International Conference

NOISE
Optimisation EV/HEV

21–23 February 2017 | Maritim Konferenz Hotel Darmstadt, Germany

3 FULL DAYS + 12 SPEAKERS + 3 WORKSHOPS UNLIMITED NETWORKING OPPORTUNITIES

Attending companies:

With contributions from the following experts:

Chairman:
Johan Stenson,
Change Manager R&D,
HR R&D,
Volvo Car Corporation,
Sweden

Peter Borne,
Team Leader NVH,
Vehicle Physics,
Volkswagen Osnabrück GmbH, Germany

Florian Fink,
PhD Candidate,
RD/FNV Structural Dynamics,
Daimler AG, Germany

Ben Butler,
Principal Engineer – NVH,
Vehicle Refinement,
Ricardo plc, UK

Luca Brondolo
Principal Engineer,
Aeroacoustic APC NVH,
Jaguar Land Rover, UK

Dr. Torsten Treyde,
Deputy Director Engineering Technology,
Global Simulation & NVH,
ZF TRW, Germany

Michael Haverkamp,
Specialist Cross-Sensory Harmonization,
Product Development,
Ford Werke GmbH, Germany

George Winney
Principal Engineer NVH,
VICAM - NVH,
Tata Motors European Technical Centre, UK

Dr. Thomas Engels,
Technical Director Structural PU Systems,
Henkel AG & CoKGaA, Germany

Jonathan Millitzer,
Team Leader Active Control,
Department of Reliability and System Integration,
Division Smart Structures
Fraunhofer Institute for Structural Durability and System Reliability LBF, Germany

Scott Amman
Technical Expert Signal Processing and Advanced Voice Recognition Group,
Research and Innovation Center,
Ford Motor Company, USA
Dear Colleague,

As Chairman, it is my honour and great pleasure to welcome you all to the Noise Optimisation EV/HEV Conference 2017. I am very excited about the interesting subjects and inspiring context, combining lectures with hands-on visits, workshops and reflections.

I left the NVH area in 2013, at a time when electrification was starting to take huge steps within the automotive business. After 15 years within different leadership roles at NVH, I challenged myself to take on a coaching and leadership development career, in order to give a bit of my leadership experience.

So this conference is a really exciting opportunity for me to combine my past and present. It gives me a chance to listen to your challenges and findings in the NVH field, and allows me to give you a flavour of my reflections about leading development of highly complex products within a complex organisation.

I wish you all lots of learning and great experiences at the conference – see you there!

Best Regards,

Chairman:
Johan Stenson,
Change Manager R&D,
HR R&D, Volvo Car Corporation,
Sweden

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Why you should attend?

1. Learn innovative approaches to meet the challenges for EV and HEV that NVH engineers are currently facing
2. Get an all around approach to latest evolution of pass by noise legislation and the adaptive achievements made recently
3. Discover state of the art strategies for measuring and assessing NVH data in order to improve and align your data quality
4. Understand the requirements for enhanced sound design and ensure a unique acoustic driving experience for customer delight
5. Enhance your noise, vibration and harshness engineering by seamless integration of vehicle and powertrain refinement in the entire value chain

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Media partners:

Automotive Testing Technology International was launched in 1998 as a quarterly review of the very latest research and developments within the area of automotive test and evaluation. Automotive Testing Technology International has become the leading and most respected magazine covering breaking stories in the fields of vehicle reliability, durability, safety, quality, NVH, and dynamics testing and evaluation. Visit the website: www.automotivetestingtechnologyinternational.com
08:30 Registration and welcome coffee

Future of NVH in hybrid and electric vehicles

09:20 In-cabin sound quality enhancement in electric vehicles, an augmented approach
- Achieving EV sounds of integrity & authenticity: the industry’s challenge
- Enhancing driver experience in EV's
- Developing a tuneable system to meet different brand requirements

Ben Butler, Principal Engineer – NVH, Ricardo plc, UK

10:00 Speed networking - Get in touch with the other conference guests in quick paced 1-to-1 meetings – make sure you bring a stack of business cards.

10:30 Refreshment break and networking

11:00 How to use simulation in order to manage future NVH challenges in e-mobility
- Definition of NVH requirements
- How to reduce friction induces noise
- Decrease transient gear train induced noise

Dr. Torsten Treyde, Deputy Director Engineering Technology, ZF TRW, Germany

11:40 Electric Vehicle NVH at Tata Motors European Technical Centre
- History of development of electric vehicles in Tata Motors European Technical Centre
- Economical solutions for EVs, Hybrids and range extenders
- Sound quality concerns
- Adding sounds to improve driving experience

George Winney, Principal Engineer NVH, Tata Motors European Technical Centre, UK

12:20 Networking luncheon

13:50 The future is now: Execution for new electric vehicles
- NVH EVs versus traditional vehicles
- Electric vehicles advantages and trade-offs
- Today EV requirements

Speaker to be confirmed soon

Use of materials for different NVH applications

14:30 NVH solutions in automotive
- Overview of NVH solutions
- NVH solutions for automotive

Dr. Thomas Engels, Technical Director Structural PU Systems, Henkel AG & CoKGaA, Germany

15:10 NVH active control solutions
- Active control systems with electro active polymers
- EAP Model building
- Bearing model building
- Electromechanical model
- Control prototyping

Florian Fink, PhD Candidate, Daimler AG, Germany

15:50 Short refreshment break and departure to Fraunhofer LBF

Hands on site visit:

16:30 While visiting the Fraunhofer LBF laboratory listen to the interactive talk on: Active Control Systems for the reduction of noise and vibration in vehicles
- Overview on active measures
- Actuators for active control
- Experimental studies on different actuator-sensor configurations for active noise and active vibration control
- NVH related test benches at the Fraunhofer LBF

By Jonathan Millitzer, Team Leader Active Control, Fraunhofer LBF, Germany

17:45 Networking dinner

Evening Event – Join us for an informal evening get-together! This is an excellent opportunity for you to meet the other attendees and make new business contacts.
Relax and round off your first conference day in an informal atmosphere.

