

9. Aachen Colloquium China 2019

PLENARY SESSION

Our Way Toward the Ideal Internal Combustion Engine for Sustainable Future
Ichiro Hirose, Senior Managing Executive Officer – Mazda Motor Corporation

The New Volvo Hybrid Engine Architecture
Michael Wong, Head of Vehicle Propulsion – Volvo Car Asia Pacific

Empowering the Automotive Industry: Driving the Future of Mobility
Lilly Feng, Regional Business Leader, Automotive – Microsoft

HIGH EFFICIENCY ENGINES

DFMB18T Turbocharged Miller-Cycle Engine from Dongfeng Liuzhou Motor
Z. Li, K. Yao - Dongfeng Liuzhou Motor Co., Ltd.
C. Dieterich - FEV Europe GmbH

Stepcom® – 2 Step Variable Compression Ratio System Integration & Industrialization
S. Schilling, M. Poepperl, D. Schulze – Hilite Germany GmbH
D. Henaux, K. Habermann, T. Uhlmann – FEV Europe GmbH

Highly Efficient SI Engine Combining VCR and VVA
M. Breuer, T. Schorn – Pierburg GmbH
J. Fryjan, A. Schloßhauer – VKA, RWTH Aachen University
K. Habermann, T. Uhlmann – FEV Europe GmbH

FUEL CELL SYSTEMS & BATTERIES

Agile Development of a Modular Toolbox for HV Battery Housings
L. Eckstein – ika, RWTH Aachen University
K. Radlmayr, A. Tuksa – voestalpine AG
M. Bartmann, M. Funke, N. Neumann – fka GmbH

Fuel Cell Range Extender EV
Y. Jiang – Chongqing Jinkang New Energy Automobile Designing Institute Co., Ltd.

AVL PEM Fuel Cell Concept Car
W. Resende, J. Rechberger, A. Schenk, F. Berg – AVL List GmbH

Fuel Cell Systems for Heavy Duty Applications: From Concept to System Validation
M. Walters – FEV Europe GmbH
S. Dirkes, S. Pischinger – VKA, RWTH Aachen University
J. Buchmann – FEV Consulting, Inc.

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HYBRID POWERTRAINS

HAIMA BOOST BLUE Electrified Strategy of Haima

H. W. Zhang – Haima Automobile Co., Ltd.

Silent, Cheap and Compact: the Future of ICEs as Range Extenders

T. Uhlmann, S. Pischinger, M. Thewes, J. Scharf, A. Balazs, F. Haubner, J. Slotman,
M. Souren, C. Steffens, F. Wolter – FEV Europe GmbH

Energy Cost Based Hybrid Control and Analysis Technique

M. Gong, J. Shutty, D. Semenov, S. Mohon, N. Kondipati, X. Liu – BorgWarner, Inc.
X. Zhang – Changan

MOBILITY & VEHICLE CONCEPTS

New Vehicle Concepts for Mobile Vacation

R. Freimann – Erwin Hymer Group SE

J. Zhang – Luoyang Erwin Hymer Loncen Caravan Co. Ltd.

G. Gumpoltsberger, U. Gillich – ZF Friedrichshafen AG

R. Kaiser – TTT The Team Technology

How Will We Travel Autonomously? User Needs for Interior Concepts and Requirements
Towards Occupant Safety

F. Prinz, A.-L. Köhler, L. Wang, J. Becker, G. M. I. Voß, S. Ladwig, L. Eckstein – ika, RWTH
Aachen University

T. Schulte, N. Depner – fka GmbH

Urban Vehicle Concept for Shared Mobility

M. Hog, M. Volm – Share2Drive GmbH

L. Cheng – FEV Vehicle GmbH

AUTOMOTIVE STRATEGY

Connected & Automated Vehicles as Part of the IoT – Opportunities, Challenges and
Implications for the Industry

C.-S. Ernst, W. Bernhart, M. Yoon – Roland Berger GmbH

Urban Air Mobility – A Potential Market Opportunity for the Automotive Industry

A. Nase, D. Heckmann, J. Ackermann, M. Fischer – FEV Consulting GmbH

The Future of Automotive E/E Architecture and its Effect on Processes and Organizations

C. Foltz, M. Gloger, T. Schadt, A. Wild – PwC Strategy& (Germany) GmbH

Optimization of Tier-X Product Portfolio Strategies with a Focus on Future CO₂ Targets

L. Eckstein – ika, RWTH Aachen University

N. Neumann, C. Harter, A. Busse – fka GmbH

HMI & DRIVER ASSISTANCE

(Thermal) Comfort and its Specific Influencing Factors

F. Prinz, T. Hirn, G. M. I. Voß, A. Kirmas, D. Backes, S. Ladwig – ika, RWTH Aachen University

A. Gentner, C. Favart – Toyota Motor Europe

Nonobtrusive Methods for Physiological Driver and Passenger State Estimation

S. Leonhardt – MedIT, RWTH Aachen University

Innovative Driving Assistance Function for Safe Completion of Overtaking Maneuver

Z. Vana – Valeo

POWER ELECTRONICS & HYBRID TRANSMISSION

High Power Density Power Electronics for HEV/EV Applications

X. Xu, P. Farah, H. Husted, M. Hayes, R. Campbell, R. Ravas – Delphi Technologies

Dynamic Performance of a Dedicated Hybrid Transmission Using a MAGSPLIT Device

S. Calverly, J. Birchall, G. Oshin – Magnomatics Ltd.

A. Chapman – Changan Automotive UK

K. Huang, K. Atallah – University of Sheffield

K. Taylor – Romax Limited

A New P2 Hybrid 7DCT Design with Integrated Off-Axis E-Machine

S. Faid, A. Serrarens, R. van Druten, D. Kok – Punch Powertrain Nederland B.V.

AUTOMATED DRIVING

AI Based Method of Precise Trajectory Extraction from Imprecise Open Road Data

Z. Vana, J. Olišna, M. Zima, C. Lobo-Castillo, P. Jiroutek – Valeo Autoklimatizace k.s.

Safety First for Automated Driving

Y. Wang – Baidu

State of Research on Data-Driven Safety Assurance Methods and How Drones Can Aid it

L. Eckstein, R. Krajewski, N. Wagener, H. Weber, J. Bock – ika, RWTH Aachen University

A. Zlocki – fka GmbH

The Development of Data Fusing Domain Controller for Jinkang Seres Autonomous Drive

J. Gao – JinKang Seres

HYBRID & REX POWERTRAINS

MAHLE Modular Hybrid Powertrain

M. Bassett, I. Reynolds, A. Cooper, S. Reader, M. Berger – MAHLE Powertrain

SYTECH, a Low Cost Unique Solution for Modern Range Extenders
R. Tamba, G. Fountain, M. Kavarnos, J. Psonis – ASF Technologies Australia Pty Ltd.

Development of a HEV Powertrain for Global Application
S. Li – Geely Powertrain Research Institute
H. Sandquist, S. Klacar – China Euro Vehicle Technology

ENGINE TECHNOLOGIES

Advances in Dynamic Skip Fire: mDSF and dDSF
Y. Xin, K. Chen, S. Carlson, E. Ortiz-Soto, M. Younkens – Tula Technology, Inc.
M. Scassa, M. Nencioni, S. George – FEV Italis S.r.l.

Water Injection Technology Made Available for All Driving Conditions
J. Op de Beeck, L. Duez – Plastic Omnium Clean Energy Systems

Testing of a New Gasoline Compression Ignition (GCI) Concept on Market-Relevant Fuels
R. Cracknell – Shell Global Solutions UK

EMISSION CONCEPTS & PEMS

A Study of Ash Accumulation on Gasoline Particulate Filter Through On-Road Fleet Durability Testing
Z. Lv, W. Li, X. Zeng, Q. He, S. He, D. Rose, T. Boger – Corning (Shanghai) Regional Headquarters
R. Zhang, H. Zou, C. M. Ang – Lubrizol Management (Shanghai) Co. Ltd.
K. Howard, P. Kirkman – Lubrizol Limited

Lowest Real Driving Emissions: Solutions for Electrified Gasoline Engines
Q. Ye – Vitesco Technologies
S. Seifert, R. Brück, H. Stock – Continental Emitec GmbH
G. Rösel, E. Achleitner, F. Graf, P. Rodatz, P. Senft – CPT Group GmbH

Zero-Impact Combustion Engine
A. Balazs, M. Thewes, S. K. Yadla, V. Walter, M. Görgen, J. Scharf – FEV Europe GmbH
S. Sterlepper, T. Voßhall – VKA, RWTH Aachen University

Study of Artificial Test Cycles for HD PEMS Test
X. Zhao, Y. Yang, F. Jiang, H. Du – Wuxi Wolffu Automotive Technology Co., Ltd.

THERMAL MANAGEMENT

Holistic Thermal Management for New Energy Vehicles
C. M. Moeser, M. Flack, T. Werner – Schaeffler Technologies AG & Co. KG
T. Tang, O. Weber – Schaeffler Trading (Shanghai) Co., Ltd.

Potential of IR-based Driver Monitoring and Comfort Automation

T. Hirn – ika, RWTH Aachen University

S. Boeshagen – BCS Automotive Interface Solutions GmbH

A. Kirmas, D. Backes – fka GmbH

C. Weiss – Life TAix GmbH

Functionally Integrated Thermal Management Systems for Battery Housings – Requirements and Proposed Solutions

T. Hirn, C. Massonet – ika, RWTH Aachen University

M. Wiemann – voestalpine Automotive Components Schwäbisch Gmünd GmbH & Co. KG

N. Neumann, M. Funcke – fka GmbH

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PLENARY SESSION

Zero Emission Technologies for Future Mobility

Dr. Hua Gao, Director of Powertrain Development – Audi (China) Enterprise Management Co., Ltd.

Electrified Strategy of Nissan

Masaki Toriumi, Alliance Global Director – Nissan Motor Co., Ltd.

Next Generation Mobility – ZF Solutions for Megacities

Ping Qi, Head of Engineering Center – ZF (China) Investment Co., Ltd.

GASOLINE ENGINE TECHNOLOGIES

The New 1.5 l In-Line4 High-Power Gasoline TCDI Engine from Global Village Group

Z. Yan, X. Zhu, J. Li, B. Wang, Q. Li, G. Liang – Nanjing Global Village Group Automotive Power Co., Ltd.

F. G. Haubner, M. Jakob, M. Podworny, N. Motorcu, B. Morcinkowski – FEV Europe GmbH
D. Ju – FEV China Co., Ltd.

HyPACE - Hybrid Petrol Advanced Combustion Engine

M. Bassett, A. Cooper, S. Reader, J. Hall, P. Stansfield – MAHLE Powertrain Ltd.

J. Hartland, C. Li – Jaguar Land Rover Ltd.

A. Taylor – BorgWarner Turbo Systems

EA211 TSI@evo – The New 4-Cylinder Gasoline Engine from Volkswagen

K. Persigehl – FAW – Volkswagen Automotive Co., Ltd.

F. Eichler, W. Demmelbauer-Ebner, J. Theobald, B. Stiebels, H. Hoffmeyer, M. Kreft

HYBRID & ELECTRIC POWERTRAINS I

SVEN - The Ultimate BEV for Future Shared Mobility

M. Hog, M. Pielen, M. Volm, A. Belinski – share2drive GmbH

Virtual Approach for Objective Optimization of HEV and EV Driveability

C. Paar, M. Martin, G. Woelfl, F. Eibler, B. Putsche, M. Passath – Magna Steyr Fahrzeugtechnik AG & Co KG

Super Clean Electrified Diesel: Towards Real NOx Emissions below 35 mg/km

R. Brück – Continental Emitec GmbH

G. Avolio, J. Grimm, O. Maiwald, G. Rösel, H. Zhang – Continental Automotive GmbH

Transmissions for Battery Electric Vehicles

Y. Sha – FEV China Co., Ltd.

I. Steinberg, J. Nowack, G. Hellenbroich, J. Dohmen – FEV Europe GmbH

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CO2 REDUCTION

ElroActive - Active Thermal Conditioning of Exhaust System

A. Hubert, P. Schölzel, M. Bold, K. Wilsch – ElringKlinger AG

Advances in Dynamic Skip Fire: eDSF and mDSF

M. Younkings, E. Ortiz-Soto, M. Wilcutts, J. Fuerst – Tula Technology

J. Kirwan, K. Confer, K. Aggoune – Delphi Technologies

Highly Efficient Hydrogen Combustion Engines as an Alternative to Fuel Cells and Electric Drives in the Commercial Vehicle Sector

