

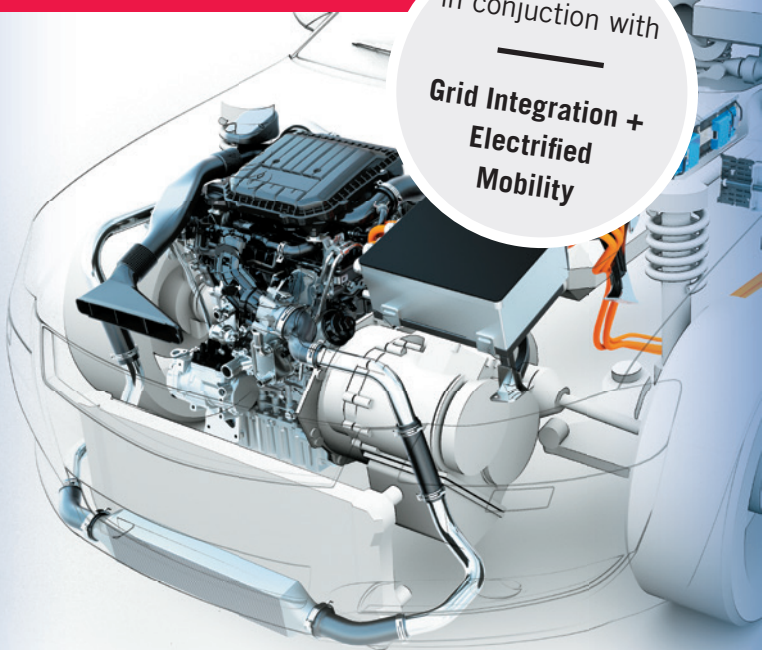
# The Powertrain of Tomorrow 2021

Thinking in systems

27 – 28 January 2021

Hanau near Frankfurt am Main, Germany  
or virtually via live stream

in conjunction with  
—  
**Grid Integration +  
Electrified  
Mobility**



## KEYNOTE LECTURES

Beijing Electric Vehicle Co. Ltd., China /  
BridgingIT GmbH / FEV Europe GmbH /  
Schaeffler Automotive Buehl GmbH & Co. KG

**SCHAEFFLER**

# Thinking in systems

## / POWERTRAIN SYSTEMS

Development open to all technologies

## / LIFE CYCLE ANALYSIS

Sustainable decision-making

## / DEVELOPMENT PROCESSES

Developing efficiently and accurately

### PANEL DISCUSSION

Are sector coupling and competition between technologies the keys to success?



**Dr. Johannes Liebl**

Editor-in-Charge  
ATZ | MTZ |  
ATZechnik,  
Springer Nature

## Welcome

Drive systems consisting of internal combustion engines, electrification, and CO<sub>2</sub>-neutral fuels are effective means of enabling us to continue to meet our transport and mobility requirements without restrictions in the future. The precondition for this is renewable electric energy. This energy can be used either directly in electric drive systems or indirectly through synthetic fuels. If international markets are to be successfully supplied with sustainable products, a discussion that is open to all technologies and goes beyond familiar technical borders will become increasingly important. For that reason, ATZlive is combining this powertrain congress with the ATZ Congress “Grid Integration + Electrified Mobility” in order to promote interaction between representatives from the automotive industry, energy providers, and power grid operators.

Together with our partner Schaeffler, we would like to invite you to take part in our joint congress in Hanau, either in person or via our live stream, to gain the very latest information on powertrain developments.

We look forward to your participation.

