

- ▶ CO<sub>2</sub> Reduction –  
Ways to Defossilization
- ▶ Electric Vehicles and  
New Battery Technologies
- ▶ Hydrogen –  
Fuel Cell & H<sub>2</sub> Engine
- ▶ New Engine and  
Component Development
- ▶ Drivetrain Electrification –  
Passenger Cars & Commercial Vehicles
- ▶ Synthetic Fuels
- ▶ Exhaust Aftertreatment –  
Challenges of EU7
- ▶ Autonomous Driving
- ▶ Engineering Methods and Test Systems
- ▶ View to the Future

#### Panel Discussion

- ▶ Powertrains for Future Mobility

The top half of the image features a vibrant, abstract background with swirling patterns of yellow, orange, and blue. Silhouettes of people are scattered throughout, some appearing to be in motion. A white rectangular box is centered in the upper half, containing the AVL logo. The logo consists of the letters 'AVL' in a bold, white, sans-serif font on the left, and a stylized white icon on the right. The icon is composed of several curved, overlapping shapes that resemble a flower or a cluster of petals.

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# Vienna Motor Symposium 2022

## 43<sup>rd</sup> International Vienna Motor Symposium 27 – 29 April 2022

### GENERAL INFORMATION

#### Congress with Exhibition

**Dates:**

Wednesday,	27 April 2022, 18.00 – approx. 21.00 hrs. Reception and Opening of the Exhibition
Thursday,	28 April 2022, 7.30 – 18.30 hrs. Symposium and Exhibition 28 April 2022, 20.00 hrs., Departure Hofburg "Wine Heuriger" hosted by the Mayor of Vienna
Friday,	29 April 2022, 8.00 – 18.00 hrs. Symposium and Exhibition

**Congress Venue:**

Conference Centre Hofburg Vienna  
Heldenplatz, 1010 Vienna, Austria

**Chairmen:**

Univ.-Prof. Dr. B. **Geringer**

President of the Austrian Society of Automotive Engineers (ÖVK) and  
Director of the Institute for Powertrains and Automotive Technology (IFA),  
Vienna University of Technology, Getreidemarkt 9, 1060 Vienna, Austria

Univ.-Prof. Dr. H. P. **Lenz**

Honorary President of the Austrian Society of Automotive Engineers (ÖVK)

**Organizer:**

Austrian Society of Automotive Engineers (ÖVK)

Elisabethstrasse 26, 1010 Vienna, Austria

Phone +43/1/585 27 41-0

Telefax +43/1/585 27 41-99

<https://wiener-motorensymposium.at/en/>

[info@oevk.at](mailto:info@oevk.at)

**Organization of the Symposium:**

The International Vienna Motor Symposium is organized by the Austrian Society of Automotive Engineers (ÖVK) and the Institute for Powertrains and Automotive Technology (IFA), Vienna University of Technology.

## ORGANIZATIONAL INFORMATION

### **Registration:**

The registration is possible online at <https://wiener-motorensymposium.at/en/>.

The General Terms and Conditions as well as the Data Protection Statement can also be found at <https://wiener-motorensymposium.at/en/>.

**Registration Fee:** € 2.472,-- incl. 20% VAT

Registration Fee ÖVK Membership: € 2.388,-- incl. 20% VAT

The registration fee includes the admission to the lectures, the exhibition, the web platform, the symposium documents, reception and exhibition opening, the "Wine Heurigen", lunch on Thursday and Friday, coffee during the breaks as well as bus transfer to the airport at the end of the symposium.

Austropa Interconvention will confirm receipt of the online registration immediately, but this is not the authorization to participate in the symposium.

A confirmation of registration (incl. invoice) or another information will follow in a few days.

The Motor Symposium is planned as a 3-day face-to-face event.

If the face-to-face event is cancelled due to Covid, a virtual event will be held to which all participants will be rebooked.

### **Payment:**

The invoice must be paid within 3 weeks.

### **Booking and Cancellation Conditions Symposium Participation:**

Changes and cancellations must be made in writing to Austropa Interconvention (Email: [motoren@vb-mice.at](mailto:motoren@vb-mice.at)).

For cancellation after **11 March 2022**, we are obliged to request full payment of complete registration fees, as all orders will have been placed.

### **Lecture Duration:**

20 minutes each, followed by 10 minutes' discussion

### **Language of Lectures:**

German and English (simultaneous translation)

### **Conference Papers:**

Lecture texts as USB flash drive.

### **Web Platform:**

The web platform of the symposium provides information on the lectures, the lecturers and the exhibition.

From the symposium onwards, the digital congress documents as well as the recordings of the face-to-face sessions and the video presentations of the virtual session will be available there for a limited period.

Participants will receive their login data for the web platform a few days prior to the symposium.

### **Student Registration:**

We offer Austrian and foreign students a limited number of free student places. Certain conditions must be met if you wish to participate in the symposium.

