43rd International Vienna Motor Symposium
27 – 29 April 2022

- CO₂ Reduction – Ways to Defossilization
- Electric Vehicles and New Battery Technologies
- Hydrogen – Fuel Cell & H₂ 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 New AVL
Adaptable to Change

AVL is the world’s largest independent company for development, simulation and testing in the automotive industry, and in other sectors. Drawing on its pioneering spirit, the company provides concepts, solutions and methodologies to shape future mobility trends.

www.avl.com
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

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.
**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).

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 an 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 Fuhrgassl-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

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**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:30</td>
<td><strong>REGISTRATION</strong></td>
</tr>
<tr>
<td>08:30</td>
<td><strong>OFFICIAL OPENING</strong></td>
</tr>
<tr>
<td>08:45</td>
<td><strong>PLENARY OPENING SESSION</strong></td>
</tr>
<tr>
<td></td>
<td>Chairman: Univ.-Prof. Dr. B. Geringer, Vienna University of Technology</td>
</tr>
<tr>
<td>08:45</td>
<td>Luca De Meo, Chief Executive Officer, Philippe Brunet, Renault Group</td>
</tr>
<tr>
<td></td>
<td>Powertrain &amp; EV Engineering SVP, Renault S.A., Boulogne-Billancourt:</td>
</tr>
<tr>
<td></td>
<td>The Nouvelle Vague, from ICE to E TECH: Embracing the Change with In-House Innovation</td>
</tr>
<tr>
<td>09:05</td>
<td>Wolf-Henning Scheider, Chairman of the Board of Management &amp; CEO,</td>
</tr>
<tr>
<td></td>
<td>ZF Group, Friedrichshafen:</td>
</tr>
<tr>
<td></td>
<td><strong>Next Generation Mobility in Powertrain: now</strong></td>
</tr>
<tr>
<td>09:25</td>
<td>Dipl.-Ing. MBA F. Peter Mitterbauer, Chief Executive Officer, Miba AG,</td>
</tr>
<tr>
<td></td>
<td>Laakirchen:</td>
</tr>
<tr>
<td></td>
<td><strong>Miba – Technologies for a Cleaner Planet</strong></td>
</tr>
<tr>
<td>09:45</td>
<td>Markus Schäfer, Member of the Board of Management of Daimler AG and</td>
</tr>
<tr>
<td></td>
<td>Mercedes-Benz AG, Chief Technology Officer responsible for Development and</td>
</tr>
<tr>
<td></td>
<td>Procurement, Daimler AG, Stuttgart:</td>
</tr>
<tr>
<td></td>
<td><strong>VISION EQXX: Mission Efficiency</strong></td>
</tr>
<tr>
<td>10:05</td>
<td>Discussion of the lectures in this session</td>
</tr>
<tr>
<td>10:30</td>
<td><strong>Coffee Break</strong></td>
</tr>
</tbody>
</table>

