Development and Research in
AUTOMOTIVE ACOUSTICS
PROGRAM BOOK

November 26 – 28, 2018
Pullman Aachen Quellenhof, Germany

www.aachen-acoustics-colloquium.com
www.aachener-akustik-kolloquium.de
Foreword

Aachen is one of the most important centers for development and research in automotive acoustics. This year, the Aachen Acoustics Colloquium takes place for the tenth time under the aegis of Prof. S. Pischinger, FEV Group, Prof. L. Eckstein, fka GmbH, Prof. K. Genuit, HEAD acoustics GmbH, and Prof. M. Vorländer, Institute of Technical Acoustics of RWTH Aachen University.

In the context of the Aachen Acoustics Colloquium, recent methods and technologies within the field of acoustics and vibrations of vehicles and drives are presented and discussed in detail in 23 dedicated papers and presentations. The continuous and free exchange of ideas between colleagues and experts, working in both industry and research, will ensure that consumers will keep finding attractive vehicles with an appealing sound.

Scientific Committee

Prof. Dr. Uwe Baake
Head of Product Engineering Mercedes-Benz Trucks
Daimler AG

Dr. Michael Fischer
Chief Expert and Head Center of Competence NVH
Robert Bosch GmbH

Andreas Geelink
Head of Acoustics, Properties / Special Vehicles
AUDI AG

Dr. Christian Schuster
Manager Vehicle NVH Programs Ford of Europe
Ford-Werke GmbH

Dr. Per-Olof Sturesson
Senior Director Driving Dynamics & Noise & Vibration Centre
Volvo Car Group

Prof. Dr. Otto von Estorff
Head of the Institute of Modelling and Computation
Technical University of Hamburg-Harburg
Driving Event AAC 2018

This year we offer participants of the Aachen Acoustics Colloquium the opportunity to experience different vehicles and prototypes on the test track acoustically.

On Monday, November 26th, 2018, the test track is open from 12.00 p.m. to 4.00 p.m.

Our free shuttle service in front of the Hotel Pullman Aachen Quellenhof will offer you a ride to the test track.

The registration for the Driving Event is retrieved within the registration process for the Colloquium.

Transfer to the Test Track

A shuttle service from the Quellenhof to the test track is offered at:

- 12.00 p.m.
- 2.00 p.m.

Departure from the test track back to Quellenhof is organized according to demand.
Welcome Reception and Opening of the Technical Exhibition

19:00 The welcome reception will take place at the exhibition, Hotel Pullman Aachen Quellenhof, with drinks and food. The reception is free of charge.

Meeting Venue

Hotel Pullman Aachen Quellenhof
Monheimsallee 52
52062 Aachen, Germany
Phone: +49 241 91320
Internet: www.pullmanhotels.com

Welcome and Opening

08:30 Welcome speeches
   Prof. Lutz Eckstein
   fka GmbH
   Dr. Norbert Alt
   FEV Europe GmbH

Vehicle Acoustics

Session Chair: Prof. Lutz Eckstein
   fka GmbH

08:45 Optimizing vibrational performances of Hyundai Van via combined CAE and Test approaches
   Paolo di Carlo
   Tristan Enault
   Marco Occhineri
   Katleen Michiels
   Siemens
   Taehoon Lee / Sangdo Ahn
   Junghoon Kim / Namki Kang
   Hyundai Motor Company

09:15 Designing the damping treatment of a vehicle body based on scanning particle velocity measurements
   Daniel Fernandez Comesana, PhD
   Microflown Technologies
   James Tatlow
   Bentley Motors Ltd.

09:45 30 years in the vehicle acoustics business – an interim balance
   Dr. Christoph Erhard
   ex Daimler Trucks

10:30 Break
Simulation I

Session Chair: Dr. Gottfried Behler
Institute of Technical Acoustics of RWTH Aachen University

11:15 EFEM in full-vehicle NVH-simulation considering lightweight components
Patrick Hüskens / Prof. Lutz Eckstein
Institute for Automotive Engineering, RWTH Aachen University
Henning Lohmann
Novicos GmbH
Jens Viehöfer
fka GmbH

11:45 Simulation tool chain for prediction of pass-by noise and fuel consumption for decision-making of vehicle and powertrain specifications
Takuya Matsumiya / Takumi Nagata / Keisuke Ishizaki / Masashi Komada
Toyota Motor Corporation
Dr. Georg Eisele / Dr. Christoph Steffens /
Fabienne Angermaier / Surya Yadla
FEV Europe GmbH

12:15 Combining simulated transfer functions with test-based noise sources in pass-by noise airborne source quantification of a commercial vehicle
Dirk von Werne / Alessandro Lepore /
Hirotoshi Muraoka / Mihai Stoica /
Nicola Zemtsev
Siemens

12:45 Lunch

Alternative Drives

Session Chair: Dr. Norbert Alt
FEV Europe GmbH

14:15 Electrification of a Ford Transit – Ford’s response to a cleaner London
Dr. Martin Hildebrandt
Dr. Ralf Heinrichs-Schönbeck
Ford-Werke GmbH

14:45 Evaluation of the noise reduction potential of an inequidistant gearing applied to an electric drive train
Philipp Neubauer
Dr. Joachim Bös
Prof. Dr. Tobias Melz
TU Darmstadt

15:15 NVH aspects of an electric drive unit
Adrian Rosplesch
Dr. Christoph Steffens
Peter Janssen
Dr. Gereon Hellenbroich
FEV Europe GmbH

15:45 Break
Program 27.11.2018

**Noise Control / Active Sound Design**
Session Chair: Dr. Aulis Telle
HEAD acoustics GmbH

16:15 Implementation of a modular model for active engine mounts and coupling with a reduced model for full-vehicle NVH-simulation
Andreas Grimm / Dr. Karsten Finger
Daimler AG
Georg Stoll / Heiko Atzrodt / Dr. Sven Herold
Fraunhofer LBF

16:45 Consistent active sound generation concepts for hybrid vehicles
Dr. Markus Bodden / Torsten Belschner
neosonic

17:15 Audible pedestrian warning system design methodology based on source-path-receiver approach
Arnaud Caillet / Oussama Fatmi / Massimiliano Calloni / Dr. Alexis Castel
ESI

Program 27.11.2018

**Banquet**

19:30 Reception and welcome

20:00 The banquet will take place at the historical city hall of Aachen and is free of charge for attendees. The fee for accompanying persons is €50.

