

TRIBOLOGY MODELLING: FRICTION AND WEAR PREDICTION ACROSS THE SCALES

Institution of
**MECHANICAL
ENGINEERS**

Tribology Group
Seminar

13 September 2017
National Motorcycle Museum, Birmingham

KEY SPEAKERS INCLUDE:

Robert Ian Taylor, Technology Manager,
Lubricants Innovation Team
Shell Global Solutions (UK)

James P. Ewen, PhD Researcher, Tribology Group
Imperial College London

Dr Guillermo E. Morales-Espejel, Principal Scientist
SKF Research and Technology Development

Dr Omar Mian, Head of Numerical Simulation
MAHLE Engine Systems UK Ltd

Dr Ali Ghanbarzadeh, Post-Doctoral Research Fellow,
School of Mechanical Engineering
University of Leeds

Andreas Almqvist,
Professor, Division of Machine Elements
Luleå University of Technology



EVENT PARTNERS:



topEngineer

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www.imeche.org/tribologymodelling

TRIBOLOGY MODELLING: FRICTION AND WEAR PREDICTION ACROSS THE SCALES

13 September 2017, Birmingham

TRIBOLOGY MODELLING IS AN INCREASINGLY IMPORTANT COMPLEMENT TO EXPERIMENTS AND IT IS ESSENTIAL FOR ENGINEERS TO KEEP UP-TO-DATE ON HOW TO BEST TAKE ADVANTAGE OF THE TECHNIQUES AND CAPABILITIES AVAILABLE.

Attend this seminar to learn about state of the art modelling approaches in tribology and to gain insight into the latest methods and approaches for predicting friction and wear in tribological systems. Join thought-provoking discussions with key figures from industry and academia and take away valuable lessons learned, which can be applied to your day-to-day activities and enable optimisation of resources.

KEY PROGRAMME HIGHLIGHTS:

- Take into account realistic lubricant properties from lubrication models with **Shell Global Solutions (UK)**
- Gain insights into molecular modelling of lubricants and additives from **Imperial College London**
- **SKF Research and Technology Development** discuss modelling tribology of rolling bearings
- Find out how **MAHLE Engine Systems UK Ltd** are moving from lubrication theory to practical engine applications
- Understand tribofilms and their effect in boundary lubrication modelling with the **University of Leeds**

“Attending this event will provide a great opportunity to find out how other industries and universities are dealing with tribological challenges”

Dr Guillermo E. Morales-Espejel,
Principal Scientist, SKF Research
and Technology Development

ATTEND THIS EVENT TO:

- Enhance your understanding of the latest methods and approaches being used for tribology modelling
- Discover the benefits of modelling in tribology and how they can be applied to your day-to-day activities
- Network with modellers and thought-leaders in this cutting-edge area of tribology
- Optimise resources with the ability to predict friction and wear in tribological systems
- Take part in a panel session to discuss the future outlook of tribology modelling

ORGANISING COMMITTEE:

Tribology Group
Institution of Mechanical Engineers

MEMBER CREDITS:

Daniele Dini, Professor in Tribology, Deputy Director of Research, EPSRC Established Career Fellow
Imperial College London

Ardian Morina, Professor of Engineering Tribology, Director of Research and Innovation, School of Mechanical Engineering
University of Leeds