T. Korn, A. Sousa – KEYOU GmbH

ADVANCED DRIVER ASSISTANCE SYSTEMS

Advanced Test of Autonomous Vehicles: The 6D Target Mover and Dynamic Pedestrian Target

I. Doric, D. Arp – MESSRING Active Safety GmbH

UNICARagil - Disruptive Modular Architectures for Agile, Automated Vehicle Concepts

L. Eckstein, T. Woopen, B. Lampe, T. Böddeker – ika, RWTH Aachen University

Prediction Algorithm for Decelerating Driving States Based on Driver Characteristics for Smart Regenerative Control of Electric Vehicles

K. Yeon, K. Min, G. Sim, M. Sunwoo – Hanyang University

AUTOMOTIVE STRATEGY I

Challenges and Opportunities in LithiumIon Battery Supply

W. Bernhart, D. Ernst, M. Yoon, G. Pieper – Roland Berger GmbH

R. Zheng – Roland Berger (Shanghai) Ltd.

How Electromobility and Autonomous Driving Will Change the Automotive Value Chain

C. Foltz, H. Weber, A. Wild – PwC Strategy& (Germany) GmbH

C. Stürmer – PricewaterhouseCoopers GmbH

Economic Potential of Vehicle Data - Digital Platforms and Marketplaces as a Precondition for Competitiveness?

R. Wolsfeld, L. Eckstein – ika, RWTH Aachen University

C. Burkard, I. Olschewski – Forschungsgesellschaft Kraftfahrwesen mbH Aachen

Understanding Developments and Pinch Points in Automotive Fuel Cell Supply Chains Worldwide

D. Hart, F. Lehner, A. Chase – E4tech

HMI AND VEHICLE CONCEPTS

Surf & Curve: User Experience-Centered HMI-Concepts Set Revolutionary Technology Trends

C. Brockmeier, L. Eckstein – ika, RWTH Aachen University

S. Lemcke – BCS - Automotive Interface Solutions

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Use Case Based Product Development – Blue Ocean Micro Mobility

T. Schrader, L. Dönz – AUDI AG

Identifying Customer Insights for Autonomous Urban Shuttles – A Methodological Approach

C. Brockmeier, A.-L. Köhler, N. Depner,

M. Schwalm – ika, RWTH Aachen University

A. Gatzweiler Holz – Ford-Werke GmbH

HIGH-EFFICIENCY ENGINES

CE12 – The 3-Cylinder TC-GDI in the New XCE Core Engine Family

J. Wang, Y. Wang, J. Schopp, G. Lv – Mianyang Xincheng Engine Co., Ltd.

Z. Zheng – FEV China Co., Ltd.

H. J. Ecker – FEV Europe GmbH

Pre-Chamber Ignition and Promising Complementary Technologies

M. Sens, E. Binder, P.-B. Reinicke, M. Riess, T. Stappenbeck, M. Woebke – IAV GmbH

Design, Production and Cost of a Crankshaft Equipped with Compact & Continuously VCR

B. de Gooijer, S. Wagenaar – Gomecsys BV

J. Trieschmann, M. Stitz – Mitec Automotive AG

HYBRID & ELECTRIC POWERTRAINS II

ICONA's Vision of Future Mobility

S. Chuffart – ICONA Design & Engineering Co., Ltd.

Optimization of the 48 V Mild Hybrid Technology to Minimize Local Emission in the RDE

H. Wang – Continental Automotive Holding Co., Ltd

T. Knorr, A. Schatz, S. Baensch, D. Eller – Continental Automotive GmbH

Multi-Objective Predictive Energy Management Framework for Hybrid Electric Powertrains:

An Online Optimization Approach

R. Sangili Vadamalu, C. Beidl, D. Schmidt – TU Darmstadt

S. Barth, F. Rass – Honda R&D Europe (Deutschland) GmbH

Fuel Cell Range Extender – Tailored System Development from Concept to Public Road Usage

M. Peksen – FEV Europe GmbH

REAL DRIVING EMISSIONS

The RDE Measurement of Fast Transient Emissions from Gasoline, Diesel and Hybrid Vehicles

Q. Li, M. Peckham, M. Hammond – Cambustion / B. Mason – Loughborough University

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How has the Performance of Passengers Cars Changed through Euro 4, 5 and 6, and what has been the Impact of WLTP and RDE Legislation?

N. Molden – Emissions Analytics

RDE Compliant Powertrain Development and Robust PN Calibration at Engine-in-the-Loop Test Facility

D. Guse, J. Claßen – VKA, RWTH Aachen University

M. Nijs, M. Görgen, A. Balazs, J. Scharf, – FEV Europe GmbH

S. Trampert, H. Baumgarten – FEV Group GmbH

BATTERY & TRANSMISSION

Crash Safety of Lithium-Ion Batteries

Y. Xia – Tsinghua University

Current e-Powertrain Development Trends – FEV's Perspective on Battery, EMotor and Charging

M. Stapelbroek, S. Sehr, S. Wetzeler – FEV Europe GmbH

M. Schmitz – RWTH Aachen University

Successfully Started from 0 to 100 – A High-Efficient Dual Clutch Transmission and its Further Development

J. Trumpff – GETEC Getriebe Technik GmbH

AUTOMOTIVE STRATEGY II

Automotive Industry 2030 - Disruption, Innovation, Transformation

J. Berking, A. Joas, J. Buss, L. Helfmann – Oliver Wyman

Autonomous Driving: Moonshot Project with Quantum Leap from Hardware to Software Focus

T. Pottebaum, H. Proff, P. Wolf – Deloitte Consulting GmbH

The Electrification of the Powertrain and Its Impact on the Machinery Industry and Component Suppliers

T. Lüdiger, M. Wittler – FEV Consulting GmbH

Towards a Platform-Thinking Strategy in Automotive Aftersales with a View to the Next Disruptive Wave

J. Mabuma – TEAMWILLE GmbH

CHASSIS

Enhanced ABS- and ESC-Control Logic for Wheel-Individual Electric All-Wheel Drive

F. Tigges, W. Jarisa, R. Henze, F. Kückay – University of Braunschweig

Test Procedure Improvements to Enhance Combined Slip Measurements

K. Sivachanemougam – Michelin Tyre

Research & Development Center (Shanghai) Co., Ltd.

X. Maume – Manufacture Française des Pneumatiques Michelin

C. Bachmann – fka, RWTH Aachen University

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Optimization of Measurement Procedures and Methodology for Combined Slip Tire Behavior
W. Versteden, C. Lugaro, T. Jansen – TASS International / S. van Putten – AUDI AG

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PLENARY SESSION

Nissan's Powertrain Technology Strategy

Dr. Ryozo Hiraku, Engineering Director Powertrain, Engineering Division - Nissan Motor Co., Ltd.

Mobility for Tomorrow – Between the Poles of Electrification

Dr. Yong Liu, CTO and Management Board Member - Schaeffler Greater China

Learning Maps for Automated Vehicles

Prof. Dr. Ralf G. Herrtwich , Senior Vice President Automotive – HERE

NEW GASOLINE AND DIESEL ENGINES

New 1.0 Liter Three-Cylinder Turbocharged Gasoline Direct Injection Engine from Honda

Y. Yoshio, K. Maeyama, H. Komatsu, A. Terao, H. Daicho, K. Sato, Y. Harada, M. Shibata – Honda R&D Co., Ltd.

Development of a New Engine and Aftertreatment System to Meet Off-Road Stage V without Exhaust Gas Recirculation

T.-J. Wang, R. Hyun, I.-H. Im, D.-S. Kim, T.-K. Kim, B.-K. Song, W.-G. Lee, T.-S. Kim – Doosan Infracore

Development of a 1-Liter Advanced Turbocharged Gasoline Direct Injection 3-Cylinder Engine

Y. Shen – Zhejiang Geely Powertrain Research Institute

VEHICLE CONCEPTS

Automotive Systems Engineering – Enabled by Virtual Prototypes

S. Schmidt – IPG Automotive GmbH

X. Huang – IPG Automotive (Shanghai) Ltd.

The ZF Innovation Car 2017 – Taking the Next Steps Towards Less Emissions and More Safety

S. Jung, T. Werne, E. Finkbeiner, V. Vogel – ZF Friedrichshafen AG

Vehicle Development of the Future - Digital Layout and Validation of Functional Attributes

P. Schoeggel, U. Grebe, M. Oswald, E. Bogner, B. Graf, P. Drage – AVL List GmbH

DRIVING DYNAMICS AND AUTONOMOUS DRIVING

Increasing Performance & Function with Light & Robust Suspension Components

T. Schrüllkamp, B. Ditzer – Mubea Fahrwerksfedern GmbH

A. Lindner – Mubea Automotive Components (Taicang) Co., Ltd.

Tire Design Characteristics: Impact on Trade-off between Driving Dynamics Performances and Rolling Resistance

M. Martino, E. Salino, M. Caudano – Fiat Chrysler Automobiles EMEA

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Determination of Tyre Properties – What are the Demands and Challenges?

M. Harris, C. Bachmann – fka mbH

L. Eckstein – ika, RWTH Aachen University

Cost Effective Automotive Platform for ADAS and Autonomous Development

M. Pischinger, H. Alzubi, B. Dwyer, S. Nagaraj, A. Quail – FEV North America, Inc.

AUTOMOTIVE STRATEGY

Cities of the Future – What it Means for Automotive

J. Karlberg, W. Bernhart – Roland Berger GmbH

Lightweight Design – Holistic Evaluation for Efficient Technology Strategies

R. Wolsfeld, A. Busse, L. Eckstein – ika, RWTH Aachen University

I. Olschewski – fka mbH

Electrified Future of Mobility – Is the Expected Value Chain Shift Opportunity or Threat for OEMs and Supplier?

