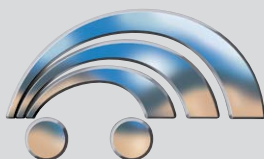


# 11<sup>th</sup> International Styrian Noise, Vibration & Harshness Congress

The European Automotive Noise Conference

in cooperation with



[www.isnvh.com](http://www.isnvh.com)

## ISNVH: Integrating Seamlessly NVH

NVH in the era of connected and automated vehicles

**ONLINE EVENT**

November 4, 2020

## Content Overview

### Topics:

- Flow Noise & Aeroacoustics
- Full Vehicle NVH: Sound & Noise Sources
- Full Vehicle NVH: Electrification
- Full Vehicle NVH: Body
- Active Noise & Vibration Control
- Material Characterisation and Modelling + Acoustic Metamaterials
- Inverse Methods in Structural Acoustics
- Sound Absorption & Insulation
- Machine Learning & Datascience for NVH
- Powertrain, Transmission & Drivetrain
- Noise & Vibration Quality and Perception, Sound Design
- Modelling Techniques & Virtual Prototyping

AVL

virtual vehicle

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20SNVH-0024 / 2020-01-1513

Numerical Investigation of Narrow-Band Noise Generation by Automotive Cooling Fans

Fares Omar, Chalmers University of Technology

20SNVH-0033 / 2020-01-1515

A Generic Testbody for Low-Frequency Aeroacoustic Buffeting

Rafael Engelmann, BMW Group

20SNVH-0038 / 2020-01-1512

Modelling and Numerical Simulation of the Noise Generated by Automotive Turbocharger Compressor

Manfred Kallenbacher, TU Wien

20SNVH-0064 / 2020-01-1516

Installation Effects on the Flow Generated Noise From Automotive Electrical Cooling Fans

Mikael Karlsson, KTH CCGEx (MWL)

20SNVH-0075 / 2020-01-1518

A Priori Analysis of Acoustic Source Terms from Large-Eddy Simulation in Turbulent Pipe Flow

Johannes Tieber, Graz University of Technolog

20SNVH-00103 / 2020-01-1514

Numerical Investigation of Tonal Noise at Automotive Side Mirrors Due to Aeroacoustic Feedback

Alexander Schell, Daimler AG

### Session 112

#### Material Characterisation and Modelling + Acoustic Metamaterials

20SNVH-0022 / 2020-01-1526

Micro-Macro Acoustic Modeling of Heterogeneous Foams with Nucleation Perturbation

Cong Truc NGUYEN; Université Paris-Est

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#### Full Vehicle NVH: Sound & Noise Sources

20SNVH-0085 / 2020-01-1555

Effects of On-Road Conditions on HVAC Noise

Andreas Logdesser, Univ. Of Erlangen-Nuremberg

20SNVH-0092 / 2020-01-1520

Tire NVH Optimization for Future Mobility

Rahul R. Sanghani, CEAT Ltd.

20SNVH-0120 / 2020-01-1575

CAE Support to Vehicle Audio Installation Issues

Andrzej Pietrzyk; Volvo Car Corporation

20SNVH-0127 / 2020-01-1519

Innovative Material Characterisation Methodology for Tyre Static and Dynamic Analyses

Bharath Anantharamaiah; Applus + Idiada Group

20SNVH-00139 / 2020-01-1550

A Hybrid Approach for the Assessment of Paths in Pass-by Maneuver

Marco Danti; Centro Ricerche Fiat S.C.p.A.

20SNVH-00141 / 2020-01-1570

Reinforcement of Low-Frequency Sound by Using a Panel Speaker Attached to the Roof Panel of a Passenger Car

Ki-Ho Lee; Korea Advanced Inst of Science & Technology

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#### Full Vehicle NVH: Electrification

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Simulating and Optimizing the Dynamic Chassis Forces of the Audi e-tron

Stefan Uhlar; Audi AG

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#### Active Noise & Vibration Control

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Development of the Active Sound Generation Technology using Motor Driven Power Steering System

Chang Kyoung-Jin; Hyundai Motor Co.

20SNVH-0042 / 2020-01-1535

Concept Study on Windshield Actuation for Active Control of Wind Noise in a Passenger Car

Thorsten Koch, Fraunhofer Institute LBF

20SNVH-0043 / 2020-01-1523

Development, System Integration and Experimental Investigation of an Active HVAC Noise Control System for a Passenger Car

Jonathan Millitzer, Fraunhofer Institute LBF

20SNVH-0069 / 2020-01-1532

Enhancement of Occupant Ride Comfort by GA Optimized PID Control Active Suspension System

Arivazhagan Anandan, Anna University

20SNVH-0080 / 2020-01-1534

How Can Active Exhaust Systems Contribute to the Reduction of CO2 Emission and Comply with Future Pass-by Noise Limits?