On behalf of the Scientific Advisory Board

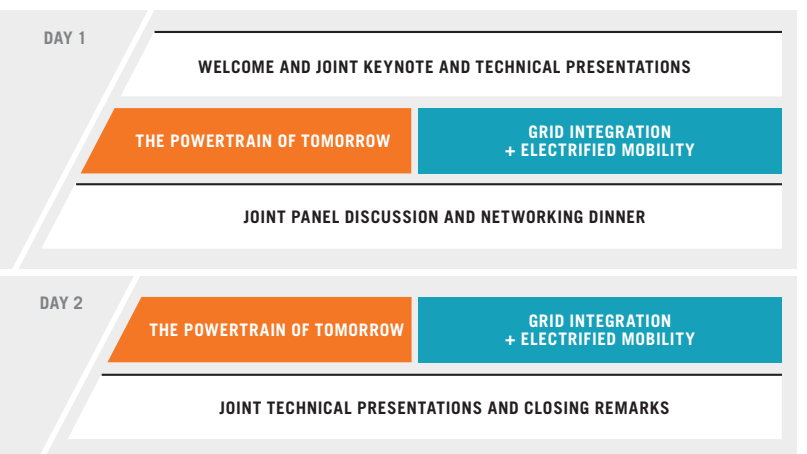
## Stay at the cutting edge!

- ✓ Highly relevant technical papers presented by renowned speakers
- ✓ Networking in the international 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. System thinking, intelligent management, and new development methods play decisive roles in the race for the drive system of the future.

Participants will be able to switch between the congresses "The Powertrain of Tomorrow" and "Grid Integration + Electrified Mobility".



## 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,  
Springer Nature

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

**Manfred Homm**  
Schaeffler Technologies AG & Co. KG

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

**Dr. Hermann Middendorf**  
Volkswagen AG

**Stephan Rebhan**  
Continental AG

**Dr. Peter Sauermann**  
BP Europa SE

**Dr. Bernd Vahlensieck**  
ZF Friedrichshafen AG

**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,  
Springer Nature, Germany

09:30 – 11:00

KEYNOTES

Moderation: Dr. Johannes Liebl, Editor-in-Charge ATZ | MTZ | ATZelektronik

**09:30** **Dynamic hybrid powertrain with high efficiency and reduced complexity**  
Manfred Homm, Senior Vice President R&D Powertrain & E-Mobility,  
Schaeffler Automotive Buehl GmbH & Co. KG, Germany

**10:00** **Charging infrastructure 2.0 – analysis of existing car-to-infrastructure in Europe and urgent recommendations for more customer acceptance**  
Dirk Braun, Senior Consultant Innovation, BridgingIT GmbH,  
Germany

**10:30** **How much engine power do we need in the future?**  
Franco Bellillo, Deputy General Manager, Vice President Purchasing,  
Beijing Electric Vehicle Co. Ltd., China

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

11:30 – 13:00

LIFE CYCLE ASSESSMENT

Moderation: Prof. Dr. Hans-Christian Reuss, Head of the Chair of  
Motor Vehicle Mechatronics, IFS, University of Stuttgart, Germany

**11:30** **Life cycle characteristics (CO<sub>2</sub>) of different propulsion concepts**  
Khosrau Heidary, Head of Life Cycle Engineering,  
Vitesco Technologies, Germany

**12:00** **LCA of a battery electric vehicle using renewable electricity in the entire supply chain**  
Dr. André Sternberg, Scientist, Fraunhofer Institute for  
Solar Energy Systems (ISE), Germany

**12:30** **LCA of the battery compared to the fuel cell in the electric vehicle**  
Dr. Jürgen Kölch, Marketing Manager,  
EVA Fahrzeugtechnik GmbH, Germany

13:00 Lunch in the exhibition area

14:30 – 16:00

EMISSIONS AND DEVELOPEMENT PROCESSES

Moderation: Prof. Dr. Michael Bargende, Head of the Chair of  
Automotive Powertrains, IFS, University of Stuttgart, Germany

**14:30** **Both effective and efficient: variable valvetrain systems for CVs to meet low NO<sub>x</sub> emission targets**  
Dr. Michael Elicker, Manager System Development Heavy Duty,  
Schaeffler Technologies AG & Co. KG, Germany [in cooperation  
with IAV GmbH, Germany]

