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INTERNATIONAL EV BATTERIES 2017: COST-EFFECTIVE ENGINEERING FOR HYBRID AND ELECTRIC VEHICLES

Institution of
**MECHANICAL
ENGINEERS**

21–22 November 2017
Twickenham Stadium, London

More details available at
www.imeche.org/evbatteries

KEY SPEAKERS INCLUDE:

Bob Moran, Deputy Head
Office for Low Emission Vehicles

Vanesa Ruiz, Programme Officer - Scientific Research
European Commission, Joint Research Centre (JRC)
– Directorate for Energy Transport & Climate

Marco Thömmes, Head of Development Functions/
Electronic Modules HV-Battery Storage Systems
Audi AG

Daniel Gribben, Senior Engineer
Nissan Motors Manufacturing UK

Uwe Likar, Senior Manager, Advanced Engineering
Planning
Mitsubishi Motor R&D Europe

Conference



SUPPORTING ORGANISATIONS:



LowCVP
Low Carbon Vehicle Partnership

FISITA

EVENT PARTNERS:

NAVIGANT
RESEARCH

INDERSCIENCE
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INTERNATIONAL EV BATTERIES 2017: COST-EFFECTIVE ENGINEERING FOR HYBRID AND ELECTRIC VEHICLES

21–22 November 2017, Twickenham Stadium, London

FOLLOWING ANNOUNCEMENTS THAT BOTH INDUSTRY AND GOVERNMENT ARE PREPARING FOR AN ELECTRIC FUTURE, INTERNATIONAL EV BATTERIES 2017 BRINGS YOU CUTTING EDGE TECHNICAL UPDATES FROM OEMS, RESEARCHERS AND REGULATORS.

Benefit from this unique opportunity to hear from mechanical engineers on how they are cost-effectively **increasing range, enhancing performance and improving durability** of electric and hybrid vehicles.

Vehicle manufacturers have rapidly raised the bar of their hybrid and electric vehicles ranges. This means exciting new approaches are being developed, from **design** of new technologies all the way through to manufacturing and integration. Join thought leaders including **Jaguar Land Rover, Mitsubishi** and **Audi AG** as they reveal their engineering approaches to industry challenges.

Both national and international regulators, including the **European Commission**, explain how they are shaping the rapidly evolving market. Learn how the **Office of Low Emission Vehicles (OLEV)** are driving new UK efforts to make the UK a world leader for battery technologies.

Engage with experts across the batteries industry, at **speed networking** and arranging **one-to-one meetings** using our unique networking tool.

TECHNICAL ADVISORY COMMITTEE:

Mike Richardson, Chief Technical Specialist, Low Carbon Vehicles

Jaguar Land Rover

Uwe Likar, Manager Advanced Engineering Planning
Mitsubishi Motor R&D Europe

Billy Wu, Lecturer, Dyson School of Design Engineering
Imperial College London

Steve Doyle, Product Group Head, Hybrid & Electronic Systems Business Unit

Ricardo UK

ATTEND THIS CONFERENCE TO:

- Understand the latest developments and approaches to battery **design, development and integration** in electric and hybrid vehicles
- Hear from leading automotive OEMs including **Mitsubishi, Nissan** and **Jaguar Land Rover** on their engineering approaches to technical challenges
- Remain compliant with an update on the standards and regulations for lithium ion battery safety from the **European Commission**
- Gain insight into government plans to establish the UK as a world leader in battery technology from the **Office of Low Emission Vehicles (OLEV)**
- Network with colleagues, peers and industry innovators from across the hybrid and electric vehicle sector

KEY PROGRAMME HIGHLIGHTS:

- The **European Commission** will share unique insights behind the standards and regulations for lithium ion battery safety
- Hear a keynote address from the **Office of Low Emission Vehicles (OLEV)** who will reveal how the UK is leading race to zero emissions
- Find out how **Williams Advanced Engineering** are innovating high performance batteries and how this can contribute to the mass adoption of electric vehicles
- **Nissan Motors Manufacturing** discuss approaches to mass production of lithium ion batteries
- Understand the latest developments in fast charging systems from the **National Renewable Energy Laboratory (NREL)**