**BOOK YOUR PLACE TODAY
AND JOIN THE DISCUSSION**

WWW.IMECHE.ORG/TRIBOLOGYSMODELLING

TERMS AND
CONDITIONS APPLY

PROGRAMME

WEDNESDAY, 13 SEPTEMBER 2017

08:30	REGISTRATION AND REFRESHMENTS
09:00	CHAIR'S OPENING REMARKS
09:15	INCLUSION OF REALISTIC LUBRICANT PROPERTIES IN LUBRICATION MODELS Robert Ian Taylor, Technology Manager, Lubricants Innovation Team, Shell Global Solutions (UK)
09:40	TRIBOFILMS AND THEIR EFFECT IN BOUNDARY LUBRICATION MODELLING Dr Ali Ghanbarzadeh, Post-Doctoral Research Fellow, School of Mechanical Engineering, University of Leeds
10:05	MODELLING AND SIMULATION OF FRICTION AND FLOW OF THIN FILMS Andreas Almqvist, Professor, Division of Machine Elements, Luleå University of Technology
10:30	QUESTION AND ANSWER SESSION
10:45	NETWORKING REFRESHMENT BREAK
11:15	MODELLING TRIBOLOGY OF ROLLING BEARINGS Dr Guillermo E. Morales-Espejel, Principal Scientist, SKF Research and Technology Development
11:40	MOLECULAR MODELLING OF LUBRICANTS AND ADDITIVES James P. Ewen, PhD Researcher, Tribology Group, Imperial College London
12:05	MODELLING THE TRIBOLOGY OF GEAR LUBRICATION Pwt Evans, Professor, Cardiff School of Engineering, Cardiff University
12:30	QUESTION AND ANSWER SESSION
12:45	NETWORKING LUNCH
13:45	FROM LUBRICATION THEORY TO PRACTICAL ENGINE APPLICATIONS Dr Omar Mian, Head of Numerical Simulation, MAHLE Engine Systems UK Ltd
14:10	A MECHANICAL APPROACH TOWARDS UNDERSTANDING WEAR Rob Bosman, Associate Professor, Physics of Durability, University of Twente
14:35	QUESTION AND ANSWER SESSION
14:45	NETWORKING REFRESHMENT BREAK
15:15	TRIBOLOGY MODELLING: COUPLING PHYSICAL PHENOMENA WITH A MULTIPHYSICS APPROACH Robbie Balcombe, Technical Director, COMSOL Ltd
15:45	PANEL SESSION: THE FUTURE OF MODELLING TRIBOLOGY Dr Chris Warrens, Expert Technologist, Research and Technology Fuels and Lubricants, BP Rob Bosman, Associate Professor, Physics of Durability, University of Twente Dr Omar Mian, Head of Numerical Simulation, MAHLE Engine Systems UK Ltd Robert Ian Taylor, Technology Manager, Lubricants Innovation Team, Shell Global Solutions (UK)
16:15	CHAIR'S CLOSING REMARKS
16:25	END OF SEMINAR

“It is important for engineers to attend seminars such as this so that they are aware of current trends in engineering design, and also so they can network with engineers from different backgrounds and with different perspectives”

Robert Ian Taylor, Technology Manager, Lubricants Innovation Team, Shell Global Solutions (UK)

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

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

HOW TO BOOK YOUR PLACE

FEES AND CHARGES

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

Fees and charges	Standard Rate
Member, Institution of Mechanical Engineers / Supporting Organisation	£250 + VAT = £300
Non-member	£300 + VAT = £360
Student/Retired	£100 + VAT = £120

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

THREE WAYS TO BOOK

- 1 Online:
www.imeche.org/tribologymodelling
- 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, ie dietary or access, on the relevant section of the booking form or email eventenquiries@imeche.org

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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

National Motorcycle Museum
Coventry Road
Bickenhill
Solihull
B92 0EJ

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OTHER EVENTS TO LOOK FOR

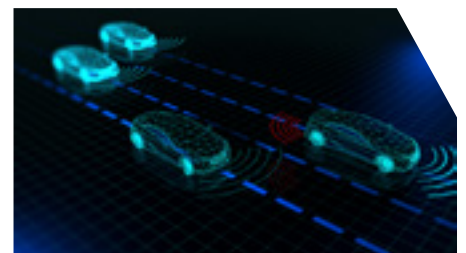


3RD BUS AND COACH ENGINEERING SEMINAR

19 September 2017, London

This seminar will focus on the reliability and whole life costs associated with low emission buses, based on real experiences in the field. Learn directly from bus operators and manufacturers whilst engaging with budget holders and engineering decision makers.

www.imeche.org/bus



CONNECTED AND AUTOMATED VEHICLE ENGINEERING 2017

25-26 September 2017, Birmingham

Co-hosted with The Institution of Engineering and Technology, attend the only event that will bring together engineers from across the mechanical and electrical disciplines to address the roadblocks in achieving level 5 autonomy.

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