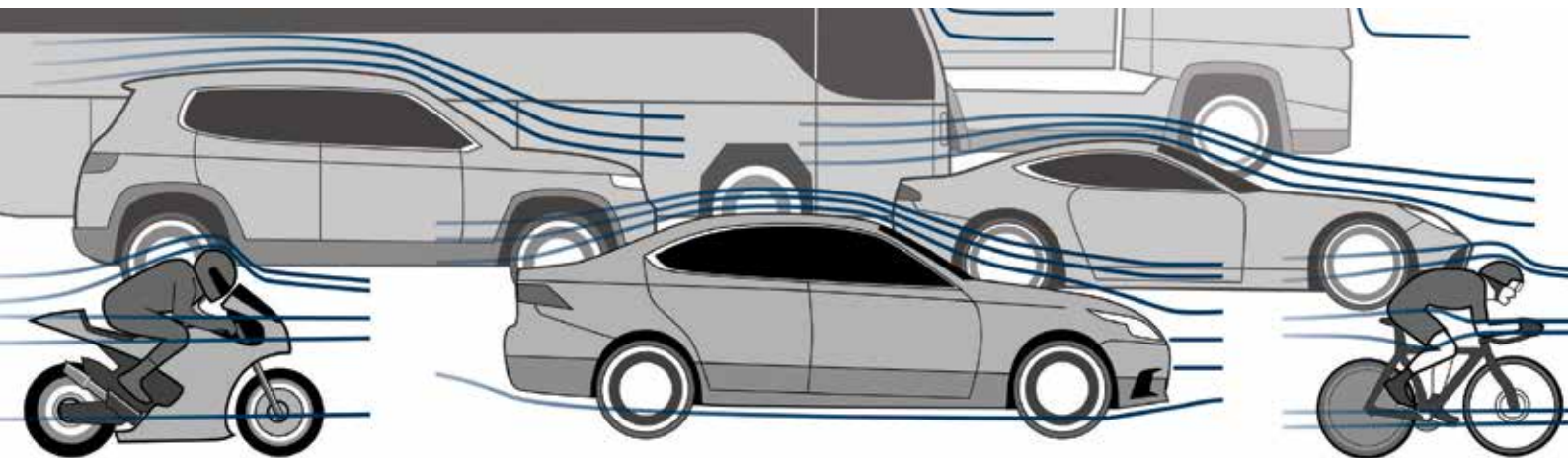
DON'T MISS:
NETWORKING
DRINKS AND
CONFERENCE DINNER

21–22 September 2016

Coventry Transport Museum
Millennium Place
Coventry

Automobile Division
Conference

PRESENTING ORGANISATIONS INCLUDE:



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INTERNATIONAL CONFERENCE ON VEHICLE AERODYNAMICS 2016: AERODYNAMICS BY DESIGN

21–22 September 2016

Coventry Transport Museum, Coventry

**A MUST-ATTEND EVENT FOR
INTERNATIONAL INDUSTRY
LEADERS TO CONVERGE OVER
THE LATEST THINKING IN
AERODYNAMIC DESIGN AND
DEVELOPMENT.**

This conference is the 11th edition of the biennial event initially organised by the Royal Aeronautical Society and then by MIRA.

The theme of the 2016 event is "Aerodynamics by Design" placing at its core the ethos that favourable characteristics are achieved when good aerodynamic design is a forethought.

Aerodynamic characteristics influence not only energy use and performance but also emissions, refinement and handling - all of which are of increasing importance to customers.

Customer demands, together with the necessity to comply with increasingly stringent worldwide legislation, emphasise the need for aerodynamics to be a fundamental element of early design and styling, concept engineering and packaging.

DRINKS RECEPTION AND NETWORKING DINNER

After day one, you are invited to join the presenters and delegates for a drinks reception and networking dinner, providing a more informal way to meet, greet and discuss key topics and business opportunities.