A. Nase, P. Glusk, C. Speuser – FEV Consulting GmbH

Automotive Digital Business Models

J. Berking, A. Nienhaus – Oliver Wyman GmbH

HYBRID POWERTRAINS

Arrizo 7e Plug-In Hybrid Powertrain and High Efficiency Engine Design

E. E. Han – Chery Motors and Jiangsu University

Generic Vehicle Energy Management

L. Eckstein, L. Häußler, R. Hummel – ika, RWTH Aachen University

Highly Dynamic Torque Control for Range Extenders with Rolling Torque Compensation

K. Herold, J. Andert, S. Pischinger – VKA, RWTH Aachen University

M. Stapelbroek – FEV Europe GmbH

NEW ENGINE TECHNOLOGIES

Intelligent Valve Actuation – A Radical New Electro-Magnetic Poppet Valve Arrangement

R. Stone, D. Kelly – Camcon Auto Ltd.

S. Jenkinson, J. Geddes – Jaguar Land Rover Ltd.

Developing a Multistep Tumble Flap for Air Intake Systems

J. Matsuzaki, T. Kawano – MAHLE Filter Systems Japan Co., Ltd.

S. Inamijima, M. Shiraki, K. Tanzawa, I. Matsuzaki – Nissan Motor Co., Ltd.

J. Rückauf, J. Stehlig, I. Morgillo, M. Janssen – MAHLE Filtersysteme GmbH

FlexVent – EGR Valve Integrated EGR Mass Flow Metering for Heavy-Duty Engines

C. Antoni, B. Franz, S. Cucuz, F. Dellen – Pierburg GmbH

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DRIVETRAIN AND TRANSMISSION

CEVT and Geely Powertrain Launches a 7-Speed Dual Clutch Transmission Platform

R. Klein – China Euro Vehicle Technology AB

J. Lin – Geely Powertrain Research Institute

Design and Analysis of a MAGSPLIT-Based Dedicated Hybrid Transmission

S. Calverley, G. Oshin, J. Birchall – Magnomatics Ltd.

K. Taylor, L. Rodrigues – Romax Technologies Ltd.

K. Atallah, K. Hoang –University of Sheffield

D. Ooi, J. Akroyd – CMCL Innovations Ltd.

A. Chapman – Changan Automotive UK Ltd.

Electric Drive Units Including Upto 2 Speeds

I. Steinberg, G. Hellenbroich, P. Janssen, H.-P. Lahey – FEV Europe GmbH

GASOLINE EXHAUST AFTERTREATMENT AND LUBRICANTS

Gasoline Particulate Filter: Implementation and Technical Challenges

E. Jean – Faurecia Clean Mobility

Current and Future Trends of Gasoline Particulate Filter Technologies, Calibration Strategies and Aging Methods

M. Görgen, M. Nijs, H. Lehn, J. Scharf, M. Thewes, M. Hendriks – FEV Europe GmbH

J. Claßen, S. Sterlepper – VKA, RWTH Aachen University

H. Baumgarten – FEV Group GmbH

Management of Low Speed PreIgnition via Fuel and Lubricant Formulation

B. Leach, A. Smith, J. Williams, R. Pearson, R. Yates, C. Ritchie – BP International Ltd.

A. Weall, C. Li, B. Cooper – Jaguar Land Rover Ltd.

VARIABILITIES IN GASOLINE ENGINES

VCR-VVA High Expansion Ratio, A Very Effective Way to MillerAtkinson

C. Constensou, V. Collée – MCE-5 Development

Combining VVA with VCR for High-Efficient SI Engines

M. Breuer, S. Schmitt, D. Hunkel, S. Moormann – Pierburg GmbH

Dual Mode VCS – Concept Readiness

K. Arens, T. Weiss – iwis motorsysteme GmbH & Co. KG

H. Sorger, W. Schöffmann, S. Lösch, W. Unzeitig – AVL List GmbH

FEV 2-Stage VCR – A Solution for Future Emission Legislation and High Performance

H. Baumgarten – FEV Group GmbH

K. Habermann, T. Uhlmann, U. Schaffrath, A. Grieger – FEV Europe GmbH

A. Schlosshauer – VKA, RWTH Aachen University

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ADVANCED DRIVER ASSISTANCE SYSTEMS

Hella Driver Assistant System – On the Way of Autonomous Driving

J. Xia – Hella Nanjing Technical Center

Delphi Automated Driving Experiences: US, Singapore, France; From SF-NYC Coast-to-Coast to Automated Mobility on Demand

S. Lambermont – Delphi Electronics and Safety

Solid State Lidar Based Trailer Estimation System for Enhanced Trailer Blind Spot Detection

P. Krejci, M. Hulan, P. Zednik, O. Kozak, E. Martinez, Y. Sela – Valeo

Data-Driven Road User Prediction at Intersections with Connected Sensors

L. Eckstein, J. Bock – ika, RWTH Aachen University

J. Kotte, A. Zlocki – fka mbH

ELECTRIC DRIVES AND BATTERY SYSTEMS

The Next Generation of BMW's Electrified Powertrains: Providing Software Features Quickly by Model-Based System Design

S. Kriebel, V. Moyses, G. Strobl – BMW Group

J. Richenhagen, P. Orth, S. Pischinger – FEV Europe GmbH

B. Rumpe, C. Schulze, T. Greifenberg – SE, RWTH Aachen University

Modular Energy Storage Systems for Future Automotive Applications

N. Milovanovic, – Johnson Matthey Battery Systems

48 Volt Technology in the Light of the Connected Vehicle and Electrical Board Net Advancements

P. Rankl – Continental Automotive Systems Co., Ltd.

F. Graf, S. Lauer, S. Baensch, R. Knorr – Continental Automotive GmbH

M. Sans – Continental Automotive France SAS

CO2 REDUCTION

Combination of EGR and Electric Supercharger on the Vehicle Electrification Roadmaps to Meet Future Challenges for Gasoline Engines

K. Surbled, J. Chicot, F. Ribera, G. Ridolfi, D. Durrieu, P. Lenoir – Valeo Powertrain Systems

eDSF: Dynamic Skip Fire Extension to Hybrid Powertrains

M. Younkings, M. Wilcutts, M. Nagashima, K. Eisazadeh-Far, R. Wang – Tula Technology, Inc.

Gasoline Engine Technologies to Achieve Diesel-Like Fuel Consumption Levels

P. Freeland, M. Feasey, G. Jones – Cosworth Ltd.

S. Chen, W. Huang – CEC Haitec

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PLENARY SESSION

The New Generation of Toyota Powertrains

Mr. Izumi Watanabe, General Manager, Toyota Motor Corporation

NEW GASOLINE ENGINES

EA211 TSI@evo – The New 4-Cylinder Gasoline Engines from Volkswagen

A. Birkigt, W. Demmelbauer-Ebner, H. Middendorf, M. Ganzer, D. Hagelstein, K. Persigehl – Volkswagen AG

New Geely 1.0L TGDI Engine

Y. Shen – GEELY POWERTRAIN Research Institute

The New Volvo Drive-E 3-Cylinder Engine

H. Björnsson, P. Adkin – Volvo Car Corporation

The New Audi 2.5l TFSI 5-Cylinder Engine for the New Audi TT RS – A Lightweight Design High Performance Engine

S. Dengler, A. Pelzer, G. Mendl – Audi AG

M. Füssel, M. Ganz – quattro GmbH

ADVANCED DRIVER ASSISTANCE SYSTEMS

Development and Testing of Customer-Oriented Advanced Driver Assistance Systems

M. Hoffmann – BMW China Services Ltd.

H. Seeger – BMW Group

Accelerate and Industrialize the Development of HAD Algorithms using BigData Technologies

T. Abthoff – NorCom Information Technology AG

T. Horakh – Daimler AG

Laser Scanning Technology for Driving Assistance in Extraordinary Operating Zones

E. Martinez Granada, L. Carek, M. Yahia, Y. Sela, O. Kozak, C. Lobo Castillo

– Valeo Autoklimatizace k.s.

Challenges and Solutions of Information Exchange of Connected Vehicles in the Context of Autonomous and Semi-Autonomous Driving

P. Willemsen, F. Ji – Hella Shanghai Electronics Co., Ltd.

HYBRID VEHICLES AND COMPONENTS

Optimal Connected Energy Management for Hybrid Vehicles

P. Rankl, M. Sans – Continental Automotive

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Considering the Aging of Lithium-Ion Battery in the Operation Strategy for Hybrid Commercial Vehicles

S. Li, J. Maiterth – VKA, RWTH Aachen University

T. Hülshorst, M. Stapelbroek, A. Awarke, M. Küpper – FEV GmbH

HyperHybrid an Efficient, Affordable Plug-Innovation

M. Graz, F. Obrist – Obrist Powertrain GmbH

Research Project ECOCHAMPS – Standardization and Modularization of Cost-Efficient Hybrid Components

L. Eckstein, T. Dittmar, L. Häußler – ika, RWTH Aachen University

AUTOMOTIVE STRATEGY

Preparing for Disruptive Innovations – Towards an Agile Engineering Organization for the Connected, Autonomous World

W. Bernhart – Roland Berger GmbH

J. Zhang – Roland Berger (Shanghai) Ltd.

Business Models for Connected Vehicles – New Business Opportunities for the Automotive Industry

T. Dittmar, L. Eckstein – ika, RWTH Aachen University

C. Burkard – fka mbH

Automotive Business Innovation – Shaping the Company's Position for a Radically Different Automotive Pyramid

W.-D. Hoppe – Arthur D. Little

Growth – Supplier Strategies in a Consolidating and Disrupted Industry

J. Berking – Oliver Wyman

DI GASOLINE EMISSION

Water Injection – High Power and High Efficiency Combined

M. Thewes – FEV GmbH

B. Lehrheuer – VKA, RWTH Aachen University

Field-Study and Durability Evaluations on GDI Vehicles Equipped with Various Gasoline Particulate Filter (GPF) Concepts

S. He – Corning Incorporated

A Study of “Off-Cycle” Emissions from a Euro 6 GDI Vehicle

M. Duckhouse, M. Peckham, B. Campbell, A. Finch, J. Dunnett – Cambustion

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ENGINE COMPONENTS AND RAPID PROTOTYPING

Timing Chain Drives with Innovative Solutions for Future Internal Combustion Engines
T. Fink – iwis motorsysteme GmbH & Co. KG

Delphi Injector Closed-Loop Control Using the Switch-Technology
P. Voigt, J.-L. Beduneau, G. Meissonnier, H.-J. Schiffgens – Delphi

Prototype Castings for Engine Development
C. Schmidt – ACTech GmbH

FRICITION AND TRIBOLOGY

Friction Modification Technologies: Meeting the Lubrication Needs of Today and Tomorrow
B. Thiebaut – TOTAL MS

Low Friction Base Engine Design
H. Baumgarten, M. Plettenberg, M. Thewes, B. Lindemann, J. Scharf – FEV GmbH

Base Engine Friction Optimization and the Impact of New Test Cycles
W. Schoeffmann, C. Priestner, A. Ennemoser, H. Sorger – AVL List GmbH

CHARGING

New Turbocharged 1.5 / 1.8 TGDI JMC Engines
X. Luo – JiangLing Motors Corporation

Improved Emission Control through Turbocharger Speed Measurement
J. Tigelaar, D. Cox – JAQUET Technology Group AG

Fuel Consumption Reduction and Performance Improvement by Electric Driven Supercharger
M. Stapelbroek, M. Thewes, B. Holderbaum, J. Ogrzewalla – FEV GmbH

E-MOBILITY AND BATTERY

PHEV Battery SOP Development
C.W. Wang, B. Yi – Tianjin EV Energies Co., Ltd.

Process and Tools for the Development of Future Modularized Li-Ion-Batteries
L. Eckstein, G. Mimerberg – ika, RWTH Aachen University

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12+12V and 12+48V: A Modular Approach for Components and Electric Architectures
O. Coppin – Valeo

Re-Defining Driving Experience – Approach and Concept of the Research Vehicle SpeedE
T. Dittmar, L. Eckstein, B. Schwarz, T. Sandmann, M. Struth, S. Faßbender – ika, RWTH Aachen University

COMMERCIAL ENGINES

CO2 Reduction for Truck Engines: The Results of the CO2RE Project
A. Banks, L. Jeffcoat, P. Reverault, A. Trevisan – Ricardo UK Ltd
S. Edwards – Ricardo Deutschland GmbH
J. Engström – Volvo Group Trucks Technology
P. Nisius, H. Oelschlegel – Daimler AG
C. Pelleto, A. Roccasalva – Centro Ricerche FIAT
V. Strots – IAV GmbH

Waste Heat Recovery for Commercial and Large Bore Engines – Potential and Challenges
K. Eichler – VKA, RWTH Aachen University
Y. Jeihouni, M. Franke, D. Tomazic – FEV North America Inc.
C. Ritterskamp – FEV GmbH

Diesel Particulate Filter (DPF) Control Function Development
Q. Li, H. Feng, Y. Wang – Weichai Power Co., Ltd.
S. Petri – VKA, RWTH Aachen University
E. Brückner – FEV GmbH

Development of a Non-Road Engine Family with Focus on Newly Industrialized Countries
M. Neitz, T. Hamm, S. Lauer – FEV GmbH

HYBRID AND ELECTRIC VEHICLES

Development of a Brand New Hybrid Powertrain for Compact Car Market
M. Kimura, A. Shibuya, N. Nakada – Nissan Motor Co., Ltd.

