

MOTOR & UMWELT – ENGINE & ENVIRONMENT
The Trend Conference in Graz

June!

TOP LEVEL SPEAKERS,
TEST DRIVES



Program

Powertrains for the Chinese Market

A CHALLENGE FOR THE GLOBAL AUTOMOTIVE INDUSTRY

28th International AVL Conference "Engine & Environment"
June 9th – 10th 2016, Helmut-List-Halle, Graz, Austria

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& Environment
Mobile App.





China has emerged to become the world's largest and also highly attractive vehicle market. However, it is also characterized by extremely high market dynamics. Customers' buying behavior, fuel economy and emission legislation, plus state interventions are subject to frequent changes. Recent car sales statistics indicate some market uncertainties. The severe pollution problems in China's mega cities will also result in one of the world's most stringent emission legislations. China will increasingly become a dominant driver for global technology development to meet the tighter fuel consumption regulations under market specific boundaries

Prof. Dr. h.c. Helmut List
Chairman and CEO
AVL List GmbH

Dr. Robert Fischer
Executive Vice President, Engineering and Technology
Powertrain Systems , AVL List GmbH

such as fuel quality, customer driving behavior, and production requirements. Possessing a comprehensive insight into the specific economic boundary conditions and the dynamics of the Chinese market is one of the greatest challenges affecting the development of global powertrain technologies and is a basis for economic success in this market.

The 28th international AVL conference "Engine & Environment" is THE "Inside China Conference" targeting all aspects of the powertrain for China's automotive future.

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Please see attachment for registration and hotel reservation.

Subject to modifications.

GENERAL INFORMATION

Conference Office: AVL List GmbH,
Hans-List-Platz 1, A-8020 Graz,
Tel.: +43 (316) 787 927,
Telefax: +43 (316) 231123 4490,
E-Mail: event@avl.com

Conference Venue: Helmut-List-Halle,
Waagner-Biro-Straße 98a, A-8020 Graz

Registration: In the Helmut-List-Halle on
Thursday, June 9th, 2016

Conference Fee: € 1.190,- plus 20 % tax,
Students € 110,- plus 20 % tax,
Free of charge for members of the press.
Fees include proceedings, 2 lunches and
snacks, social evening events.

Conference Languages: German and English
(simultaneous translation)

Conference Documents: An order form for
additional conference documents is attached.
Additional conference documents are also
available at the registration desk.
(price: € 140,- plus 10 % tax)

Hotel Reservation: Please see the reservation
form attached.

Arrival: By plane: Graz-Thalerhof, by train: Graz
Main Station, by car: see map of Graz (page 11)

Evening Program:
AVL Test Track in Gratkorn: June 8th, 15:00
with Welcome Reception at 19:00.
Social Evening: June 9th, 19:30 at the
"Kasematten" at the Schlossberg

Partners' Program:
June 9th, 10:00, Kunsthaus Graz: Architecture
& Art (Guided Tour incl. City Tour and Snack)

PRESENTING AUTHORS



CONFERENCE AND SESSION CHAIRMAN

Dr. Robert Fischer, Executive Vice President Engineering and Technology Powertrain Systems, AVL List GmbH

Prof. Dr. h.c. Helmut List, Chairman and CEO, AVL List GmbH

Siegfried Nagl, Mayor of the City of Graz

Hermann Schützenhöfer, Governor of the province of Styria

Dr. Frank Beste, TechCenter Manager AVL Shanghai, AVL List GmbH

Christian Chapelle, VP for Powertrains and Chassis Engineering, PSA Peugeot Citroën Group

Dr. Won Suk Cho, Technical Advisor, LG Chem, Ltd.

