Hear about the latest case studies and benefit from our interactive sessions, panel discussions, workshops and social gatherings. High-level experts from prestigious OEMs and research institutes will share their knowledge in this exclusive event for international automotive NVH experts.

**Scientific Committee & Keynote Speakers:**

- **Jonathan Layfield**
  Head of Vehicle Physics, Bentley Motors Limited, UK

- **Michael Stellamanns**
  NVH Manager, Audi AG, Germany

- **Christoph Meier**
  Senior Manager NVH-Powertrain, Daimler AG, Germany

- **Per-Olof Sturesson**
  Director, Noise & Vibration Center, Volvo Car Group, Sweden

- **David Quinn**
  Manager, Vehicle Quality Promotion & MQE, Nissan Technical Centre, UK

- **Dr. Ing. Conrad Schucht**
  Specialist Vehicle Acoustics & Vibration (NVH), Bugatti Engineering GmbH, Germany

- **Prof. Stephen Elliott**
  Professor, ISVR University of Southampton, UK

**Identify latest trends in:**

- Powertrain and chassis NVH refinement and active noise cancellation technologies
- Sound Branding, vehicle sound representation & psychoacoustics
- Hybrid and electric drives’ sound development

**Explore advanced technologies in:**

- Tyre noise dynamics, road noise and structural dynamics
- Full vehicle NVH simulation, CAE analysis and measurement technologies
- Aero-acoustics, CFD, and wind-tunnel NVH testing

**Find out about innovative concepts in:**

- NVH for high performance cars, sports cars and trucks
- The combination of acoustic and thermal performance optimization
- Cost-efficient lightweight noise control materials

To Register: T +44 1618 841 208 | E info@internect.co.uk

www.internect.co.uk/content/3/international-forum-automotive-acousticsvibration-nvh-
Welcome to the International Forum
Automotive Acoustics & Vibration - NVH

Everything that moves makes a sound or vibration, and humans have evolved to use the sound and vibration information generated by moving objects, or beings, to navigate their way through life. So, as life becomes ever more complex, how should we interface with the sound and vibration that characterises one of our largest personal financial investments – the automobile?

Come and join the debate that engages more and more engineers, scientists and technologists every year in developing cars that are more refined, more efficient, more reliable and safer than their predecessors. These products must also communicate sound character as part of their brand DNA.

Now that adaptive technologies proliferate throughout the industry, what’s the best approach to tackle the rival demands of unwanted noise and vibration in a lightweight structure? How far should we go in limiting undesirable NVH at source? Are effective palliatives and smart electronic solutions a better strategy?

Noise emitted by passenger cars has been reduced by 90% since 1970, and Europe’s cars are collectively the cleanest, safest and quietest in the world. By Quarter 4 2014, the resurgent automotive industry has seen the UK’s output climb to third highest in Europe. Meanwhile UK Automotive is global #2 in premium, and #1 in the luxury sector. So, what better place than the UK for a conference on acoustics and vibration comfort?

Bentley Motors, the world’s leading manufacturer of luxury automobiles, is now in its 70th year in Crewe. Join us in neighbouring Nantwich to make this conference another success in the global automotive engineering calendar.

Kind regards
The organisers

Jonathan Layfield
Head of Vehicle Physics
Bentley Motors Limited, UK

Maria Nikolopoulou
Managing Director
Inresect Limited, UK
Our Sponsors & Exhibitors:

Brüel & Kjær is a world-leading manufacturer and supplier of sound and vibration measurement systems. We help customers measure and manage the quality of sound and vibration in their products and in the environment. Focus areas are aerospace, space, defence, automotive, ground transportation, airport environment, urban environment, telecom and audio.

www.bkvs.com

Silentium is the leading innovator in the field of spatial Broadband Active Noise Reduction (ANR) technology. “Silentium enabled” products substantially reduce noise pollution, by using Silentium’s unique and patented spatial active noise reduction technology.

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http://visionics.com

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www.exa.com

ANSYS develops, markets and supports engineering simulation software used to foresee how product designs will behave and how manufacturing processes will operate in real-world environments. We bring clarity and insight to customers’ most complex design challenges. More than 40,000 customers worldwide use our software from a wide range of industries.