For more detailed information, please visit our website

<https://wiener-motorensymposium.at/en/> where you will find the application form.

The period for submitting applications will end on **28 February 2022**.

### **Optional Bookings:**

- **Proceedings** (in printed form) for an additional charge.
- **Opening of the Exhibition with Reception:**  
Wednesday, 27 April 2022, 18.00 – approx. 21.00 hrs.,  
registration counter will be open.
- **“Wine Heuriger” hosted by the Mayor of Vienna:**  
Heuriger Fuhrfassl-Huber, Thursday, 28 April 2022, 20.00 hrs., Departure Hofburg
- **Bus Service:**  
Friday, 29 April 2022, 18.15 hrs. (at the end of the symposium),  
from entrance Congress Center Hofburg to Vienna Airport (Schwechat).  
Arrival at Vienna Airport approx. 18.45 hrs.  
Buses will be marked “Wiener Motorensymposium”.

### **Hotel Booking:**

Austropa Interconvention has pre-reserved allotments in hotels of different categories in walking distance to the symposium venue. The booking can be arranged together with your registration to the symposium.

### **Booking and Cancellation Conditions Hotel:**

Changes and cancellations must be made in writing to Austropa Interconvention.

Jakov-Lind-Strasse 15, 1020 Vienna, Phone +43/1/588 00/521, Telefax +43/1/588 00/520,  
Email: [motoren@vb-mice.at](mailto:motoren@vb-mice.at)

For cancellation of hotel reservation between **1 March 2022 and 12 April 2022** a charge equivalent to the price of the first night at the hotel will be made. For cancellation after **12 April 2022** or non-occupancy of reserved rooms, the whole amount of the invoice will be charged from the credit card.

### **Exhibition:**

The exhibition will complete the technical programme.

## WEDNESDAY, 27 April 2022

18:00 **Reception and Opening of the Exhibition**  
Registration until 21:00

## THURSDAY, 28 April 2022

## FESTSAAL

07:30 **REGISTRATION**

08:30 **OFFICIAL OPENING**

### **PLENARY OPENING SESSION**

Chairman: Univ.-Prof. Dr. B. **Geringer**, Vienna University of Technology

08:45 Luca **De Meo**, Chief Executive Officer, Philippe **Brunet**, Renault Group Powertrain & EV Engineering SVP, Renault S.A., Boulogne-Billancourt:  
**The Nouvelle Vague, from ICE to E TECH: Embracing the Change with In-House Innovation**

09:05 Wolf-Henning **Scheider**, Chairman of the Board of Management & CEO, ZF Group, Friedrichshafen:

**Next Generation Mobility in Powertrain: now**

09:25 Dipl.-Ing. MBA F. Peter **Mitterbauer**, Chief Executive Officer, Miba AG, Laakirchen:  
**Miba – Technologies for a Cleaner Planet**

09:45 Markus **Schäfer**, Member of the Board of Management of Daimler AG and Mercedes-Benz AG, Chief Technology Officer responsible for Development and Procurement, Daimler AG, Stuttgart:

**VISION EQXX: Mission Efficiency**

10:05 **Discussion of the lectures in this session**

10:30 **Coffee Break**

### **CO<sub>2</sub> REDUCTION – WAYS TO DEFOSSILIZATION**

Chairman: Univ.-Prof. Dr. C. **Beidl**, Darmstadt University of Technology

11:15 Dr. U. **Kramer**, Ford-Werke GmbH, Cologne; Dr. D. **Bothe**, Frontier Economics Ltd., Cologne; F. **Dünnebeil**, ifeu - Institut fuer Energie- und Umweltforschung Heidelberg gGmbH, Heidelberg:  
**Sensible Pathways to Defossilised European Mobility in 2050 on a Cradle-to-Grave Basis**

11:45 H. **Helms**, Dr. K. **Biemann**, J. **Jöhrens**, ifeu, Heidelberg:  
**Strategies and Climate Impacts for Infrastructure Ramp up for the Defossilisation of Roads Goods Transport**

12:15 Dipl.-Ing. F. **Balthasar** MBA, Dr.-Ing. I. **Mikulic**, Dr.-Ing. A. **Kolbeck**, Dr.-Ing. K. **Wilbrand**, Shell Global Solutions (Deutschland) GmbH, Hamburg; Prof. Dr. R. **Cracknell**, Shell, London; K. **Rijken** MA BA, Shell Trading & Supply, Rotterdam; Dr.-Ing. W. **Warnecke**, Shell Energy Deutschland GmbH, Hamburg:  
**Pathways to Meet Renewable Energy Targets in Transport**

12:45 Dipl.-Ing. J. **Rechberger**, Dipl.-Ing. (FH) M. **Rothbart**, Dr. R. von **Helmolt**, Dr. M. **Hauth**, AVL List GmbH, Graz:  
**Hydrogen & E-Fuels as Enablers of a Renewable Energy and Mobility System**

