

international **engine** 4th **Congress**

Conference Commercial Vehicle Engine Technology

Meeting Place for the Engine Community

with accompanying trade exhibition

21 and 22 February 2017

Baden-Baden | Germany

» Keynote Lectures



Prof. Dr. Jens Hadler
APL Group



Lars Mönch
German
Environment
Agency



Dr. Andreas Schamel
Ford-Werke GmbH



Dr. Manfred Schuckert
Daimler AG



Lukas Walter
AVL List GmbH (A)



Dr. Michael Winkler
Hyundai Motor Europe
Technical Center GmbH

» Main Subject Areas

- Whole system combustion engine and fuels
- Emissions and exhaust aftertreatment
- Charge exchange and combustion
- Thermal management
- Electrification
- New engines

» Panel Discussion

**"Global mobility and sustainability —
with how much combustion engine?"**

ATZ live

VDI Wissensforum



www.ATZlive.com

WELCOME

The advancement of the combustion engine which is geared towards more fuel-efficiency and lower emissions, remains a key challenge, since the high energy-density of liquid fuels makes them essential in securing the operation of long-haul commercial vehicles in future.

Therefore the 4th International Engine Congress places special emphasis on current trends in the drivetrain development, seen in the energetic overall system. Efficient commercial vehicle engines play a similarly crucial role as synthetic fuels, to achieve largely CO₂ neutral individual transport solutions for tomorrow.

Stay abreast of current trends and benefit from a lead in knowledge!

- You can expect international speakers as well as top-level presentations and panel discussions
- You can switch between lectures at any time, if you prefer to hear about another topic
- The congress is a great opportunity to "network" – the evening event for the engine community offers stimulating discussions in a pleasant, relaxing atmosphere
- The trade exhibition, held in parallel, provides ample information about innovative products and services in the field of combustion engine development

We look forward to your participation.

On behalf of the program advisory boards



Dr. Johannes Liebl
Scientific Director of the Congress,
Editor-in-Charge
ATZ | MTZ | ATZelektronik



Prof. Dr. Christian Beidl
Conference Chairman
CV engine technology,
TU Darmstadt

SIMULTANEOUS INTERPRETING GERMAN -> ENGLISH

EVENING FOR THE ENGINE COMMUNITY AT THE KURHAUS CASINO BADEN-BADEN

As part of the International Engine Congress, we invite you to have dinner with other engine experts at the Kurhaus Casino Baden-Baden. You will have the opportunity to chat with colleagues, discuss the day's events and add to your network of contacts.

The Kurhaus Casino is located just a few minutes' walk from the congress venue. It is the city's main landmark and attracts thousands of visitors every year. Enjoy the excellent food and the historic atmosphere. The Kurhaus provides the ideal setting or the evening event of the Engine Congress for discussing the day's activities with the other congress participants.

ATZlive and VDI Wissensforum invite you to be their guest.

MEDIA PARTNER

MTZ

The combustion engine in a diversified international environment

PARTICIPANTS

The event is primarily aimed at engineers and technicians in the industry or those involved in research and teaching, who are engaged in the optimization of the traditional developmental areas of the combustion engine or the advancement of procedures and systems to produce conventional or renewable fuels and lubricants. The lectures will be equally attractive for chemists and biologists who work in this industry. The focus will be on both Diesel as well as spark-ignition engines (gasoline/gas) for passenger and commercial vehicles and off-highway applications.

PROGRAM ADVISORY BOARD

COMMERCIAL VEHICLE ENGINE TECHNOLOGY



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Daimler AG



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Senior Vice President Engineering Powertrain,
MAN Truck & Bus AG



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Senior Vice President Research & Development,
DEUTZ AG



Erik Versluis
Chief Engineer Engine Development, DAF Trucks N.V.
(Intern. Advisory Board Member, NL)



Lukas Walter
Vice President Commercial Powertrain Systems,
AVL List GmbH (A)

09:15 **Welcome and opening of the congress**
Dr. Alexander Heintzel, Editor-in-Chief ATZ | MTZ Group, and Anne Bieler-Bultmann, Project Leader, VDI Wissensforum GmbH

Introduction to the program of lectures

Dr. Johannes Liebl, Scientific Director of the Congress, Prof. Dr. Christian Beidl, Conference Chairman Commercial Vehicle Engine Technology, and Wolfgang Maus, Chairman of the Program New and Alternative Fuels

KEYNOTE LECTURES

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

09:30 **Propulsion for 2025**
• Emission legislation in Europe
• Forecast analysis for electrification in Europe
• Hyundai and Kia electrified vehicles in Europe
Dr. Michael Winkler, Head of Powertrain, Hyundai Motor Europe Technical Center GmbH