**CO₂ REDUCTION – WAYS TO DEFOSSILIZATION**  
Chairman: Univ.-Prof. Dr. C. Beidl, Darmstadt University of Technology

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:15</td>
<td>Dr. U. Kramer, Ford-Werke GmbH, Cologne; Dr. D. Bothe,</td>
</tr>
<tr>
<td></td>
<td>Frontier Economics Ltd., Cologne; F. Dünnebeil, ifeu - Institut fuer</td>
</tr>
<tr>
<td></td>
<td>Energie- und Umweltforschung Heidelberg gGmbH, Heidelberg:</td>
</tr>
<tr>
<td></td>
<td>**Sensible Pathways to Defossilised European Mobility in 2050 on a</td>
</tr>
<tr>
<td></td>
<td>Cradle-to-Grave Basis**</td>
</tr>
<tr>
<td>11:45</td>
<td>H. Helms, Dr. K. Biemann, J. Jöhrens, ifeu, Heidelberg:</td>
</tr>
<tr>
<td></td>
<td>**Strategies and Climate Impacts for Infrastructure Ramp up for the</td>
</tr>
<tr>
<td></td>
<td>Defossilisation of Roads Goods Transport**</td>
</tr>
<tr>
<td>12:15</td>
<td>Dipl.-Ing. F. Balthasar MBA, Dr.-Ing. I. Mikulic, Dr.-Ing. A. Kolbeck,</td>
</tr>
<tr>
<td></td>
<td>Dr.-Ing. K. Wilbrand, Shell Global Solutions (Deutschland) GmbH, Hamburg;</td>
</tr>
<tr>
<td></td>
<td>Prof. Dr. R. Cracknell, Shell, London; K. Rijken MA BA, Shell Trading &amp; Supply, Rotterdam; Dr.-Ing. W. Warnecke, Shell Energy Deutschland GmbH, Hamburg:</td>
</tr>
<tr>
<td></td>
<td><strong>Pathways to Meet Renewable Energy Targets in Transport</strong></td>
</tr>
<tr>
<td>12:45</td>
<td>Dipl.-Ing. J. Rechberger, Dipl.-Ing. (FH) M. Rothbart, Dr. R. von Helmolt,</td>
</tr>
<tr>
<td></td>
<td>Dr. M. Hauth, AVL List GmbH, Graz:</td>
</tr>
<tr>
<td></td>
<td><strong>Hydrogen &amp; E-Fuels as Enablers of a Renewable Energy and Mobility System</strong></td>
</tr>
<tr>
<td>13:15</td>
<td>Lunch at Hofburg Conference Centre</td>
</tr>
</tbody>
</table>
HYDROGEN – H₂ 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 NOₓ Emissions

15:30
Dipl.-Ing. T. Korn, Dipl.-Ing. A. Sousa, Dr.-Ing. T. Ebert, KEYOU GmbH, Munich:
Significant Reasons for H₂ 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 Mohrdieck, Managing Director,
cellcentric GmbH & Co. KG, Kirchheim Teck-Nabern

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

Prof. Dr. Robert Schügl, 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.
<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00</td>
<td>P. Armirol, Valeo Powertrain Electrical System, Creteil-Paris</td>
<td>Gearbox Motor Generator 15 kW 48V for Dual Clutch Transmission Gear Box Hybridization</td>
</tr>
<tr>
<td>08:30</td>
<td>Dipl.-Ing. J. Heckelmann, Dipl.-Ing. L. Walter, MAN Truck &amp; Bus SE, Munich</td>
<td>New MAN – A Transformation Based on Battery Electric Commercial Vehicles</td>
</tr>
<tr>
<td>09:00</td>
<td>Dipl.-Ing. M. Weiss, Dipl.-Ing. G. Paul, Dipl.-Ing. J. Banken, Dipl.-Ing. L. Henle, Dipl.-Ing. A. Willikens, Mercedes-Benz AG, Sindelfingen / Untertürkheim</td>
<td>The eDrive of the EQS # Mercedes-Benz AG Ready to Shift from Electric First to Electric Only</td>
</tr>
<tr>
<td>09:30</td>
<td>Dr.-Ing. A. Lowis, hofer powertrain, Nürtingen</td>
<td>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</td>
</tr>
<tr>
<td>10:00</td>
<td></td>
<td>Coffee Break</td>
</tr>
<tr>
<td>10:30</td>
<td>Prof. Dr. C. Mohrdieck, cellcentric GmbH &amp; Co. KG, Kirchheim Teck-Nabern</td>
<td>Fuel Cells in Heavy-Duty Transportation: New Technology – Familiar Business Processes</td>
</tr>
<tr>
<td>11:00</td>
<td>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</td>
<td>2022: The Launch of the First Bosch Fuel Cell System</td>
</tr>
<tr>
<td>11:30</td>
<td>Dr.-Ing. G. Dober, Dr.-Ing. G. Hoffmann, Dr. techn. W. F. Piock, BorgWarner, Luxembourg; L. Doradoux MSc, G. Meissonnier MSc, E. Ouali MSc, BorgWarner, France</td>
<td>An Efficient Path to Zero CO2 Powertrains – BorgWarner’s Hydrogen Injection Systems</td>
</tr>
<tr>
<td>12:00</td>
<td>Dipl.-Ing. (FH) Dr. J. Winkthofer, Dipl.-Ing. Dr. T. Stepan, SAG Innovation GmbH, Lend</td>
<td>Compatibility of Cryogenic Liquid Hydrogen Storage, Fuel Cells and Internal Combustion Engines</td>
</tr>
<tr>
<td>12:30</td>
<td></td>
<td>Lunch at Hofburg Conference Centre</td>
</tr>
</tbody>
</table>
**FRIDAY, 29 April 2022**