13:15 **Lunch at Hofburg Conference Centre**

## HYDROGEN – H<sub>2</sub> ENGINES FOR PASSENGERS CARS AND COMMERCIAL VEHICLES

Chairman: Univ.-Prof. Dr. H. **Eichlseder**, Graz University of Technology

14:30

Dipl.-Ing. (FH) B. **Raser**, Dr. P. **Kapus**, Dr. Dipl.-Ing. R. **Heindl**,  
Dipl.-Ing. M. **Weißbäck**, Dipl.-Ing. A. **Arnberger**, AVL List GmbH, Graz:  
**High Efficiency Hydrogen Internal Combustion Engine – Carbon-Free  
Powertrain for Passenger Car Hybrids and Commercial Vehicles**

15:00

Dr. X. L. J. **Seykens**, Dr. E. **Doosje**, Dr. C. **Bekdemir**,  
Dipl.-Ing. (FH) P. H. C. **van Gompel**, TNO, Helmond:  
**The Hydrogen ICE for Heavy-Duty Applications: Towards Ultra-Low  
NO<sub>x</sub> Emissions**

15:30

Dipl.-Ing. T. **Korn**, Dipl.-Ing. A. **Sousa**, Dr.-Ing. T. **Ebert**, KEYOU GmbH, Munich:  
**Significant Reasons for H<sub>2</sub> Engines – New Performance Benchmarks with  
Hydrogen Direct Injection**

16:00

Dipl.-Ing. V. **Bevilacqua**, A. **Gallo** MSc, Dipl.-Ing. M. **Böger**,  
Porsche Engineering Services GmbH, Bietigheim-Bissingen:  
**Hydrogen Driven Internal Combustion Engine – High Performance,  
No Emissions**

16:30

**Coffee Break**

## PANEL DISCUSSION: POWERTRAINS FOR FUTURE MOBILITY

17:00

Dipl.-Ing. Otmar **Bitsche**, Director E-Mobility,  
Dr. Ing. h.c. F. Porsche AG, Weissach

Dipl.-Ing. Thomas **Korn**, CEO,  
KEYOU GmbH, Munich

Prof. Dr. Christian **Mohr dieck**, Managing Director,  
cellcentric GmbH & Co. KG, Kirchheim Teck-Nabern

Dipl.-Ing. Jürgen **Schenk**, Senior Executive Adviser,  
P3 automotive GmbH, Stuttgart

Prof. Dr. Robert **Schlögl**, Founding Director,  
Max Planck Institute for Chemical Energy Conversion, Mülheim/Ruhr  
Director, Fritz Haber Institute of Max Planck Society, Berlin

18:30

**End of Programme**

20:00

**Transfer to Wine “Heuriger”**

20:30

**“Heuriger” Evening at the invitation of the Mayor of Vienna.  
Please bring your invitation.**

## DRIVETRAIN ELECTRIFICATION – PASSENGER CARS & COMMERCIAL VEHICLES

Chairman: Univ.-Prof. Dr. S. Pischinger, RWTH Aachen University

- 08:00 P. **Armiroli**, Valeo Powertrain Electrical System, Creteil-Paris:  
**Gearbox Motor Generator 15 kW 48V for Dual Clutch Transmission Gear Box Hybridization**
- 08:30 Dipl.-Ing. J. **Heckelmann**, Dipl.-Ing. L. **Walter**, MAN Truck & Bus SE, Munich:  
**New MAN – A Transformation Based on Battery Electric Commercial Vehicles**
- 09:00 Dipl.-Ing. M. **Weiss**, Dipl.-Ing. G. **Paul**, Dipl.-Ing. J. **Banken**, Dipl.-Ing. L. **Hente**, Dipl.-Ing. A. **Willikens**, Mercedes-Benz AG, Sindelfingen / Untertürkheim:  
**The eDrive of the EQS # Mercedes-Benz AG Ready to Shift from Electric First to Electric Only**
- 09:30 Dr.-Ing. A. **Lowis**, hofer powertrain, Nürtingen:  
**Development of an Advanced 8-Speed Hybrid DCT Transmission for Top Performance Models and Hypercars, Considering Functionality, Packaging Size / Total Weight and Production Costs. Novel Challenges along with Uncovered Optimization Potentials Utilizing Rapid Prototyping and a Truly Iterative Development Approach**