10:00 **Worldwide harmonization of emission regulations – a dream never becomes reality?**
• Worldwide overview of current emission requirements for heavy-duty vehicles
• Potential of harmonization of emission requirements
• Outlook on future requirements
Dr. Manfred Schuckert, Head of Automotive Regulatory Strategy, Commercial Vehicles – Emission and Safety, Daimler AG



10:30 **Renewable energy supply of transport – possible?**
• Renewable energy supply of transport
• Land, sea and air traffic
Lars Mönch, Head of Section, Co-author: Dr. Martin Lange, both German Environment Agency



CV engine technology

Kongress-Saal I (1st Floor)



EMISSIONS AND EXHAUST AFTERTREATMENT

Moderation: Prof. Dr. Christian Beidl, TU Darmstadt

11:45 **Challenges posed by an exhaust gas aftertreatment system for Stage V with SCR-F**

- European emission legislation Stage V for off-road engines
- Compact exhaust gas aftertreatment system with SCR-F
- Tailor-made exhaust gas aftertreatment system for engines without EGR

Evangelos Katsaounis, Leader ATS Development & Validation, Co-authors: Peter Krähenbühl, Raphael Hertach, Ralph Wachter, all FPT Motorenforschung AG, Switzerland

12:15 **Highly integrated exhaust gas aftertreatment systems in heavy-duty applications**
• Requirements towards on- and off-road heavy-duty exhaust gas aftertreatment systems
• Conflict of objectives: Recovery behavior and nitrogen oxide turnover with SCR-coated Diesel particulate filters
• System layout and operating strategy
Dr. Stephan Schraml, Senior Manager Predevelopment Exhaust Aftertreatment, Co-authors: Dr. Dieter Rothe, Florian Lutz, Frank Ingo Zuther, all MAN Truck & Bus AG

12:45 **Advancement of the "EGR only" approach for industrial engines**
• Transient control of low pressure EGR
• Diesel 3000 bar injection system
• NRTC cycle within Stage V, emission limit w/o NO_x exhaust gas aftertreatment
Dirk Queck, EMS Development Engineer, Co-authors: Dr. Olaf Erik Herrmann, both DENSO Automotive Deutschland GmbH, Cristian Capiluppi, Kohler Co., Prof. Federico Millo, Politecnico di Torino, both Italy



CHARGE EXCHANGE AND COMBUSTION

Moderation: Lukas Walter, AVL List GmbH (A)

14:45 **Thermodynamic potential for further efficiency increase of Diesel engine combustion in the heavy-duty vehicle engine**
• Focus on increasing engine efficiency levels and CO₂ reduction
• Turbocharging seen as key technology for optimization
• Studies looking at 3D flow and combustion calculation validated against engine test bench results
Gernot Graf, Manager Development Commercial Engines, Co-authors: Helmut Theißl, Hans-Felix Seitz, Alexander Machold, all AVL List GmbH, Austria

15:15 **Improving commercial vehicle emissions and fuel economy with engine thermal management using variable valve actuation**
James McCarthy, Jr., Engineering Manager, Eaton – Vehicle Group, USA, Co-authors: Helmut Theißl, Lukas Walter, both AVL List GmbH, Austria

15:45 **In-house developed turbochargers as key technology element for the development of Daimler heavy-duty engines**
• The turbocharging system of current engine series
• Impeller service life prediction based on measured load cycles
• ATL-aerodynamics dimensioning by means of consumption characteristic maps and load spectrum
Michael Wöhr, Development Engineer – Truck Turbo Charger, Co-authors: Dr. Markus Müller, Thorsten Fögeling, Johannes Leweux, all Daimler AG

17:00 PANEL DISCUSSION

Global mobility and sustainability – with how much combustion engine?



Experts:

Prof. Dr. Peter Gutzmer, Deputy CEO, Chief Technology Officer, Schaeffler AG
Wolfgang Maus, Managing Director, WM Engineering & Consulting GmbH
Prof. Dr. Stefan Pischinger, President & CEO, FEV Group Holding GmbH
Dr. Andreas Schamel, Director Global Powertrain Research & Advanced, Ford-Werke GmbH
N.N., Iveco

Moderation: Dr. Alexander Heintzel and Dr. Johannes Liebl

18:00 End of the first day of the congress

19:30 **EVENING FOR THE ENGINE COMMUNITY**

CV engine technology

Kongress-Saal I (1st Floor)



