15th International Conference

Commercial Vehicles 2019

– Truck, Bus, Van, Trailer –

June 4 – 5, 2019, Baden-Baden, Germany

VDI-BERICHTE

Editor:

VDI Wissensforum GmbH

Bibliographic information published by the Deutsche Nationalbibliothek (German National Library)

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliographie (German National Bibliography); detailed bibliographic data is available via Internet at www.dnb.de.

© VDI Verlag GmbH · Düsseldorf 2019

All rights reserved, including reprinting, reproduction (photocopying, microcopy), storage in a retrieval system, and use of the information on this website are reserved.

Data processing equipment and the translation, in whole or in part.

The VDI report, which contains the presentations of the conference, appears as unedited manuscript print.

The individual contributions give the views and experiences of the respective participants based on personal insights lecturers or authors again. Printed in Germany.

ISSN 0083-5560

ISBN 978-3-18-092350-5

<https://doi.org/10.51202/9783181023501-I>

Generiert durch IP '172.22.53.54', am 26.04.2023, 13:49:49.

Das Erstellen und Weitergeben von Kopien dieses PDFs ist nicht zulässig.

Content

► Plenary Lectures

Electric buses in Cologne – Present state and perspective of KVB's electric buses – Our plan for the complete transition of the bus fleet.	1
J. Schwarze, Kölner Verkehrs-Betriebe AG, Cologne	

► Vehicle Concepts

The Mercedes-Benz eCitaro – A modular concept for sustainable electro mobility in city bus operations	9
D. Vorgerd, EvoBus GmbH, Mannheim	
The new MAN Lion's City – path-breaking vehicle design concept for more attractive public transport for tomorrow	19
S. Schönherr, MAN Truck & Bus SE, Munich	
Innovative platform concept for commercial vehicle cabins – Optimized approaches in respect of modularity, assembly, light- weight and aerodynamics, flexible applicable for commercial vehicles of tomorrow	33
A. Ebmer, Magna Powertrain, Engineering Center Steyr GmbH & CO KG, St. Valentin, Austria	
Development of a disruptive semitrailer tractor in light-weight construction	45
J. Hintereder, S. Sattler, U. Gunzert, MAN Truck & Bus AG, Munich	
A new chassis-concept for electrified, light commercial vehicles based on innovative forming technologies	61
W. Schmitt, P. Huse, Hörmann Automotive GmbH, Ginsheim-Gustavsburg; R. Koehnsen, Röchling Automotive SE & Co.KG, Worms	

► Electrification

ZF Kit for E-Mobility Products for Commercial Vehicles	73
M. Lamke, M. Eisele, F.-D. Speck, ZF Friedrichshafen AG, Friedrichshafen	
The eTrailer – Intelligent hybridization for heavy duty commercial vehicles – Electric drive installed in a semi-trailer and integrated in the truck & trailer overall brake system control leading to significant fuel savings.	87
G. Schünemann, WABCO GmbH, Hannover	
Energy-recuperation as business-case for semitrailers – Smart electrification solution for semitrailers	99
N. Berger, Robert Bosch GmbH, Stuttgart	

Modular Platform Approach for Electric Drive System in Commercial Vehicles	103
---	------------

M. Fritz, Schaeffler Automotive Buehl GmbH, Buehl

Citaro hybrid – The first commercial vehicle with profitable 48V mild hybrid system.	115
---	------------

C. Rivas-Zöller, J. Häring, T. Nagel, Daimler Buses (EvoBus GmbH), Mannheim

► **Automated Driving**

ZF Assistance Functions for Swap Body Trucks – Functional innovations support trucks for the autonomous, safe and efficient handling of containers at depots.	123
--	------------

A. Banerjee, P. Kniess, F. Tenbrock, M. Mohr, G. Gumpoltsberger, ZF Friedrichshafen AG, Friedrichshafen

► **Methods/Processes/Tools**

Born digital – How BPW is revolutionising the configuration, ordering and production of running gears	137
--	------------

D. Nötzke, BPW-Bergische Achsen KG, Wiehl

Validating the fuel consumption of trucks featuring a dynamic electronic horizon in real world traffic: methods and results	149
--	------------

G. Milton, Ricardo UK Ltd, Shoreham-by-Sea, UK;
H.-M. Koegeler, AVL LIST GmbH, Graz, Austria;
R. Varnhagen, Continental Automotive GmbH, Regensburg