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PROGRAMME

DAY ONE	TUESDAY 21 NOVEMBER 2017
08:30	REGISTRATION AND REFRESHMENTS
09:00	CHAIR'S WELCOME AND OPENING REMARKS Mike Richardson, Chief Technical Specialist, Low Carbon Vehicles, Jaguar Land Rover
	A STRATEGIC OVERVIEW OF BATTERY TECHNOLOGIES
09:10 KEYNOTE	CHARGING AHEAD: HOW THE UK IS LEADING THE RACE TO ZERO EMISSIONS Bob Moran, Deputy Head, Office for Low Emission Vehicles
09:40	THE FARADAY CHALLENGE: A JOINED-UP APPROACH TO UK LEADERSHIP OF THE BATTERY INDUSTRY David Greenwood, Professor, Advanced Propulsion Systems WMG, International Automotive Research Centre, University of Warwick
10:10	STANDARDS AND REGULATIONS FOR LITHIUM ION BATTERY SAFETY: GAP ANALYSIS AND FITNESS FOR PURPOSE Vanesa Ruiz, Programme Officer - Scientific Research, European Commission, Joint Research Centre (JRC) – Directorate for Energy, Transport & Climate
10:40	QUESTION AND ANSWER SESSION
10:55	SPEED NETWORKING AND NETWORKING REFRESHMENT BREAK
	MODULE DESIGN AND TESTING
11:35 PANEL DISCUSSION	DEVELOPMENTS IN CHEMICAL, PHYSICS AND MATERIAL ENGINEERING AND UNDERSTANDING THE MECHANICAL IMPACT <ul style="list-style-type: none">• Gaining an understanding of the cross-functional developments in battery technologies• Insight into the interaction between different engineering functions• The roadmap of battery engineering for the future, including hurdles and how they are being overcome
12:05	A HIGH LEVEL LOOK AT BATTERY REQUIREMENTS FOR AUTOMOTIVE APPLICATIONS Nigel Taylor, Senior Manager Electric Propulsion System Research, Jaguar Land Rover
12:35	CHALLENGES AND OPPORTUNITIES OF LITHIUM SULFUR BATTERY TECHNOLOGY IN AUTOMOTIVE APPLICATIONS Nikita Hall, Senior Engineer, Ricardo UK
13:05	QUESTION AND ANSWER SESSION
13:15	NETWORKING LUNCH
	BATTERY MANAGEMENT SYSTEMS
14:15	MODULAR BATTERY SYSTEMS FOR ON AND OFF HIGHWAY VEHICLES Robin Shaw, Chief Technical Officer, Hyperdrive Innovation
14:45	INTELLIGENT CELLS FOR OPTIMUM BATTERY LIFE AND PERFORMANCE Paul Freeland, Principal Engineer, Cosworth Ltd
15:15	BATTERY MONITORING FOR EFFICIENCY AND RELIABILITY Billy Wu, Lecturer and Theme leader for Robotics and Manufacturing, Dyson School of Design Engineering, Imperial College London
15:45	QUESTION AND ANSWER SESSION
16:00	NETWORKING REFRESHMENT BREAK
16:30	HOTSPOT DISCUSSIONS: INSIGHTS FROM INDUSTRY SPECIALISTS An opportunity to put your questions to experts in their specialist area. Presenters have 5 minutes to address their chosen area and 10 minutes to answer questions. <ul style="list-style-type: none">• Material synthesis: balancing cost with battery requirements• What is beyond Lithium Ion?• Software development and requirements• Thermal management of battery systems
17:20	CHAIR'S CLOSING REMARKS
17:30	END OF DAY ONE AND DRINKS RECEPTION