10:00

### Coffee Break

## HYDROGEN – FUEL CELL, ENGINE COMPONENTS AND H<sub>2</sub> STORAGE

Chairman: Univ.-Prof. Dr. B. Geringer, Vienna University of Technology

- 10:30 Prof. Dr. C. **Mohrdieck**, cellcentric GmbH & Co. KG, Kirchheim Teck-Nabern:  
**Fuel Cells in Heavy-Duty Transportation: New Technology – Familiar Business Processes**
- 11:00 Dr.-Ing. T. **Wintrich**, Dr.-Ing. A. **Klonczynski**, Dr. rer. nat. A. **Moritz**, Dipl.-Ing. C. **Uhr**, Dr. rer. nat. P. **Wolfangel**, Dipl.-Ing. K. **Weeber**, Robert Bosch GmbH, Stuttgart; C. **Liao** MSc, Bosch Powertrain Systems Co., Ltd., Wuxi, China:  
**2022: The Launch of the First Bosch Fuel Cell System**
- 11:30 Dr.-Ing. G. **Dober**, Dr.-Ing. G. **Hoffmann**, Dr. techn. W. F. **Piock**, BorgWarner, Luxembourg; L. **Doradoux** MSc, G. **Meissonnier** MSc, E. **Quali** MSc, BorgWarner, France:  
**An Efficient Path to Zero CO<sub>2</sub> Powertrains – BorgWarner’s Hydrogen Injection Systems**
- 12:00 Dipl.-Ing. (FH) Dr. J. **Winklhofer**, Dipl.-Ing. Dr. T. **Stepan**, SAG Innovation GmbH, Lend:  
**Compatibility of Cryogenic Liquid Hydrogen Storage, Fuel Cells and Internal Combustion Engines**

12:30

### Lunch at Hofburg Conference Centre



**ENERGY STORAGE – NEW BATTERY TECHNOLOGIES**Chairman: Univ.-Prof. Dr. G. **Brasseur**, Graz University of Technology

- 13:45 Dr. M. **Stapelbroek**, Dr. A. **Averberg**, D. **Seibert**,  
R. **Stohr**, M. **Hennebrüder**, FEV Europe GmbH, Aachen;  
A. **Sauer**, F. **Pampel**, RWTH Aachen:  
**Tailored Battery Systems for Entry Level up to High Performance Applications**
- 14:15 Dipl.-Kfm. A. **Franz**, A. **Calvosa** MSc, C. **Schön** MSc, LKQ Europe GmbH, Zug;  
Prof. Dr.-Ing. A. **Kampker** MBA, C. **Offermanns** MSc, D. **Klohs** MSc,  
RWTH Aachen University:  
**A Closed-Loop System for Traction Batteries: Critical Elements and Solution Approaches in the Value Chain**
- 14:45 Dipl.-Ing. G. **Stempfer**, Dipl.-Ing. P. **Löffler**,  
MEng P. **Batthyany**, MIBA eMobility GmbH, Laakirchen;  
Dr. R. **Ratzi**, Miba Energy Holding GmbH, Laakirchen:  
**Miba POWERfuse® – The Innovative Pyrotechnic Power Separator Technology**
- 15:15 Dr. H. **Sorger**, KTM Forschungs & Entwicklungs GmbH, Mattighofen:  
**Low Voltage for High Performance**

15:45 **Coffee Break****PLENARY CLOSING SESSION: VIEW TO THE FUTURE**Chairman: Univ.-Prof. Dr. H. **Eichlseder**, Graz University of Technology

- 16:15 Andreas **Gorbach**, Member of the Board of Management of Daimler Truck AG,  
Head of Truck Technology, Daimler Truck AG, Stuttgart:  
**How Trucks Keep the World Moving**
- 16:35 Dr. Frank **Hiller**, Chief Executive Officer, Deutz AG, Cologne:  
**Sustainable Drivetrains for Off-Highway Applications**
- 16:55 Dipl.-Ing. Thomas **Ulbrich**, Member of the Board of Management of the  
Volkswagen Brand responsible for Technical Development, Volkswagen AG, Wolfsburg:  
**Ready for Future – Volkswagen's Way to Zero**
- 17:15 **Discussion of the lectures in this session**
- 17:45 **CLOSING ADDRESS**

18:00 **End of Programme**18:15 **Bus Transfer** from Heldenplatz (Hofburg Conference Centre)  
to Vienna Airport (Schwechat)

07:30 REGISTRATION

08:30

**Live Broadcast**  
of the Plenary Opening Session

10:30

**Coffee Break****HYDROGEN – FUEL CELL & H<sub>2</sub> ENGINE**Chairman: Univ.-Prof. Dr. M. **Bargende**, University of Stuttgart

11:15

L. **Jincheng**, Q. **Dingchao**, H. **Linghai**, M. **Heyang**, Dr. G. **Yanfeng**, G. **Yingjun**,  
Z. **Liming**, S. **Minglu**, CHINA FAW Group Co. Ltd., Changchun, China:  
**FAW High-Efficiency Zero-Emission Miller Cycle Hydrogen Internal  
Combustion Engine for Carbon Neutrality**

11:45

D. **Mumford**, S. **Baker**, S. **Munshi**,  
Westport Fuel Systems Canada Inc., Vancouver, Kanada:  
**High Performance Hydrogen Engine Applications Using Westport  
Fuel Systems' Commercially Available HPDI Technology**