Delegates must register in advance and additional charges will apply.

KEY TOPICS TO BE COVERED:

- Aerodynamic development of new cars
- Aerodynamics and styling
- Aeroacoustics
- Influence of geometry on vehicle aerodynamics
- Commercial vehicle aerodynamics
- Creative aerodynamics in motor racing
- Real world flow effects
- Propositions for automotive aerodynamics analysis
- CFD techniques
- Driv'A'er reference model

ORGANISING COMMITTEE

Dr Geoff Le Good - Chair
G L Aerodynamics

Andreas Kremheller
Nissan Technical Centre Europe

Dr Jeff Howell
Loughborough University

Dr Rob Lewis
TotalSim Limited

Prof. Rob Dominy
Northumbria University

Dr David Sims-Williams
Durham University

Prof. Martin Passmore
Loughborough University

Adrian Gaylard
Jaguar Land Rover

Dr Nicholas Oettle
Jaguar Land Rover

Michael Augustin
Horiba MIRA Limited

EVENT PARTNERS:



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IN CO-OPERATION WITH



PROGRAMME

DAY 1	WEDNESDAY 21 SEPTEMBER DESIGN AND DEVELOPMENT
08:00	REGISTRATION AND REFRESHMENTS EXHIBITION OPEN
09:00	CHAIR'S WELCOME AND INTRODUCTION
09:30	KEYNOTE ADDRESS: AERODYNAMICS IN DESIGN Peter Stevens, Peter Stevens Design
	SESSION 1: AERODYNAMICS OF NEW CARS
10:10	THE AERODYNAMIC DEVELOPMENT OF THE MG GS N. Sabrazat, P.Yi, Y.Kun, SAIC Motor Technical Centre, UK and China
10:35	THE AERODYNAMIC DESIGN OF THE ASTON MARTIN DB11 D. Coe, Aston Martin
11:00	NETWORKING REFRESHMENT BREAK
	SESSION 2: AERODYNAMICS BY DESIGN
11:30	AESTHETICS AND AERODYNAMICS: A SENSE OF PROPORTION B. Clough, Coventry University; G. Le Good, Coventry University & G L Aerodynamics
11:55	PANEL DISCUSSION: AERODYNAMICS BY DESIGN Peter Stevens, Peter Stevens Design; Brian Clough, Coventry University; Chris Johnson, Micawber Design; David Godsell, Nissan Design Europe
13:00	PRESENTATION OF EUROPEAN CAR AERODYNAMICS RESEARCH (ECARA) AWARD 2016
13:20	NETWORKING LUNCH
	SESSION 3: AEROACOUSTICS
14:25	LOCALISATION OF EXTERIOR SOUND SOURCES GENERATED BY TURBULENT FLOW AROUND THE VOLVO V70 O. Roditcheva, P. Harling, Volvo Cars; S. Sebben, L. Löfdahl, Chalmers University of Technology
14:50	AEROACOUSTICS IN THE AUTOMOTIVE INDUSTRY: A COST-EFFICIENT APPROACH TO FLOW-INDUCED NOISE SIMULATION R. Rizzuto, N. Paola, L. M. Lorefice, FCA; E. M. Ribaldone, A. Barella, CRF S.C.p.A.
15:15	NEW TECHNOLOGY FOR UNSTEADY WIND NOISE MEASUREMENTS IN AN AEROACOUSTIC FULL-SCALE WIND TUNNEL M. Riegel, R. Blumrich, M. Helfer, FKFS
15:40	NETWORKING REFRESHMENT BREAK
	SESSION 4: INFLUENCE OF GEOMETRY
16:10	FLOW STRUCTURE IDENTIFICATION OVER A NOTCHBACK VEHICLE S. Bonitz, L. Larsson, L. Löfdahl, Chalmers University of Technology; A. Broniewicz, Volvo Cars
	SESSION 5: COMMERCIAL VEHICLE AERODYNAMICS
16.40	THE AERODYNAMICS OF BLUFF BODY STOWED IN A TRAILER UNDERBODY R. Stephens, I. Vallina-Garcia, H. Babinsky, University of Cambridge
17.05	DESIGN OF A REAR-END AERODYNAMIC DRAG REDUCTION DEVICE FOR SEMI-TRAILERS G. M. R. Van Raemdonck, R. Veldhuizen, J. van der Krieke, WABCO
17.30	CHAIR'S CLOSING REMARKS FOR DAY 1
17:35	TOP TIPS FOR AERO AUTHORS AN OPPORTUNITY TO HEAR IDEAS AND TIPS FOR THOSE INTERESTED IN WRITING AERODYNAMICS TECHNICAL PAPERS A. Gaylard, Jaguar Land Rover and D. Sims-Williams, Durham University
18.15	NETWORKING DRINKS RECEPTION AND DINNER, COVENTRY TRANSPORT MUSEUM Delegates must register in advance and additional charges will apply.