Use of materials for different NVH applications

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09:00 Chairman’s opening

Out of the box breakfast presentation
09:10 Start the day with a new experience that can lead to stimulating discussions and significant learnings:
Leading development of highly complex products within a complex organization
• What makes a great leader within the NVH area?
• People leader or technical expert – Is there a “best” combination?
• Sharing experience and reflections around challenges in leadership in a complex environment

By Johan Stenson, Change Manager R&D, Volvo Car Corporation, Sweden

Regulation on noise, the legislation on vehicle emissions and its impact
10:00 Pass by noise regulation and tire development
• Overview of new noise limits applied as from July 2016 and the impact on EV/HEVs
• Minimizing tire noise sources
• Requirements for stricter tire performance
Speaker to be confirmed soon

10:40 Author’s presentation:
Synesthetic Design: A Handbook for a Multi-Sensory Approach by Dr. Michael Haverkamp
Synesthetic design strives to develop products that systematically incorporate all five senses. This book is helpful for all kinds of applications which incorporate various senses. Special attention is directed to the field of sound design and optimization of product sounds within multi-sensory environments.

Sound design and engineering
10:55 The impact of vehicle noise on speech recognition and hands-free call systems
• Factors affecting speech systems in the car
• Measuring the performance impact of road and HVAC noise
• Relating speech recognition performance to NVH metrics and targets
• The future of speech recognition and hands-free call quality systems

Scott Amman, Technical Expert Signal Processing and Advanced Voice Recognition Group, Ford Motor Company, USA

11:35 Contribution of touch/material sounds to perceived quality of the vehicle interior
• Contribution of touch sounds to multi-sensory quality of the vehicle interior
• Sound measurement and perceptual testing
• Evaluation of knocking sounds
• Assessment of cross-sensory effects of sound

Michael Haverkamp, Specialist Cross-Sensory Harmonization, Ford Werke GmbH, Germany

12:15 Networking luncheon

13:45 Side mirror aeroacoustic optimization
• Aerodynamic optimization of side mirror
• Seven design parameters
• Conclusions and learnings

Luca Brondolo, Principal Engineer, Jaguar Land Rover, United Kingdom

14:25 Round Table: Customer NVH experience Delegates will be sorted into two groups to facilitate a healthy and engaged discussion in a smaller group. After half an hour the delegates will swap round table and topic giving you the chance to participate in all discussions. Collect main points and present to the audience.

Table 1: How to achieve cooperation between different departments to ensure a full NVH experience is delivered to the customer

Moderator: Johan Stenson, Change Manager R&D, Volvo Car Corporation, Sweden

Table 2: Comparing procedures regarding customer requirements between departments

Moderator: Michael Haverkamp, Specialist Cross-Sensory Harmonization, Ford Werke GmbH, Germany

15:00 Refreshment break and networking

Tutorial: Noise requirements (OEMs and Tier1s collaboration)
15:30 Today still often NVH requirements are not very specific. Terms like e.g. “no unpleasant noise” are sometimes the whole specification. Having a more specific characterization of the customer target would increase efficiency in development.
• Analyse the requirements for noise specification from OEMs
• Creating a methodology, which can help to come to more specific and efficient NVH targets

Dr. Torsten Treyde, Deputy Director Engineering Technology, ZF TRW, Germany

17:30 Closing remarks of the chairman and end of conference
Interactive Workshop Day | Wednesday, 02 July 2014

“You can succeed on your own terms but you can’t succeed alone”

Join our interactive workshops and benefit from in-depth sessions, hosted by selected industry experts. Our industry experts will share their expertise with a limited group of peers. Our workshop leaders will actively foster open exchange and discussion to help you tackle challenges, discover solutions, and make decisions crucial to operational excellence.

08:00  Registration and welcome coffee

08:30-10:30 Workshop A
Active noise control in HEV vehicles
Case study of active road noise control in lightweight HEV vehicle (VW XL1) as “kick-off”-contribution for exchange of different tasks & solutions in similar applications. The focus of this workshop will be on overcoming this industry challenge.

- Technical motivation and solution of ARNC in XL1-vehicle
- Feedback & discussion of this approach with workshop participants
- Input of other cases from participants

By Peter Borne,
Team Leader NVH,
Volkswagen Osnabrück GmbH, Germany

10:30  Refreshment break and networking

11:00 – 13:00 Workshop B
Leading development of highly complex products within a complex organisation
This workshop session aims to give the attendees an opportunity to discuss and share experience regarding challenges and necessary skills for successful leadership in a technically complex environment. Join us and learn more about it.

- Contribute and share your experiences around the balance between technical knowledge and leadership skills
- NVH considerations and applications

By Johan Stenson,
Change Manager R&D,
Volvo Car Corporation, Sweden

13:00 – 14:00 Networking luncheon

14:00 – 16:00 Workshop C
Interior noise in electric cars: noise minimization and comfort
This workshop’s primary goal is to discuss and find solutions for minimizing interior noise without compromising comfort.

- EV Sounds, from concept to design
- Sound branding & requirements

Workshop leader to be announced

16:00  End of workshop day
### Conference Packages

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<th>Package</th>
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### Payment Methods

- **BY CREDIT CARD**: Please debit my credit card
- **BY CHEQUE**: Made payable to IQPC Gesellschaft für Management Konferenzen mbH

### Delegate Details

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<th>DELEGATE</th>
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**Venue and Accommodation**

Maritim Hotel Darmstadt, Germany

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