Learn from these experts among others:

Rüdiger Heim,  
Director Division  
System Reliability,  
Fraunhofer LBF, Germany

Dr. Alex Michaelides,  
Technical Specialist –  
Electrical Machines,  
Jaguar Land Rover, UK

Dr.-Ing. Philippe Farah,  
Engineering Director, R&D  
Valeo Electric Systems, France

At the conference you will learn:

- Gain insight into next-generation e-motor design to effectively comply with future demands in passenger cars and commercial vehicles
- Learn about new materials for cost efficient e-drive systems
- Benefit from novel concepts to enhance heat transfer to significantly raise system performance
- Find out about latest testing methods for electric powertrains and components to improve development time
- Discuss innovative concepts and up-to-date experiences for bringing e-motor technology into mass production

Co-located with Thermal Management for EV/HEV
Registration and welcome coffee

Chairman’s opening

Future global trends of e-motor technology

Outlook on market developments of electric motors
- Forecast and comparison of market developments of electric powertrains 2020 and beyond for Europe, US and Asia
- Visions regarding e-mobility for the upcoming five years in China
- Effects of international market developments – especially China – on the European market

Refreshment break and networking

Emission legislation as driver for mass production of electric machines
- Prediction of market volumes of electric commercial vehicle within different market segments
- Potential of e-technology
- Innovative cooperation models

Transverse flux machines in a generator-electric vehicle: The use of advanced electric motors for energy generation and propulsion
- Design of transverse flux machines
- Electric drive train of a generator-electric vehicle
- Dual drives for torque vectoring, agility and manoeuvrability
- Chassis integrated drives vs. in-wheel motors

Bringing e-motor technology to mass production
- Latest advancements to improve efficiency to produce electric motors
- Technological requirements
- Opportunities and barriers to high-volume production

Networking luncheon

Advanced e-motor concepts

News of traction drive systems: an OEM’s perspective
- Concepts to enhance performance
- Possibilities of simultaneously reducing costs of traction drive systems
- Lesson’s learned for system improvement within the past five years

Optimization of e-machines for automotive use
- Novel approaches to optimize e-motors for passenger cars
- Current challenges of increasing system complexity
- Limits and chances for improved integration

Refreshment break and networking

Next-generation e-motor design
- Smart e-motor design to comply with future demands
- Ways to properly approach key areas of electrified powertrain development
- Higher performance potential of sophisticated e-motor design

Concepts to improve efficiency of e-drives for commercial/heavy duty vehicles
- Challenges to decrease costs
- Aspects of reliability to comply with factor 10 regarding life time duration of components in comparison to automotive use
- Advanced cooling systems of e-drives for commercial vehicles

New materials for advanced e-motor technology

New materials for cost-efficient e-drive system production
- Innovative materials for performance improvement of electric drive systems
- Aspects of cost-efficiency
- Future outlook

Closing remarks of the chairman and end of day one

Evening event – Join us for an informal evening get-together! This is an excellent opportunity for you to meet the other attendees and make new business contacts.

Sponsorship
We have a variety of packages available to suit your requirements. For all sponsorship and exhibition opportunities call Damian Pigot on: +49 (0)30 20 91 3232 or email damian.pigot@iqpc.de
Chairman’s opening

Virtual real world testing of advanced e-motor technology

New concepts of simulation of e-motor design
- Numerical methods to support optimization and design of electric machines
- Exploring latest three dimensional thermal analysis
- Identification of various drivers behind latest simulation methods

Latest testing methods for electric powertrains and components
- Introducing new testing methods
- New simulation models
- Test results and validation

Refreshment break and networking

Power electronics for e-drives

Impact of higher voltage on the entire e-system
- Requirements for the raise of battery voltage
- Effect on e-machines and their life-time durability
- Latest solutions and future developments

Advanced material packaging for high effective power electronics
- Technological demands
- Possibilities to guarantee proper material packaging
- Latest improvements

Energy storage for e-motors

Potential energy storage for advanced e-motor technology
- Current developments and visions
- Technological requirements
- Lesson’s learned

Optimized thermal management for E-motors (co-located with Thermal Management for EV/HEV)

Novel concepts to enhance heat transfer to significantly raise system performance
- Advanced approaches for optimized heat transfer
- Technical requirements and challenges
- Pushing the limits: Effective solutions for smart heat transfer

Networking luncheon

R&D in thermal management of e-motors
- Data, analysis methods, and experimental techniques to improve and better understand thermal management of e-motors
- New materials and parts designs for better passive thermal performance
- Exploring possibilities of efficient heat transfer to compliment passengers comfort

Optimize design for cooling systems for e-motors
- Understanding thermal processes through simulation of e-motors
- Design for thermal efficiency and optimal heat transfer
- Optimize working modes to achieve the best performance

Technical round table discussions
Delegates will be sorted into two groups to facilitate a healthy and engaged discussion in a smaller group. After half an hour the delegates will swap round table and topic giving you the chance to participate in all discussions.