Jan Krueger, Eberspaecher Exhaust Technology GmbH

20SNVH-00110 / 2020-01-1537

Engine Sound Reduction and Enhancement using Engine Vibration

Hakjun Lee; KAIST

### Structured Session 125

#### Inverse Methods in Structural Acoustics

20SNVH-0018 / 2020-01-1581

Measurement Location Optimization of Component TPA Method for Road Noise

Onno de Boer; Applus + Idiada



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**Design and Optimization of a Resonant Type Acoustic Meta-Material for Sound Attenuation**

Patrick Bouche; Mecanum Inc.

**20SNVH-0076 / 2020-01-1560**

**Design of a Multiwaves Vibration Filtering**

Jules Plisson; VITESCO Technologies France SAS

**20SNVH-0128 / 2020-01-1523**

**Inter-Laboratory Characterization of Biot Parameters of Poro-Elastic Materials for Automotive Applications**

Fabien Chevillotte; Matelys – Research Lab

**20SNVH-0137 / 2020-01-1562**

**Impact of Manufacturing Inaccuracies on the Acoustic Performance of Sound Insulation Packages With Plate-like Acoustic Metamaterials**

Felix Langfeldt; Hamburg University of Applied Sciences

**Session 104**

**Sound Absorption & Insulation**

**20SNVH-0017 / 2020-01-1524**

**Appropriate Damping Loss Factor of Vehicle Interior Cavity For Valid Application of Statistical Energy Analysis**

Ki-Sang Chae; Hyundai Motor Company

**20SNVH-0101 / 2020-01-1522**

**Sound Field Synthesis by Synthetic Array (SFS-SA) for Diffuse Field or TBL Structural Excitation**

Jean-Louis GUYADER, SONORHC Technologies

**20SNVH-0106 / 2020-01-1554**

**Resabtors - Advanced Multi-Material Muffler Designs for Clean Air Applications**

Ralf Buck; Umfotec GmbH

**20SNVH-0014 / 2020-01-1584**

**Multi-domain NVH Model for the Complete Electro-mechanical Power Unit**

Yashwant Kolluru; Robert Bosch GmbH

**20SNVH-0046 / 2020-01-1551**

**NVH Comfort of Range Extenders for Electric Vehicles**

Christoph Steffens; FEV Europe GmbH

**20SNVH-0118 / 2020-01-1503**

**Robust Development of Electric Powertrain NVH for Compact Electric SUV**

Tae-Won Ha; Hyundai Motor Company

**20SNVH-0132 / 2020-01-1511**

**HEV Evaluation in Simulation Phase Based on Predicted Sound Behavior**

Paco Langjahr; AVL LIST GmbH

**Session 400 cont.**

**Full Vehicle NVH: Body**

**20SNVH-0037 / 2020-01-1553**

**Linking Body-In-White and Trimmed Body Dynamic Characteristics in view of Body-In-White Mode Shape Target Setting**

Marc Brughmans; Siemens Digital Industries Software

**20SNVH-0047 / 2020-01-1585**

**Study of the Glass Contribution to the Interior Acoustics of a Car and Related Countermeasures**

Thibault Lafont; Autoneum Holding AG

**20SNVH-0061 / 2020-01-1549**

**Extended Solution of a Trimmed Vehicle Finite Element Model in the Mid-Frequency Range**

David Sipos; Széchenyi István University

**20SNVH-0063 / 2020-01-1580**

**Inverse Vibration Problem Used for the Characterization of the Damping Added by a Trim Foam on a Plate**

Meryem Le Deunf; CEVAA, LAUM

**20SNVH-0088 / 2020-01-1580**

**Inverse Characterization of Vibro-Acoustic Subsystems for Impedance-Based Substructuring Approaches**

Jean-Louis Guyader; INSA-Lyon / LVA

**20SNVH-0109 / 2020-01-1579**

**Coarse Mesh RIFF Method to Identify the Homogenized Flexural and Shear Complex Moduli of Composite Beams**

Thibault Wassereau; Sonorhc Technologies

**20SNVH-0138 / 2020-01-1541**

**Experimental Rattle Source Characterization Using Matrix Inversion on a Reception Plate**

Eugene Nijman; VIRTUAL VEHICLE

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**Machine Learning & Datascience for NVH**