12:15

Dr. E. **Schutting**, Dipl.-Ing. S. **Roiser**, Univ.-Prof. Dr. H. **Eichseder**,  
Ass. Prof. S. **Lux**, Dipl.-Ing. S. **Kleiber**, Graz University of Technology:  
**Hydrogen Engine Exhaust Aftertreatment**

12:45

J. **Op de Beeck**, F. **Jannot**, Plastic Omnium Advanced Innovation and Research,  
Brussels; E. **Deparis**, A. **Seifert**, E. **Wahlmüller**, A. **Closset**, U. **Hannesen**,  
Plastic Omnium New Energies, Paris / Zonhoven / Wels / Fribourg:  
**CO<sub>2</sub> Free Hydrogen Mobility for Passenger Cars without Compromises**

13:15

**Lunch at Hofburg Conference Centre**

**EXHAUST AFTERTREATMENT – CHALLENGES OF EU7**Chairman: Univ.-Prof. Dr. G. **Hohenberg**, Darmstadt University of Technology

14:30 Dipl.-Ing. M. **Cucchi**, Dipl.-Ing. M. **Medda**, Dipl.-Ing. S. **Paltrinieri**,  
Dipl.-Ing. V. **Rossi**, Dipl.-Ing. F. **Rulli**, Dipl.-Ing. R. **Tonelli**, Ferrari, Maranello:  
**Active Heating Devices to Reduce Cold Start Emissions in Sport Cars**

15:00 Dr. J. **Demuyne**, Dr. P. **Mendoza Villafuerte**, D. **Bosteels** MSc MBA,  
AECC, Brussels; Dipl.-Ing. M. **Pannwitz**, Dipl.-Ing. T. **Tietze**,  
Dipl.-Ing. M. **Sens**, IAV GmbH, Berlin:  
**Zero-Impact Emissions from a Gasoline Car with Advanced Emission  
Controls and E-Fuels**

15:30 Dipl.-Ing. R. **Brück**, Dipl.-Ing. K. **Konieczny**,  
Vitesco Technologies Emitec GmbH, Lohmar:  
**Innovative Catalyst System to Achieve EU7 Legislation for Electrified  
Powertrains**

16:00 Dr.-Ing. I. **Grisstede**, Dr.-Ing. S. **Kunert**, Dipl.-Ing. W. **Müller**,  
Dr.-Ing. L. **Mussmann**, Umicore AG & Co. KG, Hanau-Wolfgang:  
**EU7 Legislation – Challenges for the Exhaust Aftertreatment of Gasoline  
Engines**

16:30 **Coffee Break**

17:00

**Live Broadcast**  
of the Panel Discussion

18:30 **End of Programme**

20:00 **Transfer to Wine “Heuriger”**

20:30 **“Heuriger” Evening at the invitation of the Mayor of Vienna.  
Please bring your invitation.**

**SYNTHETIC FUELS**Chairman: Dr. W. **Böhme**, Austrian Society of Automotive Engineers

- 08:00 M. **Hultman** MSc, A. **Karvo** MSc, Neste, Sweden / Finland:  
**Decarbonizing Transportation – Is there a Role for Fuels?**
- 08:30 Dipl.-Ing. (FH) K. **Dums**, Dipl.-Ing. D. **Schwarzenthal**,  
Dipl.-Ing. (FH) M. **Marques**, Dipl.-Ing. H.-P. **Deeg**, Dipl.-Ing. J. **Villforth**,  
Dr. Ing. h.c. F. Porsche AG, Stuttgart;  
Prof. Dr. T. **Garbe**, Volkswagen AG, Wolfsburg;  
Dr.-Ing. H. **Krämer**, AUDI AG, Ingolstadt:  
**Synthetic Fuels: From the Lab to the Road**
- 09:00 Prof. Dr. R. **Schlögl**, Max Planck Institute for Chemical Energy Conversion,  
Mülheim an der Ruhr / Fritz Haber Institute of Max Planck Society, Berlin;  
Dr. E. **Jacob**, Emissionskonzepte Motoren, Bodman-Ludwigshafen:  
**Liquid E-Fuels as Chemical Batteries**
- 09:30 Dr.-Ing. M. **Härtil**, C. **Kraus** MSc, M. **Jaensch** PhD,  
Technical University Munich:  
**Electrification and E-Fuels – The Future of Otto- and Diesel-Engines**

10:00

**Coffee Break****NEW ENGINE DEVELOPMENT / AUTONOMOUS DRIVING**Chairman: Univ.-Prof. Dr. L. **Eckstein**, RWTH Aachen University