Prof. Dr. Peter Gutzmer, Deputy CEO and CTO, Schaeffler AG

Ni Hong, Director New Vehicle Environmental Approval Office, Vehicle Emission Control Center, Ministry of Environmental Protection

Dr. Paul Kapus, Manager Gasoline Engine Development and Concept Cars, Engineering and Technology Powertrain Systems, AVL List GmbH

Dr. Christian Köhler, Partner, Strategy Engineers GmbH & Co. KG

Thomas Körfer, Group Vice President Light-Duty-Diesel, FEV Group Holding GmbH

Dr. Jun Li (Academician of Chinese Academy of Engineering) Vice Chief Engineer of China FAW, President of China FAW R&D Centre, China FAW Group Corporation

Eike Martini, Director System Application, Continental Automotive GmbH

Daniel Nicholson, Vice President Global Powertrain, General Motors

Thomas Pfund, Vice President eMobility, LuK GmbH & Co. KG

Michael Rafetzeder, Head of Product Development Center Semi-Permanent-Mould, Nemak Linz GmbH

Ingo Scholten, Executive Director, SAIC

Dr. Dieter Strobl, Department Manager, BMW Group

Antoine Vignon, Chief Engineer for hybrid gearbox development, RENAULT

Dr. Wolfgang Warneke, Chief Scientist Mobility Shell, Shell Global Solutions



CHAIRMEN

Dr. Robert Fischer, AVL List GmbH

Prof. Dr. Helmut Eichlseder, University of Technology Graz

Prof. Dr. Michael Bargende, Research Institute of Automotive Engineering and Vehicle Engines Stuttgart

Prof. Dr. Ferit Küçükay, University of Technology Braunschweig

Prof. Dr. Hans Peter Lenz, Austrian Society of Automotive Engineers

PANEL DISCUSSION

Moderator: Ulrich Walter M.A.

Members (in alphabetical order):

Dr. Wolfgang Demmelbauer-Ebner, Head of Gasoline Engine Development, Volkswagen AG Wolfsburg

Prof. Dr. Peter Gutzmer, Deputy CEO and CTO, Schaeffler AG

Michael Laske, Head of AVL Liaison Beijing, AVL List GmbH

Daniel Nicholson, Vice President Global Powertrain, General Motors

Ingo Scholten, Executive Director, SAIC

Dr. Wolfgang Warnecke, Chief Scientist Mobility Shell, Shell Global Solutions

CONFERENCE PROGRAM – WEDNESDAY, JUNE 8TH, 2016

15:00	Welcome Reception at the AVL Test Track in Gratkorn at the invitation of Provincial Governor Hermann Schützenhöfer, TEST DRIVE START 15:00, opening address 19:00
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CONFERENCE PROGRAM – THURSDAY, JUNE 9TH, 2016

Conference and Session Chairman: Dr. Robert Fischer, AVL List GmbH	
09:00–09:10	Welcome Address Prof. Dr. h.c. Helmut List, Chairman and CEO, AVL List GmbH
09:10–09:20	Welcome , Siegfried Nagl, Mayor of the City of Graz
09:20–09:30	Opening of the Conference Hermann Schützenhöfer, Governor of the province of Styria
09:30–10:00	The Drivers for Technology Development of Automotive Powertrains in China Dr. Jun Li (Academician of Chinese Academy of Engineering), Vice Chief Engineer of China FAW, President of China FAW R&D Center, China FAW Group Corporation
10:00–10:30	Interesting Times: The Future of Personal Mobility in China Daniel Nicholson, Vice President Global Powertrain, General Motors
10:30–11:15	Coffee Break
11:15–11:45	How to Build a Powertrain Strategy for China in an Unstable Context Christian Chapelle, VP for Powertrains and Chassis Engineering, PSA Peugeot Citroën Group
11:45–12:15	China's Powertrain Challenge – The Global Opportunity! Ingo Scholten, Executive Director, SAIC
12:15–14:00	Lunch

CONFERENCE PROGRAM – THURSDAY, JUNE 9TH, 2016

Chairman: Prof. Dr. Helmut Eichlseder, University of Technology Graz	
14:00–14:30	China 6 Light Duty Vehicle Legislation Ni Hong, Director New Vehicle Environmental Approval Office, Vehicle Emission Control Center, Ministry of Environmental Protection
14:30–15:00	The Future of PC Diesel in Chinese Market Thomas Körfer, Group Vice President Light-Duty-Diesel, FEV Group Holding GmbH
15:00–15:30	Inside China – Powertrain Development for Chinese Requirements Dr. Frank Beste, TechCenter Manager AVL Shanghai, AVL List GmbH
15:30–16:15	Coffee Break