For the most up-to-date and detailed programme for the event, please visit:
www.imeche.org/aerodynamics

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

PROGRAMME

DAY 2	THURSDAY 22 SEPTEMBER RESEARCH AND CREATIVE THINKING
08:00	REGISTRATION AND REFRESHMENTS EXHIBITION OPEN
09:00	CHAIR'S WELCOME AND INTRODUCTION
	SESSION 6: GROUND EFFECTS
09:15	SPECIAL DISCUSSION: 40 YEARS OF "GROUND EFFECTS" IN MOTOR RACING Peter Wright, FIA Consultant; John Iley, John Iley Design and Dr. Mark Handford, Multimatic
	SESSION 7: MOTOR RACING AERODYNAMICS
09:45	PANEL DISCUSSION Peter Wright, FIA Consultant; John Iley, John Iley Design; Dr. Mark Handford, Multimatic; Peter Stevens, Peter Stevens Design; David Lapworth, Prodrive; Mike Brown, McLaren F1 Panel comprising leading motor racing engineers discussing creativity in aerodynamics design and development including questions from delegates
11:00	NETWORKING REFRESHMENT BREAK
	SESSION 8: CFD TECHNIQUES
11:30	APPLICATION OF POD TECHNIQUES IN CFD OPTIMISATION ON VEHICLE AERODYNAMICS L. Miretti, E. Ribaldone, N. Tobia, CRF; N. Paola, FCA
11:55	LARGE-EDDY SIMULATION OF AERODYNAMIC EFFECT OF TYRE SHAPE WITH MOVING GROUND USING DETAILED FULL-SCALE VEHICLE MODEL T. Kawamura, N. Kuratani, Honda R&D; A. Koybayakawa, Y. Osawa, Bridgestone Corporation; K. Takeuchi, Hokkaido University; M. Tsubokura, Kobe University and Riken Advanced Institute for Computational Science
12:20	WALL-RESOLVED LES TO PREDICT THE BOUNDARY LAYER SEPARATION AROUND THE SIDE-MIRROR OF A FULL SCALE VEHICLE AT THE CRITICAL REYNOLDS NUMBER K. Ambo, T. Yoshino, M. Teramura, Honda R&D
12:45	NETWORKING LUNCH
	SESSION 9: POTENTIAL AERODYNAMIC APPLICATIONS
13:45	A PROPOSED DRAG COEFFICIENT RELEVANT FOR DRIVE CYCLE APPLICATION J. Howell, M. Passmore, Loughborough University
14:10	FLOW STRUCTURE AROUND AN ACCELERATING AND DECELERATING VEHICLE R. Lewis, D. Ludlow, F. Lendrum, TotalSim
	SESSION 10: REAL WORLD FLOW EFFECTS
14:40	EXPERIMENTAL AND NUMERICAL INVESTIGATION OF AERODYNAMIC DRAG IN TURBULENT FLOW CONDITIONS D. Stoll, T. Kuthada, J. Wiedemann, FKFS
15:05	THE EFFECTS OF TRANSIENT FLOW CONDITIONS ON THE AERODYNAMICS ON A LCV CONCEPT USING CFD AND WIND TUNNEL EXPERIMENTS A. Kremheller, M. Moore, Nissan Motor UK; G. Le Good, G L Aerodynamics; D. Sims-Williams, J. Newbon, Durham University; R. Lewis, TotalSim
15:30	NETWORKING REFRESHMENT BREAK
	SESSION 11: DRIV'A'ER REFERENCE MODEL
16:00	FLOW PAST A DRIV'A'ER BODY IN A SCALE MODEL WIND TUNNEL: COMPUTATIONAL STUDY BY REFERENCE TO A COMPLEMENTARY EXPERIMENT J. Jungmann, T. Schütz, BMW Group; C. Tropea, S. Jakirlic, Technische Universität Darmstadt
16:25	THE DESIGN OF SYSTEMATIC ADD-ON CONFIGURATION CHANGES FOR THE DRIV'A'ER BODY AND THEIR AERODYNAMIC CHARACTERISTICS G. Le Good, G L Aerodynamics; I. Annetts, S. Quilter, M. Cross, R. Lewis, TotalSim
17:00	CLOSING REMARKS
17:15	END OF CONFERENCE

