

# SIMULATION AND MODELLING 2016 INTEGRATION, OPTIMISATION AND VALIDATION INITIATIVE

Institution of  
**MECHANICAL  
ENGINEERS**

13–14 September 2016

Day 1 - Automotive Simulation and Modelling

Day 2 - Aerospace Simulation and Modelling

Thinktank Science Museum,  
Birmingham B4 7XG

More details available at

**[www.imeche.org/  
simulationandmodelling](http://www.imeche.org/simulationandmodelling)**

## KEY SPEAKERS INCLUDE:



Andy Richardson  
Head of Simulation, Vehicle Engineering  
**Jaguar Land Rover**



Akin Keskin  
Chief of Virtual Engine Design Systems  
**Rolls-Royce**



Riccardo Parenti  
Head of Concept Development  
**Lamborghini**



John Winskill  
Senior Manager – Advanced Programmes  
Director Modelling and Simulation  
**Boeing**

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FRIDAY 15 JULY 2016  
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MANUFACTURING

# SIMULATION AND MODELLING 2016 INTEGRATION, OPTIMISATION AND VALIDATION INITIATIVE

13–14 September 2016  
Birmingham

**THIS TWO DAY EVENT WILL DISCUSS HOW SIMULATIONS CAN BE VALIDATED AND VERIFIED TO REPLACE PHYSICAL TESTING AND REDUCE COSTS ACROSS AUTOMOTIVE AND AEROSPACE.**

Called the 'Third Industrial Revolution' by The Economist, the digitisation of manufacturing and the usage of High Performance Computing (HPC) is revolutionising how products are designed, tested and built. Aerospace and automotive engineers are developing the latest technology and reducing the need for costly prototypes through Computer Aided Engineering (CAE) which is now an indispensable part of vehicle engineering.

To meet the needs and demands of the industries, the Institution of Mechanical Engineers will be addressing the topic with one-day dedicated to Automotive and a second dedicated to Aerospace. **Simulation And Modelling 2016** will provide a unique opportunity to discuss the latest developments being made with computer aided and virtual engineering, and hear where advances are being made with integration, optimisation and validation as well as increasing accuracy, reliability, speed and output.

Attendees will have the opportunity to engage with colleagues and peers in both Aerospace and Automotive industries, as well as meet simulation software and hardware providers in the networking area. One day and two day passes are available.

## **BENEFITS OF ATTENDANCE:**

- Understand the latest developments and innovations in reducing costly physical testing through simulation and modelling
- Take away cross-industry insights and understand where developments are being made in each sector
- Overcome key industry challenges with integration, optimisation and validation
- Network and engage with colleagues, peers and industry innovators from across Aerospace and Automotive in one location

## **DAY 1 AUTOMOTIVE HIGHLIGHTS:**

- **Renault, Lamborghini and Jaguar Land Rover** review the potential for further reduction of physical testing through simulation and the capabilities of current simulation solutions for co-simulation and full vehicle modelling
- Understand how **Scania** are efficiently communicating from system to system and between workflows and the ability to automate simulation processes further
- Learn how to sensibly optimise simulation for higher efficiency and effectiveness
- Take away best practices from **Ford** for validating and testing models as well as how to gain confidence in simulation and overcome the many varying factors

## **DAY 2 AEROSPACE HIGHLIGHTS:**

- Review the simulation tools and systems in use and the future roadmap with **Boeing** and **AMRC**
- Understand how **Rolls-Royce** will integrate multi-disciplinary simulations across legacy and commercial platforms and how **Cobham** plan to utilise simulation to optimise design and engineering
- Determine what is the right level of fidelity and accuracy at the right stage of simulation and how representative simulations can be of real world scenarios with **Boeing**
- Gain insights on data analytics in simulation modelling and model based system engineering

