Improving Material Selection Strategies, Optimising Multi Material Architectures And Introducing New Design Solutions

3 DAY SUMMIT AND EXHIBITION SHOWCASE

25 April - 27 April, 2017 | NEC, Birmingham

Introducing New Materials, Designs And Joining Methods:

Achieve Cost Reduction, Process Optimisation, Production Repeatability & Improved Performance

Of New Lightweight Multi Material Designs For Both Conventional And Electric Vehicles


See Inside For New Line-Up Of OEM And Technology-Provider Case Studies For 2017 On:

• Material Selection Strategies & Multi Material Architectures
• Lightweighting Of Structural Parts, Components And Powertrain
• Innovative Joining Technologies
• Use Of Composites, Thermoplastics, Glass Fiber And Other New Materials For Weight Reduction
• Lightweighting For Electric Vehicle Ranges
• Material Production Methods

Exclusive At This Year’s Show - Unveiling of Aston Martin’s DB11 BIW Design & Manufacturing

www.global-automotive-lightweight-materials-europe.com
Speakers

Dr. Oliver Schauerte  
Group Research, Head of Materials and Manufacturing Processes  
Volkswagen

Dr. Thomas Rudlaff  
Pre Development Body Structures  
Daimler

Kedar P. Godse  
Divisional Manager – Body Engineering (Cars)  
Tata Motors Limited

Michael Lough  
Group Leader - BIM Materials and Corrosion, Materials Engineering, Engineering Technical Services (ETS)  
Jaguar/Land Rover

Yan Pugh-Jones  
Senior Manager - Body Closures  
Aston Martin Lagonda Ltd

Dr. Lei Shi  
President & Technical Director, R&D, LVCHI Motor Company

Lee Bateup  
Manager - Innovation & patents  
Bentley Motors Ltd

Nir Kahn  
Director of Design  
Plasan

Mark Thompson  
Director of Sales and Service  
IPG Photonics (UK)

Sergio Raso  
Strategic Marketing Director  
Laser Products  
BLMGROUP

Frazer Barnes  
Managing Director  
ELG Carbon Fibre Ltd

Professor Ian Ashcroft  
Prof of Solid Mechanics, Additive Manufacturing and 3D Printing Research  
Group Faculty of Engineering  
University of Nottingham
## Multi Material Designs And Material Selection Strategies

**Review Real Case Studies And Practical Strategies & Solutions For Material Selection To Achieve Cost Effective Multi Material Vehicle Architectures**

**Day Chair:** Dr. Thomas Rudlaff, Senior Manager Pre-Development Body Structures, Daimler AG

### Chair’s Opening Remarks

**9.00 Chair’s Opening Remarks**

**EXPLAINING MATERIALS SELECTION CRITERIA AND DECISION-MAKING PROCESSES:**

Evaluate The Overall Impact Of New Materials On The Factory And Understand The Decision Making Process When Devising New Vehicle Architectures

### Materials Research At Volkswagen

**9.15 Keynote Presentation: Materials Research Meets Changes In Automotive Landscape - Challenges and Opportunities**

- Review how modern materials research is done for current automotive applications
- Refer to latest trends in materials development for lightweight structures
- Examine how the challenges, resulting from e-mobility, fuel cells and digitalisation are influencing modern materials research

**Dr. Oliver Schauerte, Group Research, Head of Materials and Manufacturing Processes, Volkswagen**

**9.45 Question & Answer Session**

**BUILDING CONFIDENCE IN NEW DESIGNS: PANEL**

**9.55 Learn From The Real Life Case Study Of An OEM That Was Able To Select, Develop And Justifying New Design And Build Confidence Into It**

- Learn how an OEM Design team was able to develop and justify new design internally
- Evaluate methods used by the design teams to build confidence in the new design performance
- Review communication strategies across design, manufacturing, engineering and production teams to finalise the new design
- Understand methods to overcome reservations from the manufacturing side