Chairman: Prof. Dr. Michael Bargende, Research Institute of Automotive Engineering and Vehicle Engines Stuttgart	
16:15–16:45	Automotive Batteries for the Chinese Market Dr. Won Suk Cho, Technical Advisor, LG Chem, Ltd.
16:45–17:15	Engine Application in China Eike Martini, Director System Application, Continental Automotive GmbH
17:15–17:45	Nemak – Your Global Partner for Innovation and Development in Powertrain Michael Rafetzeder, Head of Product Development Center Semi-Permanent-Mould, Nemak Linz GmbH
19:30	AVL Social Evening at the "Kasematten" at the Schlossberg Aperitifs at the invitation of the Mayor of Graz Siegfried Nagl

CONFERENCE PROGRAM – FRIDAY, JUNE 10TH, 2016

Chairman: Prof. Dr. Ferit Kügükay, University of Technology Braunschweig	
09:00–09:30	Renault / Nissan Alliance Affordable Hybrid Drivetrain for Global Market Antoine Vignon, Chief Engineer for hybrid gearbox development, RENAULT
09:30–10:00	BMW Strategy for Localized Powertrain Development and Production in China Dieter Strobl, Department Manager, BMW Group
10:00–10:30	Challenge China – Product Strategy for a Diversified and Dynamic Market Thomas Pfund, Vice President eMobility, LuK GmbH & Co. KG
10:30–11:15	Coffee Break
11:15–11:45	Upcoming China Emission Legislation: Consequences for Powertrain Strategies, Technologies and Costs Dr. Christian Köhler, Partner, Strategy Engineers GmbH & Co. KG
11:45–12:15	China-ready: Is the Global Technology Toolkit Sufficient for China? Dr. Paul Kapus, Manager Gasoline Engine Development and Concept Cars, Engineering and Technology Powertrain Systems, AVL List GmbH
12:15–13:30	Lunch

CONFERENCE PROGRAM – FRIDAY, JUNE 10TH, 2016

Chairman: Prof. Dr. Hans Peter Lenz, Austrian Society of Automotive Engineers	
13:30–14:00	The Future of Mobility from a Fuels Perspective for China Dr. Wolfgang Warnecke, Chief Scientist Mobility Shell, Shell Global Solutions
14:00–14:30	The Powertrain for the Chinese Market – a Global Challenge for all Manufacturers Prof. Dr. Peter Gutzmer, Deputy CEO and CTO, Schaeffler AG
14:30–15:00	Coffee Break
15:00–16:15	Panel Discussion Moderator: Ulrich Walter M.A. Members (in alphabetical order): Dr. Wolfgang Demmelbauer-Ebner , Head of Gasoline Engine Development, Volkswagen AG Wolfsburg Prof. Dr. Peter Gutzmer , Deputy CEO and CTO, Schaeffler AG Michael Laske , Head of AVL Liaison Beijing, AVL List GmbH Daniel Nicholson , Vice President Global Powertrain, General Motors Ingo Scholten , Executive Director, SAIC Dr. Wolfgang Warnecke , Chief Scientist Mobility Shell, Shell Global Solutions
16:15–16:30	Closing Remarks Dr. Robert Fischer, Conference and Session Chairman, AVL List GmbH

THE PLEASURES OF GRAZ



Graz is indeed a striking beauty, to the point of rendering one sleepless. Self-confidently, the city presents itself both with new, fascinating landmarks and historic monuments, among them entire districts such as the Old City centre, honored and protected as a UNESCO World Cultural Heritage Site or the designation City of Design.

The city's "lifeline" is the broad river Mur, providing a relaxed atmosphere to the rhythm of flowing water. But Graz is above all a melting pot of cultures. For centuries, musicians, writers, architects and designers have set the tone in this, the European Cultural Capital 2003.

So how do you go about exploring this impressive cultural heritage site? The answer is simply "at your leisure". Most of its many sights are located within easy reach of elegant coffee houses, fine restaurants, colorful country markets and trendy bars. Graz can be discovered and rediscovered time and time again. A noble flair reigns, as in the arcaded courtyard of the Landhaushof, a masterpiece of the Italian Renaissance.

Have no second thoughts about visiting the attractions: Eggenberg Palace, the Museum of Contemporary Art (Kunsthaus), Island in the Mur, Schlossberg, Opera and all the rest, the "compulsory" tourist program in Graz is a pure pleasure.