**Address**
Rathaus Aachen
Markt
52062 Aachen, Germany
Internet: www.route-charlemagne.eu
Vehicle Acoustics II
Session Chair: Prof. Michael Vorländer
Institute of Technical Acoustics of RWTH Aachen University

08:30 Acoustic transmission loss in turbochargers
Hendrik Ruppert
Dr. Marco Günther
Prof. Stefan Pischinger
Institut for Combustion Engines, RWTH Aachen University

09:00 Powertrain NVH- and sound design-development of the new Ford Fiesta ST 1.5L GTDI I3 performance vehicle
Christian Störig
Dr. Ralf Heinrichs
Dr. Christian Schuster
Christoph Becker
Markus Schröer
Ford of Europe

09:30 Inverse vibro-acoustic techniques for automotive NVH development
Prof. Jeong-Guon Ih
Korea Advanced Institute of Science and Technology

10:15 Break

Simulation II
Session Chair: Prof. Jan-Welm Biermann
fka GmbH

10:45 Pass-by Noise towards 2024 - a case study of system contributions and source optimizations
Ashish Shah
Per Alenius
Erik Wennberg
Volvo Car Corporation

11:15 Numerical in situ TPA of an elastic multibody dynamic model of a tractor gearbox
Matthias Wegerhoff / Prof. Roland Sottek
HEAD acoustics GmbH
Johannes Amberg
AGCO GmbH

11:45 SEA modelling and transfer path analysis of an extensive renault captur finite element model
Markus Brandstetter
Dr. Panagiotis D. Antoniadis
Dr. Benoit Van den Nieuwenhof
MSC Software Belgium / Free Field Technologies
Dr. Cecile Dutrion
Philippe Mordillat
Renault

12:15 Concept of a virtual stochastic vibro-acoustic design development
Dr. Markus Kohlhuber
Dr. Marinus Luegmair
BMW AG

12:45 Lunch
Component NVH
Session Chair: Prof. Klaus Genuit
HEAD acoustics GmbH

14:00  Flow noise evaluation of mufflers based on
transient CFD
Dr. Rolf Kaiser
Dr. Christof Hinterberger
Faurecia Clean Mobility

14:30  Squeak noise of high temperature exhaust
component
Dr. Nicolas Driot
Tenneco GmbH
Dr. Margaux Regniez
Nicolas Baron
Prof. Francois Gautier
Laboratoire d’Acoustique de l’Université du Mans

15:00  ODS of brake rotor
Jan Thiele
Lucas Varity GmbH (ZF Group)

15:30  Variable spring absorber – System integration in
prototype vehicle and NVH performance results
Florian Schneider
Alexander Moser
Oliver Groneberg
Dr. Tobias Kaufhold
Viren Saxena
BorgWarner Drivetrain Engineering

16:00  Conclusion and final remarks
Prof. Michael Vorländer
Institute of Technical Acoustics, RWTH Aachen University
Prof. Klaus Genuit
HEAD acoustics GmbH

16:10  End of colloquium
Registration

Please register for the Aachen Acoustics Colloquium at: www.aachen-acoustics-colloquium.com

Please scan the QR code for further information or registration.

Payment

The registration fee of €770 (plus 19 % VAT) also includes a welcome reception at the Hotel Pullman Aachen Quellenhof as well as a banquet and the proceedings. Your registration will be confirmed by the invoice, which will be sent to you. Registration is completed after receipt of payment.

Please note that in case of cancellation prior to 15.10.2018, the participant’s fee will be reimbursed (less €75 exclusive of 19 % VAT for administrative costs). After that, the participant’s fee cannot be reimbursed.

Hotel Reservation

Please book your hotel room via aachen tourist service by using the following link: www.aachen-acoustics-colloquium.com/accommodation.htm

Please scan the QR code for further information or hotel reservation.
Parking Information

This year again, participants of the Aachen Acoustics Colloquium can park free of charge in the APAG car parks (exception: car park Carolus Thermen and Hotel Quellenhof). The nearest car park is No. 6.

You will receive a 3-day parking ticket at our information desk on request. The congress park ticket enables unlimited access to the car parks during the period of 26. - 28.11.2018

Contact

Aachen Acoustics Colloquium GbR
E-Mail: info@aachen-acoustics-colloquium.com
Internet: www.aachen-acoustics-colloquium.com
www.aachener-akustik-kolloquium.de

Authors/Exhibitors

Birgit Schaefer-Hamm
Institute for Combustion Engines VKA,
RWTH Aachen University
Phone: +49 241 80-48020
Fax: +49 241 80-22341
Mobile: +49 151 72708189
E-Mail: hamm@aachen-acoustics-colloquium.com

Attendees

Sara Kleineheer
fka GmbH
Phone: +49 241 80-25646
Fax: +49 241 80-625646
E-Mail: kleineheer@aachen-acoustics-colloquium.com