Table 1: Thermal management strategies for modern E-Motors in order to achieve the best performance

Table 2: Comparing practices of thermal simulation in order to understand the way to an ideal design

Final Q&A session
Address your current challenges or questions to the audience and discuss collectively possible approaches and solutions.

Closing remarks of the chairman and end of conference
“You can succeed on your own terms but you can’t succeed alone”

Join our interactive workshops and benefit from in-depth sessions, hosted by selected industry experts. Our industry experts will share their expertise with a limited group of peers. Our workshop leaders will actively foster open exchange and discussion to help you face challenges, discover solutions, and make decisions crucial to business excellence.

### Workshop A 09:00 – 11:30: Combined electrochemical-thermal characterization and modelling of Li-ion cells to prevent thermal runaway

Use this workshop to gain further understanding into the combined electrochemical-thermal-characterization and modelling of Li-ion cells. The workshop will be divided in two parts. The first part will explore the characterization of Li-ion cells in battery calorimeters under different thermal conditions in order to study the influence of ageing phenomena on different modes of heat generation and to collect data that can be used in battery and thermal management systems. In the second part, a general thermal model will be derived, discussed and extended with respect to thermal runaway. You will have the opportunity to discuss the application of such model and give simplifications of the model suitable for the use in thermal management systems and for solving issues of thermal runaway.

### Workshop B 09:00 – 11:30: Innovative e-motor design and smart material packaging

In this workshop you will discuss the following aspects: How will the next-generation e-motor design look like? What are the current challenges in e-motor technology design and how can they be addressed? How does smart material packaging in e-motor technology look like? And what are the ways to improve efficiency, cost, weight and production?

### 11:30 – 12:30 Networking luncheon

### Workshop C 12:30 – 15:00: Alternative heating solutions with heat-based cabin surfaces

This workshop’s primary goal is to discuss and find solutions for minimizing thermal energy consumption without compromising cabin comfort. Smart solutions on reducing climate control need with zone-based cabin temperature controls as well as possibilities of dashboard and steering wheel heating will be explored with the ultimate goal of energy optimization. What are the current trends and how can you advance cabin comfort to the next level?

### Workshop D 12:30 – 15:00: Global market trends of e-motor development from light to heavy duty vehicles

This session is designed to give you a profound insight into latest and upcoming market trends of e-motor technology for both, light and heavy duty vehicles. You will discuss the future trends of e-motor technology in Europe, USA and Asia. How is the European market preparing to react on the Chinese market? How will the next 1-5 years look like in this respect?

### 15:00 – 15:15 Networking luncheon

### Workshop E 15:15 – 17:45: Implementation of modern heat transfer materials for passive cooling improvement and systems cost reduction

This workshop’s primary goal is to learn about modern materials and their appliance in maximizing passive thermal energy dissipation without increase in systems cost. There are ways to achieve optimal heat transfer from electronic components – by using passive measures such as radiators and dissipation plates. Such systems costs are cheaper than the ones with active cooling thus a competitive advantage can be achieved. Join us and learn more about it.

### Workshop F 15:15 – 17:45: Thermal management for e-motors

To significantly improve efficiency of e-motor technology thermal management is of very high importance. This workshop is an interactive session which will focus on understanding the relevance of heat transfer when it comes to improve performance and efficiency of e-motors. In this interactive session you will discuss the recent findings related to innovation of thermal management and the possibilities and limitations.
**Every registration includes a complimentary membership to Automotive IQ**

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- Workshop B: Innovative e-motor design and smart material packaging
- Workshop C: Alternative heating solutions with heat-based cabin surfaces
- Workshop D: Global market trends of e-motor development from light to heavy duty vehicles
- Workshop E: Implementation of modern heat transfer materials for passive cooling improvement and systems cost reduction
- Workshop F: Thermal management for e-motors

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**Cancellations and Substitutions**

CANCELLATIONS AND SUBSTITUTIONS

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