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

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

PROGRAMME

DAY TWO WEDNESDAY 22 NOVEMBER 2017	
09:00	REGISTRATION AND REFRESHMENTS
09:30	CHAIR'S WELCOME AND OPENING REMARKS Paul McNamara, Technical Director, Williams Advanced Engineering
BALANCING VEHICLE PERFORMANCE AND BATTERY DURABILITY	
09:40	HIGH PERFORMANCE BATTERY DEVELOPMENTS AND LESSONS FOR MASS ADOPTION OF ELECTRIC VEHICLES Jonathan Hunt, Technical Specialist, Energy Storage Systems, Williams Advanced Engineering
10:10	HIGH VOLTAGE COMPONENTS IN THE MITSUBISHI OUTLANDER PHEV Uwe Likar, Senior Manager, Advanced Engineering Planning, Mitsubishi Motor R&D Europe
10:40	QUESTION AND ANSWER SESSION
10:55	NETWORKING REFRESHMENT BREAK
CHARGING AND INFRASTRUCTURE	
11:25	UNDERSTANDING THE LATEST DEVELOPMENTS IN FAST CHARGING SYSTEMS Matt Keyser, Senior Engineer, National Renewable Energy Laboratory (NREL)
11:55	QUESTION AND ANSWER SESSION
MANUFACTURING AND PRODUCTION FOR THE FUTURE	
12:00 PANEL DISCUSSION	CHALLENGES IN MANUFACTURING FOR MASS PRODUCTION OF AUTOMOTIVE BATTERIES <ul style="list-style-type: none">• Examples of innovations in battery manufacturing• Addressing the challenges of mass battery production for EVs and HEVs including methods of reducing production waste and the associated costs• Regulations and standards that need to be met, and improving product quality to meet standards
12:40	NETWORKING LUNCH
13:40	MASS PRODUCTION OF LITHIUM ION BATTERIES FOR AUTOMOTIVE AND NON-AUTOMOTIVE APPLICATIONS Daniel Gribben, Senior Engineer, Nissan Motors Manufacturing UK
14:10	TECHNICAL AND LEGAL ASPECTS OF HIGH VOLTAGE BATTERY SAFETY Marco Thömmes, Head of Development Functions/Electronic Modules HV-Battery Storage Systems, Audi AG
14:40	QUESTION AND ANSWER SESSION
14:55	NETWORKING REFRESHMENT BREAK
15:25	HOTSPOT DISCUSSIONS: LIFE CYCLE AND MANUFACTURING An opportunity to put your questions to experts in their specialist area. Presenters have 5 minutes to address their chosen area and 10 minutes to answer questions. <ul style="list-style-type: none">• Safety considerations across engineering for EV battery manufacture• Second life, recycling and reuse of EV and HEV batteries• Safety regulations in transportation of batteries and compliance with safety regulation• Supply chains and natural resources for battery and EV production
16:15	CHAIR'S CLOSING REMARKS
16:30	END OF CONFERENCE

FEEDBACK FROM PREVIOUS EVENT:

“THE CONFERENCE OFFERED GREAT EXPOSURE TO OTHER PROFESSIONALS AND PROVIDED INSIGHT INTO INDUSTRY DEVELOPMENTS ON TECHNOLOGIES. ATTENDING THIS EVENT ENABLED ME TO CHALLENGE AND PROBE ENGINEERING APPROACHES”

Engineering Manager, CAT

“THIS CONFERENCE IS WELL WORTH ATTENDING, AS IT PROVIDED A COMPREHENSIVE OVERVIEW OF THE MAIN TECHNOLOGIES AND TRENDS IN THE EV SECTOR”

Technology Director, Eminox

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WHO SHOULD ATTEND?

Engineers with direct or indirect interest in hybrid and electric vehicles, batteries, battery management systems and thermal management systems at the following types of organisations:

- Vehicle OEMs
- Battery manufacturers
- Integrators
- Powertrain manufacturers
- Anode, cathode & separator material suppliers
- Lithium and raw materials suppliers
- Battery testing equipment and service providers
- Battery management system manufacturers
- Thermal management system manufacturers

WHO ATTENDED LAST YEAR'S EVENT AND WHO CAN I EXPECT TO MEET AT INTERNATIONAL EV BATTERIES 2017?

Last year's conference saw a diverse mix of attendees from across the automotive industry attend International EV Batteries. The largest portion of attendees came from OEMs including Jaguar Land Rover, Toyota Motors Europe, Aston Martin and Williams Advanced Engineering. The event also saw strong attendance from battery manufacturers and those providing testing software and services.