Hotel:

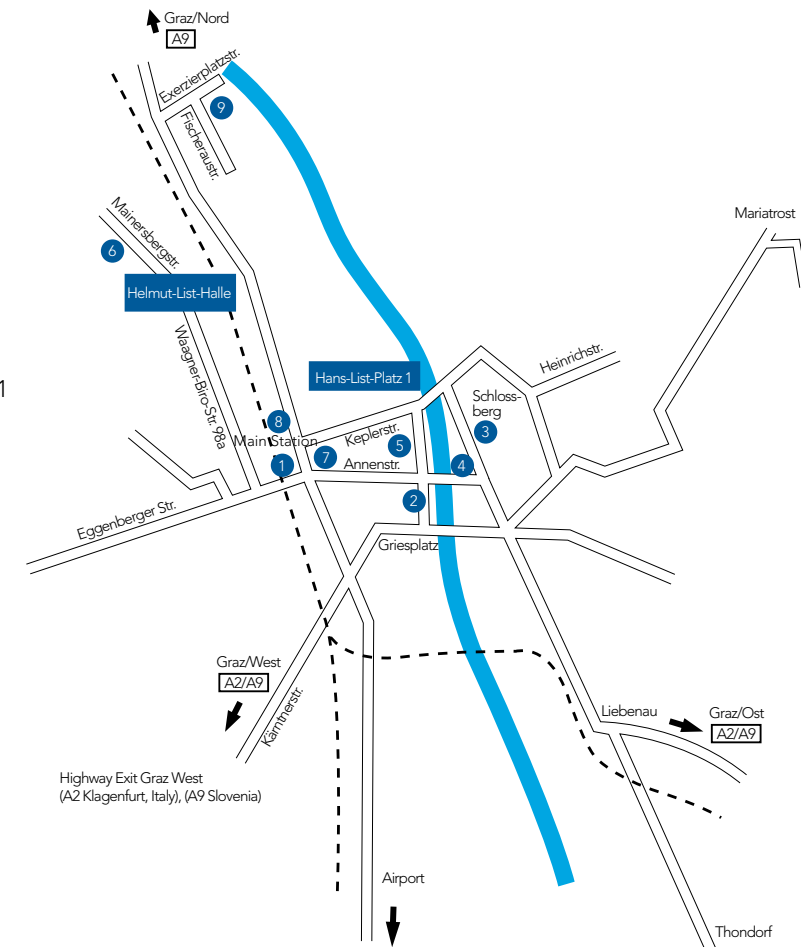
- 1 Hotel Daniel
- 2 Hotel Weitzer,
Hotel Wiesler
- 3 Schlossberghotel
- 4 Hotel Erzherzog Johann
- 5 Mercure Graz City
- 6 Hotel Bokan
- 7 Hotel Europa
- 8 Hotel Ibis
- 9 Wohlfühlhotel Novapark

Taxi:

Phone: +43 (316) 28 01
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Highway Exit Graz North (A9 Salzburg, Linz, Germany)



TEST DRIVES AND WELCOME RECEPTION



WEDNESDAY, JUNE 8th, 2016

WELCOME RECEPTION AT THE AVL TEST TRACK IN GRATKORN

Introduced in 2015 for the first time, the test drives with AVL vehicles on the AVL test track turned out to be a real highlight of the conference program. This year the participants will once again have the unique opportunity to drive demonstrator vehicles. Not only solutions for challenges, but also available technology for enthusiasts will be shown. Look forward to a fascinating, exciting and innovative start into our 28th International AVL Conference "Engine & Environment".

15:00 AVL Test Drives
followed by **19:00 Welcome Reception**

SOCIAL PROGRAM



THURSDAY, JUNE 9th, 2016

PARTNERS' PROGRAM

Kunsthaus Graz: Architecture & Art (Guided Tour)

The Kunsthaus Graz has become an essential landmark in the urban identity of the city. A guided tour through the "Friendly Alien" will give insight into the unique architectural elements of the building. After that, we dive deeper into the neighbouring art district and do a side trip to a typical farmers' market, where you can rest and be refreshed by Styrian specialities.