**20SNVH-0006 / 2020-01-1569**

**High Speed Camera Based 3D Experimental Modal Analysis**

Domen Gorjup; University of Ljubljana

**20SNVH-0030 / 2020-01-1565**

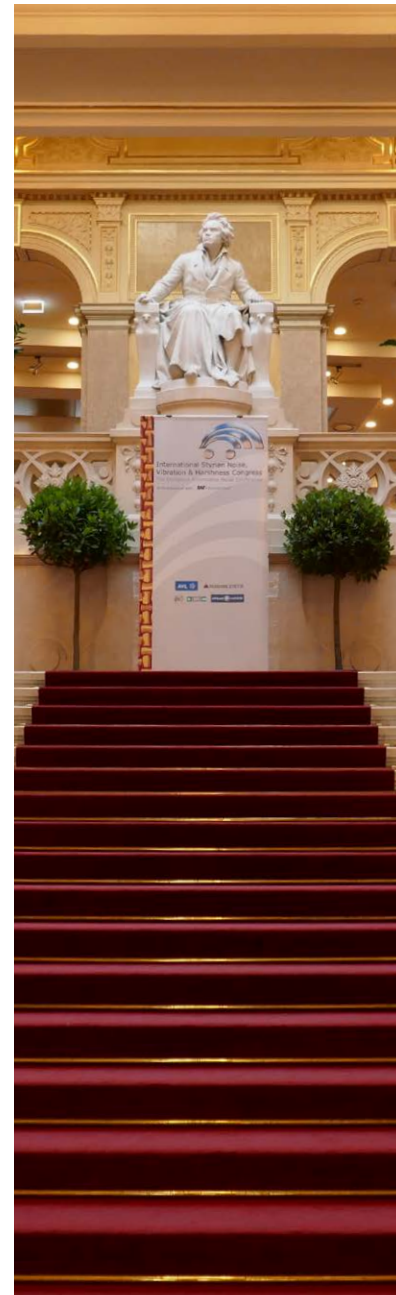
**A Diagnostic Technology of Powertrain Parts that cause Abnormal Noises using Artificial Intelligence**

Insoo Jung; Hyundai Motor Company

**20SNVH-0048 / 2020-01-1566**

**Research on the Subjective Rating Prediction Method for the Ride Comfort with Deep Learning**

Akihito Akai; Hitachi, Ltd.



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Joseph Venor; ESI UK Ltd

20SNVH-0066 / 2020-01-1576

Power Input Mapping for Vibro-Acoustic Design

Walid Belgacem; Université de Sherbrooke

20SNVH-0072 / 2020-01-1564

Time Domain Full Vehicle Interior Noise Calculation from Component Level Data by Machine Learning

Dimitrios Ernst Tsokaktsidis; Techn. University Munich and Mercedes-Benz AG

20SNVH-0140 / 2020-01-15285

Optimization of Vehicle Damping Sheets Position Based on Energy Calculation

Zhiwen Wang; Beijing Automotive Technology Center Co.

20SNVH-0116 / 2020-01-1527

Innovative Acoustic Material Concept Integration Into Vehicle Design Process

Denis Blanchet; dBVibroAcoustics

20SNVH-0131 / 2020-01-1501

Advanced CAE Methods for NVH Development of High Speed Electric Axle

Mehdi Mehrgou; AVL LIST GmbH

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Powertrain, Transmission & Drivetrain

### Session 107

Noise & Vibration Quality and Perception, Sound Design

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Modelling Techniques & Virtual Prototyping

20SNVH-0005 / 2020-01-1502

Analytical Rotordynamic Study of a High-Speed Gear Transmission System for Race Applications

Brett Friskney; Loughborough Univ.

20SNVH-0045 / 2020-01-1539

Effective Method for Active Sound Designing

Georg Eisele; FEV Europe GmbH

20SNVH-0023 / 2020-01-1574

A Bridging Technology to Combine Test and Simulation With In-Situ TPA

Matthias Wegerhoff; Head acoustics GmbH

20SNVH-0081 / 2020-01-1504

Analytical prediction of acoustic emissions from turbocharger bearings

Nader Dolatabadi; Loughborough University

20SNVH-0105 / 2020-01-1552

Asian Consumers Challenging the NVH Performance of European Cars – Implications on the Product Development in the 2020ies

Christoph Fankhauser; MAGNA STEYR Automotive

20SNVH-0025 / 2020-01-1571

Challenges in Vibroacoustic Vehicle Body Simulation Including Uncertainties

Marinus Luegmair; BMW AG

20SNVH-0015 / 2020-01-1506

Numerical Analysis of the Influences of Wear on the Vibrations of Power Units

Yashwant Kolluru; Robert Bosch GmbH

20SNVH-0107 / 2020-01-1567

3D Audio Reproduction via Headrest equipped with Loudspeakers – Investigations on Acoustical Design Criteria

Manuel Brandner; Umfotec

20SNVH-0124 / 2020-01-1572

Uncertainty Quantification in Vibroacoustic Analysis of a Vehicle Body Using Generalized Polynomial Chaos Expansion

Johannes Schmid; Technical University Munich

20SNVH-0032 / 2020-01-1568

Fault Diagnosis of an Engine through Analyzing Vibration Signals on the Block

Jaemin Jin; Hyundai Motor Group

20SNVH-0119 / 2020-01-1546

Real-Time Capable Wind and Rolling Noise Synthesis for a More Realistic Vehicle Simulator Experience

Julian Koch; Institute of Electronic Music & Acoustic

20SNVH-0108 / 2020-01-1583

Multi-Frequency Model Reduction for Uncertainty Quantification in Computational Vibroacoustics of Automobiles

Justin Reyes; Groupe PSA

### Session 100 cont.

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### Session 107 cont.