BREEZE! – Fuel Cell Range Extender for Battery Electric Vehicles

M. Walters, A. Kuhlmann, S. Pischinger – VKA, RWTH Aachen University
J. Ogrzewalla – FEV GmbH

Opportunities for Integrating Electric Drives into the Vehicle Architecture
B. Hellwig, U. Niehaus – ZF Friedrichshafen AG

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CO2 REDUCTION

Dynamic Downsizing Gasoline Demonstrator

M. Bassett, J. Hall, T. Cains, S. Borman, S. Reader – MAHLE Powertrain Ltd.

The Role of High Octane Fuels in Future Mobility – A Technical Review

K. Wilbrand, A. Janssen, W. Warnecke, C. Balzer, F. Balthasar – Shell Global Solutions
(Deutschland) GmbH

J. Cadu – Shell France

Integrated Thermal Management: Systems Approach towards CO2 Reduction

R. Jorach, F. Atschreiter, A. Goessling – Magna Powertrain

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PLENARY SESSION

The Challenges for Chinese CV Engine Suppliers

Dr. Haoran Hu, Vice President and CTO, Weichai Power Co., Ltd.

SKYACTIV Engine Innovation Both for Thermal Efficiency and its Monotsukuri

Ichiro Hirose, Executive Officer, General Manager, Powertrain, Mazda Motor Corporation

HYBRID SYSTEMS

PGS Power Coupler for Hybrid Transmission with Single E-Motor

Z. Duan - Chery Automobile Co., Ltd.

Mild Hybridisation and Electric Boosting Improving Diesel Emissions and Fuel Efficiency with Premium Performance

T. Schnorbus, J. Schaub, M. Miccio, F. Glados, E. Morra, M. Rasty, J. Ogrzewalla - FEV GmbH

S. Potteau – Valeo Powertrain Systems

The Efficient Plug-In Hybrid Drive in the New BMW 2 Series Active Tourer eDrive.

J. Romberg – BMW China Services Ltd.

S. Juraschek, R. Vachenauer, K. Lorenz, T. Marschall, A. Stephan, J. Tachtler - BMW Group

ADVANCED DRIVER ASSISTANCE SYSTEMS

Travelling Comfort and Safety at the Highest Level – Driver Assistance in the New BMW 7 Series

M. Hoffmann, C. Dorrer, T. Bock, R. Friedrich, S. Knoller, D. Langenhan, A. Ruß, P. Varadi – BMW Group AG

Challenges for Automated Driving on Motorways

J. Langenberg, A. Bartels, A. Etemad - Volkswagen AG

Advanced Methods for Integrated Safety Systems Testing

V. Jirovský – Czech Technical University

O. Vaculín – TÜV SÜD Czech s.r.o.

NEW GASOLINE ENGINES AND COMBUSTION PROCESSES

The New BMW Inline 6-Cylinder Gasoline Engine with TwinPower Turbo, Direct Injection, and VALVETRONIC in the New BMW 7 Series

F. Hannemann, C. Landerl, M. Ruelicke, B. Durst, W. Mattes – BMW Group

Dynamic Downsizing for Gasoline Engines

M. Bassett, B. Hibberd, J. Hall - MAHLE Powertrain Limited

K. Gray, B. Richards – Aeristech Limited

Analysis of the Flame Radiation in SI Engines for Abnormal Combustion Phenomena

Z. Li – Sonus Technologies

F. Wytrykus – SMETEC GmbH

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The Effect of Oil Droplet Characteristics on Preignition and Superknock in Turbocharged Gasoline Engines

J. Roos, A. Gupta, H. Shao, J.

Remias, Y. Wang - Afton Chemical Corporation

L. Yan, Z. Wang, S. Shuai – Tsinghua University

AUTOMOTIVE STRATEGY CONCEPTS

The End of Mobility as We Know It

M. Kempf, L. von Harrach – Berylls Strategy Advisors

Automotive 4.0: New Mobility Concepts – Have We Reached "Peak Car"?

W. Bernhart – Roland Berger Strategy Consultants GmbH

M. Winterhoff - Roland Berger Strategy Consultants LLC

Embrace Uncertainty – Risk Management for Automotive Suppliers

M. Boilard, L. Stolz, L. Jaede – Oliver Wyman

The Future of Automotive Operations – Developing an Operating Model for the Next Automotive Transformation

W.D. Hoppe – Arthur D. Little GmbH

EMISSION & CO2 CONCEPTS DIESEL ENGINES

Low Pressure EGR Impact on Condensate and Product Specifications

H. Su, S. Favelier, A. Dutot, K. Surbled, F. P. Morello, C. Cherreau – VALEO Powertrain System

Effects of the Reduction of the Number of Cylinders of Commercial Engines on Combustion and Friction Determined with a Method of Engine Map Scaling

P. Heuser, T. Hamm, M. Neitz – FEV GmbH

P. Methfessel, K. Eichler – Institute for Combustion Engines (VKA), RWTH Aachen University

CO2 Legislation for Heavy Duty Vehicles –The European Approach

S. Nentwig, L. E. Schulte, J. Hammer – TÜV NORD Mobilität & Co. KG

FUTURE VEHICLE DEVELOPMENT

Traditional Product Development Processes and their Limitations – Proposing a Holistic Experience Centered Method

L. Eckstein, M. L. Kratschmayr, S. Ladwig, M. Schwalm – Institute for Automotive Engineering (ika), RWTH Aachen University

Customer-Centered Design for Successful Disruptive Innovations: An EV Case Study

A. Keinath, V. Zott – BMW Group

Development of an Efficient Suspension Design during the Early Concept Phase

T. Dittmar, K. Vemireddy L. Eckstein – Institute for Automotive Engineering, (ika), RWTH

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L. Hesse, P. Rettweiler - Forschungsgesellschaft Kraftfahrwesen mbH Aachen (fka)

TRANSMISSION

Sealing Concepts of Separator Plates for Hydraulic Control Modules in Automatic Transmissions

J. Schoellhammer, K. Goehl – ElringKlinger AG

J. Schroedter - ElringKlinger Ltd.

R. Mish - ElringKlinger Automotive Manufacturing, Inc.

Conventional Powertrain including Automatic Transmission for Entry Level Vehicle Segment

I. Steinberg, M. Daniel, K. Wolff – FEV GmbH

P. Glusk – FEV Consulting GmbH

BATTERY CONCEPTS & ELECTRIC VEHICLES

Starting, Accelerating, Driving – Groundbreaking Battery Systems for Automotive Applications

K. D. Frers - Voltabox Deutschland GmbH

Functional Potential by Crosslinking Domains – Optimized Recuperation for the SpeedE Research Vehicle

L. Eckstein, M. Struth, G. Schulze Forsthöve – Institute for Automotive Engineering (ika), RWTH Aachen University

EMISSION CONCEPTS GASOLINE ENGINES

The Electric Heatable Catalyst – An Efficient Measure for Emission Optimization in Mild Hybrid Vehicle Operation Strategies

P. Rankl – Continental Automotive Holding Co., Ltd

O. Maiwald, T. Knorr, D. Ellmer, A. Schatz, R. Brück – Continental

The Potential of Comprehensive Emission Control for Gasoline DIEngines – A Comparison of Different Exhaust System Options and an Outlook on Future Requirements

S. Kunert – Umicore AG & Co. KG

B. Kern – Umicore Autocat Luxembourg

Future Engine Strategies – Survival of the ICE Beyond 2025?

M. Wittler, P. Glusk, A. Nase – FEV Consulting GmbH

M. Daniel - FEV GmbH

WLTP v NEDC: Calibration Methodology Change Through Numerical Analysis

T. Holdstock, P. Newman – SMTc UK Ltd.

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TRIBOLOGY AND ENGINE MECHANICS

In-Manufacture Running-In of Valve Train Components by Using the Triboconditioning® Process

B. Zhmud, J. Lundmark – Applied Nano Surfaces Sweden AB

J. Mohlin - Gnutti Carlo Sweden AB

L. Hammerström – Materials Technology, Scania CV AB

Friction Tool Development and Validation on the Basis of DuroGlide, Design Changes and their Secondary Physical Effects to Leverage the Highest Friction Potential

F. Ruch, R. Mittler – Federal-Mogul Burscheid GmbH

Megatrend Fuel Economy: How to Optimize Viscosity with VI Improvers

B. Liu – Evonik Degussa (China) Co., Ltd.

M. Seemann, F. Lauterwasser – Evonik Resource Efficiency GmbH

D. J. Smolenski - Evonik Oil Additives USA, Inc.

New Concepts for Highly Efficient Separation of Aerosol from Crankcase Ventilation Blow-by Gases

S. Dwenger, S. Buck, Y. Serve, M. Jäger, H. Coolens, K. Bendl, R. Müller – ElringKlinger AG

M. Junker, S. Ade, J. Kumpf, M. Piesche - Institut für Mechanische Verfahrenstechnik, Universität Stuttgart

EXHAUST AFTERTREATMENT AND CONTROLLING DIESEL ENGINES

Two Cylinder Common Rail Diesel Engine Electrical Control System Development of DIAS

G. Li – DIAS Automotive Electronic Systems Co., Ltd.

NSC and SCR as Components in a Modular System for Sustainable Solutions of Passenger Car Exhaust Aftertreatment

S. Bremm, J. Kreuz, H. D. Noack, F. Welsch, J. Baron – Umicore AG & Co. KG

Development of Efficient DPF System Using AgPd-Catalyst for Euro6 Regulation

R. Takahara, K. Tsuzuki, Y. Matsuo, S. Aoyagi, M. Ohnaka – Honda R&D Co., Ltd.

T. Kogawa, T. Wakabayashi, Y. Kakizaki - Mitsui Mining & Smelting Co., Ltd.

48V HYBRID SYSTEM

Benefits of a Switched-Reluctance EMotor for Mild Hybrid 48V Applications A. Hubert, P. Bloore – Controlled Power Technologies Ltd.

Energy Storage Systems and 48V Power System – Saving Potentials of Future Micro and Mild Hybridization

P. G. Diehl – Hella Shanghai Electronics Company Ltd.

The Ideal Base Engine for 48 Volts – Chances for Efficiency Improvement and Optimization of the Overall System Complexity

H. Sorger, W. Schöffmann, A. Ennemoser, G. Fuckar, M. Gröger, Dr. Petutschnig, G. Teuschl, J. Hood – AVL List GmbH

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PLENARY SESSION

Implementation of Innovative Drive – Accelerate the Replacement and Upgrading of Traditional Powertrain

Dr. Heyi Xu Chairman of the Board Beijing Automobile Group Co., Ltd.