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MSC Software makes products that enable engineers to validate and optimize their designs using virtual prototypes. Customers in almost every part of manufacturing use our software to complement, and in some cases even replace the physical prototype "build and test" process that has traditionally been used in product design.

www.mscsoftware.com/en-uk/product/actran-acoustics

LMS Simulation and Test Solutions from Siemens PLM Software help manufacturing companies manage the complexities of tomorrow’s product development by incorporating model-based mechatronic simulation and advanced testing solutions in the product development process. Our products and services tune into mission-critical engineering attributes, ranging from system dynamics, structural integrity and sound quality to durability, safety and power consumption.

www.siemens.com/plm/lms

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Trelleborg Damping Solutions is part of Trelleborg Group, a global industrial group offering leading-edge expertise in polymer technology combined with advanced industrial know-how regarding functional solutions and systems meeting our customers’ requirements. Trelleborg Damping Solutions is the world leader in the development and production of NVH damping materials used in automotive brake-, and driveline applications.

www.trelleborg.com/rubore

HEAD acoustics Limited has been a leading company in the area of head-related recording and playback systems and aurally-accurate analysis of sound events, as well as in the field of communication measurement technology. In close cooperation with the automotive industry, HEAD acoustics has developed hardware and software solutions for measuring and analysing sound events on the basis of aurally-accurate recording and playback systems, which have become today’s industry standard.

www.head-acoustics.de/eng/index.htm

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www.wsbl.co.uk

Tectonic Elements engineers, manufactures and sells a wide range of exotics (shakers) for audio and NVH applications, based on our patented nXT™ technology. Our products are used in automotive, consumer and industrial applications; replacing conventional audio speakers to provide superior audio reproduction and applying a force at targeted frequencies to reduce noise.

www.TectonicElements.com

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With our strategic marketing campaign ahead of the event we contribute to your brand recognition, positioning you as a dominant supplier through verbal and online means. At the conference we offer you an excellent platform to display your solutions, services and products, network with your target audience and influence other companies’ budgeting.

How? Please contact us for detailed information:
Tel. +44/(0) 161 884 1208, Email info@internect.co.uk
FEATURED EXPERTS:

Chaired by:

Jonathan Layfield
Head of Vehicle Physics,
Bentley Motors Limited, UK

Nigel Hamlyn
Functional Manager - Facilities
Bentley Motors Limited, UK

Per Alenius
Technical Expert, Powertrain NVH & Sound Quality.
Volvo Car Group, Sweden

Volker Willems
Functional Manager - Design Analysis
Bentley Motors Limited, UK

Marco Tarabra
Head of Acoustics
Ferrari S.p.A., Italy

Per-Olof Sturesson
Director, Noise & Vibration Center,
Volvo Car Group, Sweden

Michael Stellamanns
NVH Manager,
Audi AG, Germany

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

David Quinn
Manager, Vehicle Quality Promotion & MQE,
Nissan Technical Centre, UK

Dr. Ing. Conrad Schucht
Specialist Vehicle Acoustics & Vibration (NVH),
Bugatti Engineering GmbH, Germany

Prof. Stephen Elliott
Professor,
ISVR University of Southampton, UK

Francesco Carosone
Senior Acoustic Engineer
Ferrari S.p.A., Italy

Sean Biggs
Principal Technical Specialist (Multi-Body Systems),
Jaguar Land Rover, UK

Dr. Ing. Conrad Schucht
Specialist Vehicle Acoustics & Vibration (NVH),
Bugatti Engineering GmbH, Germany

Per-Olof Berglund
NVH CAE Engineer,
Scania CV AB, Sweden

Andrew Jackson
Function Manager, Powertrain NVH & Acoustic Character
Bentley Motors Limited, UK
CONFERENCE PROGRAMME

Forum Day One / Tuesday, 22 September 2015

**Registration with coffee & tea**

9:30-9:45  Welcome & opening speech by the organisers

9:45-10:15  Powertrain NVH analysis using multi-body systems CAE

10:15-10:45  Interactive session: Internéct at speed

10:45-11:00  Bentley Bentayga powertrain mounting system development. Luxury & performance by design.