**Chair: Dr. Thomas Rudlaff, Senior Manager Pre-Development Body Structures, Daimler AG**

**10.25 Question & Answer Session**

**10.35 Morning Refreshments In Exhibition Showcase Area**

### Reducing Part Count

**11.15 Understand How To Reduce The Part Count Via Relative Geometry Optimisation To Achieve BIW Reliability, Part Repeatability And Eliminate The Variations In Car Bodies**

- Learn about the challenges presented by having a large variety of parts due to the tolerance stack up
- Review different options to reduce the part count to achieve more robust production process
- Understand how the part count reduction knowledge is being translated into practical applications for future models

**Kedar P. Godse, Divisional Manager - Body Engineering (Cars), Tata Motors Limited**

**11.45 Question & Answer Session**

### Case Study: Lightweighting Solutions On Body Structures

**11.55 Review Novel Solutions And Technologies For Body Structures Applied On Peugeot 3008 To Maximise Lightweighting & Optimize Crashworthiness Performance**

- Discover how PSA Peugeot optimizes the b-pillar architecture: cutting parts, choice of the material and simulation
- Learn how PSA GROUP integrates composite material on the load floor part: choice of the connection with the peripheral parts

**Sébastien Chopard, Underbody Design Referent, PSA Group**

**12.25 Question & Answer Session**

**12.35 Networking Lunch In Exhibition Showcase Area**

### MATERIAL DEVELOPMENTS & SUPPLY CHAIN MANAGEMENT:

Utilizing New Material Properties, Optimizing Supply Chain And Achieving Reliable Production Processes

### Aluminium Developments

**1.45 Presenting A Case Study On The Application Of New Aluminium Grades To Utilise Higher Formability And Take Advantage Of New Design Possibilities**

- Learn about the suitability of different alloys for various applications and the opportunities with using aluminium recycling alloys
- Understand how to source right materials for right applications to overcome the challenges with high material variability
- Review how high new aluminium sheets offer higher formability and new design possibilities to enable thinner sheets and more complex parts
- Explore new manufacturing methods for aluminium, including casting, pressing, forging and 3D printing to understand where they can be applied in production

### New Design Solutions And Quality Assurance:

Reviewing Performance, Costs And Effectiveness Of New Design Techniques For Advanced Vehicle Architectures To Meet Evolving Industry Requirements

### Material Selection Strategies At JLR

**3.35 Learn About The Delta Value Between Different Materials To Improve Selection Strategies In Multi Material Designs**

- Learn which material value evaluation methods are being applied at JLR to help choosing between different materials
- Review sample value data for different materials to define delta between adopting these different materials in production
- Understand how the material selection strategy for new models is being defined and executed at JLR

**Michael Lough, Group Leader - BIW Materials and Corrosion, Materials Engineering, Engineering Technical Services (ETS), Jaguar/Land Rover**

**4.05 Question & Answer Session**

### Vehicle Simulation

**4.15 Importance of Simulation in Vehicle Lightweighting - The Innovation Generator**

- Using simulation as a genuine collaborative partner in concept development
- New simulation innovation processes impacting vehicle design now
- Generating lightweight structures for Hybrids and EVs

**Dr Royston Jones, Exec VP European Operations & Global CTO, Altair**

**4.15 Question & Answer Session**

**4.25 Chair’s Concluding Remarks**

**4.35 - 5.35 Networking Drinks In Exhibition Showcase Area**

### Magnesium Developments

**2.25 Understand How Magnesium Can Facilitate A Lightweight Communication Strategy Across Vehicle Platforms**

**Patrick Schubert, Business Development Manager, Meridian Lightweight Technologies**

**2.45 Question & Answer Session**

**2.55 Afternoon Refreshments In Exhibition Showcase Area**
Cost Effective Multi Material High Volume Joining And Innovative Weight Reduction Solutions

NOVEL LIGHTWEIGHTING SOLUTIONS FOR DB11
8.10 Review Novel Solutions And Technologies Applied Within Brand New Aston Martin DB11 To Maximise Lightweighting & Optimize Performance