Meeting point: 10:00 Kunsthaus, Lendkai 1, Graz
Expected End: 14:00

THURSDAY, JUNE 9th, 2016

SOCIAL EVENING AT THE SCHLOSSBERG "KASEMATTEN"

Since 1894 the Schlossbergbahn funicular has mastered the gradient of about 60% perfectly - lately with new observation cars. On top of the hill there is much to discover. Besides the Bell Tower dating from the 16th century and inside it - the "Liesl", the heaviest bell of Graz, there is the "Kasematten" open-air stage in the former cellars of the destroyed main building of the fortress. We invite you to continue networking in this special atmosphere! You will be entertained musically by the Styrian Trio "Tribidabo" with music from South America to the Middle East, from European classical music to local folk (organized by AVL Cultural Foundation).

19:30 "Kasematten" at the Schlossberg

AVL LIST GMBH



AVL is the world's largest independent company for the development of powertrains (engines, transmissions, e-motors, batteries and control systems) for passenger cars, commercial vehicles and industrial applications, as well as for instrumentation and test systems, with activities ranging from concept through to series development. Building on insights gained from its own research, AVL serves a global customer base by developing drive systems of all sizes and designs and integrating these into overall systems.

Although e-mobility has not been quite as triumphant a success as had been hoped, especially by the political sector, powertrain electrification continues to advance at a steady

pace. The technology is driven by ever more stringent CO₂ limits, which, in many cases, can only be met with all-electric or hybrid drives. Depending on the initial situation, various degrees of electrification are required, a fact that ultimately leads to a multitude of designs, varying both in size and system architecture. Faced with such diversity of variants, powertrain developers must choose the solution that matches their application and boundary conditions best. To do so, they need suitable components that have to be developed accordingly.

China has emerged to become the world's leading vehicle market. Despite a decline in 2015 compared to double-digit growth rates in previous years, an annual production volume

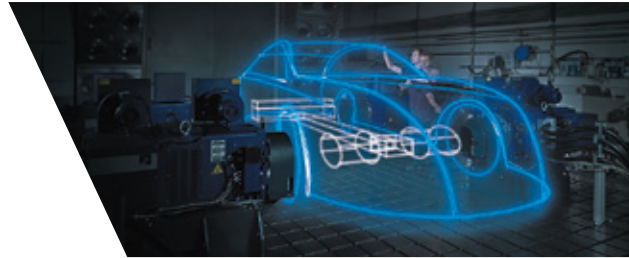


of about 35 million passenger cars is still forecasted for 2025. This figure corresponds to the combined vehicle production volume of both Europe and Japan and will result in serious challenges especially from an environmental perspective.

Severe pollution problems in congested urban areas are forcing China to introduce one of the strictest exhaust emission standards worldwide. The new emission limits are being defined in a highly dynamic way. One of the trends identified is that future severe European and US standards will not only be adopted but possibly even be exceeded. It remains to be seen whether and how specific market conditions such as fuel quality, customer driving style, servicing issues, as well

as additional durability requirements will be fully taken into consideration by the legislators.

Compliance with exhaust emission standards and at the same time meeting the continuously tightened fuel consumption requirements is a major challenge. In China there are not only laws and regulations for fleet average fuel consumption for passenger cars, Chinese fuel consumption standards also apply to each individual vehicle. Although the nominal values of average fleet fuel consumption are higher than in Europe, the challenge for gasoline-powered vehicles is even bigger because of the lower percentage of diesel cars in the total passenger car fleet. As a consequence, increased electrification of powertrains will likely be required.



Both the highly topical pollution issues and the situation of resources and competition are making electrification a very attractive technology for China. While Chinese manufacturers compete with foreign automotive manufacturers who have, for many decades, acquired experience in the area of conventional powertrains, the situation is different with electric powertrains. In addition to financial incentives, urban traffic restriction measures are very effective in steering buying behavior with regard to "new energy vehicles" for use in congested areas. Especially as far as pure electric vehicles are concerned, the question arises whether building the required complex infrastructure can keep pace with the rapid technical development of electric powertrains.

Possessing a comprehensive insight into the specific economic boundary conditions and the dynamics of the Chinese market is one of the greatest challenges affecting the development of global powertrain technologies and is thus the basis for economic success in this market. During the conference the determining factors for the development of the Chinese automobile market will not only be presented but also discussed in detail. Presentations will range from topics such as legislation to an outlook on viable powertrain solutions as well as the technology portfolios of different OEMs.