

ACOUSTICS 2018

ACWSTEG 2018

23-24 APRIL 2018, CITY HALL, CARDIFF



ROOM 1

09:45 Welcome by Prof Barry Gibbs, President-Elect, Institute of Acoustics,

09:50 Introduction to the benefits of the UK Acoustic Network
Prof Kirill Horoshenkov, University of Sheffield

ENVIRONMENTAL NOISE

Chair: David Waddington

10:00 The well-being of future generations (Wales) Act 2015
Martin McVay, Joanne Smith, Welsh Government

10:30 Updating the synergies and conflicts between air quality and noise action planning
Nigel Jones, Matthew Burdett, Extrium; Simon Shilton, Acustica; Richard Maggs, Bureau, Veritas

11:00 The future of strategic noise mapping-intelligent design to support intelligent policy
Nigel Jones, Matthew Burdett, Extrium

11:30 Refreshments

12:00 Rayleigh Medal Lecture

13:00 Lunch

13:45 Environmental Noise Group AGM

Chair: Steve Mitchell

14:00 BS4142 and context and case studies
Jon Tofts, Environment Agency

14:30 Perceptual testing of BS4142:2014 character corrections
Rahiel Ghani, David Waddington, University of Salford

15:00 Evaluation of the subjective method in BS4142:2014 for noise characteristics
Shanti Wisniewska, Jacobs

15:30 Refreshments

Chair: David Waddington

16:00 A step-by-step guide to evaluating the prominence of impulsive sounds from an audio recording
Naomi Tansey, Arup; Matt Torjussen, noise.co.uk

16:30 Using planning conditions to improve indoor environmental quality (IEQ) of new residential developments
Nick Conlan, Jack Harvie-Clark, Apex Acoustics

17:00 ANC Acoustics, Ventilation and Overheating Guide
Anthony Chilton, Max Fordham; Jack Harvie-Clark, Apex Acoustics, James Healey, WSP

17:30 Close

18:00 IOA Young Members Group invite all Young Members and Students to attend their Reception

19:00 Drinks Reception

19:30 Conference Dinner

ROOM 2

NOISE AND VIBRATION ENGINEERING

Chair: Nathan Thomas

10:00 Life cycle evaluations of railway turnout crossings impact attenuation methods using soft fasteners and composite sleepers
Sakdirat Kaewunruen, Matthew Sechet, University of Birmingham

10:30 An investigation into noise reductions following a rail grinding campaign on Dublin's light rail system
Stephen Byrne, Transport Infrastructure Ireland

11:00 Assessing the vibro-acoustic radiation characteristics of a compact consumer appliance
Daniel Taylor, Dyson

11:30 Refreshments

12:00 Rayleigh Medal Lecture (in Room 1)

13:00 Lunch

13:45 Noise and Vibration Engineering Group AGM

Chair: Malcolm Smith

14:00 Substructuring approach and blocked forces method: application for structure-borne vibration prediction in heavy weight assemblies
Diego Miguez, O Farrel, I M Bannister, Ryan Arbabi, Farrat Isolevel; Andy T Moorhouse, Andrew S Elliott, University of Salford

14:30 Vibration isolation performance for industrial metal forming presses
Chad N Himmel, JEAcoustics, USA

15:00 Challenges in monitoring construction noise in live Royal Opera House during open up project
Peter Henson, Tomasz Galikowski, Bickerdike Allen Partners

15:30 Refreshments

Chair: Nathan Thomas

16:00 Comparison of vibration prediction method results and vibration measurements from underground mining
Graham Parry, Angela Lamacraft, Accon UK

16:30 Industrial applications of acoustic metamaterials
Nicolas Etaix, Dyson

17:00 Gymnasium and fitness flooring research
James Bligh, Pliteq

17:30 Close

ROOM 3

PHYSICAL ACOUSTICS

Chair: Mike Swanwick

10:00 Acoustic metamaterials for low frequency industrial applications

Daniel Elford, Luke Chalmers, Richard D Wilson, Karol Bugaj, Sonobex Limited

10:30 Influence of flare variation on the low frequency sound absorption of mufflers based on the "acoustic black hole effect"