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

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# PROGRAMME

DAY ONE: AUTOMOTIVE	
08:30	REGISTRATION AND REFRESHMENTS
09:00	CHAIR'S OPENING REMARKS
09:10 PANEL DISCUSSION:	<b>COST-EFFECTIVE TESTING</b>
	<b>EXPLORING THE POTENTIAL FOR FURTHER REDUCTION OF PHYSICAL TESTING THROUGH SIMULATION</b> Eric Landel, Expert Leader Modelling and Simulation, Renault Riccardo Parenti, Head of Concept Development, Lamborghini Andy Richardson, Head of Simulation, Vehicle Engineering, Jaguar Land Rover
	<b>OPTIMISATION AND INTEGRATION</b>
	<b>INTEGRATION: EFFICIENTLY COMMUNICATING FROM SYSTEM TO SYSTEM AND BETWEEN WORKFLOWS</b> Niklas Melin, Technical Manager – Structural Simulation, Scania
09:55	<b>NETWORKING REFRESHMENT BREAK</b>
10:25	<b>ASSESSING THE CAPABILITIES OF CURRENT SIMULATION SOLUTIONS FOR CO-SIMULATION AND FULL VEHICLE MODELLING</b> Yogesh Kumar, Senior Powertrain CAE Engineer, Changan UK R&D Centre Eric Landel, Expert Leader Modelling and Simulation, Renault Niklas Melin, Technical Manager – Structural Simulation, Scania
10:55 PANEL DISCUSSION	<b>OPTIMISATION: SENSIBLY OPTIMISING SIMULATION FOR HIGHER EFFICIENCY AND EFFECTIVENESS</b> Jesper Christensen, Senior Research Fellow, Centre For Mobility and Transport, Coventry University
11:40	<b>FULL VEHICLE MODELLING: EFFECTIVELY MODELLING THE VEHICLE AS AN INTEGRATED COMPLEX SYSTEM</b> Andy Richardson, Head of Simulation, Vehicle Engineering, Jaguar Land Rover
12:10	<b>NETWORKING LUNCH</b>
12:40	<b>VALIDATION, TESTING AND AUTOMATION</b>
13:40	<b>BEST PRACTICES FOR VALIDATING AND TESTING MODELS</b> Speaker To Be Confirmed
14:10	<b>VALIDATION: GAINING CONFIDENCE IN SIMULATION</b> Darre Odeleye, Engine Design Verification Team Leader, Ford
14:40	<b>NETWORKING REFRESHMENT BREAK</b>
15:10	<b>ROBUST DESIGN: ASSESSING THE MANY VARYING FACTORS IN SIMULATION, THEIR IMPACTS AND HOW BEST TO APPROACH THEM</b> Speaker To Be Confirmed
15:40 ROUNDTABLE DISCUSSIONS	<b>ADVANCED SIMULATION AND MODELLING ROUNDTABLE DISCUSSIONS:</b> Facilitators Include: Miroslav Stojkovic, NCCUK; James Mullineux, Ricardo; Robin North, Transport Systems Catapult  Attendees will have the opportunity to join a number of thought-provoking roundtable discussions led by the presenters. Pre-registration will be available for the discussions, spaces for which will be limited and served on a first come, first served basis. Topics include: <ul style="list-style-type: none"> <li>• Simulation of composites and joins</li> <li>• Simulating vehicle interactions for autonomous drives</li> <li>• Real time simulation and data analytics</li> <li>• Simulating manufacturing stresses</li> <li>• Simulation of PHEV and EV battery systems</li> </ul>
16:30	<b>ROUNDTABLE FEEDBACK</b>
16:50	<b>CHAIR'S CLOSING REMARKS</b>
17:00	<b>END OF DAY ONE</b>

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

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

# PROGRAMME

DAY TWO: AEROSPACE	
08:30	REGISTRATION AND REFRESHMENTS
09:00	CHAIR'S OPENING REMARKS
09:10 PANEL DISCUSSION	<b>REVIEWING THE SIMULATION TOOLS AND SYSTEMS IN USE AND THE FUTURE ROADMAP</b> Omer Ozkirimli, Technical Lead – Machining Dynamics, AMRC John Winskill, Senior Manager – Advanced Programmes – Director Modelling and Simulation, Boeing
OPTIMISATION AND INTEGRATION	
09:40	<b>EFFECTIVELY INTEGRATING MULTI-DISCIPLINARY SIMULATIONS ACROSS LEGACY AND COMMERCIAL PLATFORMS</b> Akin Keskin, Chief Of Virtual Engine Design Systems, Rolls-Royce
10:10	NETWORKING REFRESHMENT BREAK
10:40 PANEL DISCUSSION	<b>OPTIMISATION: ASSESSING HOW SIMULATIONS CAN BE RUN MORE EFFICIENTLY AND QUICKLY WITHOUT AN IMPACT ON EFFECTIVENESS</b> Henry Clarke, Development Engineering Manager – Simulation And Modelling Group, Cobham Akin Keskin, Chief Of Virtual Engine Design Systems, Rolls-Royce
11:10	<b>UTILISING SIMULATION TO OPTIMISE DESIGN AND ENGINEERING</b> Henry Clarke, Development Engineering Manager – Simulation And Modelling Group, Cobham
VALIDATION AND TESTING	
11:40	<b>VALIDATION: DETERMINING THE RIGHT LEVEL OF FIDELITY AND ACCURACY AT THE RIGHT STAGE OF SIMULATION</b> Sanjiv Sharma, Expert for Modelling and Simulation Methods and Tools, Airbus
12:10	NETWORKING LUNCH
13:10	<b>REVIEWING HOW REPRESENTATIVE SIMULATIONS CAN BE OF REAL WORLD SCENARIOS</b> John Winskill, Senior Manager – Advanced Programmes – Director Modelling and Simulation, Boeing
DATA MANAGEMENT AND ANALYTICS	
13:40 PANEL DISCUSSION	<b>DATA ANALYTICS: DATA AND ANALYTICS IN SIMULATION AND MODELLING</b> Omer Ozkirimli, Technical Lead – Machining Dynamics, AMRC Sanjiv Sharma, Expert for Modelling and Simulation Methods and Tools, Airbus
14:10	NETWORKING REFRESHMENT BREAK
14:40	<b>MODEL BASED SYSTEM ENGINEERING: THE PROCESS AND POSSIBILITY FOR CREATING INDEPENDENT MODELS FOR FUTURE PROOF SIMULATION</b> Roy Kalawsky, Director of Advanced VR Research Centre – The Centre for Virtual Engineering, Loughborough University
SIMULATION OF ADDITIVES	
15:10	<b>BEST PRACTICES FOR SIMULATING ADDITIVE LAYERS AND COMPOSITES</b> Miroslav Stojkovic, Engineering Capability Manager, National Composite Centre UK
15:40 ROUNDTABLE DISCUSSIONS	<b>ADVANCED SIMULATION AND MODELLING ROUNDTABLE DISCUSSIONS:</b> Facilitators Include: Roy Kalawsky, Loughborough University; Further facilitators to be announced Attendees will have the opportunity to join a number of thought-provoking roundtable discussions led by the presenters. Pre-registration will be available for the discussions, spaces for which will be limited and served on a first come, first served basis. Topics include: <ul style="list-style-type: none"> <li>• Simulating new components with limited test data</li> <li>• Data management: Getting the right data at the right time</li> <li>• Current toolsets and systems: What has and hasn't worked</li> </ul>
16:30	ROUNDTABLE FEEDBACK
16:50	CHAIR'S CLOSING REMARKS
17:00	END OF CONFERENCE