**15:00** **Holistic engine and EAT emission concept development for a future ultra-low emissions HD diesel engine**  
Dr. Reza Rezaei, Manager, IAV GmbH, Germany

**15:30** **Holistic approach for development towards a CO<sub>2</sub>-neutral powertrain for HD applications**  
Dr. Martin Muther, Vice President, FEV Europe GmbH, Germany  
[in cooperation with FEV Group GmbH, Germany]

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

16:30 – 18:15

INTRODUCTORY PRESENTATIONS AND PANEL DISCUSSION

Moderation: Dr. Alexander Heintzel, Editor-in-Chief ATZ | MTZ Group;  
Prof. Dr. Hans-Christian Reuss, Head of the Chair of  
Motor Vehicle Mechatronics, IFS, University of Stuttgart, Germany

**16:30** **Electricity as a regenerative commodity in the energy transition and sector coupling – when will wishful thinking become reality?**  
Dr. Ralf Burgdorf, Lead Consultant, BridgingIT GmbH, Germany

**Net zero carbon in transport 2050**  
Dr. Peter Sauermann, Regional Technology Director Europe,  
BP Europa SE, Germany

**17:15** **Are sector coupling and competition between technologies the keys to success?**

approx.  
18:15 **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

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

KEYNOTE

08:30 **The powertrain for 2030 – the road to 59 g/km fleet CO<sub>2</sub>**

Dr. Norbert Alt, Chairman of the Executive Board, FEV Europe GmbH, Germany [in cooperation with FEV Group GmbH, Germany]

09:00 – 10:30

ELECTRIFIED DRIVES

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

09:00 **Potential of the methanol-powered SI engine in the hybrid powertrain: a simulative investigation**

Prof. Dr. Michael Bargende, Head of the Chair of Automotive Powertrains, IFS, University of Stuttgart, Germany [in cooperation with VKM, TU Darmstadt; FKFS; Opel Automobile GmbH]

09:30 **Opportunities for the electrified internal combustion engine**

Dr. Graham Conway, Principal Engineer, Southwest Research Institute, USA

10:00 **Model-based development of alternative propulsions for HD off-highway applications**

Dr. Reza Rezaei, Manager, IAV GmbH, Germany

10:30 Refreshment break with coffee and tea in the exhibition area

11:00 – 12:30

FUEL CELL DRIVES

Moderation: Dr. Norbert Alt, Chairman of the Executive Board, FEV Europe GmbH, Germany

11:00 **Innovative fuel cell system for the medium-size segment**

Dennis Backofen, Team Manager, IAV GmbH, Germany

11:30 **Fuel cell propulsion system layout**

Dr. Stephan Schnorpfeil, Technology Leader, Segula Technologies Group, Germany

12:00 **Cost-oriented optimization of fuel cell peripherals for use in heavy commercial vehicles**

Dr. Markus Auer, Head of Fuel Cell Project House, MAHLE International GmbH, Germany

12:30 Lunch in the exhibition area

13:30 – 15:00

SYSTEM DESIGN

Moderation: Stephan Rebhan, Senior Vice President Powertrain Technology & Innovation, Vitesco Technologies, Germany

13:30 **System thinking – frontloading consumer KPIs of hybrids**

Gerald Teuschl, Product Manager Electrification, AVL List GmbH, Austria

14:00 **A Systems Engineering approach to electromagnetic compatibility**

Dr. Jonas Esch, Team Leader Control Engineering, Schaeffler Engineering GmbH, Germany

14:30 **Consideration of battery aging during the powertrain design of a 48V-mild hybrid powertrain**

Dominik Geringer, University Assistant, Institute for Powertrains and Automotive Technology (IFA), Vienna University of Technology, Austria

15:00 Refreshment break with coffee and tea in the exhibition area

15:30 – 16:30

BATTERY DEVELOPMENT PROCESSES

Moderation: Prof. Dr. Hans-Christian Reuss, Head of the Chair of Motor Vehicle Mechatronics, Institute of Automotive Engineering (IFS), University of Stuttgart, Germany

