International Congress

AUTOMOTIVE COMPOSITES
Smart materials and applications

- Innovative composites in new vehicle architectures
- Supply chain management and processing technologies

15th – 17th November 2010
PULLMAN STUTTGART FONTANA

Hear international case studies from 16 leading companies and institutes:

- PSA Peugeot Citroen, France
- McLaren Automotive Ltd., UK
- Automobili Lamborghini, Italy
- Victrex plc, UK
- Jacob Plastics GmbH, Germany
- University of Modena and Reggio Emilia, Italy
- Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland
- Ford-Werke GmbH, Germany
- Institute for Carbon Composites, Technische Universität München, Germany
- EADS Innovation Works, Germany
- Fraunhofer Institute for Structural Durability and System Reliability LBF, Germany
- SABIC Innovative Plastics, The Netherlands
- Faurecia Innenraum Systeme GmbH, Germany
- Lotus Engineering, UK
- Advanced Composites Group, UK
- SGL Group, Germany

- Discover which smart new composite materials are used in automotive applications for maximum efficient vehicle design
- Hear innovative case studies from major automotive OEMs and find out how to deal with key inhibitors for composite integration such as crashworthiness or damage recognition and repair
- Assess the industry’s supply chain management and innovative processing technologies to save cost and time

Conference chair:
Prof. Klaus Drechsler, Head of the Institute for Carbon Composites, Technische Universität München, Germany

With innovative case studies from:

Dr. Nicolò Pasini, Composites Engineering Responsible, Advanced Composite Research Center, Automobili Lamborghini, Italy
Dr. Uwe Kobs, VP Business Development & Engineered Solutions, BU Carbon Fibers & Composite Materials, SGL Group, Germany
Paul Sills, Executive Engineer, Materials & Manufacturing Engineering, Lotus Engineering, UK

Interactive Workshop Day | Monday, 15th November 2010

A | Technological requirements for a series production of automotive composites
B | Strategic and economical challenges for a large scale use of composites in the automotive industry
C | Site Visit Institute of Aircraft Design Stuttgart
D | Site Visit Audi production site Neckarsulm
Dear colleague,

As you all know, the automotive industry is currently experiencing a profound transition toward a new generation of vehicles. The shift towards improved fuel economy and electromobility pushes the development of lightweight composite materials.

However, there is still a considerable number of application challenges that needs to be solved. Also, as yet supply chain management and processing technologies need to be improved considerably before the automotive industry can be supplied with sufficient high-quality, affordable materials for large scale production.

To help drive this essential evolution forward, IQPC is organising an international conference on AUTOMOTIVE COMPOSITES

Innovative composites in new vehicle architectures
Supply chain management and processing technologies

Experts from international companies such as PSA Peugeot Citroën, McLaren Automotive Ltd., Automobili Lamborghini, Ferrari S.p.a., Advanced Composites Group, SGL Group and many more will be present to provide you with cutting-edge case studies.

- New material developments: Learn about new smart composite materials to assess their benefit for fuel efficient driving and future vehicles
- Integration difficulties: Hear about existing solutions to implementation problems such as crashworthiness, damage recognition, repair and recycling to pave the way to an all composite vehicle structure
- Composite processing: Gain insight into the automotive industry’s supply chain management and new processing technologies to speed up cycle times and capitalize on cost saving potential

Save the date and book now! I am looking forward to meeting you personally in Stuttgart from November 15th-17th.

Best regards

Friederike Kohl
Automotive IQ Team

Who will you meet?

International OEMs, composite manufacturers, and suppliers

Global heads, product development directors, senior engineers and project managers of the following departments:

- Lightweight construction
- Materials
- Composite Manufacturing
- Future technologies and innovations

Register today
to hear how major OEMs and composites manufacturers go about constructing innovative vehicles with an optimised strength to weight ratio!

