

# AAC 2018



AACHEN ACOUSTICS COLLOQUIUM  
AACHENER AKUSTIK KOLLOQUIUM

## Development and Research in AUTOMOTIVE ACOUSTICS

### PROGRAM BOOK



**November 26 – 28, 2018**

**Pullman Aachen Quellenhof, Germany**

[www.aachen-acoustics-colloquium.com](http://www.aachen-acoustics-colloquium.com)  
[www.aachener-akustik-kolloquium.de](http://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.



## Organizers

FEV Group  
fka GmbH  
HEAD acoustics GmbH  
Institute of Technical Acoustics of RWTH Aachen University



## Scientific Committee



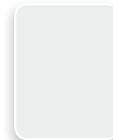
**Prof. Dr. Uwe Baake**  
Head of Product Engineering Mercedes-Benz Trucks  
Daimler AG



**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.



Shuttle Service



Tent



Parking space

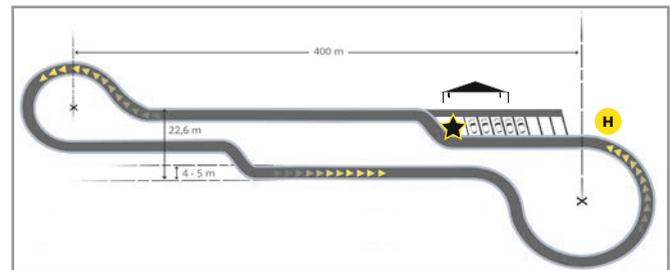


### Transfer to the Test Track

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](http://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 /  
Hidetoshi Muraoka / Mihai Stoica /  
Nicolae Zemtsev  
Siemens

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12:45 Lunch

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### 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 Böse  
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

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15:45 Break

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## 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



## Banquet

19:30 Reception and welcome

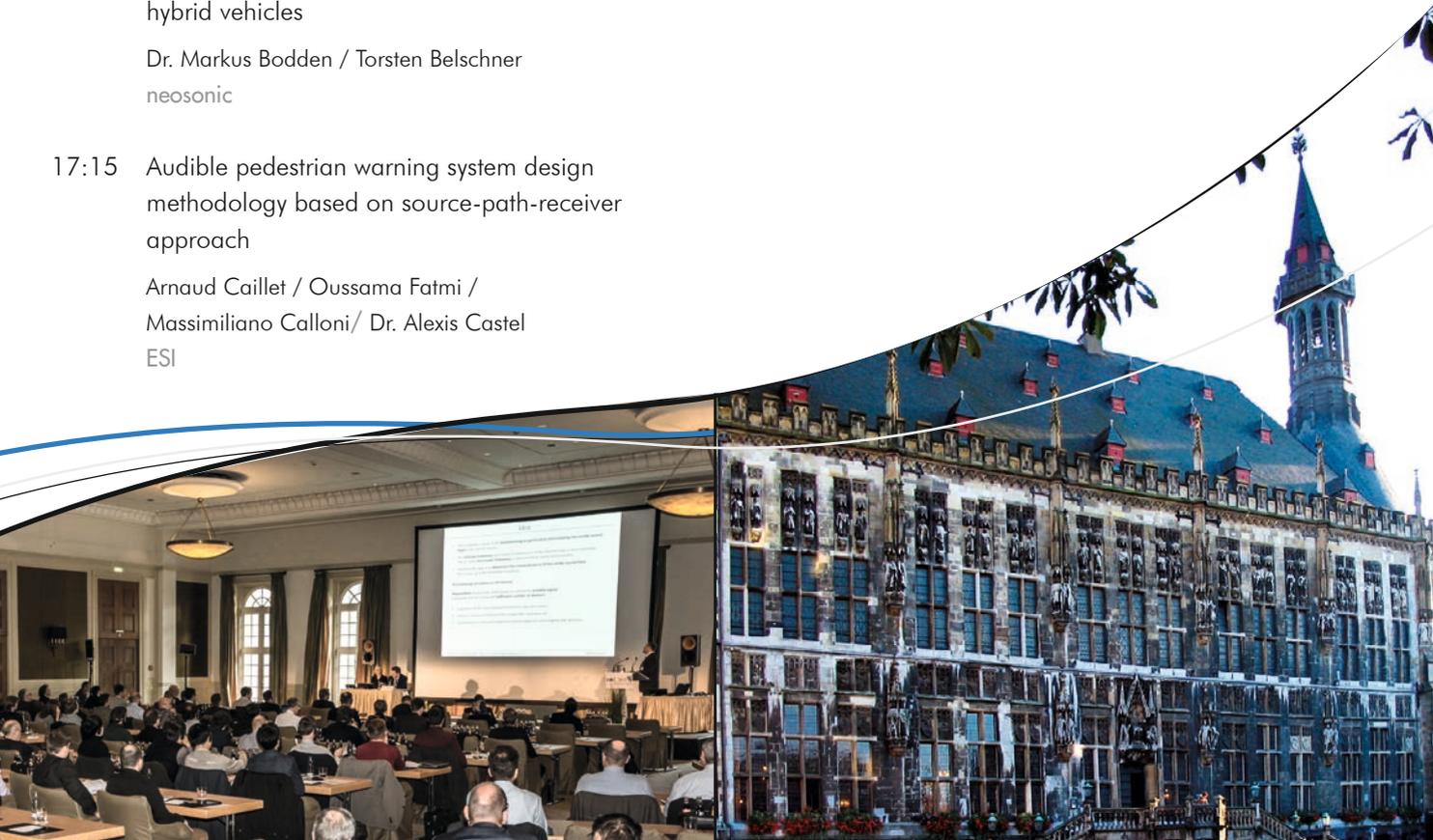
20:00 The banquet will take place at the historical city hall of Aachen and is free of charge for attendees. The fee for accompanying persons is € 50.

## Address

Rathaus Aachen  
Markt

52062 Aachen, Germany

Internet: [www.route-charlemagne.eu](http://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](http://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](http://www.aachen-acoustics-colloquium.com/accommodation.htm)

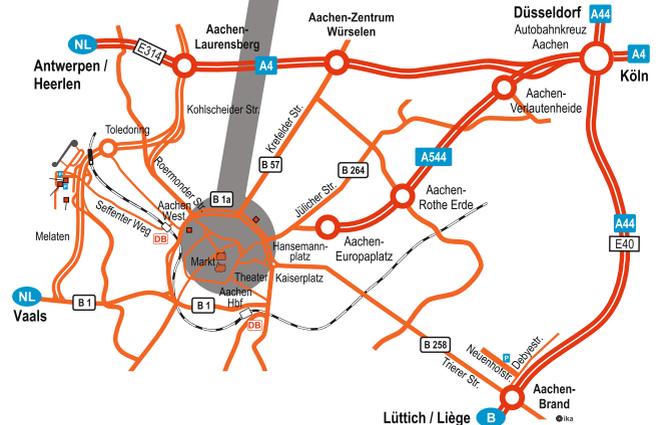
Please scan the QR code for further information or hotel reservation.



## Locations of Interest



- ① Meeting Venue
- ② Banquet





## 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

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[www.aachener-akustik-kolloquium.de](http://www.aachener-akustik-kolloquium.de)

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