Lean product development process for a Chinese commercial vehicle supplier – Preparation and implementation of changes in the thinking and acting of a Chinese production company on the basis of Lean Production Management	175
---	------------

K. Hömberg, Ebertconsulting GmbH, Köln;
G. Chen, W. Li, Zhucheng Yihe axle Ltd., Zhucheng City, China

Application of a universal simulation environment for deriving specification premises of commercial vehicles with alternative and conventional drive trains.	187
---	------------

M. Greule, Y. Stoermer, Daimler Buses, EvoBus GmbH, Mannheim

► **Safety**

The key role of the Tertiary Safety in the vehicle concept design to preserve the occupants and road users life 199
M. Aimo Boot, A. Bernardini, Iveco, Turin

Next Generation Active Safety Systems for City Buses – The Foundation for Automated Driving 207
B. Barrois, H. Koch, T. Erhart, Daimler Buses EvoBus GmbH, Ulm

Knowing the Truck Driver 219
M. Hoepfl, Continental Automotive GmbH, Babenhausen;
J. Lützner, Continental Automotive GmbH, Schwalbach

► **Connectivity**

Over The Air Software Updates for commercial vehicle trailers – How to ensure latest software in all trailer ECUs 231
K. Feyerabend, WABCO GmbH, Hannover

Predictive Maintenance for TraXon – Business Model and Technical Solution. 243
M. Holzer, R. Karkoschka, ZF Friedrichshafen AG, Friedrichshafen

Open Platforms as A Solution Approach for Smart Logistics – Increase connectivity in networked commercial vehicles 251
D. Schnepf, Molex, Bochum

► **Green Environment/Substainability**

Emissions during braking 259
C. Asbach, A. Maria Todea, H. Kaminski, Institut für Energie- und Umwelttechnik, Duisburg;
M. Zessinger, Link Europe, Limburg a. d. Lahn

The new vehicle energy consumption calculation tool (VECTO) for heavy-duty vehicles – Scope and limitations. 269
C. Luján, IDIADA Automotive Technology S.A, Santa Oliva, Spain

AEROFLEX – Advanced Energy Management in Distributed Powertrains 281

G. Nitzsche, Fraunhofer Institute for Transportation and Infrastructure Systems IVI, Dresden;
J. Engasser, MAN Truck & Bus AG, Munich;
P. Mentink, TNO, Helmond

Implementation of Powertrain control for economic, low real driving emissions and fuel consumption – Measures for Fuel consumption reduction in Long Haul traffic 293

A. Danninger, E. Armengaud, N. Knopper, MA, AVL List GmbH, Graz, Austria

► **Smart Logistics**

Increasing transport efficiency through digitalisation of trailers. 313

K. Kunz, Fahrzeugwerk Bernard Krone GmbH & Co. KG, Werlte

helyOS – Highly Efficient Online Yard Operating System. 329

G. Nitzsche, S. Wagner, N. Belov, Fraunhofer Institute for Transportation and Infrastructure Systems IVI, Dresden

Current results from the fuel saving project „20-20-20“ 339

A. Manke, H. Hofmann, Int. Spedition Bartkowiak GmbH, Hildesheim

► Program Committee

Dipl.-Ing. Matthias Bengl, Iveco Magirus, Ulm

Dr. Thomas Dieckmann, WABCO GmbH, Hanover

Prof. Dr.-Ing. Jörg Ebert, Ebertconsulting GmbH, Cologne

Dipl.-Ing. Christof Kerkhoff, VDI e.V., Dusseldorf

Dipl.-Ing. Jörg Lützner, Continental Automotive GmbH, Schwalbach

Jack Martens, DAF Trucks N.V., Eindhoven, The Netherlands

Dr. Karl Masser, Magna Powertrain Engineering Center Steyr GmbH & Co. KG, St. Valentin, Austria

Herbert Mozer, ZF Friedrichshafen AG, Friedrichshafen

Dipl.-Ing. Thomas Nickels, MAN Truck & Bus AG, Nuremberg

Ing. Wolfgang Prokopp, EvoBus GmbH, Mannheim

Dipl.-Ing. Uwe Sasse, Fahrzeugwerk Bernard Krone GmbH, Werlte

Dipl.-Ing. Andreas Teuber, Volkswagen Nutzfahrzeuge, Wolfsburg

Dr. Jürgen Wagner, MAN Truck & Bus AG, Munich

Dipl.-Ing. Martin Zeilinger, Daimler AG, Stuttgart

Gold-Sponsors

We would like to thank our sponsors for their support.