9.00 Question & Answer Session
9.10 Discuss The Opportunities With Adopting Lighter Fasteners To Understand How The Overall Vehicle Weight Can Be Reduced While Minimising The Carrying Load Of Fasteners

9.40 Question & Answer Session
JOINING WITH FIBER LASERS
9.50 Innovative Automotive Joining with Fiber Lasers

10.20 Identifying Effective Solutions To Join Polymers And Composites, Including Composites To Metals And Composites To Composites

11.50 Question & Answer Session
WELDING FOR STEEL & ALUMINIUM
12.00 Learn How A New Welding Operation Allows Welding SPR Directly To Steel & Aluminium

12.40 Networking Lunch In Exhibition Showcase Area
SIMULATION OF MATERIAL TO OPTIMISE JOINING
1.40 Review The Importance Of Simulation In Vehicle Lightweighting - The Innovation Generator

2.00 Question & Answer Session
ADVANCED WELDING TECHNOLOGIES FOR PLASTICS
2.10 Review Advanced Welding Technologies For Plastics, Including Ultrasonic Welding,Friction Stir Welding And More, To Understand Which Technology Can Help To Replace Some Of The Complicated Metallic Parts With Plastic

2.40 Question & Answer Session
NEW FASTENING SOLUTIONS TO REFLECT AUTOMOTIVE MEGATRENDS
2.50 PennEngineering®: expanding the portfolio of proven process enhancing captive fastening solutions to provide innovative new platforms that solve the fastening challenges presented by the Megatrends in the Automotive Industry

3.00 Question & Answer Session
3.10 Afternoon Refreshments In Exhibition Showcase Area

LIGHTWEIGHT DESIGN FOR BATTERY ELECTRIC VEHICLE
3.40 Lightweight Design for Battery Electric Vehicle (BEV) Body Using Modular-based Multi-material Space Frame (M3-SF) Concept

4.10 Question & Answer Session
ADDITIVE MANUFACTURING
4.20 Presenting Functional And Graded Latice Structures By Additive Manufacturing

5.00 Question & Answer Session
NEW MATERIAL SOLUTIONS: COMPOSITES, GLASS FIBERS, THERMOPLASTICS

Presenting Developments In New Materials And Evaluating Advances In Production Processes For High Volume Applications

Day Chair: Nir Kahn, Director of Design, Plasan

9.00 Chair’s Opening Remarks & Recap of Day Two

COMPOSITES SUPPLY CHAIN: PANEL DISCUSSION

9.10 Review How Suppliers Are Addressing The Issue With Limited Composite Availability

- Review the status of the composite supply chain readiness - presenting holistic view from raw material to end-user
- Understand how the supply chain should shape up if composites are to take more prominent role in lightweighting
- Calculate the improvements in the pounds per kilo conversion cost achieved over the last few years to compare composites to other materials
- Debate ways to encourage different types of investments and different types of infrastructure to enable new factories make parts from composites

Marcello Grassi, Currently CEO Leading Edge Strategy Consulting Ltd, Former Head of Composites Strategy, Chief Technologist, McLaren

Lee Bateup, Manager - Innovation & Patents, Bentley Motors Ltd

10.00 Question & Answer Session

COMPOSITE MANUFACTURING PROCESS DEVELOPMENTS

10.10 Learn About Composite Innovation Through Collaboration To Achieve High Volume Applications

- Review how joint development programs involving material, process and design partners are effective in creating solutions
- Benchmark SMC, RTM, LCM and fast prepreg technologies for mass production of automotive parts

Francis Defoor, Global Market Segment Leader Transportation, Hexion

10.30 Question & Answer Session

10.40 Morning Refreshments In Exhibition Showcase Area

COMPOSITE MANUFACTURING

11.10 Affordable and Automated - future of composites manufacturing

Paul Gallen, Strategy & Business Development, National Composites Centre

11.25 Question & Answer Session

HYBRID COMPOSITE DOOR BEAM

11.35 Development of Hybrid Composite Door Beam, design, analysis, testing, verification, and readying for cost-effective mass production