11:00-11:30  Refreshment & networking break

11:30-12:00  Powertrain and driveline integration in the all new Volvo XC90

12:00-12:30  Brüel & Kjaer presentation

12:30-13:00  Siemens LMS presentation

**Networking lunch**

13:00-14:20  [Afternoon Session chaired by Nigel Hamlyn]

13:30-14:00  What is the upper frequency limit for active sound control?

14:00-14:30  Wind noise modeling in the mid frequency range using statistical modal energy distribution analysis

14:30-15:00  Exa presentation

15:00-15:30  Interactive Session- Team debate with Q&As

15:30-16:00  Refreshment & networking break

16:00-16:30  Auralisation of truck cabin noise

16:30-17:00  Interactive Session- Team debate with Q&As

17:00-17:40  Closing remarks by the organisers and surprise lottery

17:40-19:10  Evening Workshops: Led by the Workshop leader, the aim of this session is to offer you the chance to interact with your peers, raise questions, share views and opinions in a targeted participant field.

**Networking lunch**

13:00-14:20  Networking lunch

13:30-14:00  What is the upper frequency limit for active sound control?

14:00-14:30  Wind noise modeling in the mid frequency range using statistical modal energy distribution analysis

**Refreshment & networking break**

15:30-16:00  Refreshment & networking break

16:00-16:30  Auralisation of truck cabin noise

16:30-17:00  Interactive Session- Team debate with Q&As

17:00-17:40  Closing remarks by the organisers and surprise lottery

17:40-19:10  Evening Workshops: Led by the Workshop leader, the aim of this session is to offer you the chance to interact with your peers, raise questions, share views and opinions in a targeted participant field.

**Refreshment & networking break**

15:30-16:00  Refreshment & networking break

16:00-16:30  Auralisation of truck cabin noise

16:30-17:00  Interactive Session- Team debate with Q&As

17:00-17:40  Closing remarks by the organisers and surprise lottery

17:40-19:10  Evening Workshops: Led by the Workshop leader, the aim of this session is to offer you the chance to interact with your peers, raise questions, share views and opinions in a targeted participant field.

18:00  Dinner and evening event

Enjoy our evening get-together with your colleagues in a relaxed atmosphere with live music entertainment, dinner and drinks.
Forum Day Two / Wednesday, 23 September 2015

8:45-9:15 Registration with coffee & tea

9:15-9:30 Opening address by conference chairperson

Jonathan Layfield
Head of Vehicle Physics, Bentley Motors Limited, UK

[Morning session chaired by Marco Ballatore]

Marco Ballatore
Functional Manager - Chassis NVH
Bentley Motors Limited, UK

9:30-10:00 Electric drive – the best acoustic challenge

Christoph Meier
Senior Manager NVH-Powertrain, Daimler AG, Germany

- Motivation for electric drive
- Special NVH-challenges of electric vehicles
- Comparison of combustion engines and electric motors
- E-motor design concepts and noise characteristics
- Advantages and future of electric drive

10:00-10:10 ALTAIR presentation

10:10-10:30 ANSYS presentation

10:20-10:50 Smart managing of the NVH transition from EV mode to hybrid mode

Michael Stellamanns
NVH, Audi AG, Germany

- Differing operating modes of E vehicles compared to conventional vehicles
- Customer expectations and problems seen during EV modes
- Sound and vibration management strategies during EV modes
- Discussion of NVH example solutions on range extender vehicles
- Discussion of NVH example solutions on PHEV

10:30-11:00 Visiomics presentation

11:00-11:30 Refreshment & networking break

11:30-12:00 Quiet vehicles and use of synthetic sounds for pedestrian alert

David Quinn
Manager, Vehicle Quality Promotion & MQE, Nissan Technical Centre, UK

- Vehicle sounds and the requirements of visually impaired pedestrians
- Minimising the Impact on environmental noise pollution
- Intelligent alert systems
- Final results of EU funded eVADER alert system solution

