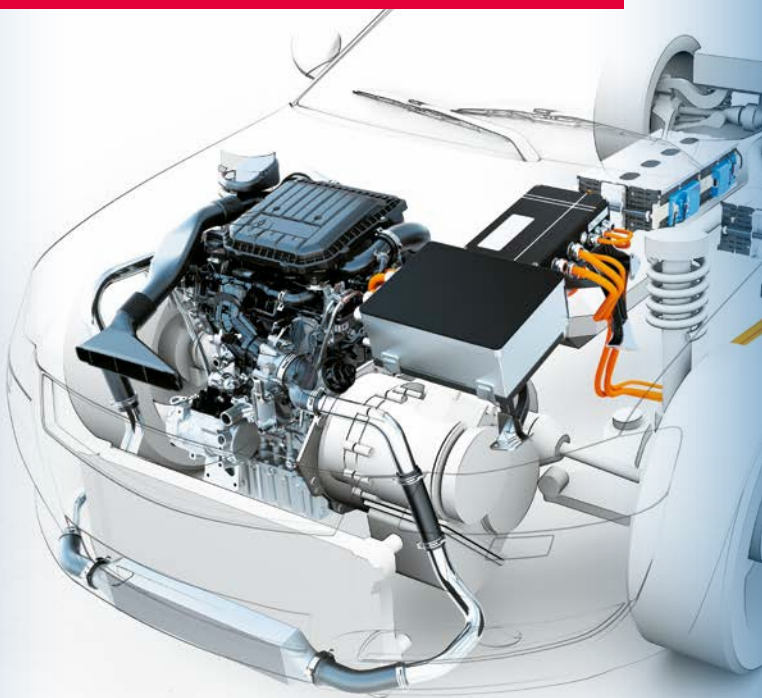


# The Powertrain of Tomorrow 2020

Finding the right global powertrain mix

22.01. – 23.01.2020

Hanau near Frankfurt am Main, Germany



## KEYNOTE LECTURES

IAV GmbH / Schaeffler Technologies AG & Co. KG /  
TU Braunschweig / Volkswagen AG

**SCHAEFFLER**

# Finding the right global powertrain mix

## / ELECTRIFIED POWERTRAINS

Hybrid drive systems in a changing world

## / INTERNAL COMBUSTION ENGINES

In a different role teamed up with electric motors

## / ENERGY STORAGE SYSTEMS

Traction batteries and CO<sub>2</sub>-neutral fuels

### PANEL DISCUSSION

How do we master the future diversity of drive systems and fuels in development, production and marketing?



**Dr. Johannes Liebl**  
Editor-in-Charge  
ATZ | MTZ |  
ATZelextronik

## Welcome

Internal combustion engines will play a key role in the powertrain mix of the future. However, they need to change in such a way that they meet the requirements of various powertrain configurations. Their technical development must not only be optimized with regard to the specific purpose, it must also be able to withstand consideration in a holistic context.

A decisive factor will be the energy storage system. Should the focus be on batteries? What are the industrialisation possibilities of chemical storage media such as hydrogen, synthetic gases, or liquid fuels?

We will answer these questions and evaluate the powertrain solutions under development. How will familiar drive systems continue to develop? Will the huge variety of configurations lead to dead ends? Can modern engines meet the requirements? And last but not least: is our infrastructure capable of providing and distributing the energy necessary?

You can become an integral part of this search for a global powertrain mix.

We look forward to your participation.

On behalf of the Scientific Advisory Board

## Stay at the cutting edge!

- ✓ Technical presentations from internationally renowned speakers
- ✓ Networking in the expert community
- ✓ Innovative products and services

## The Powertrain of Tomorrow

Increasingly stringent international legislation on CO<sub>2</sub> emissions is causing a paradigm shift in the powertrain. Electrification is advancing, and powertrains need to be considered more strongly as part of an integrated network of internal combustion engines, transmissions, and electrification. The focus of this international conference is on powertrain synthesis, with components and vehicle integration forming the basis. The complexity of the cause-and-effect relationships can be mastered only through digitization. System thinking, intelligent management, and new development methods play decisive roles in the race for the drive system of the future.