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

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Presentation Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:45</td>
<td>Dr. M. Stapelbroek, Dr. A. Averberg, D. Seibert, R. Stohr, M. Hennebrüder, A. Sauer, F. Pampel</td>
<td>Tailored Battery Systems for Entry Level up to High Performance Applications</td>
</tr>
<tr>
<td>14:15</td>
<td>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</td>
<td>A Closed-Loop System for Traction Batteries: Critical Elements and Solution Approaches in the Value Chain</td>
</tr>
<tr>
<td>14:45</td>
<td>Dipl.-Ing. G. Stempfer, Dipl.-Ing. P. Löffler, MEng P. Batthyany, MIBA eMobility GmbH, Laakirchen; Dr. R. Ratzi, Miba Energy Holding GmbH, Laakirchen</td>
<td>Miba POWERfuse® – The Innovative Pyrotechnic Power Separator Technology</td>
</tr>
<tr>
<td>15:15</td>
<td>Dr. H. Sorger, KTM Forschungs &amp; Entwicklungs GmbH, Mattighofen</td>
<td>Low Voltage for High Performance</td>
</tr>
</tbody>
</table>

**15:45** Coffee Break

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

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Presentation Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:15</td>
<td>Andreas Gorbach, Member of the Board of Management of Daimler Truck AG, Head of Truck Technology, Daimler Truck AG, Stuttgart</td>
<td>How Trucks Keep the World Moving</td>
</tr>
<tr>
<td>16:35</td>
<td>Dr. Frank Hiller, Chief Executive Officer, Deutz AG, Cologne</td>
<td>Sustainable Drivetrains for Off-Highway Applications</td>
</tr>
<tr>
<td>16:55</td>
<td>Dipl.-Ing. Thomas Ulbrich, Member of the Board of Management of the Volkswagen Brand responsible for Technical Development, Volkswagen AG, Wolfsburg</td>
<td>Ready for Future – Volkswagen’s Way to Zero</td>
</tr>
<tr>
<td>17:15</td>
<td></td>
<td>Discussion of the lectures in this session</td>
</tr>
<tr>
<td>17:45</td>
<td></td>
<td>CLOSING ADDRESS</td>
</tr>
<tr>
<td>18:00</td>
<td></td>
<td>End of Programme</td>
</tr>
<tr>
<td>18:15</td>
<td><strong>Bus Transfer</strong> from Heldenplatz (Hofburg Conference Centre) to Vienna Airport (Schwechat)</td>
<td></td>
</tr>
</tbody>
</table>
Liv Broadcast
of the Plenary Opening Session

Coffee Break

HYDROGEN – FUEL CELL & H₂ 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. Eichlseder, Ass. Prof. S. Lux, Dipl.-Ing. S. Kleiber, Graz University of Technology:
Hydrogen Engine Exhaust Aftertreatment

CO₂ Free Hydrogen Mobility for Passenger Cars without Compromises

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

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:30</td>
<td>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: <em>Active Heating Devices to Reduce Cold Start Emissions in Sport Cars</em></td>
</tr>
<tr>
<td>15:00</td>
<td>Dr. J. Demuynck, 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: <em>Zero-Impact Emissions from a Gasoline Car with Advanced Emission Controls and E-Fuels</em></td>
</tr>
<tr>
<td>16:00</td>
<td>Dr.-Ing. I. Grisstede, Dr.-Ing. S. Kunert, Dipl.-Ing. W. Müller, Dr.-Ing. L. Mussmann, Umicore AG &amp; Co. KG, Hanau-Wolfgang: <em>EU7 Legislation – Challenges for the Exhaust Aftertreatment of Gasoline Engines</em></td>
</tr>
<tr>
<td>16:30</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>17:00</td>
<td>Live Broadcast of the Panel Discussion</td>
</tr>
<tr>
<td>18:30</td>
<td>End of Programme</td>
</tr>
<tr>
<td>20:00</td>
<td>Transfer to Wine “Heuriger”</td>
</tr>
<tr>
<td>20:30</td>
<td>“Heuriger” Evening at the invitation of the Mayor of Vienna. Please bring your invitation.</td>
</tr>
</tbody>
</table>
FRIDAY, 29 April 2022