12:00-12:10 Müller-BBM presentation

12:10-12:40 Ferrari sound design

Francesco Carosone
Senior Acoustic Engineer, Ferrari S.p.A., Italy

- Acoustics in Ferrari (calculations, simulations, measurements)
- Intake and exhaust sound, vehicle cavity modes
- Sound attributes and part design
- Challenges of present and future

12:40-13:10 Psychoacoustic effects of material touch sounds on perception of interior surfaces

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

- Sounds generated by touching interior surfaces
- Influence of touch sounds on perceived quality
- Measurement of touch sounds
- Subjective assessment
- Cross-Sensory interaction with visual and tactile perception

13:10-14:40 Networking lunch

Afternoon Session chaired by Jonathan Layfield

Jonathan Layfield
Head of Vehicle Physics, Bentley Motors Limited, UK

14:40-15:10 Interactive Session - panel discussion:
Delivering a brand; how do we define success in NVH - innovation and core brand values

Marco Tarabra
Head of Acoustics
Ferrari S.p.A., Italy

Brendan Hirst
NVH Manager, Aston Martin Lagonda, UK

- What is more important; enhanced good character states or elimination of error states. Perhaps we are after the holy grail – both
- Balance of refinement and sporty sound
- Technology development and brand specifics
- How should we balance NVH and weight targets? Or with the advancement of modern development techniques, are these no longer mutually exclusive attributes
- Given the reaction toward F1, what are the future prospects for pressure charged exhaust sound character
- How do we define success in NVH
- Acoustic performance as a selling feature
- Legislative limits vs. fun to drive

15:10-15:40 Isolation of engine, gearbox and suspension mounts

Dr. Ing. Conrad Schucht
Specialist Vehicle Acoustics & Vibration (NVH), Bugatti Engineering GmbH, Germany

- Acoustic isolation of engine mounts
- Frequency range of interest
- Influence of support and Common practice

15:40-16:00 Closing remarks by the organisers

Maria Nikolopoulou
Managing Director
Internect Limited, UK

Jonathan Layfield
Head of Vehicle Physics, Bentley Motors Limited, UK

16:00-16:30 Refreshment & networking break

16:30-18:00 Evening Workshops: Led by the Workshop leader, the aim of this session is to offer you the chance to interact with your peers, raise questions, share views and opinions in a targeted participant field.

Workshop C:
Acoustics and vibration for hybrid and electric drives

Christoph Meier
Senior Manager NVH-Powertrain, Daimler AG, Germany

Workshop D:
Sound branding and marketing aspect of NVH

Brendan Hirst
NVH Manager, Aston Martin Lagonda, UK

19:00-21:00 Drinks and canapé reception to be held at Bentley

Drinks and canapé reception to be held at Bentley Motors, where you will be able to take part in a number of interactive sessions.
Delegate participation packages
Please select one of the following:

<table>
<thead>
<tr>
<th>Conference Packages</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premium Package (2-day conference + 2 workshops)</td>
<td>£600 + VAT</td>
</tr>
<tr>
<td>Upgraded Package (2-day conference + 1 workshop)</td>
<td>£570 + VAT</td>
</tr>
<tr>
<td>Basic Package (2-day conference)</td>
<td>£500 + VAT</td>
</tr>
</tbody>
</table>

Dinner on the 22/9/2015 (Price £100 + VAT) □ Yes □ No
(Formal evening dinner including drinks and live music entertainment on the 22nd September as an evening get-together)

Please choose evening workshop on 22 and 23 September 2015:
22/9/2015: □ Workshop A: Passive NVH solutions versus active sound technologies
22/9/2015: □ Workshop B: Innovative technologies to enhance the acoustic experience
23/9/2015: □ Workshop C: Acoustics and vibration for hybrid and electric drives
23/9/2015: □ Workshop D: Sound branding and marketing aspect of NVH

NOTE: Workshops A and B on the 22 September as well as C and D on the 23 September run simultaneously

Delegate Details:
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