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Interactive Workshop Day I Monday, 15th November 2010

Workshop A
09:00-12:00

Technological requirements for a series production of automotive composites

Are composite materials a niche technology, or can they one day really be an enabling technology for all future vehicle forms? In this workshop, review the repercussions of new mobility forms on the future demand for composite materials. Assess advances in composite technology and impediments for a comprehensive integration and discuss whether, technological questions aside, it will even be possible to produce enough composites in the future to meet the demand of series production. Aspects to be discussed include:
- Development of composites demand
- Possibilities for cost reduction in composites manufacturing
- Advances in automation in composites processing

Workshop B
09:00-12:00

Strategic and economical challenges for a large scale use of composites in the automotive industry

Composites are at the same time a major challenge and opportunity for the automotive industry. In this workshop, assess which inhibitors are responsible for their not being implemented on a larger scale – specifically not just by looking at the performance advantages and technical difficulties of composite applications but from a broader perspective: What are really the major obstacles to be addressed in a company for the implementation of new technologies within an industry as mature and demanding as the automotive business? We'd like to join representatives from R&D, engineering and procurement in a cross-disciplinary discussion forum to debate this issue. Aspects that will be emphasized include:
- Typical limitations for profound technology shifts
- Decision criteria and allocation of decision making power
- Strategic and economical parameters such as investment and competence access

Site Visit C
13:00-17:00

Site Visit Institute of Aircraft Design Stuttgart

The University of Stuttgart’s Institute of Aircraft Design has numerous research projects in the aircraft, wind energy and automotive industry. On the basis of known textile techniques, the IFB researches innovative processing technologies for composite materials. Visit the research site for an insight into their projects regarding light construction, composites processing and automation.

The site visit includes:
- Transfer to the Institute in Stuttgart Vaihingen
- A visit of the institutes facilities
- Transfer back to the conference hotel

Site Visit D
13:00-17:30

Site Visit Audi production site Neckarsulm

Visit the Audi production site in Neckarsulm for an interesting example of light weight vehicle manufacturing. See where the A8 is manufactured and find out valuable background information for example on environment management and chassis construction with Audi Space Frame Technology (ASF).

The site visit includes:
- Transfer to the Audi production site in Neckarsulm
- A guided tour through the A8 production site
- Transfer back to the conference hotel
New smart composite materials for use in vehicle construction

09:30  Registration & coffee
09:55  Chairman’s welcome and opening address
       Prof. Klaus Drechsler, Head of the Institute of Carbon Composites, Technische Universität München, Germany
10:00  New composite technologies for automotive applications
       • Material development – Carbon fibres and matrix systems
       • Structural design concepts
       • Process technology
       • Automation, for example textile preforming and robot fibre placement
       • Simulation chain

       Prof. Klaus Drechsler, Head of the Institute of Carbon Composites, Technische Universität München, Germany

10:40  Ford’s Product Sustainability Index and material aspects
       • Development of carbon footprint of cars and their materials
       • Natural fibres in automotive applications
       • Need for balanced life cycle perspective
       • Material aspects in the Product Sustainability Index
       • Ford’s Product Sustainability Index

       Dr. Wulf-Peter Schmidt, Manager Sustainability, Vehicle Environmental Engineering, Ford-Werke GmbH, Germany

11:50  Innovative green material concepts for automotive interior applications
       • Light weight design – drivers & motivation
       • Competitive advantages based on weight, fuel consumption and cost
       • WFC/NFC material concepts & process technologies
       • New challenges in automotive interior applications

       Jochen Reichhold, Manager Innovation, Material and Process, Faurecia Innenraum Systeme GmbH, Germany

12:30  Potential new venue for long fibre and other compounds in the automotive industry
       • Material trends in automotive
       • Long fibre offerings
       • Other smart material offerings like thermal regulating materials
       • Additional features in combination with structural composites
       • Design considerations

       Hein Kormelink, Technology Manager LNP Europe & PP Automotive Material Development, Technology & Innovation Engineering Thermoplastics, SABIC Innovative Plastics, The Netherlands

13:10  Networking luncheon
14:40  Thermoplastic composites – next generation automotive materials?
       • Thermoplastic composites vs thermoset composites vs metals
       • Materials and properties
       • Production costs – materials and infrastructure
       • Production rates

       Alan Wood, Applied Technology, Principal Scientist, Victrex plc, UK

15:20  Advanced composite structures in lightweight automotive applications

       Learn about PSA’s approach to composite integration in lightweight vehicle designs