- Learn how advanced topological analysis and dynamic FEA was used to weight and cost optimise pultruded composite door impact beams
- Overcoming issues of detachment and failure through application of hybrid composite materials
- Testing to FMVSS and NCAP side impact standards
- Complying with manufacturing and assembly requirements to allow integration on standard production lines

Nir Kahn, Director of Design, Plasan

12.05 Question & Answer Session

12.15 Networking Lunch In Exhibition Showcase Area

NEW MATERIALS & THEIR LIGHTWEIGHTING POTENTIAL:
Presenting New Advanced Innovative Materials That Offer Significant Cost And Weight Savings

APPLICATION OF RECYCLED CARBON FIBRE

1.15 Practical Developments in the Use of Recycled Carbon Fibre for Automotive Structures

- Overview of the current state of carbon fibre recycling and recycled carbon fibre products
- Progress in developing design data and design guidance
- New case studies showcasing the benefits of using recycled carbon fibre products in a variety of applications

Frazer Barnes, Managing Director, ELG Carbon Fibre Ltd

1.50 Question & Answer Session

SMC

1.45 Explore The Potential of SMC In High Rate Manufacturing

- Understanding the potential of this low cost materials in high volume application
- Learn about the high rate manufacturing process used for SMC to evaluate the opportunities with scaling it up
- Comparing the benefits of SMC with RTM to identify the right combination of methods to meet your needs

2.15 Question & Answer Session

CELLULOSE-REINFORCED ENGINEERING PLASTIC COMPOSITE

2.25 Presenting Aqvacom® - A next generation cellulose-reinforced engineering plastic composite

- 40-50% cellulose content (from FSC-certified source)
- 25% higher strength/weight performance (isotropic)
- 20-40% reduction in carbon footprint (when compared to glass-reinforced polypropylene)
- Unique haptic (tactile), acoustic and aesthetic performance, virtually indistinguishable from natural premium woods. Odour-free.
- Compatible with industrial (bi)polymers and commercial Computer Injection Moulding simulation software

Dr Keith Simons, Innovation Director, Elastopoli Oy

2.35 Question & Answer Session

2.45 Afternoon Refreshments In Exhibition Showcase Area

SHOWCASE AREA

Networking Lunch In Exhibition

12.05 Networking Lunch In Exhibition Showcase Area

GASS FIBER

3.15 Learn About The Weight Reduction Opportunities With Glass Fiber And How Glass Fibre Is Being Applied In Manufacturing Processes

- Explore the advantages of using glass fiber in automotive applications
- Understand the opportunities and limitations with injection molding process to overcome the issues with controlling direction of glass fiber when using it in high volumes
- Examine future high volume opportunities and application methods for glass fiber use

3.45 Question & Answer Session

THERMOPLASTICS

3.55 Explore The Application Of Thermoplastics In Automotive Manufacturing To Understand Where They Can Be Used To Achieve Considerable Weight Savings

- Performing a costing analysis on thermoplastics to evaluate the overall cost of introduction
- Learn about the application of thermoplastics for structural parts, seating, cross car beams, trims and trim applications
- Learn how an OEM uses nylon based polymers in seating and structural applications to achieve weight and cost savings
- Evaluate and leverage recycling opportunities with thermoplastics

4.25 Question & Answer Session

4.35 - 4.45 Chair’s Concluding Remarks & End of Conference
I would like to register the delegate(s) below for the 3 day:

www.global-automotive-lightweight-materials-europe.com

Details

**PLEASE USE CAPITALS - PHOTOCOPY FOR MULTIPLE DELEGATES**

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- [ ] Dr
- [ ] Miss
- [ ] Ms
- [ ] Mrs
- [ ] Other:
- Name:
- Position:
- Organisation:
- Email:

Delegate 2

- [ ] Mr
- [ ] Dr
- [ ] Miss
- [ ] Ms
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Enquiries And More Information

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