Noise & Vibration Quality and Perception, Sound Design

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Modelling Techn. & Virtual Prototyping

20SNVH-0011 / 2020-01-1507

The In-Depth PHEV Driveline Torsional Vibration induced vehicle NVH response Study by Integrated CAE/Testing Methodology

Qian Zhao; BAIC Motor corporation.Ltd.

20SNVH-0049 / 2020-01-1548

Measurement of the Biodynamic Response of the Hand-Arm System and Study of its Influence on the Vibrational Response of the Steering Wheel

Luc Laroche; PSA Group, INSA Lyon

20SNVH-0016 / 2020-01-1577

Squeak Noise Prediction of a Door Trim Panel Using Harmonic Balance Method

Lukas Utzig; Technical University Munich and BMW





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Characterisation of Brake Creep Groan Vibrations

Peter Fischer; Graz University of Technology

20SNVH-0050 / 2020-01-1547

Direction Specific Analysis of Psychoacoustics Parameters Inside Car Cockpits: a Novel Tool for NVH and Sound Quality

Daniel Pinardi, University of Parma

20SNVH-0054 / 2020-01-1558

Finite Element Model Reduction Applied to Nonlinear Impact Simulation for Squeak and Rattle Prediction

Mohsen Bayani Khaknejad; Volvo Car Corporation

20SNVH-0062 / 2020-01-1578

Root Cause Analysis and Structural Optimization of E-Drive Transmission

Borislav Klarin, AVL-AST

20SNVH-0079 / 2020-01-1543

Suggestive Sound Design – How to use Active Interior Sound Design to improve traffic safety

Manuel Petersen; IPEK - Institute of Product Engineering

20SNVH-0057 / 2020-01-1531

NVH Optimization Methods Applied to e-Motors

Alina Lysak; Continental SCR

20SNVH-0028 / 2020-01-1510

On the Effect of Clutch Dynamic Properties on Noise, Vibration and Harshness Phenomena

Ilias Minas; Loughborough University

20SNVH-0097 / 2020-01-1542

Estimation of Interior Sound Quality in BEVs Regarding Measurements on the NVH Chassis Dynamometer: Focusing on Tonal Components

Daniel Schecker; AVL Deutschland GmbH

20SNVH-0027 / 2020-01-1500

Simulation Process for the Acoustical Excitation of DC-Link Film Capacitors in Highly Integrated Electrical Drivetrains

Maximilian Herrberger; BMW Group

20SNVH-0084 / 2020-01-1508

On Prediction of Automotive Clutch Torsional Vibrations

Theofilos Gkinis; Loughborough University

20SNVH-0134 / 2020-01-1557

Assessment of Squeak and Rattle Noise of a Car Seat Using 3D Sound Intensity Measurements

Daniel Fernandez Comesana; Microflown Technologies

20SNVH-0115 / 2020-01-1573

Efficient Modeling and Simulation of the Transverse Isotropic Stiffness and Damping Properties of Laminated Structures using the Finite Element Method

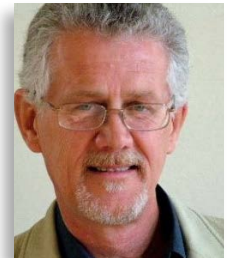
Viad Somesan; BMW Group

## Keynotes:



**Thomas Antoine**

Renault Nissan Mitsubishi Alliance



**Prof. John Mottershead**

The University of Liverpool

**Active Vibration Control based on Modal Test Data**



**Prof. Kon-Well Wang**

University of Michigan

**Learning from Nature – Adaptive Metastructures for NVH**

We're glad you're joining us for our ISNVH 2020 online - the corona edition!

Please stay tuned for more information.

And above all - take care & stay healthy!

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Antonio Torregrosa	Polytechnic University of Valencia, Spain
Shanjin Wang	Renault SA, Paris, France

## General Information & Contact:

**Congress location:  
Information &**

**ONLINE EVENT**

**Online registration:** [www.isnvh.com](http://www.isnvh.com)

**Congress language:** English

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