Neha Sharma, Olga Umnova, Andy Moorhouse, University of Salford

11:00 Interaction of high amplitude waves with acoustic metamaterials

Daniel Brooke, Olga Umnova, Andrew S Elliott, University of Salford; Philippe Leclaire, Thomas Dupont, University of Burgundy, France

11:30 Refreshments

12:00 Rayleigh Medal Lecture (in Room 1)

13:00 Lunch

13:45 Physical Acoustics Group AGM

Chair: Mike Swanwick

14:00 Development of an optimal array of sensors for the reconstruction of a rigid rough surface based on scattered ultrasound

Giulio Dolcetti, Universite du Maine, France; Anton Krynkin, University of Sheffield

14:30 Approximation to wave propagation through periodic array in poro-elastic medium

Anton Krynkin, Jean-Philippe Groby, University of Sheffield

15:00 Acoustic emission spectra associated with the formation of brittle cracks

Victor Krylov, Loughborough University

15:30 Refreshments

Chair: Mike Swanwick

16:00 Tailored acoustic filtering and absorption using compound rigid gratings

Tim Starkey, J G Beadle, G P Ward, J D Smith, J R Samble, A P Hibbins, Exeter University

16:30 Influence of activation processes on the activated carbon felts microstructure and impact on the acoustic performances

Hugo Karpinski, Olga Umnova, J A Hargreaves, R Venegas Castillo, M A Nahil, C S Lehmann Fernandez, University of Salford

17:00 What is the actual influence of a nano-fibrous membrane on the acoustical property of porous substrate?

Kirill V Horoshenkov, Alistair Hurrell, University of Sheffield; Michael Pelegrinis, John Cotton Group Ltd

17:30 Close

ROOM 1

BUILDING ACOUSTICS

Chair: James Healey

09:00 Audio demonstration of how our ears are more sensitive to changes in low frequency noise, and of how lightweight constructions can perform well at low frequencies

Roger Kelly, CDM-UK

09:30 Engineering of fitness centre floors on structural slabs with a fundamental frequency <10Hz

Matthew Harrison, Buro Happold Engineering

10:00 Overview of the sound insulation design of the Royal Birmingham Conservatoire

Michael Whitcroft, Hoare Lea Acoustics

10:30 The impact of classroom noise on reading comprehension of secondary school pupils

Bridget Shield, Julie Dockrell, Daniel Connolly, Trevor Cox, Robert Conetta, Charlie Mydlarz, London Southbank University

11:00 Refreshments

Chair: Roger Kelly

11:30 Acoustic quality of open office spaces

Andrew Parkin, Cundall

12:00 Towards the acoustical characterisation of an intensive care unit

Deborah Dawson, St Georges University Hospital; Richard Barham, Acoustic Sensor Networks; B Philips, St Georges University Hospital

12:30 Confidence in room acoustic design: an empirical approach

Jack Harvie-Clark, Apex Acoustics

13:00 Setting the tone for the visit: the use of soundscapes in museum foyers for increasing visitor engagement

Angus Deuchars, Arup

13:30 Building Acoustics Group AGM

13:45 Lunch

WIND FARM NOISE

Chair: Gavin Irvine

14:30 Wind turbine noise amplitude modulation penalty considerations

Malcolm Hayes, Hayes McKenzie Partnership; Gavin Irvine, Ion Acoustics; Matthew Cand, Hoare Lea Acoustics; Dick Bowdler, Consultant

15:00 Site experience with wind turbine noise AM analysis

Matthew Cand, Hoare Lea; Malcolm Hayes, Tom Levet, Hayes McKenzie Partnership; Gavin Irvine, Ion Acoustics

15:30 A short history of the dangers of infrasound

Dick Bowdler, Consultant

16:00 Revision of the German recommendation (LAI-Notes) for the application of ISO9613-2 in sound propagation calculations of wind farm noise following recent measurement of wind turbines at varying distances

Sylvia Broneske, Krispian Lowe, Innogy Renewables UK; Sabine Schulz, UL DEWI, Germany; Krispian Lowe, Innogy Renewables UK

16:30 Close and Refreshments

ROOM 2

INSTRUMENTATION CORNER LIVE

Chair: James Tingay

This morning session is prepared and presented by members of the Measurement and Instrumentation Group Committee and will bring to life many issues specific to instrumentation and its use. As many of the presenters are instrumentation experts, they have found collectively that there are several recurring problems faced by acousticians often caused by limitations of the technology that might not be fully understood!