Volvo's Way to Reach Zero Emissions

Dr. Peter Mertens, Senior Vice President Research & Development, Volvo Car Corporation

Combustion Control Method Analysis for Euro 6 Diesel Engine

Dr. Zhiqiang Lin, Vice General Manager and Chief Engineer Yuchai Motor Company

NEW DIESEL ENGINES AND DIESEL INJECTION

The New 2.0l Diesel Engine for the All-New Volvo XC90

B. Bai, M. Fleiss, N. Möller, A. Olofsson, J. Korsgren - Volvo Car Corporation

EU Project „Powerful“ – A Significant Step in CO₂-Reduction Based on the High Efficient 3 Cyl TDI ®

E. Heini – Volkswagen Group China

M. Frambourg, T. Menzel, M. Schüttenhelm, S. Watzl, M. Weißner, K. Wrede – Volkswagen AG

B. Holderbaum – FEV GmbH

T. Wittka – RWTH Aachen University

The Next Generation of Delphi Common Rail Systems for Light and Medium Duty Commercial Vehicles

X. Li, J. Qi, H.-J. Schiffgens, C. Cardon, R. Judge, M. Ralph, K. Smith, J. Beduneau – Delphi Diesel Systems

FUTURE VEHICLES

Conditions for Successful Launch of Fuel Cell Vehicles in the Chinese Market

R. Schruth – MAGNA STEYR Engineering AG & Co. KG

M. Gasteiger – Graz University of Technology

Technology Planning Based on Characteristics Management for Highly Complex Modular Commercial Vehicle

M. Wagner, U. Mierisch – Daimler AG

Future Vehicles as Part of a Connected Environment

L. Eckstein, M. Schwalm – ika, RWTH Aachen University

A. Barkow, A. Zlocki – fka GmbH

NEW GASOLINE ENGINES

The New Toyota 2.0l I4 ESTEC D- 4S Engine

M. Takahashi, Z. Mashiki, T. Terada - Toyota Motor Corporation

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A New 2.0l and 1.8l Large Bore Turbocharged Gasoline Direct Injection Engine Development
C. Qian, D. Cai, C. Cheng, J. Xin, Y. Ping – SAIC

The New 3-Cylinder TwinTurbo Gasoline Engine for BMW i8
F. Hannemann – BMW AG
T. Brüner, B. Durst, W. Mattes, S. Missy – BMW Group

The New Toyota 2.0l Inline 4- Cylinder ESTEC D-4ST Engine – Turbocharged Direct Injection Gasoline Engine
T. Kawai, T. Ogawa, I. Watanabe, K. Yonezawa – Toyota Motor Corporation

ENERGY EFFICIENCY & BATTERY MANAGEMENT

Special Properties and Potentials of Induction Machines in Belt Driven Starter Generator Systems
R. Deutsch – Continental Automotive Holding Co., Ltd.
W. Hackmann, Y. Günsayan, M. Märgner – Continental AG

Influence of Advanced Technology for Thermal Management on SUV
Z. Zhao, G. Liu – Great Wall Motor Co., Ltd.

PERSIST – A Modular and Scalable Software Architecture for Innovative Control Functionalities
J. Richenhagen, T. Schnorbus, G. Birmes, H. Pieta – FEV GmbH

Innovative Solution in Battery Management Architecture and Design
P. Diehl – Hella Shanghai Electronics Co., Ltd.
M. Nalbach, T. Brunnert, C. Hoff – Hella KGaA Hueck & Co.

EMISSION CONCEPTS GASOLINE ENGINES

Gasoline Combustion Systems Beyond 2020
M. Thewes, A. Balazs, H. Baumgarten, J. Dohmen, J. Seibel, T. Uhlmann – FEV GmbH
F. Hoppe, P. Hoppe, M. Kriek – VKA, RWTH Aachen University

Optimization of Gasoline Exhaust Systems for EU6c and Beyond – Considering the Impact of a Particulate Filter Integration
S. He, D. Rose, T. Boger, P. Nicolin – Corning Inc.

Novel GPF Concept with Integrated Catalyst for Low Backpressure and Low CO2 Emission
H. Sakamoto, Y. Ito, T. Shimoda – NGK Insulators Ltd.
P. Kattouah, E. Ohara, C. Vogt – NGK Europe GmbH

ADVANCED DRIVER ASSISTANCE SYSTEMS

A Longitudinal-Acceleration Control for Cornering Using Dynamic Parameter Adjustment Logic based on Preceding Car Information
J. Takahashi, H. Altmannshofer – Hitachi Europe GmbH
A. Zlocki – fka mbH
D. Will – ika, RWTH Aachen University

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Automated Driving Applications and Technologies for Intelligent Vehicles – Adaptive

A. Zlocki – fka mbH

A. Knapp – Daimler AG

F. Fahrenkrog – ika, RWTH Aachen University

Automated Driving – The Next Big Thing?!

C. Kleinhans, M. Kempf – Berylls Strategy Advisors GmbH

ENGINE MECHANICS

Measurement of Gas Exchange Valve Temperature in Fired Engines

J. Wüst – Porsche Engineering

New Design Concepts for Hot Gas Sealings in Downsized Combustion Engines for EURO V/VI Application

J. Schroedter – Changchun ElringKlinger Ltd.

O. Göb, T. Lutz, X. Yu – Changchun ElringKlinger AG

D. Leibel – GKD Gebr. Kufferath AG

INNOVATIVE CHASSIS SYSTEMS

Electric Twist Beam (eTB) – A Report of the Driving Tests

H.-J. Gilsdorf, C. Elbers, B. Bäumer, D. Baasch, S. Pollmeyer – ZF Friedrichshafen AG

Active Chassis System for Optimization of Vertical Vehicle Dynamics

L. Eckstein, M. Klein – ika, RWTH Aachen University

HYBRID SYSTEMS

The New Plug-In Hybrid Powertrain for the All-New Volvo XC90

B. Bai, A. Eriksson, R. Eriksson, M. Fleiss, A. Lindersson, L. Stiegler - Volvo Car Corporation

Next Generation Micro Hybrid

P. Diehl – Hella Shanghai Electronics Company Ltd.

C. Amsel, M. Nalbach, A. Körner – Hella KGaA Hueck & Co.

China P2 Hybrid System

M. Niu – Schaeffler Trading (Shanghai) Co., Ltd.

Range Extender for High Compactness and NVH Performance

F. Beste, H. Sorger, C. Hubmann – AVL List GmbH

AUTOMOTIVE STRATEGY CONCEPTS

Supplier Excellence – Orientation of the Complete Business for Sustainable Efficiency

L. Stolz, J. Berking – Oliver Wyman GmbH

Strategies of CO2 Technology by OEM for 2025

C. Harter, L. Eckstein – ika, RWTH Aachen University

E/E 2.0 – Automotive 3.0: Trends – Disruptions – Implications

W. Bernhart, M. Baum – Roland Berger Strategy Consultants GmbH

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“Rising 15“ Roadmap – Technology Strategies for Automotive Growth Markets Beyond BRIC
A. Schlosser, C. Heuser, P. Seidel – Ricardo Strategic Consulting GmbH

GASOLINE COMBUSTION

Direct Injection of CNG for Driving Performance with Low CO₂

H. Husted, S. Schilling – Delphi Powertrain Systems

G. Karl – Daimler AG

C. Weber – Ford Europe

Fuel Effects in a Downsized Highly Boosted Direct Injection Spark Ignition Engine

K. Wilbrand, S. Campbell, R. Cracknell, S. Remmert, A. Schütze, W. Warnecke –
Shell Global Solutions UK

A. Lewis, S. Akehurst – University of Bath

J. Turner, R. Patel, A. Popplewell – Jaguar Land Rover

Chinese Market Fit for Variable Valvetrain Systems

D. Kennel, H. Richter – Schlegel & Partner GmbH

EXHAUST AFTERTREATMENT DIESEL ENGINES

CAE Assisted Combustion and Aftertreatment Layout for China’s First Euro VI HD Engine

C. Chang, Z. Zhateng, W. Jinbo, W. Hongxing, C. Xiaoxian, W. Yibao, H. Xiaoliang –
Weichai Power Co., Ltd.

B. Jagodzinski, J. Müller, H. Sankha, R. Wu, V. Rajamani – FEV GmbH

NSC + SDPF System as Sustainable Solution for EU6b and Up-Coming Legislation

L. Ruwisch, L. Mussmann, I. Grisstede, W. Hauptmann, H. Noack, F. Welsch – Umicore

H. Loerch, A. Burkardt, M. Moench, V. Schimik – Audi AG

Improvement of the Compact Mixing Systems for Optimum SCR-Filter Integration on
Passenger Cars

E. Jean, J. Michelin – Faurecia Emissions Control Technologies

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PLENARY SESSION

The Future Prospect of Internal Combustion Engines
Mitsuo Hitomi, Mazda Motor Corporation, Hiroshima, Japan

Powertrain Innovation: A Product Leader's Perspective
Christopher P. Thomas, BorgWarner Inc., Auburn Hills, MI, USA

GASOLINE ENGINES

The New 1.6l MPI CNG Engine of EA211 Line
A. Schad – Shanghai Volkswagen
H.-J. Neußer, R. Szengel, J. Worm – Volkswagen AG

The New Chang'An 1.5 L Turbo Gasoline Direct Injection Engine with Delphi Engine Management System for the China Market
J. Zizelman, N. Lee, J. Kirwan, C. Mergler – Delphi Powertrain
Z. Zhan – Chang An Automobile Company

VEA – Volvo Environmental Architecture: Extreme Downsizing and Maximum Commonality while Maintaining Highly Competitive Customer Attributes
M. Fleiss, D. Crabb, J. Somhorst, K. Skogum, A. Johansson, M. Collinder - Volvo Car Corporation

Challenges and Possible Solutions of Chinese Market Requirements for Gasoline Fueled Vehicles
R. Weinowski, A. Brassat, H. Jiang - FEV China Co., Ltd.

ELECTRIC VEHICLES AND DRIVETRAINS

Born Electric – Concept and Innovative Electric Drivetrain of the New BMW i3.
S. Prasser, J. Tachtler, P. Modispacher, J. Romberg, F. Schöwel, R. Doerfer - BMW AG

Intelligent E-Powertrain Integration for More Safety, Comfort and Driving Pleasure
R. Schruth – Magna Steyr
D. Lindvai-Soos, U. Angeringer, G. Sandoni - Magna Steyr Engineering

DrivePacEV80 – Highly Integrative Electric Drive Unit for Electric Vehicles
M. Berg, W. Reimann, B. Voss, H. Neukirchner - IAV GmbH

Electrified Two-Wheelers – From a Lifestyle Solution to a New Mobility Concept
D. Kennel, H. Richter - Schlegel und Partner GmbH

TURBOCHARGING AND DOWNSIZING

Innovative Two-Stage Turbocharging System with Cooled Regulating Valve for Gasoline Engines
M. Becker, T. Kiener – BorgWarner
J. Werner – BorgWarner Turbo Systems
K. Kuhlbach, F. Brinkmann, C. Weber - Ford Powertrain R&A Europe

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The Ultraboost Extreme Downsizing Project: Direct Injection, Compound Charging, Variable Valve Timing and 60% Less Capacity

S. Richardson, A. Popplewell, J. Turner - Jaguar Land Rover Ltd.

A. Lewis, S. Akehurst, C. Brace – University of Bath

Development of Lean Stratified Gasoline Turbocharged Engines for 2018

C. Bagnall, C. Rouaud, R. Osborne – Ricardo UK Ltd.

P. Bowen, A. Crayford, D. Walters – Cardiff University

Cooled EGR System for PFI Engine, Versus GDI Engine

Alain Frederic, Sebastien Potteau, Florent David, Philippe Lutz – Valeo

VEHICLE DYNAMICS AND CHASSIS SYSTEMS

Enhancing Driving Dynamics and Traction by Variable Brake Systems

D. Killian, M. Lienkamp – Technische Universität München

M. Sagefka, S. Poltersdorf, K. Volkmar – Audi AG

Development of High Performance Non-Asbestos-Organic Brake Pads with the Use of Tribological Fingerprinting

Dr. Petra Severit - Federal Mogul Friction Products GmbH

Development of Suspension System and Chassis of the Sprinter 6x6

P. Fischer – Graz University of Technology

W. Michel – Oberaigner Fahrzeugtechnik GmbH

Model-Based Test Strategie for Vehicle Testing by Example of car2go

P. Saubert – Fahrversuch Süd GmbH

S. Bevanda – car2go GmbH, M. Beißer – sepp.med GmbH

DIESEL INJECTION SYSTEMS

Delphi Diesel 2000 Bar Unit Pump Common Rail System

Dr. Xiaolu Li – Delphi

Guillaume Meissonnier, Philippe Bercher, Romain Bouloc, Christophe Cardon, Dr. Hans-Josef Schiffgens, Onur Tansug - Delphi Diesel Systems

Next Generation of Piezo Common Rail Diesel Injection Systems to Manage all Upcoming Market Needs for Light Vehicles

P. Rankl, D. Schoeppe, S. Lehmann - Continental AG

Lowest Cost – Highest Efficiency Common Rail for LPV Market

Baskaran, F. Boecking, Ashwin, Vinod, G. Anthony - Bosch Limited M. Duernholz – Bosch Emission Systems GmbH

STRATEGY CONCEPTS

Automotive Quality Management – The Next Horizon

F. Brandt, M.-O. Schell, J. Berking, T. Sieber, C. Möller - Oliver Wyman Consulting GmbH

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TCO-Related Strategies for Stakeholders to Promote Electric Vehicles

N. Neumann, L. Eckstein – ika, RWTH Aachen University

I. Olschweski – fka mbH

Captive Engineering Centers – Challenges of R&D Localization in Emerging Markets

W. Bernhart – Roland Berger Strategy Consultants GmbH

J. Zhang – Roland Berger Ltd.

EXHAUST AFTERTREATMENT

Faster Model Parameterization for Aged Diesel Oxidation Catalysts and Lean NOx Traps

D. Chan, O. Deutschmann – Karlsruhe Institute of Technology U. Nieken – Universität Stuttgart

K. Hauff, V. Schmeißer – Daimler AG

The Next Generation of Gasoline Exhaust Aftertreatment – An Effective Measure to Minimize the Contribution of Modern Direct Injection Engines to Fine Dust and Soot Emissions?