- 10:30 Y. **Chao**, K. **Hu**, J. **Yu**, S. **Li**, Y. **Hu**, H. **Wei**, I. **Scholten**, R. **Wang**,  
Ningbo Geely Royal Engine Components Co., Ltd, Ningbo, China:  
**Geely Jet Ignition System for 52.5% Indicated Thermal Efficiency**
- 11:00 Dr.-Ing. N. S. **Al-Hasan**, Dipl.-Ing. J. **Simader**,  
Dipl.-Ing. (FH) S. **Nibler**, BMTS Technology GmbH & Co. KG, Stuttgart;  
Dipl.-Ing. A. **Mayer**, Dipl.-Ing. P. **Müller**, D. **Hain** MSc,  
Schaeffler Technologies AG & Co. KG, Herzogenaurach:  
**Evolution of a Lean SPCCI Engine by Millerization and Electric Turbocharging**
- 11:30 Dipl.-Ing. J. **Lehmann**, Dr.-Ing. P. **Kožuch**, Dipl.-Ing. J. **Kleffel**,  
Dipl.-Ing. (FH) M. L. **Lorenz**, Daimler Truck AG, Stuttgart:  
**OM471 – The Customs Tailored-Made Heavy-Duty Truck Engine for the Global Use at Daimler Truck**
- 12:00 H. **Weber** MSc, J. **Hiller** MSc, Univ.-Prof. Dr.-Ing. L. **Eckstein**,  
RWTH Aachen University; Dr.-Ing. A. **Zlocki**, fka GmbH, Aachen:  
**Evaluation of Large-Scale Pilot Studies on Level 3 Automated Vehicles in Europe**

12:30

**Lunch at Hofburg Conference Centre**

**ENGINE AND TRANSMISSION DEVELOPMENT**Chairman: Assoc. Prof. Dr. P. **Hofmann**, Vienna University of Technology

13:45 Dr. rer. nat K. **Bennewitz**, Dipl.-Ing. S. **Willmann**, Dipl.-Ing. J. **Mühlmann**,  
Dr.-Ing. H. **Hoffmeyer**, Volkswagen AG, Wolfsburg:  
**Ready for Future – Volkswagen’s New TSI-Engine-Generation**

14:15 D. **van der Put** MBA, FEV Group GmbH, Aachen;  
Dr.-Ing. K. **Deppenkemper**, Dr.-Ing. P. **Recker**, S. **Ghetti** MSc,  
Dr.-Ing. D. **Lückmann**, Dr.-Ing. T. **Uhlmann**, Dr.-Ing. C. **Menne**,  
FEV Europe GmbH, Aachen:  
**FEV Pathway towards Next Generation of HD Engines Targeting  
55% BTE**

14:45 C. **Marriott**, A. **Predoehl**, I. **Stahl**, J. **Velosa**,  
General Motors, Warren, USA:  
**The New 1.5L Turbo Engine from General Motors**

15:15 Ir. F. **van der Sluis**, Ing. G. **van Spijk**, L. **Romers** MSc, B. **Mani** MSc,  
Bosch Transmission Technology B.V., Tilburg:  
**Variability of CVT Extends the Repertoire of the Electric Car**

15:45 **Coffee Break**

16:15

**Live Broadcast**  
of the Plenary Closing Session

18:00

**End of Programme**

18:15

**Bus Transfer** from Heldenplatz (Hofburg Conference Centre)  
to Vienna Airport (Schwechat)

Due to the limited number of lecture slots for the face-to-face event in the Vienna Hofburg and the large number of interesting and high-quality submissions, an unmoderated virtual session will be held in addition to the two sessions of the face-to-face event. The videos of the virtual session will not only be available online on the Motor Symposium's web platform but will for the first time also be part of the programme on site in the Vienna Hofburg.

07:30 **REGISTRATION**

08:30

**Live Broadcast**  
of the Plenary Opening Session

10:30

**Coffee Break**

### **NEW BATTERY TECHNOLOGIES**

11:15

Dr.-Ing. G. **Rösel**, J. **Popov**, A. **Reich**, M. **Hackelsperger**, M. **Glötzl**, R. **Knorr**,  
Dr. rer. nat. C. **Preis**, Vitesco Technologies GmbH, Regensburg:  
**New Generation of DCDC Converters with Gallium Nitride Semiconductors,  
Setting the Benchmark in Power Density and Sustainability for a Vehicle  
Electrical Power Supply and Onboard Chargers**

11:45

Dipl.-Ing. M. **Hackmann**, Dipl.-Ing. J. **Schenk**, Dr. E. **Kefler**, I. **Miller**, R. **Stanek**,  
P3 automotive GmbH, Stuttgart:  
**Opportunities and Potentials for New Battery Technologies – Will Li-Ion Battery  
Technology Dominate the Electric Passenger Car Market in the Long Term?**

12:15

Dr. B. **Brunnsteiner**, Dr. W. **Prochazka**, AVL List GmbH, Graz:  
**An Efficient Pathway to a Safe Battery in Everyone's Garage**