       Stephane Delalande, Innovations Manager, PSA Peugeot Citroen, France

16:00  Refreshment break and networking
16:30  Lightweighting solutions with composite materials for the body structure of high performance cars
       • Introduction: Challenges for composite materials on GT cars applications
       • Material research: Database and experimental testing on thermoset and thermoplastic composite materials
       • Process research: Processing techniques for automotive applications
       • Test cases: linear and crash behaviour for body structure and side outer applications

       Pasquale Scali, Researcher at Ferrari S.p.A., Body Structure Design – Innovation – MilleChili Lab, University of Modena and Reggio Emilia, Italy

17:10  Carbon fibre and composites strategy at Automobili Lamborghini
       • Why use carbon fibres?
       • Cost of carbon fibres
       • CFRP core competences
       • Case study: 2009 Murcielago LP 670 SV
       • CFRP future strategy

       Dr. Nicolò Pasini, Composites Engineering Responsible, Advanced Composite Research Center, Automobili Lamborghini, Italy

17:50  The MP4-12C’s chassis – performance benefits from carbon fibre
       • Formula 1-inspired engineering: The MP4-12C’s one-piece carbon fibre chassis
       • Properties of the Carbon MonoCell:
       • Optimal rigidity to improve handling gains
       • Minimal weight – maximal strength
       • Safety gains through unique crash behavior

       Claudio Santoni, Body Structures Function Manager, McLaren Automotive Ltd., UK

18:30  Closing remarks of the Chairman and end of conference day one
8:30 Registration & coffee

9:00 Chairman’s welcome,
Prof. Klaus Drechsler, Head of Institute for Carbon Composites, Technische Universität München, Germany

Learning from the aircraft industry

9:05 Cross industry approach: Learning from the aircraft industry
• Slow and steady growth of composite materials in aerospace
• Transitioning from niche to standard material
• Tackling the devil in the details
• Dealing with the in-service lifecycle

Dr. Matthew Beaumont, Head of Operations, Innovation Works – Composite Technologies, EADS Innovation Works, Germany

13:45 New processes for large scale automotive production of composite applications
• Classical processes for thermoplastic composites: a comparison
• Integration and combination of processes to achieve cost savings and shorter cycle times
• Goal: Near-net-shape part with combination of master forming processes to short process chains
• Functional integration by complex processes
• Development of high-energy absorbing parts for crash applications

Dr.-Ing. Marcus Schuck, Director R&D, Mechanical Engineering / Plastics, Jacob Plastics GmbH, Germany

14:25 Refreshment break and networking

14:55 Lotus’ Exige Cup 260 sports car: Carbon fibre use and processing
• The material of choice: Why composites, why carbon fibre?
• The use of carbon fibres for light weight construction and structural integrity
• Carbon fibre as a styling feature
• Composite moulding: Out-of-autoclave materials & processes

Paul Sills, Executive Engineer, Materials & Manufacturing Engineering, Lotus Engineering, UK

Supply chain management and processing technologies

9:45 Opportunities for Carbon Fibre Reinforced Composites in the automotive industry – market outlook & intelligent company partnerships
• Overview of global market for carbon fibres
• Challenges specific for the automotive industry
• Market structure for CFRP composites for the automotive industry
• Opportunities for intelligent partnerships along the value chain

Dr. Uwe Kobs, VP Business Development & Engineered Solutions, BU Carbon Fibers & Composite Materials, SGL Group, Germany

15:35 Composites analysis & testing
• Composite fatigue and fracture behaviour
• Design philosophy: Damage tolerance and SHM
• Testing and evaluation of composite structures
• Electro mobility – application for composites

Prof. Dr. Ing. Andreas Büter, Head Lightweight Structures, Fraunhofer Institute for Structural Durability and System Reliability LBF, Germany

11:35 Working towards volume production using prepregs
• Viable material and process choices
• Process design for effective automation
• Latest material developments

Mike Millward, Automotive Market Specialist, Advanced Composites Group Ltd., UK

16:15 Closing remarks of the Chairman and end of conference day two

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Please indicate choice of workshop on Monday, 15th November 2010
A) Technological requirements for a series production of automotive composites
B) Strategic and economical challenges for a large scale use of composites in the automotive industry
C) Site Visit Institute of Aircraft Design Stuttgart
D) Site Visit Audi production site Neckarsulm

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