For the most up-to-date and detailed programme for the event, please visit:
www.imeche.org/aerodynamics

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

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WHAT OTHERS HAVE SAID ABOUT THE CONFERENCE:

“““
A good opportunity to meet colleagues... a place where OEMs and Universities meet.
“““
Very informative for the vehicle aerodynamics latest trends.

“““
An excellent opportunity to catch up with existing and to establish new networks. The presentations were thought-provoking and illustrate the latest trials of vehicle aerodynamics.

ATTENDEES WILL INCLUDE:

- | | | | |
|-------------------------|---------------------------------|-------------------------|-------------------------|
| ■ Aerodynamicists | ■ Application Engineers | ■ Technical Specialists | ■ Development Engineers |
| ■ Design Engineers | | ■ Research Leaders | |
| ■ Aerodynamic Engineers | ■ Directors | ■ Wind Tunnel Engineers | ■ PhD Students |
| | ■ Business Development Managers | | |

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, Institution of Mechanical Engineers/ Supporting organisation - Conference and Dinner	£730.00 + VAT
Member, Institution of Mechanical Engineers/ Supporting organisation - Conference Only	£660.00 + VAT
Non-member - Conference and Dinner	£910.00 + VAT
Non-member - Conference Only	£840.00 + VAT
Student/Retired - Conference and Dinner	£400.00 + VAT
Student/Retired - Conference Only	£330.00 + VAT
Presenting Author - Conference and Dinner	£450.00 + VAT
Presenting Author - Conference only	£380.00 + VAT

Group booking discounts are available. Contact us for more information.

THREE WAYS TO BOOK

- 1 Online:
www.imeche.org/aerodynamics
- 2 Email:
eventenquiries@imeche.org
- 3 Phone:
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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, ie 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 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, 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

Coventry Transport Museum
Millennium Place
Hales Street
Coventry
CV1 1JD

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OTHER EVENTS TO LOOK FOR



AUTOMOTIVE EMISSIONS TESTING WORKSHOP

7 September 2016, West Midlands

Attend this workshop ahead of High Performance Engines 2016: Track to Road to understand the latest Real Driving Emissions (RDE) methods set for 2017.

www.imeche.org/emissionworkshop



HIGH PERFORMANCE ENGINES 2016: TRACK TO ROAD

8 September 2016, West Midlands

Attend the only seminar to showcase how to bring motorsport technology to the highway and how this technology will shape the wider automotive industry.

www.imeche.org/HPEngines

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