12:45

Dr. P. **Sinha**, G. **Damblanc**, E. **Bernardon**, C. **Mazeaud**,  
Siemens Digital Industries Software, Plano, USA / Lyon / Waltham, USA / Bilbao:  
**Accelerate Battery Design, Manufacturing and Vehicle Integration with the  
Siemens Digital Twin**

13:15

Dr. M. **Stapelbroek**, A. **Averberg**, R. **Beykirch**, FEV Europe GmbH, Aachen;  
H. **Sonntag**, FEV eDLP GmbH, Aachen; F. **Elsner**, A. **Sauer**, F. **Pampel**,  
RWTH Aachen University:  
**No Propagation – Safety Target for Premium Battery Systems**

13:45

**Lunch at Hofburg Conference Centre**

**LATEST RESULTS IN ENGINE AND COMPONENT DEVELOPMENT**

- 14:30 Dr.-Ing. C. **Jörg**, Y. **Yasukawa**, A. **Kleinmann**, Hitachi Astemo Europe GmbH, Munich; A. **Miyamoto**, Dr.-Ing. H. **Sauerland**, Hitachi Europe GmbH, Munich; N. **Yoneya**, Hitachi Ltd., Tokyo, Japan; F. **Fellner**, P. **Fitz**, Prof. Dr.-Ing. G. **Wachtmeister**, Technical University Munich:  
**Model-Based Gasoline Direct-Injection Control for Robust Emission Reduction**
- 15:00 C. L. F. **de Andrade** MSc, Dr. C. S. **Cabezas**, Dr. L. C. **Guedes**, Dr. W. L. **Guesser**, Dr. R. **Marquard**, Tupy Fundições, Brazil; M. **Jeremy**, E. **Zents**, Ricardo Ltd, United Kingdom; Dr. S. **Dawson**, SinterCast AB, Sweden:  
**The Petrol Engine Cylinder Block Reinvented: Cast Iron with the Same Weight as Aluminium**
- 15:30 S. **Li**, L. **Li**, H. **Wei**, J. **Ma**, H. **Su**, H. **Ke**, Y. **Cao**, J. **Yu**, Geely Royal Engine Components Company, Ningbo, China:  
**Development of a Two-Cylinder Two-Stroke Engine for Range Extender Applications**
- 16:00 N. L. **Bagal**, Eaton, Southfield, USA;  
C. **Bitsis**, Southwest Research Institute, San Antonio, USA:  
**Analytical and Experimental Evaluation of Next Generation High Efficiency Powertrains with 48V EGR Pump**

16:30 **Coffee Break**

**ELECTRIC VEHICLES**

- 17:00 Dipl.-Ing. R. **Schmid**, Robert Bosch GmbH, Stuttgart:  
**The Battery Electric Vehicle – Challenges on the Way from Niche to Mass Market: Technological Progress as a Growth Driver**
- 17:30 Dr. G. **Domingues**, Eng M. **Vanderlip** MSc, Dr. R. **Blissenbach**, BorgWarner, Landskrona / Auburn Hills, USA:  
**Flexible Integrated Drive Modules for Future EVs**

**CO<sub>2</sub> REDUCTION AND FLEET CONSUMPTION**

- 18:00 Dipl.-Ing. M. **Kühn**, Dr.-Ing. P. **Burghardt**, E@motion GmbH, Ebersbach an der Fils:  
**Possibilities for CO<sub>2</sub> Reduction of Heavy Commercial Vehicles with Internal Combustion Engines in Stock in Germany**

18:30 **End of Programme**

20:00 **Transfer to Wine “Heuriger”**

20:30 **“Heuriger” Evening at the invitation of the Mayor of Vienna.  
Please bring your invitation.**

**FUEL CELL**

- 08:00 Dr. E. **Wahlmüller**, Dipl.-Ing. Dr. techn. C. **Ahamer** BSc, Dipl.-Ing. M. **Zarhuber**, Plastic Omnium New Energies Wels GmbH, Wels; Dipl.-Ing. Dr. techn. A. **Trattner**, Dipl.-Ing. Dr. techn. P. **Pertl**, Dipl.-Ing. Dr. techn. C. **Zinner**, HyCentA Research GmbH, Graz; Dipl.-Ing. (FH) C. **Doppler**, Virtual Vehicle Research GmbH, Graz:  
**Optimized Cathode Sub-System for Heavy-Duty Fuel Cell Systems**
- 08:30 Dr. B. **Lechner**, Dipl.-Ing. R. **Schruth**, Dipl.-Ing. B. **Fischbacher**, A. **Cajic**, Virtual Vehicle Research Center, Graz;  
Dr. C. **Ahamer**, Plastic Omnium New Energies Wels GmbH, Wels:  
**Cathodic Gaseous Analysis for Fuel Cell Vehicles in Real Driving Conditions**
- 09:00 Dipl.-Ing. T. **Aschauer**, Dr. E. **Schutting**, Univ.-Prof. Dr. H. **Eichlseder**, Graz University of Technology; Dipl.-Ing. U. **Hammerle**, Dr. D. **Lindenthaler**, F. **Falbesoner** MSc, Liebherr-Werk Telfs GmbH, Telfs:  
**Hydrogen Powered Tele-Handler Concept**
- 09:30 Dipl.-Ing. J. **Schenk**, R. **Hassoun**, J. **Groß**, P3 automotive GmbH, Stuttgart:  
**TCO as a Key Success Factor for Hydrogen Fuel Cells in Fleet Business, Logistics and Delivery Traffic**