THERMAL MANAGEMENT

Moderation: Dr. Peter Heuser, FEV GmbH

- 09:00 **Efficiency increase of the CV engine with a WHR turbine expander combined with 48V vehicle wiring system**
- Reduction of fuel consumption through waste heat recovery
 - Single stage axial impulse turbine with partial admission
 - 48V high speed generator
- Rolf Müller, Project Leader, Co-authors: Holger Oechslen, Sebastian Ewert, Thomas Schmidt, all MAHLE International GmbH
- 09:30 **Organic rankine cycle turbine expander design, development and 48V mild hybrid system integration**
- ORC cycle analysis and system matching to heavy-duty commercial vehicle
 - Turbine expander/generator design, development and testing
 - Integration of ORC waste heat recovery system into 48V mild hybrid architecture
- Frederick Huscher, Senior Project Engineer, BorgWarner Turbo Systems, USA
- 10:00 **Fuel saving potential of indirect charge air cooling for trucks**
- Comparison of direct and indirect cooling system
 - Test results from engine and chassis
 - Opportunities to integrate further cooling tasks in the system
- Rainer Lutz, Project Leader, Co-authors: Laurent Art, David Haar, all MAHLE Behr GmbH & Co. KG



ELECTRIFICATION

Moderation: Dr. Markus Schwaderlapp, DEUTZ AG

- 11:00 **Range extender systems for electric drivetrains in medium-duty distribution vehicles**
- Requirements on future distribution vehicle powertrains in urban traffic
 - Evaluation of electric powertrains and usage of range extender
 - Investigation of different range extender solutions and evaluation with respect to efficiency, package and costs
- Dr. Dirk Bergmann, Vice President Commercial Engines, Co-authors: Stefano Ghetti, Dr. Edoardo Pietro Morra, all FEV GmbH, Johannes Maiterth, RWTH Aachen University
- 11:30 **Development of a Diesel Power Module (DPM) for electrification of the last mile**
- Entry into hybridization of E-locs
 - System development of a Diesel / electric power unit
- Thomas Praxmarer, Head of Development, Co-author: Michael Aschaber, both STEYR MOTORS GmbH, Austria



NEW ENGINES

Moderation: Thomas Nickels, MAN Truck & Bus AG

- 13:30 **The new Diesel and gas-engine family for the lower performance range**
- Industrial engines Diesel / gas
 - 3- / 4-cylinder
 - Complete engine development
- Dr. Markus Schwaderlapp, Senior Vice President Research and Development, Co-authors: Wilhelm Feuser, Kai Tedsen, all DEUTZ AG
- 14:00 **The 2nd generation of Daimler's 10.7l heavy-duty engine for global on- and off-highway applications**
- Impetus for further development – fuel efficiency, performance increase, OBD C
 - Innovative EGR valve
 - Exhaust thermal management with asymmetric injection
- Marco Ernst, Performance and Emissions Development HD Engines, Co-authors: Jens Kleffel, David Koch, all Daimler AG

KEYNOTE LECTURES

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

- 15:00 **The impact of an increasing electrification on the future of internal combustion engines**
- Diversity of drives
 - Electrification
 - New fuels, e.g. OME
- Dr. Andreas Schamel, Director Global Powertrain Research & Advanced, Ford-Werke GmbH 
- 15:30 **Impact of CO₂ and ultra-low NO_x legislation on the base engine**
- Future legislation requires further CO₂ and NO_x reduction
 - Technologies to increase the thermal efficiency of the engine
 - Implement more degrees of freedom while further optimizing the main parameters of the engine
- Lukas Walter, Vice President Commercial Powertrain Systems, Co-authors: Thomas Wagner, Gernot Hasenbichler, Helmut Theißl, all AVL List GmbH, Austria 
- 16:00 **Fuel: a key element for the mobility of tomorrow**
- What has so far been achieved in the field of fuels?
 - From today's viewpoint: what characteristics should tailor-made fuels have?
 - Importance of fuel when choosing tomorrow's powertrain
- Prof. Dr. Jens Hadler, Managing Director, APL Group, Co-authors: Dr. Wolfgang Warnecke, Shell Global Solutions (Deutschland) GmbH, Wolfgang Maus, WM Engineering & Consulting GmbH 

Auditorium (Basement) – Plenary session

You will find the complete International Engine Congress program online which lists the presentations on passenger cars, commercial vehicles and fuels.

An event organized jointly by ATZlive and VDI Wissensforum

VENUE

Kongresshaus Baden-Baden
Augustaplatz 10 | 76530 Baden-Baden | Germany
Phone +49 7221 304-0
www.kongresshaus.de

HOTELS

Various hotels in Baden-Baden – all centrally located – have room blocks at reduced rates for participants.