B. Kern – Umicore Autocat Luxembourg

S. Spiess, J.-M. Richter – Umicore AG & Co. KG

Low Cost Implementation of OBD-II Strategies for a Two Cylinder Diesel Engine for a Small Commercial Vehicle

Vishwas Vaidya, Shrikant Bhagat, Arvind Singh , Madhuri Jadhav - Tata Motors Ltd.

ADVANCED DRIVER ASSISTANCE SYSTEMS

Idea to Product – A Modular Approach for the Evaluation of ADAS

L. Eckstein, M. Schwalm – ika, RWTH Aachen University

A. Zlocki – fka mbH

Development of an Adaptive Longitudinal Control System with Predicted Lateral Motion Information

J. Takahashi – Hitachi Europe GmbH

M. Yamakado – Hitachi Ltd.

A. Zlocki, D. Will – ika, RWTH Aachen University

interactIVe - Accident Avoidance by Active Intervention for Intelligent Vehicles

F. Fahrenkrog - Institut für Kraftfahrzeuge, RWTH Aachen University

A. Zlocki - Forschungsgesellschaft Kraftfahrwesen Aachen

HYBRID POWERTRAINS AND TRANSMISSION

The Innovative BMW Powertrain in the All New BMW i8

M. Engelmann, C. Billig, M. Klüting, S. Juraschek, F. Steinparzer, C. Breitfeld - BMW AG

Hydraulic Hybrid Vehicles – More Benefits, Less Downsides than HEVs?

A. Nase, J. Houben – FEV Consulting GmbH

T. Casciani, J. Fontaine, G. Kolwich – FEV Inc.

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Innovations in Powertrain and Vehicle Personalization for Sports Cars

N. Kappel – Bosch (China) Investment Ltd.

G. Pieraccini, P. Buchner – Bosch Engineering GmbH

FEV's 7-xDCT – Prototype of a New DCT Generation

G. Hellenbroich, S. Kirschstein – FEV GmbH

J. Ruschhaupt – VKA, RWTH Aachen University

TRIBOLOGY AND FRICTION REDUCTION

High-Performance Lead-Free Electroplated Composite Bearing Overlay for Heavy Duty Applications

H. Xu - MAHLE Technology Holding (China) Ltd.

R. Gorges - MAHLE Engine Systems UK Ltd.

Contribution of Advanced Piston and Ring Design and Coatings on Friction Reduction in Future Diesel Engines

S. Hoppe, R. Mittler – Federal-Mogul Burscheid GmbH

F. Dörnenburg, R. Meske – Federal-Mogul Nürnberg GmbH

Optimized Machining Processes Reduce Friction Loss and Component Wear in Engines

A. Jäger , P. Berlet, B. Kehrwald – IAVF Antriebstechnik GmbH

J. Hadler – APL Automobil-Prüftechnik Landau GmbH

Friction Reduction – The Contribution of Engine Mechanics to Fuel Consumption Reduction of Powertrains

C. Cevik, M. Schwaderlapp - FEV GmbH

DIESEL ENGINES

The New Mercedes-Benz Sprinter: The Concept for Lowest Fuel Consumption and Emissions in the Large Van Segment

N. Waldbüßer, M. Paule, H.-J. Volkmann, D. Wäller, M. Dietz, H. Sass - Daimler AG

Opposed-Piston, Two-Stroke Diesel Engine Advantages in Meeting Higher Fuel Efficiency and Emissions Standards

L. Fromm, J. Koszewnik, D. Johnson, F. Redon, G. Regner - Achatas Power Inc.

Development Strategy of Full Series Engines to Fulfill Future Chinese Market Demands

Q. Li - Weichai Power Co., Ltd.

ELECTRIC DRIVETRAINS AND COMPONENTS

Research Project MEHREN: Potentials of Highly-Integrated Wheel Hub Drives for New Vehicle Concepts

Dr. Minkui Niu - Schaeffler System House eMobility Shanghai Sebastian Wielgos - Schaeffler Technologies AG & Co. KG

Nico Depner - Institute for Automotive Engineering - ika, RWTH Aachen University

Roger Graaf - Ford Research and Advanced Engineering Europe

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eConnect Germany – Performance and Evaluation of an Electrically Propelled Minibus for Public Transportation

L. Eckstein, G. Geulen - Institut für Kraftfahrzeuge - RWTH Aachen University

F. Töpler, J. Homann - Forschungsgesellschaft Kraftfahrwesen mbH Aachen

48V – The Way to a High Volume Electrification

R. Deutsch, F. X. Pujol, R. Schmid, C. Götte - Continental AG

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GASOLINE ENGINES

BMW TwinPower Turbo - The New V8 Gasoline Engine in the Newly Revised BMW 7 Series
Stefan Ortmann - BMW China Services, Beijing, China
Ing. Fritz Steinparzer, Dr.-Ing. Christian Schwarz, Dipl.-Ing. Hans-Stefan Braun, Dipl.-Ing. Johann Schopp - BMW Group, Munich, Germany

The New EA888 2.0l R4 TFSI Engines from Audi – Top of the Class in the 4-Cylinder Segment

Dr.-Ing. Phillip Löbber, Dr.-Ing. Thomas Heiduk, Dipl.-Ing. Axel Eiser,
Dipl.-Ing. Michael Fitzen, Dr.-Ing. Michael Grigo, Dr.-Ing. Günther Mendl, Dr.-Ing. Rainer Wurms - AUDI AG, Ingolstadt, Germany

Changan's Approach to Fuel Consumption Reduction Using Advanced GDI and Combined Technologies

Nicholas Coplin, Dr. Geoffery Cathcart, Christian Zavier, Orbital Australia, Perth, Australia
Dr. Zhang-Song Zhan, Dr. Bin Liu, Changan Automobile, Chongqing, China

Next Generation of Highly Turbocharged DI Gasoline Engines with Multiple Injections and High EGR Rates

Jason King, Adrian Greaney, Ricardo UK Ltd, United Kingdom
Dr. Oliver Böcker, Dr. Peter Heuser, Ricardo Deutschland GmbH, Germany

DRIVING DYNAMICS AND STEERING

Implementation of an Online-Optimization Routine for an Active Anti-Roll System

Thomas Mirwaldt - Dr. Ing. h.c. F. Porsche AG, Weissach, Germany
Peter Eberhard - Institut für Technische und Numerische Mechanik, Universität Stuttgart, Germany

Superior Driver Handling Performance Using a „G-Vectoring“ Braking Assistance System

Dr. -Ing. Junya Takahashi, Dr. -Ing. Jonathan Borg - Hitachi Europe GmbH, Schwaig-Oberding, Germany
Dr. -Ing. Makoto Yamakado - Hitachi Ltd., Ibaraki, Japan
Dr. -Ing. Adrian Zlocki - Institut für Kraftfahrzeuge (ika), RWTH Aachen University, Aachen, Germany

The New Steering System in the 911 Porsche Carrera – Optimized Design of a Steering System for Sportcars

Hin Hsu, Dr. Manfred Harrer - Dr. Ing. h.c. F. Porsche AG, Weissach, Germany
Dr. Stefan Grüner, Alexander Gaedke - ZF Lenksysteme GmbH, Schwäbisch Gmünd, Germany

Dynamics of an Electric Vehicle with Wheel Hub Drive

Prof. Zhuoping YU - Tongji University, Beijing, China

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COMMERCIAL VEHICLE TECHNOLOGY

Dimensioning of Actual Fields of Indirect Vision of Commercial Vehicles by Analyzing Dynamic Vision Situations

Dipl.-Ing. Alexander Bothe, Dipl.-Ing. Enrico Wohlfarth - Daimler AG, Stuttgart, Germany
Prof. Dr.-Ing. Ralph Bruder - Institute for Ergonomics, Darmstadt University of Technology, Germany

EDAG LightCab Technology Concept Light Cabin for Heavy Vehicles!

Thomas Schmidt - EDAG Vehicle Development & Production, Shanghai, China
Dr. Andreas Quanz, Franz Lorey - EDAG GmbH & Co. KGaA, Fulda, Germany

Drum or Test Track? Comparative Investigation on Tyre Characteristics with a Mobile Tyre Test Rig

Univ. Prof. Dr.-Ing. Lutz Eckstein, Dipl.-Ing. Christian Bachmann - Forschungsgesellschaft Kraftfahrwesen mbH Aachen, Germany
Dipl.-Ing. Philip Niemeyer - Institut für Kraftfahrzeuge (ika), RWTH Aachen University, Germany

VEHICLE AND POWERTRAIN DEVELOPMENT

Strategies for the Product Development of Future Automotive Technologies

Dipl.-Wirt.-Ing. Christian Burkard, Univ.-Prof. Dr.-Ing. Lutz Eckstein - Institut für Kraftfahrzeuge, RWTH Aachen University, Aachen, Germany
Dipl.-Kfm. Ingo Olschewski - Forschungsgesellschaft Kraftfahrwesen mbH Aachen, Germany

The Applications of Concurrent Engineering in Powertrain Development

Ruiping Wang - Zhejiang Geely Royal Engine, China

Designing the Future with "Clean Power" - Analysis and Strategic Solution Concepts on a Powertrain System Level

Dr.-Ing. Hong Zhang, Dr.-Ing. Detlev Schöppe, Dr.-Ing. Hong Zhang, Dipl.-Ing. Friedrich Kapphan, Dipl.-Ing. Christof Schmidt - Continental, Regensburg, Germany

Research Project e performance - Overview and Results

Univ.-Prof. Dr.-Ing. Lutz Eckstein – ika, RWTH Aachen University, Germany
Dipl.-Ing. Sven Ginsberg – ika, RWTH Aachen University, Germany
Dipl.-Ing. Martin Schüssler - Audi AG, Germany
Dr.-Ing. Christian Allmann - Audi AG, Germany

TRANSMISSION AND POWERTRAIN

The New NISSAN/JATCO Continuously Variable Transmission and Solutions for Driving Pleasure and Fuel Economy

Hirohumi Okahara, Masaru Mizuguchi - Nissan Motor Co., Ltd., Kanagawa, Japan

Optimal Engine and Hydraulic Pump Control for Excavators

Pu Sun - Sany, Changsha, China

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The new 2.0l Turbo Engine from the Mercedes-Benz 4-Cylinder Engine Family
Guido Vent - Daimler AG, Stuttgart, Germany

FEV's xDCT Family – Extremely Compact 7- and 10-Speed DCTs
Dipl.-Ing. Dipl.-Wirtsch.-Ing. Johannes Ruschhaupt - Institute for Combustion Engines (VKA),
RWTH Aachen University, Germany
Dr.-Ing. Gereon Hellenbroich - FEV GmbH, Aachen, Germany