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. Härtl, 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
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:15</td>
<td>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</td>
<td>FEV Group GmbH, Aachen: FEV Pathway towards Next Generation of HD Engines Targeting 55% BTE</td>
</tr>
<tr>
<td>14:45</td>
<td>C. Marriott, A. Predoehl, I. Stahl, J. Velosa, General Motors, Warren, USA</td>
<td>General Motors: The New 1.5L Turbo Engine from General Motors</td>
</tr>
<tr>
<td>15:15</td>
<td>Ir. F. van der Sluis, Ing. G. van Spijk, L. Romers MSc, B. Mani MSc, Bosch Transmission Technology B.V., Tilburg</td>
<td>Bosch Transmission Technology B.V.: Variability of CVT Extends the Repertoire of the Electric Car</td>
</tr>
<tr>
<td>15:45</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>16:15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18:15</td>
<td>End of Programme</td>
<td></td>
</tr>
<tr>
<td>18:15</td>
<td>Bus Transfer from Heldenplatz (Hofburg Conference Centre) to Vienna Airport (Schwechat)</td>
<td></td>
</tr>
</tbody>
</table>
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. Keßler, 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. Brunsteiner, 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**

### CO₂ REDUCTION AND FLEET CONSUMPTION

18:00

Dipl.-Ing. M. Kühn, Dr.-Ing. P. Burghardt, E@motion GmbH, Ebersbach an der Fils:

**Possibilities for CO₂ 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**

### 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 from HJS 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**
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:15</td>
<td><strong>AUTONOMOUS DRIVING</strong></td>
<td>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</td>
</tr>
<tr>
<td>13:45</td>
<td></td>
<td>M. Herrmann, Dr. M. Kochem, IPG Automotive GmbH, Karlsruhe: Handling the Increasing Complexity in the Area of SAE level 3+ Development</td>
</tr>
<tr>
<td>14:15</td>
<td><strong>H₂ COMBUSTION ENGINE</strong></td>
<td>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</td>
</tr>
<tr>
<td>14:45</td>
<td></td>
<td>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 H₂ Internal Combustion Engine</td>
</tr>
<tr>
<td>15:45</td>
<td><strong>Coffee Break</strong></td>
<td></td>
</tr>
<tr>
<td>16:15</td>
<td><strong>Live Broadcast</strong></td>
<td></td>
</tr>
<tr>
<td>16:15</td>
<td>of the Plenary Closing Session</td>
<td></td>
</tr>
<tr>
<td>18:00</td>
<td><strong>End of Programme</strong></td>
<td></td>
</tr>
<tr>
<td>18:15</td>
<td><strong>Bus Transfer</strong></td>
<td>Bus Transfer from Heldenplatz (Hofburg Conference Centre) to Vienna Airport (Schwechat)</td>
</tr>
</tbody>
</table>
INNOVATIVE PRÜFTECHNIK FÜR ANTRIEBSKONZEPTE DER ZUKUNFT

Umfangreiche Systemlösungen für HEV, PHEV, BEV, FCEV, H2, e-FUELs, Systemabsicherung und Test von ADAS aus einer Hand.

Baiernstrasse 122a · 8052 Graz · Austria · T +43 316 5995 0 · office@ksengineers.at

www.ksengineers.at
Creating a better world of mobility, responsibly.

We see a future where everyone can live and move without limitations. That’s why we are developing technologies, systems and concepts that make vehicles safer and cleaner, while serving our communities, the planet and, above all, people.

Forward. For all.
The all-electric **ID.4 GTX**

with all-wheel drive

**Test drive now**

Sporty like a GTI, comfortable like an SUV and sustainable like an ID. With the new ID.4 GTX you no longer need to make compromises. Equipped as standard with LED matrix headlights, heat pump, comfort package plus, exterior style package, 20-inch alloy wheels and much more.

Electricity consumption: 18.4 – 18.9 kWh/100 km, CO₂ emission 0 g/km. Icon picture. 11/2021.

volkswagen.at