Here is a small selection:

Dorint Maison Messmer Baden-Baden (****)
Werderstraße 1 | 76530 Baden-Baden
Phone +49 7221 3012-0
http://hotel-baden-baden.dorint.com/de
€ 149,- Standard Single Room
€ 199,- Standard Double Room

Atlantic Parkhotel (****)
Hirschstraße 1 | 76530 Baden-Baden
Phone +49 7221 939-0
http://www.atlantic-parkhotel.de/
€ 149,- City-side Single Room
€ 159,- Park-side Single Room
€ 229,- City-side Double Room
€ 269,- Park-side Double Room

Der Kleine Prinz (****)
Lichtentaler Straße 36 | 76530 Baden-Baden
Phone +49 7221 34 66 00
http://www.derkleineprinz.de/home
€ 135,- Classic Single Room
€ 180,- Classic Double Room

Hotel Magnetberg
Scheibenstr. 18 | 76530 Baden-Baden
Phone +49 7221 364-0
http://www.hotel-magnetberg.de/
€ 85,- Standard Single Room
€ 95,- Standard Double Room

The room prices given above include breakfast and VAT. Visitor's tax may be charged. The complete list of hotels can be found on the event home page at www.ATZlive.de and www.motorenkongress.de.

Please reserve rooms by 24 January 2017 at the latest.
Booking reference: "International Engine Congress 2017"

If you have any questions on hotel bookings, please contact:
Baden-Baden Kur & Tourismus GmbH
Adelheid Ey
Phone +49 7221 275271
ey@baden-baden.com

REGISTRATION FEE

Commercial vehicle engine technology or
Passenger car engine technology

€ 1.380,- excl. VAT
€ 1.280,- excl. VAT for VDI members

This includes the congress documents, coffee breaks, drinks, two lunches and the evening event. Participants may move between different lectures at any time.

Mode of payment

By bank transfer after receipt of an invoice or by credit card (MasterCard, Visa). Participants with a billing address outside Germany, Austria and Switzerland are requested to pay by credit card.

TERMS AND CONDITIONS

No cancellation charge is due if registration is canceled by 23 January 2017. Cancellations made after that date will incur a charge of 35 % of the registration fee. For cancellations made after 30 January 2017 the full registration fee is payable. Cancellations must be made in writing. The date of the postmark will determine whether the deadline has been met. If you are unable to attend, we will be happy to accept a substitute participant.

Should a speaker be unable to attend at short notice because of force majeure, illness, accident or other circumstances for which ATZlive and VDI Wissensforum cannot be held responsible, another qualified person will be appointed to the exclusion of any claim for compensation. Should the event be canceled altogether, we will of course refund the registration fee.

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widerspruch.springerfachmedien-wiesbaden@springer.com

With Event App
Engine Congress 2017 —
from early February 2017
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EXHIBITION AND SPONSORSHIP

If you would like to make contact with prominent congress participants and present your products and services effectively to a selected specialist audience, then you should become involved in the congress as an exhibitor or sponsor. This industry-meeting place gives you the ideal opportunity to take part in technical discussions with the participants and to make new contacts within the industry. We offer individual sponsorship and exhibition packages tailored to your specific needs. Take your pick from a variety of options.

YOUR CONTACT PARTNERS

Service and bookings for participants

Elisabeth Moser
Conference Manager ATZlive
Phone +49 611 7878-118
elisabeth.moser@springer.com

Exhibition and sponsorship

Elke van Lon, Sales Manager
Congresses + Trade Fairs
Phone +49 611 7878-320
elke.vanlon@springer.com

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atzlive@springer.com
www.ATZlive.com

REGISTRATION

ATZlive | Springer Vieweg
Springer Fachmedien Wiesbaden GmbH
Abraham-Lincoln-Straße 46
65189 Wiesbaden | Germany
Phone +49 611 7878-118
Fax +49 611 7878-452
ATZlive@springer.com
www.ATZlive.com

I hereby register for the congress.

I agree to the terms and conditions and accept that my registration is binding.

Registration data

Family name

First name

Acad. Titel

Company / Institute

Department

Function

Street / P. O. Box

Postal code / City

Country

Phone, Fax

E-Mail

Invoice address (if different from above address)

Vat No.

CS001034

Date, Signature

Registration fee International Engine Congress 2017

Commercial vehicle engine technology

or Passenger car engine technology

☐ € 1.380,-*

☐ € 1.280,-* for VDI members

☐ € 1.380,-*

☐ € 1.280,-* for VDI members

VDI membership number

* Excl. VAT

Participation in the evening event on 21 February 2017

☐ yes

☐ no

I am interested in exhibition and sponsoring opportunities

☐ yes

☐ no

Mode of payment

Participants with a billing address outside Germany, Austria and Switzerland are requested to pay by credit card.

Bank transfer after invoice

☐

Credit card

☐ MasterCard

☐ Visa

Card holder

Card number

Card security code

Credit card valid until

You will receive confirmation of participation upon receipt of your registration and be invoiced three weeks before the congress. You will receive your congress documents when registering at the venue. Please register one person per form only.

BY FAX TO +49 611 7878-452