EXHAUST AFTERTREATMENT DIESEL

Robust NOx After Treatment Systems for Diesel Pass-Cars Beyond EU6
Dr. Friedemann Rohr, Dr.-Ing Ina Grisstede, Dipl.-Ing. Stefan Franoschek,
Dr. Michael Seyler, Dr. Rüdiger Hoyer, Dipl.-Ing Hendrik Noack,
Dr. Stephan Basso, Dipl.-Ing. Wilfried Müller - Umicore AG & Co. KG, Hanau-Wolfgang,
Germany

A New Generation High Porosity DuraTrap® AT for Integration of DeNOx Functionalities
Dominik Rose - Corning GmbH, Wiesbaden, Germany
Achim K. Heibel, Dr. Sam George, Jason Warkins, Nancy Golomb, Dr. Chris Warren -
Corning Incorporated, New York, USA

Thermoelectric Generators for Automotive Waste Heat Recovery
Steve Richardson, Ben Wicksteed, Dr. Daniel Brennan, Robert Gilchrist - Jaguar Land Rover
Cars Ltd., Warwickshire, United Kingdom

TURBOCHARGING

Improving Fuel Economy by 35% Through Combined Turbo and Supercharging on a Spark
Ignition Engine
Lee Jeffcoat, Dr. James Turner - Lotus Engineering, Norwich, United Kingdom
Dr. Csaba Salamon, Matt McAllister, Robert Robinson, Steve Richardson - Jaguar Land
Rover, Coventry, United Kingdom
Prof. Ricardo Martinez-Botas, Dr. Alessandro Romagnoli, Dr. Colin Copeland* - Imperial
College London, London, United Kingdom *Moved to University of Bath, Bath, United
Kingdom

Extended Turbine Mapping and its Benefits for the Development of Turbocharged Internal
Combustion Engines
Dr.-Ing. Johannes Scharf, Dipl.-Ing. Tolger Uhlmann, Dipl.-Ing. Christof Schernus - FEV
GmbH, Aachen, Germany
Dipl.-Ing. Dominik Lückmann, Dipl.-Ing. Björn Höpke - Lehrstuhl für
Verbrennungskraftmaschinen, RWTH Aachen University, Germany
Dr.-Ing. Norbert Schorn - Ford-Forschungszentrum, Aachen, Germany

Valve-Event Modulated Boost System: Fuel Consumption and Performance Potential
David Roth, Dr. Michael Becker - BorgWarner Inc. Auburn Hills, Michigan, USA
Diego Pagliari - PSA Peugeot Citroën, La Garenne Colombes, France

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HYBRID VEHICLES AND RANGE EXTENDER

ActiveHybrid – The New Full-Hybrid Powertrains of BMW in the 3, 5 and 7 Series
Dipl.-Ing. Hubert Graf, Dr.-Ing. Manfred Klüting, Dipl.-Ing. Christian Billig - BMW Group,
Munich, Germany

The E-Class Hybrid by Mercedes-Benz
Dipl.-Ing. Michael Weiss, Dipl.-Ing. Thomas Ruhl, Dipl.-Ing. Christian Enderle,
Dipl.-Ing. Dr. Uwe Keller, Dipl.-Ing. Franz Nietfeld, Dipl.-Ing. Dr. Christian Mohrdieck -
Daimler AG, Stuttgart, Germany

Capability of a Plug-In Hybrid (PHEV) System to Reduce the Consumption Depending on the
Type of Use

Dipl.-Ing. Benedikt Nies, Gerhard Kurz, Geert Schmitz, Dr.-Ing. Thomas Kell,
Dr.-Ing. Andreas Wilde - BMW AG München, Germany
Prof. Dr.-Ing. Udo Lindemann - Lehrstuhl für Produktentwicklung, TU München, Germany

Engine Test Bench and Vehicle Testing of KSPG Range Extender with “FEVcom” Full
Engine Vibration Compensation

Hengfei Jiang - FEV China Co., Ltd., Shanghai; China
Honorarprofessor Dr.-Ing. habil. Eduard Köhler, Dr.-Ing. Hans-Joachim Esch,
Dipl.-Ing. Jürgen Niehues - KSPG AG, Neckarsulm, Germany
Dipl.-Ing. Jakob Andert, Dr.-Ing. Martin Pischinger - FEV GmbH, Aachen, Germany
Dipl.-Ing. Dipl. Wirt.-Ing. Gregor Schürmann - Lehrstuhl für Verbrennungskraftmaschinen,
RWTH Aachen University, Germany

NEW DIESEL ENGINES

The New Cornerstones of the BMW Diesel Engine Portfolio

Dipl.-Ing. Detlef Hiemesch, Dr. Martin Kaufmann, Dr. Nikolai Ardey,
Dipl.-Ing. Wolfgang Stütz, Dipl.-Ing. Rudolf Wichtl, Dipl.-Ing. Thaddäus Steinmayr
BMW Motoren GmbH, Steyr, Austria

PC Diesel – The Efficiency Engine Concept As Cost Effective Low CO₂ Solution

Michael Weissbaeck, Michael F. Howlett, Stefan Krapf, Norbert Ausserhofer,
Martin Binder - AVL List GmbH, Graz, Austria

Measures for the Improvement of Comfort Aspects at Modern Efficiency Optimized Diesel
Engines

Dr.-Ing. Christoph Steffens, Dipl.-Ing. Thomas Körfer, Dipl.-Ing. Georg Hanses,
Dipl.-Ing. Adrian Rosplesch, Dipl.-Ing. Andreas Kolbeck - FEV GmbH, Aachen, Germany
Dipl.-Ing. Florian Kremer, Dipl.-Ing. Joschka Schaub - Institute for Combustion Engines,
RWTH Aachen University, Germany

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INDUSTRIAL AND LARGE BORE ENGINES

Comprehensive Approach for Future TIER 4 Large Diesel Engine Concepts Considering Application Diversity

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Dipl.-Ing. Franz Ruhri - AVL List GmbH, Graz, Austria

Delphi Diesel Light Duty and Medium Duty Common Rail for Commercial Vehicle and OffHighway Applications.

Mr Richard Judge, Mr Kenneth Smith, Mr David Banyard - Delphi Diesel Systems,
Gillingham, United Kingdom

Long-Term Trends for Off-Highway Engines – Beyond EPA Tier 4 Final and EU Stage IV

Dipl.-Wirtsch.-Ing. Alexander Nase, Dipl.-Wirtsch.-Ing. Johannes Houben - FEV Consulting GmbH, Aachen, Germany

Dr.-Ing. Andreas Wiartalla, Dr.-Ing. Ludger Ruhkamp, Dipl.-Ing. Michael Neitz - FEV GmbH, Aachen, Germany

STRATEGY CONCEPTS

FAST2025 – Future Automotive Industry Structure

Lars Stolz, Johannes Berking, Tom Sieber - Oliver Wyman, Munich, Germany

Where is the Money? The Seven Myths of the Connected Car

Dr. Jan Burgard, Dr. Matthias Kempf - Berylls Strategy Advisors, Munich, Germany

Managing Chances and Risks of Product Innovation – New Models and Approaches for Innovation Excellence

Dr. Gang Xu - PricewaterhouseCoopers, Shanghai, China

Dipl.-Ing. Wolf-Dieter Hoppe, Dipl.-Kfm. (MBA) Sebastian Feldmann - PricewaterhouseCoopers Management Consulting, Munich, Germany

Connected Vehicles – Conquering the Value of Data

Stephan Bueb - Roland Berger Strategy Consultants, Shanghai, China

Dr. Wolfgang Bernhart - Roland Berger Strategy Consultants GmbH, Stuttgart, Germany

Dr. Thomas Schlick, Jesus Salvador-Escobar - Roland Berger Strategy Consultants GmbH, Frankfurt, German

E/E ARCHITECTURES

The Dual Voltage Power System with 48V - Architecture, Potentials and Components

Frank Petznick - Hella Shanghai Electronics Company Ltd., Shanghai, China

Dr.-Ing. Carsten Hoff, Dr.-Ing. Christian Amsel, Dr.-Ing. André Körner - HELLA KGaA Hueck & Co., Lippstadt, Germany

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Integration of Safety-Critical Loads in HighVoltage Vehicle Electrical Systems

Univ.-Prof. Dr.-Ing. Lutz Eckstein, Dipl.-Ing. Christoph Gillen - Institut für Kraftfahrzeuge,
RWTH Aachen University, Germany

Dipl.-Ing. Matthias Lammermann - Forschungsgesellschaft Kraftfahrwesen mbH Aachen,
Germany

A New Functional Architecture for the Improvement of eCar Efficiency and Safety

Reinhold Blank - Intedis E/E-Engineering and Technology, Shanghai, China

Volker Scheuch, Gerd Kaiser, Rainer Straschill, Frédéric Holzmann - Intedis GmbH & Co.
KG, Würzburg, Germany

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FUTURE MOBILITY

The New BMW Electric Powertrain in the ActiveE

Stefan Prasser, Dipl. Ing. Frank Kessler, Dipl. Ing. Elmar Hockgeiger,
Dr. Ing. Jochen Schröder, Dr. Ing. Dieter Strobl, Dipl. Ing. Joachim Tachtler, Dipl. Ing. Frank Vogel - BMW Group, Munich, Germany

Porsche InnoDrive – An Innovative Approach for the Future of Driving

Dipl.-Ing. Tobias Radke, Dr.-Ing. Martin Roth, Dr.-Ing. Matthias Lederer -
Dr. Ing. h.c. F. Porsche AG, Weissach, Germany

Prof. Dr. rer. nat. Frank Gauterin, Dr.-Ing. Michael Frey, Dipl.-Ing. Christian Steinbrecher
FAST, Karlsruher Institut für Technologie (KIT), Karlsruhe, Germany

Dipl.-Ing. Jens Schröter - IPEK, Karlsruher Institut für Technologie (KIT), Karlsruhe, Germany

Dipl.-Inform. Markus Goslar - Forschungszentrum Informatik (FZI), Karlsruhe, Germany

ELECTRIC AND HYBRID VEHICLES

Electric Axle Drive for Car Applications

Dr. Rolf Gall, Dr. Karl-Hermann Ketteler, Manfred Bek, Günther Horsak,
Matthias Lochner - ZF Friedrichshafen AG, Friedrichshafen, Germany

The Full-Hybrid Powertrain of the New BMW ActiveHybrid 5

Dr. Christoph Luttermann, Dipl.-Ing. Claus-Otto Griebel, Dr.-Ing. Friedrich Rabenstein, Dr.-
Ing. Manfred Klüting, Dipl.-Ing. Frank Kessler, Dipl.-Ing. Jan Kretschmer - BMW AG, Munich,
Germany

Smart Wheels Electric Bus – A Concept for Electric Mobility in Public Transportation

Univ.-Prof. Dr.-Ing. Lutz Eckstein, Dipl.-Ing. Gerrit Geulen, Dipl.-Ing. Felix Töpfer - Institut für
Kraftfahrzeuge, RWTH Aachen University, Aachen, Germany

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Dipl.-Ing. Benedikt Lutz, Dipl.-Ing. Susanne Rothgang, Dipl.-Ing. Martin Christoph,

M. Sc. Izaro Laresgoiti, Univ.-Prof. Dr. rer. nat. Dirk Uwe Sauer - Institut für

Stromrichtertechnik und elektrische Antriebe, RWTH Aachen University, Aachen, Germany

GASOLINE TURBOCHARGING AND COMBUSTION SYSTEMS

Application of a Turbocharger with Watercooled Turbine Housing to a Highly Boosted 1.6l
Gasoline Engine

Dr. Michael Becker - BorgWarner Inc., Ludwigsburg, Germany, Germany

Volker Jörgl - BorgWarner Engine Systems Group, Ludwigsburg, Germany

Frank Scherrer, Dr. Frank Schmitt - BorgWarner TurboSystems, Kirchheimbolanden,
Germany

Jens Gröger, Ludwig Stump, Jan Mehring - Ford Motor Company, Köln, Germany

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Fully variable Valve Lift System UniValve: More than a smart Throttle Body

Heinrich Dismon, Michael Breuer, Karsten Grimm, Stefan Moormann, Martin Nowak, Stefan Rothgang, Frank Seifert - Kolbenschmidt Pierburg AG, Neckarsulm, Germany
Stephan Schmitt - Lehrstuhl für Verbrennungskraftmaschinen, TU Kaiserslautern, Germany

FVV-CO2-Research Program "Downsizing with Bio Fuels"- Subproject "Innovative Ignition"

Prof. Dr. Thomas Lauer, Dr. Josef Graf, Prof. Dr. Bernhard Geringer - Institute for Powertrains & Automotive Technology, University of Technology, Vienna, Austria
Dr. Hermann Rottengruber - BMW, Munich, Germany

NEW GASOLINE ENGINES

The New 1.0-Litre, 3-Cylinder MPI Engine for the UP!