FEEDBACK FROM PREVIOUS EVENT:

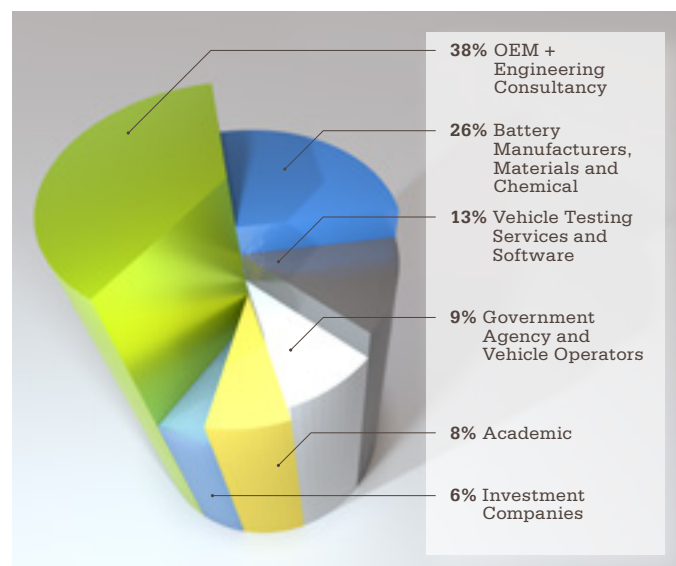
"THE QUALITY OF THE ATTENDEES AND MORE IMPORTANTLY SPEAKERS GAVE GREAT INSIGHT INTO THE CURRENT TRENDS AND AREAS OF FOCUS FOR ALL CONCERNED ASPECTS OF THE SUPPLY CHAIN. I WILL CERTAINLY ATTEND THE NEXT EVENT"

Business Development Manager,
Johnson Matthey

"A WELL-STRUCTURED, INFORMATIVE AND INTERACTIVE EVENT, WITH A HIGH GRADE LIST OF SPEAKERS AND DELEGATES"

Director, EMB Technical Services

ATTENDEE COMPANY BREAKDOWN



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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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Firmly establish thought leadership credentials within your specialist field

Use high-profile sponsored speaking platforms or focused technical workshops to effectively demonstrate your skills and expertise within a chosen sector

Deliver high-profile and relevant brand exposure

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Generate new business leads

Capture contact data from our highly qualified delegates to fuel your sales teams

CONTACT THE SPONSORSHIP TEAM ON:

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E: sponsorship@imeche.org

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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	Early Bird Rate Until 13 October 2017	STANDARD RATE
Member, Institution of Mechanical Engineers / Supporting Organisation	£339 + VAT = £406.80	£399 + VAT = £478.80
Non-member	£509 + VAT = £610.80	£599 + VAT = £718.80
Student/Retired	£299 + VAT = £358.80	£299 + VAT = £358.80

THREE WAYS TO BOOK

- 1 Online:
www.imeche.org/evbatteries
- 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

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

Twickenham Stadium
200 Whitton Rd
Twickenham
TW2 7BA

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.

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

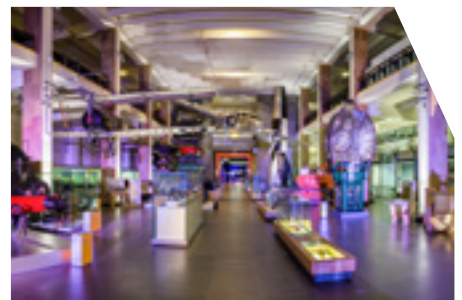


REAL DRIVING EMISSIONS: THE IMPACT ON ENGINEERS

31 October 2017, Birmingham

Engage directly with regulators, OEMs, and those involved in vehicle testing to address the impact of the introduction of RDE package 3 and WLTP test cycles. Discuss the ongoing technical challenges with thought leaders in industry in order to develop best practice at your company.

www.imeche.org/emissions



THE INSTITUTION OF MECHANICAL ENGINEERS' ANNUAL DINNER

23 November 2017, London

Celebrate and show your support for the continued good work being done by the engineering community. Entertain clients, network with colleagues and reward employees in the company of over 300 engineers and industry leaders from around the world.

www.imeche.org/annualdinner

The Institution of Mechanical Engineers organises 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 for the complete list of events.

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