## Scientific Advisory Board

Our Scientific Advisory Board, which is made up of prominent figures from the relevant field, provides support during the planning phase of the conference and helps to identify suitable topics.

With its expertise the board has made a valuable contribution to the choice of themes for the lecture program.



**Dr. Johannes Liebl**  
Editor-in-Charge  
ATZ | MTZ | ATZelektronik

Scientific Director of the Conference

**Dr. Norbert Alt**  
FEV Europe GmbH

**Prof. Dr. Michael Bargende**  
University of Stuttgart

**Prof. Dr. Bernhard Geringer**  
TU Vienna

**Prof. Dr. Uwe Dieter Grebe**  
AVL List GmbH

**Christian Lensch-Franzen**  
APL Automobil-Prüftechnik  
Landau GmbH

**Stephan Rebhan**  
Continental AG

**Dr. Peter Sauer mann**  
BP Europa SE

**Prof. Dr. Ulrich Seiffert**  
WiTech Engineering GmbH

**Dr. Bernd Vahlensieck**  
ZF Friedrichshafen AG

**Uwe Wagner**  
Schaeffler Technologies  
AG & Co. KG

**Dr. Wolfgang Warnecke**  
Shell Global Solutions  
(Deutschland) GmbH

**Dr. Marco Warth**  
MAHLE International GmbH

**Carsten Weber**  
Ford-Werke GmbH

09:15 **Welcome and opening of the conference**  
Dr. Johannes Liebl, Editor-in-Charge ATZ | MTZ | ATZelektronik

09:30 – 11:00

KEYNOTE LECTURES

Moderation: Dr. Johannes Liebl, ATZ | MTZ | ATZelektronik

**KEYNOTE**  
09:30 **The shift to electrified drivetrains is a fact – only the technology remains open**  
Dr. Jochen Schröder, Head of Corporate Division E-Mobility, Schaeffler Technologies AG & Co. KG

**KEYNOTE**  
10:00 **From mobility demands to future powertrain platforms**  
Dr. Christoph Danzer, Team Manager Powertrain Synthesis, IAV GmbH

**KEYNOTE**  
10:30 **Market introduction of CO<sub>2</sub>-reduced fuels by example of R33 Blue Diesel**  
Prof. Dr. Thomas Garbe, Senior Manager Energy Carriers, Volkswagen AG

11:00 Refreshment break with coffee and tea in the exhibition area

11:30 – 13:00

BEV POWERTRAINS

Moderation: Prof. Dr. Bernhard Geringer, IFA, TU Vienna, Austria

11:30 **HV architecture solutions for high efficiency inverter**  
Dr. Philip Brockhoff, System Engineer, CPT Group GmbH

12:00 **Front loading approach in battery development for generation update**  
Paul Schiffbänker, Product Manager Global Battery Competence Team, AVL List GmbH, Austria

12:30 **chargeBIG – charge as fast as necessary, not as fast as possible**  
Sebastian Ewert, Head of Corporate Startup, chargeBIG, MAHLE Filtersysteme GmbH

13:00 Lunch in the exhibition area

14:30 – 16:00

HYBRID POWERTRAINS I

Moderation: Prof. Dr. Uwe Dieter Grebe, AVL List GmbH, Austria

14:30 **P0 mild hybrid – pushing limits to maximize benefits**  
Christoph Schroeder, Director Product Group FEAD, Schaeffler Technologies AG & Co. KG

15:00 **48 V high-power battery pack for mild hybrid electric powertrains**  
Neil Fraser, Head of Engineering Germany, MAHLE Powertrain GmbH [in cooperation with MAHLE Powertrain Ltd, UK]