Dr. Ing. Hua Gao, Dipl.-Ing. Uwe Kirsch, Dr.-Ing. Jens Hadler, Dr.-Ing. Rüdiger Szengel, Dipl.-Ing. Norbert Becker, Dr.-Ing. Gerhard Eggers, Dipl.-Ing. Manfred Friese, Dipl.-Ing. Kai Persigehl - Volkswagen AG, Wolfsburg, Germany

The New 1.6-Litre Turbocharged Engines with Direct Injection and Fully Variable Valve Gear for the New BMW 1 Series Car

Dr.-Ing. Gerrit Kiesgen, Dipl.-Ing. Johann Schopp, Dipl.-Ing. Heinz Peter Kilius, Dipl.-Ing. Bernhard Lechner, Dipl.-Phys. Marian Leistner, Dr.-Ing. Rainer Richter
BMW AG, Munich, Germany

MAZDA SKYACTIV-G 2.0L Gasoline Engine

Ichiro Hirose, Hidetoshi Kudo, Tatuhiro Kihara, Masanao Yamakawa, Mitsuo Hitomi - Mazda Motor Corporation, Hiroshima, Japan

The New BMW 528i Powertrain – Efficient Dynamics and Comfort Thanks to the New Turbocharged Four-Cylinder Spark-Ignition Engine

Dr.-Ing. Christoph Luttermann, Dipl.-Ing. Norbert Klauer, Dr.-Ing. Manfred Klütting, Dr.-Ing. Christof Sodtke - BMW AG, Munich, Germany

VEHICLE CONCEPTS AND STRATEGIES

FutureSteelVehicle - Leading Edge Innovation for Steel Body Structures

Oliver Hoffmann - ThyssenKrupp Steel Europe AG, Germany
Dr. Enno Arenholz - Voestalpine Stahl GmbH, Austria
Antoine Gauriat - ArcelorMittal, Luxembourg
Marc Lambriks - Tata Steel Europe, United Kingdom

Global, Focused and in Partnerships – Effective Automotive Engineering in the Upcoming Decade

Dr. Wolfgang Bernhart, Roland Berger Strategy Consultants, Stuttgart, Germany
Juri Wagenleitner, Roland Berger Strategy Consultants, Munich, Germany

New Roadmap for E-Mobility: Technologies and Drivers for Market Adoption

Dipl.-Kfm. (MBA) Sebastian Feldmann, BSME, BSEE, MSEE, MBA Eric Hannon
PwC's PRTM Management Consulting, Munich, Germany

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The Future of Premium Cars and Brands

Dipl.-Wirtsch.-Ing. Christian Kleinhans, Dr. Jan Dannenberg, Dipl.-Betriebsw. MBA Hendrik Todte - Berylls Strategy Advisors GmbH, Munich, Germany

RANGE EXTENDERS

V2-Range Extender Module with FEVcom – a Barely Noticeable Companion in Your Electric Vehicle

Dr.-Ing. Karsten Wittek, Dr.-Ing. Martin Pischinger, Dr.-Ing. Peter Genender, Dipl.-Ing. Frank Nysten, Dipl.-Ing. Jakob Andert - FEV GmbH, Aachen, Germany

Dr.-Ing. Hans-Joachim Esch, Honorarprof. Dr.-Ing. habil. Eduard Köhler - Kolbenschmidt Pierburg AG, Neckarsulm, Germany

Dipl.-Ing. Moritz Bähr, Dipl.-Ing. Dipl.-Wirt.-Ing. Gregor Schürmann - Lehrstuhl für Verbrennungskraftmaschinen, RWTH Aachen University, Aachen, Germany

Design and Development of the MAHLE Range Extender Engine

Dr.-Ing. Bernd Mahr, Dr. Marco Warth, Dr. Michael Bassett, Jonathan Hall, Volker Korte, MAHLE Powertrain Ltd., Northampton, United Kingdom

NEW DIESEL ENGINES 1 and DIESEL INJECTIONS

The New BMW 4-/6-Cylinder Diesel Engine with 2-Stage Turbocharging

Detlev Hiemesch, Dipl.-Ing. Josef Honeder, Dr. Nikolai Ardey, Dr. Martin Kaufmann, Dipl.-Ing. Thaddäus Steinmayr - BWM Motoren GmbH, Steyr, Austria

The New Diesel Servo-Driven Piezo Common Rail System – The Efficient Solution for Euro 7 and Beyond

Dipl.-Ing. Vincent Dian, Dr.-Ing. Detlev Schöppe, Dipl.-Ing. Christian Stahl, Dr.-Ing. Grit Krüger, Dr.-Ing. Peter Voigt, Dipl.-Ing. Andreas Weigand - Continental, Regensburg, Germany

HEAVY DUTY VEHICLES

SARTRE: Safe Road Train for the Environment

Qihui Huang, M.Sc. - Institut für Kraftfahrzeuge, RWTH Aachen University, Germany
Hui Zhong, M.Sc., Erik Nordin M.Sc. - VTEC, Sweden

Comfort and Stability – Variable Damping for HCV

Dipl.-Ing. Georg Memmel - ZF Sachs AG, Schweinfurt, Germany

GASOLINE INJECTIONS AND HYBRID POWERTRAINS

Development of the Delphi Homogeneous Gasoline Direct Injection Engine Management System for the Hyundai & Kia Lambda-II 3.8 Liter Engine

Mr. James Zizelman, Mr. William Fedor, Dr. Joon-Ho Yoo, Dr. John Kirwan - Delphi Gasoline EMS and Powertrain Products, USA

Dr. Walter Piock, Dr. Sebastian Schilling - Delphi Gasoline EMS and Powertrain Products, Luxembourg

Mr. Young Jin Kim, Mr. Young Soo Kwon, Mr. Wan Ho Kim, Hyundai Motor Company, Korea

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Optimized Layout of Gasoline Engines for Hybrid Powertrains under Real World Driving Conditions

Dipl.-Ing. Andreas Balazs, Prof. Dr.-Ing. Stefan Pischinger - Institute for Combustion Engines, RWTH Aachen University, Germany

TRANSMISSION AND DRIVELINE

First Driving Test Results of FEV's 7H-AMT Hybrid Transmission

Dr.-Ing. Stefan Kirschstein, Dipl.-Ing. Gereon Hellenbroich, Dipl.-Ing. Coen Duindam
FEV GmbH, Aachen, Germany

Highly Integrated Transmission and Driveline System Solutions for Capability, Fun-to-Drive and Fuel Economy

Dr.-Ing. Mircea Gradu, Hussein Dourra - Chrysler Group LLC, Auburn Hills, USA

Advanced Double Clutch Transmission Technology

Dipl.-Ing. Dipl.-Wirt.-Ing. Sven Steinwascher, Dr.-Ing. Heinz-Dieter Schneider, Dipl.-Ing. Georg Kaufhold, Dipl.-Ing. Peter-J. Nissen - GIF - Gesellschaft für Industrieforschung mbH, Germany

DRIVER ASSISTANCE SYSTEMS

Energy Efficient Longitudinal Vehicle Control Based on Analysis of Driving Situations

Dr.-Ing. Adrian Zlocki, Dipl.-Ing. Dipl.-Wirt.-Ing. Philipp Themann - ika - Institut für Kraftfahrzeuge – RWTH Aachen University, Aachen, Germany
Dipl.-Ing. Bernd Dornieden, Dr. Lutz Junge - Volkswagen AG, Wolfsburg, Germany

24 GHz Radar Sensors for Driver Assistance Systems

Dr.-Ing. Christian Amsel, Dr. rer.nat. Dietmar Stapel, Dipl.-Ing. (FH) Martin Mühlenberg
Hella KGaA Hueck & Co., Lippstadt, Germany

euroFOT: Field Operational Test and Impact Assessment of Advanced Driver Assistance Systems – First Results

Dr.-Ing. Adrian Zlocki, Dipl.-Ing. Mohamed Benmimoun - Institut für Kraftfahrzeuge, RWTH Aachen University, Germany

Dr.-Ing. Christoph Kessler, Dipl.-Ing. Aria Etemad - Ford Forschungszentrum Aachen GmbH, Germany

NEW DIESEL ENGINES 2 AND EXHAUST AFTERTREATMENT

New FAW 11 L Heavy Duty Diesel Engine Series

Dr. Jun Li, Pengcheng Wang, Dr. Jiangwei Liu, Fanchen Meng, Fang Hu, Zhenbo Xu
FAW, China

Development and Practical Experience of a 2010 Compliant Heavy Duty Diesel Engine and Aftertreatment System

Dr. Brad Adelman, Ed Derybowski, Victor Miranda, Matt Tyo - Navistar, Melrose Park, Illinois, USA

Jan Kramer, Claus Bruestle - Emitec, Inc., Rochester Hills, Michigan, USA

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Efficient NOx Aftertreatment Technologies for Clean Diesel

Dr. Friedemann Rohr, Dr. S. Eckhoff, Dipl.-Ing. S. Franoschek, Dr.-Ing. A. Schuler, Dr. R. Hoyer, Dipl.-Ing. F. Adam, Dr. F. Dornhaus, Dipl.-Ing. W. Mueller -
Umicore AG & Co. KG, Hanau-Wolfgang, Germany

Appropriate NOx Aftertreatment Solutions for different Markets and Applications

Dr.-Ing. David J. Fan, TENNECO, Shanghai, China
Dipl.-Ing. Frank Terres, TENNECO, Edenkoben, Germany
Dr.-Ing. Wolfgang Reuter, TENNECO, Edenkoben, Germany

BIOFUELS AND LUBRICANTS

Biofuels for Sustainable Mobility – Status of Today and In Future

Dr.-Ing. Tobias Lösche-ter Horst, Dr.-Ing. Frank Seyfried, Dr.-rer.nat. Stephan Krinke, Dr.-Ing. Stefan Schmerbeck, Dipl.-Ing. Sebastian Schmidt - Volkswagen AG, Wolfsburg, Germany

Downsizing and Biofuels: Synergies for Significant CO2 Reductions

Neil Fraser BEng Hons, Volker Korte, Dave OudeNijeweme, Andre Bisordi,
Phillip Stansfield, Mike Bassett, Dr. Bernd Mahr - MAHLE Powertrain Ltd., Northampton, Great Britain
John Williams, Rana Ali, Martin Gold, John Rogerson - BP Global Fuels Technology, Pangbourn, Great Britain

Tailor-Made Fuels from Biomass for Partly Homogeneous Low Temperature Combustion Systems

Dr. Martin Muether, Dipl.-Ing. Andreas Janssen, Dipl.-Ing. Markus Jakob, Prof. Dr.-Ing. Stefan Pischinger - Institute for Combustion Engines, RWTH Aachen University, Aachen, Germany
Jun.-Prof. Dr. rer.nat. Juergen Klankermayer - Institute for Technical and Macromolecular Chemistry, RWTH Aachen University, Aachen, Germany

Improving Vehicle Fuel Efficiency with Different Engine Oils John Pudelski, Dr. Mike Sutton, Dr. Craig Jones - Lubrizol Limited, Belper, Derby, United Kingdom