- 09:00 Standards
James Tingay, Cirrus Research
- 09:30 Measurements Range/Dynamic Range
Simon Bull, Castle Group
- 10:00 Audio Recording and Analysis
Mark Dowie, Bruel & Kjaer UK
- 10:30 Ln's (broadband and frequency bands)
Simon Bull, Castle Group

11:00 Refreshments

Chair: Simon Bull

- 11:30 Calibration
Ian Campbell, Campbell Associates
- 12:00 Windshields
John Shelton, AcSoft
- 12:30 App-based measurements
James Tingay, Cirrus Research
- 13:00 Geophone/Accelerometers
John Shelton, AcSoft

13:45 Lunch

Chair: John Shelton

- 14:30 A new modular design concept for acoustic arrays
John Campbell, Campbell Associates
- 15:00 Thermal acoustic testing of HVAC products
Rebecca Hogg, BSRIA
- 15:30 VDV relevance to train vibration
Jorge DeAvillez, James Healey, WSP

16:00 Close and Refreshments

ROOM 3

MUSICAL ACOUSTICS

Chair: Michael Wright

- 09:00 Vibro-electric transfer path analysis of a solid body electric guitar
Andrew Elliott, University of Salford; Jonathan Magill, Marshall Amplification; Paul Kendrick, University of Salford
- 09:30 Exploring the bow-string interaction using a high speed camera
Lara Diaz Garcia, Michael Newton, Murray Campbell, University of Edinburgh
- 10:00 The effects of centrifugal blowers and reservoir resonance on organ pipe flutter
Alan Taylor, University of Salford
- 10:30 Perceptual investigations of acoustic and digitally emulated violins based on controlled listening studies
Thomas Lloyd, Patrick Gaydecki, J Ginsborg, C Yates and H Johannsson, University of Manchester

11:00 Refreshments

SPEECH AND HEARING

Chair: Gordon Hunter

- 11:30 The impact of hearing loss on physical health and cognition
Bridget Shield, London Southbank University
- 12:00 Singing and Loudness: A pilot study at the Royal Opera House
Stephen Dance, John Bernays, Samantha Liu, London South Bank University
- 12:30 Workplace noise, hearing protection and HSE's approach on risk reduction
Chris Steel, Tao Wu, Health & Safety Executive
- 13:00 Enhancing automatic speech recognition for mathematical applications via incremental parsing
Gordon Hunter, Marina Isaac, Eckhard Pflugel, James Denholm-Price, Kingston University

13:30 Lunch

16:30 Close and Refreshments

POSTERS

Measurements of hockey ball hitting backboards covered by different materials

Weigang Wei, Adam Cooks, Apex Acoustics

Lateral vibrations of curved railway tracks to transient excitations

Sakdirat Kaewunruen, Chayut Ngamkhanong, Xin Liu, University of Birmingham

Progress in Platforms for Real-Time Emulation of the Acoustic Violin

Patrick Gaydecki, Sheheera Ismail, Thomas Lloyd; University of Manchester

Real-time prediction of structure borne noise using in-situ transfer path analysis

Lucy Barton, Andrew Elliott, Andy Moorhouse, University of Salford; John Smith, DSTL

Active cancellation and enhancement of noise with two identical ducts using an Arduino Due

Jayjun Lee, NLCS, South Korea

Assessment of ground borne vibration from underground train on proposed residential development

Luis Gomez-Augustina, Jerry Rees, London South Bank University