15:30 **Nissan future powertrain strategy for a sustainable society**  
Dr. Masaaki Kubo, Alliance General Manager, Nissan Motor Co., Ltd., Japan

16:00 Refreshment break with coffee and tea in the exhibition area

16:30 – 18:00


INTRODUCTORY PRESENTATION AND PANEL DISCUSSION

Moderation: Dr. Alexander Heintzel, Editor-in-Chief ATZ | MTZ Group; Marc Ziegler, Deputy Editor-in-Chief MTZ

**INTRODUCTORY PRESENTATION**  
16:30 **The future is electric – with batteries, fuel cells and e-fuels**  
Prof. Dr. Stefan Pischinger, President & CEO, FEV Group GmbH [in cooperation with FEV Europe GmbH and RWTH Aachen University]

**PANEL DISCUSSION**  
17:00 **How do we master the future diversity of drive systems and fuels in development, production and marketing?**

approx.  
18:00 **End of the first day of the event**

19:30 **Networking dinner at Philippsruhe Castle**  
 Enjoy a pleasant evening and interesting conversations over dinner with colleagues and speakers.

08:30 – 09:00

KEYNOTE LECTURE

Moderation: Carsten Weber, Ford-Werke GmbH

KEYNOTE

08:30 **Use case optimized hybrid powertrains – the agony of choice?**  
Prof. Dr. Ferit Küçükay, Director, Institute of Automotive Engineering (IAE), TU Braunschweig

09:00 – 10:00

HYBRID POWERTRAINS II

Moderation: Carsten Weber, Ford-Werke GmbH

09:00 **Model-based approach to identify optimal HEV drivetrain configurations using different operating strategies**  
Ralf Kleisch, PhD student, Institute for Internal Combustion Engines and Automotive Engineering (IVK), University of Stuttgart [in cooperation with FKFS]

09:30 **E-TECH: The new alliance hybrid powertrain for the B-segment**  
Pascal Caumon, Senior Project Manager, Renault SA, France

10:00 Refreshment break with coffee and tea in the exhibition area

10:30 – 12:00

HYBRID POWERTRAINS III

Moderation: Prof. Dr. Michael Bargende, IVK, University of Stuttgart

10:30 **TwinRex – the TwinConcept for a serial-parallel hybrid system with an excellent cost-value index**  
Dr. Rene Savelsberg, Team Leader Electronics & Electrification, FEV Europe GmbH

11:00 **A new dynamic approach for the design of energy management strategies for hybrid electric vehicles**  
Bastian Beyfuss, PhD student, Institute for Powertrains and Automotive Technology (IFA), TU Vienna, Austria

11:30 **Very efficient propulsion for tomorrow – the hybrid variant of the new hydrogen combustion engine**  
Thomas Korn, CEO and Founder, Keyou GmbH

12:00 Lunch in the exhibition area

13:00 – 14:30

METHODOLOGY: SYSTEMS ENGINEERING

Moderation: Christian Lensch-Franzen, APL Automobil-Prüftechnik Landau GmbH

13:00 **Approach for online design of experiments with additional constraint modeling**  
Adrian Prochaska, PhD student, Daimler AG [in cooperation with TU Dresden]

13:30 **Efficient thermal management – from the first development phase onwards**  
Michael Bires, Product Line Manager Thermal Management, AVL List GmbH, Austria

14:00 **Definition of the optimal battery capacity of a PEM fuel cell vehicle**  
Swantje Konradt, PhD student, Institute of Mobile Systems (IMS), Otto von Guericke University Magdeburg