10:00

**Coffee Break****EXHAUST AFTERTREATMENT**

- 10:30 Dipl.-Ing. B. **Lindemann**, Dipl.-Chem. I. **Zirkwa**, Dipl.-Ing. D. **Dohse**, Dipl.-Ing. H. **Schröter**, HJS Emission Technology GmbH & Co KG, Menden;  
Dr. P. **Recker**, Dipl.-Ing. T. **Wilkes**, FEV Europe GmbH, Aachen:  
**The Self-Sufficient Exhaust Aftertreatment System for Compliance with EU VII**
- 11:00 E. **Jean**, M. **Capirchia**, Dr. C. **Herbers**, Faurecia Clean Mobility, Bavans / Augsburg:  
**Electrically Heated Catalyst for Euro7 Hybrid Vehicles**

**ENGINEERING METHODS AND TEST SYSTEMS**

- 11:30 Dipl.-Ing. K. **Huber**, Magna Powertrain, Lannach;  
Dipl.-Ing. P. **Laaber**, Dr. A. **Sorgdrager**, Magna Powertrain ECS, St. Valentin;  
Dipl.-Ing. D. **Lechleitner**, Dipl.-Ing. M. **Hofstetter**, Graz University of Technology:  
**Multi-Objective System Optimization by Means of Evolutionary Algorithms for Electric Powertrain Development: Magna-OPED**
- 12:00 Dr. M. **Wipfler**, Dipl.-Ing. B. **Pressl**, KS Engineers, Graz;  
Dr. P. **Piecha**, IPG Automotive GmbH, Karlsruhe:  
**Range Prediction with the Support of an Integration Test Bench**

12:30

**Lunch at Hofburg Conference Centre**



**AUTONOMOUS DRIVING**

13:15 S. **Petrovich** MSc, A. **Morate** MSc, P. **Nordqvist** MSc,  
A. **Karlsson** MSc, M. **Andersson** BSc, J. **Hagberg** MSc,  
China Euro Vehicle Technology AB, Gothenburg:  
**Bridging the Gap from L2 to L4 Autonomous Driving Systems**

13:45 M. **Herrmann**, Dr. M. **Kochem**, IPG Automotive GmbH, Karlsruhe:  
**Handling the Increasing Complexity in the Area of SAE level 3+ Development**

**H<sub>2</sub> COMBUSTION ENGINE**

14:15 K. **Klepatz** MSc, R. **Tempelhagen** MSc, A. **Dafis** MSc,  
Prof. Dr.-Ing. H. **Rottengruber**, Otto von Guericke University Magdeburg;  
Dipl.-Ing. L. **Kniestedt**, M. **Cech** MSc, WTZ Roßlau gGmbH, Dessau-Roßlau:  
**Potential Analysis of an Emission-Free Hydrogen Closed-Cycle-Engine**

14:45 Dr.-Ing. L. **Virnich**, Dr.-Ing. J. **Schaub**, Dipl.-Ing A. **Müller**, FEV Europe GmbH,  
Aachen; Dipl.-Ing (FH), D. **van der Put** MBA, FEV Group GmbH, Aachen:  
**Powertrain Layout Optimization to Maximize Benefits of a H<sub>2</sub> Internal  
Combustion Engine**

**THERMAL MANAGEMENT**

15:15 Dipl.-Ing. T. **Arnold**, Dr.-Ing. D. **Backofen**, Dr.-Ing. C. **Danzer**,  
Dr.-Ing. A. **Fandakov**, Dipl.-Ing. M. **Kratzsch**, Dipl.-Ing. R. **Mehnert**,  
Dipl.-Ing. K. **Mueller**, Dipl.-Ing. J. **Schaeffner**, Dipl.-Ing. M. **Sens**,  
Dipl.-Ing. R. **Wascheck**, IAV GmbH, Berlin:  
**Thermomanagement – the Basis for Highly Efficient and Durable Powertrain  
Concepts as well as Electric Storage Systems**

15:45 **Coffee Break**

16:15 **Live Broadcast**  
of the Plenary Closing Session

18:00 **End of Programme**

18:15 **Bus Transfer** from Heldenplatz (Hofburg Conference Centre)  
to Vienna Airport (Schwechat)



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