15:30 **Challenges in battery development – the advantage of FEV Group's validation concept**

Dr. Michael Stapelbroek, Director Battery Systems, Electronics & Electrification, FEV Europe GmbH, Germany [in cooperation with FEV eDLP GmbH; EVA Fahrzeugtechnik GmbH, both Germany]

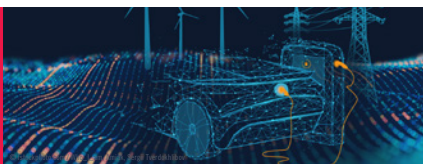
16:00 **Challenges and new methodologies for battery development starting at cell level**

Mareike Schmalz, Project Coordinator, APL Automobil-Prüftechnik Landau GmbH, Germany

16:30 **Closing remarks**

IN CONJUNCTION WITH

## Grid Integration + Electrified Mobility 2021



### Sustainability check 2021

#### / CHARGING INFRASTRUCTURE

Regulations and customer interests

#### / BATTERIES

Technology assessments and developments

#### / GRID INTEGRATION

Challenges and costs



To the Program

Our established ATZlive events **The Powertrain of Tomorrow** and **Grid Integration + Electrified Mobility** now take place simultaneously at the same location.

There will be joint keynote lectures and intensive interdisciplinary exchange in a joint panel discussion, during the breaks and at the social evening event. The participants have the possibility to switch to the lectures of the parallel running conference and thus to broaden their perspective even further.

**See the program online!**

## You have the choice: participate on site or virtually via live stream



Due to the current situation created by Covid-19, the Conferences **The Powertrain of Tomorrow** and **Grid Integration + Electrified Mobility** will take place as a **hybrid event** this year.

The **live stream package** includes all lectures and the panel discussion of both events.

A comfortable event app with live stream offers you Q&A functions, 1:1 video chats with participants, exhibitors and speakers, live surveys and other useful functions, such as your personal digital program overview and a virtual exhibition.

**You will find detailed information on our website.**





### Schaeffler Group

As a leading global supplier to the automotive and industrial sectors, the Schaeffler Group has been driving forward groundbreaking inventions and developments in the fields of motion and mobility for over 70 years. With innovative technologies, products, and services for CO<sub>2</sub>-efficient drives, electric mobility, Industry 4.0, digitalization, and renewable energies, the company is a reliable partner for making motion and mobility more efficient, intelligent, and sustainable. The technology company manufactures high-precision components and systems for drive train and chassis applications as well as rolling and plain bearing solutions for a large number of industrial applications.

The Schaeffler Group generated sales of approximately EUR 14.4 billion in 2019. With around 84,200 employees, Schaeffler is one of the world's largest family companies with approximately 170 locations in over 50 countries. With almost 2,400 patent applications in 2019, Schaeffler is Germany's second most innovative company according to the DPMA (German Patent and Trademark Office).

Cooperation partner

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Elke van Lon  
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Media partners

**MTZ** WORLDWIDE

**ATZ** electronics  
WORLDWIDE

**Registration fee****Participation on site:** € 1,395.– plus VAT**Participation via live stream:** € 995.– plus VAT

This includes the conference documentation, the catering during breaks and the evening event on 27-01-2021. The participants have the possibility to switch to the parallel running conference and thus broaden their perspective. Virtual participation eliminates the catering during breaks and the evening event.

**Date**

27 – 28 January 2021

**Venue**

Congress Park Hanau  
Schlossplatz 1, 63450 Hanau, Germany

or virtually  
via live stream

**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.com/powertrain](http://www.atzlive.com/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.com/powertrain](http://www.atzlive.com/powertrain)

The Powertrain of Tomorrow 2021

27 – 28 January 2021,

Hanau near Frankfurt am Main, Germany or virtually via live stream

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**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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