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

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# WHO SHOULD ATTEND SIMULATION AND MODELLING 2016?

## **AUTOMOTIVE AND AEROSPACE INDUSTRY PROFESSIONALS WITH A DIRECT OR INDIRECT INTEREST IN SIMULATION ENGINEERING WILL HAVE A DIRECT INTEREST IN ATTENDING SIMULATION AND MODELLING 2016.**

In particular, the following job functions, ranging from director to developing engineer, would have a keen interest in attending this event:

- CFD and Fluid Dynamics
- CAE
- Modelling, Simulation and testing
- Advanced Vehicle Development and Programmes
- Analysis and Verification
- Virtual Engineering
- Design and Development
- Research and Development
- Calculation Methods
- Engineering and Technology
- Aerodynamics and Aeroacoustics
- Digital Prototyping

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## **WHY ATTEND?**



I am enormously excited for Simulation and Modelling 2016. The breadth and wealth of experience that will be gathered in one venue for the two days will provide a real insight into areas where modelling and simulation is able to provide innovation, agility and velocity to the development of new technologies and techniques.

John Winskill, Senior Manager – Advanced Programmes – Director of Modelling and Simulation  
**Boeing**



This event is a great opportunity for industries from various sectors as well as the Research and Technology organisations to come together and familiarise themselves with best practices, issues, and potentially finding solutions.

Miroslav Stojkovic,  
Engineering Capability Manager  
**National Composite Centre UK**



This event will provide engineers with state of the art insight into the growing role modelling, simulation and visualisation will play to meet this need.

Roy Kalawsky, Director of Advanced VR Research Centre – The Centre for Virtual Engineering,  
**Loughborough University**

## **SPONSORSHIP OPPORTUNITIES**

### **CREATE A BESPOKE STRATEGY THAT PLACES YOUR COMPANY IN FRONT OF SENIOR DECISION MAKERS**

- Engage face to face with your target market of senior engineers
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#### **CONTACT THE SPONSORSHIP TEAM ON:**

T: **+44 (0)20 7973 1249**

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## HOW TO BOOK YOUR PLACE

### FEES AND CHARGES

Registration fees include entry to the sessions, refreshments, and copies of select presentations.

Pass type	Early Bird Rate Until 15 July 2016	Standard Rate	TOTAL
Member/Supporting Organisation - One Day	£249 + VAT	£299 + VAT	£
Member/Supporting Organisation - Two Day	£299 + VAT	£349 + VAT	£
Non-Member - One Day	£349 + VAT	£399 + VAT	£
Non-Member - Two Day	£449 + VAT	£499 + VAT	£
Student/Retired	£249 + VAT	£249 + VAT	£

### THREE WAYS TO BOOK

- 1 Online:  
[www.imeche.org/  
simulationandmodelling](http://www.imeche.org/simulationandmodelling)
- 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.

#### 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**  
Thinktank Science Museum  
Birmingham  
B4 7XG

## SPONSORSHIP & EXHIBITION OPPORTUNITIES

### GET INVOLVED

Attending this event as either an exhibitor or sponsor will give you the opportunity to display your solutions, services and products to the right people at the right time.

### BENEFITS OF SPONSORING

- **Showcase** new products
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### OTHER EVENTS TO LOOK FOR



#### AEROSPACE VEHICLES 2016: LIFECYCLE CHALLENGES

7- 8 September, 2016, London

Hear leaders in the civil and military sectors explain the fundamental engineering challenges faced by the industry in reducing costs across the vehicle lifecycle..

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



#### 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](http://www.imeche.org/HPEngines)

The Institution of Mechanical Engineers organise over 120 events a year, including free-to-attend lectures as well as conferences, seminars, annual luncheons and dinners. Please visit [www.imeche.org/events](http://www.imeche.org/events) for the complete list of events.

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