14:30 Refreshment break with coffee and tea in the exhibition area

15:00 – 16:30

FUEL CELL DRIVE SYSTEMS

Moderation: Dr. Marco Warth, MAHLE International GmbH

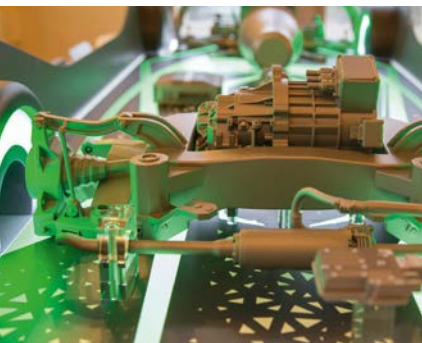
15:00 **Fuel Cell – key factors for success in mass production**  
Jürgen Jablonski, Director Development Fuelcell, Audi AG

15:30 **Efficiency potentials of fuel cell propulsion systems**  
Dr. Alexander Trattner, CEO & Scientific Director, HyCentA Research GmbH, Austria

16:00 **Fuel cell systems for rail applications: development trends and challenges**  
Dr. Marius Walters, Head of Department Fuel Cells and Fuel Cell Systems, Electronics and Electrification, FEV Europe GmbH [in cooperation with RWTH Aachen University]

16:30 **Closing remarks**  
Dr. Johannes Liebl, Editor-in-Charge ATZ | MTZ | ATZelektronik, Springer Nature





### Schaeffler Technologies AG & Co. KG

The Schaeffler Group is a leading global supplier to the automotive and industrial sectors. Its portfolio includes high-precision components and systems for engine, transmission, and chassis applications as well as rolling and plain bearing solutions for a large number of industrial applications. The Schaeffler Group is already shaping “Mobility for tomorrow” to a significant degree with innovative and sustainable technologies for electric mobility, digitalization, and Industry 4.0.

The company generated sales of approximately 14.2 billion Euros in 2018. With around 90,500 employees, Schaeffler is one of the world's largest family companies and, with approximately 170 locations in over 50 countries, has a worldwide network of manufacturing locations, research and development facilities, and sales offices. As a global development partner and supplier, Schaeffler maintains stable long-term relationships with its customers and suppliers.

With more than 2,400 patent applications in 2018, Schaeffler is Germany's second most innovative company according to the DPMA (German Patent and Trademark Office).

Cooperation partner

**SCHAEFFLER**

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Elke van Lon  
Phone +49 611 7878-320  
[elke.vanlon@springernature.com](mailto:elke.vanlon@springernature.com)

Media partners

**MTZ** **ATZ** electronics  
WORLDWIDE

**Registration fee**

€ 1,395.– plus VAT

This includes the conference documentation, the catering during breaks and the evening event on 22.01.2020.

**Date**

22.01. – 23.01.2020

**Venue**

Congress Park Hanau  
Schlossplatz 1  
63450 Hanau, Germany

**Languages used in the presentations**

German and English with simultaneous interpreting  
(German – English / English – German)

**Hotels**

Some hotels have room blocks at reduced prices for the participants.  
You can find more information on the events page of our website.

**Online Registration and  
Further Information:**

[www.atzlive.de/en/powertrain](http://www.atzlive.de/en/powertrain)

**Participants**

The international MTZ Conference “The Powertrain of Tomorrow” is aimed at managers and experts in powertrain development and electrification. It is a must-attend event for engine and vehicle manufacturers, their suppliers and development partners, teaching staff and engineers from universities, representatives of authorities and associations, and technicians active in this field.

**Further Information  
and Online Registration:**

[www.atzlive.de/en/powertrain](http://www.atzlive.de/en/powertrain)



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**Your contact person**

Marc Vestweber  
Abraham-Lincoln-Straße 46  
65189 Wiesbaden, Germany

Phone +49 611 7878-132  
Fax +49 611 7878-452  
ATZlive@springernature.com

**ATZlive** // Spotlight on Powertrain and Vehicle Engineering

Our events are firm fixtures in the diaries of automotive engineers and engine specialists. We offer a range of innovative conferences on the latest topics in the world of automotive engineering and engine technology, from the perspective of research, development and applications.

Our close collaboration with the editorial teams of our specialist magazines ATZ and MTZ keeps us fully up-to-date on the latest topics and trends on the market.

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